



TOWN OF HILLSBOROUGH

# COMPREHENSIVE SUSTAINABILITY PLAN (2030)

*Guiding Hillsborough's Future*



ADOPTED JUNE 12, 2023









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*Special thanks to the Town staff, community members, and partners that contributed to the development of this Comprehensive Sustainability Plan to guide Hillsborough's future.*



# Executive Summary

## What is a Comprehensive Sustainability Plan, and what does it entail?

Sustainability is defined by the World Commission on Environment and Development as meeting the needs of the present without compromising the ability of future generations to meet their own needs. With this charge in mind, the Town of Hillsborough began preparing its Comprehensive Sustainability Plan in the Spring of 2021. Municipalities are required to create and maintain a comprehensive plan according to North Carolina General Statute 160D-50 (a1). The statute establishes that a comprehensive plan should include “goals, policies, and programs intended to guide the present and future physical, social and economic development of the jurisdiction”. As such, this plan establishes a collective vision for the future of Hillsborough to accurately inform decision-making for long-term social, environmental, economic, and infrastructure development.

This plan assesses the current conditions in the town and puts forth goals, strategies, and actions to guide the town toward a sustainable future. The plan is centered around eight focus areas, each with their own dedicated chapter, as detailed below. Each chapter contains themes surrounding equity, affordability, safety, connectivity, and health, as well as specific strategies and actions.



**Town Government & Public Services:** covers the roles of government and services provided by the town, as well as revenue streams and agency partnerships.



**Land Use & Development:** promotes sustainable, progressive principles for the development of land in Hillsborough to manage growth pressures and maintain a prosperous town with strong sense of place.



**Environment & Natural Systems:** outlines plan for the continued stewardship of Hillsborough’s natural resources to promote the community’s overall health and function.



**Transportation & Connectivity:** details existing transportation infrastructure and needs, as well as proposed improvements in access and mobility.



**Social Systems & Public Space:** explores ideas for arts and culture events and installations in the town’s public spaces, as well as opportunities for community gathering and placemaking.



**Housing & Affordability:** highlights opportunities to increase Hillsborough’s supply of housing to promote stability in the community.



**Economic Systems & Tourism:** incorporates sustainability values into economic development strategies to ensure the resilience of the business community and illustrates various development and tourism opportunities.



**Climate & Energy:** covers climate impacts and conservation needs, including the town’s clean energy resolution and a three-pronged sustainability approach including social equity, ecological responsibility, and economic efficiency.



## What is involved in the creation of a Comprehensive Plan?

The process of drafting the plan involved three distinct phases:



The first phase of the plan is dedicated to identifying issues and opportunities in Hillsborough. This phase entailed a review of current and past planning documents, community engagement, and in-depth data analysis. The findings from the research are summarized by a summary of baseline conditions in each chapter. The second phase involved using the baseline conditions and community feedback to determine the appropriate goals and strategies for development. Finally, the third phase involved the creation of

an implementation and accountability plan, which detailed the actions necessary to achieve the goals set forth in the plan. The implementation plan identifies who will lead the actions, who will partner with the leads, and whether the action is short, medium, or long-range. Phase three includes review and adoption, which involves providing a draft of the plan for public comment and then revising the plan based on feedback. The plan will be presented to the Hillsborough Board of Commissioners for adoption.

## How was the community engaged during the planning process?

Public engagement took many forms throughout the development of the plan, including forums, a visioning survey, focus group meetings, board meetings, public comment period on the draft plan, participation at community events, and a project website. The planning efforts were introduced to the community through an online survey and a virtual public workshop in May of 2021. The surveys, available in both English and Spanish allowed for a wider range of community members to participate and share their feedback.

The town staff from all departments including Administrative Services, Community Services, Financial Services, Police, and Utilities were engaged in the planning process. The town also facilitated focus groups in Spring 2022, each consisting of approximately 12 members and covering a specific topic such as land use, housing, tourism,

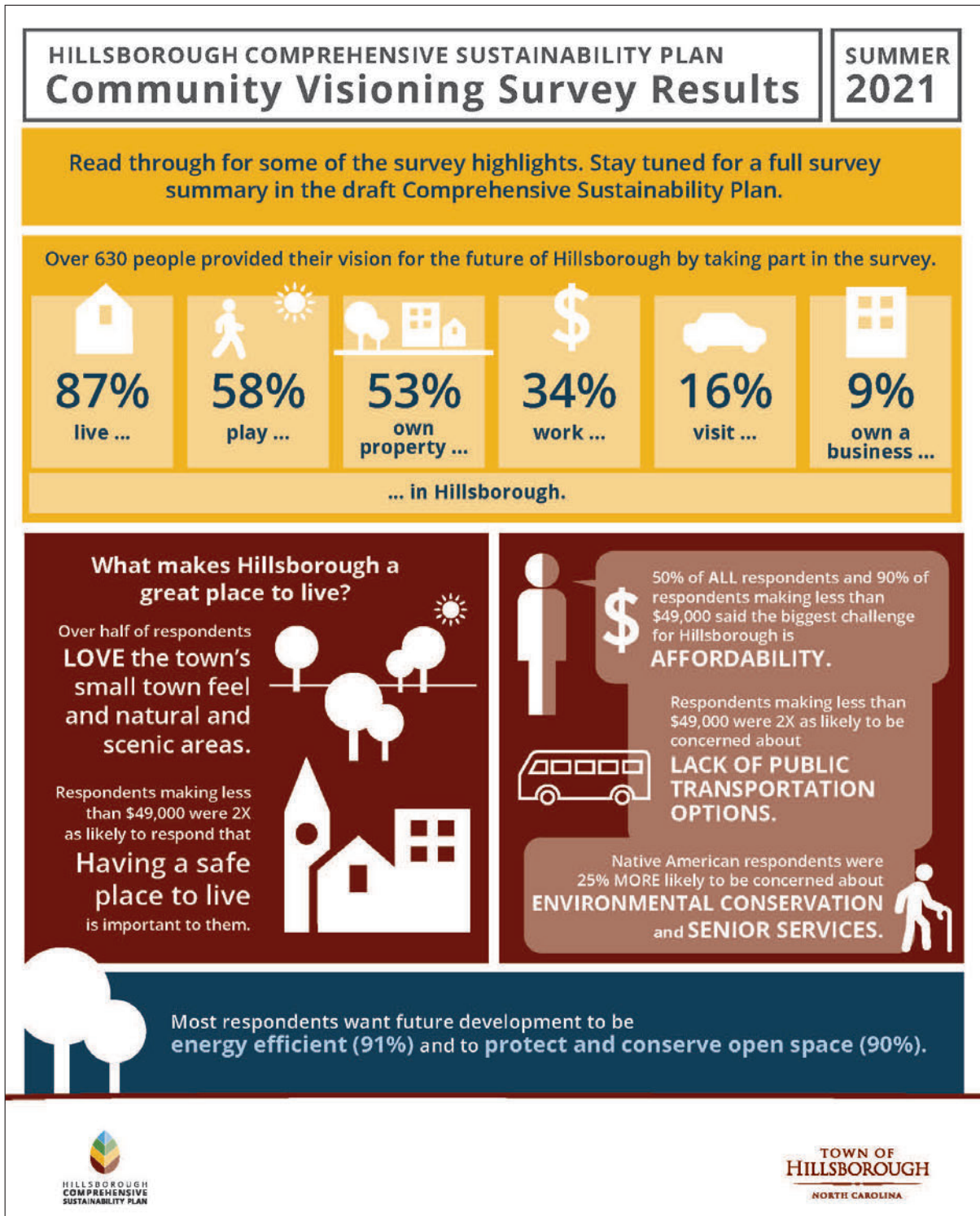
economic development, or transportation. The members of the focus groups included residents, town staff, industry experts, and regional partners. Collaboration with staff from Orange County, Triangle Council of Government, Durham-Chapel Hill-Carrboro Metropolitan Planning Organization, and North Carolina Sustainable Energy Association also occurred.

Efforts included presentations to various boards on the progress of the project, as well as a public comment period on the completed draft of the plan. The Town Board, Parks and Recreation Board, Planning Board, Tourism Board, and Tree Board made significant contributions.

Equity and inclusion were the central values leading the public engagement process, as the town sought to include a diverse group of community

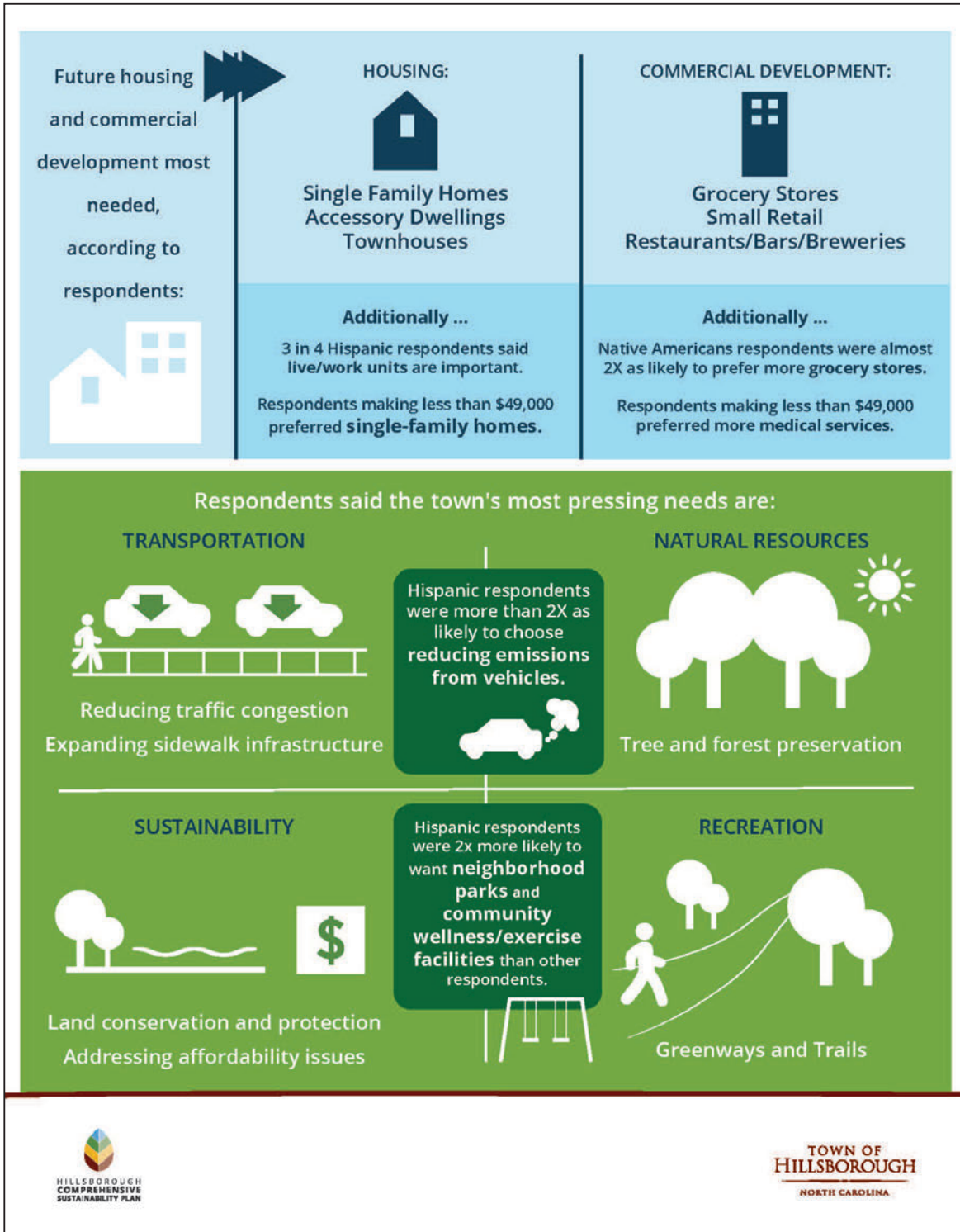


members in every engagement phase. The town utilized its network of community contacts, which included community liaisons, government and non-profit partners, and neighborhood associations to facilitate broad outreach for diverse and representative perspectives and to assure that anyone who wanted to participate was able to do so. The Communications Division utilized various tools such as newsletters, press releases, social media, online surveys in English and Spanish, videos, and local media to disseminate information and receive feedback.



Summary of 2021 Hillsborough Survey Results













# Introduction — Planning for Hillsborough's Future

## What is a Comprehensive Sustainability Plan?

A comprehensive plan is a document that provides a basis for decision-making regarding the long-term physical development of a town. Comprehensive plans are required and are defined in North Carolina General Statute 160D-50 (a1) which calls for every municipality to develop a comprehensive plan that “sets forth goals, policies, and programs intended to guide the present and future physical, social, and economic development of the jurisdiction.” Comprehensive plans often address more than just development and infrastructure — they also consider the important social, environmental, and economic goals of a community.





## Planning vs. Zoning

Plans are policy guides that establish a vision for the future, reflecting community expectations. Plans provide a foundation for zoning and other land regulations.

Zoning establishes rules to be followed as property is developed or redeveloped. Zoning is a regulatory framework. A Unified Development Ordinance documents jurisdictional zoning. A Unified Development Ordinance is a local policy and regulatory instrument which combines traditional zoning and subdivision regulations with other land use standards into a single document.

Hillsborough's comprehensive plan assesses existing community assets and resources, considers current trending and projected future conditions, and puts forth goals, strategies, and actions to achieve a sustainable future. The Comprehensive Sustainability Plan works in coordination with other town regulatory documents and plans such as the Strategic Plan, the Unified Development Ordinance, utilities plans, and parks master plans. Sustainability means fulfilling the needs of current generations without compromising the needs of future generations while ensuring a balance between economic growth, environmental care, and social well-being. Sustainability is the lens through which goals, strategies, and actions were evaluated for this plan. The Comprehensive Sustainability Plan is a guide for town policymakers and staff as well as a tool for residents to understand and help achieve Hillsborough's intended future.

A comprehensive sustainability plan works in coordination with:

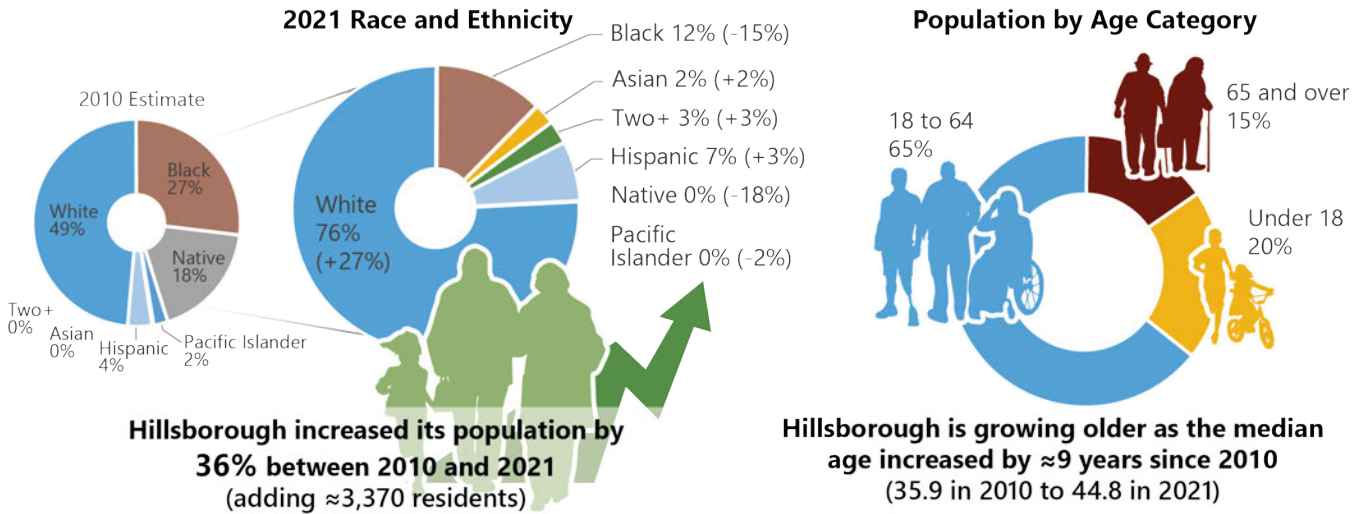
- Unified Development Ordinance
- Land use regulations
- Utilities plans
- Strategic Plan
- Policies and practices
- Capital improvement program and budget documents

## Hillsborough — Growth

Located on the Eno River in Orange County, Hillsborough is situated within one of the fastest growing corridors in North Carolina. The state is experiencing strong growth, with current growth exceeding the average annual growth rate of the previous decade primarily due to new residents moving to the state.

***Between July 2021 and July 2022, North Carolina's population grew by 1.3% (an increase from the 1.0% average annual change from 2010 to 2020).***

Orange County grew by 11.1% between 2010 and 2019, with the largest annual population increase of 3.1% from 2017 to 2018. The county is situated within the quickly growing Triangle region. Nearby Wake and Durham counties are growing at a higher rate than Orange County.



Source: U.S. Census, American Community Survey 5-Year Estimates

Hillsborough has experienced growth similar to the Triangle counties over the last decade. The current population of the town is estimated at over 10,000 people, increasing from 9,600 people in 2020. The town is currently the fastest growing municipality in Orange County, with a current annual growth rate of 3.4%.

The region, including Hillsborough, is expected to continue experiencing growth, as new residents and businesses move to the area. These growth pressures must be addressed through growth management strategies. Some of these pressures include:

- › Increasing demand for services
- › Rising housing costs and lack of availability
- › Loss and degradation of natural resources
- › Traffic congestion and lack of mobility
- › Gentrification and displacement
- › Rising cost of living
- › Inequity
- › Loss of Community

**How do we:**

- Preserve the unique assets?
- Grow within the infrastructure limits?
- Maintain the small-town quality of life?
- Provide accessible connectivity?
- Ensure safety and affordability?
- Support local businesses and a strong economy?
- Sustain and improve the environment?

Growth is not only new development but also infill and redevelopment. Growth management is a systematic process that a community uses to guide the timing and location of land development in an orderly manner.

With the town's expected growth and the wealth of cultural, natural, and social resources, planning for the town's future is critically important. Over the last few decades, the town experienced a significant growth period. The growth rate is expected to slow in the future based on constraints such as water and sewer capacity, but some growth will continue. The Comprehensive Sustainability Plan is a mechanism to guide growth and development to meet the town's goals for a sustainable future.





## A Brief Look Back

The Town of Hillsborough was established in 1754 as the seat of Orange County, located where the Great Indian Trading Path crosses the Eno River. However, the area was inhabited by the Occaneechi as early as the 1600s. Several village sites of the Occaneechi existed near what is now downtown Hillsborough.<sup>1</sup> Excavation of a village along the Eno River uncovered the remains of twelve houses, or "ati," surrounded by a central square and sweat lodge and numerous artifacts of daily activities and trade. Evidence was discovered of a cemetery located outside of the community. The Occaneechi were integral to the fur trade between Virginians and various Piedmont tribes during the 1660s and 1670s.

In Colonial times, the town ranked among the region's principal towns as it gained administrative roles, including hosting the state's Constitutional Convention of 1788, in which the Bill of Rights was called to be added to the Constitution, and holding five General Assemblies from 1778 to 1784. The town's influence and central location was well-suited for major political events surrounding the Revolution and early statehood. Hillsborough remained a political and cultural center in the nineteenth century. Enslaved and freed Black people were part of the early history and helped build the town. The town had a large population of freed Black people that created their own communities within the town. Much of this history has been overlooked, but there is continued effort to highlight this important contribution to the town.

In the mid-1800s the railroad brought new industry to town and sparked commercial activity, yet the population of the town remained small. Hillsborough continued to be a political and cultural center for the state through the 1900s. Textiles were an important foundation of the town, with several steam-powered cotton mills in operation by the early 1900s. A mill village west of downtown was annexed in the 1970s.

Hillsborough's rich history is still present downtown through its significant architectural buildings, preserved through the Hillsborough Historic District, the first historic district in North Carolina on the National Register of Historic Places (established in 1973). The town's historic district includes more than 100 late 18th and early 19th century buildings, several of which are open to the public, including the Town Hall built in 1810. There are also numerous 20th and 21st century architectural styles that contribute to the character of the town. More residential subdivisions began to develop as growth continued. Hillsborough's character today is built from this mixture of development over time.



*Downtown Hillsborough. Source: The Alliance for Historic Hillsborough*

<sup>1</sup> The tribe organized under the name Occaneechi Band of the Saponi Nation in the late 1900s, and North Carolina formally recognized the tribe in 2002.



## Why a Comprehensive Sustainability Plan for Hillsborough?

The ecosystem includes all living organisms, including humans, and the systems of the physical environment, such as air, water, and soil. To ensure a sustainable community, it is important to understand the interconnectedness of the systems, such as how energy, water and wastewater, waste management, air quality, and mobility relate and are interdependent. When the links between systems and living beings are strong and healthy, communities thrive.

*There are numerous definitions for sustainability and resilience, but the core principle is to “meet the needs of the present without compromising the ability of future generations to meet their own needs.”* — WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT

Hillsborough has the responsibility to address current challenges and grow in a way that serves both the existing and future generations. Preparing a comprehensive plan where sustainability is the foundation of goals and actions ensures that the plan addresses environmental, cultural, social, and economic dimensions of the town in an interconnected manner. The plan addresses the town systems, as demonstrated below in *Figure 1.1*, in an interwoven way that not only improves existing conditions but also focuses on the future of the town.



*Volunteers assisting with the Cates Creek Expansion.  
Source: Town of Hillsborough*





**Figure 1.1.** Focus Areas of the Comprehensive Sustainability Plan







Sustainable growth requires smart and strategic land use decisions that prioritize growth in specific areas and provide options for the full community. Smart growth principles are used to create strategies throughout the plan for a sustainable Hillsborough, creating a more economically prosperous, socially equitable, and sustainable community. The smart growth approach encourages a mix of building types and uses, diverse housing and transportation options, development within existing neighborhoods, and robust engagement, focusing on the interconnectedness between economic, social, and environmental elements and the town.

*Everyone in America — no matter their age, ability, income, or race — deserves the option to live somewhere affordable, convenient, beautiful, and safe.* — SMART GROWTH AMERICA

The global climate crisis is causing rising temperatures, environmental degradation, natural disasters, weather extremes, food and water insecurity, economic disruptions, resource scarcity and conflicts. The Town of Hillsborough is committed to reducing its energy use and greenhouse gas emissions. In 2017, the town adopted a resolution to acknowledge the threat of the climate crisis, the contributing role of humans, and the harmful consequences of climate change, especially on low-income neighborhoods and communities. In the resolution, the Board of Commissioners endorsed the transition from fossil fuel-powered operations to 100% clean and renewable energy by 2050, and 80% clean and renewable energy by 2030 for town operations. Some of the best practices presented in this plan offer smaller or incremental actions and policies that can be made to achieve sustainability and environmental goals while also increasing awareness about the climate crisis.

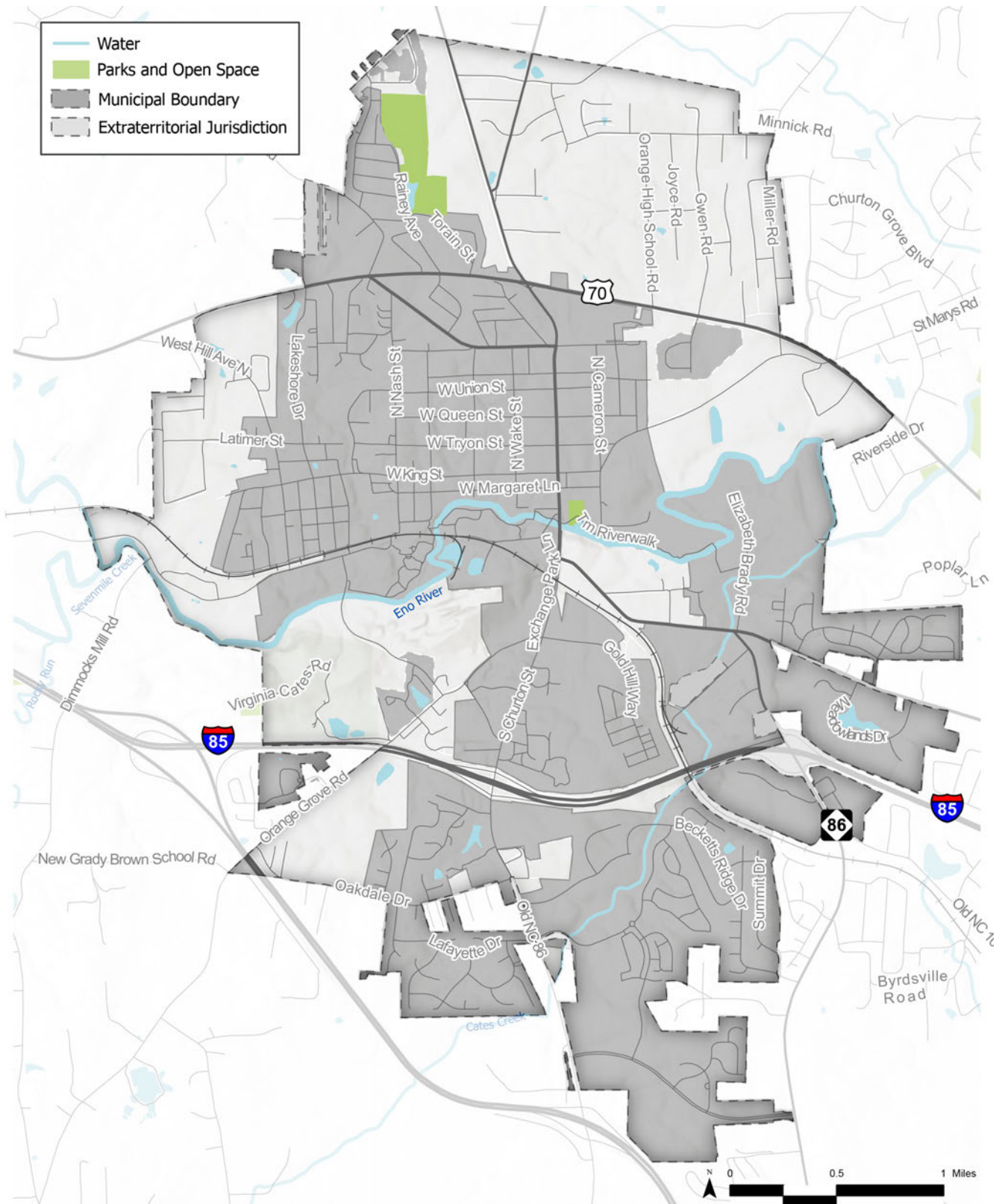
The Comprehensive Sustainability Plan will guide future plans and development and the transition to clean energy, balancing environmental stewardship, resiliency, and racial justice with smart, strategic growth that will allow for a thriving economy and high quality of life for the residents of Hillsborough. One purpose of this plan is to guide a shift in the organizational mindset toward sustainability and climate-friendly practices in general.

## Planning Area

The planning area included in this plan is Hillsborough's town limits and the extraterritorial jurisdiction, as illustrated in *Figure 1.2*). The extraterritorial jurisdiction is the area around the town limits where Hillsborough has jurisdiction to regulate development and land use. This area may be expanded or reduced over time through law or agreement. Hillsborough also has water and sewer service areas which play a critical role in future growth decisions. This plan considers the town limits, extraterritorial jurisdiction, and service areas in recommending policies and actions for the town.



**Figure 1.2.** Town Limits and Extraterritorial Jurisdiction







## Vision and Values

The Hillsborough Comprehensive Sustainability Plan was shaped from the significant planning efforts the town has completed to date and moves the town toward its goals for the future. The town has a vision to be prosperous, foster a strong sense of community, and celebrate its unique character. The town also has several values to direct behaviors in working towards the vision as captured in the town's Strategy Map, as detailed in *Figure 1.3*.

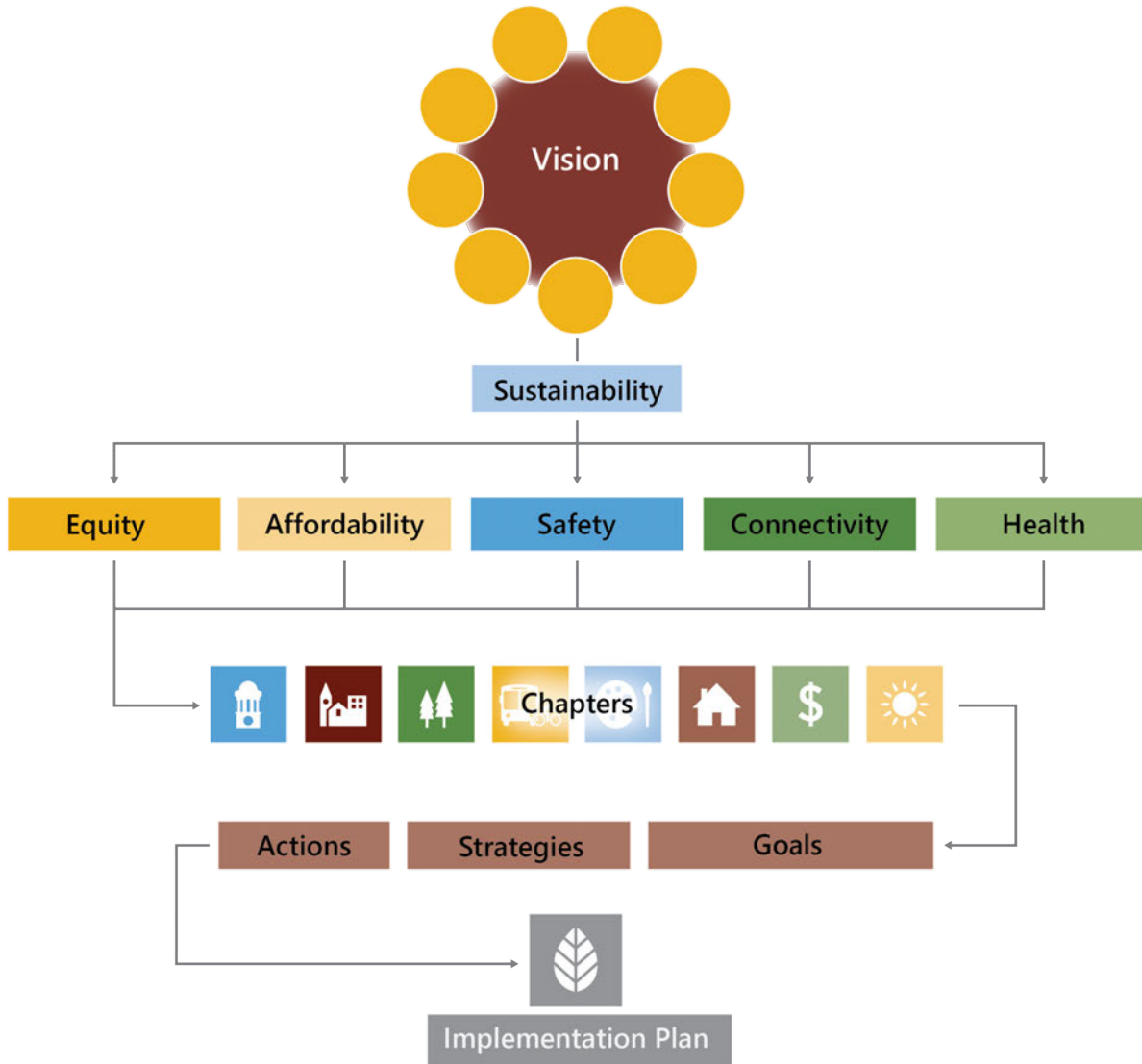
**Figure 1.3.** Hillsborough's Vision and Values





This plan sets forth goals, strategies, and actions to guide town decisions for reaching this vision in a sustainable manner. As demonstrated in *Figure 1.4*, this plan addresses not only physical development in the town but also economic health, community connectivity, equity, public health, safety, and energy use. The themes encompass the town values and are interwoven throughout all the chapters of this plan, as they are vital to building a sustainable Hillsborough (see *Figure 1.4*). The combination of sustainability principles and themes throughout the plan guide the goals, strategies, and actions to implement the town's vision.

**Figure 1.4.** Sustainability Lens for Implementing the Town's Vision



The town government and staff will be responsible for leading the implementation of the strategies and actions identified to meet the goals of this plan. Understanding the complex systems within the town and how the elements are interconnected is critical for serving the entire community.





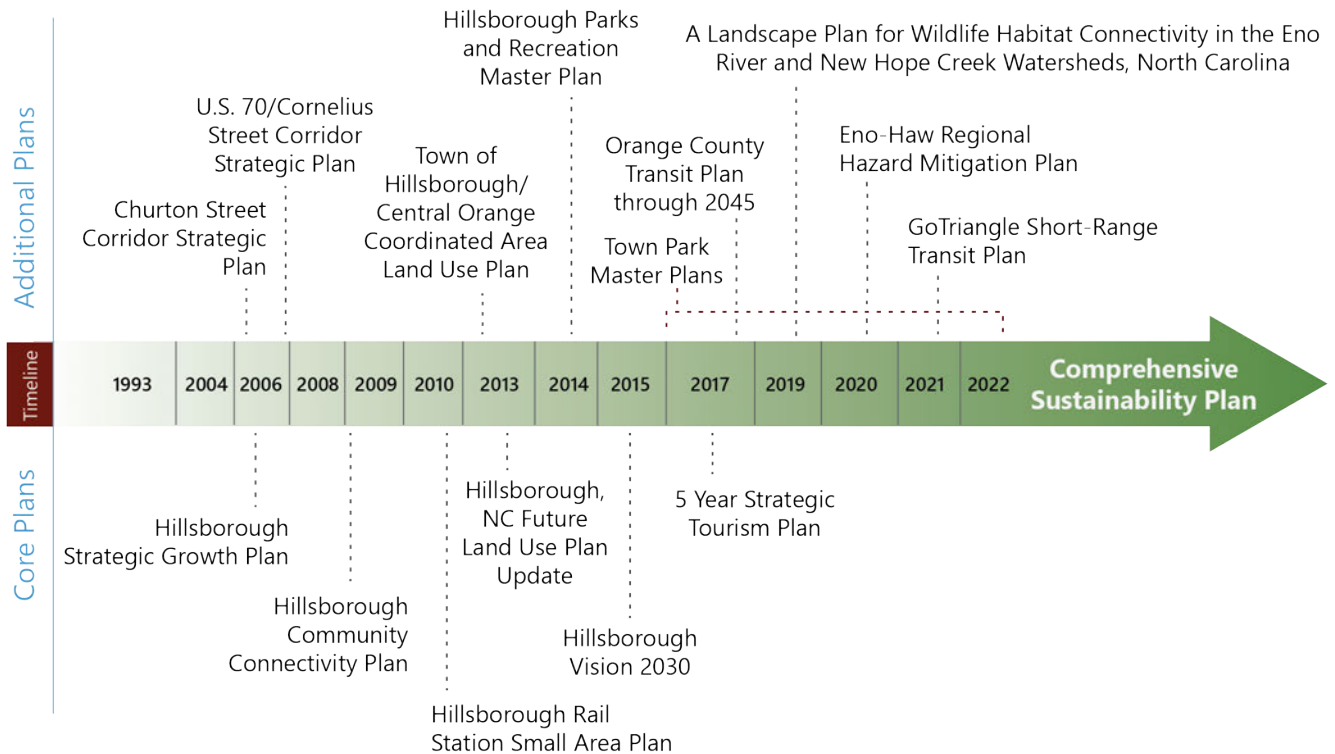
## Local and Regional Planning — Past and Present

The Comprehensive Sustainability Plan is built on years of town planning. Before development of the Comprehensive Sustainability Plan, there were seven plans that comprised the town’s comprehensive planning, including:

- › Vision 2030 Plan
- › Strategic Growth Plan
- › Future Land Use Plan
- › Community Connectivity Plan
- › Churton Street Corridor Strategic Plan
- › U.S. 70/Cornelius Street Corridor Plan
- › Parks and Recreation Master Plan

Many other plans have been adopted and endorsed by the town over the years, as illustrated in *Figure 1.5*. These plans have different purposes and focus areas including land use, transportation, wildlife, and strategic planning.

**Figure 1.5.** Hillsborough’s Planning History



The development of the Comprehensive Sustainability Plan included a thorough review of existing plans. Relevant priorities and recommendations were incorporated into this planning process. Once adopted, the Comprehensive Sustainability Plan replaces earlier comprehensive planning documents and, in combination with the Future Land Use Plan, will serve as the official comprehensive plan for the town.



# Comprehensive Sustainability Plan Process and Timeline

The Comprehensive Sustainability Plan process began in the Spring of 2021 and was carried out over approximately 2 years. Information about the community members' shared vision was collected through the Community Visioning Survey in Summer 2021. More than 630 people responded to a survey with their desires for Hillsborough's future. The process was completed in phases focusing on identifying issues and opportunities, setting goals and strategies, prioritize actions, and creating an actionable implementation plan.

## Phase 1:

- › **Identify Issues and Opportunities** — This step involved a review of past and recent planning documentation; data from local, state, and federal sources; and input received from stakeholders and the community at large. These reviews informed the preparation of baseline conditions and brought to light the town's current and impending issues and opportunities for each of the topic-based elements covered in this plan.

## Phase 2:

- › **Set Hillsborough's Goals and Strategies** — Based on community feedback and input from the town government and staff, combined with review of the existing plans and baseline conditions, goals and strategies to achieve the town's vision were crafted for the plan. The vision reflects the town as the community intends it to be in 2030 and beyond, and the goals support the community's achievement of this vision for the future. The goals and strategies are focused primarily on what is within the local government's sphere of influence.
- › **Develop and Prioritize Supporting Actions** — Existing initiatives, best practices, and emerging technologies, along with ideas generated by stakeholders and the community at large, contributed to the identification of recommended actions (i.e., plans, policies, projects, regulations, partnerships, and engagement) and support the achievement of the goals. This process focused on creating actions that are specific, achievable, attainable, relevant, time-bound, inclusive, and equitable (SMARTIE).

## Phase 3:

- › **Implementation and Accountability** — Implementation details for the recommended actions were defined, including the lead implementation entities and supporting partners, timelines, and estimated costs. Actions were further defined by the related elements to realize potential implementation efficiencies and to maximize co-benefits.
- › **Review and Adoption** — A full draft of this plan was provided to the public in March 2023, with a public hearing on April 20, 2023. Input from the public will be requested on the draft plan and revised based on this feedback. The plan is expected to be adopted by the Hillsborough Board of Commissioners in June 2023. (Section will be updated pursuant to Spring 2023 process) (Additional narrative to be included after public comment period is complete.)





## How to Read This Plan

This plan serves as a guide for Hillsborough to promote a shared vision of sustainability to drive decisions in the town and work towards transitioning to clean energy. The plan is organized into eleven chapters, eight of which are focus areas.



Town Government  
& Public Services



Social Systems  
& Public Space



Land Use  
& Development



Housing  
& Affordability



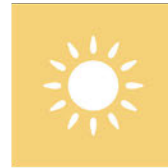
Environment  
& Natural Systems



Economic Systems  
& Tourism



Transportation  
& Connectivity



Climate & Energy

Each chapter features a narrative that describes the importance of the topic and how it relates to the larger focus of sustainability and smart growth. Themes of equity, affordability, safety, connectivity, and health run through each chapter and the associated strategies and actions for guiding town decisions. Each chapter provides a review of existing conditions, description of town needs and goals, how to achieve these goals, and recommended strategies and actions. Strategies and actions are organized into plans, policy, projects, regulations, partnerships, and engagement.

The final chapter of the plan details the implementation plan, a framework for actualizing the recommended actions that have been identified throughout the course of the planning process. The implementation plan describes timelines for the initiation of recommended actions.







# Engagement & Empowerment

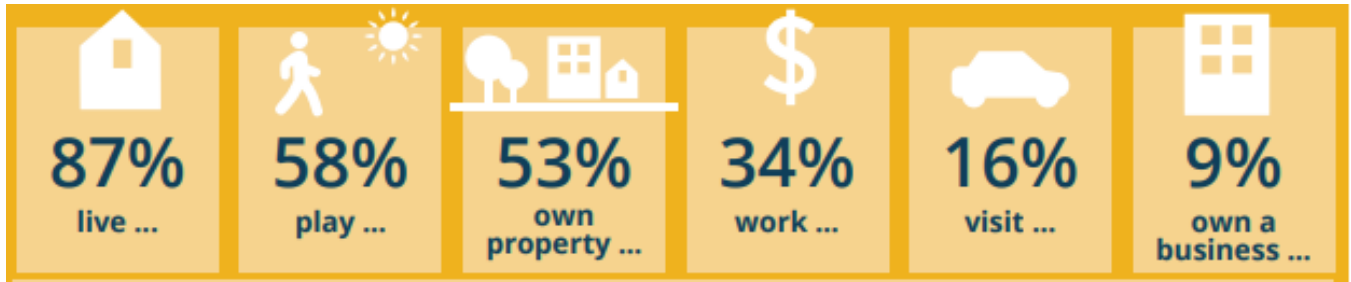
Understanding and incorporating the diverse perspectives of the community has been a priority throughout the plan development process. The Town of Hillsborough used an inclusive public engagement process that provided opportunities for meaningful feedback and learning. The planning process included a variety of civic engagement opportunities and forums, including a comprehensive visioning survey, focus group meetings, presentations at public meetings, a project webpage on the town's website, and a robust public input review period on the draft plan. The comprehensive visioning survey was provided in English and Spanish.







Community Visioning Survey Respondents' relationship to Hillsborough included:



## Focus Groups

The town facilitated multiple focus groups in Spring 2022 specific to resource areas that are covered in the plan to gain an understanding of current challenges and best practices for that specific area. Each focus group was comprised of approximately a dozen representatives including residents, town staff, industry experts, and regional partners (see Appendix A for focus group details). Focus group topics included:

- › Economic Development and Jobs.
- › Land Use and Housing.
- › Natural Systems.
- › Tourism.
- › Transportation.

The focus group meetings were conversation-based and informal to allow for genuine discussion and gain as much information as possible from participants on the specific topic area. However, the following questions were used to initiate the discussions:

- › What do you most appreciate about the specific topic area in the town?
- › What are your biggest challenges with this topic area?
- › How do you see this topic area changing in the future? How can we plan for a sustainable future for this topic area?
- › Who in the town is not being reached or celebrated by this topic area?

Overall, group feedback was positive about opportunities and the future of Hillsborough. There was significant interest from all the focus groups in providing access for all, bringing all voices to the table, and having diverse representation of the community. A complete list of focus group participants can be found in the Appendix.

### Common Interests Identified Through Outreach Efforts

- Connectivity
- Affordability
- Sustainable development
- Communication and coordination
- More representation at the table
- Environmental preservation
- Excitement for the town's future



## Board Presentations

The project team presented at numerous board meetings throughout the plan development process to initiate the project, provide updates, and request input from board members. These meetings were open to the public and included the town board, Parks and Recreation Board, Tree Board, Tourism Board, and Planning Board. The boards provided input on community engagement, transportation connectivity, natural resources, and land use and development. Information presented at each meeting was available on the town website. Several of the boards provided extensive review of and comments on the draft plan. Staff presented the draft plan at multiple board meetings to gather feedback. Input received was incorporated into the revised plan.

## Draft Plan Public Comment Period

With the release of the draft plan, opportunity for public comment was open from mid-March through April 21, 2023. During this time, town staff presented draft chapters to appointed boards who assisted preparing the chapters. Draft chapters were also circulated directly to the focus groups detailed above for feedback. Town staff participated in several events to educate the public on the plan and gain feedback. Comments on the plan were accepted through an online comment form, by email, or verbally to staff by phone or in person. A formal public hearing was held on April 20, 2023 by the planning board for the plan where staff presented the development process and listened to board members and public comments. Overall, formal feedback was received from more than 30 people with many more conversations.

## Inclusion & Empowerment

Equity was a key theme in understanding existing conditions, creating a plan for the future, and developing implementation actions. Development of the plan included an equity strategist to ensure recommended actions were created with an equity lens that could be measured and revised as necessary in the future. There was a concentrated effort by the town to reach and incorporate feedback from historically marginalized groups into the plan by meeting people where they are and giving them a opportunity to share their perspectives through invitations to participate in focus groups. The plan was reviewed from an accessibility standpoint to ensure technical information was presented clearly, defined, and easy to read.

The town worked to ensure that all who sought to share an opinion and interact were able to do so. A list of diverse stakeholder contacts was used throughout the project to invite everyone to participate, which included non-profit organizations (local and regional), neighborhood liaisons and groups, board members, religious and cultural organizations, and businesses. There were multiple mediums by which community members could share their opinions, including in person, at scheduled events, email, telephone, online comment forms and surveys, and more than a dozen board meetings.





Inclusion and equity is much broader than just engagement and bringing representation to the table; it is interwoven throughout every chapter of this plan, with a focus on smart growth principles. Understanding the problems with gentrification and affordability that come with growth pressures and proactively planning and implementing strategies to manage these impacts are critical to ensuring a thriving and sustainable community. During preparation of the plan, the town considered:

- › Who has or does not have access to the benefits of proposed actions?
- › Who will share in the cost burden, if applicable, and is that burden distributed in an equitable manner?
- › What infrastructure will need to be constructed and how will it impact community health, well-being, and cohesion?

Prioritizing representation from the whole community was critical not only in developing this plan but also in implementing the actions of this plan. This includes understanding the demographic makeup of residents, ensuring all are included in engagement efforts, and providing the opportunity to participate in town decisions. The success of all plans requires political will, community consensus, and funding. All of the chapters have recommended actions for engagement with education outreach and communication components.



*Fairview Spring Fling Plan Outreach.*









# Town Government & Public Services

The Town of Hillsborough commits to being stewards of the public trust and managing and providing the infrastructure, resources, and services that enhance the quality of life for those in Hillsborough. This chapter explains the revenue streams, the roles and responsibilities of town government, and the services provided by the town, such as water and wastewater services, street and stormwater system maintenance, solid waste collection, policing, planning, and management. Details on agency partnerships are included, demonstrating the importance of regional planning and coordination.

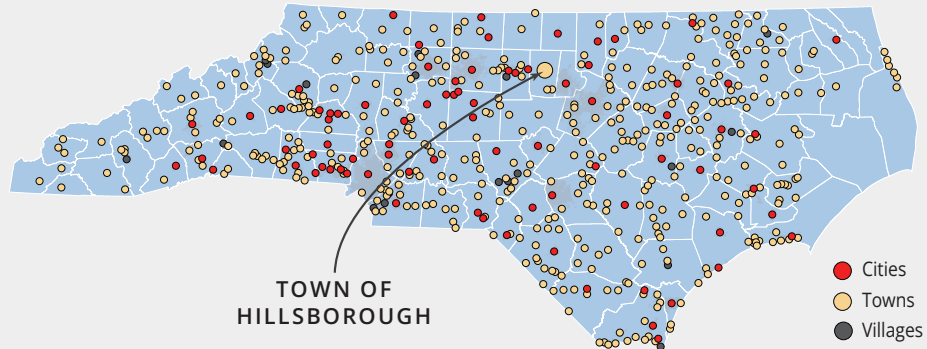


# Town Government and Public Services

## North Carolina Jurisdictions

**100**  
Counties in NC

**552**  
Municipalities  
in NC



**Municipalities-like cities, towns, and villages\* have been granted a charter by the North Carolina General Assembly authorizing the establishment of a municipal corporation.**

\*In North Carolina, a city, town, or village has no legal difference. | Source: North Carolina League of Municipalities

The North Carolina Constitution declares that the General Assembly “shall provide for the organization and government and the fixing of boundaries of counties, cities, and towns, and other governmental subdivisions.” It gives a number of powers and duties to counties, cities, and towns while allowing the General Assembly to define and limit the authority of local bodies. In this sense, North Carolina local governments may only exercise those powers granted by individual state statutes.

North Carolina law — documented in the North Carolina General Statutes — outlines the powers and authorities granted to municipalities. Article 8 of Chapter 160A and Article 6 of Chapter 153A (unified in G.S. 106D-401) document the delegation and exercise of general police power of jurisdictions. Together, the statutes invest the governing boards of counties and cities with the power to adopt ordinances that define, regulate, prohibit, or abate acts, omissions, nuisances or conditions detrimental to the health, safety, or welfare of residents and the peace and dignity of their jurisdictions. Other authorities include public records law, terms of office, duties and composition of boards, and meeting rules, such as quorum, voting, closed sessions and open, special and emergency meetings.

## Town of Hillsborough

Hillsborough is an established town in North Carolina created by charter in 1754 and situated in Orange County. The charter established the town of Hillsborough and its governance pursuant to Article 1 of G.S. Chapter 160D. The full charter, revised and ratified in June 1985, is contained as Part I of Hillsborough’s Code of Ordinances and includes provisions on corporate powers and boundaries, the Mayor and board rules, elections, organization and administration of the town, and fees.





The town of Hillsborough has operated under the council-manager form of government since 1989, which is the most common form of local government in North Carolina. The elected board — the Board of Commissioners — is the policymaking body. It is chaired by the Mayor, who is elected independently on a two-year cycle (odd years). Five commissioners are elected town-wide to staggered four-year terms and do not represent a specific district.

*Throughout history, municipalities have been and continue to be the centers of trade and culture.*

## Hillsborough Board of Commissioners

Pursuant to Chapter 160A of the North Carolina General Statutes, the Hillsborough Board of Commissioners adopts law and policies (short- and long-range) and directs oversight, communication, and spending authorization through the budget and budget amendment processes, while also heading development approval in prescribed circumstances. It is accountable to the residents of Hillsborough. The board hires the manager and has the authority to organize and reorganize the town government. The town board can create, abolish, and consolidate offices, positions, departments, boards, commissions, and agencies as it deems needed to promote the orderly and efficient administration of town affairs.

Legislative and policymaking authority rests with the mayor and Board of Commissioners. The town board is considered a public body. As such, each official meeting is generally open to the public and full and accurate minutes must be kept of each official meeting. The town manager carries out the board's policies and manages and directs the daily operation of the town. The board has the primary responsibility to establish the general framework under which the town government can meet the needs of the community. The manager is directly responsible and accountable to the board.



*Town of Hillsborough's mayor and town board, 2023. Elected leaders are (from left) commissioners Evelyn Lloyd and Mark Bell; Mayor Jenn Weaver; Mayor Pro Tem Matt Hughes; and commissioners Kathleen Ferguson and Robb English.*



The Board of Commissioners has authority to confer powers and duties on both the mayor and the manager in addition to those conferred on the board by law.

## Mayor

The mayor is the official head of the town for civil process, correspondence, and representation in key matters — legal, ceremonial, and other. Most federal and state agencies extend this same recognition for purposes of official correspondence or actions, such as grant awards or enforcement of federal laws and regulations. Most powers of the mayor are created by action of the town board. The mayor has the following roles and responsibilities:

- › Calls special meetings.
- › Presides over all town board meetings.
- › Functions as the “chief collaborator,” facilitating problem-solving and policy change.
- › Votes only to break ties.

## Town Manager

Earlier in Hillsborough’s history, the board would make policy decisions and the administration would carry them out. The need for a manager became important due to board members being members of the general public. The Board of Commissioners now hires a professional town manager who has the training, analytical skills, experience, and in-depth knowledge needed to manage the town. The manager is responsible for daily town operations and personnel within the government, including hiring and discipline, and is deeply involved in policymaking and implementation of board policy, advising and recommending on items addressed by the board, and aiding the board in budget preparation. The manager is politically neutral, serves the board as a whole and must provide information equally, with any informational requests of consequence given to the requesting board member as well as the entire board. The manager must present issues in a balanced manner and must incorporate a variety of competing values into the decision-making process to ensure all parties and viewpoints are considered appropriately and equally. The manager carries out board directives even if they run counter to the manager’s recommendations or beliefs. If the manager is a member of the International City-County Management Association, the manager must follow the ICMA Code of Ethics.

As the chief administrator of the town, the manager has various responsibilities and roles:

- › Directs and supervises all departments, offices, and agencies of the town, subject to the direction of the Board of Commissioners.
- › Appoints, suspends, or removes all employees not elected by the people, unless otherwise stated by law. The town attorney reports directly to the Board of Commissioners.
- › Prepares and submits the budget and capital program to the board and then administers them once adopted.
- › Prepares reports and information and carries out other duties as required by the board.
- › Ensures all applicable laws of the state, the charter, and the ordinances, resolutions, and regulations of the board are carried out.





*The Town Board Office (left) is located on the Town Hall Campus.*

Traditionally in the Town of Hillsborough, both elected and administrative officials are involved at all levels of policy and administration. At the highest level, the governing body is responsible for setting the overall direction or mission of local government, including its purpose, scope, and philosophy.

## Other Committees and Organizations

The Hillsborough board members and staff typically are active members of a number of local committees, boards, and organizations. The mayor and commissioners represent Hillsborough's interest on the following:

- › Community Home Trust
- › Durham-Chapel Hill-Carrboro Metropolitan Planning Organization Board
- › Family Success Alliance Advisory Council
- › Fire Department Relief Fund
- › Hillsborough Parks and Recreation Board
- › Hillsborough Tourism Board
- › Hillsborough Tourism Development Authority
- › Hillsborough Water and Sewer Advisory Committee
- › Intergovernmental Parks Work Group
- › Orange County Climate Council
- › Orange County Food Council
- › Orange County Housing Collaborative
- › Orange County Partnership to End Homelessness
- › Orange County Visitors Bureau
- › Orange Rural Fire Department
- › Solid Waste Advisory Group
- › Central Pines Regional Council (formerly known as Triangle J Council of Governments) Board of Delegates
- › Upper Neuse River Basin Association



## Strategic Plan

The Town of Hillsborough uses a strategic plan to outline the path to meet its goals and to align available resources with priorities. Strategic planning is critical to effective and efficient delivery of government services. The Strategic Plan includes the town's mission, vision, and values. It is currently being updated to detail specific initiatives that departments will implement to meet town goals and will align with the Comprehensive Sustainability Plan.

The Strategic Plan has a static, three-year implementation time frame, tied to the town's fiscal calendar. Strategic goals are adopted, establishing the town's priorities for policy initiatives, capital investments, and budgeting and staffing decisions to achieve outcomes important to the community.

The Comprehensive Sustainability Plan will inform the Strategic Plan's priorities for growing in a sustainable manner and for reaching climate and energy goals. The past Strategic Plan provided a foundation for the overall important themes for the town that are outlined in the Comprehensive Sustainability Plan.

## Town Code/Regulations/Plans

The town uses its Code of Ordinances and Unified Development Ordinance to regulate activity within the town limits and the extraterritorial jurisdiction. The extraterritorial jurisdiction is an area directly outside municipal limits for which a municipality has authority granted by the state to regulate land development activity and zoning to protect the public's health, safety, and welfare.

**Code of Ordinances:** The Code of Ordinances is enacted and amended into law by a majority vote of the Board of Commissioners. An ordinance is a law enacted by a municipal government that is applicable only within the municipal limits and meant to protect the health, safety, and welfare of the public. Examples that ordinances apply to are standards for housing and zoning and regulations around nuisance issues. The Hillsborough Code of Ordinances is regularly amended and made up of the town's charter and 18 chapters, each pertaining to specific parts of the town's governance and regulations. The code establishes the town's appointed boards and outlines the roles and responsibilities of the town's leadership and departments. It also includes utility specifications that govern extensions and connections to the town's water and wastewater systems.

**Unified Development Ordinance:** The Unified Development Ordinance is a chapter in the Code of Ordinances, but it is subject to different rules under state law. The Unified Development Ordinance is a regularly amended document in which zoning and subdivision regulations are combined in a single document with other desired town regulations, such as design standards. The ordinance serves as a local policy instrument and applies to all properties within the town's planning jurisdiction, which includes properties in the town limits and in the extraterritorial jurisdiction.





## Town Departments and Staff

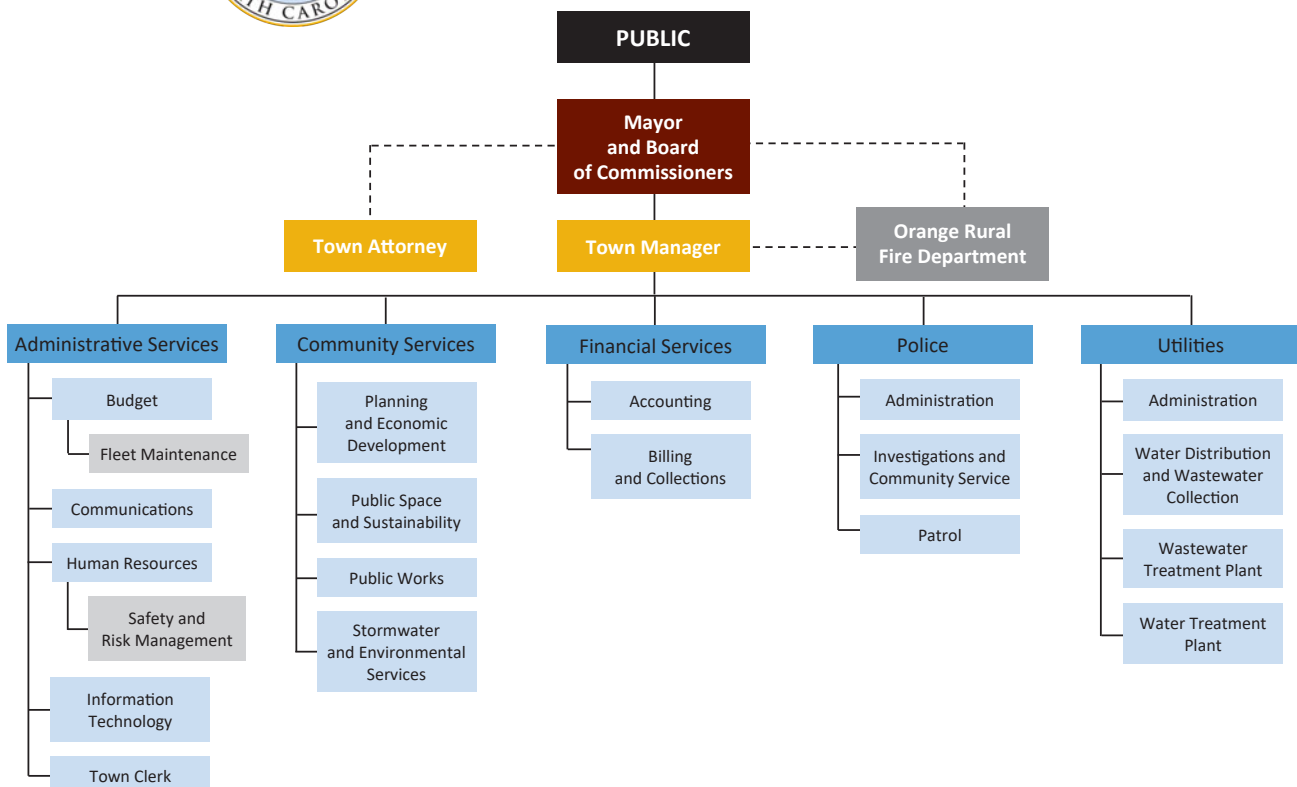
Town staff manages daily operations and carries out the town board policies and projects as directed by the manager. Staff members are experts in specific subject matter and inform and advise the board and manager.

## Town of Hillsborough Organization

The town's organizational structure is outlined in the chart below, which shows the town's leadership and the reporting hierarchy of its departments. All town staff and boards works under the service of the public as part of the nature of their work.



### ORGANIZATIONAL CHART





## Administrative Services

**The Administrative Services Department** provides management and organization for the town to ensure departments are operating efficiently and communicating effectively. It includes the town's top-level management, as well as the divisions and offices that serve the organization.

**Budget Division** is responsible for preparing the town's budget, under the town manager's oversight and in collaboration with departments and divisions.

**Communications Division** is responsible for engaging with the community and providing information from the town to community members and the media, including during emergency events. It oversees the town's website and social media sites and policies, helps administer the town's role in the emergency notification system, OC Alerts, leads the Government 101 course that helps community members increase their knowledge of town government, and helps organize other community engagement efforts. The division communicates through a variety of methods to reach a widespread audience, including news releases, website, social media, inserts in monthly water and sewer bills, and other printed publications. It maintains a community liaisons program, connecting the division with community members willing to share information with others, especially in an emergency. A wealth of emergency information and resources are shared on the Ready Hillsborough page of the town's website, [www.hillsboroughnc.gov](http://www.hillsboroughnc.gov).

**Fleet Maintenance Operations** maintains all town vehicles, trailers, heavy equipment, small gas-powered equipment, and miscellaneous equipment such as pumps and welders. It is part of the Budget Division.

**Human Resources Division** is responsible for developing, interpreting, and administering the personnel programs and policies that govern all town employees, including recruitment and selection, position classification and pay, personnel records, training and development, benefits administration, wellness, employee relations and equal employment opportunity. It oversees the Safety and Risk Management Office.

**Information Technology Division** is responsible for overseeing the town's technology resources and coordinating contracted services.

**Safety and Risk Management Office** oversees occupational and workplace safety training programs. It also evaluates accidents and administers the workers compensation and property and liability programs for the town. It is part of the Human Resources Division.

**Town Clerk Division** provides administrative support to the Hillsborough Board of Commissioners. Duties include preparing agendas, giving legal notice of meetings, recording minutes of meetings, maintaining official records of the town, and codifying town ordinances.





## Community Services

**The Community Services Department** is dedicated to providing a safe, clean, and healthy environment in town. Staff members are committed to maintaining a high quality of life for Hillsborough residents.

**Planning and Economic Development Division** is responsible for planning for future development and growth in the town and its extraterritorial jurisdiction, enforcing land development regulations, issuing permits, overseeing projects, providing staff support to town appointed boards, assigning addresses, creating and maintaining geographic information system zoning and development databases, and representing the town on regional planning committees. The division also enforces the nuisance provisions in Chapter 11 of the Hillsborough Code of Ordinances, which addresses issues such as noxious growth and junk vehicles. The division also manages tourism through the Tourism Board and the Tourism Development Authority, which promote tourism and direct and finance tourism-related projects in the town.

**Public Space and Sustainability Division** develops and maintains facilities and grounds available to the public, including town buildings, parks, greenways, cemeteries, sidewalks, streets, and urban spaces. The division also conducts studies and oversees most major town construction projects. As a part of maintenance, the division ensures the town's public spaces adhere to sustainability goals and create a sense of place to promote wellbeing for the community's future. Additions of public art are managed by this division, in partnership with the Tourism Program, Hillsborough Arts Council, and Orange County Arts Commission.

**Public Works Division** provides curbside collections of solid waste, bulk items, leaves, and other yard waste for residences. The division oversees town-maintained streets, including resurfacing and repairs, signage and pavement markings, snow removal, street sweeping, and stormwater infrastructure. State roads are maintained by the North Carolina Department of Transportation. The Public Works Division also oversees the installation of flags and decorations on the town's main thoroughfares, as well as cemetery operations and burials at the Town Cemetery.

**Stormwater and Environmental Services Division** works to reduce stormwater runoff pollution impacts to local water bodies by maintaining compliance with the town's National Pollutant Discharge Elimination System permit, regulating the developed community, and educating the public about ways to reduce stormwater runoff pollution. The town is subject to stormwater runoff regulation by the federal and state governments and regulates runoff within its jurisdiction. The division conducts extensive educational outreach on stormwater management. In addition to helping community members and developers keep stormwater runoff clean, the division is implementing a comprehensive stormwater management plan to prevent stormwater pollution from municipal operations. The town charges a stormwater management utility fee to address expanding state and federal stormwater regulations for reducing stormwater runoff pollution from reaching the Eno River.



*Mural at News of Orange County.*

## Financial Services

**The Financial Services Department** is responsible for managing all aspects of the town's finances in an open, accountable, and timely manner, in accordance with general auditing standards and state general statutes. It maintains the town's payments and donations website.

**Accounting Division** handles payments to the town's vendors and payments from the town's customers. It also handles payroll, in which proper accounting principles are taken to ensure each town staff member has access to clear and detailed information regarding compensation. The division issues business licenses, collects permit fees and prepared food and beverage tax funds, handles purchase orders and requisitions, and maintains insurance verifications, town contracts, and the town's capital asset records. It also prepares the annual comprehensive financial report and various financial reporting to the Local Government Commission and other stakeholders on grants, loans, and bonds. Audits are undertaken at the end of each financial year as required by the state under G.S. 159-43 to ensure the town is compliant with North Carolina's accounting standards and funds are being used appropriately. Accounts are audited by a certified public accountant or by an accountant certified by the Local Government Commission as qualified to audit local government accounts.

**Billing and Collections Division** arranges connections for new water and sewer customers and disconnections of service. It schedules meter readings and collects monthly payments for the utility service. The town participates in the North Carolina Local Government Debt Setoff Clearinghouse. The program secures payment of delinquent water and sewer bills by filing a claim with the state to intercept income tax refunds or North Carolina education lottery winnings of those who owe payment to the town of \$50 or greater, according to North Carolina General Statute 105A: Setoff Debt Collection Act.





## Police

**The Police Department** is responsible for general public safety, public order, traffic safety, crime prevention, criminal justice records and safety education. It responds to and investigates crime and apprehends those who commit crimes. Officers use community-based policing and work to build partnerships to serve all people within its jurisdiction with respect, fairness, and dignity.

**Administrative and Support Division** oversees the department's administration, internal accountability, records, investigations, recruiting, training, and community policing. Investigators are trained in advanced crime scene processing, interviewing, photography, fingerprinting, and forensics. They work with other municipal and state law enforcement agencies as well as local, state and federal agencies, such as Child Protective Services, the Department of Social Services, the Federal Bureau of Investigation, the Drug Enforcement Administration, and the Secret Service. The division offers a variety of community programs and nontraditional police services.

**Operations Division** provides primary response to 911 calls and serves as the front line protecting the community. Officers staff the division 24 hours per day, seven days per week. They perform a wide range of patrol duties and community policing programs including:

- › Responding to calls for service, such as criminal complaints, motor vehicle accidents, recovery of stolen property, public and medical assistance, apprehension of criminals and wanted persons, and enforcement of motor vehicle laws.
- › Working with the public to prevent crimes.
- › Providing directed patrols to deter crime.
- › Providing field training for new officers who have completed North Carolina Basic Law Enforcement Training until they have met standards to be certified.

## Utilities

**The Utilities Department** provides water and sanitary sewer service to Hillsborough community members and out-of-town customers within a jurisdiction that is determined through a water and sewer management plan boundary area agreement. The collaborative agreement between five government jurisdictions indicates which entity will provide water and sewer service in a given area. The Utilities Department oversees the Town of Hillsborough's water and wastewater treatment plants, water distribution and wastewater collection division within defined state and federal regulatory parameters for water quality. The operations are exclusively funded by utility payments. The Utilities Department is responsible for providing clean water to the town and facilitates development within the water and sewer service boundary. It also provides educational outreach programs to the community regarding water health.

**The Administrative and Support Division** performs development reviews and inspections; maintains the water and sewer mapping; creates and manages capital improvement project; prepares the department's annual budget and capital project plans; develops and maintains the technical specifications and code and development procedures for water and sewer construction and acceptance; and works with Hillsborough's meter staff and billing and collections, public works, and stormwater divisions as well as external entities like the North Carolina Department of Transportation on projects and issues impacting the town's water



and sewer assets. Division staff also assist with the Water and Sewer Advisory Committee activities and participate in several professional and technical organizations related to utilities. The division has three engineers, including the utilities director, and one inspector.

**Water Distribution and Wastewater Collection Division** is responsible for repairing water main breaks and leaks; flushing hydrants; cleaning and repairing sewer lines; and maintaining hydrants, water towers and booster pump stations and their performance. Crews routinely perform preventative maintenance and repairs, remove roots, and clean sewer lines with pressure washers. They assess sewer blockages and water leaks to determine whether the blockages or leaks are the responsibility of the town or a homeowner. Division employees also help maintain miles of water and sewer easements to keep them accessible for maintenance and emergency situations, and they mark existing utilities in response to construction locate ticket requests. The division maintains about 250 miles of water and sewer mains, more than 14,000 water and sewer services, 5 water towers, 3 booster pumping stations and 25 public sewage pumping stations. The division also is responsible for the following programs to protect the town's water and sewer assets as well as public health and the environment:

- › *Backflow prevention program* manages cross-connections with the town's water supply to protect the supply. The program requires backflow prevention devices and regular testing of the devices at a number of facilities and at residences with pools and irrigation systems.
- › *Fats, oil, and grease program*, also called FOG, educates resident about the adverse effects of pouring fats, oil, and grease down the drain. These substances will collect and stick to plumbing and sewer lines, leading to clogs, back flows, and pressure problems in the sewage system. Education and outreach programs have been implemented to encourage residents to think about how to keep lines from becoming blocked and causing sewer backups or overflows.

**Water Treatment Plant** takes water from the Eno River, cleans and disinfects it, and then pumps it to customers. The plant is a state-certified bacteriological laboratory and has two lab-certified operators who perform daily bacterial checks in-house, saving the town time and money. The plant also conducts 24-hour monitoring and evaluation. Raw and finished water at the water plant is tested every two hours (more than the state mandate), and chemical adjustments are made for consistency. Various points in the water system are checked:

- › Every month for bacteria.
- › Quarterly for disinfection byproducts.
- › Annually for inorganics, pesticides, synthetic organic chemicals, nitrate, volatile organic compounds, and secondary contaminants.
- › Every five years for a list of unregulated contaminants the Environmental Protection Agency establishes.

The town issues a water quality report by July each year for the previous year. The report includes information on the town's water treatment system and its performance, where the drinking water comes from, and water quality information from the Environmental Protection Agency.





The plant draws raw water from the Eno River from three sites located in the Upper Neuse River watershed. The river and sites are considered surface water, which is natural water that has not penetrated much below the ground. The three sites are:

- › *Lake Ben Johnston* — This lake on the Eno River is located at 1000 Ben Johnston Road and is the town's intake location for water from the Eno. Seven Mile Creek enters the Eno River upstream of this area.
- › *Lake Orange* — This lake on the east fork of the Eno River is located at 1221 Lake Orange Road within Orange County and is a secondary source for water from the Eno. Orange County owns and operates this reservoir.
- › *West Fork Eno Reservoir* — This reservoir on the west fork of the Eno River is located at 4210 Efland Cedar Grove Road in Cedar Grove and is a secondary source for water from the Eno. The town owns this reservoir and completed an expansion in 2021 that doubled its capacity.

**Wastewater Treatment Plant** removes nutrients from wastewater, disinfects the water with chlorine, and removes the chlorine before discharging the water into the Eno River. It can treat up to 3 million gallons per day and operates 24 hours a day with a certified laboratory and qualified personnel to perform some of the regulatory sampling requirements for performance and quality. The plant was built in 1977, with upgrades in 2001 and 2007 to improve solids management, nutrient removal, and treatment capabilities. A 2014 expansion and upgrade allowed the plant to meet state requirements to protect Falls Lake, making its discharged water quality among the best in the nation. Naturally occurring nutrients — such as nitrogen and phosphorus — can cause algae growth, depleted oxygen, and fish kills. The nutrients must be brought to safe levels before treated wastewater is discharged into the Eno River and eventually reaches Falls Lake, Raleigh's water supply. This requires extreme nutrient removal capabilities for which the plant has excelled at achieving.



*Hillsborough Wastewater Treatment Plant while under an expansion completed in 2014.*



The plant’s objectives are:

- › Providing good stewardship of the resources entrusted by community members and customers.
- › Treating wastewater to a quality that provides a healthy environment for aquatic life and downstream recreational users and drinking supplies.
- › Managing a biosolids program to benefit the environment and the local farmers who use the product.
- › Proactively working with local and state agencies, organizations, and individuals to monitor and protect the region’s water, soil, and air.

The town issues a wastewater quality report each year for the previous fiscal year. The report includes information on the town’s wastewater collection and treatment systems and the performance of these systems. Since 2004 the wastewater system has successfully reduced the total nitrogen discharge into the Eno River by 85%, helping to ensure clean, safe water for all recreational uses.

## Teams and Committees

**The operations team** is a combination of department and division heads representing a variety of operations. The 13 members review town board agendas and provide updates, information, and feedback to the group regarding a variety of issues at monthly meetings. Other key staff members attend depending on the topics being discussed. Members are:

- › Town Manager
- › The five department heads:
  - Assistant Town Manager/Community Services Director
  - Administrative Services Director
  - Finance Director
  - Police Chief
  - Utilities Director
- › Division heads from the Administrative Services and Community Services departments:
  - Budget Director
  - Communications Manager
  - Human Resources Manager
  - Information Technology Manager
  - Planning and Economic Development Manager
  - Public Space and Sustainability Manager
  - Town Clerk

**The Diversity, Equity and Inclusion Core Team** was developed to work with staff members of other jurisdictions within Orange County to create a countywide racial equity plan that would serve as the framework for plans specific to each jurisdiction. The countywide team developed the One Orange Racial Equity Framework, utilizing methodology of the Government Alliance for Racial Equity for much of the preliminary work and vision. Each jurisdiction is a member of GARE, a national network of government agencies working to advance racial equity. The countywide framework is intended to serve as a tool for jurisdictions in the county to uncover and address implicit racial biases in their institutions and to create a community where race no longer predicts life outcomes. Hillsborough’s core team works to move the town’s diversity, equity, and inclusion initiatives forward with the mission to illuminate disparities, build trust,





and lead actions to remove barriers and promote diversity, equity, and inclusion in the town's workforce, policies, and community. Members are expected to attend the monthly meetings, contribute to the conversation, and relay information and progress back to their departments. The team works to:

- › Develop goals for improving diversity, equity and inclusion in Hillsborough.
- › Define and implement a racial equity action plan.
- › Advise, participate in, and facilitate diversity, equity and inclusion trainings.
- › Plan and lead community engagement regarding diversity, equity and inclusion.
- › Gather baseline data.

**The Safety Committee** is responsible for developing and reviewing safety procedures and policies, investigating and reviewing safety incidents, and communicating safety issues or policies to town staff and committee members.

**The Wellness Committee** leads the employee wellness program. This committee provides leadership and oversight to help make the wellness program effective and accessible to all staff.

## Contracted Government Services

**Orange County Animal Services** provides regulations and support regarding animal ownership, treatment, and care. Services include licensing, animal-specific ordinances, and sheltering. Animal Services also provides several community education and assistance programs related to veterinary care, pet food, and spay/neuter procedures.

**Orange County Building Inspections** is responsible for enforcing the mandated North Carolina State Building Code. This enforcement primarily occurs through permitting review and building inspections during construction of buildings, electrical, mechanical, and plumbing systems to ensure compliance with state building codes and local regulations.

**Orange County Erosion Control** has an interlocal agreement with several municipalities, including Hillsborough, to administer an erosion and sedimentation control program within town limits. Permitting and oversight of land disturbing activities for development is delegated to Orange County by the North Carolina Sedimentation Control Commission. In general, whenever clearing and grading for development will exceed 20,000 square feet (roughly a half acre), an erosion control plan must be submitted for approval. In addition, a land disturbing permit must be obtained before any land disturbing activity begins. Additional controls exist on sites within the University Lake, Cane Creek, or Upper Eno watersheds. Orange County is responsible for permitting and reviewing erosion control plans.

**Fire and Life Safety Division of Orange County Emergency Services** is responsible for enforcing the North Carolina Fire Prevention Code, including fire inspections and permitting, community outreach and education, fire investigations, hazardous materials response, and new building construction plan review. Overall, the division focuses on education, prevention, investigation, and fire code enforcement. It provides free smoke alarms and installation to vulnerable residents and at-risk communities, home safety tips, and courtesy home fire inspections.



**Orange Rural Fire Department** is a nonprofit agency that works to mitigate fire, medical, and rescue emergencies safely and efficiently by providing public education, prevention, and emergency response. The department has four stations and handles about 2,000 calls per year, providing fire, rescue, hazmat, and first responder (emergency medical care) services to Hillsborough and the Central Orange Fire District, about 62 square miles in central Orange County. Fire Station 1 is centrally located in downtown Hillsborough on Churton Street. Fire Station 4, completed in Spring 2023, is in southern Hillsborough in the Waterstone development. The town provides a portion of the Fire Department's budget.

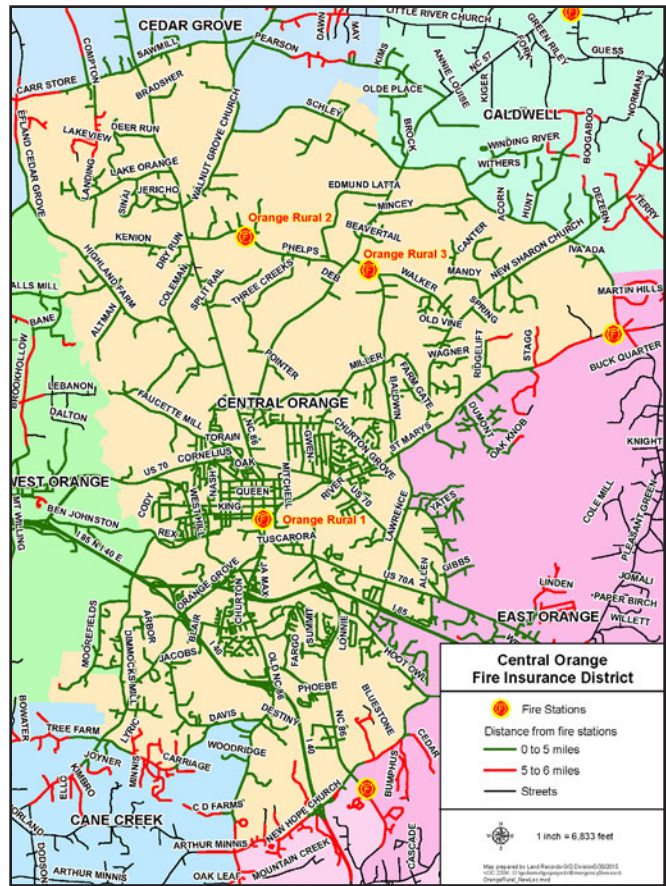
Orange Rural is certified by the North Carolina Association of Rescue and Emergency Medical Services in the following rescue disciplines:

- › Agriculture Rescue
- › Confined Space/Trench Rescue
- › Heavy Rescue
- › High Angle Rescue

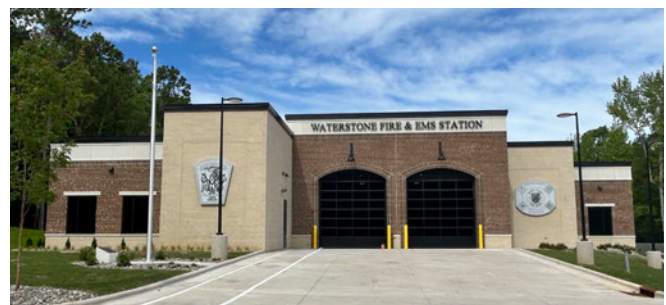
The Fire Department is dispatched by Orange County Communications (911) and maintains an Insurance Services Office fire rating of 4, with 1 being the highest on the 10-point scale. In addition, it manages a tanker task force and mutual aid agreements with other fire departments to ensure fire and rescue can still occur with force even with a lack of water on site.

A paid chief and deputy chief supervise the paid staff, while a volunteer assistant chief supervises volunteer members. The paid staff is comprised of three shifts, each consisting one captain, lieutenant, driver, and four firefighters. The volunteer staff consists of two captains, each supervising half of the volunteer firefighters. The department also has a volunteer safety officer.

**Figure 3.1.** Central Orange Fire District Map



Orange Rural Fire Department vehicles and equipment at Fire Station 1.



Fire Station in Waterstone.





## Other Services Provided by Orange County

**Orange County Department of Environment, Agriculture, Parks and Recreation** manages natural and cultural resources of Orange County, including natural areas and nature preserves, open spaces, parks and recreation facilities, water resources, and agricultural and cultural resource lands. The department offers education, recreation, athletics, and other programs to Orange County residents. The Town of Hillsborough does not have a parks and recreation department and relies on Orange County to offer recreational programming.

**Orange County Department of Social Services** focuses on protecting vulnerable children and adults, providing economic support to low-income individuals and families in crisis, and providing intervention services to at-risk persons living in Orange County. It administers numerous state and federal human services programs to provide preventive, supportive, and restorative services. A sample of these services include Medicaid, food and nutrition, employment assistance, special needs, veterans assistance, and adolescent parenting programs.

**Orange County Housing Department** focuses on increasing affordable housing choices and improving quality. Its primary vision is to promote adequate and affordable housing, economic opportunity, and a dignified living environment. The Housing Department enforces the county's Minimum Housing Code (found in the Orange County Code of Ordinances) and manages numerous programs, including the Housing Choice Voucher Program (Section 8), emergency housing assistance, home repair and rehabilitation, longtime homeowner assistance, and HOME Investment Partnership through the U.S. Department of Housing and Urban Development. The HOME Consortium includes Orange County, Carrboro, Chapel Hill, and Hillsborough. HOME is the largest federal block grant to state and local governments that is designed exclusively to create affordable housing for low-income households.

**Orange County Library System** includes the Orange County Main Library, which is located in Hillsborough. The library system's goal is to facilitate space that is inclusive and accessible for learning and connection through collections, programs, and services.

**Orange County Public Transportation** strives to provide a comprehensive continuum of locally accessible, community-based transportation services. It engages in transportation planning for the county, including regularly preparing a transit plan. It also provides fixed bus routes and demand response services. See Chapter 6 for additional discussion of public transportation services in Hillsborough.



## Role of Residents

### Elections

The key role of community residents in a democracy is to participate in public life. The most commonly observed opportunity of participation is exercising the right to vote during local elections. Hillsborough residents elect a mayor every two years, and five commissioners on staggered four-year terms.

### Feedback and Input

Surveys provide an easy, cost-effective way for municipal government leaders to gather feedback and suggestions from residents and to respond to them. Opportunities to provide feedback on projects or issues, to praise or make a complaint about a town interaction or service, or to nominate a town employee for a service award can be found on the town website. The Contact Us page includes contact information for the mayor, board, key staff, departments, and divisions. Subscribe to town news releases and follow @HillsboroughGov social media platforms to learn about surveys and other input opportunities.

A **Community Survey** is issued by the town to community members every two years to better understand community priorities and to gather information about the quality of town programs and services. The survey allows the town to:

- › Assess resident satisfaction with town services.
- › Compare performance to other communities locally and nationally.
- › Evaluate progress over time.
- › Use the results in identifying community priorities, decision making, and budgeting.



*Community members volunteering and enjoying public spaces.*





## Volunteer Opportunities

The town offers a number of ways for individuals to contribute to their community.

**Water Assistance Program** is a partnership between the town and the nonprofit organization Orange Congregations in Mission to provide emergency assistance in paying Hillsborough water and sewer bills. The program relies on donations, and eligible candidates are recommended by the Orange County Department of Social Services or a local church. One-time donations can be made or recurring monthly donations can be set up through the town website and payments portal.

**Volunteer workdays** are hosted frequently at parks, streams and wetlands, and other areas around town by Hillsborough departments and boards. Opportunities include the removal of invasive plants (year-round), maintenance of pollinator gardens (typically in March-October), trail clearing, and litter removal. See the calendar on the town website for dates. Subscribe to town news releases and follow @HillsboroughGov social media to be notified of workdays.

**Appointed boards** are a great way to provide input and make a difference. Applications can be submitted online through the town website, [hillsboroughnc.gov](http://hillsboroughnc.gov).

The town has six appointed boards and appoints commissions or task forces at times. It serves an advisory role to two of the appointed boards — the Tourism Board and Tourism Development Authority. Both boards are defined by the State Treasurer's Office as public authorities, which are separate legal entities distinct from the primary government. They were created by special enabling legislation. Any spending above \$5,000 or the purchase of property by the authorities must be approved by the town. The Hillsborough finance director serves as finance officer to the two appointed boards and is responsible for ensuring their actions comply with the Local Government Budget and Fiscal Control Act. Two other appointed boards — the Board of Adjustment and Historic District Commission — are quasi-judicial boards that exercise their judgment and discretion to make rulings on cases based on the Unified Development Ordinance and the Historic District Design Standards. The other appointed boards focus on areas of interest and make recommendations to the Board of Commissioners for final review and approval.

- › *Board of Adjustment* reviews and rules on applications for conditional use permits and variances. It also hears appeals of decisions of town staff and the Historic District Commission regarding development proposals. Responsibilities include:
  - Special use permits, including modifications to these permits.
  - Requests for variances from specific requirements of the Unified Development Ordinance and the Flood Damage Prevention Ordinance.
  - Appeals from enforcement actions, orders, requirements, decisions, and determinations of the planning and economic development manager and Minimum Housing Code inspector.
  - Appeals from decisions of the Technical Review Committee and Historic District Commission.
  - Interpretations of the Unified Development Ordinance.



- › *Historic District Commission* reviews applications for exterior changes within the Hillsborough Historic District and two locally designated landmarks. A majority of its members have specialized training or an interest in architecture, preservation, archaeology, history, or building methods. The commission rules on cases based on the Historic District Design Standards. In its quasi-judicial role, it hears evidence, determines relevant facts, and then applies the law as the law relates to exterior changes or demolition of any properties, as well as to new construction in the district. The commission’s role includes:
  - Deciding applications for Certificates of Appropriateness — applications for exterior changes within the Historic District.
  - Identifying, protecting, and preserving Hillsborough’s architectural resources.
  - Educating the public about architectural resources and preservation in general.
- › *Parks and Recreation Board* develops parks master plans and connectivity recommendations. Responsibilities include:
  - Developing recommendations in the Parks and Recreation Master Plan.
  - Developing individual parks plans.
  - Developing connectivity recommendations, including sidewalks, shared use paths, greenways, and trails.
  - Communicating with other recreational organizations to facilitate the sharing of recreational resources and programming opportunities.
- › *Planning Board* reviews and makes recommendations on rezonings, subdivisions, and ordinance amendments. Specific functions and activities include:
  - Conducting public hearings, reviewing, and making recommendations to the Board of Commissioners on requests for rezoning, special use permits, and amendments to the Unified Development Ordinance.
  - Recommending adoption or amendment of documents that make up the town’s comprehensive plan.
  - Advising the town board on general planning and development issues.
- › *Tourism Board* provides grants to nonprofit organizations and other entities for tourism-related activities. It is authorized to allocate funds generated by a 1% tax on prepared food and beverages. Details about the food and beverage tax can be found in the Code of Ordinances. Itinerant merchants selling prepared food or beverages must apply for a permit and pay for a single-day prepaid food and beverage tax for each day of operation. Itinerant merchants are not required to obtain any other permits from the town. Responsibilities of the Tourism Board include:
  - Promoting travel, tourism, and visitor services to drive economic development.
  - Preserving, enhancing, and programming Hillsborough’s non-revenue producing historic built and natural environment, encouraging visits to them and to Hillsborough’s cultural, entertainment, and recreational opportunities.
  - Sponsoring programs and activities designed to improve Hillsborough’s attractiveness to visitors.
  - Soliciting individuals and groups to visit and stay in Hillsborough and assisting them with visitor services during their stay.



- › *Tourism Development Authority* is responsible for administering the proceeds of a 3% room occupancy tax that the town began levying in July 2012. At least two-thirds of the tax's proceeds must fund travel and tourism promotion, with the remainder designated for tourism-related expenditures. Details about the hotel and motel room occupancy tax can be found in the Code of Ordinances. Responsibilities of the Tourism Development Authority include:
  - Promoting travel, tourism, and conventions in Hillsborough.
  - Sponsoring tourist-related events and activities.
  - Financing tourist-related capital projects.
- › *Tree Board* is responsible for hearing requests from residents regarding planting, maintenance, and removal of town trees and plantings. Pursuant to the town's Code of Ordinances (Section 7-36), town trees are any trees or shrubs on town property, such as town-owned public property, rights of way, and municipally owned property. The Tree Board also provides public education about tree care and oversees the Tree City USA and Bee City USA programs.

Responsibilities include:

- Reviewing and deciding on requests for planting, maintenance, and removal of town trees.
  - Coordinating volunteer invasive species removal program.
  - Providing guidance to the Public Space and Sustainability Division about care and maintenance of town trees and plantings.
- › *Water and Sewer Advisory Committee* is responsible for making recommendations related to management of the Water and Sewer Fund, which is an enterprise fund — a government-owned fund that provides goods and services to the public, with revenue coming from fees and charges. Recommendations of the committee address areas such as public information, operations, and finances. Because the water and sewer service area extends outside the town limits, the committee is represented by both in- and out-of-town customers and strives for diversification in backgrounds to provide equal representation on water and sewer matters.

**Other board appointments** of Hillsborough residents are made or recommended by the Hillsborough Board of Commissioners to boards that serve the larger Orange County community, including:

- › Orange County Affordable Housing Advisory Board
- › Orange County Animal Services Advisory Board
- › Orange County Animal Services Hearing Panel Pool
- › Orange County Human Relations Commission

Orange County government has a number of boards for which it seeks representation from Hillsborough residents without input from the town's elected leaders. See the Orange County website, [www.orangecountync.gov](http://www.orangecountync.gov), for more information on a board and how to apply.





# Town Government Goals and Actions

## *(General Health, Safety, Welfare)*

These goals identify what Hillsborough wants to do regarding town government and public services. There are related strategies and recommended actions identified for how Hillsborough will implement strategies and achieve the goals.

### Goals

- 1** Conduct town government operations in a transparent and responsible manner.
- 2** Adopt local laws, regulations, and policies that help to achieve sustainable and equitable outcomes.
- 3** Provide revenue and allocate resources to deliver and improve public services and local infrastructure in an effective and efficient manner.
- 4** Maintain a fair, respectful, and effective work environment for town employees.



# Strategies

## **Conduct town business and operations in accord with all applicable state laws.**

- › Ensure the town is managing government records in compliance with the Records Retention and Disposition Schedule for local agencies and other relevant regulations.
- › Ensure the town is following all applicable procurement procedures for purchasing goods and contracting services.

## **Conduct town business and operations in an ethical manner.**

- › Update the ethics document in the Code of Ordinances for the Board of Commissioners and in the Unified Development Ordinance for staff and appointed boards.

## **Conduct town business and operations in a fiscally responsible manner.**

- › Prioritize the fiscal needs of the community in the annual budget and implement strategies for a balanced budget (where spending is less than or equal to revenues the majority of the time).
- › Ensure the Capital Improvement Plan is based on priorities that help accomplish town goals.
- › Conduct transparent reporting of the town's financial health.

## **Coordinate plans and planning efforts that help to accomplish town goals.**

- › Develop, adopt, and implement an overall strategic plan and departmental plans that are aligned with the Comprehensive Sustainability Plan.
- › Participate in regional and county planning efforts that help to accomplish the Comprehensive Sustainability Plan.
- › Develop, adopt, and implement a racial equity plan.
- › Update, adopt, and implement the Emergency Operations Plan.



### **Develop and adopt policies that help accomplish town goals.**

- › Create a communications policy that includes direction on internal and external communications and incorporates reaching all members of the community.
- › Continue participating in the Government Alliance on Race and Equity to build policies on equity throughout the community.
- › Invest in sustainability initiatives that help the town achieve its renewable energy pledge.
- › Ensure that the process for reviewing town policies addresses consistency among departments, boards, and commissions.
- › Engage in state and regional policymaking that help to accomplish the Comprehensive Sustainability Plan.
- › Regularly review and update town policies as new information is garnered and achievements are met.

### **Develop and implement projects and programs that help accomplish town goals.**

- › Use the Comprehensive Sustainability Plan to inform the Capital Improvement Plan and prioritize projects.
- › Develop a process to demonstrate that budget and departmental priorities and projects are aligned with the goals of the Comprehensive Sustainability Plan.
- › Participate in projects and programs with regional partners that help accomplish the Comprehensive Sustainability Plan.

### **Deliver town services equitably, efficiently, and effectively.**

- › Promote communication and coordination among departments, divisions, and staff members to ensure consistency in decision making.
- › Strengthen staff accessibility and accountability to the public through demonstrating how the community can connect with staff and by providing regular updates on what town staff is achieving.
- › Ensure public safety is prioritized through investing in building trust and legitimacy with the community.
- › Coordinate with community organizations to prepare for and respond to emergencies together.
- › Use equitable and effective strategies to engage with the public.





### **Provide market-appropriate and equitable compensation and benefits to develop and retain a skilled and diverse workforce.**

- › Continue conducting regular market analysis on staff compensation and benefits to assess competition and create strategies for recruitment and retention.
- › Continue offering regular training opportunities to town employees.
- › Ensure employee safety through regular maintenance of facilities and by establishing an open-door policy, conducting hazard assessments, and addressing staff concerns in a timely manner.

### **Develop and conduct training, education, and outreach that help to illuminate and accomplish town goals.**

- › Incorporate a comprehensive guide to serving on the town board to the onboarding process for town board members.
- › Build a training program, beginning with onboarding, that includes in-person, self-guided, and mentorship opportunities for town employees throughout their career with the town.
- › Create a training toolbox for appointed board members to ensure members understand the board's mission, authority, roles, and responsibilities.
- › Strengthen the advertisement of available training to the community, such as Government 101, to ensure people know about these educational opportunities.
- › Continue providing diversity, equity, and inclusion training for town staff aligned with principles of the Government Alliance on Race and Equity and a town racial equity plan.
- › Ensure training and education materials are updated with new and revised town policies. Create a regular update for town staff on updates to policies.









# Land Use & Development

The town board envisions Hillsborough as a prosperous town, filled with vitality and a strong sense of community, which celebrates its unique heritage and small-town character. Having a plan for growing smart is critical to manage growth pressures, preserve important resources, and develop in a safe and inclusive manner. This chapter will demonstrate the importance of smart growth principles in the town's future development and identify opportunities for growing where infrastructure, utilities, and services can be provided efficiently and sustainably.





## Introduction

The Triangle region is expected to continue to grow for the foreseeable future. Between 2010 and 2019, Orange County grew by 11%, adding 14,783 residents to the county. Hillsborough was the fastest growing municipality in the county, with a 9.5% growth rate in 2018, adding 630 residents to the town.<sup>1</sup> This region of North Carolina is particularly attractive because of its natural beauty, access to talent, and potential for opportunities. The town must manage this growth to maintain a high quality of life for people in the community now and into the future. Smart growth is a strategy for managing growth in a sustainable manner. Smart growth focuses on development that ensures access to affordable housing options, a mix of land uses, and transportation options for all.

*The Town of Hillsborough is committed to smart growth to provide a sustainable and equitable quality of life and protect natural systems for future generations.*

Smart growth is ...



<sup>1</sup> Source: University of North Carolina at Chapel Hill, NC Demography.



## Smart Growth

In the mid-20th century, as car and home ownership surged, the form of American cities shifted toward an auto-centric model. As a result, cities and neighborhoods became less walkable and neighborhoods began to sprawl into previously undeveloped territory. The Interstate Highway Act authorized thousands of miles of roads that made longer commutes to work possible, and planned-living communities and subdivisions were built across America. Shopping centers, retail, and restaurants soon followed, adding to the convenience of suburban life. However, this form of development increased fossil-fuel consumption, resulted in degradation of the natural environment, and reduced access to opportunities for many people. More recently, communities have been shifting to growing in a smart and sustainable manner that focuses on compact development, housing and transportation options, and preservation of open space. This starts with guiding growth to areas where infrastructure can support development, encouraging a mix of land uses, prioritizing compact, walkable design, and offering a variety of housing options to the community. Specifically for Hillsborough, where the town provides the water and wastewater infrastructure and services, utility capacity is a critical component of where and how much the town can grow.

Smart growth is built from 10 primary principles, created by the Smart Growth Network (a partnership of more than 30 government, business, and civic organizations).

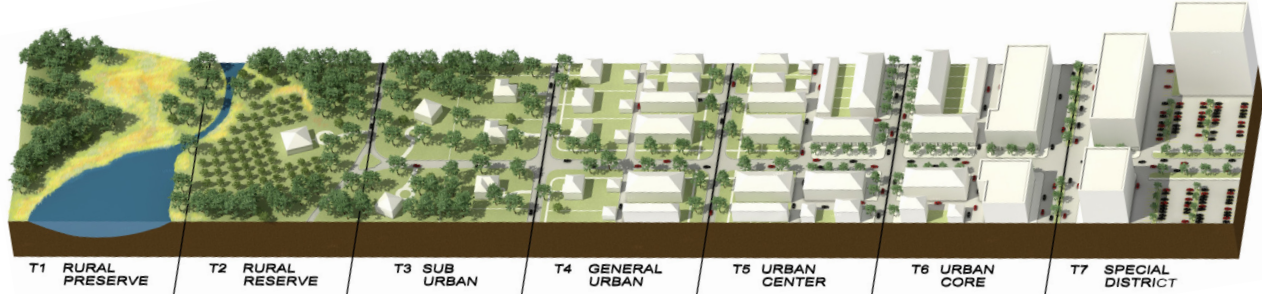
### The 10 Smart Growth Principles

- 1.** Mix land uses
- 2.** Take advantage of compact building design
- 3.** Create a range of housing opportunities and choices
- 4.** Create walkable neighborhoods
- 5.** Foster distinctive, attractive communities with a strong sense of place
- 6.** Preserve open space, farmland, natural beauty, and critical environmental areas
- 7.** Strengthen and direct development toward existing communities
- 8.** Provide a variety of transportation choices
- 9.** Make development decisions predictable, fair, and cost effective
- 10.** Encourage community and stakeholder collaboration in development decisions



## The Urban Transect

The rural to urban transect is a smart growth tool used to understand and categorize community form and character. The transect is divided into six zones based on intensity of the built environment and physical and social character. As transect zones become more urban, they also increase in complexity, density and intensity.



Hillsborough relies on smart growth principles to grow, maintain existing neighborhoods, foster design that encourages social connections, protect the tremendous natural assets of the area, and stimulate economic development. The town seeks development patterns that create more compact and walkable spaces with a mix of uses. These spaces allow residents to spend fewer resources and less time on travel, encouraging more active lifestyles and less reliance on cars for short trips, reducing greenhouse gas emissions and air pollution at the community and regional level.

The Hillsborough area has few naturally occurring physical borders to prohibit its growth, and, like many municipalities, it has undergone decades of development-driven growth leading to increased traffic, congestion, and pressure on its natural system. The town wants development that creates a healthy environment and high quality of life for all in the community — becoming more sustainable, accommodating needs of the residents, and providing the necessary infrastructure in an orderly fashion that will be sustainable and manageable.

*"Growth is smart when it gives us great communities, with more choices and personal freedom, good return on public investment, greater opportunity across the community, a thriving natural environment, and a legacy we can be proud to leave our children and grandchildren." — UNITED STATES ENVIRONMENTAL PROTECTION AGENCY*





# Planning Context

## Local Planning

The North Carolina General Statutes authorize jurisdictions to engage in local planning and development regulation through zoning, development approvals, fees, permits, and other growth management tools. The Town of Hillsborough has planning jurisdiction within the town limits and extraterritorial jurisdiction. The extraterritorial jurisdiction is the area within which the municipality has been given authority by the state to enact planning and land use regulations that protect the public health, safety, and welfare of residents, but is not within the town limits.

The town primarily manages growth through the Unified Development Ordinance, adopted in 2011 and regularly amended. The purpose of the ordinance is to “accomplish compatible development of the land and to guide and regulate the subdivision of land...which will best promote the public health, safety, and general welfare...” and protect water resources within the town.<sup>2</sup> All uses and disturbance of land in the town must comply with the ordinance.

Zoning outlines the local laws and regulations that govern how a piece of land can be developed. Zoning regulation and zoning classifications are updated and managed by the local planning board and planning staff. The town’s ordinance includes a zoning map, descriptions of each zoning district, and permitted uses (land uses) to direct development. The Zoning Map is a policy document, forecasting and regulating land uses in probable locations. Other regulations related to specific development standards, review processes, and enforcement procedures are also included in the ordinance.

The Future Land Use Plan for the town considers the existing zoning and land use and demonstrates what uses are projected or desired in the future for specific locations. The plan map is used as a guide for land use policy. The plan map depicts the town’s desired future if growth projections (population and employment) and policies are implemented. Development within the town is dependent on the water and sewer boundary area and utilities constraints.

**The Zoning Map and Future Land Use plan map are updated as development changes and growth occurs. The latest maps and zoning information can be found on the town’s website, [www.hillsboroughnc.gov](http://www.hillsboroughnc.gov).**



*Examples of different land uses in Hillsborough.*

<sup>2</sup> Town of Hillsborough, Unified Development Ordinance, last amended December 12, 2022



## Future Land Uses

Currently, the future land uses within the town are defined by classification, many of which include multiple zoning districts, as indicated in *Table 4.1*. Residential land uses account for approximately 60% of the future land use in the town, varying from rural living to small lot and mixed residential neighborhoods. Commercial uses represent approximately 20% of land use, and natural resources represent approximately 12% of land uses. The town has a small amount (approximately 4.5%) of light industrial uses identified as future land use.

**Table 4.1.** Future Land Use Plan Classifications

Land Use Classification	Acres	% of Land Use	Zoning Districts
Permanent Open Space	744.03	9.03%	AR; PW & PW-Critical Area
Working Farm	258.53	3.14%	AR; R-40
<b>Residential</b>	<b>5,053.48</b>	<b>61.33%</b>	
<i>Rural Living</i>	1,321.21	16.03%	AR; PW & PW-Critical Area; R-40
<i>Small Lot Residential</i>	1,374.30	16.68%	R-10; R-15; R-20; ESU; R SU
<i>Medium-Density Residential</i>	568.72	6.90%	R-10; R-15; R-20; MF; MHP; ESU; MF SU; R SU;
<i>Attached Residential</i>	208.82	2.53%	MF; MF SU; ESU; R SU
<i>Mixed Residential Neighborhood</i>	1,175.90	14.27%	R-10; R-15; R-20, MF; MF SU; ESU; MF SU; R SU; SD SU
<i>Urban Neighborhood</i>	404.53	4.91%	R-10; R-15; R-20; A R-U; NB SU; R SU
<b>Education</b>	172.49	2.09%	Adaptive Re-Use; Office Institutional
<b>Employment</b>	529.17	6.42%	HIC; BP; EDD; L I, GI; E SU; SD SU
<b>Light Industrial</b>	374.16	4.54%	HIC; BP; EDD; LI; GI
<b>Mixed Use</b>	157.14	1.91%	R-10, MF; BP, EDD; OI; HIC; MF SU; R SU; SD SU
<b>Neighborhood Mixed Use</b>	280.65	3.41%	A RU; R-10; MF; NB; NB SU; CC; CC SU; MF SU; R SU
<b>Retail Services</b>	538.56	6.54%	A RU; NB; NB SU; CC; CC SU; GC; HIC; ESU; SD SU
<b>Suburban Office</b>	92.33	1.12%	LO; OI; BP; EDD; ESU; SD SU
<b>Town Center</b>	39.51	0.48%	R-20; O I; CC; CC SU
<b>Totals</b>	<b>8,240.04</b>	<b>100.0%</b>	

Source: Town of Hillsborough Future Land Use Plan

AR = Agricultural/Residential	A RU = Adaptive Re-Use	BP = Business Park	CC = Central Commercial	CCSU = Central Commercial Special Use
EDD = Economic Development	ESU = Entranceway Special Use	GC = General Commercial	GI = General Industrial	HIC = High Intensity Commercial
L I = Light Industrial	LO = Limited Office	MF = Multi-Family	MF SU = Multi-Family Special Use	MHP = Mobile Home Park
NB = Neighborhood Business	NBSU = Neighborhood Business Special Use	OI = Office/Institutional	PW = Upper Eno Protected Watershed	R = Residential
RSU = Residential Special Use	SD SU = Special Design Special Use			



The town captures the vision for growth in the future land use map, which includes all the land use classifications. Typically, growth is expected to push outward from the town center, with more dense development surrounding the downtown and commercial services along the major corridors. However, there are infrastructure constraints that the town must consider. There is opportunity for growth in the southern part of town associated with the proposed train station development. This area will provide opportunities for compact, mixed uses, and transit-oriented development.

## Land Use Classifications

The Future Land Use Plan is informed by the existing land use pattern and the town's priorities. The land use pattern is typical of a town that has grown over time with a more urbanized town center and higher density, mixed uses along major transportation corridors. The town currently differentiates land uses into 16 classifications, which should be reduced and simplified, consistent with smart growth principles. For example, small lot residential, medium-density residential, and attached residential could be addressed in one classification. The mixed-use classification could include mixed residential, neighborhood mixed-use, and urban neighborhood.

## Residential Development Uses

Residential land uses — including Rural Living, Small Lot Residential, Medium-Density Residential, Attached Residential, Mixed Residential Neighborhood, and Urban Neighborhood — occupy nearly 61% of the total land area within the town. Residential land uses are divided into categories based on lot size and structure type outlined below:

- › Single-family and duplexes:
  - *Rural Living*: < 1 dwelling unit/acre
  - *Small Lot Residential*: 1 to 3 dwelling units/acre
  - *Medium-Density Residential*: 4-8 dwelling units/acre
  - *High Density*: 8+ dwelling units/acre
  - *Manufactured housing*, regardless of density and including manufactured home parks.
- › Multi-family land uses include attached townhouses, condominiums, and apartment buildings regardless of density.

Additional residential land uses are also included in mixed-use developments in the town.



*Crescent Magnolia — Affordable single-story townhome community*



*Bellevue Mill — Historic retro-fit apartment complex*





## Commercial, Office, Industrial, and Mixed Use Development Uses

Industrial, office and commercial development account for 21.1% of total land use within the planning area. Industrial land uses are generally located along the railroad. Office land uses are limited, with most office space located along I-40 and I-85 or scattered throughout downtown Hillsborough. Retail and commercial land uses are generally concentrated along South Churton Street in downtown and, to a lesser extent, in portions of north Hillsborough and along U.S. 70. Institutional uses such as the Orange County Government Buildings and Town Hall are located within the Commercial, Office, and Urban Neighborhood land uses.



*The Mercantile Center — Downtown retail art gallery*

## Parks and Recreation

Identified as permanent open space in the Future Land Use Plan, parks and recreational facilities are scattered throughout town, accounting for 18.4% of total land use. There are 14 parks within town limits, numerous Orange County parks and facilities and the Orange County Sportsplex, a complex with an ice rink, swimming pool, gym, basketball and pickleball courts, and a small soccer field.



*Gold Park, pollinator garden and bee hotel*



*Hillsborough Heights Park*



## Agricultural, Vacant Land, and Open Space

Agricultural, vacant lands, and open spaces are located throughout Hillsborough, comprising over 16.3% of total land use within the town limits. Continuous assessment of development pressures on these land uses is important for potential preservation opportunities.

Land uses are not created equal when it comes to the costs and services they provide to the local community. Residential uses generally cost local taxpayers more to serve than other land uses such as commercial and industrial because they demand more public services per capita than the tax that is collected from them. Commercial and industrial uses generally require larger parcels and can have more negative impacts on the natural environment due to runoff, necessary utilities, and increased land disturbance. The town is seeing redevelopment of vacant parcels with large homes or small subdivisions (2-4 parcels) and the purchase of undeveloped lots near town that have constraints such as water, stream buffers, topography or utility easements. It is important to ensure that the built environment encourages a mix of land uses developed in a sustainable, efficient, and equitable way, while retaining the character created by legacy land uses.



*Undeveloped space in North Hillsborough*





## Regional Planning

The region has been working together for years on planning initiatives to manage and guide growth. However, many of these plans are outdated and the county and town should coordinate on future goals and strategies. For example, in December 2006 the Hillsborough and Orange County, NC Strategic Growth Plan was published. The town and county collaborated on land use management issues in developing areas surrounding the town. The 2006 Strategic Growth Plan summarized existing conditions, evaluated the impacts of expected development, and offered recommendations in two major areas: a recommended land use pattern and a recommended structure for an interlocal agreement.

The recommended interlocal agreement associated with the Strategic Growth Plan was based on designating an urban services area for the town, which included areas expected to be developed at a more urban scale. The area outside of the urban services area is expected for low-density residential and agricultural uses, with no public water or sewer service and no annexation.

The Town of Hillsborough and Orange County share the Central Orange Coordinated Area Land Use Plan, which is a tool to evaluate consistency of rezoning requests with the town and county future land use visions. The plan defines the relationship between Hillsborough and surrounding areas. However, there have been changes and significant growth since this plan was developed. With the adoption of this plan Hillsborough will continue to revise the interlocal agreement created with the Strategic Growth Plan to better reflect the demand and current condition of the town as it relates to the urban service area, detailed below.

### Water and Sewer Management, Planning and Boundary Agreement

In 2001, Orange County, Carrboro, Chapel Hill, and Hillsborough created the Water and Sewer Management, Planning and Boundary Agreement to define water and sewer service boundaries and manage and plan for water and sewer service in Orange County. There have been some amendments to the agreement, most recently in November 2020, but the purpose remains to:

- › Provide a comprehensive, county-wide system of service areas for future utility development and interest areas.
- › Complement growth management objectives.
- › Resolve and preclude conflicts about future service areas.
- › Provide predictable planning and financing.
- › Limit water and sewer service in certain areas.

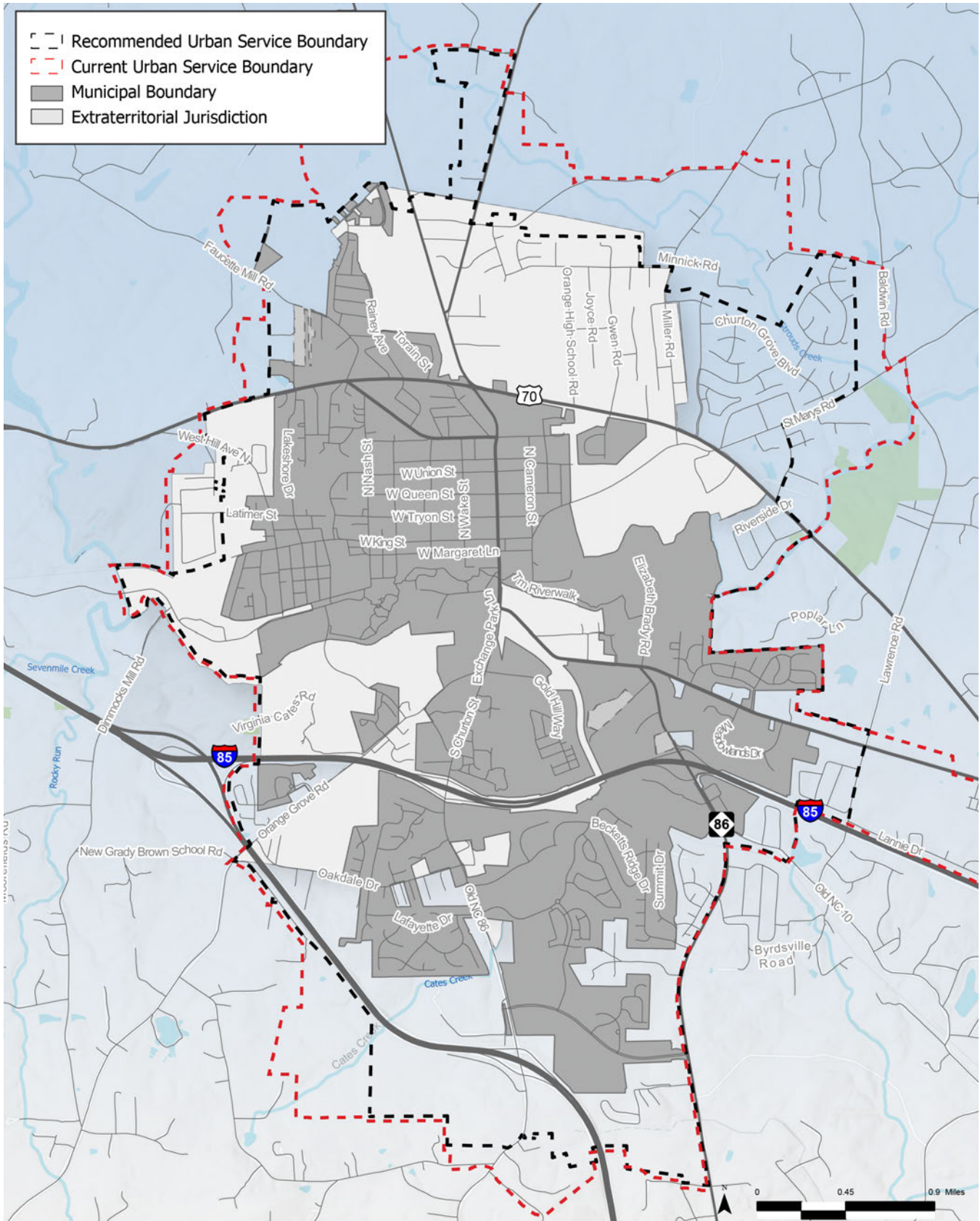
The town is currently evaluating the water and wastewater system and available capacity, which is detailed in subsequent sections of this chapter. Based on this evaluation, the town would like to coordinate with regional partners on revising its existing Urban Service Boundary (primary service area). The town is prioritizing rehabilitation, upsizing, and replacement of pipes, and supporting new projects and redevelopment within and closer to town where orderly expansion of water and sewer makes sense. The town's remaining capacity should be used areas in town prior to extending to out of town areas.

*Figure 4.1* demonstrates the current Urban Service Boundary (*dashed red*) associated with this regional agreement and the recommended Urban Service Boundary (*dashed black*).





Figure 4.1. Urban Service Boundary



Source: The Town of Hillsborough



## Necessary Infrastructure

Investments in water and wastewater, telecommunications, and transportation infrastructure is essential for supporting areas of growth and development. Infrastructure connects people and provides essential services for a community. Identifying what infrastructure is necessary and where it should be located within the town is critical for determining how growth and development will occur.

To fully understand Hillsborough's land use and future growth opportunities, it is essential to understand the water and wastewater services and capacity. While there are numerous infrastructure components associated with development, growth in Hillsborough is particularly constrained by the water and wastewater system. The Utilities Department is focused on protecting both the quality of the drinking water and the environment and provides water and sanitary sewer service to approximately 7,000 customers, in Hillsborough and out of town<sup>3</sup>, which includes managing the town's:

- › West Fork Eno Reservoir.
- › Water Treatment Plant.
- › Wastewater Treatment Plant.
- › Water Distribution and Wastewater Collection Systems.

There are approximately 1,500 water only customers where sewers do not exist.

### Source Water and Water Treatment Plant

The first water filtration plant for the town was completed in 1936. When the federal Clean Water Act was passed in 1972, a new water treatment plant was built next to the existing one using federal funds and a new intake location was sited upstream. The water treatment plant was upgraded in 2006. The upgrade did not increase rated capacity, but it provided more on-site finished water storage (1 million gallons) among other beneficial improvements. The Water Treatment Plant cleans and disinfects water from the Eno River, and then pumps it to the distribution system storage tanks for customer use. Water is drawn from the Eno



River at Lake Ben Johnston approximately a quarter mile from the water treatment plant site. Upstream storage includes Lake Orange, owned by Orange County, and the West Fork Eno Reservoir, owned by the town. After the west and east forks of the Eno River merge, Seven Mile Creek joins the river. Together the two reservoirs, the creek, and the river supply water to the town's customers. The first phase of building West Fork Eno Reservoir was completed in the early 2000s. An expansion, essentially doubling its capacity, was completed in 2021. The state required a 100-foot mitigative buffer around the second phase normal pool level at elevation 643'. To address this most efficiently, the town placed all the parcels it bought for the reservoir, which encompass the 100-foot buffer and more, into a restrictive deed. The restrictive deed

<sup>3</sup> Pursuant to the Water and Sewer Management Plan Boundary Area (WSMPBA) agreement.



prohibits development, recreation, or access other than for maintenance purposes to protect this drinking water source. The West Fork Eno Reservoir is outside the town boundary and is located in the Efland/Cedar Grove area northwest of the town.

The Water Treatment Plant is rated at 3.0 million gallons per day (mgd), and it is currently operating at approximately 50%-60% on average day flow. The highest peak day demand in the last few years has been 2.6 million gallons per day. The plant operates and is manned around the clock. The water treatment plant produces between 560 and 580 million gallons of water per year.

## Wastewater Treatment Plant

A wastewater treatment plant existed on the Eno River earlier than 1970. The plant in its current location was completed in 1977 and designed to handle 3 million gallons of wastewater per day. It has had upgrades in 2001 and 2007 to improve solids management, nutrient removal, and treatment capabilities. A 2014 expansion and upgrade allowed the plant to meet recent state requirements to protect Falls Lake, Raleigh's drinking water supply source and an impaired body of water. The plant uses a five-stage enhanced biological nutrient removal process including filtering to remove nitrates; disinfecting with chlorine; and removing chlorine before the water is discharged. The wastewater treatment plant operates 24 hours each day with staffing during business hours.



*Wastewater treatment plant*

The plant is likely limited in treatment capability to around 2.2 mgd due to the state's requirements for removing nitrogen as set in the Falls Lake Rules. The current average discharge is approximately 37% of the permitted capacity of 3.0 mgd but 50% of the expected nutrient discharge limitation of 2.2 mgd. This high level of operational excellence in nutrient removal may not be possible as flow volumes increase. From July 2020 to June 2021, the wastewater treatment plant treated 396 million gallons of wastewater. The plant and its staff have won numerous awards and recognition for its operation.

All smaller sewer basins are conveyed through either Elizabeth Brady or River basins. The Elizabeth Brady basin is newer and has more capacity. However, committed but not yet built and known developments will quickly consume remaining capacity under the current sized pipes and pumping stations. As such, development is limited to small scale projects (i.e., single-family residences or single low-water use buildings). The River Basin currently needs significant capacity upgrades to accommodate new development.

The wastewater treatment plant is operating at approximately one-third of its rated 3 million gallons per day capacity on an average day. However, the plant is limited by the nutrient discharge to the Eno River per regulatory limitations, which may be less than its hydraulic treatment capacity. As more development occurs, nutrient loads will increase and the level of removal may decline, consuming capacity and requiring upgrades.





Completion of a holistic master plan for the wastewater treatment plant was postponed until at least Fiscal Year 2023 due to the current plant's successes in nutrient removal. The plan, when completed, will provide options and guidance to comply with the Falls Lake Rules' future second phase. Nutrient removal requirements for that phase are currently unknown. However, compliance will likely require significant investment in advanced treatment processes like reverse osmosis to meet the rules requirements. This requirement may be cost prohibitive for the town and its customers with all the other water and sewer infrastructure needs.

## Distribution and Collection Systems

Some of the town's distribution and collection system pipes existed prior to the water and wastewater treatment plants. As such, some of the assets are older than 1935 and others as new as 2021. The distribution system has five water storage tanks. Four are ground tanks (standpipes), and the newest one is a pedestal tank. The storage capacity in the system tankage is 2.45 million gallons. The Hasell Street standpipe is the smallest and oldest of the tanks yet serves as the distribution hub to the other areas of the system; water is pumped directly from the finished water storage at the Water Treatment Plant to the Hasell Street standpipe. From the Hasell Street standpipe, two water booster pumping stations pump to the town's north and south pressure zones (areas of higher elevation than the Water Treatment Plant and the central original water service area). Another new water booster pumping station that has not been routinely utilized in the central pressure zone can pump to the south pressure zone but not in tandem with the other station that pumps to the south zone, as tank levels will drop too quickly. This is currently a redundant station. Two "jockey" pressure boosting pumps exist in the system to maintain adequate water system pressures to certain areas. Ground tanks are more inefficient for storage due to more unusable storage space. That, combined with general age of some of the tanks, makes them in need of upgrades in the near future.

The water distribution system dates to before the 1930s and is comprised of pipes of varying materials, including asbestos-cement, cast iron, copper, ductile iron, galvanized, and polyvinyl chloride (PVC) pipe. These pipes vary in size from 1.5 inch to 16 inches and consist of a total of 785,221 feet or approximately 149 miles of transmission and water distribution mains. There are three intermunicipal water connections with neighboring utilities that have segments of pipe well outside the town boundary. The interconnections with the City of Durham, Orange Water and Sewer Authority, and Orange-Alamance Water System are governed by mutual aid agreements allowing the town to give water to or receive water from other utilities in times of need. The town participates in the Triangle Water Partnership, a multi-utility member organization focused on redundancy and resiliency of water systems in the Triangle region. As such, the interconnections are an important and critical part of the town's water supply and emergency response planning. The challenges facing the existing distribution system that can be prohibitive of new development include undersized mains, mains of substandard material, and providing adequate fire flow.

The sewer collection system consists of almost 100 miles of piping and 25 publicly owned pumping stations. The pipes are of vitrified clay, plastic, iron and some strange and outdated materials like Orangeburg, corrugated PVC, and acrylonitrile-butadiene-styrene truss pipe. Pipe sizes range from 4 to 24 inches. The larger of the piping constitutes the town's major sewer interceptors, which were built in the 1970s with the current wastewater treatment plant or earlier. Hillsborough has many more pump stations than a typical municipality due to its rolling terrain and likely because the infrastructure was preferred decades ago due to its low upfront costs. Many of the stations were constructed by developers of subdivisions and donated to the town in the 1980s and 1990s. Thus, they are old and not necessarily constructed to proper design



standards, features, or materials that would be required today and possibly even back then. They were not designed to serve anything but the developer's project, limiting some nearby growth without further capacity upgrades. Per million gallons treated, Hillsborough has 3 times the pump stations of Mebane and nearly 12 times that of Raleigh. The Utilities Department has 30 backup generators. Most of them are permanently present with automatic transfer during outages at pumping stations, and the rest are portable with manual transfer switches.

The challenges for the collection system and distribution system are similar and include deteriorated pipes, pipes at or exceeding their expected life, undersized pipes, pipes installed with no recorded easement, and inflow and infiltration in the aged system.

The Water Distribution and Wastewater Collection Division is housed in the 1936 water filtration plant building with a small basement-level, poorly vented welding shop. There is not HVAC in parts of the building and only one bathroom shared by several staff. The division shares a storage yard with the Public Works Division for materials and equipment. Much of the expensive equipment and materials remain exposed to the elements due to inadequate available covered space.

## Level of Service and Necessary Improvements

The current level of service to customers is generally adequate, but most of the distribution and collection infrastructure is either well beyond or approaching the end of its useful life or of inadequate size or condition to support future growth. Recent studies show that there are capacity constraints in the sewer system with replacement and rehabilitation needs upwards of \$40 million through 2040 to accommodate committed and potential growth. The potential growth areas do not include infill, conversion of failed septic systems to public sewer, and redevelopment with high-density, multi-story uses. It also does not include out-of-service-area parcels that may petition the town to be included or changes in allowable uses made through rezoning and variances. Particularly, significant improvements to the sewer pipes need to be performed under the 2040 (or sooner) scenario, which is projecting almost double the daily sewer flows. Wet weather (leaking sewers) is a problem in the River Pumping Station Sewer Basin (the largest and oldest basin) today and is limiting capacity available for growth. (See sewer basins in *Figure 4.2*.) Planned growth is a driver for sewer improvements in the newer Elizabeth Brady Pumping Station Sewer Basin. Significant investments will be needed to prepare for future needs and growth. These investments include but are not limited to expansion and repairs to the distribution and collection system; replacement of old pumping stations; expansion of water storage capacity; probable renovations of the water and wastewater treatment plants; and a solution for the former water plant, which has been found to be substandard as an office to the distribution and collection division staff, materials, and equipment.

Increased staffing is needed to operate and maintain the utility assets to today's standards fully and properly with advanced monitoring, asset management, predictive failure and reduced risk and consequence of failure. Other necessities include distribution system upsizing of small diameter mains, removal of any galvanized mains, and system looping for water quality, fire flow, and system pressure. The town recently received a grant to perform water system master planning. It is anticipated that the findings will necessitate additional significant water distribution system improvements similar to those on the collection system side.

*Table 4.2* demonstrates the current and necessary staffing of full-time employees for the town's utilities department. *Table 4.3* captures the Utilities Department's fleet and equipment in early 2023.



**Table 4.2.** Current and Needed Full-Time Employees

	Current FTEs	Needed FTEs
Utilities Administration	4	+1 (inspector)
Water Treatment Plant	7	+1
Wastewater Treatment Plant	6	+1
Distribution and Collection Division	14 (3 vacancies)	+1-2

**Table 4.3.** Fleet Vehicles Totals

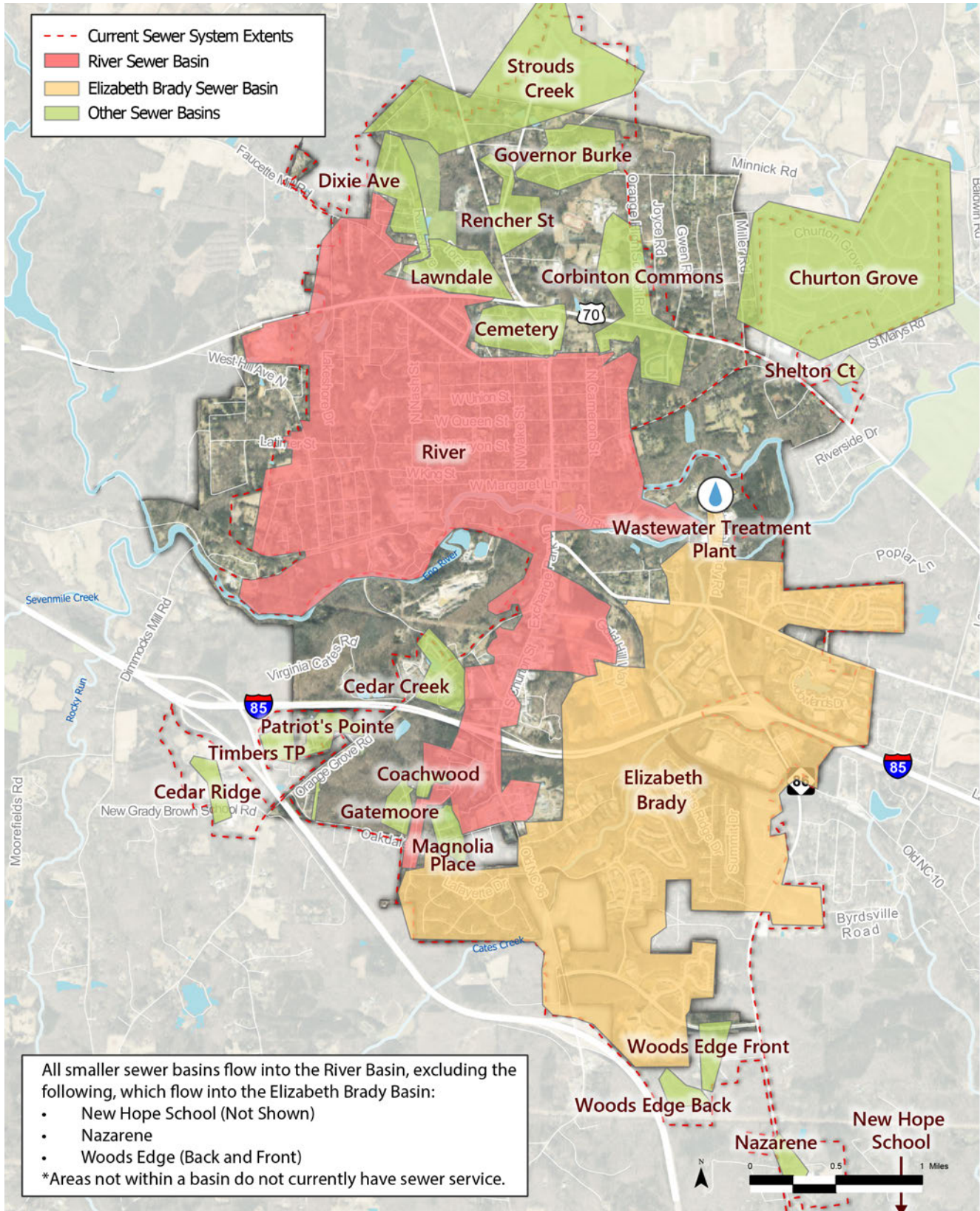
	Vehicles	Total
Utilities Administration	Service vehicles	1
Water Treatment Plant	Service vehicles	2
Wastewater Treatment Plant	Service vehicles	2
	Semitruck	1
	Lull	1
	Backhoe	1
	Utility vehicles	2
Distribution and Collection Division	Service trucks	14
	Dump trucks	2
	Backhoes	2
	Skid steer	1
	Excavators	5
	Tractors	2
	Utility vehicle	1

The equipment is adequate for current levels of service. Additional equipment will be needed in the future due to age and efficiency. Vehicles are generally replaced on a defined town-wide schedule.





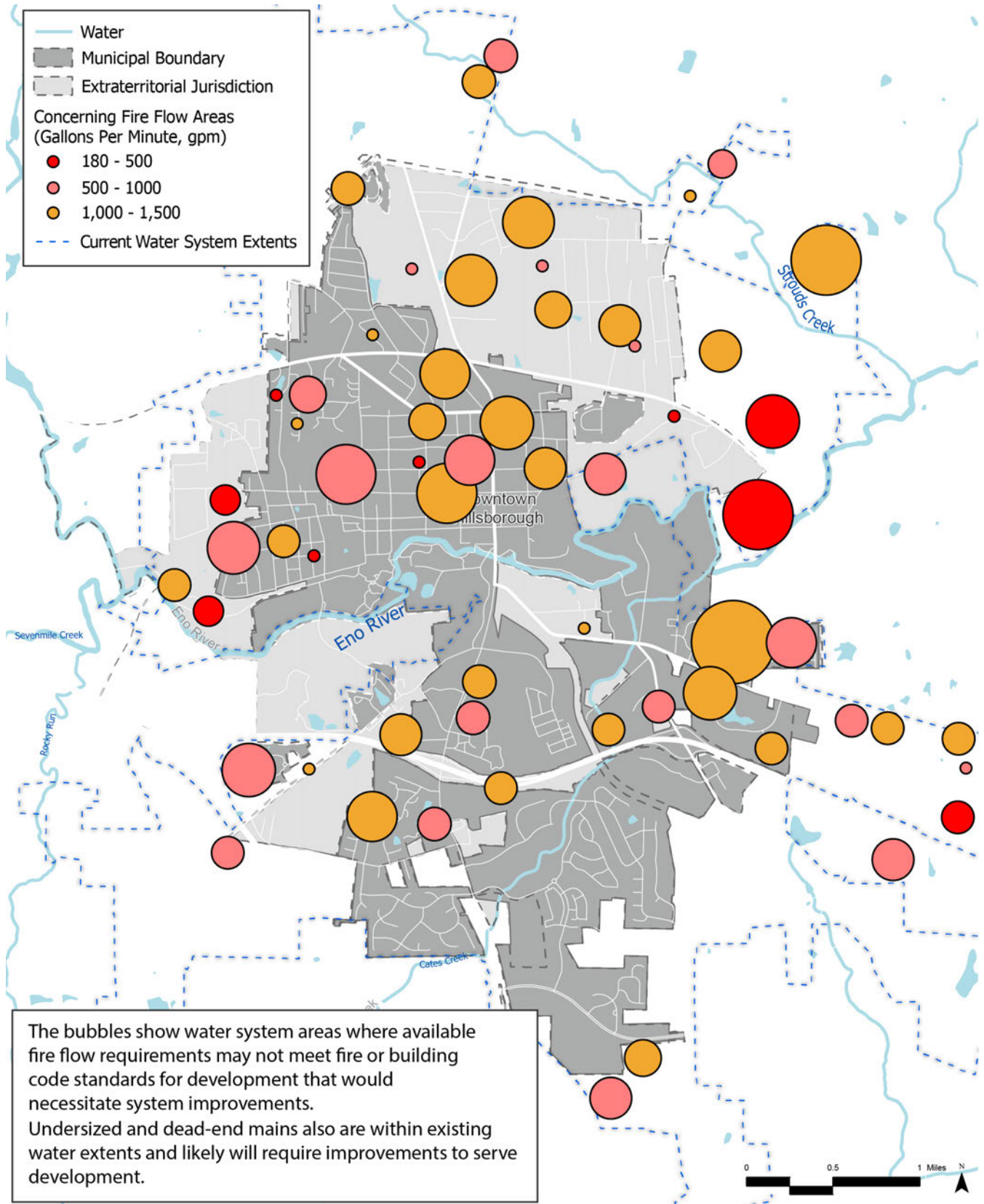
**Figure 4.2. Existing Sewer Basins**



Source: The Town of Hillsborough



Figure 4.3. Water and Fire Flow Concerns System Extent



Source: The Town of Hillsborough





## Water and Wastewater Infrastructure Improvements

The following are efficiency and capital improvements that have been completed for water and wastewater services:

### › **Wastewater Treatment Plant:**

- Converted most of the lights, including outdoor, to LED.
- Worked with Duke Energy to operate equipment off peak hours as much as possible.
- Upgraded and modified plant to achieve extremely low nutrient levels in the effluent.
- Upgraded stormwater best management practices to maximize protection of the Eno River.
- Improved post aeration to benefit the Eno River.

### › **Water Treatment Plant:**

- Working toward converting lighting to LED.
- Continuing to work with Duke Energy to operate equipment off peak hours as much as possible.
- Replaced air conditioning with higher efficiency unit.

### › **Distribution system:**

- Optimized automatic flushers (keeps water fresh at end of line and in low-use areas) to minimize unbilled water.
- Made interconnections between water pipes along South Churton Street for increased redundancy.

### › **Reservoir:** Completed Phase 2 expansion to provide almost double the water storage capability, helping ensure the town can provide water in times of drought. The reservoir is subject to source water protection rules that have best practices and allowable land uses within a certain radius of drinking water sources and intakes.

- › Participation in the voluntary 1980s-era Eno River Users Group Capacity Management Plan, which includes all the entities withdrawing water from the Eno River in its upper reaches providing a minimum release from impoundments to keep water quality and aquatic life viable at all times and limiting withdraws from the river during times of drought.
- › The town has a drought management ordinance and also an ordinance regarding irrigation amounts and frequencies for water conservation.
- › Participation in the Triangle Water Partnership and the Triangle Water Supply Partnership. Both of these organizations involve ensuring adequate and safe regional water supply through interconnections, stream gauge monitoring, and drought management.

Water and sewer development is guided by town code and town technical specifications, details, state and federal design criteria and regulations. The town continually evaluates and preserves the resiliency of the critical water and wastewater infrastructure, including:

- › Moving sewer lift stations out of the 100-year floodplain.
- › Studying efficiencies to the systems like eliminating sewage pumping stations and increasing water storage, improving operations, and increasing system monitoring.





- › Locating automatic backup generators at almost all facilities (treatment plants, pump stations, booster stations). Portable generators are available for facilities without them. Service agreements are in place to evaluate and maintain these generators to assure continued operation.
- › Maintaining water system interconnections with three neighboring utilities in times of emergency and secured water allocation from Jordan Lake that can be transferred through partners in the Triangle Water Supply Partnership using their infrastructure.
- › Coordinating with planning department regarding infill development and density increases in certain areas of the town.
- › Continuing membership of NCWaterWARN, an emergency response network of utilities in the state, where the town can offer or receive assistance during natural disasters or other unexpected dire emergencies.
- › Adhering to several emergency response planning documents for facilities and in combination with the town and emergency response agencies.
- › Publishing numerous education materials for residents regarding the town's utility system, including documents and videos.
- › Performing system-wide modeling of the water and sewer systems for pressure, water age, fire flow, hydraulic capacity and storage needs.
- › Enforcing the town's cross connection control ordinance to protect the public water system from unintentional contamination by sources beyond the town's control.

An upcoming regulatory requirement will have the town inventorying lead water service lines and galvanized mains in the system, including the private side service line to the home.

The town currently has no significant industrial users and is currently not required to have a pretreatment program for its wastewater treatment, although it did in the past when textile mills were active. Significant industry coming to town could result in the need to re-establish the pretreatment program and could result in negative impacts to our treatment process.

Water systems are measured by fire flow to determine the amount of water available for firefighting purposes (see *Figure 4.3*). Fire flow refers to the amount of water required to control and extinguish a fire. It is usually measured in gallons per minute and is determined by various factors, such as the availability and capacity of the town's water system.



## Future Growth

Since past planning efforts were undertaken, the town has experienced more growth pressure and staff members have a greater understanding of infrastructure constraints and needed improvements. The constraints and improvement needs are driving land use decisions for the future.

Focusing development in key areas, particularly those already accommodated by water and sewer infrastructure, is critical to smart growth in Hillsborough. Based on the water and sewer capacity constraints, growth should be focused in the southern part of town in the Elizabeth Brady Basin. This area is ripe for additional compact and mixed-use development, particularly with the train station project serving as a core activity node. Some growth is anticipated in the northern portion of the town (in the Eno River Basin), but additional water and wastewater capacity is not a priority for this area as much as replacing and rehabilitating aged pipes to remove extraneous water sources.

*Figure 4.4* illustrates the areas of the town that are expected to be conserved, maintained or sustained, or have the potential to grow. As demonstrated in the Growth Areas Map (*Figure 4.4*), most growth is anticipated in the southern portion of the town (within the Elizabeth Brady Basin). The town plans, regulations and ordinance should be revised to direct this growth to accomplish the goals of this plan. Areas identified as "areas to sustain" are mostly developed areas that may see some infill opportunities; development is not expected in the "areas to conserve."



*Corbinton Commons*



*Fiori Hills*



*Forest Ridge*

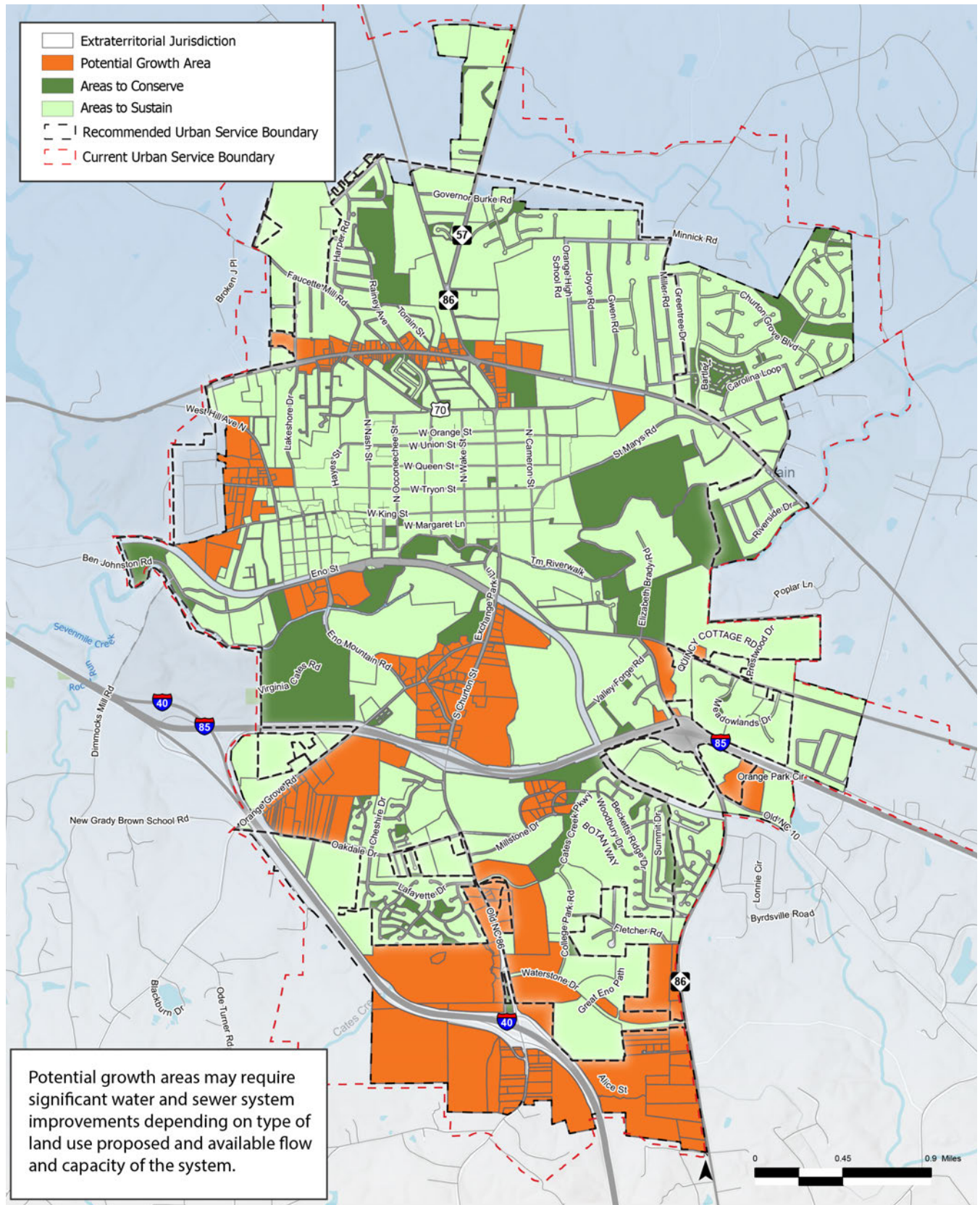


*Harmony at Waterstone*





Figure 4.4. Potential Growth Areas



Source: The Town of Hillsborough





# Land Use & Development Goals and Actions

These goals direct how the town wants to improve land use and development practices in the town. There are related strategies and recommended actions identified for how the town will achieve the goals.

## Goals

- 1** Ensure that future growth and development, including infill and redevelopment, are aligned with smart growth principles and consider infrastructure constraints such as water and wastewater system capacity.
- 2** Invest in infrastructure that supports preferred land use and growth patterns.

## Strategies

### **Develop and adopt plans that contribute to meeting preferred future land use and growth patterns.**

- › Coordinate all plans, including land use, zoning, utility and infrastructure provision, and annexation policies, to ensure that future growth and development — including infill and redevelopment — establishes and follows land use and growth preferences.
- › Revise the Urban Service Boundary to reflect a 2040 actual water and sewer capacity and availability with already identified improvement as well as incorporate preferred future land use and growth patterns.
- › Analyze additional opportunities for infill and redevelopment and increased density in existing neighborhoods, focusing on the provision of water and sewer and other infrastructure and services.
- › Update the Future Land Use Plan to simplify land use categories and express current preferred future land use and growth patterns.

### **Develop and adopt policies that contribute to meeting preferred future land use and growth patterns.**

- › Adopt an annexation policy that ensures future growth and development align with preferred growth and development patterns.



### **Invest in public projects that contribute to meeting preferred future land use and growth patterns.**

- › Continue to monitor and track the distribution of commercial and residential development to ensure a balance of land uses in accordance with the Future Land Use Plan (*Table 4.1*)
- › Upgrade and maintain existing infrastructure and facilities to support preferred land use and growth patterns.
- › Use the recommendations from water and sewer calibrated hydraulic modeling to guide improvements while systematically continuing to evaluate and reduce extraneous flows and illicit connections in the system.
- › Target public investments to support preferred land use and growth patterns that will leverage desired private investments in those areas. Include mechanisms to cost share water and sewer improvements with private developments to meet town and system-wide needs when feasible.
- › Evaluate development opportunities for town-owned property in accordance with preferred land use and growth patterns.
- › Prioritize public projects that support preferred growth and development patterns and goals.
- › Create a master address repository using GIS/CAD digital submission standards for subdivision plats and other planning process documents to reduce the need for physical copies.
- › Facilitate transit-oriented developments around the future train station project to better align with future densities and demand for public transportation.
- › Focus on smart water and sewer systems that provide real-time monitoring and system management.

### **Participate in regional planning exercises and partnerships that promote and advance smart growth in the region.**

- › Identify opportunities to collaborate regionally on initiatives and plans that will help to accomplish smart growth in the Triangle area.
- › Evaluate capacity and identify staff that can participate in prioritized regional initiatives and plans.
- › Create Board of Commissioners policy on regional coordination to ensure town board members represent the town in these organizations.
- › Update the Water and Sewer Management, Planning and Boundary Agreement and Central Orange Coordinated Area Land Use Plan to reflect revisions represented in this plan.

### **Ensure that land use and development regulations are aligned with preferred future land use and growth patterns.**

- › Revise zoning and development regulations in accordance with the Future Land Use Plan and the Future Land Use Map and water and sewer needs. Condense land use classifications.
- › Overhaul the Unified Development Ordinance and Zoning Map to reflect current development trends and patterns to incorporate sustainability, environmental and climate best practices, economic resiliency measures, and equity in development and redevelopment as well as meet water and sewer system-wide needs. Incorporate utility standards in UDO.



- › Incorporate Universal Design and accessibility standards into zoning and development regulations.
- › Ensure that the Unified Development Ordinance incorporates strategies to achieve a mix of housing types through zoning.
- › Coordinate with the county to ensure they are aware of town limitations on water and sewer and desired growth types and areas, and the town considers mutual aid to neighbors for water capacity.
- › Provide guidance on green infrastructure and low-impact development practices to interested developers.
- › Incorporate a sustainability checklist in the existing development review process to promote excellent design and inform applicants of design options available that can enhance the existing built environment.
- › Provide accelerated and smart monitoring of the water and sewer systems to track capacity use and alignment with modeled values.

### **Improve and streamline the development review approval and acceptance process.**

- › Update the Unified Development Ordinance to ensure development review processes are clear, responsive, predictable, and equitable while ensuring flexibility within design. Include requirement to obtain capacity assurance and Water and Sewer Extension Contract prior to rezoning or annexation requests.
- › Use effective maps and public communication to convey preferred land use and growth patterns to development community and limitations on water and sewer availability.
- › Establish a timeline for development projects at pre-submittal.
- › Clarify the roles and responsibilities of internal town department reviewers, appointed boards, and the town board in the development review process.
- › Map service areas for provision of water and sewer, stormwater, electricity, natural gas, high speed internet, and cable for the development community and make available online in an interactive dashboard.
- › Align all future development decisions with the goals of the Comprehensive Sustainability Plan.
- › Continue to evaluate the building permits and fire inspections needs of the town and coordinate building inspections processes and fire inspection services with Orange County to provide timely and effective services to the community. Analyze feasibility of town inspections and permitting.
- › Create a development repository where all documents and plans related to a project/address/PIN are kept and accessible by all applicable departments.
- › Solidify acceptance process amongst departments and conditions of bond release.

### **Incorporate effective community engagement in land use and development planning practices and development decisions.**

- › Foster active participation and authentic community engagement in land use and development planning and decision-making through informing, consulting, involving, collaborating, and empowering community members, especially underserved, minority, disenfranchised, disadvantaged, or impacted groups and individuals.
- › Approach land use and development planning and decisions with an equity lens to mitigate negative impacts.









# Environment & Natural Systems

The natural environment, inclusive of air, water, soil, vegetation, and wildlife (and the interactions among them), is an important aspect of a community's overall sustainability, health, and function. Human health and well-being depend on the natural environment for basic necessities, like food and water, and natural systems protect life and property from natural hazards, like flooding. Many people value nature for enjoyment and recreation. Environmental stewardship conserves natural resources, combats pollution, protects biodiversity, and sustains the environment for future generations. This chapter demonstrates the benefits and services provided by the continued stewardship of Hillsborough's natural systems.



## Introduction

*“A systems approach is based on understanding the linkages among natural heritage features and the underlying functions that connect them. Consideration of their linkages to the hydrological system is also needed to ensure that biodiversity and ecosystem resiliency are maintained and enhanced over the long term.” — D. ROUSE & ROCKY PIRO*

Natural systems are critical to community health and sustainability. Humans are inextricably linked to the environment and have always depended on the natural world for necessities such as food, clean air and water, and medicine. Maintaining and improving the quality of the environment is vital for overall community and ecological health. In the smart growth model, nature and the built environment are seen as interconnected and interdependent. We must ensure that development and growth occurs without environmental degradation.

This chapter outlines the aspects that make up the integrated natural system in Hillsborough and the town's determination to protect, conserve, and restore critical environmental areas and natural systems for a sustainable future. Human activity and development that encroaches on sensitive habitats lead to a chain reaction of negative effects for all life in the ecological system. Development must incorporate features that protect and enhance the environment, such as wildlife corridors, conservation areas, and stream buffers. In Hillsborough, efforts are being made to maintain, restore, and enhance ecologically sensitive and resilient landscapes through a focus on natural systems.

By acting as environmental stewards, reducing the impact of growth and operations on the land, and incorporating environmentally responsible practices into the services the town provides, we move toward reaching our sustainability goals. The comprehensive sustainability planning process included evaluation of the existing conditions and the creation of goals, strategies, and actions to support and sustain the town's environment and natural systems.



*Planting and placing floating wetlands.*

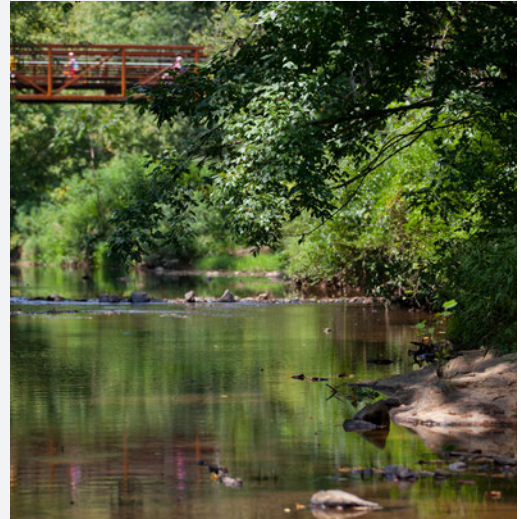






### Human Benefits from Healthy Natural Systems

- › Better cognitive functioning
- › More effective “life functioning”
- › More self-discipline and impulse control
- › Greater resilience to stress
- › Greater mental health overall
- › Stronger neighborhood ties
- › Greater sense of community
- › Greater shared use of public spaces
- › Increased positive social interaction
- › Higher levels of physical activity for all ages
- › Improved opportunities to live healthier lives
- › Promote learning



*Eno River in Hillsborough*

## Existing Conditions

### Water Resources

The Eno River runs through the center of Hillsborough. It is a beloved asset for the community. The river and its tributaries have directed the development areas and circulation patterns of the town since pre-colonial times. Approximately 380 acres of the town’s jurisdiction is covered by a 100-year floodplain for the Eno River and its tributaries (see *Figure 5.1*). During a flood event, chemicals and other hazardous substances can contaminate local water and disrupt the ecosystem. Floods can cause erosion, altering streambanks and changing the flow of water. The town adopted a floodplain development ordinance in 2010 that limits development within the 100-year floodplain. Ensuring that projects are being reviewed and developed in a way that mitigates the adverse effects of runoff and floodplain impacts is critical to preserving the health of all water resources.

A watershed is an area of land that drains rainfall and snowmelt into streams and rivers and serves as one of the key elements that determines the quality of groundwater and the overall hydrological system. Most of the town is located in the Lower Eno Unprotected Watershed. The Upper Eno Protected Watershed, which is considered a critical watershed by the state, is located west of town. The Little River Watershed is located north of town in the county’s jurisdiction. The Jordan Lake and University Lake watersheds are south of Hillsborough in the jurisdictions of Chapel Hill and Carrboro. The watersheds in North Carolina are protected under the North Carolina Department of Environmental Quality Water Supply Watershed Protection Program, which classifies the watersheds as critical or protected and regulates the type of development in each watershed classification. The West Fork of the Eno Reservoir serves as the town’s primary water supply. Downstream waterbodies include the Eno River, Falls Lake, the Neuse River, the Albemarle-Pamlico Sound, and the Atlantic Ocean.



There are numerous streams that converge in the Eno River. The town has prioritized protecting these streams, primarily through riparian buffers, following both the state’s Neuse River buffer rules and the town’s unified development ordinance. These buffers, typically 50 feet, are preserved, undisturbed land along streams and other surface water bodies.<sup>1</sup>

Bellevue Branch, a creek that runs through the town, is part of the Upper Neuse River Basin, as is the Eno River. A watershed management plan for Bellevue Branch was completed in 2019 as a University of North Carolina capstone project that evaluated the watershed and provided recommendations for improving stream health. The plan found that the Bellevue Branch is healthy and supports flora and fauna but is vulnerable to pollution from construction and stormwater runoff from surrounding land uses. Recommendations include invasive species removal, regular monitoring of water quality, and evaluating the performance of stormwater control measures.

North Carolina has **17 river basins**, which are each subdivided into specific regional watersheds. The five western river basins eventually flow to the Gulf of Mexico, while the other 12 basins flow to the Atlantic Ocean.

### Eno-Haw Regional Hazard Mitigation Plan (2020)

The Eno, like many other tributaries, is susceptible to overflowing its banks during and following excessive precipitation events. These events have the ability to cause damage and economic disruption for the area, further cementing the importance of mitigation efforts for the town and communities downstream. Hillsborough is the nearest downstream location to three high-hazard dams:<sup>2</sup> Lake Orange Dam, Hillsborough Water Supply Dam, and Randy Fox Dam. A fourth dam upstream of Hillsborough — Flint Ridge Dam — is in poor condition. Increasing flooding events have the possibility to disrupt operations to these locations if not properly mitigated.



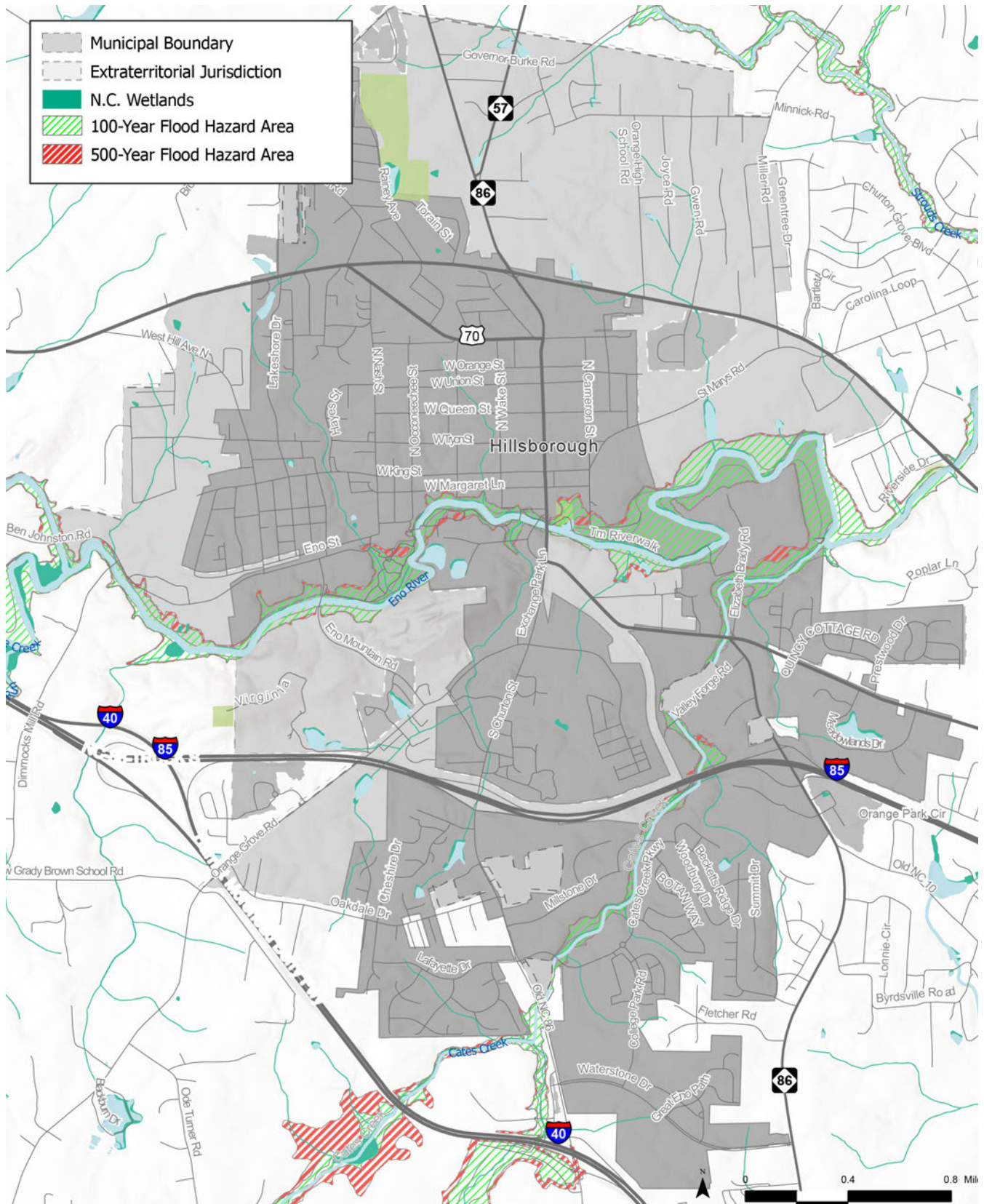
*West Fork Eno Reservoir*

<sup>1</sup> Pursuant to Hillsborough Unified Development Ordinance, permitted uses within the buffers include roads, bridges, greenways, railroads, and some utilities. Agricultural and forestry activities can also occur in the buffers if consistent with state guidance.  
<sup>2</sup> A high-hazard dam is a dam that causes severe damage and/or loss of life if it fails.





**Figure 5.1.** Water Resources Map



Source: U.S. Fish and Wildlife Service, National Wetlands Inventory





## Stormwater and Erosion Control

Stormwater runoff pollution is North Carolina's greatest water quality problem and of particular concern in Hillsborough due to the sensitive Eno River corridor. Currently, stormwater that impacts the town is managed jointly by the Town of Hillsborough and Orange County. The town has delegated authority from the state to enforce within its jurisdiction the riparian buffer rules to protect the Neuse River downstream. The county has delegated authority outside of the town's jurisdiction.

The Town of Hillsborough exercises regulatory authority within the town and extraterritorial jurisdiction areas. The town's Comprehensive Stormwater Management Plan includes stormwater runoff pollution prevention, illicit discharge detection and elimination, and education and outreach. The plan's overall goal of reducing stormwater runoff and pollution is addressed through various stormwater control measure practices including:

- › Stormwater runoff pollution prevention measures at town-owned facilities.
- › A requirement for development projects to have a town-approved stormwater management plan prior to construction.
- › A requirement of a 50-foot vegetated buffer along creeks and the Eno River. Clearing and building within the stream buffer requires prior approval, and permitted activities are limited.

Orange County implements an erosion control program for new development within the town's jurisdiction through an interlocal agreement, which requires a land disturbance permit for projects disturbing 20,000 square feet or more of surface area (10,000 square feet in a critical watershed area).

Protecting and conserving water sources and maintaining infrastructure to ensure adequate facilities for clean water delivery and use is important to the health of waterways. Green infrastructure standards should be developed to inform future development.



*Public works staff conducting maintenance of stormwater ditches.*

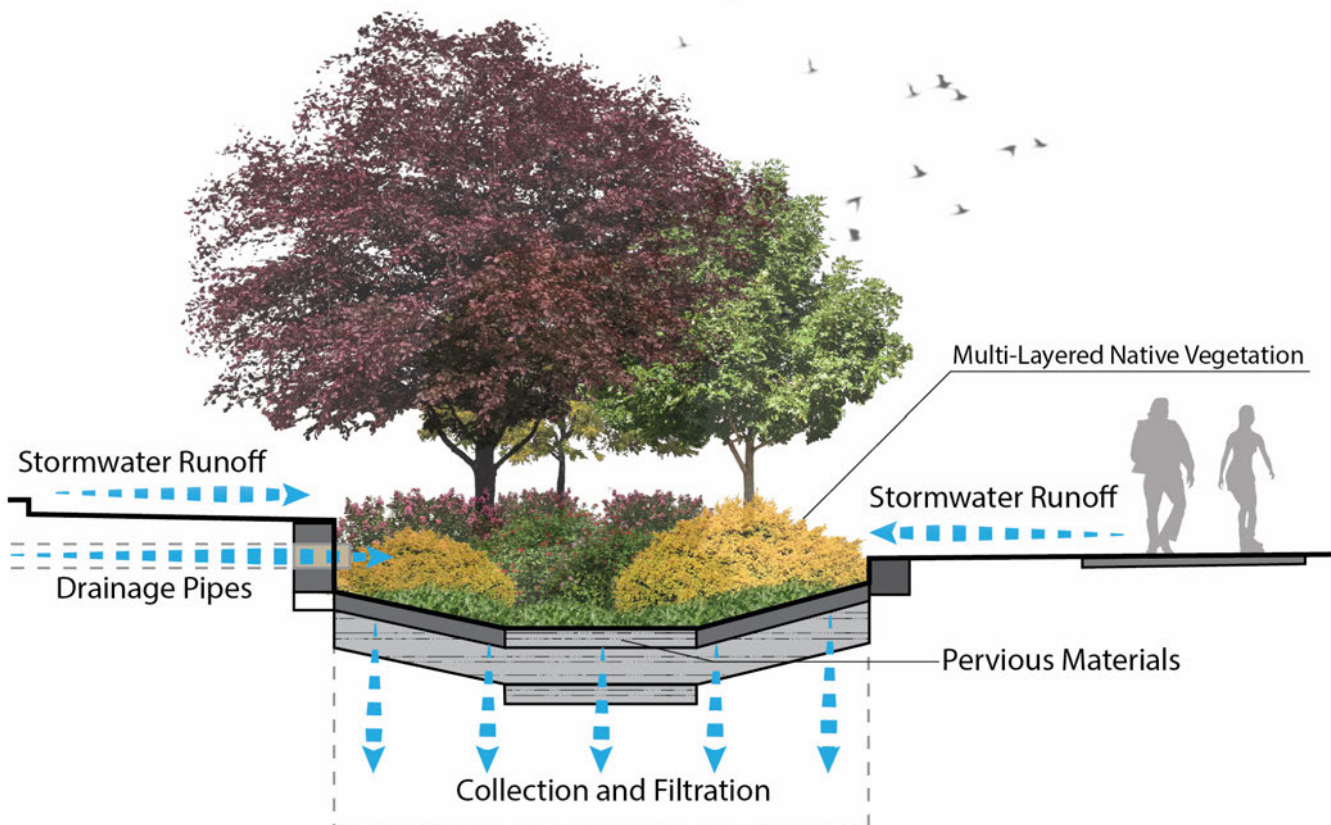


## Stormwater Green Infrastructure

Expanding stormwater green infrastructure as part of watershed restoration and climate resilience efforts is recommended and can be achieved through various stormwater control measure practices including:

- › **Bioswales**, which improve urban water systems through runoff conveyance. A properly designed bioswale system buffers rainwater and allows it to infiltrate; this minimizes overflow, improves the quality of surface water, and prevents the ground from drying out. Bioswales work best when sized to convey at least a 10-year storm and generally cost less when used in place of underground piping. Infiltration rate should be greater than one inch per hour, and deep-rooted native plants are preferred.
- › **Biofiltration boxes**, such as Filterra boxes, to filter pollutants from stormwater runoff.
- › **Bioretention**, including rain gardens. Rain gardens are man-made depressions designed to collect stormwater and allow the collected runoff to soak back into the ground.
- › **Cisterns**, or rain barrels, for water retention. These vessels can be utilized to collect rainwater from roofs and help reduce runoff and water can be used for irrigation.
- › **Reducing impervious surfaces and promoting disconnected impervious surfaces** to guide runoff away from built areas. Together they reduce flooding and allow a greater area for stormwater to penetrate the ground and begin filtration.

Bioswale / Bioretention System



Linear stormwater biowale capture system

Source: VHB



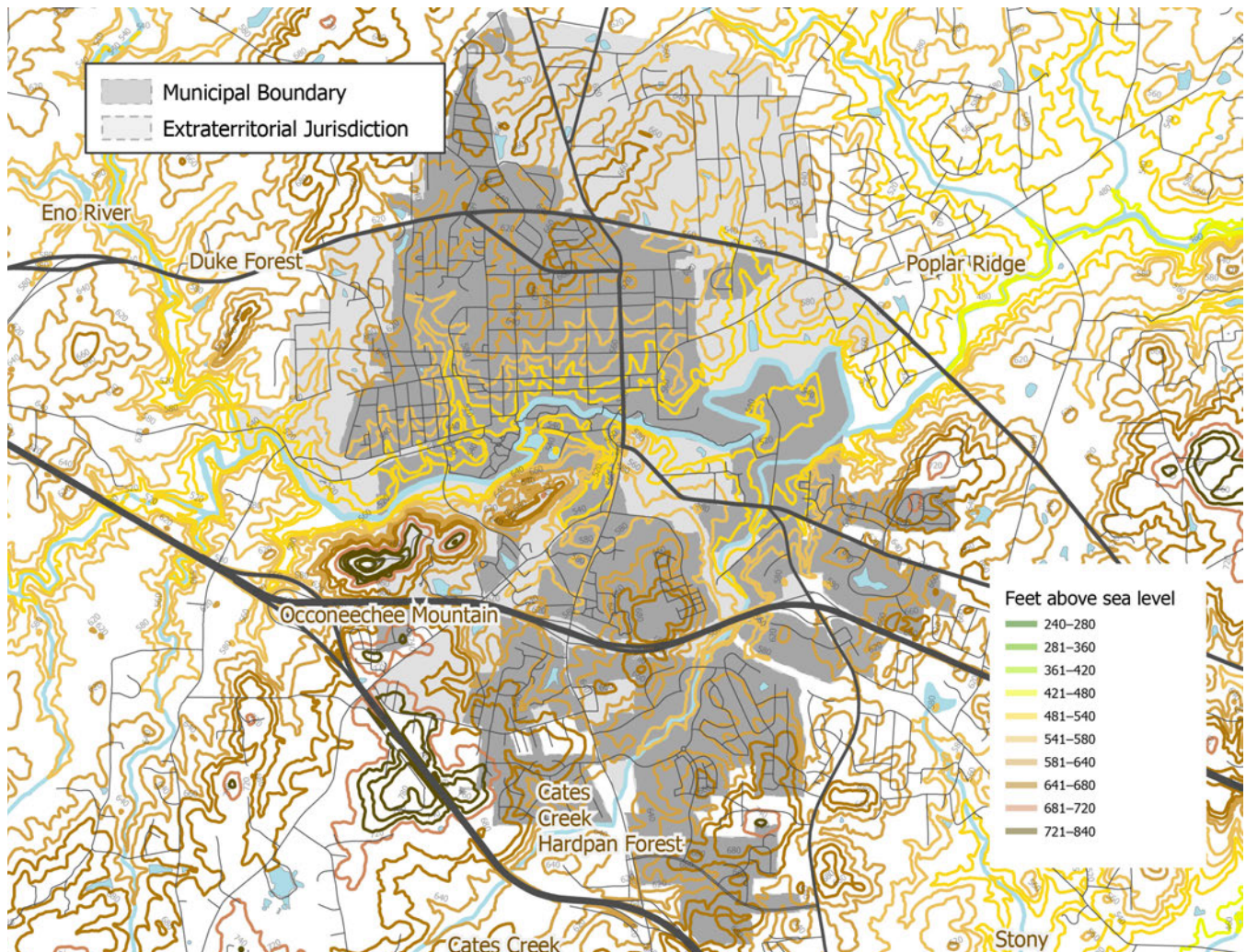


## Topography

Topography refers to the land surface and is the foundation of a landscape (i.e., mountains, valleys, and water bodies). Erosion is known as the degradation of land through human activities or natural actions such as water, wind, and other natural forces. Not only does erosion damage the productive quality of the soil and the effectiveness of land, but it is also a major source sediment that can damage overall water quality. The dynamics of erosion are complex but can be managed within a region by analyzing local slope length and steepness, total rainfall, and the tolerance of soils in a given area.

Slope can be determined by looking at the topography of an area. Topography is made up of features such as hills or valleys and has significant impact on the hydrology of a region. The terrain shapes the path and flow of rivers as they make their way from their source in the mountains to the sea. Using data from the United States Geological Survey illustrating these flows, the approximate location of lakes and rivers can be identified simply by considering the slope of the terrain (see *Figure 5.2*). The highest points of elevation for the town are west of the Eno River, requiring developments to carefully consider how to prevent runoff into local streams caused by these changes in elevation.

**Figure 5.2.** Topography



Source: North Carolina Department of Environmental Quality





## Soil

Soil plays a vital role in Earth's ecosystem. Soil provides plants with foothold for their roots and holds the necessary nutrients for plants to grow. It filters the rainwater and regulates the discharge of excess rainwater, preventing flooding. Soil can store large amounts of organic carbon and buffers against pollutants, thus protecting groundwater quality. It also provides us with some essential construction and manufacturing materials and is an important factor when considering where structures can be located.

The town has a mix of soil types. Several have gentle slopes and well-drained silt loam and clay, like the Georgeville and Tarrus soil types, which make them suitable for both agricultural and development uses. *Table 5.1* and *Figure 5.3* illustrate the soil types in Hillsborough. Orange County manages a soil and water conservation district, which offers advice on financial and technical needs to landowners regarding erosion control and water quality issues for both agricultural and non-agricultural lands. They offer consultations on topics relating to conservation planning, nutrient management, riparian restoration, sediment and erosion, and stream bank stabilization and protection, among others. The town's Stormwater and Environmental Services Division provides advice to residents within town limits, especially on stormwater management, soil stabilization, and green infrastructure opportunities.

Soil stabilization approaches can often work in tandem with stormwater management. For example, the town tries to limit steep slopes, which can cause runoff to move faster, erode soil, and create a potential for flooding. The town can use tools to ensure streams and steep slopes have sufficient buffers of trees and associated vegetation to control erosion, nutrient loads, and other pollution.

Compost blanketing is also beneficial to the soil and is a practice of stormwater management. This process involves applying a layer of loose composted material on the soil in risk areas to reduce runoff and protect against erosion. This practice is also sustainable, as it puts otherwise discarded components to a beneficial use.



*Compost blankets on Riverwalk*





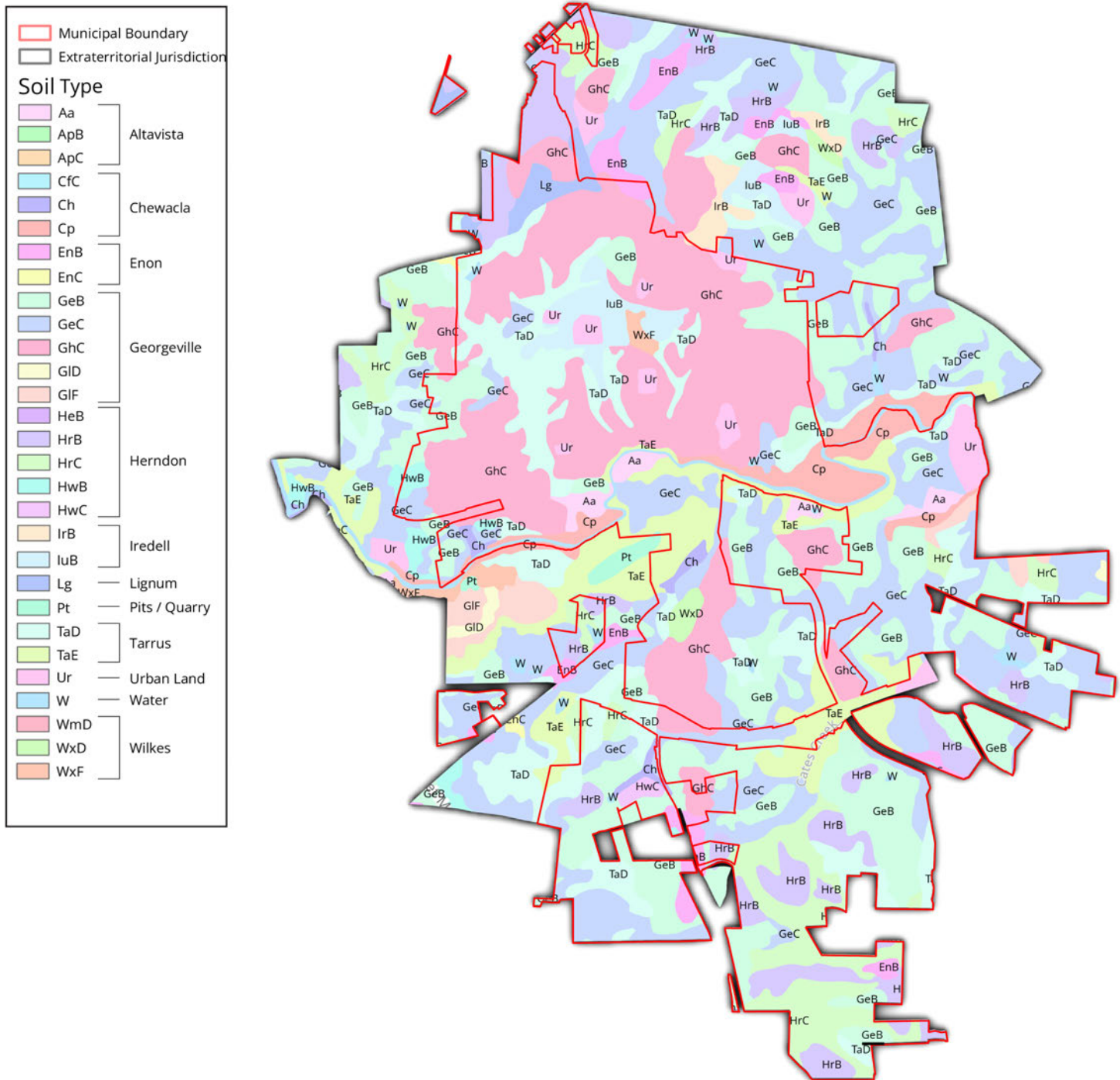
**Table 5.1.** Soil Unit Types in Hillsborough

Map Unit Symbol	Map Unit Name	Acres	(%)	Map Unit Symbol	Map Unit Name	Acres	(%)
Aa	Altavista fine sandy loam, 0% to 3% slopes, occasionally flooded	43.8	0.70%	HrB	Herndon silt loam, 2% to 6% slopes	365.7	5.90%
Ch	Chewacla loam, 0% to 2% slopes, frequently flooded	42.3	0.70%	HrC	Herndon silt loam, 6% to 10% slopes	301.1	4.80%
Cp	Congaree fine sandy loam, 0% to 2% slopes, frequently flooded	138.2	2.20%	HwB	Lloyd clay loam, 2% to 6% slopes	40.8	0.70%
EnB	Enon loam, 2% to 6% slopes	110.2	1.80%	HwC	Lloyd clay loam, 6% to 10% slopes	9.1	0.10%
EnC	Enon loam, 6% to 12% slopes	4.8	0.10%	IrB	Iredell gravelly loam, 1% to 4% slopes	37.1	0.60%
GeB	Georgeville silt loam, 2% to 6% slopes	1,161.30	18.70%	IuB	Iredell-Urban land complex, 1% to 8% slopes	101.6	1.60%
GeC	Georgeville silt loam, 6% to 10% slopes	1,281.30	20.60%	Lg	Lignum silt loam, 0% to 3% slopes	42.6	0.70%
GhC	Georgeville-Urban land complex, 2% to 10% slopes	976.7	15.70%	Pt	Pits, quarry	31.6	0.50%
GID	Goldston channery silt loam, 6% to 15% slopes	14.6	0.20%	TaD	Tarrus silt loam, 8% to 15% slopes	650.6	10.50%
GIF	Goldston channery silt loam, 15% to 45% slopes	121.8	2.00%	TaE	Tarrus silt loam, 15% to 25% slopes	468.4	7.50%
				Ur	Urban land	107.1	1.70%
				W	Water	94.4	1.50%
				WxD	Wilkes gravelly loam, 8% to 15% slopes	20.8	0.30%
				WxF	Wilkes gravelly loam, 15% to 45% slopes	57.2	0.90%

Source: U.S. Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey



**Figure 5.3.** Soil Types



Source: USDA National Web Soil Survey





## Air Quality

Air quality varies widely between urban and rural areas, depending on the time of year and time of day.<sup>3</sup> Air pollution is the contamination of indoor or outdoor environments by chemical, biological, or physical agents that modify the natural characteristics. Human exposure to air pollution can result in several chronic and acute respiratory ailments, such as asthma, cardiovascular disease, and pulmonary lung diseases, as well as an increased susceptibility to infection. The presence of harmful source pollutants can lead to further degradation of air quality if not appropriately addressed. Greenhouse gas emissions released into the air from local and regional sources significantly contribute to adverse climate impacts.

Air quality in the United States is measured through the U.S. Environmental Protection Agency's reported Air Quality Index (AQI). The index is classified with a value of 0 to 500. The higher the value, the greater the level of air pollution and health concern to residents. For each pollutant (typically ozone and particle pollutants) a value of 100 generally corresponds to an ambient air concentration that equals the level of the short-term national ambient air quality standard for protection of public health. Values at or below 100 are generally thought of as satisfactory. When values are above 100, the air quality is unhealthy: at first for certain sensitive groups of people, then for everyone as values get higher. The value is divided into six categories. Each category is colored and corresponds to a different level of health concern (see *Table 5.2*).

The Clean Air Act amendments, issued by the Environmental Protection Agency, set agency guidelines for attainment of the National Ambient Air Quality Standards. The act requires the Environmental Protection Agency to safeguard public health by setting standards and regulating the emissions for six criteria pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter less than 10 and 2.5 microns in diameter, and sulfur dioxide. The standards (40 CFR Part 50) are based on human health criteria to protect public health and on environmental criteria to prevent environmental and property damage. A non-attainment area is an area considered to have air quality worse than the standard. As of the 2015 version of the National Ambient Air Quality Standards, Orange County has not been designated as a non-attainment area for any of the major air quality measures.

**Table 5.2.** Air Quality Index Pollution Codes

AQI Basics for Ozone and Particle Pollution			
Daily AQI Color	Levels of Concern	Values of Index	Description of Air Quality
Green	Good	0 to 50	Air quality is satisfactory, and air pollution poses little or no risk.
Yellow	Moderate	51 to 100	Air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.
Orange	Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is less likely to be affected.
Red	Unhealthy	151 to 200	Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects.
Purple	Very Unhealthy	201 to 300	Health alert: The risk of health effects is increased for everyone.
Maroon	Hazardous	301 and higher	Health warning of emergency conditions: everyone is more likely to be affected.

Source: Environmental Protection Agency, National Ambient Air Quality Standards

<sup>3</sup> Max I. Manning, Randall v. Martin, Christa Hasenkopf, Joe Flasher, and Chi Li Environmental Science & Technology letters 2018 5 (11), 687-691 DOI: 10.1021/acs.estlett.8b00573



The North Carolina Division of Air Quality station closest to Hillsborough is located east of town in Durham. Hillsborough and Orange County typically see values for ozone and other particle pollutants in the Code Green range. Sometimes in months with higher temperatures, the value is Code Yellow. Residents can check the current air quality in their area through the state's air quality portal, which features the daily air quality forecasts used by local weather stations and researchers.

The town requires all developments emitting an "air contaminant" to be certified by the state as provided in North Carolina General Statutes, Section 143-215.108. The town should continue to make efforts to improve and protect air quality to meet or achieve better than federal and state air quality standards. Many of the smart growth actions identified in this plan will support low Air Quality Index values, representing better air quality, as vehicles create the highest emissions in the region. The identification of major emitters of air pollution, including area, point, and mobile sources, should be identified. Strategies to reduce the pollutions should prioritize potential impacts to vulnerable communities.

## Natural Features

Within the town's planning jurisdiction, which covers nearly 7,000 acres, over 600 acres are actively protected. Approximately 162 acres are publicly owned as park or open space, an additional 162 acres are held by the state as park or protected areas, and 278 acres are owned by private preservation organizations (see *Figure 5.4*).

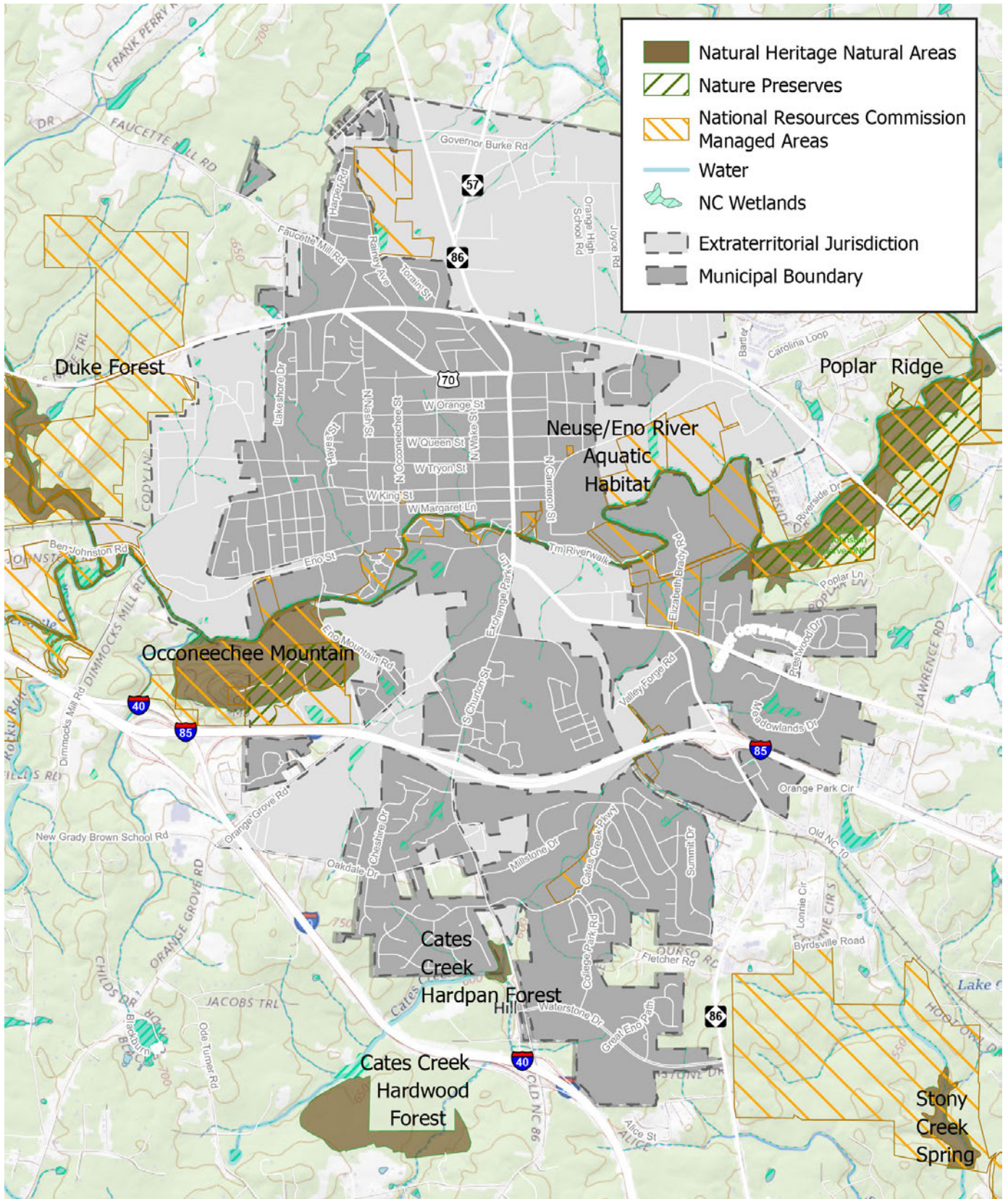
The "Inventory of Natural Areas and Wildlife Habitats for Orange County, North Carolina" (Sather and Hall et al., 2004) also includes Cates Creek Hardpan Forest, which is at the southern edge of Hillsborough's planning jurisdiction on the west side of Old N.C. 86 where Cates Creek crosses under the roadway. A 2-mile stretch of the Eno River east of town, known as Poplar Ridge Slopes and Bottom, represents the longest undisturbed stretch of the Eno River outside of the Eno River State Park.

### Occoneechee Mountain

A primary geologic feature of Hillsborough's land is the Occoneechee Mountain State Natural Area, located south of the Eno Mountain Road/Allison Street bridge. Occoneechee Mountain contains the highest elevations in Orange County and the Triangle region at over 860 feet.

The topography in the area creates rolling hills and a natural green corridor through town. Unlike the hills and most other ridges in the county, Occoneechee Mountain is oriented east to west, providing the largest extent of north-facing slope anywhere in the region. The dry slopes and summit of Occoneechee mountain are of regional significance and of prime integrity.

Figure 5.4. Natural Features



Source: Natural Heritage Program of North Carolina





## Natural Heritage and Nature Preserves

Through the North Carolina Natural Heritage Program, important natural features are conserved through dedication to the state and maintained as a committed natural area. As of November 2022, there were 199 dedicated natural preserves under this program, including several in and adjacent to the town, with a mix of private, state, and local ownership. The North Carolina Natural Heritage Program provides critical information to use when balancing potential ecological impacts of conservation and development projects.

There are several regional programs and organizations in and near Hillsborough that support natural resource conservation efforts including:

### Orange County Lands Legacy Program

This program, enacted in 2002, acquires highly important natural and cultural resources for protection within the county. Every other year, the Board of County Commissioners adopts an action plan for priority lands for the next two years. The lands legacy has five priority areas for acquisition:

- › Future parklands
- › Lands of historic, cultural, or archaeological significance
- › Natural areas and wildlife habitat (North Carolina Natural Heritage sites)
- › Prime farmlands
- › Watershed riparian buffer lands

### Eno River Association

This nonprofit was established in 1966 to preserve natural, historical, and cultural resources within the Eno River watershed through access, education, and awareness events. The association focuses on conservation of water quality, wildlife habitat, ecological diversity and significant sites. Any land within the Eno River Basin can be a candidate for conservation. In addition to conservation efforts, the association emphasizes stewardship of the land and advocacy for the environment.

### Triangle Land Conservancy

This nonprofit was formed in 1983 and has since been purchasing land for natural preservation. The organization identifies and preserves sites throughout the Triangle (Chatham, Durham, Johnston, Lee, Orange, and Wake counties) for the purpose of maintaining open space, clean water, healthy habitats, local farms, fresh food, and land for people to connect with nature. Ten nature preserves make up the largest portion of the land conservancy's efforts. The closest of these to Hillsborough is the Brumley Nature Preserve, a 613-acre preserve southeast of the town.



## Conservation Areas

Conservation is an ongoing process that continues long after the implementation of a conservation plan. Through evaluating the effectiveness of previous conservation plans or policy, the Town of Hillsborough can incorporate aspects of areawide plans and best practices into future planning efforts. At the core of these plans are a series of recommendations focused around the protection, conservation and improvement of the natural environment. This section summarizes several important regional planning efforts focused on the environment and ecological health.

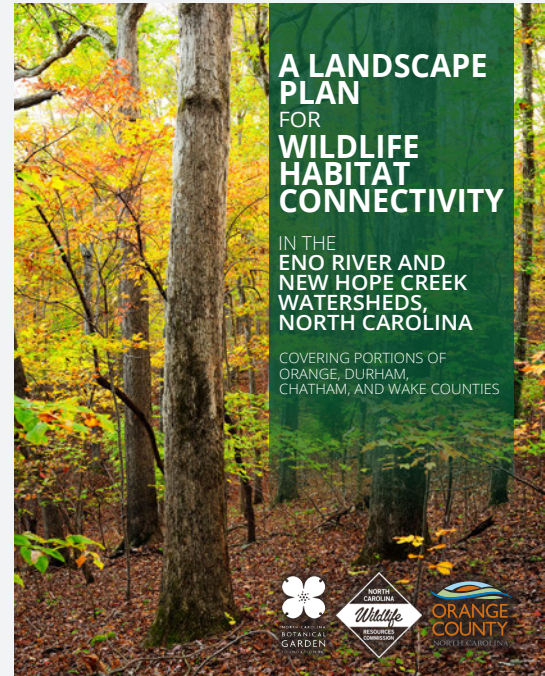
### Eno-New Hope Landscape Conservation Plan

In 2019, the Eno-New Hope landscape Conservation Plan was prepared by several regional partners to identify important places for habitat connectivity (current and near- future) to help prioritize conservation efforts and inform land use and infrastructure decisions.<sup>4</sup>

The ultimate recommendation of the plan is to preserve a “backbone habitat-corridor network” primarily running north-south along the watershed area. These corridors were determined by looking at natural heritage land and natural areas and habitats with high connectivity to each other without fragmentation (see *Figure 5.5*).

To maintain the conversation areas outlined within this plan, the town works closely with a list of conservation partners including local governments, private and nonprofit land trusts, educational institutions, state and federal agencies, and regional organizations.

In cases where fragmented habitat is unavoidable, efforts should be made to provide direct connections from one habitat area to another for semi-aquatic, terrestrial, and flying animals including but not limited to salamanders, turtles, frogs, deer, bats, birds, and insects. Habitat corridors should be composed of native plant species and should be adjacent, parallel, or, if safely possible, perpendicular to habitat dividers such as roads and neighborhoods. Wildlife corridors should give wildlife as much distance as possible between them and human- made structures and pathways.



The goal of the project was: “to provide an actionable plan for ensuring wildlife habitat connectivity across the landscape of the Eno River and New Hope Creek-Jordan Lake watersheds in North Carolina.”

The plan focuses on three conservation principles:

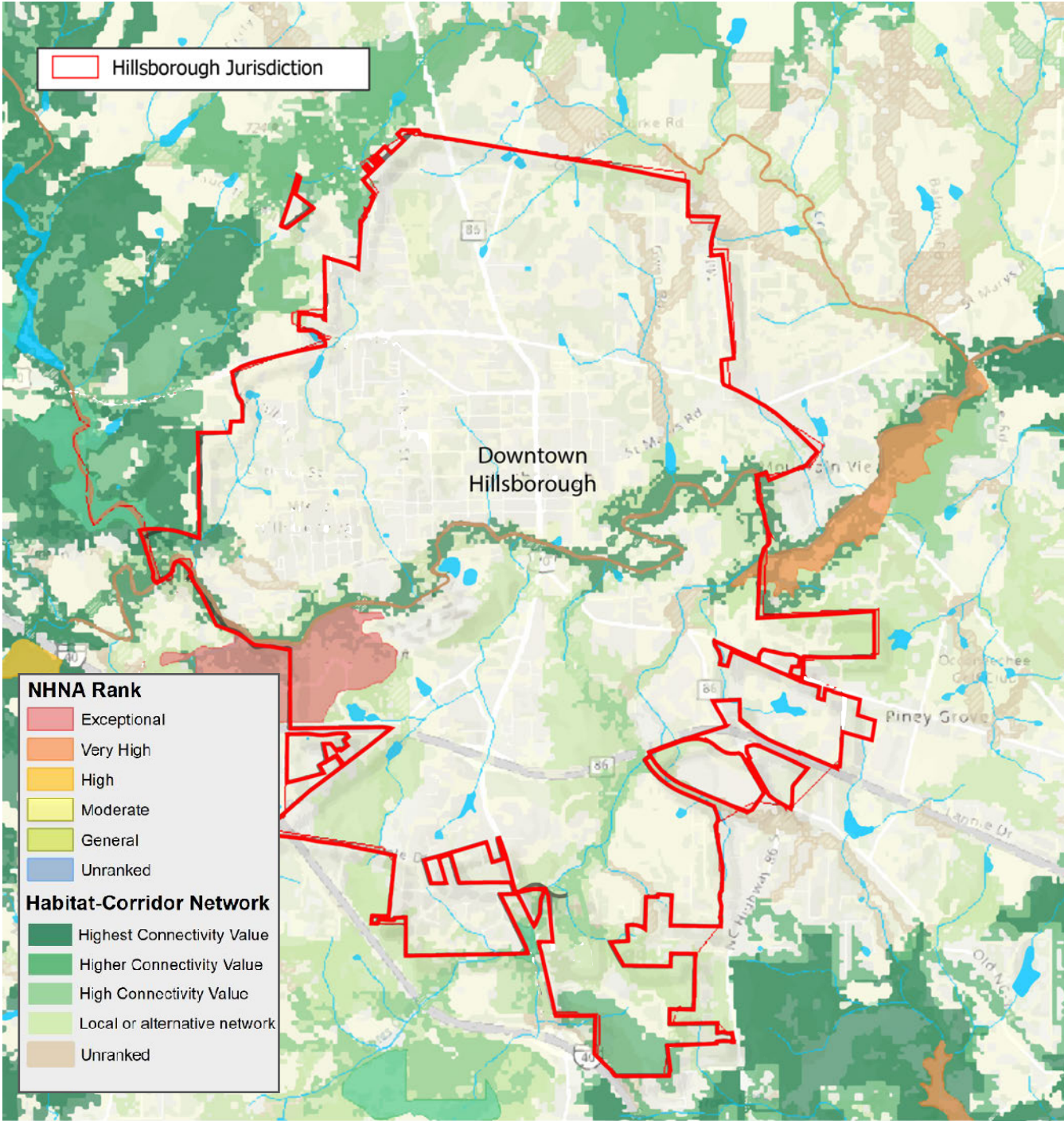
- › Protect conservation priorities, including large natural areas and sensitive habitats.
- › Buffer these areas from suburban and urban development.
- › Connect these natural areas across the landscape to reduce habitat fragmentation.

<sup>4</sup> Partners included the North Carolina Wildlife Resources Commission, Orange County, and the North Carolina Botanical Garden Foundation Inc.



Options for wildlife corridors across roads include under-road tunnels, which are recommended for smaller and slower-moving, semi-aquatic and terrestrial species, and over-road bridges populated with native plants, which are recommended for larger terrestrial species and for flying species such as pollinators. Within Hillsborough this corridor follows along the Eno River east to west with conservation areas such as Kings Highway Park and the Oconeechee Mountain State Natural Area being key places along the north-south corridor.

Figure 5.5. Natural Heritage Natural Areas and Habitat Corridors



Source: A Landscape Plan for Wildlife Habitat Connectivity, Natural Heritage Program of North Carolina





## Land Coverage

### Vegetation and Wildlife

While sensitive land is being conserved in undisturbed and natural areas, the town has also been working to preserve and create natural habitats within the built environment. As illustrated in *Figure 5.6*, the land coverage has shifted in the town with natural areas being developed to address growth pressures. Integrating healthy natural habitats within developed areas is paramount to sustaining development.

Areas in the northeast and southern parts of the town have transitioned from natural to developed between 2001 and 2019. Tree preservation and support for native plant species and pollinators, have been important components of Hillsborough's sustainable initiatives.

### Tree Preservation

Tree preservation and maintenance of the tree canopy, is essential for establishing a healthy natural landscape. Trees offer many ecological benefits. They function as habitats for wildlife, provide wildlife food, produce oxygen to breathe, store carbon, clean the air and reduce stormwater runoff impacts and urban heat island effects.

The Tree Protection Standards in the town's unified development ordinance identify the value of tree coverage in reducing carbon emissions and decreasing the urban heat island effect. The standards require tree inventories for proposed disturbance plans and require identifying tree coverage areas, priority tree retention areas, and guidance for revegetation.

The tree canopy is particularly important in the developed areas of the town because the greater the urban tree canopy cover, the more ecosystem services are provided. To promote a healthy tree canopy, there should be a mix of diverse species and a sustainable age distribution, such as predominantly overstory broadleaf and coniferous trees with a native and ornamental mixed species understory. Ornamental trees provide visual interest and aesthetics, especially where utilities, signs, lights, and other constraints exist. Incentivizing boring rather than trenching for utilities near trees helps to preserve existing trees and reduce damage to landscapes.



**TREE CITY USA®**

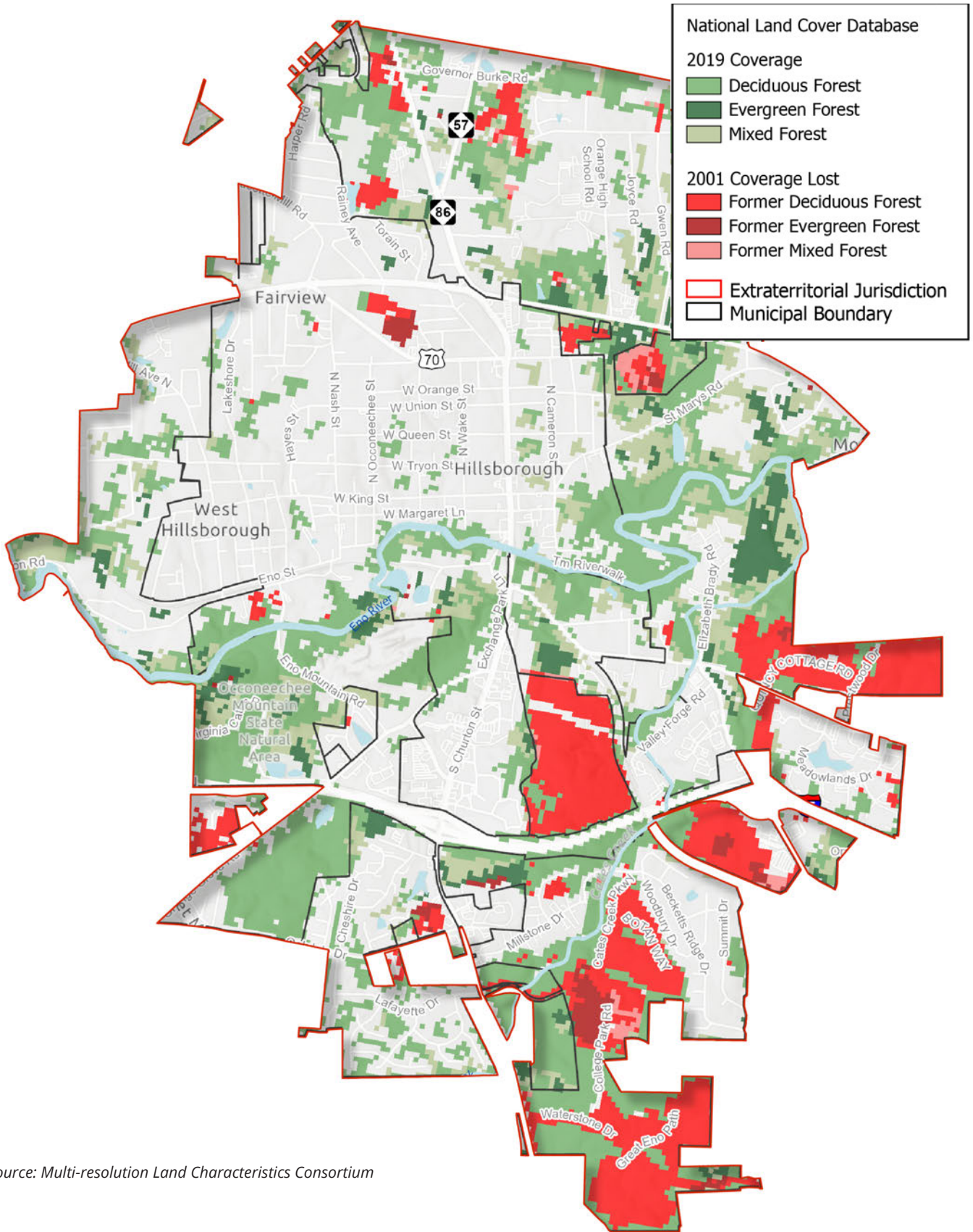
### Tree City USA

Hillsborough has been a part of the Tree City USA program for decades, which requires the town to have a tree board, tree care ordinance, community forestry program, and annual Arbor Day. The town's tree board is responsible for hearing requests from residents regarding planting, maintenance, and removal of street and park trees and establishing guidelines for spacing trees on town property. The Tree Board's Treasure Trees Program recognizes special and significant trees in town.





**Figure 5.6.** Tree Canopy Comparison: 2001 and 2019



Source: Multi-resolution Land Characteristics Consortium



## Tree Canopy

For the town's natural system, and the people who live here and travel here, conserving the town's existing tree canopy and planting new trees has several advantages. The United States Forest Service's Geospatial and Applications Center builds and maintains tree canopy cover datasets. Using this land cover data we can visualize tree canopy change over the last decade. As demonstrated in *Figure 5.6*, there has been loss of deciduous, evergreen, and mixed forest areas in town.

Hillsborough works closely with developers and partners to ensure a sustainable level of tree preservation on sites. The percent of tree canopy that developers must preserve is listed within the tree protection standards in the town ordinance. Over the last decade, Hillsborough has had a drop in tree canopy cover of more than 5% since 2001, with some recently developed neighborhoods south of the Eno River seeing a decline in tree canopy of more than 50%. As these newer projects age and required replacement trees reach their mature heights, the tree canopy will return where trees have been planted.

Although there have been canopy losses in Hillsborough and the rest of the region, it is possible regenerate urban forests. Developers and builders are held responsible for preserving and planting trees.

A payment in lieu system for development can be used as a strategy for increasing and restoring tree canopy coverage where meeting the required tree coverage percentage for preservation is unfeasible. Achieving the ideal age, species, size, and composition of the urban forest ensures a resilient, sustainable tree canopy that provides the greatest benefit to the community.

### Benefits of Trees

- › Shade and cooling
- › Cleaner air
- › Enriched soil
- › Reduction of stormwater runoff
- › Improved health and well being
- › Increased property values
- › Support wildlife
- › Soil stabilization





## Treasure Trees



*American beech*



*American sycamore*



*Dawn redwood*



*Flowering dogwood*



*Red maple*



*Willow Oak*

The town's Treasure Trees Program is intended to create awareness of and give recognition to the preservation of significant trees in Hillsborough. A significant tree may be on public or private land and can be recognized for its historic value; beauty; value to wildlife; or exceptional size, age, shape or color. There are various locations in town where Treasure Trees can be found (a Treasure Trees Self-Guided Walk map can be found on the town's website). Note examples of some of the Town's treasure trees above.

## Native Plants

Native plants are essential to biodiversity and environmental resilience. Plants that have adapted to local climate, soil, and other conditions over time have characteristics that contribute to the overall health of Hillsborough's natural systems such as providing food and habitat for wildlife. Native plants help mitigate climate impacts such as flooding and habitat loss. Native plants tend to have deep roots that allow the plants to survive during droughts. As these deep roots grow, they create channels in the soil that improve soil infiltration, which recharges groundwater and reduces flooding. Strong root systems also protect soils from erosion, keeping soil nutrients and minerals where they benefit the landscape instead of polluting downstream waterbodies. These root systems are especially important near streams and rivers where they help filter stormwater runoff and reduce stormwater pollution. Native plants also protect biodiversity because many insects, birds, and other wildlife depend on specific native plants for food.



Climate impacts and threats come in the form of more prolonged negative conditions like seasonal droughts and flooding. Hillsborough is experiencing extreme weather events more often and with greater intensity. During an average rainstorm, the speed and volume of rainfall has increased, which has led to higher flows in storm drains, creeks, and the Eno River. These higher flows can increase flooding because stormwater systems were not designed for these more extreme events.

Flooding is a natural phenomenon and is expected to occur within a floodplain area of a creek or river. Invasive species (non-native species that grow rapidly and crowd out native species) are becoming more prevalent particularly due to flooding. Invasive plants create monocultures where only one or a few species thrive. Once a monoculture exists, the ecosystem has lost flood regulation, erosion control, wildlife food sources, and other services provided by a diversity of native species. These changes have disrupted native plants and vegetation and increased extreme temperatures in Hillsborough are leading to more instances of heat stroke, freezing, and proliferation of non-native species. It is important to mitigate these stresses on the environment to prevent future degradation of Hillsborough's natural environment and to preserve native biodiversity.

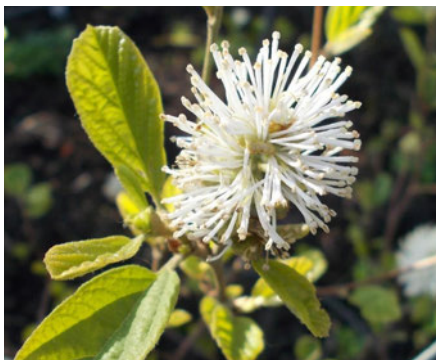
Increasing the use of native plants and reducing invasive species are important for maintaining the biodiversity and ecological health of an area and can mitigate some climate impacts such as flooding and habitat loss. Since native plants also typically require less fertilizer, pesticides, and irrigation, the increased use of native plants is essential to achieving Hillsborough's sustainability goals.

Occonechee Mountain alone hosts several important North Carolina plant species. The lower, northern-facing slopes of the mountain are the eastern-most home in North Carolina to several plant species, including Bradley's spleenwort (*Asplenium bradleyi*) and wild sarsaparilla (*Aralia nudicaulis*). The Panther's Den area consists largely of a north-facing rock wall that does not receive direct sun and provides a uniquely cool, wet habitat for plants, including mountain spleenwort (*Asplenium montanum*), sweet pinesap (*Monotropsis odorata*), mountain witch alder (*Fothergilla major*), interrupted fern (*Osmunda claytoniana*), Catawba rhododendron (*Rhododendron catawbiense*), mountain laurel (*Kalmia latifolia*), and galax (*Galax aphylla*). To the west are natural areas described as being of local and statewide significance in the "Inventory of Natural Areas and Wildlife Habitats of Orange County, N.C." by Dawson Sather and Stephen Hall, December 1988 (updated 2004).

Significant efforts have been undertaken by the town to promote native plants (including grasses) and a healthy plant system and remove invasive plant species. The town reduces mowing of town spaces to a minimum, organizes volunteer invasive plant species removal workdays, uses native plants in parks and public spaces, and conducts outreach to educate the community on the importance of native species.



Sweet pinesap



Witch alder



Catawba rhododendron



## Pollinators

Bees are the most well-known pollinators, but butterflies, wasps, birds, and bats are also very beneficial. Pollinators are essential to the ecological system and for food production because they carry pollen which fertilizes the plants. Protecting pollinators is essential; they are responsible for approximately one-third of the food and drink we consume, among other benefits. Native trees like oaks, tulip poplars, sourwoods, and maples are the greatest contributor to pollinator habitats and food sources. Native trees provide habitat needed for pollinating insect life cycles and a food source for the caterpillars of butterflies and moths. In Spring there is a flush of leaves and flowers on trees at the same time the pollinator larvae (caterpillars) are emerging from eggs laid on their favorite species. Native tree pollen and nectar from flowers support many pollinators. Growing perennial pollinator plants and planting native trees attract and sustain native pollinator species. The top native perennial plants for pollinators are<sup>5</sup>:

- › Asters
- › Bee balm
- › Blanket flower
- › Blue vervain
- › Buttonbrush
- › Culver's root
- › Dotted horsemint
- › Foxglove beardtongue
- › Golden Alexander
- › Goldenrod
- › Joe Pye weed
- › Milkweeds
- › Mountain mint
- › New York ironweed
- › Passion flower
- › Purple cone flower
- › Rattlesnake master
- › Spiderwort
- › Stoke's aster
- › Wild indigo



*Cates Creek pollinator garden*

Native pollinators also are particularly important because they evolved with native plants and are often the most effective pollinators. Pollinators rely on native plants for habitat and food. Native plants are well adapted to survive in a particular geographic area, and because they are indigenous to a specific region, native plants usually require little maintenance and are useful to wildlife, serving an important role in the local ecosystem. Pollinator insects contribute to the food web, providing a food source, such as caterpillar larvae, for many animals including the local bird population. These insects are also essential in agriculture and crop production.

<sup>5</sup> "Top 25 Native Pollinator Plants for North Carolina." Debbie Roos, North Carolina Cooperative Extension — Chatham County Center.





## Bee City USA

The town's work in reversing pollinator declines has been recognized by Bee City USA. As part of Bee City USA, the town has made commitments to conserve native pollinators through expanding pollinator-friendly practices and environments in the town, such as planting a variety of native plants, providing nesting sites, and reducing pesticide use. The town actively invests time and energy into creating pollinator gardens and bird habitats within town parks. The Tree Board, town staff, and Hillsborough Garden Club work together to develop programs and education materials. Several pollinator initiatives have been undertaken by the town:



- › Installation and maintenance of 10 pollinator gardens (including locations in most town parks).
- › Support for education events and installation of pollinator gardens.
- › Partnership with Orange County and Hillsborough Garden Club.
- › Maintenance of the bee hotel at Gold Park.
- › Preference given to pollinator-friendly species whenever possible.
- › Education and training of Tree Board members.
- › Planting pollinator-friendly species in downtown planters and parking lot islands.
- › Removal of invasive species and installation of native plantings along the Riverwalk greenway.



*Bee hotel*



## Rare or Endangered Species

Not only is Hillsborough home to almost 10,000 residents, but it is also the home for countless species of wildlife. Bats, bears, beavers, bobcats, coyotes, foxes, muskrats, snakes, and groundhogs all are listed by the North Carolina Wildlife Resource Commission as wildlife species that inhabit Orange County.

The Eno River contains a significant number of rare aquatic species, including the federally endangered dwarf wedgemussel (*Alasmidonta heterodon*) and Carolina madtom (*Noturus furiosus*); the federal species of concern and state endangered brook floater (*Alasmidonta varicosa*), Atlantic pigtoe (*Fusconaia masoni*), yellow lampmussel (*Lampsilis cariosa*), and green floater (*Lasmigona subviridis*); the federal species of concern and state significantly rare pinewoods shiner (*Lythrurus matutinus*); the federal and state species of concern Carolina darter (*Etheostoma collis*); the state threatened triangle floater (*Alasmidonta undulata*), eastern lampmussel (*Lampsilis radiata*) and creeper (*Strophitus undulatus*); the state species of special concern Neuse River waterdog (*Necturus lewisi*), and notched rainbow (*Villosa constricta*); and the state significantly rare Roanoke bass (*Ambloplites cavifrons*).<sup>6</sup>

Occonechee Mountain also provides habitat along the Eno River, a primary wildlife corridor. The Cooper's hawk, which is classified as a bird of special concern in North Carolina, has been sighted during nesting season. The sumo mite (*Allothrombium*) lives on the northern slope of the mountain. Another portion of Occonechee Mountain, the dry slopes and summit, is of regional significance and of prime integrity. This site includes the mountain's dramatic peak and ridgeline. The mountain contains a broad range of natural communities from the cool, moist Panther's Den to the arid communities on the summit, including a Virginia pine, heath, and bracken fern community and a chestnut oak community. Many of the chestnut oaks are 2 feet in diameter. Several butterfly species with restricted distribution are found on this summit, contributing to its significance as a natural area.<sup>7</sup>



Cooper's hawk



Neuse River waterdog

<sup>6</sup> Hillsborough Vision 2030 (2015)

<sup>7</sup> N.C. Division of Parks and Recreation. (2022) *Natural Resource Inventory Checklists*





## Habitat Protection

The loss of biological diversity in North Carolina is largely caused by habitat loss and fragmentation triggered by human development. Protecting and managing the network of natural habitat areas such as parks, greenways, and forests in town is essential for protecting the diversity of flora and fauna.

Wildlife corridors allow wildlife safe movement through an area of land by providing a connected habitat. Wildlife corridors not only benefit the animals using them, they also can reduce vehicle collisions with animals, improving transportation safety and reducing human-animal interactions. Protecting existing habitat areas and movement corridors is important in maintaining habitat connectivity. It is critical to minimize new roads, utility easements, and other barriers to wildlife movement that cut across vital environmental corridors. Natural surface trails, as opposed to wide paved greenways, also allow for wildlife to traverse areas with more ease.

Hillsborough also can work with the Eno-New Hope Landscape Conservation Group, which was created to conserve and restore landscape habitat connectivity. The project partners have collaborated across Orange, Chatham, Durham, and Wake counties to identify priority corridors for protecting critical wildlife habitats.



*Removal of invasive Japanese stiltgrass by volunteers*



*Installation of native plants in town parks*





## Limiting Pollutants

Limiting pollutants is also important for maintaining healthy natural spaces. This includes reducing the use of herbicides, fertilizers, and pesticides. Herbicides can contaminate the soil and flow into other areas during rainfall. Their use has been linked to the destruction of wildlife habitats, depletion of animal and aquatic life, and pollution of the air, water, and soil. Fertilizers can cause soil degradation and nitrogen leaching. Fertilizers also release harmful greenhouse gasses, like nitrous oxide, into the atmosphere and can cause over-enrichment of the waterways by washing into waterways during rain events and filtering into soil and groundwater over time. Reducing the use of turf is one of the easiest ways to significantly reduce the need for pesticides. Mowing turf is a prolific source of carbon dioxide and other greenhouse gasses. Cut grasses release these gases as they decay, further contributing to climate impacts.

Pesticides negatively impact humans and the environment. They have been linked to cancer and other health issues and can kill unintended species that come in contact with the pesticide. Pesticides can impact all levels of the food chain through a process called biomagnification where the level of pollutants within an organism are exponentially increased as they are concentrated into the next consumer. The process increases through the entire food chain, eventually resulting in high levels of contaminants within species such as the Cooper's Hawk.

Integrated pest management strategies can be used for limiting pollution from pesticides. They can be implemented in two ways: natural control or biological control. Natural control happens normally in the environment without human intervention. Biological control includes managing landscapes to reduce food sources and habitat for pest species while increasing the presence of native predators to reduce non-native species.<sup>8</sup>

Hillsborough currently implements multiple strategies for limiting pollutants, including working with utility providers and maintenance staff on reducing herbicide use in rights of way, minimizing use of chemicals and fertilizers by the town, and using organic landscape management practices in town-owned landscapes.

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8 North Carolina Cooperative Extension



# Environment and Natural Systems

## Goals & Actions

These goals identify what Hillsborough wants to do regarding its natural systems. These are related strategies and recommended actions identified for how Hillsborough will achieve the goals.

### Goals

- 1 Employ an integrated ecosystem approach and stewardship mentality to protect, conserve, and restore critical environmental areas and natural systems.
- 2 Maintain the environment and natural systems for future generations in a sustainable manner.



# Strategies

## **Plan for and monitor progress toward meeting environment and natural systems goals.**

- › Update and adopt a comprehensive stormwater management plan.
- › Develop and adopt a jurisdiction-wide watershed improvement plan.
- › Update and monitor progress toward accomplishing the Bellevue Branch Watershed Improvement Plan.
- › Update and monitor progress toward accomplishing the Stormwater Retrofit Plan.
- › Update drought policy and monitor drought conditions to best protect our water supplies.
- › Develop and adopt a source water protection plan.
- › Develop and complete a holistic water systems masterplan to ensure quantity and quality of potable water for our customers as the population served increases.
- › Develop and complete a holistic water systems masterplan to ensure environmental protection and regulation compliance as the population served increases.
- › Develop and adopt a tree inventory for town-owned and town-maintained properties.
- › Develop and adopt reforestation plans for town-owned and town-maintained properties.
- › Endorse and incorporate pertinent recommendations in the Eno-New Hope Landscape Conservation Plan.
- › Develop and adopt invasive species removal and habitat conservation and restoration plans for town-owned and town-maintained properties.
- › Develop and adopt forest management plans for town-owned and town-maintained properties.
- › Map critical environmental and sensitive areas and significant landforms, such as slopes, ridges, streams, and wetlands, to inform other plans and development decisions.

## **Develop and adopt policies that contribute to sustained ecological health of the environment and natural systems.**

- › Develop and adopt a green infrastructure policy for town projects.
- › Develop and adopt a tree preservation policy for town-owned and town-maintained properties.
- › Develop and adopt a landscape management policy for town-owned and town-maintained properties.
- › Develop and adopt a forest management policy for town-owned and town-maintained properties.
- › Develop and adopt a native and adapted plant policy that improves and expands habitat for wildlife and pollinators for town-owned and town-maintained properties.
- › Develop and adopt an integrated pest management policy for town-owned and town-maintained properties.
- › Advocate for local authority over environmental protections measures and regulations.
- › Endorse state and regional initiatives and polices that contribute to the sustained ecological health of the environment and natural systems.
- › Advocate for and endorse regulations that advance best management practices for development projects.





## **Invest in public projects that contribute to sustained ecological health of the environment and natural systems in town.**

- › Develop and implement a capital improvement projects plan for stormwater infrastructure improvements.
- › Implement Bellevue Branch Watershed Improvement Plan recommendations.
- › Implement green infrastructure projects on town-owned and town-maintained properties.
- › Implement stream restoration projects.
- › Create educational materials about the best practices and benefits of incorporating green infrastructure and other sustainability initiatives on private properties and development sites.
- › Incorporate life cycle costs of green infrastructure and sustainability initiatives compared with traditional stormwater systems and construction techniques when making public infrastructure investment decisions.
- › Analyze and revise stormwater program fee rate structure to meet stormwater program goals.
- › Acquire properties or easements for critical environmental areas as needed.
- › Complete identified critical sewer system rehabilitations to reduce and prevent sewer system overflows.
- › Complete identified critical sewer system expansions to allow for future growth.
- › Develop a bulk reuse water program and infrastructure.
- › Implement reforestation and planting plans to improve and expand biodiversity and habitat for wildlife and pollinators on town-owned and maintained properties.
- › Add edible plants on town-owned and town-maintained properties where appropriate.
- › Update building and site lighting to timed, LED, cutoff fixtures for town-owned and town-maintained properties.
- › Develop and update GIS inventories of impervious surfaces, critical environmental areas, tree canopy coverage and tree inventories, riparian zones and stream buffers, pollinator gardens, and wildlife corridors.
- › Develop and adopt a sustainability tool to incorporate in the budget process.
- › Identify funding and resources needed to support plans and policies that protect and restore ecological health.
- › Invest in professional development for town staff that contributes toward meeting environment and natural systems goals.
- › Investigate options to develop incentives for developers to incorporate sustainable environmental best practices for managed natural areas and landscapes.
- › Support floodplain reclamation projects.
- › Investigate opportunities to restore the Eno River to its natural channel in Gold Park.



### **Develop and participate in programs that contribute to sustained ecological health of the environment and natural systems.**

- › Implement state and federal stormwater program requirements.
- › Investigate options for cost-sharing, green infrastructure and nature-based initiatives on private property.
- › Continue to offer and oversee leaf removal and street sweeping programs.
- › Continue to participate in the Tree City USA program.
- › Investigate options for cost-sharing, tree planting programs on private property.
- › Continue to participate in the Bee City USA program.
- › Investigate options for cost-sharing initiatives that expand and improve habitat for wildlife and pollinators.
- › Continue to a coordinate litter removal program.
- › Continue to coordinate an invasive species removal program.
- › Develop a leaf composting program.
- › Develop a rainwater harvesting or rain barrel cost-sharing program.
- › Investigate options to retain and reuse top soil from development sites.
- › Investigate opportunities to rescue native plants at development sites with programs such as plant rescue squads.
- › Maintain membership and participate in programs that contribute toward meeting environment and natural systems goals.

### **Participate in regional planning exercises and partnerships that contribute to sustained ecological health of the environment and natural systems.**

- › Coordinate with housing partners to incorporate green infrastructure and best management practices into housing developments and property management policies.
- › Coordinate with state, regional, and nonprofit partners to plan for, expand, and improve wildlife habitat and corridor projects.
- › Support nonprofit partners like the Eno River Association, Triangle Land Conservancy, Seven Mile Creek, and others to conserve natural and critical environmental areas.
- › Support Eno River Association, North Carolina State Parks, and the North Carolina Archaeological Conservancy to conserve the Oxbow property and Historic Oconechee Speedway and expand Eno River State Park into town.
- › Coordinate with state, regional, nonprofit, and educational partners to advance environment and natural systems goals.
- › Maintain membership and participate in partnerships that contribute toward meeting environment and natural systems goals (Upper Neuse River Basin Association, Clean Water Education Partnership, Stormwater Association of North Carolina, and American Public Works Association).



### **Adopt regulations that contribute to sustained ecological health of the environment and natural systems.**

- › Employ land suitability analysis to guide built environment policy and development decisions.
- › Develop and adopt regulations that limit slopes on development sites to 3 to 1 or gentler.
- › Develop and adopt regulations and standards for soil amendment on development sites.
- › Develop and adopt incentives to expand the use of green infrastructure (such as bioswales, rain gardens, and green roofs) for development sites.
- › Develop and adopt regulations for pet waste.
- › Develop and adopt regulations for fertilizer use.
- › Update and enforce illicit discharge ordinance to incorporate best practices.
- › Update tree preservation ordinance to incorporate best practices.
- › Encourage boring rather than trenching near existing trees on development sites.
- › Update street tree and landscape planting regulations to incorporate best practices.
- › Update recommended and prohibited plants list to incorporate drought-tolerant, deer-resistant, and climate-hardy species.
- › Develop and adopt landscape management standards that incorporate best practices for development with homeowners' associations.
- › Continue to restrict development in floodplains.
- › Update buffer regulations to require conserved, undisturbed, or open space in developments to be located in critical environmental areas or wildlife corridors rather than unconnected buffers between neighborhoods.
- › Update recommended and prohibited plant list in the Unified Development Ordinance.



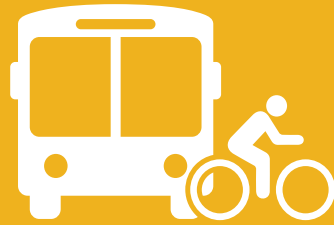


## **Engage with community groups and individuals on topics and decisions that contribute to sustained ecological health of the environment and natural systems.**

- › Develop educational materials and take advantage of outreach opportunities that advance the programs of the Stormwater and Environmental Services Division.
- › Develop educational materials and take advantage of outreach opportunities that advance tree canopy preservation, landscape maintenance best practices, biodiversity, invasive species removal, and wildlife and pollinator habitat expansion and improvement.
- › Update and distribute educational materials that advance sustainable water usage and conservation.
- › Update and distribute educational materials about the Fats, Oils, and Grease Program to help prevent sewer overflows.
- › Practice equitable and authentic community engagement on topics related to sustained ecological health of the environment and natural systems.
- › Provide information on the town website and through town communication channels about plans, policies, projects, partnerships, and programs that contribute to sustained ecological health of the environment and natural systems.
- › Utilize interpretive signs to educate the community on topics related to sustained ecological health of the environment and natural systems.
- › Develop education training materials for town staff and contractors on best practices that contribute to
- › sustained ecological health of the environment and natural systems.
- › Install additional interpretive signs that educate the public on natural systems and best management practices.
- › Develop educational materials for private property owners to care for and reestablish riparian buffers.







# Transportation & Connectivity

Transportation is an essential component of the overall sustainability and quality of life for any community. Transportation facilities and networks have the power to shape development, influence property values and affordability, and contribute to equity and accessibility. In addition, transportation investments have important consequences for the environment and public health.





## Introduction

This chapter focuses on ways Hillsborough can continue to develop and maintain a safe, efficient, and sustainable multimodal transportation system. By integrating land use and transportation and improving multimodal infrastructure, Hillsborough can convert vehicle trips into walking, biking, or transit trips, promoting active lifestyles and reducing negative environmental impacts.

The transportation network provides opportunities and challenges beyond moving people from point A to point B. Decisions on where housing and businesses are located and what land uses are permitted must consider how all users will access these locations and whether the existing system can handle such trips. Efficient circulation also means less congestion, which can lower stress, improve safety, and reduce on noise and air pollution. There are many planning strategies for increasing transportation sustainability, including supporting public transit and improving connectivity and walkability. Additional strategies include managing demand, improving vehicle technology, using clean fuels, providing education, and encouraging cultural shifts around mobility.

Transportation systems are major sources of greenhouse gas emissions, contributing significantly to climate change. Transportation not only serves a specific purpose of connecting people to various destinations but also impacts health, affordability, and lifestyle. Incorporating a systematic framework that addresses all mobility modes — personal, shared, and public — increases safety, access to housing and opportunity and mobility options, and reduces vehicle miles traveled and greenhouse gas emissions. For Hillsborough, transportation is an essential aspect to consider in sustainable planning for the years ahead.



*Downtown traffic*

Transportation is the largest contributor to greenhouse gas emissions in the United States, comprising nearly 30% of the total emissions:

**57%**

LIGHT DUTY VEHICLES

**26%**

MEDIUM OR HEAVY DUTY TRUCKS

**17%**

AIRCRAFT OR OTHER



## Planning Context

The Town of Hillsborough is centrally located in North Carolina near Research Triangle Park and close to major, nearby cities like Durham and Raleigh. Interstates 40 and 85 cross through Hillsborough. The town's other major routes include N.C. 86 traveling north-south and U.S. 70 traveling east-west. The town relies on this regional transportation network, along with local roads and bicycle and pedestrian facilities, for its economic vitality and social and resource connections.

Hillsborough is a member of the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization, the regional transportation planning organization that plans for the western part of the Research Triangle Region. The organization's responsibilities include coordinating the federal and state funds for transportation projects, submitting projects for funding prioritization, and assisting with project implementation.

As the region continues to grow, coordination among the town, the regional transportation planning organization, Orange County, and the N.C. Department of Transportation is vital to maintaining a transportation network that improves mobility and accessibility, livability, and economic opportunities for all.

Several plans and studies have looked at transportation in Hillsborough, Orange County, and the region; however, it is uncommon to find information on the critical link between transportation and land use in these plans.

Several state initiatives (details are included in chapters 6 and 10) focus on a more sustainable transportation network, including:

- › North Carolina Executive Order 80: North Carolina's Commitment to Address Climate Change and Transition to a Clean Energy Economy
- › North Carolina Executive Order 246: North Carolina's Transformation to a Clean, Equitable Economy
- › North Carolina Clean Energy Plan
- › North Carolina Clean Transportation Plan
- › North Carolina Zero Emission Vehicle Plan
- › North Carolina Electric Vehicle Infrastructure Deployment Plan



## Regional and Orange County Plans

### 2050 Metropolitan Transportation Plan

The Metropolitan Transportation Plan for Orange County depicts the existing roadway network and recommended roadway and intersection improvement projects for the area. The Metropolitan Transportation Plan is the fiscally constrained subset of the Comprehensive Transportation Plan (*Figure 6.1*). During the Comprehensive Transportation Plan process, the area's future transportation needs are determined and recommendations are provided for a 25- to 30-year timeframe.

The federal government requires the metropolitan planning organization to update its metropolitan transportation plan at least every five years. The plan lists the highway, public transportation, bicycle, pedestrian, and other transportation projects to be implemented over at least the next 20 years to address expected travel demand. It must be based on local land use plans and must demonstrate that the expected revenues will cover the expected costs.

The plan is important because projects to be submitted into the prioritization process for possible state and federal funding must come from the plan. Local governments use the plan to reserve rights of way for future highway and rail transit projects.

Several projects identified in the Metropolitan Transportation Plan are located in Hillsborough, including:

- › Orange Grove Connector Extension
- › N.C. 86 Construction
- › I-85 Widening
- › I-40 Widening
- › N.C. 86 Connector

### GoTriangle Short-Range Transit Plan (2018)

The GoTriangle Short-Range Transit Plan encompasses proposed transit service projects and changes. The plan has two recommendations that affect service to the town:

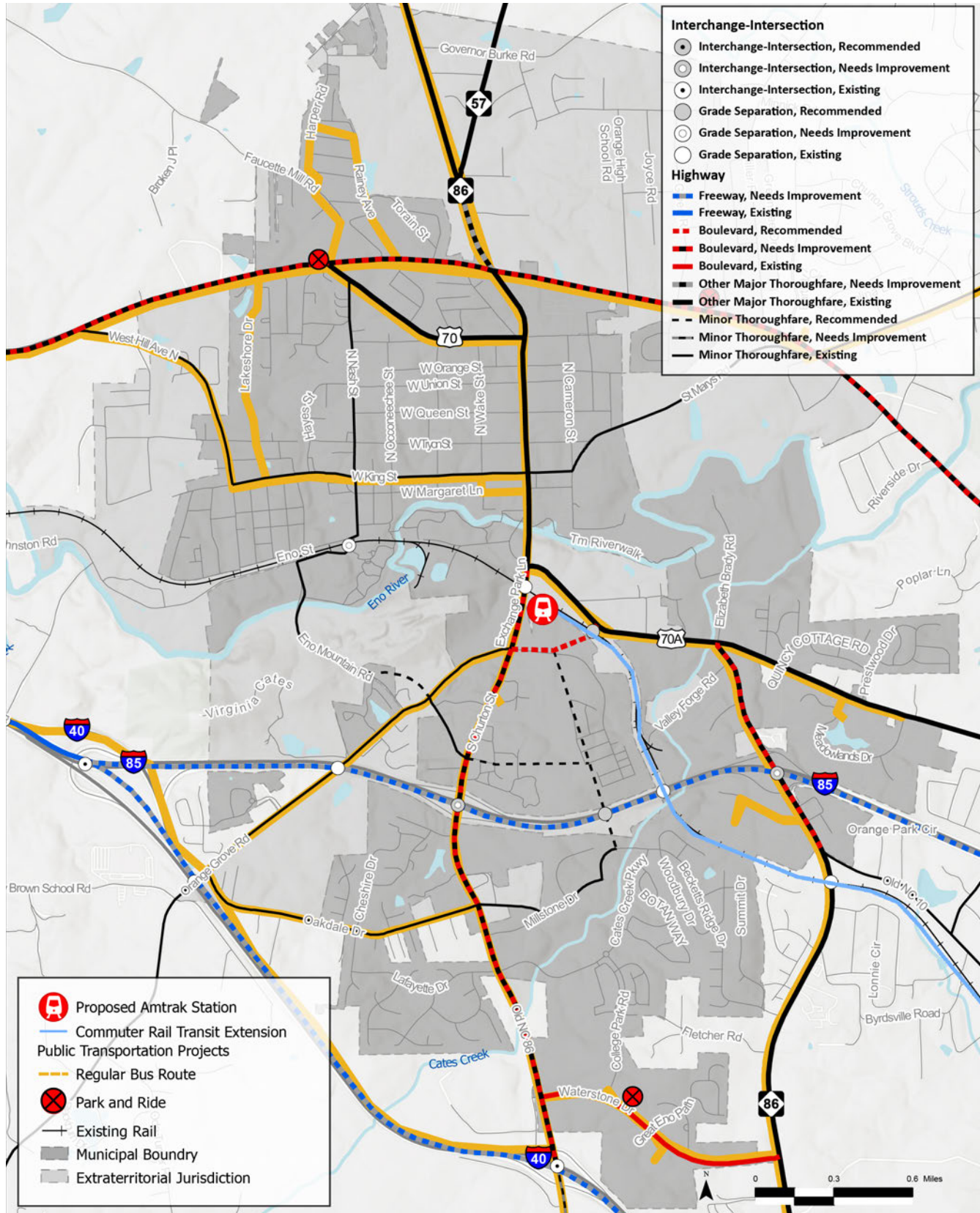
**Route 420:** The proposal would move the route from N.C. 86 to I-40 between Chapel Hill and Hillsborough and would use Churton Street instead of N.C. 86 and U.S. 70-Business in Hillsborough. These changes would improve on-time performance and provide more direct service between Hillsborough and Chapel Hill

**Orange-Durham Express (Route ODX):** Route ODX provides weekday, rush-hour express service with stops in Efland, Mebane, Hillsborough, and downtown Durham and at Duke University Hospital and the Durham VA Medical Center. The plan is to increase the frequency of the route from every 60 minutes to every 30 minutes and to provide streamlined service between Mebane Cone Health Park & Ride, Durham Tech's Orange County campus, and Durham.





**Figure 6.1.** Highway and Transit Map (Excerpt for Town of Hillsborough) of 2050 Transportation Plan of Durham-Chapel Hill-Carrboro Metropolitan Planning Organization



Source: Durham-Chapel Hill-Carrboro Metropolitan Planning Organization Comprehensive Transportation Plan, November 2017



## Orange County Transit Plan (2022)

The Orange County Transit plan was developed by representatives from Orange County, the University of North Carolina at Chapel Hill, GoTriangle, Chapel Hill Transit, Piedmont Authority for Regional Transportation, and the towns of Carrboro, Chapel Hill, and Hillsborough to improve transit options throughout Orange County and strengthen regional transit connections. The plan examines ways to improve the transit network through enhanced bus service and facilities. It has several goals, including improving overall mobility and transportation options while providing geographic equity and positive impacts on air quality.

Every **\$1 billion** invested in public transportation supports and creates more than **50,000 jobs**

Relevant recommendations include:

- › Hillsborough Train Station for passenger service (Amtrak)
- › Hillsborough transfer center to connect Orange Public Transportation and GoTriangle
- › Improvements to Hillsborough bus stops
- › Mobility-on-Demand (Monday–Saturday)
- › Additional deviated fixed-route transit service
- › Hillsborough Circulator 2.0 - fare free, increased service hours, reverse route, and reduced headway.
- › New commuter express service between Mebane, Hillsborough, and Durham (implemented)

## Other Orange County Transportation & Corridor Plans

Orange County regularly evaluates the transportation network at a regional level. While some of these plans may be outside of town limits, they have a regional impact, such as the Orange Grove Road Access Management Plan and the 2019 Efland-Buckhorn-Mebane Access Management Plan. The town is an active stakeholder in other regional plans, such as the US 70 Corridor Study, detailed below.

## Master Aging Plan (2022–2027)

The 2022–2027 Master Aging Plan marks the fifth cycle of strategic planning for the Orange County Department on Aging and is based on the Framework for an Age-Friendly Community of the American Association of Retired Persons. This framework contains eight domains of livability that influence the quality of life for older adults (detailed in Chapter 7 of this plan). The goals included in the 2022–2027 Master Aging Plan are intended to continue making Orange County an age-friendly community, a place where structures and services are adapted to be accessible to and inclusive of older adults with varying needs and capacities. Relevant goals for transportation include:

- › **Goal 2 – Transportation:** Increase access to and awareness of affordable, safe, and equitable mobility options for older adults in all parts of Orange County.
  - *Objective 2.1:* Increase access to transportation information and travel training.
  - *Objective 2.2:* Expand availability and improve transportation options for older adults.
  - *Objective 2.3:* Improve collaboration among transportation and human service providers to overcome barriers to mobility.



## U.S. 70 Corridor Study (Ongoing)

The U.S. 70 corridor study consists of the U.S. 70 West corridor from N.C. 751 near the Orange/Durham county line to N.C. 119 in Mebane. The corridor runs through Hillsborough. The study analyzes the existing conditions and recommendations along U.S. 70 while identifying candidate transportation infrastructure improvements through forecasting future land use, demographics, traffic impacts, and public outreach.

## Local Plans

The Town of Hillsborough has understood the importance of transportation connectivity for decades and continues to place a significant focus on improving the transportation network in the town through several past studies to identify needs. Studies that focused on specific connectivity needs included:

- › Traffic Separation Study for the Town of Hillsborough (2014)
- › Pedestrian Feasibility Facility Planning (2016)
- › U.S. 70 / Cornelius Street Corridor Strategic Plan (2007)

## Hillsborough Community Connectivity Plan (2017)

The town currently uses the Community Connectivity Plan, updated March 2017 and prepared by the Park and Recreation Board, to capture existing conditions and resources and recommend new policies, infrastructure, and amenities regarding community connections. This plan inventoried existing pedestrian and bicycle facilities and made recommendations for improvements to create a network of safe, accessible, and convenient options for alternative modes of travel in Hillsborough.

Goals relevant to this plan include enhancing local and regional connectivity and increasing safety and accessibility. The plan also identified key destinations and barriers to connectivity, such as bridge crossings and high traffic roadways. The Connectivity Plan includes recommendations for sidewalk construction and maintenance, new crosswalk locations, bicycle facilities and routes, and greenways. The plan highlights the need for updating the sidewalk ordinance, connecting sidewalk fragments built by developers, making pedestrian safety improvements, and increasing accessibility to parks. Once adopted, this plan will replace the Connectivity Plan and associated recommendations.

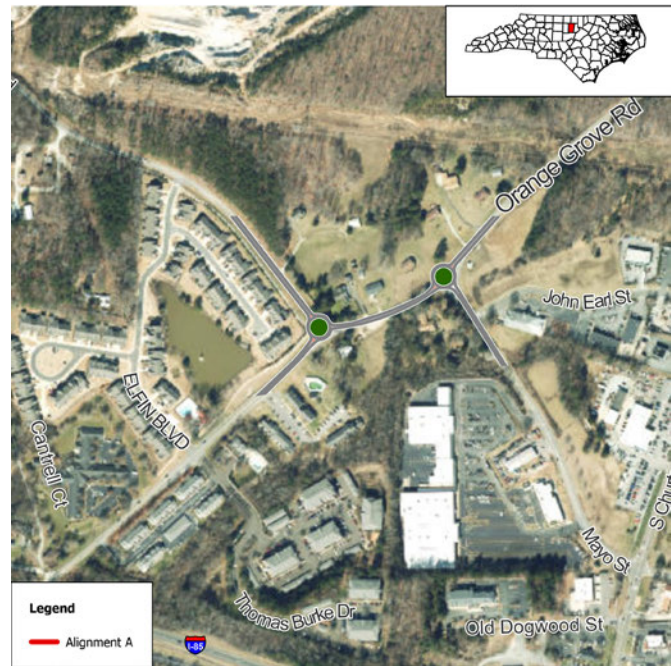




## Eno Mountain Road/N.C. 86 Connector Study (2020)

This corridor connectivity study identified and evaluated new opportunities to increase connectivity and network efficiency in the area south of downtown Hillsborough that is roughly bounded by Eno Mountain Road, N.C. 86, and I-85, specifically addressing east-west connection options from South Churton Street to N.C. 86 and the offset intersections of Eno Mountain Road and Mayo Street as they intersect with Orange Grove Road. As a result of this study, a recommendation was made to construct a pair of roundabouts along Orange Grove Road to accommodate the offset intersections of Eno Mountain Road and Mayo Street (see *Figure 6.2*). This pair of intersections facilitates a popular route to South Churton Street. Based on traffic patterns in the area, the roundabouts could effectively handle the traffic with minimal right-of-way disruptions as opposed to a realignment of Eno Mountain Road.

**Figure 6.2.** N.C. 86 Connector Study Roundabouts



## N.C. 86 Connector Study, Phase II (2021)

As a follow-up to the 2020 Connector Study, this additional plan was developed to further refine options for an N.C. 86 connection between Old N.C. 86 and South Churton Street, including an upgrade of the existing U.S. 70 and two new location alternatives. Three proposed alternatives were evaluated and compared against one another in terms of benefits and constraints. Ultimately, this study concluded that the future of transportation in Hillsborough lies on providing mobility options and increasing access for all user groups. Each of the evaluated options for an N.C. 86 Connector was deemed feasible. Each alternative provides its own set of benefits and constraints, requiring a balance with other potential transportation infrastructure needs such as a solution for north-south mobility or greenway system expansion, both current local priorities.



## Local Priorities

Through this planning work, the town has identified several priority projects and planning studies to improve the transportation network over the next several years, including:

- › N.C. 86 Connector / Orange Grove Road Extension Study — final alternative approved by the board from the Eno Mountain Road
- › South Churton Street Multimodal Corridor Study — to evaluate possible designs prior to the NCDOT STIP Project No. U-5845
- › Ridgewalk Greenway Feasibility Study
- › Downtown Parking Study

## Electric Vehicle Infrastructure Suitability Model

Orange County, the University of North Carolina at Chapel Hill, and the towns of Carrboro, Chapel Hill, and Hillsborough are coordinating on a climate action initiative to identify areas within the county that are well suited for new public electric vehicle charging stations. Using a suitability model (*Figure 6.3*), researchers are analyzing the county to identify priority locations for electric vehicle infrastructure based on demand and other factors. The analysis is published in a map that town and county staff can share with developers and use to coordinate federal grants and other funding opportunities. Coordination across the state will be required to ensure future electric vehicle implementation avoids duplicating infrastructure where state/federal agencies are putting in electric vehicle infrastructure through other programs. Hillsborough is located on one of the alternative fuel corridors identified in the North Carolina Electric Vehicle Infrastructure Deployment Plan (detailed in Chapter 10).

The results of this model will be used to identify electric vehicle corridors for the development of future electric vehicle charging infrastructure. As demonstrated in *Figure 6.3*, within Hillsborough the main corridors with the most suitability for electric vehicle infrastructure are the I-85 corridor from I-40 to N.C. 86 and South Churton Street from the I-85 interchange to downtown Hillsborough. *Figure 6.3* uses the locations of existing electric vehicle charging locations and the areas with high suitability within the electric vehicle model to identify areas for infrastructure prioritization. These areas contain key activity centers within the town like schools, parks, and shopping centers.







# Hillsborough's Transportation Network and Opportunities

The car is still the primary mode of travel, yet sidewalks, bicycle and pedestrian pathways, and public transportation also are essential to allow people to access various parts of the town and the region beyond. In examining each of these networks, a full picture of the baseline of Hillsborough's transportation system emerges.

## Existing Conditions and Opportunities

When planning for transportation connectivity, the town must work around existing barriers summarized in *Figure 6.4*, including river crossings and topography challenges. These barriers constrain the existing public right of way, making the development of new infrastructure more difficult and expensive to execute. Improvements to roadways with bridges and utilities within the right of way are particularly challenging to implement due to constraints and expenses.

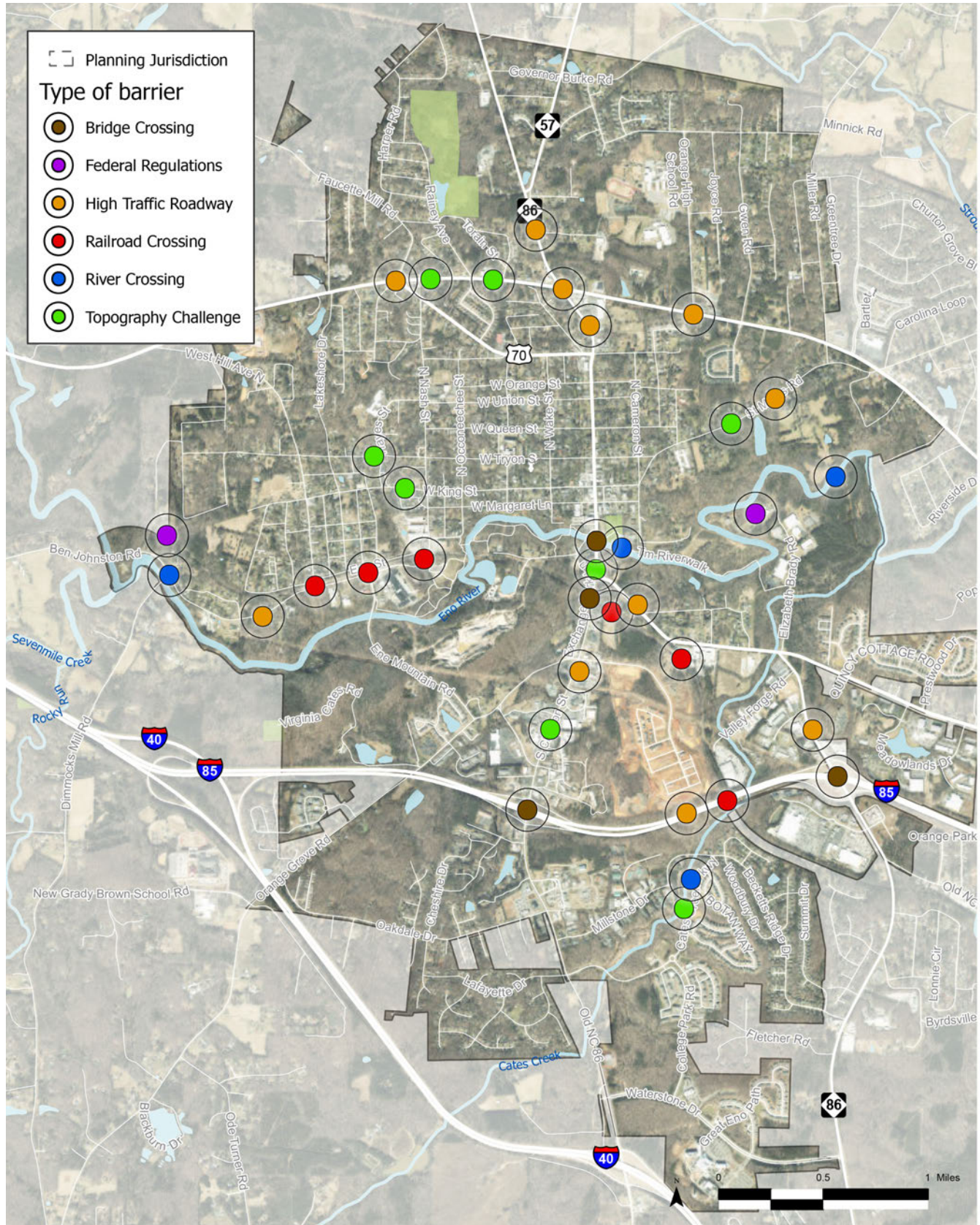
Multimodal transportation connectivity is a priority for Hillsborough. Several insights into transportation issues and opportunities were gleaned from the community visioning exercise during this planning process, including:

- › Connectivity/mobility is the second biggest challenge facing Hillsborough, with a focus on traffic congestion.
  - Those making an annual income of \$49,000 or less were twice as likely to choose lack of public transportation options as a top concern.
- › Reducing traffic congestion and expanding sidewalk infrastructure and access are the most pressing transportation needs.
- › The community wants to see the town invest in greenways and trails.

The importance of transportation connectivity continued to be evident through input from focus groups, town staff, Orange County, and town boards. Providing safe and accessible non-vehicular connectivity throughout the town is a critical foundation to equitable and sustainable growth.



Figure 6.4. Connectivity Barriers Map within Hillsborough’s Planning Jurisdiction



Source: Hillsborough Community Connectivity Plan, March 2017  
6-13





## Roadway Network

Hillsborough is well connected to the Research Triangle and the Triad by several major roads, including I-40, I-85, U.S. 70, and N.C. 86. Other main roadways through town are U.S. 70 Business, and Churton Street. The road network is a grid in the downtown area but has a curvilinear pattern in other areas of town and in newer subdivisions. Topography, the Eno River, and I-85 all present challenges to building out the local road network and increasing connectivity.

Interstates 85 and 40 carry the highest traffic volumes in and near the town, particularly where they merge just west of the town. The average annual daily traffic on I-85 is approximately 52,000 vehicles. Interstate 40 carries slightly higher volumes at approximately 63,000 vehicles per day. Volumes are over 110,000 vehicles per day where the two interstates meet. Other high-volume roads include U.S. 70 (Cornelius Street), Churton Street, U.S. 70 Business (South Churton Street), and N.C. 86, which have volumes ranging from 14,000 to 20,000 vehicles per day.

## Roadway Classifications

Functional classifications of a roadway refer to the role a roadway serves in the transportation network. This includes formal classification of freeways, arterials, collectors, and local roads and streets. In addition to these classifications, NCDOT also uses the facilities of expressways, boulevards, and thoroughfares.<sup>1</sup>

Roadways at each level in the hierarchy of motor vehicle movement are classified separately for rural and urban functional systems due to the fundamentally different characteristics of these areas. In either setting, the functional systems contain hierarchical categories that are listed in increased to decreased levels of emphasis on the free flow of through traffic:

- › Interstate and highway systems
- › Principal or major arterial systems
- › Secondary minor arterial systems
- › Collector systems
- › Local systems (town-owned)

**Table 6.1. Relationship between Functional Classification and Travel Characteristics**

Functional Classification	Distance Served (and Length of Route)	Access Points	Speed Limit	Distance Between Routes	Usage (AADT and DVMT)	Significance	Number of Travel Lanes
<b>Arterial</b>	Longest	Few	Highest	Longest	Highest	Statewide	More
<b>Collector</b>	Medium	Medium	Medium	Medium	Medium	Medium	Medium
<b>Local</b>	Shortest	Many	Lowest	Shortest	Lowest	Local	Fewer

Source: Federal Highway Administration

As depicted, summarized or indicated in the roadway classification map (Figure 6.5), NCDOT maintains and controls the rights of way of all numbered routes such as:

- › Interstates
- › U.S. routes
- › N.C. routes
- › Secondary routes
- › Other state agency owned roads

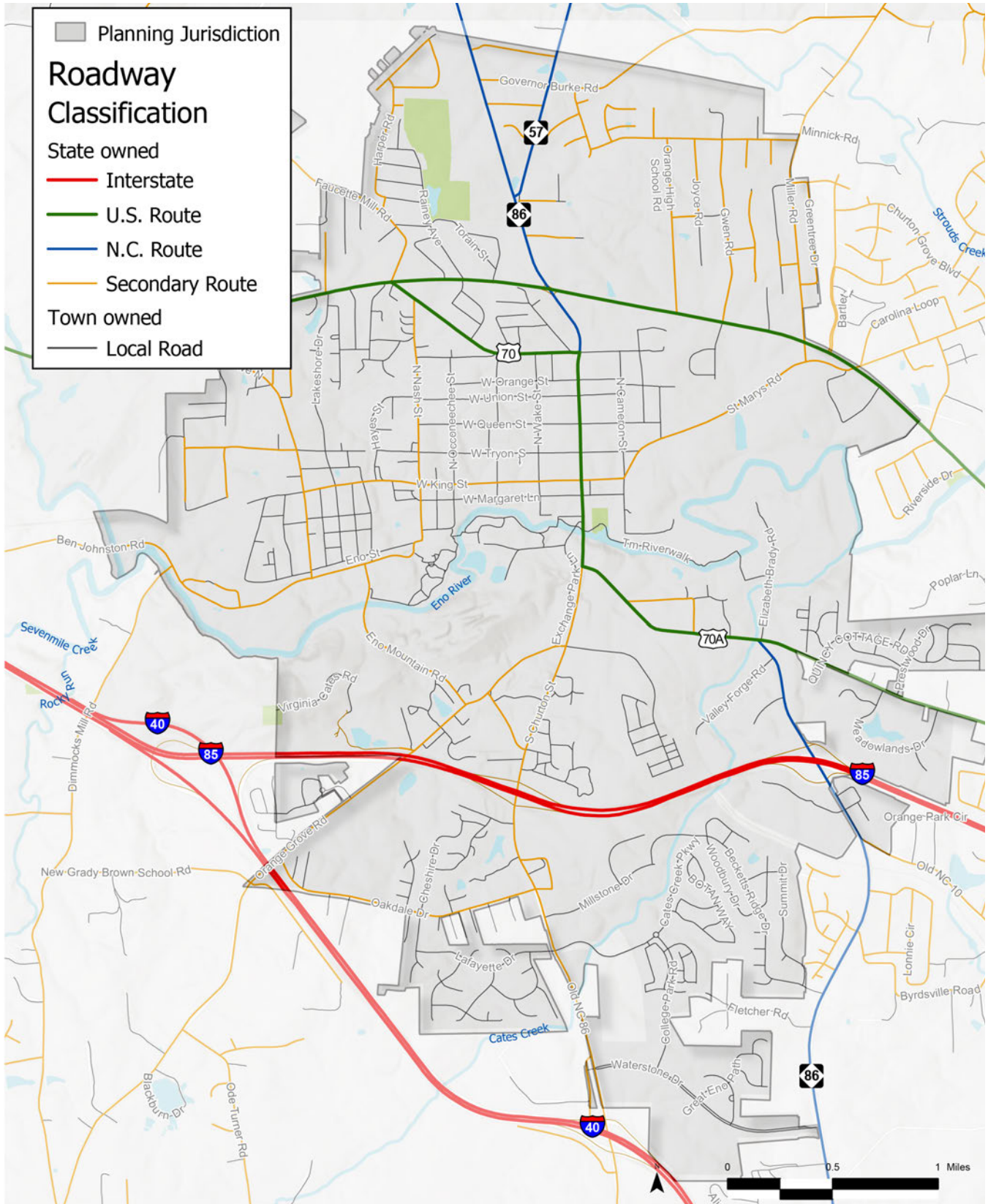
Local roads are managed by the town and are not subject to the same requirements for programming and maintenance that state-owned roads require.

<sup>1</sup> Refer to NCDOT Facility Type and Control of Access Definitions for more information on NCDOT functional classifications.





Figure 6.5. Roadway Classification Map



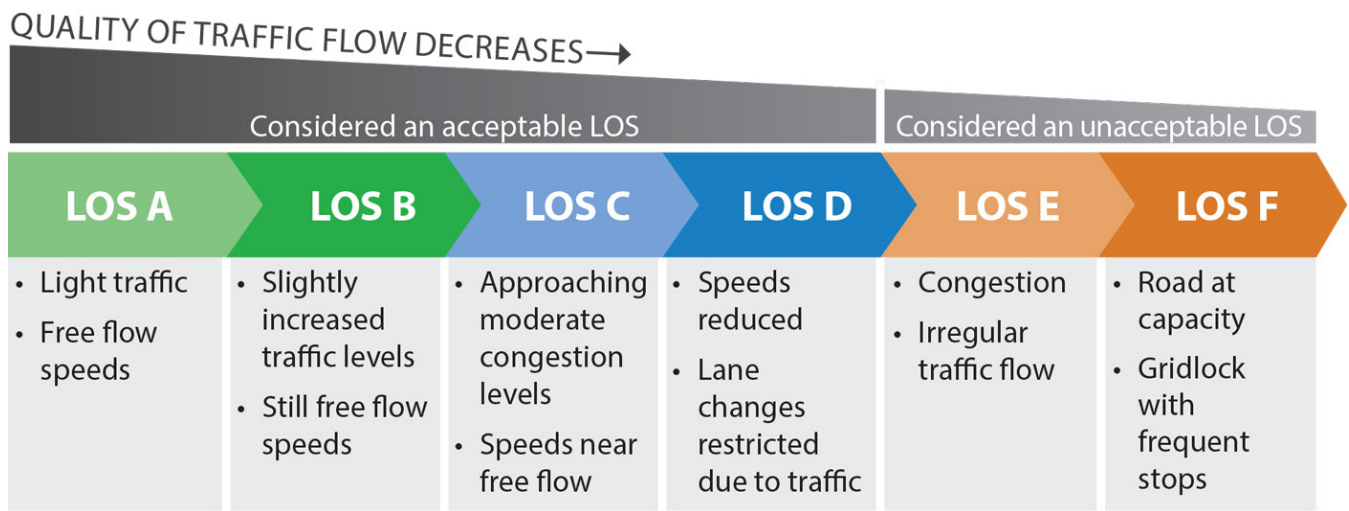
Source: North Carolina Department of Transportation



## Level of Service

Vehicular level of service (LOS) is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. Level of service is rated based on letter grades A through F with A representing free-flow conditions and F representing stop-and-go or gridlock conditions (see *Figure 6.6*). While Level of Service A might minimize the delay experienced by an individual motorist, it is unlikely to be realistic in developed urban environments during peak periods. Level of Service D is generally considered to indicate practical capacity of a roadway, or the capacity at which the general public begins to express dissatisfaction.

**Figure 6.6.** Vehicular Level of Service



Source: N.C. Department of Transportation

The Durham-Chapel Hill-Carrboro Metropolitan Planning Organization is the regional planning agency for the study area. It uses a regional travel demand model to forecast travel and to support the development of transportation improvements. The regional travel demand model is called the Triangle Regional Model. It is an analytical tool to support the policy decision-making process and the development of the Metropolitan Transportation Plan. The model utilizes a traditional four-step, trip-based model process consisting of trip generation, trip distribution, mode choice, and trip assignment for the Research Triangle Region. It is also a predictive model that can be used to forecast peak period and daily trips of automobile, transit, commercial vehicle, and non-motorized travel for any given socio-economic scenario. The predicted congestion and volumes for 2050 are shown in *Figure 6.7* and can be used to better understand traffic patterns and demand within the current roadway system.









## Transit

Public transportation in Hillsborough is operated by partner agencies, Chapel Hill Transit, GoTriangle and Orange County. GoTriangle is a regional service provider that operates bus and shuttle service, paratransit services, ride-matching, and vanpools. GoTriangle also provides other commuter resources for the Raleigh-Durham-Chapel Hill area, including for Hillsborough and other municipalities. Orange County Public Transportation operates three routes that provide service to Hillsborough (see *Figure 6.8*):

- › Hillsborough Circulator: Connects major destinations throughout Hillsborough with free fare. The route provides hourly service Monday-Friday between 8 a.m. and 5 p.m.
- › Orange-Alamance Connector: Connects major destinations in Hillsborough, Efland, and Mebane. The route operates hourly Monday-Friday between 10 a.m. and 3 p.m.
- › Orange-Chapel Hill Midday Connector: Connects major destinations in Hillsborough, Chapel Hill, and Cedar Grove. The route runs hourly Monday-Friday between 9:45 a.m. and 3:50 p.m.

GoTriangle operates two routes that provide service to Hillsborough Route 420 and Route ODX (see Page 8 for details).

The Orange County Transit Plan (dated 2017 and undergoing an update in 2023) recommends improvements to Hillsborough bus stops in the near term and a transfer center in Hillsborough to connect Orange Public Transportation and GoTriangle in the long term. The plan defines how transit projects are funded through four dedicated revenue sources:

- › Half-cent sales and use tax
- › 5% vehicle rental tax
- › \$3 increase to GoTriangle regional vehicle registration fee
- › \$7 county vehicle registration fee

The plan focuses on providing enhanced bus service and improving bus facilities, such as, bus stops, transit centers, and park-and-rides. Orange County prioritizes offering services based on feedback from the community such as Uber or Lyft-type services, Saturday service, and the addition of another vehicle to increase frequency and shorten wait times for the Hillsborough circulator service.

Orange County was successful in winning a federal grant for electric vehicles. The transit fleet is expected to be replaced in the next two years with a smaller profile vehicle. The county is also making improvements to bus stops by adding solar power, shelters, and information on routes and scheduling.

The county has completed analysis on potential bus rapid transit routes in the region. The analysis found the projected ridership did not support a full bus rapid transit route north of Chapel Hill to Hillsborough.

Sidewalks are important in identifying where bus stops can be located and where service can be provided because safe pedestrian access to bus stops is required.





## Micromobility

Micromobility refers to vehicles that are small and lightweight, operate at speeds typically below 15 miles per hour, and are ideal for trips up to approximately 6 miles.

The first and last miles of transit trips are key to transit being a viable option for people. Often, transit stops are not located directly at a desired destination and a second mode of transportation is necessary for the remaining short trip. Micromobility options have surged to address this challenge, including electric scooters and bikes, skateboards, rickshaws, and bike shares, illustrated in *Figure 6.9*. This trend for micromobility options has required planners and policymakers to regulate street space in a different way.

## Electric Bicycles

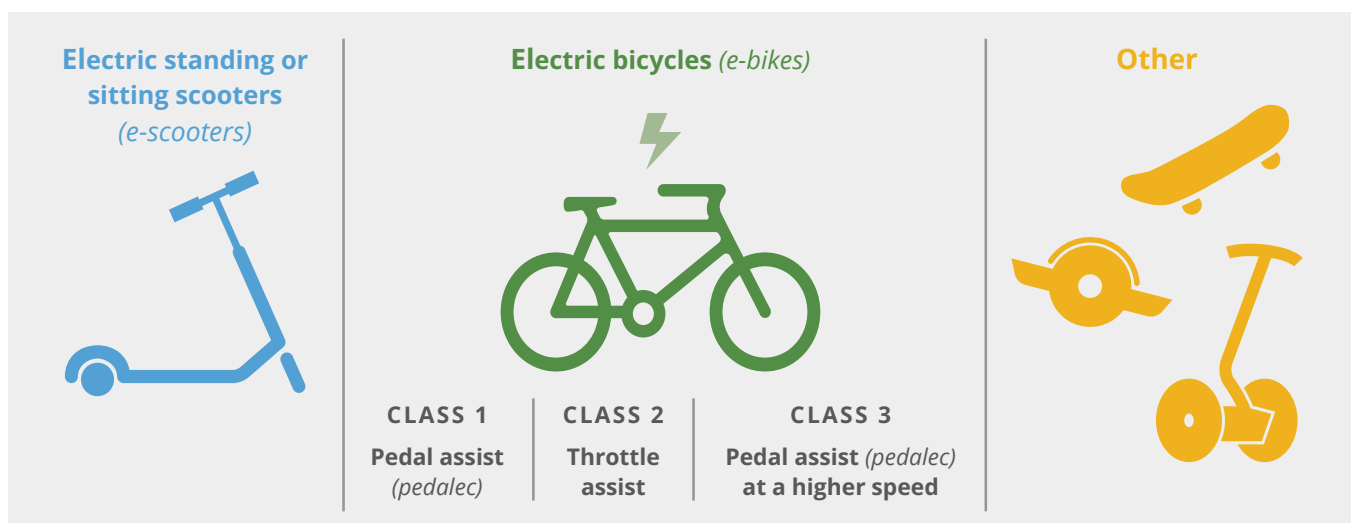
One increasingly popular form of micromobility is electric bicycles, or e-bikes. E-bikes are bicycles equipped with an electric motor that assists with pedaling. They offer a convenient and eco-friendly way to travel short distances, such as commuting to work or running errands. E-bikes are also known for their ability to help riders climb hills or ride against strong winds with ease. Additionally, they can provide a low-impact form of exercise for those who may not be able to engage in more strenuous physical activities.

E-bikes come in various levels, which determine the amount of assistance the motor provides while pedaling. The different levels of e-bikes are typically categorized based on the power of the motor and the level of assistance they provide to the rider.

- › Class 1: Pedal-assist e-bikes that provide assistance only when the rider pedals. The motor stops providing assistance when the bike reaches 20 mph.
- › Class 2: Throttle-assisted e-bikes that provide assistance without pedaling. They have a maximum speed of 20 mph.
- › Class 3: Pedal-assist e-bikes that provide assistance up to 28 mph.

With the rise of e-bikes, many cities are implementing bike-sharing programs for classes 1 and 2 e-bikes along with introduction of bike-friendly infrastructure to encourage sustainable transportation options.

**Figure 6.9.** Micromobility Example



Source: Pedestrian and Bicycle Information Center





## Pedestrian Networks

Choosing an active transportation option rather than using a traditional vehicle will reduce vehicular traffic along roadways and shift capacity to sidewalks or shared-use facilities, more efficiently using space in the transportation system. In addition to reduced roadway demand, this shift toward alternative transportation reduces parking demand and gas emissions and improves community health. According to the Environmental Protection Agency, transportation accounts for roughly a quarter of all greenhouse gas emissions in the United States.

Hillsborough's existing sidewalks network is robust in the downtown area. Sidewalk recommendations originally proposed as part of the Connectivity Plan have been reviewed and updated by town staff and the Parks and Recreation Board (illustrated in *Figure 6.9*). There are some areas of the town that need pedestrian improvements, and the town will need to work closely with the county to add or extend sidewalk in areas just outside of town limits.

All new streets will be multimodal and have accessible sidewalks. Section 6.17 of the Hillsborough Unified Development Ordinance states that sidewalks and walkways must be constructed as a part of all new developments, of redevelopment disturbing 50% or more of the zoning lot area, and of renovations if a structure renovation exceeds more than one-third of the existing structure's replacement cost.

### Safe Routes to School

The N.C. Department of Transportation has transitioned the Active Routes to School Program, a project under NCDOT Safe Routes to School, to a grant-based program funded through the Non-Infrastructure Transportation Alternatives Program. Agencies may request up to three years of funding for projects that encourage children to walk and bike to school, make walking more appealing, and facilitate the development of projects and activities to improve transportation safety near schools.

Funding may be requested to support activities for community-wide, regional, or statewide programs. The town may choose to coordinate with schools, the school district, or the county to pursue funding and recommend projects. The Town of Hillsborough could coordinate with the schools within the town limits to create a more comfortable walking and biking environment for children. Hillsborough, Central, and River Park elementary schools are located on key streets with identified sidewalk and bike route recommendations where the town could leverage the Safe Routes to School Program to make further improvements.

**30%**

of Hillsborough's street network has some form of pedestrian infrastructure.

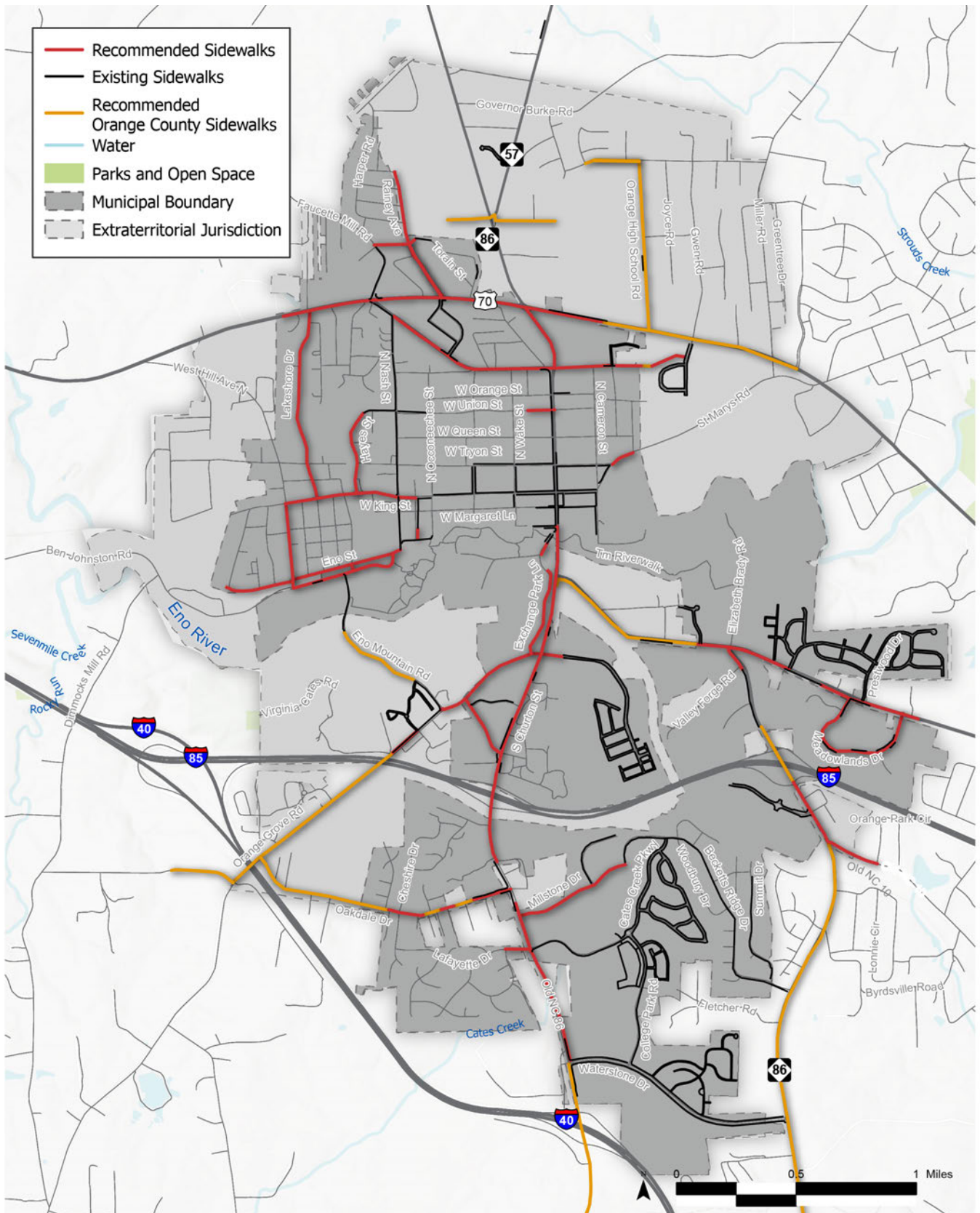
Recommended sidewalks will increase this network by

**4%**

(by adding 23,850 feet of sidewalk on key thoroughfares).



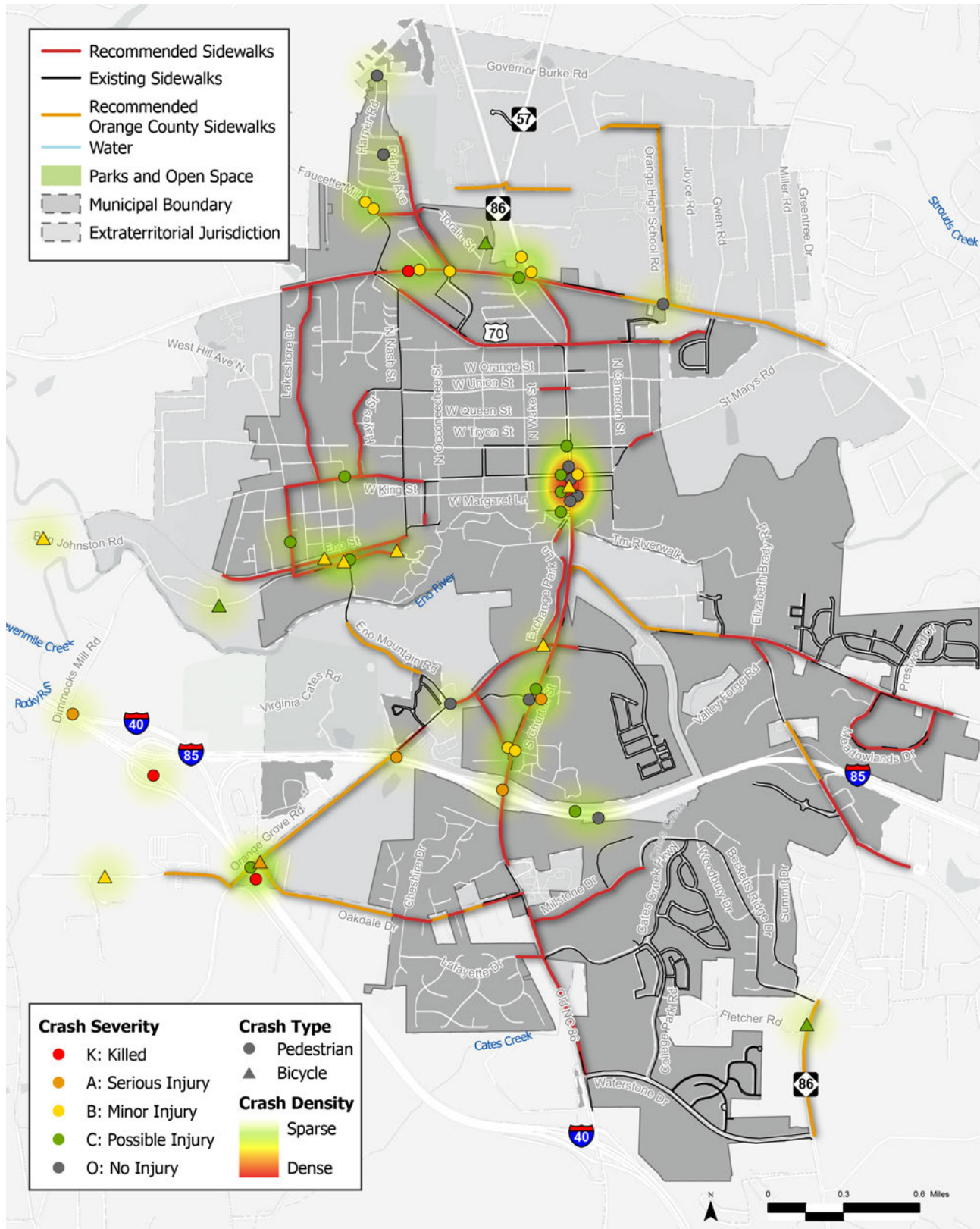
**Figure 6.10.** Sidewalk System Map



Source: Town of Hillsborough Community Connectivity Plan



Figure 6.11. Bike & Pedestrian Crashes from 2011 to 2020 & Sidewalk Recommendations



Source: Town of Hillsborough Community Connectivity Plan, NCDOT





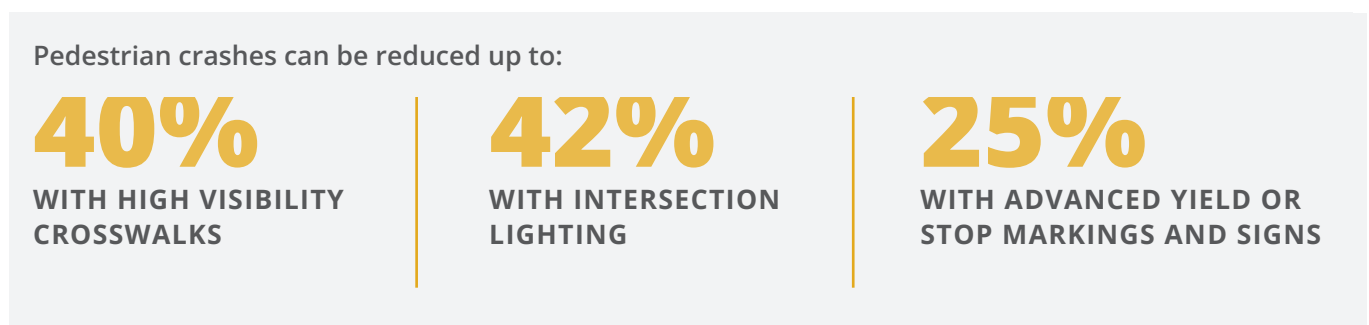
## Pedestrian Crash History

Across the nation, pedestrian fatalities have increased in recent years in both the number of fatalities and the proportion of all traffic fatalities. Pedestrian fatalities in the United States rose by 46% from 2011 to 2020 and accounted for 17% of all traffic fatalities in 2020.<sup>2</sup> Despite the drop in vehicle miles traveled due to public health measures to curb COVID-19's spread in 2020, pedestrian fatalities remained flat and the pedestrian fatality rate that is measured on a miles-driven basis jumped nearly 11%. Crash locations and lighting conditions present key safety concerns. In 2020, 75% of all pedestrian fatalities occurred at non-intersection locations and 77% occurred during dark conditions. These trends underscore the need for safety improvements to protect pedestrians, including through safety-focused planning, education, and enforcement.

Roadways that lack sidewalks force pedestrians to walk in the roadway or narrow paths on the side of the road, leading to unsafe conditions. Likewise, the absence of adequate crossing facilities along corridors within Hillsborough leaves pedestrians no option but to cross at unsafe intersections or at mid-block locations. *Figure 6.11* presents bicycle and pedestrian crashes in Hillsborough between 2011 and 2020. As indicated in *Figure 6.11*, the most crashes occur in the downtown area, which is common due to high pedestrian activity and the multiple opportunities for conflict. The town undertook significant efforts to improve pedestrian safety in the downtown area over the last several years, incorporating crosswalks and connecting sidewalks through the Churton Street Access Improvement Project and the Congestion Mitigation and Air Quality Sidewalks Connections Project. NCDOT is improving the pedestrian network through local resurfacing projects. According to WalkBikeNC, the North Carolina Statewide Pedestrian and Bicycle Plan (2013), investments in infrastructure can significantly improve pedestrian safety (see *Figure 6.12*). The plan cites a 2008 Federal Highway Administration publication that suggests sidewalk installation results in a 65% to 89% reduction in pedestrian crashes.<sup>3</sup>

The safety benefits reported not only help decrease collisions with motor vehicles but also other types of injuries. Many injuries sustained by pedestrians do not involve a motor vehicle.<sup>4</sup> Sufficient infrastructure and routine maintenance help reduce incidents of tripping or falling.

**Figure 6.12.** Crossing Improvement Types and Associated Benefits



<sup>2</sup> National Highway Traffic Safety Administration: Traffic Safety Facts 2020 Data

<sup>3</sup> WalkBikeNC | Federal Highway Administration: Proven Safety Countermeasures

<sup>4</sup> Pedestrian and Bicycle Information Center: Safety



## Crossing and Ramp Improvement Needs

Improving accessibility for residents and visitors of all ages and abilities to local destinations and reducing the dependence on motor vehicles is a top priority for the town. To do this, many corridors with higher traffic will need dedicated pedestrian crossings installed at key intersections and parallel routes and safety countermeasures installed for safe crossing locations.

Curb ramps are an important part of making sidewalks, street crossings, and other pedestrian routes of the public right of way accessible to people with disabilities. The federal government has begun a rulemaking process to revise the accessibility requirements for public rights of way. The town uses NCDOT standards and Americans with Disabilities Act standards as the minimum standard but strives for universal design where crossings are accessed and understood by all regardless of age, size, ability, or disability.

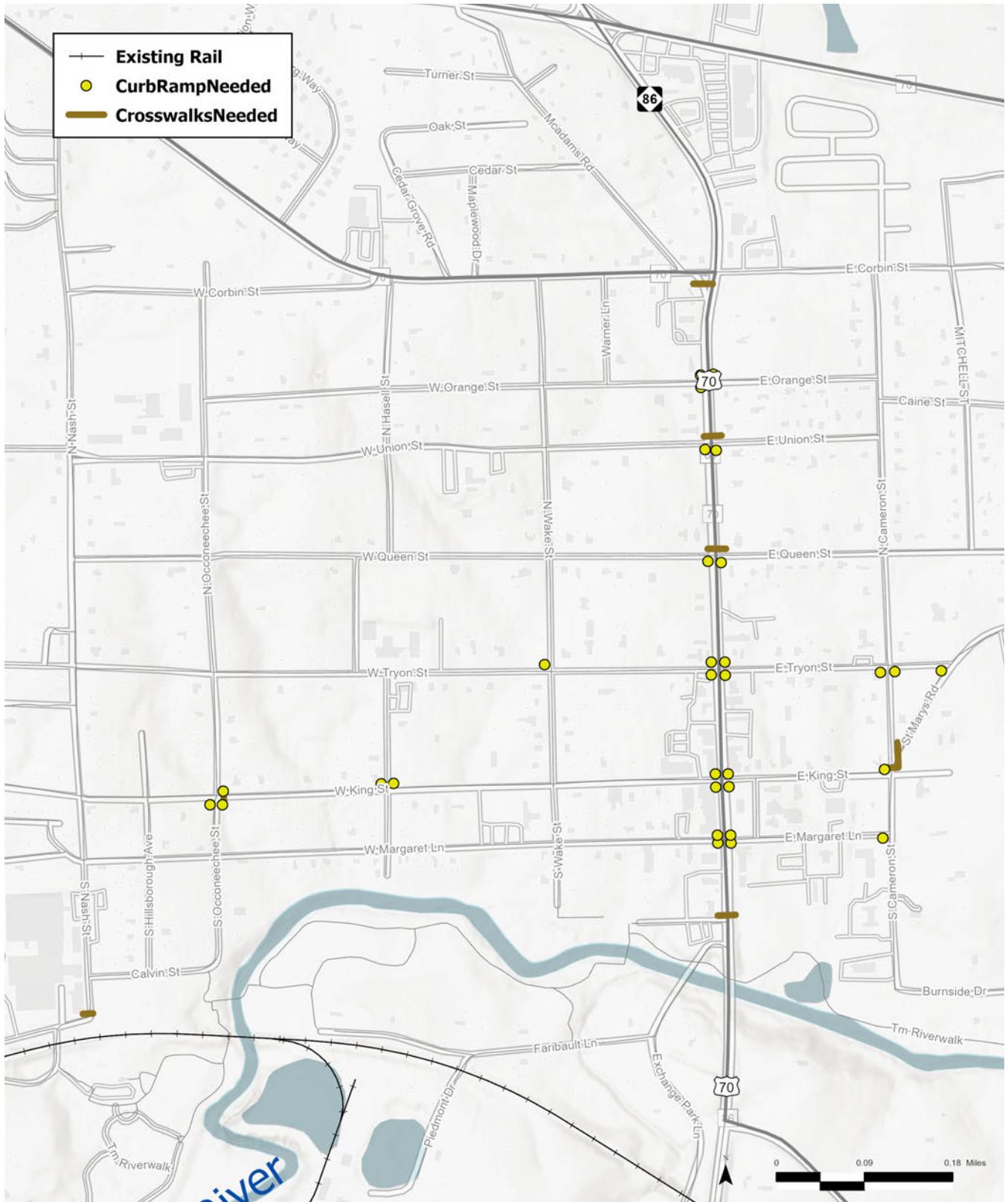
Based on the location of pedestrian crashes in and around Hillsborough's downtown, the crossing and ramp locations in *Figure 6.13* have been recommended for improvement to address safety concerns and reduce conflict with vehicular traffic. These are especially important along the downtown streets with high pedestrian activity, such as West Margaret Lane and South Churton, West King, and West Tryon streets. Other areas of town need to be evaluated for crossing and ramp improvements.



*Pedestrian crossing improvements*



**Figure 6.13.** Downtown Crosswalk and Curb Ramp Improvements Map



Source: Town of Hillsborough Community Connectivity Plan, Safe Routes to School





## Bicycle Facilities

Cycling is a low-cost form of transportation that produces a negligible impact on the environment and offers health and mental well-being benefits. It can be used as a mode of transportation, for recreational activity, or as an intense, competitive endeavor.

Bike lanes exist on Waterstone Drive and are planned for the Collins Ridge development. Signed bike routes are identified in the Orange County Comprehensive Transportation Plan, and additional bike facilities are identified for future improvement (see *Figure 6.14*). During resurfacing, the town and county should encourage NCDOT to install paved shoulders on roads where routes have been identified. By encouraging walking for short trips or bicycling for slightly longer trips, Hillsborough will help reduce the number of vehicular miles traveled, and, consequently, vehicular emissions.



*Cycling group in town*



## Types of Bicyclists and Bikeways

There are many types of bicyclists, each with unique preferences and levels of comfort in using various bikeways. Bicyclists can range from casual riders who take occasional leisurely rides to dedicated commuters who rely on bikes and e-bikes for daily transportation. Understanding these different types and user needs can help Hillsborough create bikeway networks that are more likely to be used. Several bikeway types are designed to provide safe and comfortable riding conditions for cyclists of different skill levels and experience. These bikeways are categorized based on their level of separation from motor vehicle traffic and the level of protection they offer to cyclists, including:

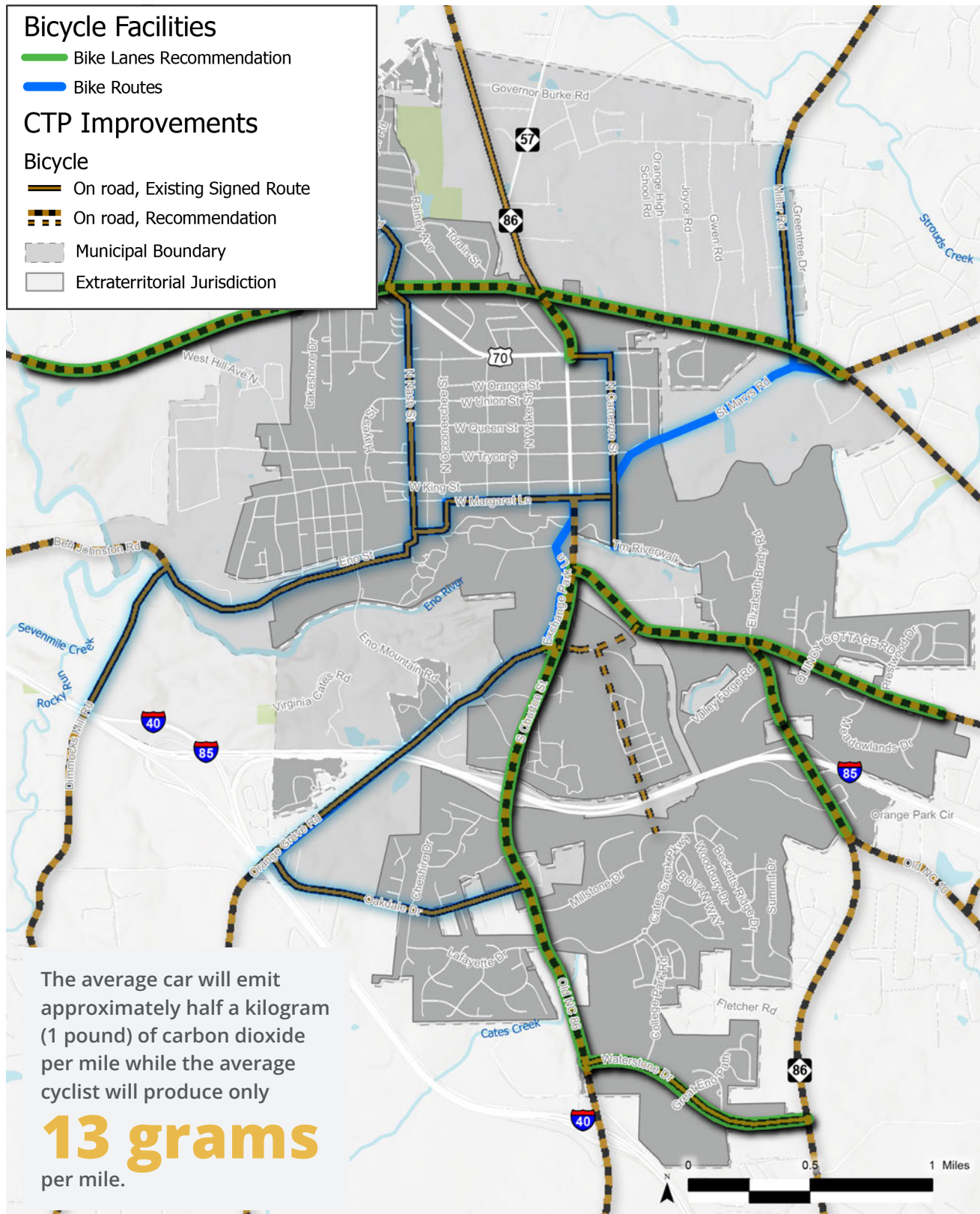
- › **Separated Bike Lanes:** These bike lanes, also known as protected bike lanes or multi-use paths, are physically separated from the street and motor vehicle traffic by a curb and buffer zone. This type of bike lane provides the highest level of protection for cyclists and is ideal for inexperienced or nervous riders. Protected bike lanes are typically found on busy urban streets or along major transportation corridors.
- › **Buffered Bike Lanes:** Buffered bike lanes are similar to protected bike lanes but offer less physical separation from motor vehicle traffic. They feature a painted buffer zone that separates the bike lane from the adjacent traffic lane, which provides more space for cyclists and reduces the risk of collisions. Buffered bike lanes are ideal for moderately experienced riders who are comfortable riding alongside traffic but still want some protection.
- › **Conventional Bike Lanes:** Conventional bike lanes are painted lanes on the road that are designated for use by cyclists. They offer no physical separation from motor vehicle traffic but provide clear markings that indicate where cyclists should ride. Conventional bike lanes are suitable for experienced riders who are comfortable riding in traffic and can safely navigate around parked cars and other obstacles.
- › **Shared Lanes:** Shared lanes, also known as "sharrows," are road markings that indicate cyclists and motorists are expected to share the road. Shared lanes are typically used on low-speed roads and in areas where there is not enough space for a separate bike lane. Shared lanes are suitable for experienced riders who are comfortable sharing the road with motor vehicle traffic. In addition to these shared use paths and types of bikeways, other facilities can improve rider comfort, such as bike boulevards and neighborhood greenways. These types of facilities are typically designed to prioritize bicycle traffic over motor vehicle traffic, which creates a safer and more comfortable environment for cyclists. Specific populations also may require unique bike lane facilities, such as children and seniors. Children need safe and separate bike facilities, such as shared use paths or protected bike lanes, while others may benefit from low-traffic roads or bike lanes with slower speed limits.

By supporting high-quality bicycling infrastructure, Hillsborough can promote active transportation and create more livable and sustainable community.





**Figure 6.14.** Bicycle System Map of 2050 Comprehensive Transportation Plan of Durham-Chapel Hill-Carrboro Metropolitan Planning Organization.



Source: Durham-Chapel Hill-Carrboro Metropolitan Planning Organization Comprehensive Transportation Plan, November 2017





## Complete Streets

The U.S. Department of Transportation defines Complete Streets as “streets designed and operated to enable safe use and support mobility for all users...[including] people of all ages and abilities, regardless of whether they are travelling as drivers, pedestrians, bicyclists, or public transportation riders.” Complete Streets goals for the town include:

- › Reduce pedestrian crashes and unsafe conditions.
- › Improve access and mobility for those without a vehicle.
- › Enhance quality of life by providing transportation choices.
- › Ensure Hillsborough has an equitable transportation system that works for everyone.

The town works with NCDOT to evaluate all projects for Complete Streets elements. Many of the local streets within Hillsborough have been upgraded through previous projects and plans exist to enhance pedestrian safety with crossing and sidewalk improvements. One example of this was the Downtown Sidewalks Project, which led efforts to improve pedestrian conditions and intersections on Margaret Lane, Nash and Kollock, King, and Tryon streets.

The Department of Transportation offers a Complete Streets policy and substantial guidance to assist municipalities in identifying context-sensitive cross sections (see *Figure 6.15*), developing prioritization plans, and providing technical expertise. The NCDOT Roadway Design Manual is the authoritative reference for Complete Streets design and provides additional resources to the standard roadway drawings, including curb ramp details. To ensure compliance with federal regulations, any traffic control ordinance implemented by the Town of Hillsborough must adhere to the standards set forth in the Manual on Uniform Traffic Control Devices.



*Complete street concepts in downtown Hillsborough*



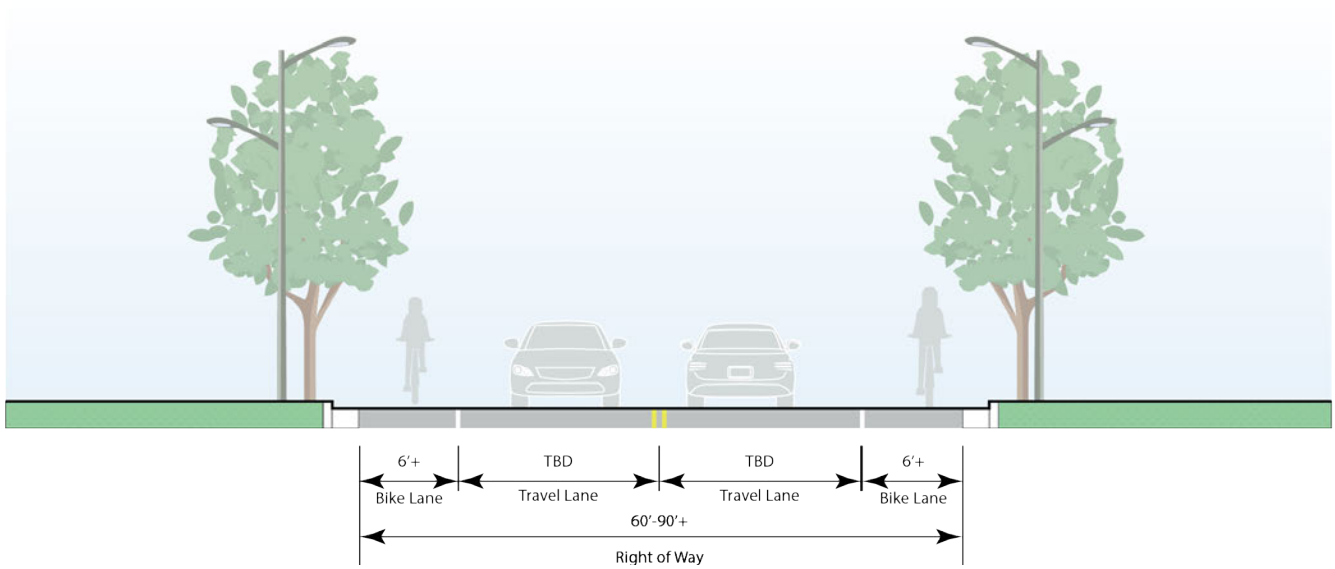
A Complete Streets policy would be valuable to the town in prioritizing projects, incorporating mobility options, and addressing safety concerns. A Hillsborough Complete Streets policy should include the following elements as recommended from Smart Growth America and the National Complete Streets Coalition:

- › **Vision and intent:** Includes an equitable vision for how and why the town wants to complete its streets. Specifies need to create a complete, connected network and specifies at least four modes, two of which must be biking or walking.
- › **Diverse users:** Benefits all users equitably, particularly vulnerable users and the most underinvested and under-served communities.
- › **Commitment in all projects and phases:** Applies to new, retrofit/reconstruction, maintenance, and ongoing projects.
- › **Clear, accountable exceptions:** Makes any exceptions specific and sets a clear procedure that requires high-level approval and public notice prior to exceptions being granted.
- › **Jurisdiction:** Requires interagency coordination between government departments and partner agencies on Complete Streets.
- › **Design:** Directs the use of the latest and best design criteria and guidelines and sets a timeframe for implementation.
- › **Land use and context sensitivity:** Considers the surrounding community's current and expected land use and transportation needs.
- › **Performance measures:** Establishes performance standards that are specific, equitable, and available to the public.
- › **Project selection criteria:** Provides specific criteria to encourage funding prioritization for Complete Streets implementation.
- › **Implementation steps:** Includes specific next steps for implementation of the policy.

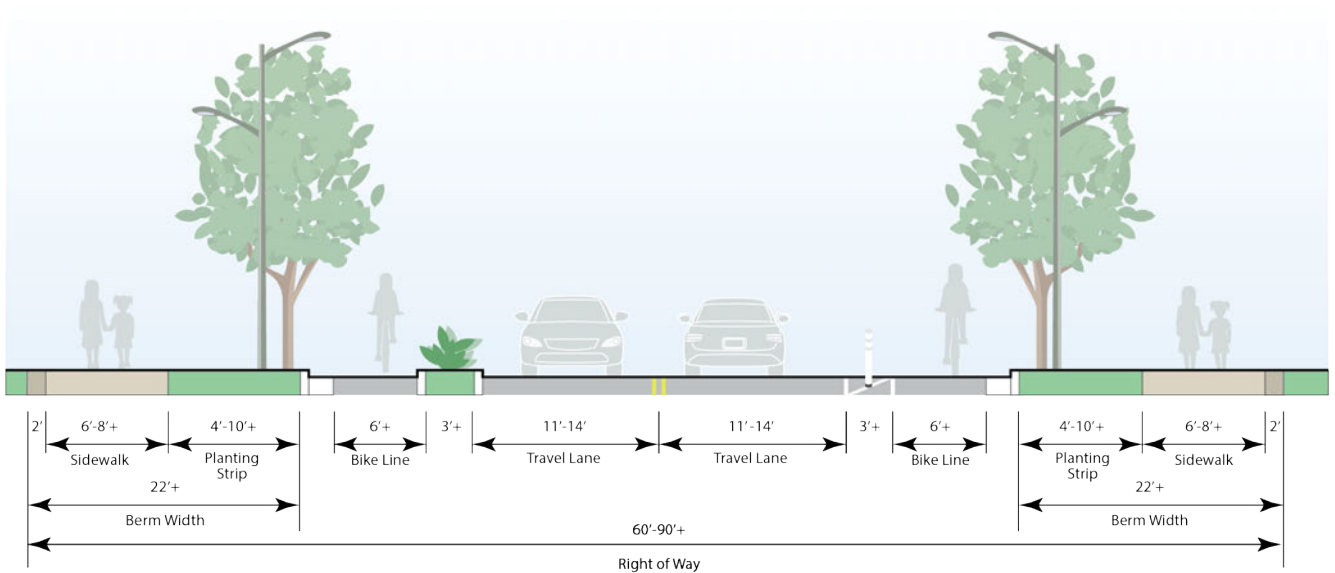


**Figure 6.15.** Typical Complete Street Cross-section

*In-road Bike Lane*



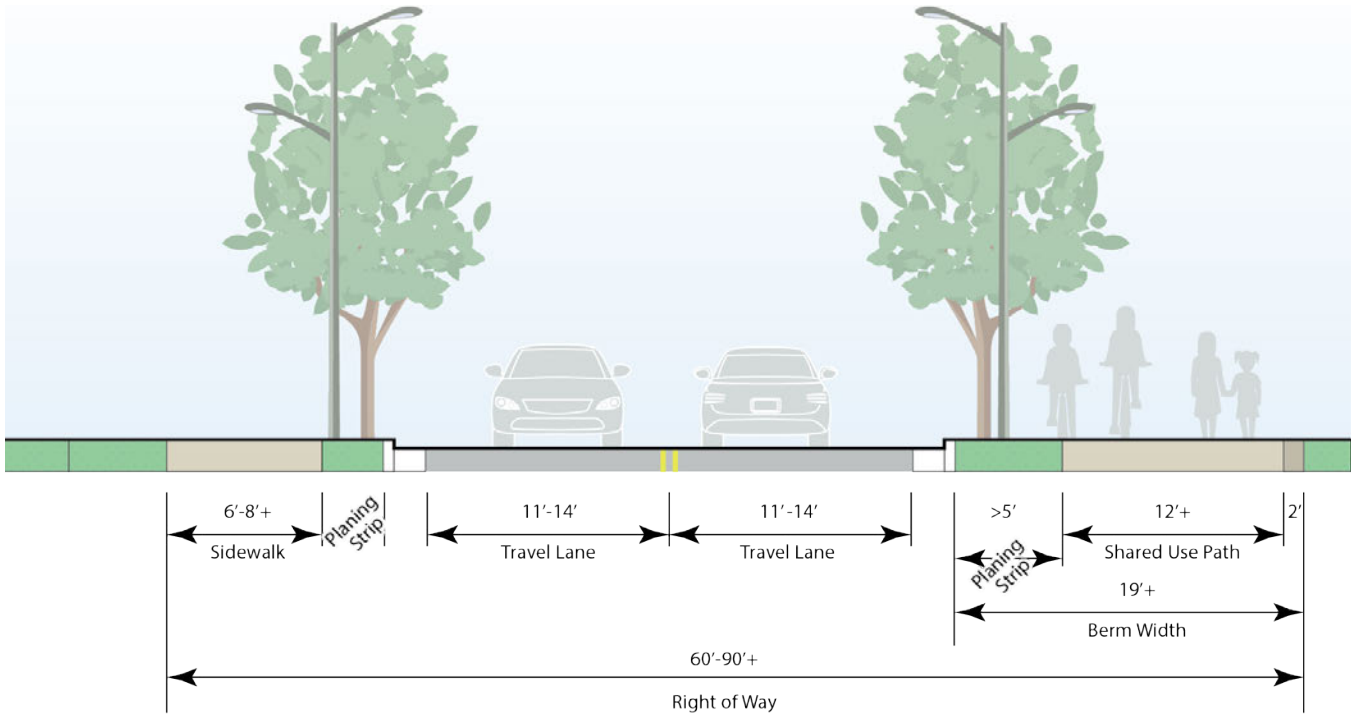
*Protected/Separated Bike Lanes and Sidewalks*



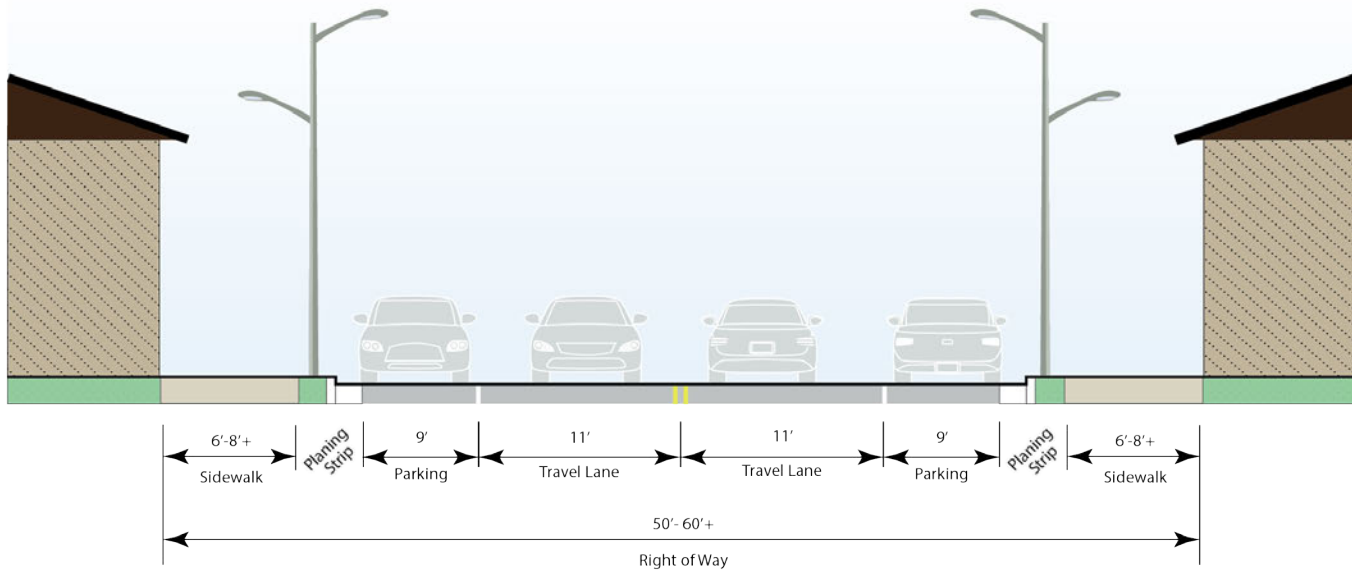




Shared-use Path



On-street Parking

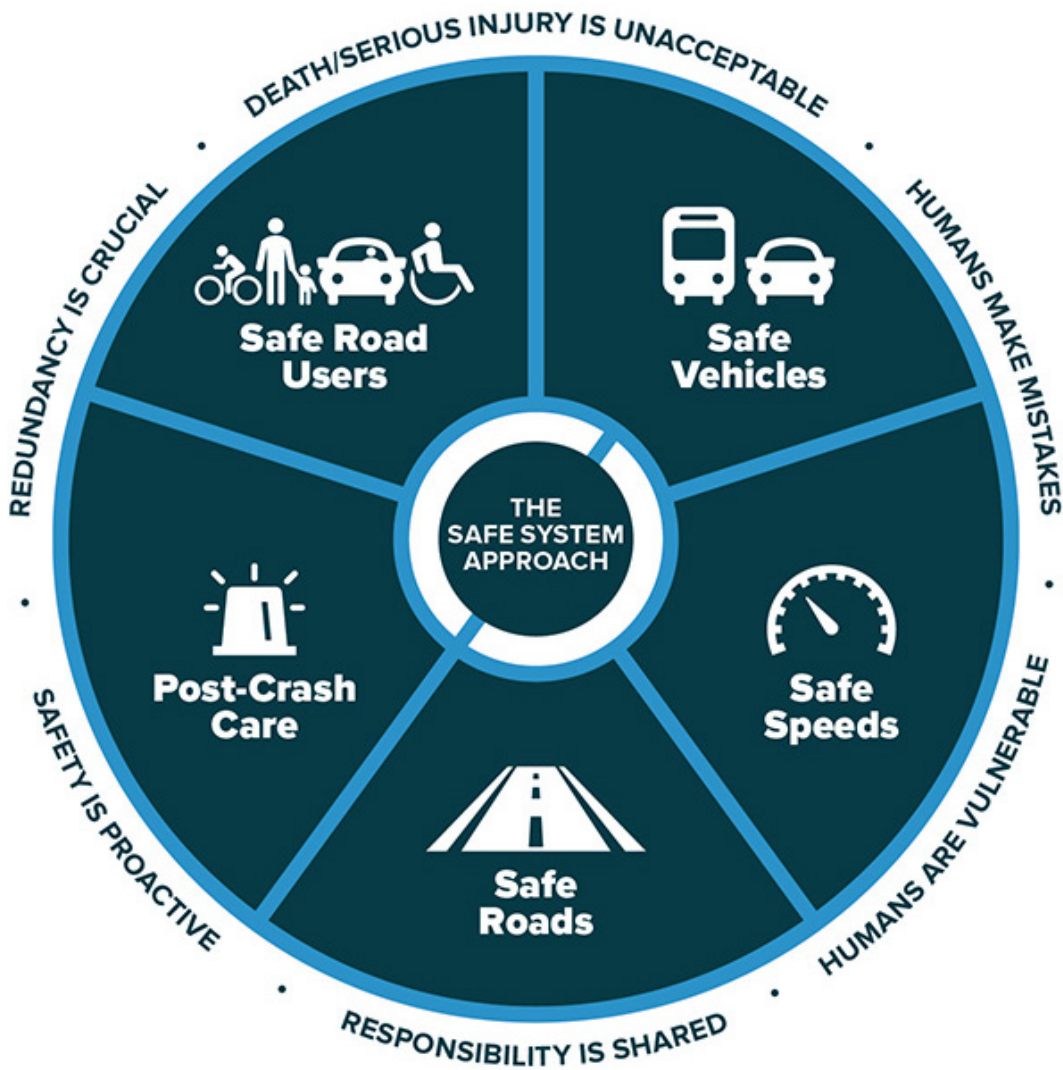




## Comprehensive Safety Action/Vision Zero Plan

The town is taking a safe system approach to achieving safe, healthy, and equitable mobility for all. A safe system approach is holistic and requires everyone to consider the road system in its entirety from infrastructure to policies. A comprehensive safety action plan (also known as a vision zero plan) is prepared by a municipality to reduce crash rates. Part of the approach is to effect a change in the culture of safety, both designing a transportation system for all people and ensuring individuals understand they have a responsibility to comply with the rules of the road.

The planning process analyzes crash statistics, identifies emphasis areas, and describes projects, programs, and policies with the greatest potential to reduce fatal and serious injury crashes and reduce crash rates on local roads. This process is documented in a comprehensive safety action plan that incorporates policies and practices in a comprehensive set of strategies and actions to address safety on town streets with a goal to eliminate fatalities and serious injuries.



Source: Federal Highway Administration



## Greenways and Trails

Greenways and trails often follow either a natural corridor — such as a river or ridge line — or an overland corridor along a converted railroad, canal, scenic road, or other route. Greenways can be any paved path that allows for pedestrian or bicycle passage or commuting. Trails tend to have natural surfacing and function more as recreational facilities.

Hillsborough’s greenway and trail system is extremely important to the community and heavily used to navigate between the downtown and the neighborhoods to the east and west along the Eno River. Approximately 17.9 miles of greenway and trails are accessible within the town (see *Figure 6.16*).

### Riverwalk

Riverwalk is a paved, accessible, urban greenway that stretches about 1.8 miles along the Eno River between Gold Park in western Hillsborough and trails east of town. Riverwalk has become a frequently used facilities in Hillsborough by residents and visitors.

Riverwalk is the primary route of the Mountains-to-Sea Trail through Hillsborough and gives travellers the trail access to restrooms, restaurants, shopping, lodging, and a post office. The Mountains-to-Sea Trail is a unique trail in North Carolina that will extend from the Great Smoky Mountains to the Outer Banks. More than half of the trail (about 720 miles) has been completed, and the trail within the Hillsborough limits is complete.

Amenities for the Riverwalk Greenway include benches and accessibility from designated parking spaces, making it a popular trail for birding, running, and walking. The trail is accessible, stroller, and wheelchair friendly with areas where users can enjoy solitude during quieter times of day. The trail is open year round and is beautiful to visit anytime. Dogs are welcome but must be on a leash.

### Calvin Street Greenway

The Calvin Street Greenway provides a connection from Calvin Street south to Riverwalk and Gold Park. It is a 300-foot, paved, accessible path with a 100-foot elevated walkway. It allows pedestrian and bicycle access from downtown and adjacent neighborhoods.

### Ridgewalk Greenway

The Ridgewalk Greenway is a planned greenway currently being studied for feasibility. If found feasible and fundable it will connect downtown Hillsborough to the future train station site, Collins Ridge neighborhood, and continue south across I-85 to Cates Creek Park in Waterstone.







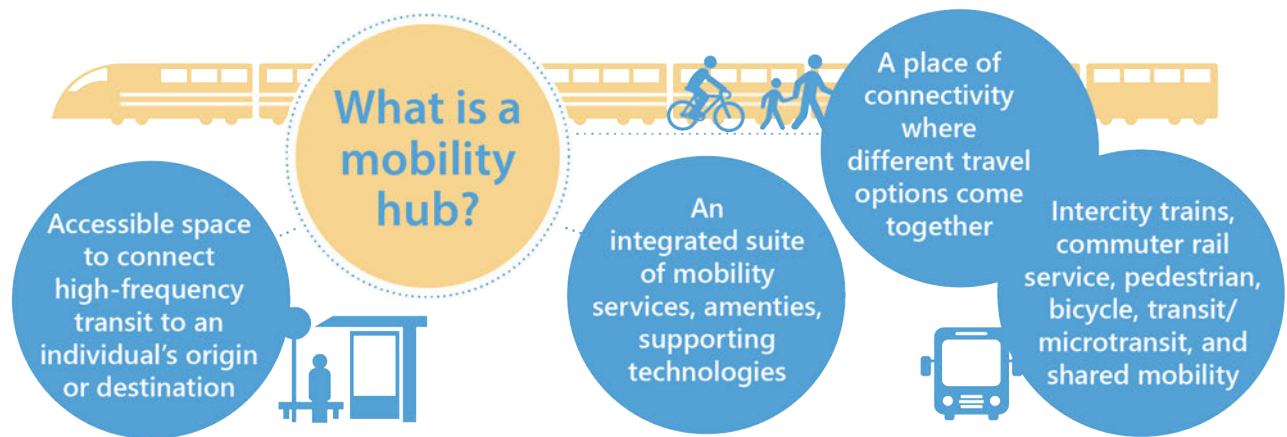
## Rail Network

The Town of Hillsborough is situated along the North Carolina Railroad rail line, with Norfolk Southern serving as the freight operator and Amtrak operating passenger service. Hillsborough used to be a rail stop, with a station situated at South Nash and Eno streets. The last passenger service was in 1964, and the station has since been demolished. However, the town is advancing plans to be transit-ready with a new train station (i.e., mobility hub with bus services, greenway connections, and park-and-ride) through an interlocal agreement with NCDOT and GoTriangle. The town owns 20 acres south of downtown, adjacent to a straight section of tracks, and off Old N.C. 86. The future station is anticipated to be served by two Amtrak passenger routes providing a combined eight departures daily<sup>5</sup>:

- › **Carolinian:** Travels between Charlotte and New York twice a day (once in each direction).
- › **Piedmont:** Travels between Charlotte and Raleigh six times a day (three times in each direction).

The future station will not only serve as a mobility hub providing needed transportation options but also will be an activity node and offer the opportunity for a mix of uses and transit-oriented development (see *Figure 6.17*). The future train station is expected to include passenger service areas and town office and meeting space, totaling approximately 8,000 square feet. The design will prioritize sustainable site, building, and material components.

Several other ongoing or planned projects are in the vicinity of the proposed future train station, including a feasibility study for widening Churton Street, several new developments, and a new phase of greenway between the train station and the Beckett’s Ridge and Waterstone neighborhoods.



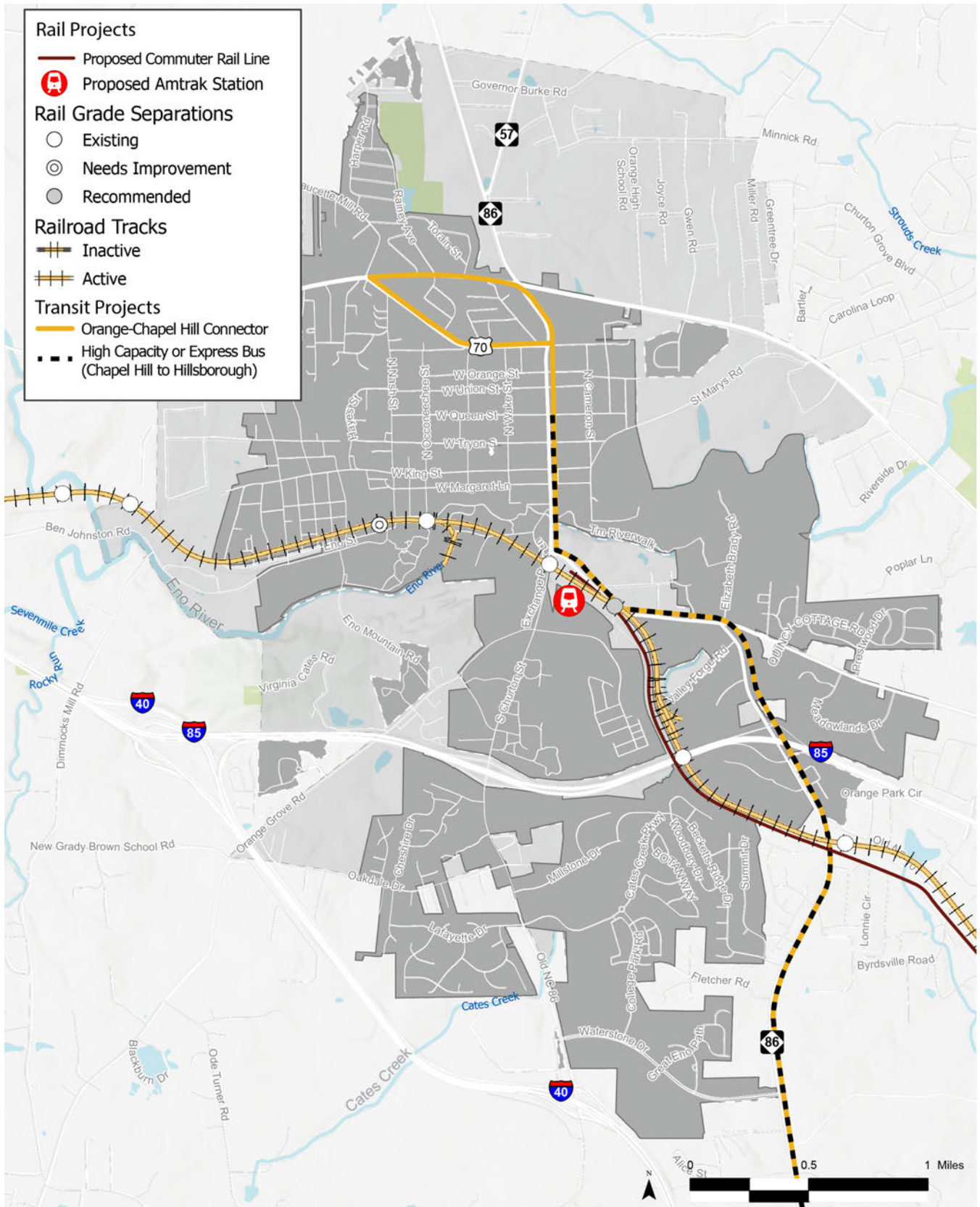
Other rail opportunities are under consideration within the region, particularly commuter rail; and Hillsborough has been discussed as a potential stop on a commuter line. The commuter rail project is in the project development stage, and Hillsborough will continue to be at the table for project discussions.

<sup>5</sup> Based on train schedule in Spring 2023. More trains and new schedules are anticipated on these routes in Summer 2023.





**Figure 6.17.** Existing Rail and Improvements Map



Source: Durham-Chapel Hill-Carrboro Metropolitan Planning Organization Comprehensive Transportation Plan, November 2017





## NCDOT Projects and Plans

The state is implementing transportation projects to improve the connectivity in and around Hillsborough. Many of these projects are created at the local level and submitted through the Metropolitan Planning Organization for state and federal funding.

### 2020-2029 State Transportation Improvement Program Projects

The State Transportation Improvement Program is a 10-year state- and federally mandated plan that identifies the construction funding for and scheduling of transportation projects throughout the state. NCDOT conducts its strategic prioritization process to update the program every two years.

A variety of roadway improvements and bicycle, pedestrian, and passenger rail projects in Hillsborough are included for funding in the 2020-2029 State Transportation Improvement Program, as shown in *Table 6.2* and *Figure 6.18*.

**Table 6.2. 2020–2029 Hillsborough Area Projects**

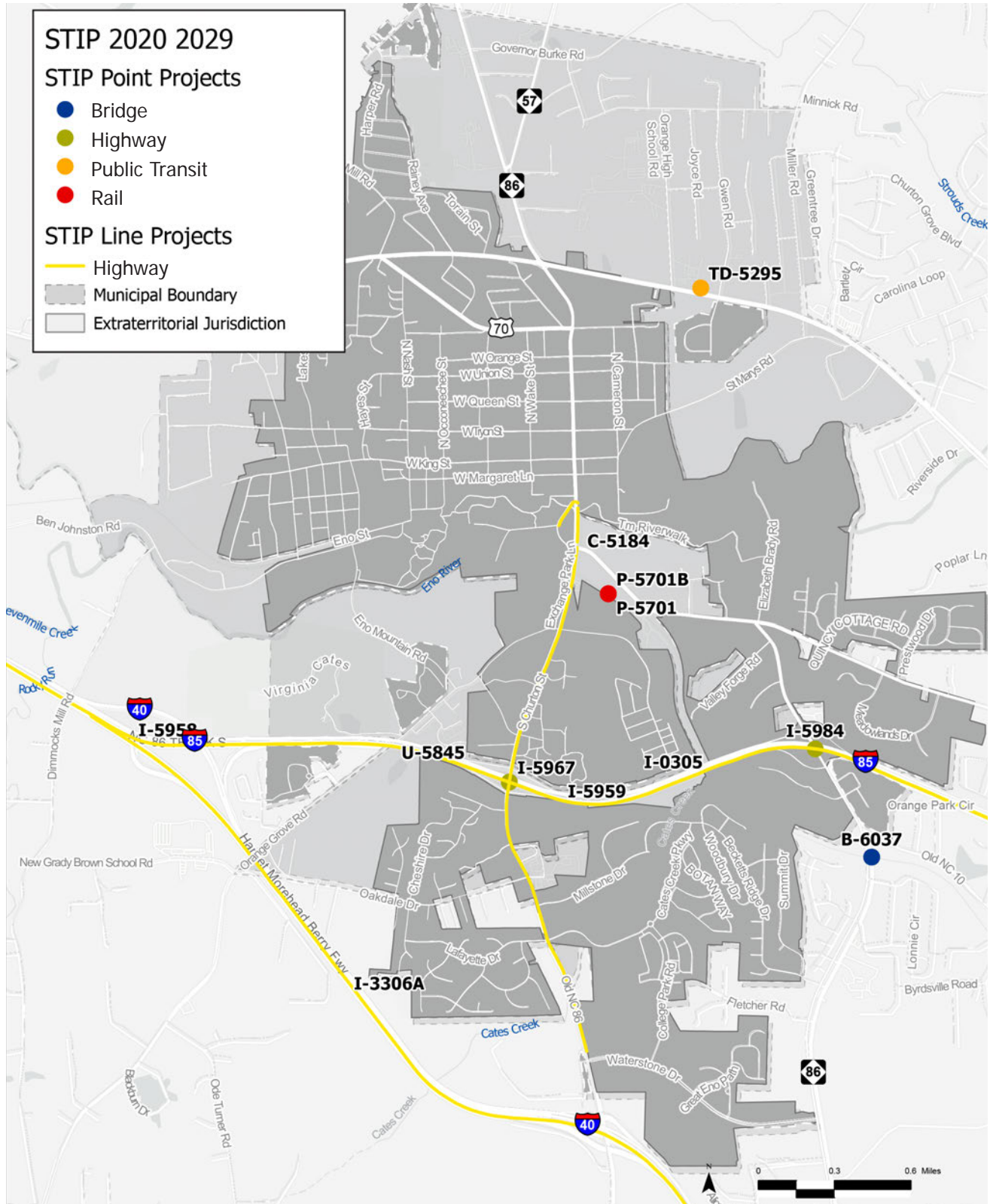
Project	Description	Status
<b>U-5845</b>	Widen S.R. 1009 (South Churton Street) between I-40 and the Eno River.	Right of Way – 2026 Construction – 2029
<b>P-5701</b>	Construct platform, passenger rail station building, site access, utilities, and parking at Milepost 41.7 in Hillsborough.	Construction – anticipated to begin 2024
<b>TD-5295</b>	Construct park-and-ride lot near U.S.-70 Bypass and Gwen Road.	Under construction by GoTriangle
<b>I-5958</b>	Rehabilitate pavement of I-85 from west of S.R. 1114 (Buckhorn Road) to west of S.R. 1006 (Orange Grove Road).	Construction – 2027
<b>I-5959</b>	Rehabilitate pavement of I-85 from west of S.R. 1006 (Orange Grove Road) to Durham County line.	Construction – 2028
<b>I-5984</b>	Upgrade interchange at I-85 and N.C. 86.	Right of Way – 2027 Construction – 2029
<b>I-5967</b>	Improve interchange at I-85 and S.R. 1009 (South Churton Street).	Right of Way – 2025 Construction – 2028
<b>I-3306A</b>	Improve I-40 interchange between I-85 and the Durham County line; improve N.C. 86 interchange.	Construction – 2021
<b>B-6037</b>	Replace bridge 670049 over North Carolina Railroad/ Norfolk Southern Railroad.	Right of Way – 2024 Construction – 2025

\* Status is subject to reallocation.

Source: North Carolina Department of Transportation, 2020-2029 State Transportation Improvement Program, amended May 2023



**Figure 6.18.** State Transportation Improvement Program (STIP) Projects (2029)



Source: North Carolina Department of Transportation



## Parking

According to the 2019 Community Survey, the majority of the Hillsborough community is very satisfied or satisfied with the convenience of downtown parking. However, hosting major events in downtown creates parking issues. Additionally, planning for multimodal options requires a balance between using space within the right of way for parking and leaving space for bikes, pedestrians, and buses. Providing adequate parking, operations, and enforcement is vital for supporting the growth of businesses, attractions, and events in the town. *Figure 6.19* illustrates the current parking footprint of Hillsborough's downtown area.

Parking is an important factor in shaping how Hillsborough's destinations are accessed and experienced. Sufficient parking is important to the town's businesses, but too much land devoted to parking will break up the urban fabric, limit efforts to improve walkability, and waste valuable land while complicating stormwater management and contributing to the urban heat island effect. On the supply side, Hillsborough should optimize use of existing parking spaces and seek to limit the amount of land area needed to provide sufficient parking in the future. New technology for locating available spaces, combined with demand-sensitive pricing, allow for active parking management that makes more efficient use of spaces, reducing the total supply needed. At the same time, efforts to promote alternate travel modes would reduce parking demand. The county allows for multiple electric vehicle parking locations within the parking deck, where both electric vehicles and plug-in hybrid electric vehicles can use the electric vehicle chargers.

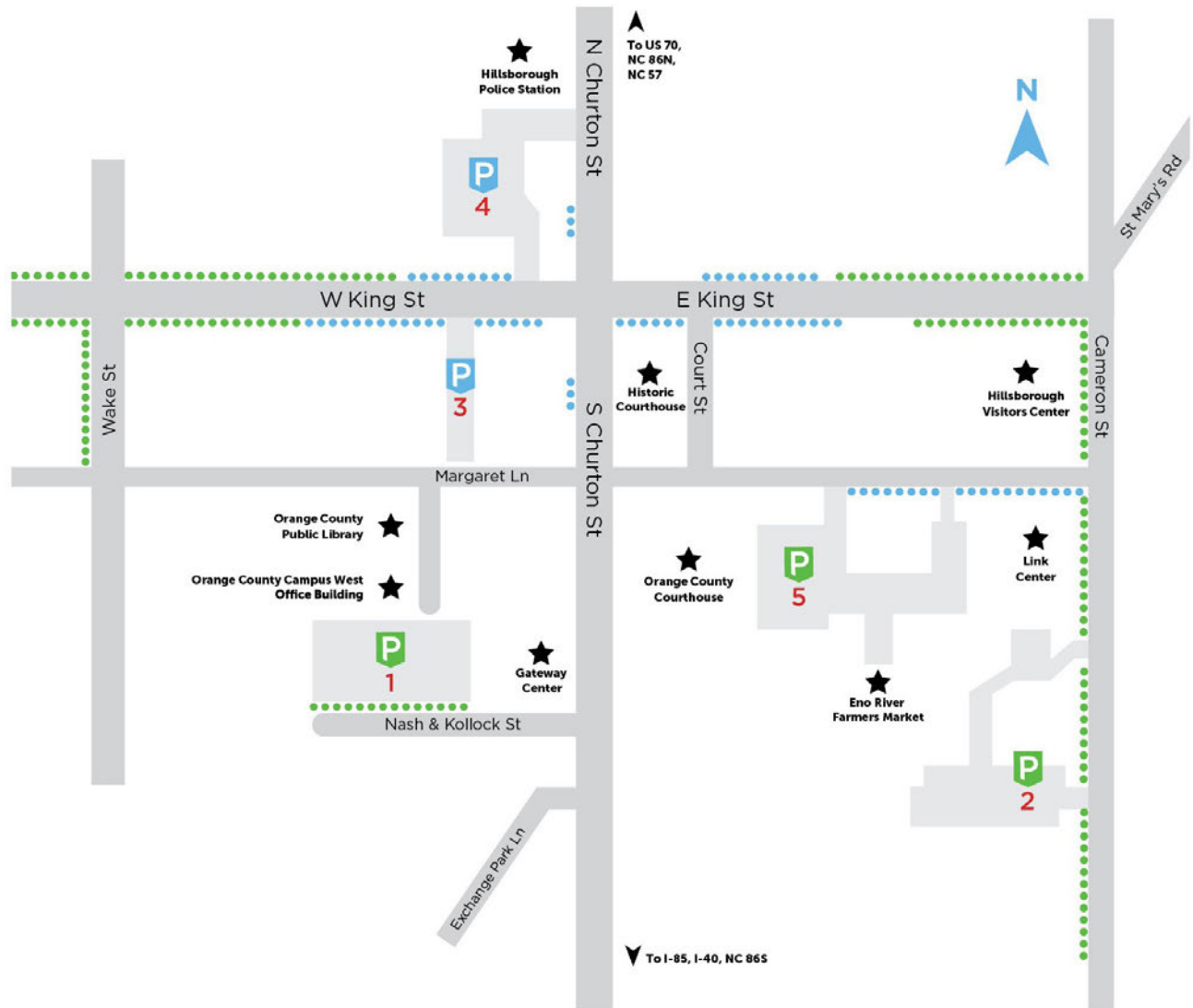
Curbside management, including parking and loading zones, is regulated through town ordinances that include required locations, number of stalls, type of parking, and prohibitions. The growth and addition of new businesses has created the need to evaluate how to accommodate additional users through interesting parking arrangements. The demand for the surface lot or deck in downtown will increase as more people continue to be attracted to downtown.

The town completed a parking study in 2010 and implemented many of the recommended actions. However, there have been numerous changes in the town and parking accommodations should be regularly revisited. The town would benefit from preparing a comprehensive parking study that includes a summary of existing conditions and strategies to address the anticipated demand associated with town growth. This study should include creative shared spaces, electric vehicle readiness, curbside management, interactions with other modes, impacts to land use and urban design, potential policies, and behavioral changes. It also should include the costs to provide parking (opportunity, hidden, and transferred).





**Figure 6.19.** Hillsborough Downtown Parking



## DOWNTOWN HILLSBOROUGH

**1 Eno River Parking Deck**  
Public parking. No time limit.

**2 Link Center/Cameron Street Lot**  
Public parking. No time limit.

**3 Mayo Park Parking Lot**  
Public parking. 3-hour time limit.

**4 King Street Parking Lot**  
Public parking. 3-hour time limit.

**5 David Price Farmers Market Pavilion Parking Lot**  
Public parking. No time limit.

**Public parking is FREE!**

**P** Public Parking  
3-Hour Time Limit

**P** Public Parking  
No Time Limit

●●●● On-Street Parking

●●●● On-Street Parking

Parking time limits applied  
8 a.m. - 6 p.m.,  
Monday-Saturday

Source: Town of Hillsborough



# Transportation & Connectivity

## Goals and Actions

These goals identify Hillsborough's wants regarding transportation and connectivity and are consistent with the goals and objectives of the regional 2050 Metropolitan Transportation Plan. There are related strategies and recommended actions identified for how Hillsborough will implement strategies and achieve the goals.

### Goal

1

Develop and maintain a safe, efficient, and sustainable multimodal transportation system (including bicycle, pedestrian, and transit options) that offers alternatives to single-occupancy vehicle trips and promotes health and access to area jobs, destinations, and services.

## Strategies

**Plan for and monitor progress toward meeting transportation and connectivity needs in town.**

- › Develop a schedule for repairs and maintenance for sidewalks and greenways, prioritizing connectivity improvements.
- › Develop and submit transportation projects to be included in regional transportation plans that address connectivity.
- › Develop an accessibility plan to address mobility issues, supporting multimodal planning, and more compact development within the town.
- › Develop local electric vehicle deployment plans consistent with state and regional plans.
- › Develop a local funding plan for the implementation of prioritized transportation and connectivity projects.
- › Incorporate transportation-specific strategies from the Orange County Master Aging Plan into local plans and project prioritization.
- › Develop a comprehensive safety action/vision zero plan.



## **Develop and adopt policies that contribute to meeting identified transportation and connectivity needs in town.**

- › Adopt a Complete Streets policy that guides the design, construction, operation, and maintenance of streets that are safe for all road users.
- › Adopt a public/private streets policy.
- › Allocate annual dedicated funding to connectivity projects.
- › Update the current traffic-calming policy to ensure a prioritization of multiple modes and consistency with the recommended Complete Streets policy.
- › Adopt a micromobility policy, including guidance on electric bikes and scooters.
- › Adopt a policy for ownership and maintenance of trails and greenways constructed as part of private development projects.
- › Determine if any existing trails and greenways need public easements or town ownership and maintenance, such as those owned by Bellevue Mill Apartments, the Corbinton Commons homeowners association, and the Fiori Hills homeowners association.
- › Ensure that strategies for aging in place are included in local transportation policies.

## **Invest in public projects that contribute to meeting transportation and connectivity needs in town.**

- › Prioritize implementing transportation priorities as detailed in *Figure 6.1*.
- › Prioritize implementing sidewalk recommendations as detailed in *Figure 6.10*.
- › Prioritize implementing greenway and trail recommendations as detailed in *Figure 6.16*.
- › Prioritize incorporating crosswalks at locations detailed in *Figure 6.13*.
- › Inventory town neighborhoods for areas that need crosswalk and accessible curb ramp improvements.
- › Implement Safe Routes to Schools Plan recommendations within the town limits.
- › Complete feasibility and implement the Ridgewalk greenway system.
- › Complete the train station design as a mobility hub, with a focus on multimodal connections.
- › Develop a project for adding pedestrian and bicycle amenities to parks and public spaces (including benches, waste containers, bicycle racks, and other amenities).
- › Work with transit agencies on a project to add shelters and benches to bus stops.
- › Develop a prioritization system for expanding the town's network of publicly accessible electric vehicle charging stations.
- › Monitor potential federal, state, and private funding sources to complete transportation improvement projects.
- › Develop a comprehensive parking study to evaluate existing conditions and provide strategies for addressing parking needs in and around Hillsborough's downtown, including payment options, signage, and enforcement (with county participation due to county-owned parcels).





- › Evaluate the need for traffic-calming treatments on town streets.
- › Adopt a vision zero policy to improve the roadway environment and policies to lessen the severity of crashes.

### **Participate in partnerships and programs that contribute to meeting identified transportation and connectivity needs in town.**

- › Coordinate with NCDOT on all relevant transportation projects.
- › Partner with Orange County Public Transportation and GoTriangle to advance transit and mobility options.
- › Coordinate with Orange County to locate a regional multimodal hub in the town.
- › Coordinate with Orange County and other partners on regional trail and greenway planning and implementation.
- › Support Safe Routes to Schools area projects.
- › Participate in regional planning and development of first-to-last-mile connections.
- › Advocate for Amtrak train service to the future Hillsborough train station.
- › Coordinate with NCDOT, transit providers, railroad, and regional agencies on developing commuter rail options.
- › Participate in transportation planning efforts at the county and regional level.

### **Adopt regulations that contribute to meeting identified transportation and connectivity needs in town.**

- › Update the sidewalk ordinance and payment in lieu system to include requirements for sidewalks, crosswalks, and ADA compliant ramps on new streets (public and private) (Unified Development Ordinance).
- › Update the sidewalk ordinance to prohibit barriers to connectivity and accessibility and incorporate universal design standards for new sidewalks, shared-use paths, and greenways (Unified Development Ordinance).
- › Update the town's parking requirements for simplicity and flexibility based on outcomes of the recommended parking study (Unified Development Ordinance).
- › Update street standards to incorporate roadway, sidewalk, shared-use path, greenway, utilities, and right-of-way design treatments as detailed in this plan (Unified Development Ordinance).
- › Adopt regulations that require developers to include an integrated traffic impact study and transportation demand management program for development and redevelopment projects to evaluate and address the multimodal transportation impacts of the development.
- › Adopt regulations that require developers to incorporate bicycle and pedestrian connectivity and amenities into development projects (Unified Development Ordinance).
- › Adopt regulations that require developments to be accessible by multiple modes, including transit and microtransit (Unified Development Ordinance).



- › Update parking requirements to incorporate best practices for reducing surface parking through mechanisms such as eliminating parking minimums, adopting parking maximums, and encouraging shared and structured parking (Unified Development Ordinance).
- › Develop and adopt electric vehicle requirements for developments (Unified Development Ordinance).
- › Offer incentives for electric vehicle charging infrastructure in developments (Unified Development Ordinance).
- › Update regulations and street standards to incorporate the recommended Complete Streets policies (Unified Development Ordinance).
- › Develop structured parking standards (Unified Development Ordinance).
- › Develop green design standards and incentives for parking facilities (Unified Development Ordinance).
- › Update the Code of Ordinances to align with this plan and provide clear enforcement authority.
- › Ensure that the technical specifications for water and sewer systems and standard utilities details align with this plan, the Unified Development Ordinance, and the street standards.
- › Provide clear enforcement of the regulations in the Code of Ordinances related to the safety of roadways, parking areas, sidewalks, and rights of way.

### **Engage with community members to foster active and equitable participation in transportation and connectivity planning and decision-making.**

- › Conduct an annual public safety summit to share information and gather feedback from community members on issues related to safety.
- › Approach and evaluate transportation and connectivity planning and decisions with an equity lens to create a transportation system that benefits and is accessible to all users.
- › Educate community leaders, groups, and individuals on the benefits of alternative modes of transportation through promotional materials and awareness campaigns.
- › Develop and support education and outreach campaigns about transit options.





Do you

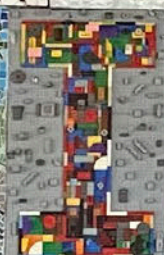
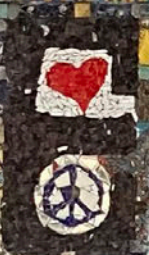


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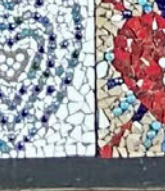
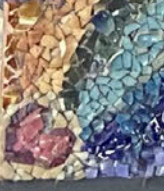
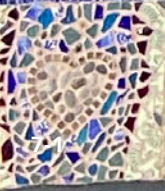
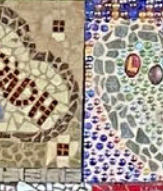
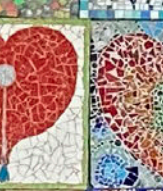
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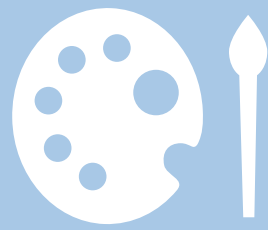
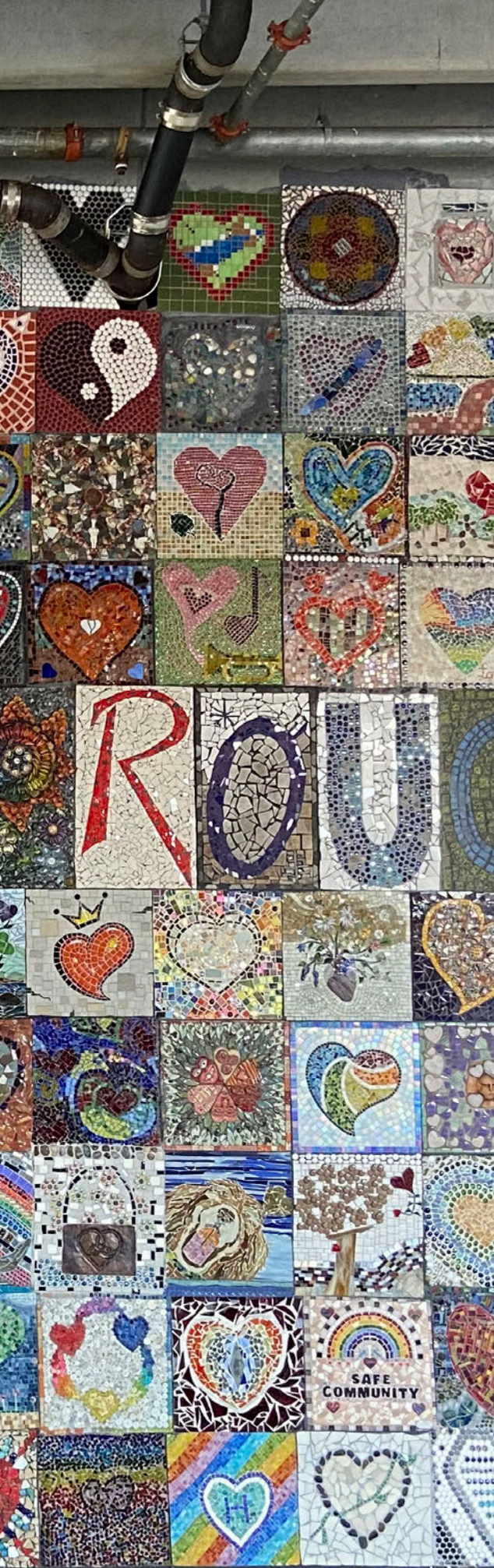
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# Social Systems & Public Space

The Town of Hillsborough is committed to providing space and opportunities for social connections, economic health, and community building. Arts and cultural resources are vital elements for placemaking and the overall social health of the community. Public spaces and events that encourage spontaneous and organic human interactions help to strengthen community cohesion, sense of place, and togetherness. This chapter focuses on developing the town's social infrastructure, physical spaces, and technological systems to connect people in sustainable and equitable ways.





## Introduction

Social systems and public spaces are the building blocks of a healthy social network, which is one of the three pillars of sustainability. Social sustainability focuses on human health, resources security, education, and other elements that grow a network of relationships in a community. These social systems are the physical places and programs that shape how people interact—town buildings, parks, schools, healthcare, safety programs, and other community resources. The goal is to locate and design public facilities and spaces to enhance community identity, foster sustainability and equity, instill a sense of place, and provide places for people to gather and connect via multiple transportation modes (walking, biking, transit, and vehicles).

Neighborhoods are important when defining the social systems of a community as they typically provide a sense of place and provide a foundation for strong social interactions. It is common to see disparities between neighborhoods, and it is critical for the town to prioritize attention and investment in areas that may be at risk or distressed.

Hillsborough's social and cultural assets create cohesion and provide a strong quality of life for the community. The town's social opportunities are created by its parks, recreation facilities, walkable neighborhoods and downtown, art and environment venues, and local businesses. The community continues to evolve with an increasing diversity of backgrounds, presenting new opportunities and a more resilient future.



*The town's social systems and public spaces create special places for the community and it is critical that these places are accessible to all.*



Top: Hillsborough Gallery of Arts during the Last Fridays Art Walk | Bottom: Music at Mayo Park (left); Dorothy N. Johnson Community Center (right)



## Equity

Successful social systems and public spaces must be equitable and inclusive. These services and spaces must be open to the public and welcoming to all regardless of race, gender, economic status, age, ability, or background.

The One Orange Countywide Racial Equity Framework, and other community engagement efforts, focus on expanding equity across Hillsborough. The framework, created in 2021, emphasizes the need for advancing racial equity and for collaboration among municipalities in the county. It serves as the basis for creating racial equity plans specific to each jurisdiction. The framework outlines pillars of racial equity and provides tools to highlight potential disparities for decision-makers when creating or evaluating policies, practices, services, and initiatives. The pillars are:

- › Training and Organizational Capacity
- › Community Engagement
- › Racial Equity Index
- › Racial Equity Assessment Lens
- › Evaluation and Accountability

The framework was developed by a countywide team of staff members from each jurisdiction in Orange County. Much of the framework and vision utilizes methodology of the Government Alliance for Racial Equity, a national network of government agencies of which each jurisdiction in Orange County is a member. The One Orange framework aligns with the goals in this plan, highlighting the focus on equity, inclusion, and equal protection. Both initiatives prioritize equitable community engagement and outreach to ensure all voices in Hillsborough are represented in the decision making process.



Local music at Last Fridays

**Equity recognizes systemic barriers that continue to oppress traditionally marginalized groups and implements a fairer distribution of resources.**



Billy Strayhorn mural

**Inclusion is pursuing deliberate efforts to ensure all people feel they are welcomed and valued, and have more power sharing in decision-making.**



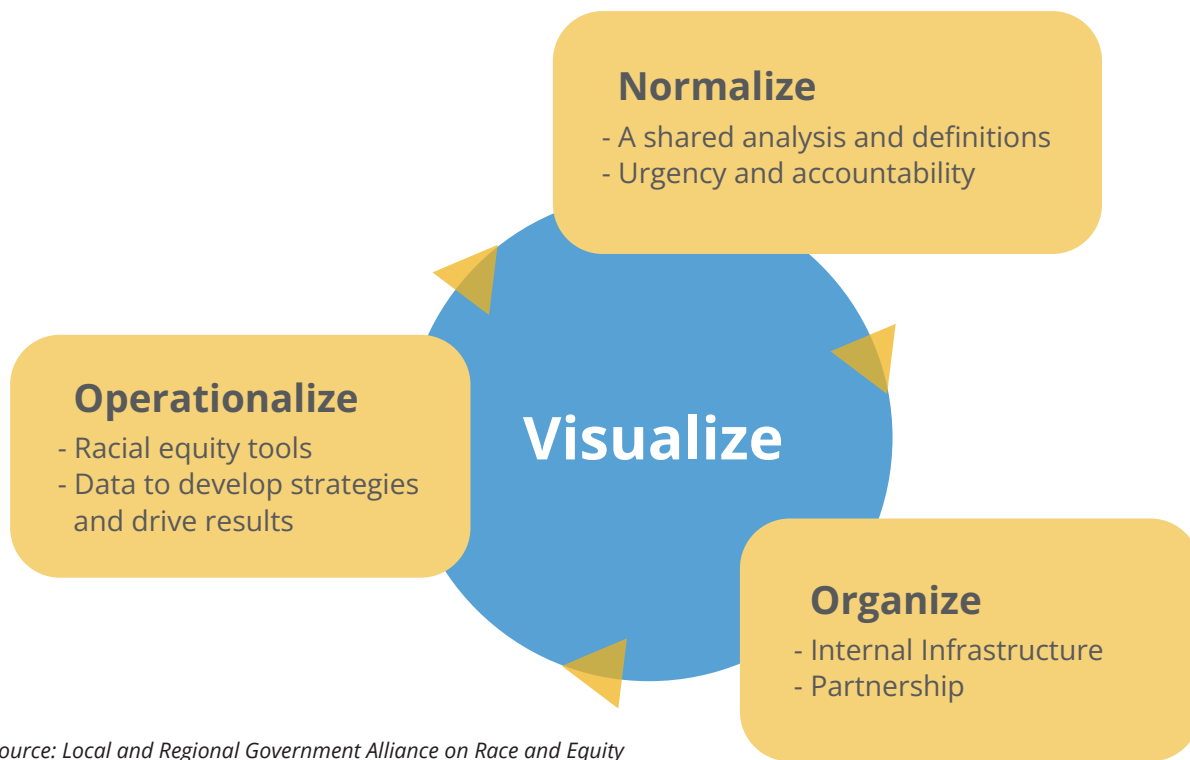


Working alongside and in partnership the local jurisdictions in Orange County, the town is:

- › Developing a shared racial equity analysis.
- › Understanding the role of government in relation to racial equity.
- › Establishing norms and relationships among employees and community.

To meet these goals, the town aims to increase skills in analyzing policies and practices from a racial equity perspective. It is using the Government Alliance on Race and Equity's six-part strategic approach to advance equity and gain meaningful outcomes (see *Figure 7.1*).

**Figure 7.1. Strategic Approach of the Government Alliance on Race and Equity**



*Source: Local and Regional Government Alliance on Race and Equity*

This approach incorporates using a racial equity framework; building organizational commitment; implementing racial equity tools; incorporating data to measure success and to develop baselines, to set goals, and to measure progress; partnering with others; and acting with urgency and accountability.



## Public Health

Public health is a cross-cutting element of all the chapters in this plan. Planning in the United States originated with a public health purpose, with a focus on improving environmental quality and supporting reforms in sanitation and housing (with respect to overcrowding and poor construction). The goal of improving health through the built environment's planning and design depends on the social systems established in a community. Public health includes considerations of safety, inclusivity, and social cohesion. Important components are active lifestyles, community health and nutrition, limited environmental exposures, mental health, and belonging.

## Community Health and Nutrition

### Access to Health Care

According to the 2015-2019 American Community Survey's five-year estimates, 91.5% of the population in Hillsborough has health insurance coverage. This is similar to the national level of 91.2% and slightly lower than the county level of 93.3%. Hillsborough leaders understand that the health of the community is largely dependent upon the resources available to residents. The town regularly partners with Orange County on serving the senior population. UNC Hospitals has a Hillsborough campus, with a community hospital that was expanded in 2021. Also in town are a Duke medical plaza, numerous private healthcare providers, and several senior living facilities (see *Figure 7.2*).

Access to medical facilities is especially important for preventative care and emergencies in which a resident's life is in danger. Ambulance services are measured by the amount of time between receipt of a 911 call to arrival of a vehicle at the patient's location. Calls are classified into four categories according to the patient's condition. Ambulances are expected to reach people within an average of seven to eight minutes for life-threatening illnesses or injuries (Category 1). This complies with the National Fire Protection Association's 1710 standard for emergency medical services and fire suppression. However, total transportation time from a response location to an emergency room depends on loading times, traffic, and extent of injuries. The calculated driving time to reach a hospital location was used as proximity for response and trauma care times using a 7.5- and 15-minute service area. About 97% of Hillsborough's town limits is within the 7.5-minute service area, with residents from the north side of town limits being covered by the 15-minute service area.

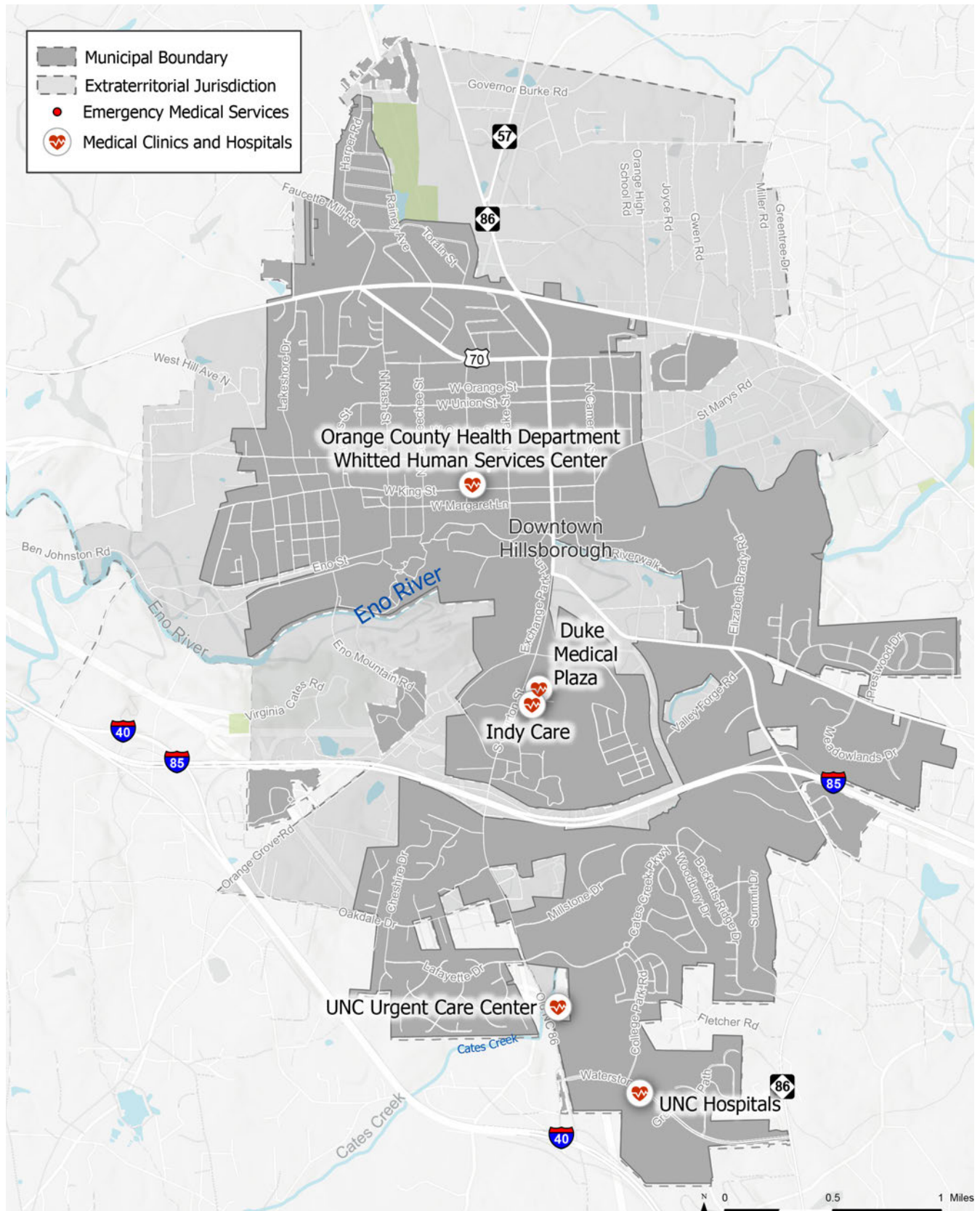
### Immigrant and Refugee Services

The Orange County Health Department aims to offer health care to all members of the community regardless of immigration status. It provides a number of immigrant and refugee health resources that can be reached at 919-245-2400 or through [orangecountync.gov](https://www.orangecountync.gov). Interpreter services are provided free of charge, and all resources are available in multiple languages online and at physical locations.

Within Hillsborough, Orange County operates the Whitted Human Services Center, which offers affordable medical and dental care by charging on a sliding-fee scale based on family income. Financial assistance may be offered to patients in need.



**Figure 7.2. Medical Facilities Map**



Source: Orange County Health Department





## Access to Healthy Food

Hillsborough recognizes that a healthy diet can only be maintained if nutritious foods are available and affordable to all residents. For a healthy community, it is vital to actively encourage food production and distribution and to promote healthy, affordable, and locally produced food. The Eno River Farmers Market in downtown requires specialty items be from within the state and vendors to be located within 60 miles of Hillsborough for traditional foods and is open each week throughout the year. Numerous grocery stores and food marts operate throughout town, many located along major roadways. The town is open to the concepts of food forests and using town property and public spaces for edible plantings, such as figs, pecans, and persimmons). These edible landscapes would need to require minimal maintenance and water, and no deer fencing.

Some Orange County offices are located within Hillsborough and offer community food resources. On a broader scale, as measured by Feeding America, 10.2% of Orange County's population is food insecure – or has a lack of consistent access to enough food for an active, healthy life – while 9.1% of children are food insecure.

Multiple programs in Orange County work to improve food access for residents. These programs run services such as food collection and distribution, research, and education. Notable programs include:

- › **Orange Congregations in Mission (OCIM)** – The nonprofit organization is composed of volunteers from multiple faith-based ministries. It relies on donations and runs a thrift shop to fund its services. The organization has been active in Orange County for almost 40 years. Its programs include:
  - *Meals on Wheels*, which delivers meals to the elderly and homebound residents of northern Orange County.
  - *Samaritan Relief Ministry*, which offers assistance for individuals and families in need. The ministry distributes food from its food pantry and provides shelter, water, electricity, and clothing.
- › **PORCH** is a volunteer-based hunger-relief organization that collects and distributes donated food to members in the community who are in need. It partners with neighborhoods to host monthly drives and collects any food that donors leave on their porch to provide a stable supply for local food pantries, including the OCIM pantry. PORCH has expanded its programs to include food distribution, in partnership with the Food Bank of Central and Eastern North Carolina. Additionally, it provides food at 13 Orange County schools for students in need and partners with Farmer Food Share and Weaver Street Market to provide produce to 180 families identified by school social workers as being at risk for hunger.
- › **Orange County Food Council** is made up of community members who offer food-related expertise, meeting in monthly workgroups to offer experience, conduct research, coordinate actions, and execute best practices. These workgroups are:
  - *Food Access*, which explores ways to ensure all residents in Orange County have access to healthy, affordable local food and have an equal voice in local food matters.
  - *Food Economy*, which supports those in local food production and works to support producers and build a culturally diverse food business.
  - *Waste Rescue*, which educates and empowers communities in the Triangle on how to reduce food waste and better utilize food.

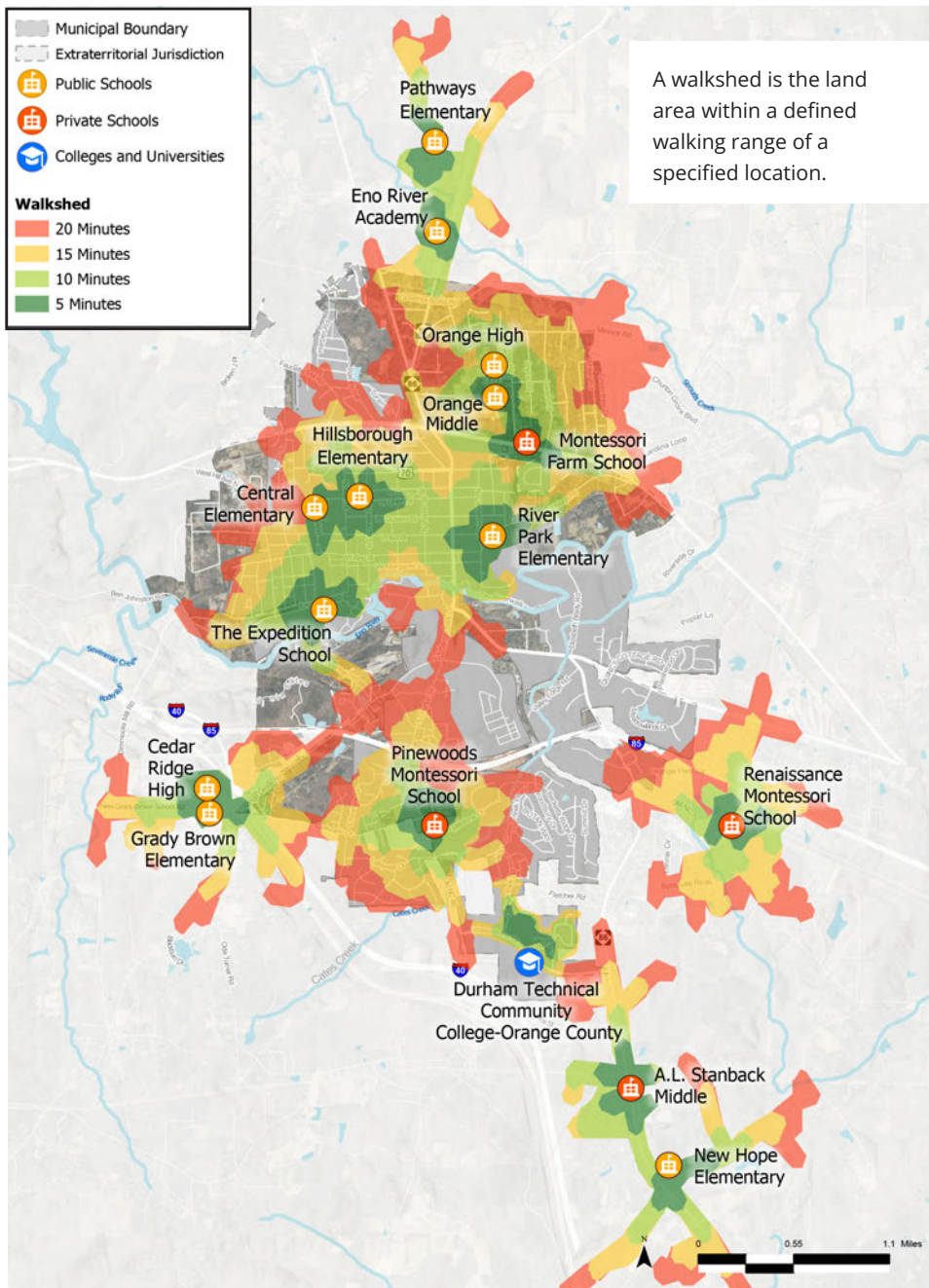
*The Hillsborough Urban Gardens, a non-profit organization, is building community relationships while growing food in gardens on private property in the town.*



## Access to Education

The Orange County Board of Education is located within Hillsborough and provides public education opportunities for local K-12 students. Based on the 2020-21 District Profile, 13 schools and over 7,000 students are in the Orange County School District, with no schools identified as low performing. Other private education opportunities for students are also in town. The Durham Tech Community College – Orange County Campus is located in the town. The campus provides traditional higher-level education and workforce training. *Figure 7.3* illustrates the location of K-12 education facilities and a half-mile walkshed buffer to demonstrate where potential exists for active transportation options. It is important to note that these walksheds do not indicate the presence of bike and pedestrian accommodations.

**Figure 7.3. Educational Walkshed Map (K-12 and Higher Education)**



Source: Orange County School District

## Child Care

Hillsborough is home to several child care centers that offer daycare and preschool services. These centers support growth, development and educational advancement of children, and creates a positive economic impact for families and communities. These centers are vital to the success of the community, and all families should have access to quality and affordable child care. As the population of Hillsborough grows, more quality child care options will be needed to meet the demand.



## Community Cohesion and Healthy Aging

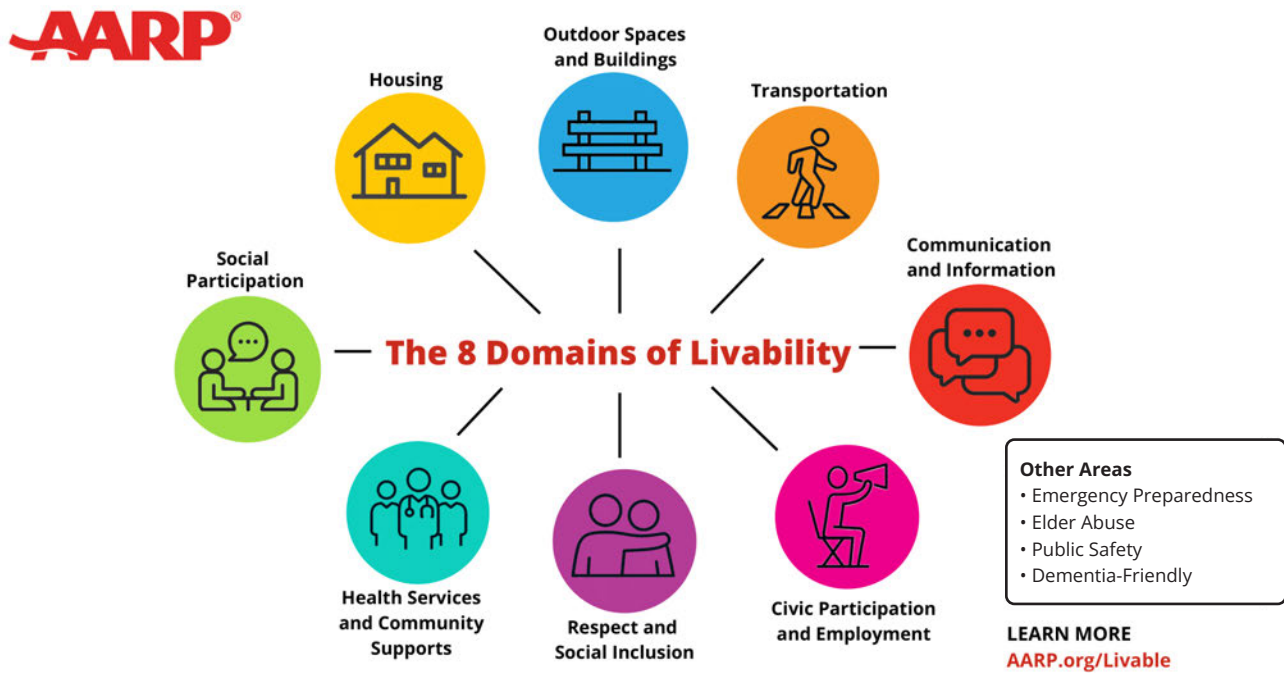
Many factors contribute to social cohesion and mental health, including building community connectivity and engagement and the provision of social services. The town prioritizes continuing to increase the community's sense of belonging, reduce isolation and loneliness, and uphold values of equity and inclusion for all residents. According to the 2016-2020 American Community Survey's five-year estimates, 35.9% of households in Hillsborough include persons living alone and 11.6% include persons 65 years and older living alone.

The Eight Domains of Livability, a framework developed by the World Health Organization, enables an assessment of the interconnected aspects of a community that affect healthy aging. These aspects are categorized under a community's built environment, social environment, and community health support (see *Figure 7.4*). These aspects of healthy aging are interwoven in the chapters of this plan. According to the 2016-2020 American Community Survey's five-year estimates, 15.9% of Hillsborough's total population is 65 years or older, and growth within this age cohort is expected to increase in the coming years. Adults over 65 in the town outnumber children under the age of 5, who comprise only 7.6% of the town's total population. The town is actively engaged with the Orange County Master Aging Plan and associated initiatives to ensure planning and development decisions address the aging population. The town also incorporates universal design concepts into public infrastructure when feasible and uses standards of the Americans with Disabilities Act as minimum criteria.

# 36%

of households  
in Hillsborough  
include persons  
living alone

**Figure 7.4.** American Association of Retired Persons's "8 Domains of Livability"



Source: American Association of Retired Persons





## Culture

Arts and culture are key drivers of economic and social health in town, and there is significant investment in Hillsborough's people, programs, services and facilities to promote and strengthen the town's relationship with local arts, culture, heritage and the creative sector. Details on the town's tourism program and events are included in Chapter 9. Hillsborough should continue to support arts and cultured activities and promote itself as an arts destination and grow its economy and sense of place around its rich arts heritage and programs.

### Arts

The town partners with the Hillsborough Arts Council and Orange County Arts Commission to provide arts events, programs, and educational opportunities for the community. The council, which is volunteer-driven organization, promotes art appreciation and access for all residents and holds 15 different events in and near downtown Hillsborough. The town's partnership with the Orange County Arts Commission is integral to providing artistic opportunities that are cherished by the community. As the designated county partner for Orange County with the NC Arts Council, the County Arts Commission manages program funding for artists, schools, and non-profit organizations; provides resources for the arts; and actively promotes and advocates for artists and arts happenings throughout the county. An advisory board, with members appointed by the Orange County Board of Commissioners, advises the commission's future on arts and culture issues. The non-profit Orange County Arts Alliance serves as a fundraising partner of the commission. The Arts Commission manages the beloved Eno Arts Mill in town, where artists spaces, classes, and other community events are hosted. Accessibility and inclusion are priorities of the Eno Arts Mill, and 44% of Eno Arts Mill studio artists in 2022 identified as a member of a marginalized community. The commission partners with more than two dozen community organizations each year, including all Hillsborough arts entities. In addition, the commission is currently working in partnership with the Hillsborough Arts Council, Orange County Historical Museum, Tourism Development Authority, and the Town of Hillsborough to explore the possibility for a potential new arts and cultural facility in Hillsborough.



*Art class*



*Latin Pop-Up Dance Performance*



## Entertainment

There is plenty to do in Hillsborough. The downtown area contains a mix of uses filled with a collection of unique businesses, including retail, restaurants, maker and craft businesses, personal services, and co-working and collaborative office spaces. The town is dedicated to supporting Hillsborough's entertainment sector, including music venues, art spaces, and creative community-built events. The town understands the importance of offering something for everyone - ensuring events are accessible to all and a diversity of events are offered for different age groups and interests.

*Hillsborough has been home to the Music Maker Foundation since 1994, a non-profit organization founded to preserve and support roots music.*

## Public Art

The town has dedicated resources to public art, using partnerships and funding from the North Carolina Arts Council, National Endowment for the Arts, Orange County Arts Commission, Hillsborough Arts Council, Tourism Board, Tourism Development Authority, and the Mary Duke Biddle Foundation. The town has become a prime destination for public art installations over the last decade, and there is opportunity for additional public art. The town may find a structured process for requesting, reviewing, awarding, and approving public art to be useful. A few recent installations include:



*"A Gathering of Women" by Virginia Bullman and LaNelle Davis | 201 S. Occonechee St.*



*"Love Hillsborough" mosaic by Carlos González García and community members | 228 S. Churton St.*



*"Jack" by Jonathan Bowling | Nash and Kollock Street*



*"River Park Arch" by Jonathan Brilliant | 228 S. Churton St.*



*"Take the A Train" (Billy Stayhorn mural) by Max Dowdle | 226 S. Churton St.*



*"News of Orange County" building mural by Richard Nickel and Chris Revels | 109 E. King St.*





## Town History

The town's history is a major contributor to its culture and character. Hillsborough is built on the site of several successive Native American villages, which stood from about 1000 to 1710 CE along the Great Trading Path. Two years after the founding of Orange County in 1752, the Town of Orange was laid out by William Churton on land where the Great Trading Path crossed the Eno River. Hillsborough was renamed in 1766, after Irish peer William Hill, earl of Hillsborough and secretary of state for the colonies from 1768 to 1772. The town was a center of political and cultural activity during the 18th and 19th centuries. Several governors lived in town, as did a signer of the Declaration of Independence, William Hooper, whose house still stands. The North Carolina Constitutional Convention and five sessions of the General Assembly were held here between 1778 and 1784.

The Alexander Dickson house, now the town's visitors center, served as Gen. Joseph E. Johnston's headquarters when he surrendered the largest of the Confederate armies to Gen. William T. Sherman at the end of the Civil War. The town was home to many enslaved and freed Blacks, whose history has been overlooked in the past, but efforts are being made to highlight their contributions. More than a hundred late 18th- and 19th-century structures remain that illustrate this history. In addition, there are numerous secondary buildings, bridges, mill sites, and dams along the Eno and Native American relics from the locations of ancient towns that stretch back thousands of years. The town continues to have a respected partnership with the Occaneechi Band of the Saponi Nation Tribal Council. A replica of the Occaneechee Village has been constructed in River Park in downtown Hillsborough. The replica village serves as an educational and interpretive site for programs scheduled by the tribe.



*Occaneechi Village Replica Site*





## The Alliance for Historic Hillsborough

The alliance works in collaboration with local historical sites, local governments, and engaged community members as stewards for Hillsborough's history to advocate for the sustainable preservation of important community assets, including historic sites such as Ayr Mount and the Burwell School. It hosts several special events each year that focus on the history, vibrancy, and beauty of Hillsborough and manages the Hillsborough Visitors Center and Gift Shop at the Historic Alexander Dickson House, which also serves as the primary resource for visitor information. The alliance additionally works with the Hillsborough Tourism Board to develop and manage an active publicity program to promote Hillsborough.

In addition, the alliance provides educational programs for local public, private, and home school groups, with a variety of guided tours, small group tours and special programs dedicated to the town and its history and a program focusing on interviews with local experts and civil rights leaders in town.



*The Historic Orange County Courthouse. Its cupola houses an English clock given to the town in the colonial era.*



*The Burwell School Historic Site is a prominent example of historic architecture within Hillsborough's historic district. The building was built in 1821 and expanded in 1848 to become the location for a girls' school. It was retrofitted to house families through the 19th and 20th centuries.*

***Go to [VisitHillsboroughNC.com](http://VisitHillsboroughNC.com) for current information on entertainment and events in the town.***



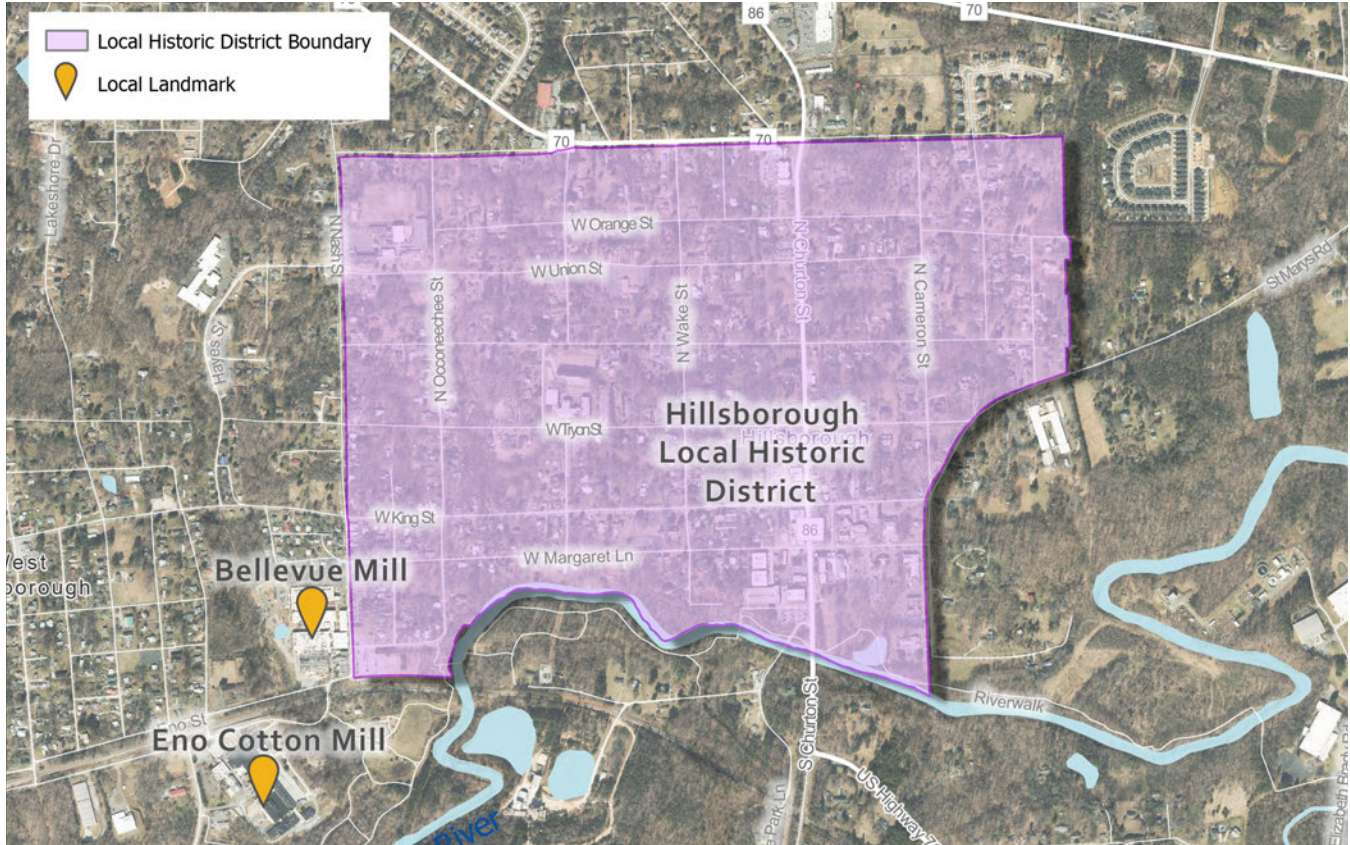
## Hillsborough Historic District

The Hillsborough Historic District presents a visual history of Hillsborough’s development. It was created in 1973 with enactment of a preservation ordinance. The district includes the town’s commercial core and surrounding residential neighborhoods (see *Figure 7.5*). It contains over 100 houses, churches, and buildings from the 18th and 19th centuries, as well as Georgian- and Federal-style buildings dating from the late 1700s to contemporary constructions.

By maintaining the town’s architectural forms, the district preserves Hillsborough’s historic significance and birthplace of important figures in North Carolina history. This preservation protects historically significant structures and strengthens the community character of the town by promoting a shared sense of place. As a key location in state and American history, the town benefits from the tourism attracted by these notable locations. This heritage and history can also serve as a catalyst for innovation while maintaining the town’s authentic character.

Preservation of structures in the district is supported by the town and community members. Renovations or changes to the buildings require review by the Hillsborough Historic District Commission. Maintenance of these older buildings comes with potential challenges, including costs to meet specific preservation requirements, poor heating, and the potential need for retrofitting. The Historic District Commission uses the Historic District design standards to review applications for Certificates of Appropriateness.

**Figure 7.5. Historic District and Local Landmarks Map**



Source: Town of Hillsborough





## Community Centers and Neighborhoods

A community center provides physical space for community gathering. While serving as an operational hub for services, it also serves as a safe haven for neighborhood groups. In addition to community centers like the Orange County Recreation Center, Dorothy N. Johnson Community Center, and other locations can serve as centers available for community connection, like local churches, business spaces, and schools. These centers of community are the pillars of Hillsborough's character and reflect how communities are responsive to the lives, feelings, and actions undertaken by neighbors. The Jerry M. Passmore Center is managed by the Orange County Department on Aging and provides numerous opportunities to older adults for activity, social engagement, and learning. There are volunteer opportunities, aging resources, a calendar of events, clubs, and interests groups.

The Orange County Sportsplex is also located in Hillsborough. This facility includes a variety of recreational options for all ages including an ice rink, aquatic center, sports courts and fields, fitness rooms, and classes.



*Jerry M. Passmore Center*



*Orange County Sportsplex*

## Neighborhood Groups

A neighborhood group is a collection of neighbors who voluntarily meet on a regular basis to cooperate, encourage, exchange ideas, and try to improve their community. Such groups may choose to host meeting opportunities through social gatherings, volunteer days, block parties, and educational sessions with police officers or elected leaders. A number of neighborhood groups exist in Hillsborough, allowing residents to feel like they are a member of a community and to act as representatives for their neighborhoods. Neighborhoods can become stronger by organizing or joining a neighborhood group. Town staff works with neighborhood groups through neighborhood liaisons and outreach efforts.

## Community Watches

A neighborhood or community watch program's main goal is to inform a community about safety and security precautions. To keep crime at bay, community watches emphasize strategies for boosting local safety. In addition, they offer ways to enhance knowledge of the neighborhood's concerns so that quick action can be taken in response. A neighborhood watch program can be a great contribution to fostering peace and trust among neighbors.





*Forest Ridge*



*Fiori Hills*



*Forest Ridge*

## Homeowners Associations

A large percentage of planned unit developments and residential communities within Hillsborough have homeowners associations, private organizations that consist of members of a community. The board for an association consists of volunteers who are typically elected to office. In North Carolina, homeowners associations are allowed to enforce covenants, adopt budgets, assess and collect member fees, maintain and regulate common areas, and legally act on behalf of the neighborhood.

## Public Spaces

Hillsborough has numerous public spaces frequented by residents and visitors. The popularity of public spaces like the Riverwalk greenway and downtown commercial area will continue to grow connectivity as accessibility is improved, new placemaking opportunities are created, public art is added, and areas of respite and entertainment are layered in. Some neighborhoods in Hillsborough are anchored by parks with play equipment. Other Hillsborough sites have amenities like gardens, picnic tables and seating areas, and small-group gathering space.



*Living Arts at River Park*

**Placemaking —** strengthening the connection between people and the places they share, shaping public spaces for a shared value. (Project for Public Spaces)



## Parks and Recreation

Parks provide numerous quality of life benefits to a community. They encourage residents to exercise and act as gathering places for visitors and venues for social events. By providing an outdoor space without cost or barrier to entry, parks allow people, especially younger generations, to become more in touch with nature and to gather for socialization. These functions support the overall wellbeing of residents and visitors and can improve psychological and social health.

The Town of Hillsborough owns over 65 acres of community and neighborhood parks and has over 15 additional acres of parks proposed. The town has planned more than 4 miles of greenway trails. In June 1991, the Hillsborough Board of Commissioners recommended the formation of a parks and recreation task force and the creation of a master parks and recreation plan.

The plan's mission was to:

- › Study and prioritize the recreational needs of town and extraterritorial jurisdiction residents.
- › Coordinate with other bodies of government to provide services efficiently.
- › Recommend a parks and recreation master plan that addresses the needs of area residents.
- › Focus on facility planning rather than programming.
- › Create policy directives for the town to administer.

Its goals were to:

- › Utilize the town's natural and historical heritage as recreational resources.
- › Provide recreation facilities in every park district.
- › Acquire and maintain playing fields, courts, and other facilities for organized sports and fitness.
- › Consider amenities for diverse age groups.
- › Meet the recreational needs of the town's diverse population by providing facilities and programs that offer opportunities to all community members in a non-discriminatory manner.
- › Provide safe, convenient, and efficient travel ways for non-motorized transportation for all people in Hillsborough.

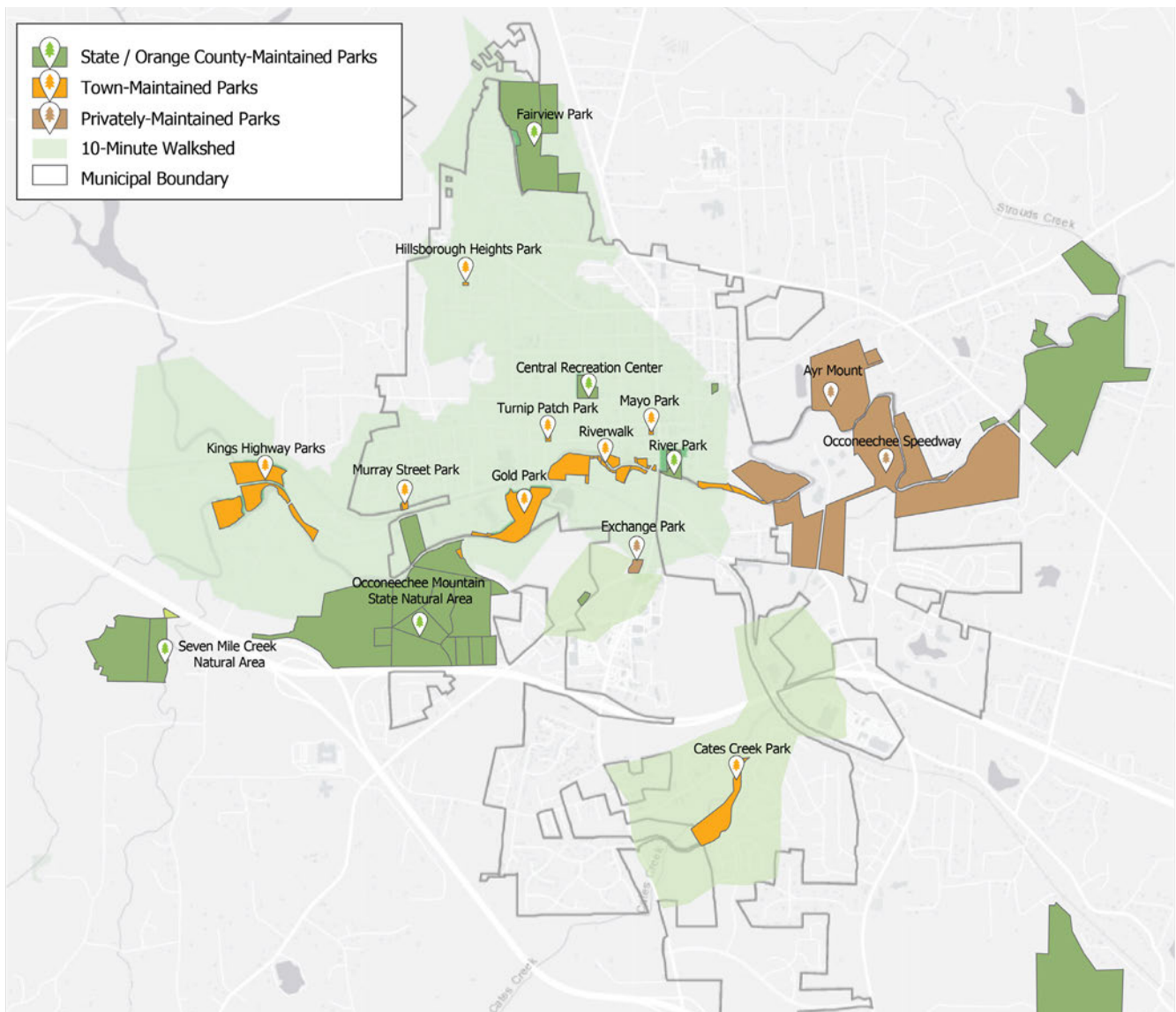


## Park Access

Parks are essential for public health, climate resilience, and strong connected communities. The Trust for Public Land estimates about 100 million people in the United States — including 28 million children — don't have a park within a 10-minute walk of home. Smart growth principles recommend that neighborhoods should be within a 2- to 10-minute walk of a nearby park. When spaced at this distance, parks allow residents convenient access without the need for a vehicle.

The Existing Parks and Access (*Figure 7.6*) illustrates the 10-minute (or half mile) walking distance — also called the “walkshed” — from different park access points. This analysis only includes streets within a 10-minute walk and does not factor in off-road facilities such as greenways. Nor does it consider the pedestrian experience and comfort or safety of that walk. As demonstrated in *Figure 7.6*, the majority of the town is within a half-mile walkshed of a park.

**Figure 7.6. Existing Parks and Access**



Source: Town of Hillsborough; Durham-Chapel Hill-Carrboro Metropolitan Planning Organization Comprehensive Transportation Plan, November 2017





There are individual master plans for each town-maintained park, as highlighted in *Table 7.1*. These parks offer a variety of amenities and sustainable elements with accessibility and a nature-based focus. These park master plans, available on the town's website, are updated on a regular basis to maintain safe and attractive public parks. These park master plans have tailored priorities for a specific park, but a focus on accessibility, inclusion, and universal design is evident throughout each plan.

**Table 7.1.** Town-Maintained Parks

Parks	Acreages	Existing Facilities
Cates Creek Park	17 acres	Restroom facilities, playground, multi-use field with soccer goals, skate park, and picnic tables
Gold Park	24 acres	Playground equipment, picnic shelters, restrooms, dog park, multiuse field, walking trails, pollinator garden and bee hotel
Hillsborough Heights Park	0.15 acres	Playground equipment (suitable for ages 2-5 years), picnic tables, and grill
Kings Highway Park	18 acres	Natural surface trails, canoe/kayak launch, and picnic and parking areas
Mayo Park		Pocket, Sitting area
Murray Street Park	0.5 acres	Pedestrian bridge, benches, and play equipment
Turnip Patch Park	0.6 acres	Play structure (suitable for ages 2-5 years), footbridge, and butterfly and flower gardens

*Community stakeholders brought up the need for more composting and recycling events. The park master plans recommend each park be equipped with recycling bins and additional composting capacity.*

The town continues to prioritize creating public spaces for a range of ages, where everyone young to old has stimulating gathering areas. An exciting addition to Cates Creek Park will be a skate park and amenities for preteens and teens. The town reached out to local skateboarders to assist with the design of the proposed skate park.



## Park Amenities Design Standards

All park facilities and amenities must meet standards of several access and safety regulations for facility and site designs and must address equal opportunity for all program areas. Examples of program areas are activities within buildings, interpretation, hiking, walking, picnicking, swimming, and camping. All of these must provide equal opportunity per Section 504 of the Rehabilitation Act. The town is committed to incorporating universal design and green infrastructure, inclusive play equipment, and natural play areas where appropriate. Attracting diversity in age and ability of the user is a primary focus of the town, incorporating recreation for teenagers and older adults.

Universally designed sites and facilities provide equal opportunity not only for persons with disabilities, but also for a variety of situations, such as:

- › A parent pushing a stroller.
- › A child on crutches.
- › A person with arthritic knees.

The accessible and inaccessible constructed and programmatic components of a facility are indiscernible in universal design. This can include any of the following project considerations:

- › Site arrival
- › Access paths (interior and exterior)
- › Functional spaces
- › Furnishings
- › Millwork, fixtures, and appliances
- › Exhibits and media

The town prioritizes universal design in improvements and additions to parks and public space.

## Public Space Amenities

Creating usable public spaces has been a priority for the town, as illustrated in the Community Connectivity Plan, updated 2017. Public spaces shape the community if they attract users and support community interaction. Public spaces also present health benefits -- people feel better and tend to be more active in attractive, public spaces. The Public Space Division is tasked with developing and maintaining town facilities and grounds available to the public, including parks, greenways, sidewalks, streets and urban spaces. The division utilizes place-making strategies and sustainable principles to ensure a healthy environment while also focusing on providing beautiful and inviting spaces for people to explore and congregate.



*Examples of public space amenities (bench and picnic table)*



A good public space is one that reflects diversity and invites people to be out in the community. Amenities must be part of a successful public space to allow the enjoyment of the space in various ways. The town identified important amenities for public spaces in the Community Connectivity Plan, such as benches, waste receptacles, water fountains, dog waste containers, bike racks, street trees, and landscaping. The town has specific standards for some of these amenities, such as trash cans, tables, and benches. These standards apply to both within and outside the historic district. The town continues to replace and add amenities in public spaces to address deterioration and create a cohesive design, enhancing accessibility and highlighting the character of the town.

## Greenways and Trails

Greenways are vital public spaces used for improving the health and mobility of a community while allowing users to connect with nature. The Riverwalk, which serves as an east-west greenbelt along the Eno River, is part of the Mountain-to-Sea Trail, and connects to Occoneechee Mountain State Natural Area, Gold Park, Eno River State Park and downtown Hillsborough.

*Figure 7.7* illustrates the existing and proposed greenway system for the town and details future greenway projects.

### Existing Greenways and Trails

- › Riverwalk
- › Calvin Street Greenway
- › Fairview Park Trail
- › Gold Park
- › Kings Highway Park Trail
- › Historic Occoneechee Speedway Trail
- › Eno River State Park Trail
- › Poets Walk at Ayr Mount

### Future Greenways and Trails

- › Ridgewalk Greenway (see details in Chapter 6)
- › Multiple recommended trail connections (not named yet)

## Cemeteries

The town owns and operates three cemeteries, one of which is active - the Hillsborough Town Cemetery. The other two cemeteries are noteworthy public spaces. The Margaret Lane Cemetery is sometimes called the Old Slave Cemetery, as it is believed that the area was purchased from the town in 1854 to be used as a burial ground for slaves. The site continued as an African-American cemetery after the Civil War. The Old Town Cemetery, established in 1757, includes many of the town's notable early residents. This cemetery is one of the oldest public burial grounds in North Carolina.







## Wayfinding Signage

The 2009 Wayfinding Plan outlined the wayfinding program's goal and the planned and existing wayfinding signage locations (see *Figure 7.8*). The policies within the wayfinding plan focus efforts on tourism and public education. Consistent and informative signage welcomes people into town and directs them to area destinations. Every route to town should have signage displaying a consistent brand. This requires attractive and visible gateway signage at each entrance or major corridor to Hillsborough and smaller directional signs that direct visitors to specific destinations, such as the Visitors Center, government offices, and tourist destinations. These signs also provide maps for area attractions, such as trails and the downtown district.

The town will continue to develop its wayfinding program to ensure standardized signage throughout town and allow for cross-promotion and guidance to visitors. Future signage should follow wayfinding branding.

## Interpretive Signage

Interpretive signs are a great medium for reaching a wide audience. These signs encourage residents and visitors to learn more about stories and places, celebrate the town's assets, and inspire stewardship. Well-written and well-designed interpretative signage have many benefits in the community. Hillsborough has an Interpretive Signage Program that includes signs and kiosks throughout the town. Several of the kiosks have bulletin boards where event information can be posted, including the monthly community calendars. These signs highlight historic, environmental, and social assets of the town, as demonstrated in the examples below.

Interpretive signs can be used to inform, educate, or entertain the audience about a particular site or resource. Interpretive signage does more than just provide facts; the goal is that they demonstrate community pride and strengthen awareness of cultural and natural resources. The signs must provide a self-led, high-quality interpretive experience. The town will continue to highlight important sites and topics by expanding this signage program in the future.



*Gold Park Pollinator Garden Sign*



*Historic Alexander Dickson House Sign*

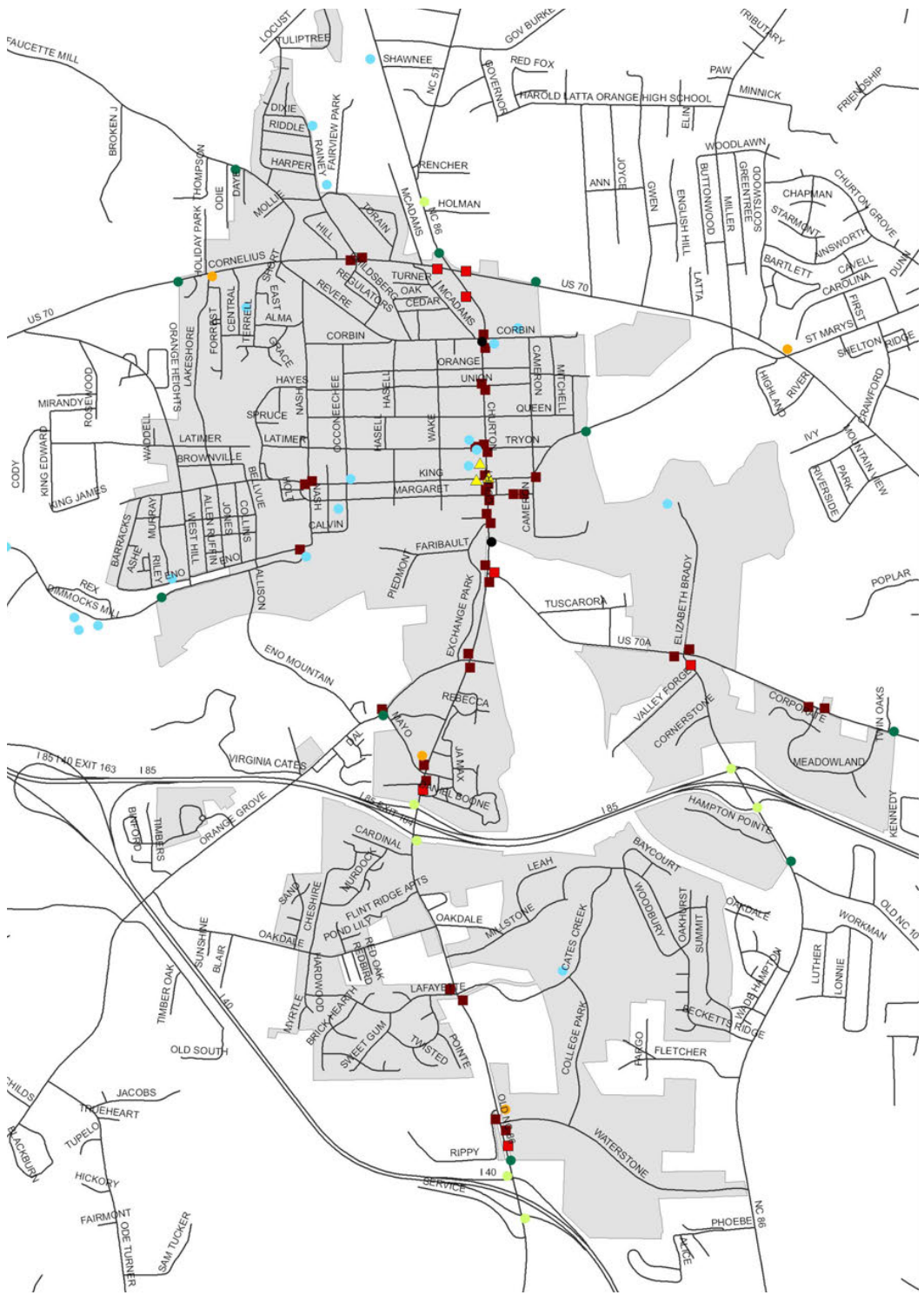


*Wayfinding Sign*





Figure 7.8. Wayfinding Signage Plan



**Recommendations Master Plan for All Sign Types**

- NCDOT: Hillsborough Town Limits Signs
  - NCDOT: Hillsborough Guide Signs
- Trailblazing Signs
  - Proximity Signs
  - Welcome to Hillsborough Signs
- Hillsborough Destination Signs
  - Historic District Identification Signs
  - ▲ Pedestrian Kiosks

Source: Wayfinding Master Plan





## Communications

The town invests substantial time and effort into communicating with community members and the media. As detailed in Chapter 3, the town has a specific Communications Division that is responsible for engaging with the community and providing important information. The town uses a variety of outreach tools to ensure access to information by everyone. These tools include social media, an active town website, regular new releases, printed newsletters in utility bills, postings on bulletin boards throughout the town updates at town events, and a master event calendar. Community members and media can also subscribe to distribution lists to learn about specific information through email.

It is critical for the town to have strong technology resources to deliver information efficiently and in a cost-effective manner. These resources need to be community-focused and easy for people to access. It is important for the town to partner with residents and businesses to align technology processes and limit service disruption. The more understanding the town has of what works for the community, the stronger the line of communication is in the town.

Ensuring residents and businesses understand town processes, are informed of happenings, and can meaningfully contribute forms a trusted partnership in reaching town goals. This effort by the town to reach all parts of the community will continue to build more robust engagement and better serve the community as a whole. The town has multiple services to assist community members with translation and other accessible communications support.

### **The local media outlets are extremely valuable in community communications:**

- › **WHUP radio station strives to play good music, have good conversations, and reflect the Hillsborough community.**
- › **The News of Orange County is a weekly newspaper that focuses on community news.**

## Safety Programs

A variety of public and emergency response services are handled by the Town of Hillsborough, Orange County, and nonprofit agencies.

- › Orange County provides the majority of emergency services, including Orange County Emergency Services, which provides emergency medical service, 911 communications, emergency management, and disaster response.
- › The Orange County Chapter of the American Red Cross operates emergency shelters in county-owned facilities in the event of disasters.
- › Emergency notifications are provided through the mass notification system OC Alerts, which is a partnership of Orange County, the towns of Carrboro, Chapel Hill and Hillsborough, and the Orange Water and Sewer Authority. Each entity helps fund the system, which notifies community members by phone, email, text or an alert application. Community members can register online at [ocalertsnc.com](http://ocalertsnc.com) and choose the communications methods they prefer. In selecting preferences, Hillsborough water and sewer customers should select notifications from the Town of Hillsborough.



- › Orange Rural Fire Department, a nonprofit agency, provides fire, rescue, hazardous materials, and first responder needs for Hillsborough and northern Orange County through contracts with the town and county.

Services provided solely by the town include those listed below. Details on operations are included in Chapter 3:

- › The Police Department responds to emergency and non-emergency needs and are dispatched through 911 communications for all needs.
- › The Utilities Department responds to water line breaks, sewer spills, and other water-related emergencies.
- › The Public Works Division provides snow and dead animal removal and other services. It also manages flood mitigation, including maintenance of town parks and greenways to prevent against flooding and posting of closure signs when flooding occurs in town. Public works employees also clear town roads of fallen trees and limbs.
- › The Communications Division provides town government information to community members and the media during emergency events, making updates to the town’s website, issuing news releases and posting to @HillsboroughGov social media on Facebook, Nextdoor, and Twitter. The division helps administer the town’s role in the emergency notification system OC Alerts and works with community liaisons throughout town to share information.
- › The Ready Hillsborough page of the town’s website contains emergency information and resources, including how to report problems in an emergency, such as downed trees.

### **Hillsborough Police Department Safety and Community Building Programs**

- › **Crafts with A Cop Classes**
- › **Straw for Dogs Event**
- › **Meal Box deliveries for the elderly**
- › **Doggie Easter Egg Hunt**
- › **National Night Out**
- › **K9 Demonstrations**
- › **Back to School Supply Drive**
- › **Trunk-or-Treat**
- › **Shop With A Cop**
- › **Christmas Meal Deliveries for the Homeless**
- › **Winter Wonderland/Toy Giveaway**
- › **Mobile Prescription Drug Take Back Event**



## Mayor's Task Force on Re-Imagining Public Safety

The Mayor's Task Force on Re-imagining Public Safety was formed in November 2020 to determine whether the town should have a standing advisory board on public safety and what it should look like. The task force made a series of recommendations to the town manager and board regarding police procedures and ways officers could be more involved with the community while being more aware of racial equity and patrolling. A proposal for annual community engagement workshops was spurred by board and staff discussions of the recommendations, with the intent to provide an alternative method of outreach that allows community members from each area of town to share safety concerns with town staff, meet the staff who work in aspects of safety, and learn how the town operates in relation to safety. Feedback would inform the town's budgeting process.

The program is named "Engage Hillsborough" and the first event was April 29, 2023 around the topic of safety. The event allowed town staff and the Orange Rural Fire Department employees to meet with community members, listen to safety concerns, and provide information on a range of safety-related topics. Spanish materials and interpretation was available and a supervised children's activity to allow for family participation.



*Hillsborough Police Department safety talk with local students*





# Social Systems & Public Space

## Goals and Actions

These goals detail what the town wants to achieve through social systems and public space. The associated strategies and recommended actions demonstrate how the town will achieve these goals.

### Goals

- 1** Build and strengthen social cohesion and sense of community through the support and development of arts and culture, events and entertainment, and preservation initiatives in an equitable and sustainable manner.
- 2** Provide opportunities to build and strengthen social cohesion and sense of community through placemaking initiatives and the development of quality public spaces in an equitable and sustainable manner.
- 3** Ensure that community events and public spaces are safe and accessible for all residents and visitors.
- 4** Build and strengthen social cohesion and sense of community through public communications initiatives.



# Strategies

## **Plan for and monitor progress toward meeting social systems and public spaces goals.**

- › Update the Parks and Recreation Master Plan and park master plans to include accessibility, sustainability, safety, and equity initiatives and best practices.
- › Develop and adopt a racial equity plan for the town.

## **Develop and adopt policies that contribute to meeting social systems and public space goals.**

- › Develop and adopt a policy to incorporate universal design principles in public spaces.
- › Develop and adopt policies for the inclusion of public art in town projects and public spaces.
- › Develop and adopt policies for communications that incorporate best practices for equitable and authentic community engagement.
- › Develop and adopt an equity lens or tool to inform budget allocations.

## **Invest in public projects that contribute toward establishing equitable and sustainable social systems and public spaces.**

- › Support and contribute town resources to arts and cultural initiatives and community events that assist in meeting social systems and public space goals.
- › Implement recommendations of park master plans that advance accessibility, sustainability, safety, and equity in public spaces.
- › Allocate resources to improve the accessibility, sustainability, and equity of public spaces.
- › Allocate resources to fund public art projects in public spaces.
- › Implement Master Aging Plan recommendations that contribute to meeting social system and public space goals.
- › Advance One Orange Countywide Racial Equity Framework recommendations that contribute to meeting social system and public space goals.
- › Continue to develop and implement wayfinding and interpretive signage programs.
- › Continue to provide pedestrian amenities like site furnishing and placemaking features that advance accessibility, sustainability, safety, and equity in public spaces. Install LED fixtures for street and site lighting to provide consistent light levels for public safety.
- › Provide public Wi-Fi in town parks and at town facilities.
- › Work with communities and partners to install kiosks for communication in suitable locations around town.



**Develop and participate in partnerships and programs that contribute toward establishing equitable and sustainable social systems and public spaces.**

- › Coordinate with and support local organizations and agencies that provide arts and cultural events and entertainment programming and projects (Orange County Arts Commission, Hillsborough Arts Council, Orange County Historical Museum, and others).
- › Coordinate with and support local organizations and agencies that provide food access and health and wellness programs (Orange County, PORCH, Orange Congregations in Mission, Family Success Alliance, and others).
- › Develop and support local organizations and agencies that promote and provide community gardens, urban agriculture, edible landscapes, and farmers markets.
- › Coordinate with county and regional agencies on future parks and greenway planning efforts and funding opportunities.
- › Coordinate with organizations and agencies to expand access to high-speed internet.
- › Continue to build the community liaisons program for communications, seeking representation from each community in town.
- › Further develop partnerships for communications with agencies that serve non-English-speaking community members.
- › Seek to participate in programs to build capacity for communicating with residents in community languages (Building Integrated Communities' Local Government Language Access Collaborative).
- › Coordinate with and support local organizations and agencies that advance equity and inclusivity.

**Adopt regulations that contribute toward establishing equitable and sustainable social systems and public spaces.**

- › Revise historic district regulations and standards to advance sustainability and equity best practices.
- › Develop and adopt standards for street lighting and pedestrian lighting in the right of way.
- › Develop and adopt standards for pedestrian and placemaking amenities in the right of way.
- › Update street standards to incorporate the town standard for streetlights: Type 2 LED 50-watt, 3000 Kelvin fixtures.
- › Incorporate crime prevention through environmental design best practices into development regulations.
- › Provide equitable enforcement of safety and nuisance regulations.





## **Engage with community groups and individuals on topics related to equitable and sustainable social systems and public spaces.**

- › Conduct regularly scheduled community outreach and engagement efforts on topics related to safety through Engage Hillsborough.
- › Continue to maintain and develop a contact database of neighborhood and community contacts to assist with community outreach and engagement efforts.
- › Continue to provide and increase Spanish translation of key documents and services and identify other translation and interpretation services that may be necessary, including American Sign Language.
- › Maintain and publish the community events calendar.
- › Assess town website's accessibility.
- › Conduct social media and website audits.
- › Conduct communications survey.
- › Connect with neighborhood groups to share communication methods and learn concerns and gaps in communication.
- › Establish semiannual meetings with community liaisons to share information and learn community concerns, questions and gaps in communication.







# Housing & Affordability

All residents in Hillsborough, regardless of age, race, or income, should have access to safe and attainable housing. Rising costs of living and housing in the region are contributing to housing insecurity. This chapter highlights opportunities and strategies for improving housing options and opportunities in the town.





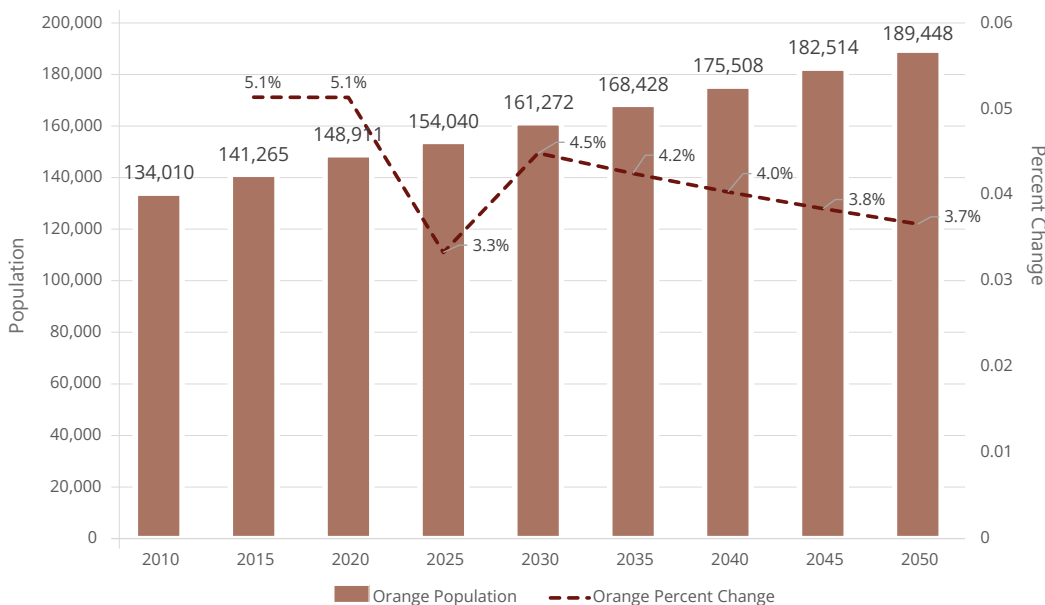
# Introduction

Housing is a key tenet of sustainability as the health and well-being of community members is dependent on having access to stable housing. Housing is a foundational element of an adequate standard of living, serving as a precondition for work, health, education, and success. Hillsborough must manage growth to provide a diverse supply of safe and affordable housing that serves the whole community. It must provide a range of housing types, sizes, designs, and ownership structure to accommodate varying lifestyles and needs. A mixture of housing types helps neighborhoods be more sustainable and stable. Approaching housing with a smart growth lens curbs sprawl and reduces environmental impacts by building compactly, promoting a mix of uses, creating connections, and designing housing with adaptation and resilience in mind. Implementing a smart growth approach allows the town to use infrastructure more efficiently, accommodate the housing needs of all residents, and establish a foundation where people can remain in the community through different stages of their lives.

Housing affordability is a complex issue facing municipalities, particularly in the Triangle region, and is impacted by access to mobility options, education and employment opportunities, among other factors. A surge in demand, combined with a lack of supply, has resulted in soaring housing prices. Rising incomes and low mortgage rates pushed housing prices to near record levels at the end of 2021. The housing market had one of the most dramatic reversals in 2022 as rising interest rates and stubbornly high prices drove the national affordability rate down by 37%.<sup>1</sup> To compound the problem, apartment rents have been rising since the end of 2019, affecting the affordability of rental units. These effects are not only being felt by low-income residents, but also by middle-income residents (earning 60–120% of the area median income).

The housing challenges are exacerbated in the Triangle region due to the current and projected growth. Orange County is expected to experience growth rates of 3.3 to 4.5% over the next 30 years (*Figure 8.1*). Specific to Hillsborough, the town's housing strategies will need to work within the infrastructure constraints that are directing the areas of growth.

**Figure 8.1.** Population Projections for Orange County



Source: North Carolina Office of State Budget and Management, Standard Population Estimates, Vintage 2021 and Population Projections, Vintage 2022

<sup>1</sup> North Carolina Office of State Budget and Management, Standard Population Estimates, Vintage 2021 and Population Projections, Vintage 2022



## Affordable Housing

Affordability is defined as the availability of reasonably priced housing, particularly for individuals and households with earnings below the median income. Typically, affordability is spending no more than 30% of annual income on housing (rent/mortgage, utilities, taxes, and insurance).

*During the development process for this plan, “addressing affordability and cost of living” was noted as one of the most important sustainability issues facing the town.*

The affordability of housing in a market functions on a supply and demand model. The prices of housing units will be higher the lower the supply is in an area (number of units available for purchase or rent) and if a stable growth in demand exists (number of households/persons looking for a home). The influx of newcomers and the attractiveness of the town elevates the affordability challenges experienced in Hillsborough. Furthermore, Orange County and the town have high tax rates compared to much of the state, impacting overall affordability.

When housing costs increase, many households are forced to spend less on essentials, such as food and health care. This adversely affects all aspects of quality of life. Further, high housing costs have the unintended consequence of promoting sprawl, as households seek more affordable options away from densely populated areas with access to services. This generates adverse social and environmental effects, such as development of natural areas, increases in service rates (such as water and sewer), and higher emissions from longer commutes.

## Missing Middle Housing

Missing middle housing refers to building types that provide denser housing options, such as duplexes, fourplexes, cottage courts, and courtyard buildings. These housing types have the capacity to better support transit and economic mobility of residents without the cost and maintenance burden of a detached single-family home.

Missing middle housing types typically have lower costs because they are constructed with multiple units on one parcel that do not need extensive parking. The inclusion of missing middle housing provides neighborhoods the affordability and diversity needed to create sustainable, smart growth communities.



Source: Opticos Design



## Planning Context

Planning for housing takes place at all levels of government, and many entities at the federal, state, regional, and local levels have some influence over residential development. In North Carolina, municipalities typically are not responsible for constructing housing but can direct the types and location of housing through land use regulations and design standards. In Hillsborough, the key players in housing regulation at the local level are the Hillsborough Board of Commissioners, Planning Board, Historic District Commission, and Board of Adjustment. Hillsborough does not build or maintain housing or have a housing support program. Thus, addressing housing challenges in the town involves a larger partnership with the county. Orange County provides housing programs in Hillsborough.

## Orange County Housing Department Programs

### HOME Investment Partnerships Program

Orange County and the towns of Chapel Hill, Carrboro and Hillsborough participate in the HOME Investment Partnerships Program of the U.S. Department of Housing and Urban Development. The consortium in Orange County, now called the Orange County Local Government Affordable Housing Collaborative, works to improve the quality of housing for residents by retaining and increasing the supply of affordable housing units for owner occupants and renters and by providing homeownership opportunities for low- and moderate-income residents.

Participating jurisdictions in the federal HOME program have the opportunity to identify and choose the housing activities that best meet local housing needs. In Orange County, HOME funding is used for a wide variety of affordable housing activities.

### Longtime Homeowner Assistance

The Longtime Homeowner Assistance program provides property tax bill assistance to help people stay in their homes. Residents can apply for this program online through the county website.

The Orange County Housing Department operates two home repair and rehabilitation programs for low-income homeowners and is a member of the Orange County Home Preservation Coalition, made up of organizations that provide Orange County residents with home repairs and modifications. The organizations coordinate through the coalition to ensure high quality program delivery.

### Additional programs

The Orange County Housing Department also offers several rental assistance programs: Housing Choice Voucher Program (Section 8), Emergency Housing Assistance Program, and the Rapid Rehousing Program, operated by the Orange County Partnership to End Homelessness.





# State and County Housing Plans

## State of North Carolina 2021–2025 Consolidated Plan and 2021 Annual Action Plan

North Carolina is required to submit a consolidated plan every five years to the U.S. Department of Housing and Urban Development that outlines the state’s goals and strategy for using federal funds to meet identified housing and community development needs. The federal department historically has been the agency that provides the most support in creating policy and providing funding for housing development. The state’s most recent plan indicates that affordability and availability of decent housing stock are dominant needs. The plan details how North Carolina municipalities and community partners can use specific program funding to improve housing in their communities. Key programs outlined in the plan that are used by Orange County to develop housing for Hillsborough are:

- › Community Development Block Grant Program
- › HOME Investment Partnerships Program
- › National Housing Trust Fund
- › Emergency Solutions Grants Program
- › Housing Opportunities for Persons with AIDS Program

Rising housing prices have been evident in Orange County for decades. These high property values limit options for first-time buyers and prohibit others from the market. The Orange County 2030 Comprehensive Plan includes a full chapter on housing challenges and identified that the rental housing supply is inadequate, especially for low-income households. The plan prioritizes collaboration and long-term sustainability of the housing market. Other significant collaboration efforts between the county and the town focused on housing policies and strategies include:

- › 2005–2010 Housing and Community Development Consolidated Plan (2005)
- › Orange County Comprehensive Housing Strategy (2006)
- › Orange County 2030 Comprehensive Plan (2008)
- › Orange County Master Aging Plan (2007)
- › Orange County Plan to End Homelessness (2020).

Other state and regional agencies that collaborate with the town on housing include:

- › North Carolina Housing Finance Agency
- › North Carolina Department of Health and Human Services
- › North Carolina Housing Coalition
- › Orange County Housing Authority
- › Central Pines Regional Council (formerly Triangle J Council of Governments)

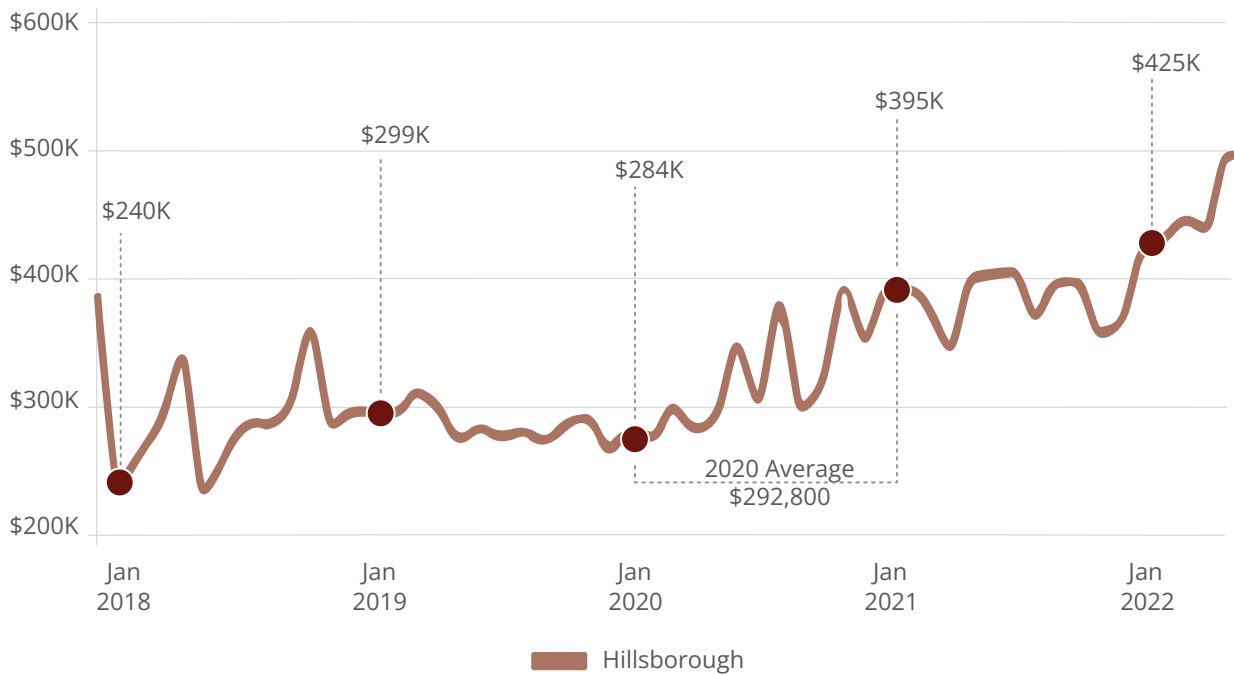


## Existing Conditions & Opportunities

Demographic shifts in a community affect the need and demand for housing. In 2020, Hillsborough had 7,160 residents with a homeownership rate of 65.3% — approximately the same as the national and Orange County average, which had a 63.8% homeownership rate.<sup>2</sup>

Hillsborough’s average property value for 2020 was \$292,800, a 12.1% increase from 2019. This average was less than the \$331,800 average of Orange County and greater than the national average of \$229,800 (see *Figure 8.2*). Meanwhile, Hillsborough’s median household income was \$65,591, while Orange County had a median household income of \$74,803, and \$67,521 was the national median household income.<sup>2</sup>

**Figure 8.2.** Property Values for Hillsborough, 2018–2022



Source: Multiple listing service data provided via Redfin, a national real estate brokerage

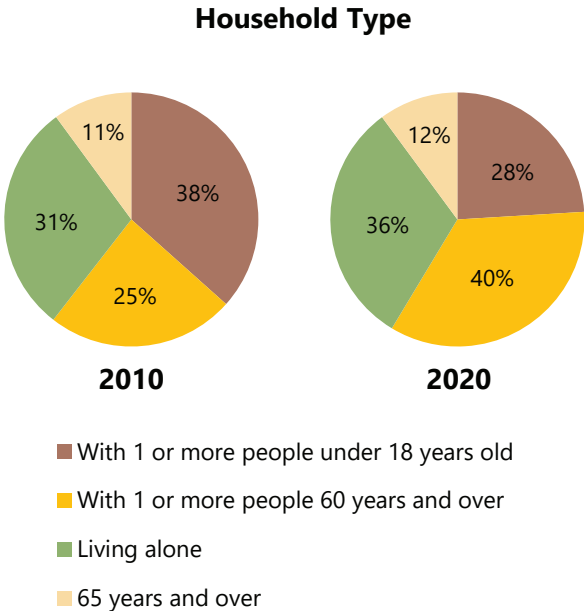
<sup>2</sup> U.S. Census, American Community Survey 5-Year Estimates



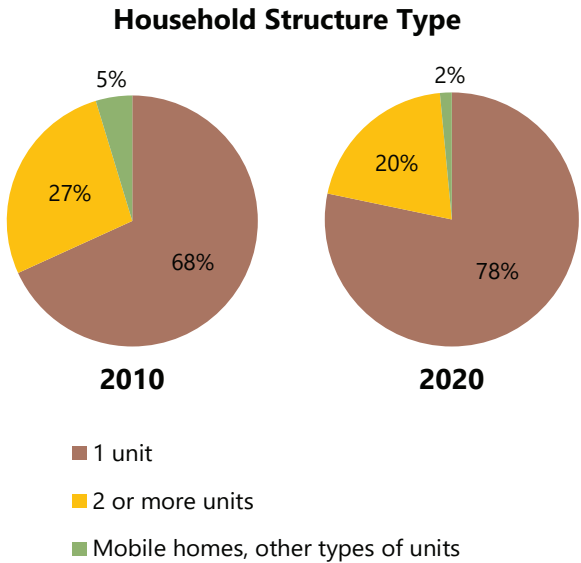
In 2020, Hillsborough had 3,014 households with an average size of 2.23 people per household. The table below (Figure 8.3) demonstrates the types of households in town. The comparison between household types in 2020 and 2010 shows the town is experiencing trends similar to other municipalities in that the aging population is growing and more people are living alone. In 2010, the median age was 35.9, with 7.8% of the population 65 years and over. In 2020, the median age in Hillsborough was 44.1, with 16% of the population 65 years and over.

Based on the same years for comparison, single-family residential structures overwhelmingly make up the majority of housing structures in town, growing by 10% between 2010 and 2020 (see Figure 8.4). This mix of structure types indicates Hillsborough had fewer housing options in 2020 than in 2010. Of the housing types in town as of 2020, nearly 70% are single-family detached.

**Figure 8.3.** Household Type in Hillsborough (2020 and 2010)



**Figure 8.4.** Household Structure Type in Hillsborough (2020 and 2010)

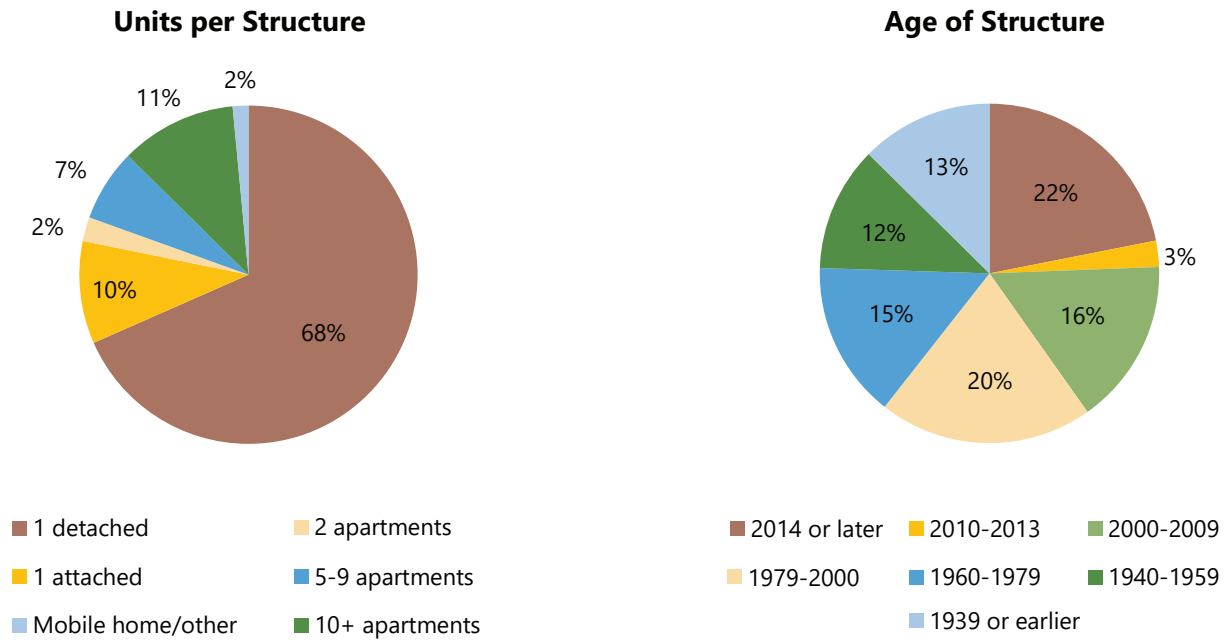


Source: U.S. Census, American Community Survey 5-Year Estimates





**Figure 8.5.** Household Units/Structure and Structure Age (2020)



Source: U.S. Census, American Community Survey 5-Year Estimates

As indicated in *Figure 8.5*, nearly 40% of Hillsborough’s existing housing stock are structures 50 years and older, with single-family detached and multi-family apartments being the main housing types. Some duplexes and quadplexes exist in older neighborhoods in town. It is clear there is opportunity for middle housing types such as duplex units and mid-rise apartments. Revising the town’s Unified Development Ordinance to encourage a variety of housing types would support more development in this space. The town already allows accessory dwelling units and has received several applications for this type of housing. Continuing to work with developers on streamlining regulatory processes for housing projects that offer diversity will be valuable.



Collins Ridge



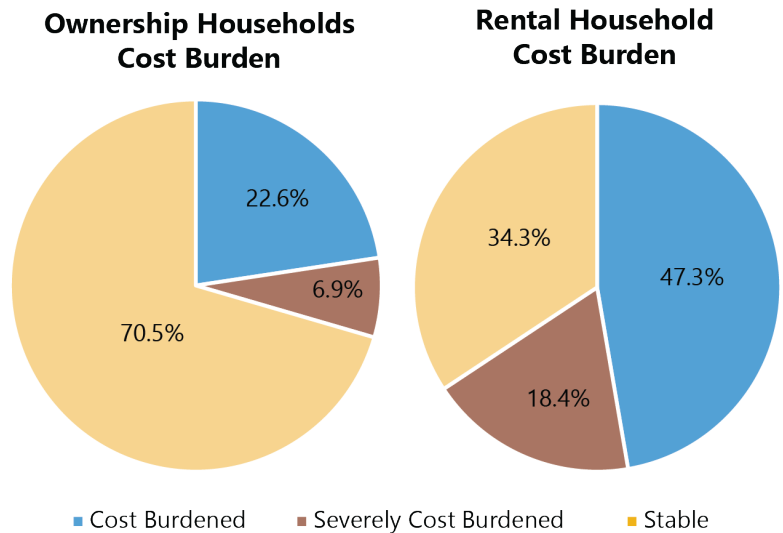
Eno Haven



## Cost Burden

To understand the need for affordable housing, it is helpful to frame the data in the same terms that federal agencies like the Department of Housing and Urban Development use. One such measure is whether a household is cost-burdened. The department defines a household as cost-burdened if housing costs are greater than 30% of the household income and severely cost-burdened if housing costs are greater than 50% of the household income.<sup>3</sup>

Based on 2015–2019 data from the Comprehensive Housing Affordability Strategy of the Department of Housing and Urban Development, 405 ownership households in Hillsborough are cost-burdened, with 125 of those households severely cost-burdened — representing 22.6% and 6.9% of the ownership households, respectively.<sup>4</sup> For renter-occupied households, 47.3% were cost-burdened, while 18.4% were severely cost-burdened. The data also demonstrates that the majority of the cost-burdened households (both ownership and rental) has a household income less than 50% of the department-adjusted median family income. This indicates that lower-income residents of the town have a greater need than those of higher incomes. Comparatively across North Carolina, 41% of renters and 21% of homeowners are cost-burdened.<sup>5</sup>



Source: Department of Housing & Urban Development, Comprehensive Housing Affordability Strategy (2015-2019).

## Affordable Housing

Hillsborough needs more affordable housing (reasonably priced housing, particularly for individuals and households with earnings below the median income). In 2021, the median monthly housing cost in Hillsborough was \$1,315 for occupied units, which is higher than the state average of \$999 and the Orange County average of \$1,270.<sup>6</sup> Neighboring communities also have lower median monthly housing costs — \$1,248 in Carrboro and \$1,251 in Durham. Hillsborough's higher housing costs directly impact housing affordability and the ability for residents to remain in their neighborhoods.



Townhouse community in southern Hillsborough

<sup>3</sup> Some professionals argue that the U.S. Department of Housing and Urban Development's 30% rule for measuring affordability is arbitrary, primarily because of cost-of-living differences where housing is expensive and because some families must spend their money differently on basic necessities, such as a household that includes children.

<sup>4</sup> <https://www.huduser.gov/PORTAL/datasets/cp.html>

<sup>5</sup> 2015–2019 American Community Survey, five-year estimates

<sup>6</sup> U.S. Census, American Community Survey 5-Year Estimates



A network of nonprofit housing providers and assistance programs has been built to provide educational, financial, and technical services to households in need. Examples of these organizations include:

- › **Orange County Community Housing and Land Trust** — provides affordable housing opportunities for first-time homebuyers earning less than 80% of the average median income.
- › **Orange County Habitat for Humanity** — offers homeownership support to working families through loans, repairs of existing homes, and assistance in the construction of homes.
- › **EmPOWERment Incorporated** — works to increase affordable housing and preserve working-class neighborhoods.
- › **CASA** — develops and manages rental communities to provide access to stable, affordable housing for people who are homeless or at risk.
- › **Chrysalis Foundation for Mental Health** — supports the development of affordable housing for people with disabilities and mental illness.
- › **InterFaith Council for Social Services** — provides shelter, food, and direct support services to people in need.
- › **Orange County Housing Coalition** — provides housing opportunities for all through an association of nonprofit housing developers, service providers, advocacy groups, and local government partners.

## Workforce Housing

Workforce housing is housing affordable to households earning between 60 and 120% of the average median income, according to the Urban Land Institute. Workforce housing targets middle- or moderate-income workers, which includes professions such as police officers, firefighters, teachers, health care workers, and retail clerks. Households that need workforce housing may not qualify for housing subsidized by the Low-Income Housing Tax Credit Program or the Housing Choice Voucher Program (formerly known as Section 8). These are the two major programs in place for addressing affordable housing needs.

Having middle-income workers living in the same community they serve is a major benefit to building stronger connections within the community. It also reduces commute times, decreasing carbon footprints of individuals and the businesses where they work.





## Aging in Place

Aging in place refers to the decision to continue in a current residence with loved ones, friends, and neighbors while getting older rather than relocating to a residential facility built to support long-term care, such as an assisted living facility. The choice can depend on which best supports their well-being and promotes healthy aging.

Hillsborough has several retirement and age-restricted communities. The median age is increasing and more households have seniors living alone. Hillsborough will need to address increasing housing options that meet the needs of the elderly and persons with disabilities. The Orange County Master Aging Plan, which is detailed in Chapter 7 of this plan, states that age-friendly housing should:

- › Be affordable.
- › Be close to services or have transportation options.
- › Have accessible design.
- › Provide a wide range of living options.
- › Be integrated into the community at large.
- › Be safe and comfortable.

Providing support for aging in place includes housing that can be affordably adapted to meet residents' changing needs throughout their lifetime. Universal design incorporates seven principles in designing environments that can be used by all people. For example, essential universal design features include no-step entry, single-floor living, wide doorways and hallways, reachable controls, and easy-to-use handles and switches. In addition to the housing unit, being in close proximity to food, other essential needs and transit access is very important for the elderly and persons with disabilities.



*Corbinton Commons*



## Universal Design

Seven principles of universal design were developed by a group of architects, designers, engineers, and researchers at North Carolina State University. The principles serve as a guide for designing communications, goods, and the environments we live in. They may be used to evaluate existing designs, direct the design process, and educate users about the elements that make up more accessible environments.

Fundamentally, universal design is adaptive, flexible, safe, and effective. To produce a truly universal user experience, universal design is based on the following:

# 7 PRINCIPLES OF UNIVERSAL DESIGN

### 1. Equitable Use

- Design is appealing and provides the same means of use to all individuals.
- Provisions for privacy, security, and safety are equally available.

### 2. Flexibility in Use

- There is choice in methods of use.
- Accommodations for right or left handed use.
- Allow for accuracy and precision as well as adaptable to the individual's pace.

### 3. Simple & Intuitive Use

- Use of the design is easy to understand.
- Any undue complexity is removed.

### 4. Perceptible Information

- Ambient conditions do not affect use.
- Consider individual's sensory abilities.
- Provide contrast between essential information and its surroundings.

### 5. Tolerance for Error

- Consider and minimize hazards and the adverse consequences of accidental or unintended actions.
- Provide fail-safe features.

### 6. Low Physical Effort

- Allow user to maintain a neutral body position.
- Minimize repetitive actions and sustained physical effort.

### 7. Size and Space for Approach and Use

- Provide a clear line of sight to important elements for any seated or standing user.
- Make reach to all components comfortable for any seated or standing user.
- Accommodate variations in hand and grip size.
- Provide adequate space for the use of assistive devices or personal assistance.

Source: Center for Universal Design at North Carolina State University



## Homelessness

On any given night in the United States in 2020, approximately 580,000 persons could be classified as living in a state of homelessness. The U.S. Department of Housing and Urban Development classifies homelessness in four categories: chronic, episodic, transitional, and hidden.

*While all levels of homelessness face unique situations, policies and programs treating chronic homelessness are the most critical and have benefits to all levels of homelessness.*

The Orange County Partnership to End Homelessness participates annually in the nationwide Point-in-Time Count to understand the number of people facing homelessness (both sheltered and unsheltered) and publishes snapshots of the estimated number of homeless in Orange County (see *Figure 8.6*). The 2022 count showed fewer people experiencing all levels of homelessness in 2022 than in 2021, but it showed progress has stalled when comparing the number to years prior to 2020. While the chronically homeless population has increased since 2020, both families and veterans experiencing homelessness have decreased in Orange County.

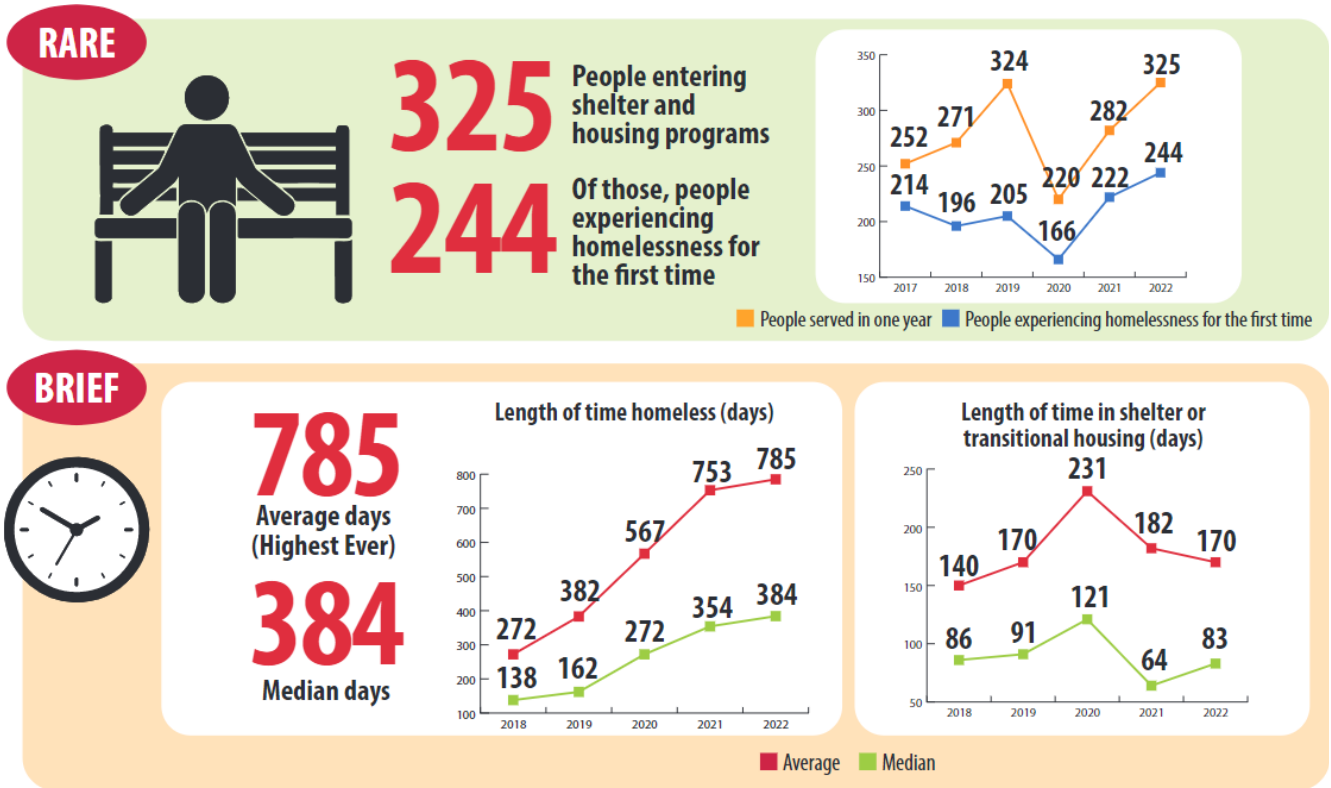
The Orange County Partnership to End Homelessness provides help to those in need, including rental and utility assistance, eviction diversion, emergency housing, and homeless services. Since June 2019, the Orange County has created a housing access coordinator position within the county government, added funding for homelessness diversion, and started the Street Outreach, Harm Reduction and Deflection Program. These services aim to reduce homelessness by partnering with landlords and property management organizations to use housing choice vouchers while actively working to connect those living in shelters with housing solutions.





To help provide resources for the homeless, the town allows homeless shelters under a special use permit in many of its zoning districts. Additionally, the town will continue to coordinate with the county to help those experiencing homelessness and to identify ways to prevent homelessness. A focus on providing affordable housing options will support the regional work on ending homelessness.

Figure 8.6. Homeless Population Snapshot for Orange County



Source: Orange County Partnership to End Homelessness



## Toolbox for Housing Options & Affordability

Based on the demographics of the town and the minimal housing options that currently exist, there is a need and opportunity for additional affordable housing. Demographics and lifestyle preferences are shifting, indicating a need to add new forms of housing to traditional housing types. With the infrastructure constraints that are directing development in the town (see Chapter 4 of this plan for details), the use of smart growth principles will be critical for addressing housing needs. These tools have been successful in other communities for supporting housing options and affordability.

- › Integrate single- and multi-family structures: accessory dwellings, microunits, patio homes, quadplexes, co-housing
- › Collaborate on addressing high density concerns
- › Streamline the approval process for affordable housing projects
- › Retain and maintain existing housing stock
- › Incorporate house-scale buildings with multiple units in walkable neighborhoods
- › Offer density opportunities
- › Allow for discussions with the construction community on notable developments in building materials
- › Support housing projects with infrastructure development, new sidewalks and curbs, parks, transit stops, and greenway connections
- › Bring in neighborhood representatives to the Planning Board and Board of Adjustment
- › Evaluate site assembly opportunities for housing projects
- › Promote energy-efficiency techniques in residences



### Benefits:

Supports a diverse population.

Promotes equitable distribution of households among all income levels.

Creates opportunities for communities to slowly increase density without radically changing the landscape.



# Housing & Affordability Goals and Actions

These strategies and recommended actions identify how Hillsborough will reach its goal of ensuring housing stability for renters and homeowners.

## Goal

- 1 Develop and maintain a variety of safe, healthy, and sustainable housing options to increase housing stability for renters and homeowners.

## Strategies

### Plan for and monitor progress toward meeting housing needs in the town.

- › Participate in the creation of a countywide housing plan that includes a gap analysis, housing security analysis, and housing needs assessment.
- › Participate with the Partnership to End Homelessness to fill gaps identified in the plan to end homelessness.
- › Monitor conditions for early warning signs of issues in housing supply to help the town identify and address incipient changes before they become urgent problems.
- › Monitor housing policies, programs, and initiatives for progress in closing gaps in housing need, supply, and demand.
- › Create an annual action plan and develop a dashboard for the town website that tracks affordable housing progress, highlights challenges and successes, and is reviewed quarterly.





### **Develop and adopt policies that contribute to meeting identified affordable housing needs.**

- › Adopt guiding principles for affordable housing.
- › Create resilient neighborhoods through housing policy that supports thriving neighborhoods.
- › Establish an affordable housing fund and begin contributing to it in the following fiscal year, increasing to 2% of the town's general fund over three to five years. Dedicate funding to support housing programs.
- › Research establishing an affordable housing trust fund to support affordable housing development.
- › Consider an affordable housing payment in lieu only for smaller developments and dedicate these funds to the affordable housing fund once established.
- › Encourage changes to state law that hamper the development of affordable housing or block town efforts to increase the stock of affordable housing.
- › Identify a town staff member to manage affordable housing efforts, including working with developers, maintaining an inventory of units, identifying relevant resources, and collaborating with stakeholders and peer municipalities to learn about best practices and funding opportunities.

### **Invest in public projects that contribute toward meeting housing needs in town.**

- › Support the creation of affordable housing through strategic acquisition and use of public land.
- › Explore public-private partnerships to purchase vacant land, land entering foreclosure, or land in other forms of receivership and to build affordable housing on town-owned land, especially in areas with low transportation costs.
- › Prioritize surplus town-owned land for potential affordable housing.
- › Dedicate at least a third of the remaining buildable train station land to future affordable housing in partnership with a trusted entity.
- › Invest in public projects that support aging in place and accessibility.
- › Investigate tools to acquire land outside the traditional real estate market that can be made available for affordable housing development by others.

### **Participate in partnerships and programs that provide security and stability for homeowners and renters.**

- › Coordinate with regional partners on housing assistance programs.
- › Coordinate with housing agencies, regional partners, and the private sector to implement initiatives.
- › Streamline existing programming to maintain continued housing affordability and the ability of residents to remain in their homes.
- › Develop a metric to assess the cost of government and consider the impact of increased government costs on cost-burdened households.
- › Work with regional housing partners to ensure housing goals and policies guide implementation of affordable and workforce housing developments within the town's planning area.



- › Continue preserving existing, naturally occurring affordable housing through the creation and expansion of programs targeted on home repair for income-eligible owners and those renting to income-eligible households. Place focus on housing in areas experiencing growth.
- › Partner with housing agencies to implement policies and programs to retain existing housing and residents, including actions to rehabilitate and restore homes to a state of good repair.
- › Continue to encourage landlord participation in existing federal and other voucher programs to maximize housing options within the county.
- › Develop or partner with others to develop educational efforts to encourage preservation of generational wealth through careful estate planning.
- › Increase funding of programs to help residents stay in their homes by supporting repairs and efficiency improvements.
- › Foster connections with residents and other agencies and organizations that provide repair and efficiency improvement services to help residents stay in their homes.

**Participate in partnerships and programs that contribute to meeting identified future housing needs.**

- › Work with regional housing agencies, regional planning bodies, the private sector, and other partners to increase the supply of affordable and workforce housing.
- › Leverage financial resources or debt capacity to support incorporating affordable housing into new development projects.
- › Supplement federal voucher programs through locally funded rental vouchers or direct income supports.
- › Create a program that identifies beneficial and challenging site characteristics for housing developments, such as beneficial connections to public transportation and burdens like siting, topography, above-average construction costs, and restrictions by funders or regulator.

**Adopt development regulations that contribute to meeting identified affordable housing needs.**

- › Investigate regulatory requirements and incentives for affordable housing that require 15% of housing units to be affordable in new residential developments and more in property zoned other than residential but have flexibility to achieve overall goals of the town.
- › Investigate town-wide regulatory programs that require or incentivize development of affordable housing in mixed-income developments, in standalone affordable housing developments, and in targeted neighborhoods.
- › Increase housing opportunities for households or individuals with limited access by increasing the number of affordable rental units, targeting those at 80% or less of the average median income.
- › Support affordable housing opportunities in transit corridors or transit supportive developments and neighborhoods.
- › Increase diversity of housing stock through development regulations and decisions.



### **Adopt development regulations that contribute to meeting overall housing needs.**

- › Update the Unified Development Ordinance and regulations to result in a broader range of quality housing types of different sizes, configurations, tenures, price points, ownership structure, and income levels within close proximity.
- › Enact regulations that make building smaller, moderately priced homes easier (incentivized), including zoning reforms; relaxed dimensional requirements, such as minimum lot sizes, setbacks, lot coverage, or floor-to-area ratios; reduced minimum parking requirements; and flexibility in design standards.
- › Revise the Unified Development Ordinance to allow for higher density housing or lower cost housing types in accordance with the Future Land Use Plan.
- › Incorporate universal design principles and share information with developers.
- › Encourage housing in existing and proposed commercial areas (mixed use) in accordance with the Future Land Use Plan.
- › Adopt regulations that ensure housing developments are accessible and connected.
- › Retain affordable and workforce housing units by managing gentrification, displacement, and redevelopment within existing neighborhoods.
- › Adopt regulations that promote a variety in housing that fills the missing middle housing.
- › Evaluate additional practices to encourage the construction of accessory dwelling units.
- › Incentivize green housing developments and retrofits.
- › Streamline the permitting process for multiple parts of the housing development process.

### **Engage with community groups and individuals on topics and decisions that contribute to housing needs and affordability.**

- › Improve outreach and education to encourage resident participation in existing county tax relief programs for homeowners.
- › Provide outreach and education to promote housing accessibility and affordability.





The Wooden Nickel

SANTANA PHARMACY





# Economic Development & Tourism

A sustainable Hillsborough depends on a strong and adaptable economy that is regionally competitive and attractive for businesses looking to relocate or expand their operations. Embedding sustainability into economic development practices and tourism strategies is a proven way to ensure the vitality and resiliency of the business community. This chapter reviews local economic development and tourism opportunities and provides sustainable and equitable strategies and actions for strengthening the economic base of the town.

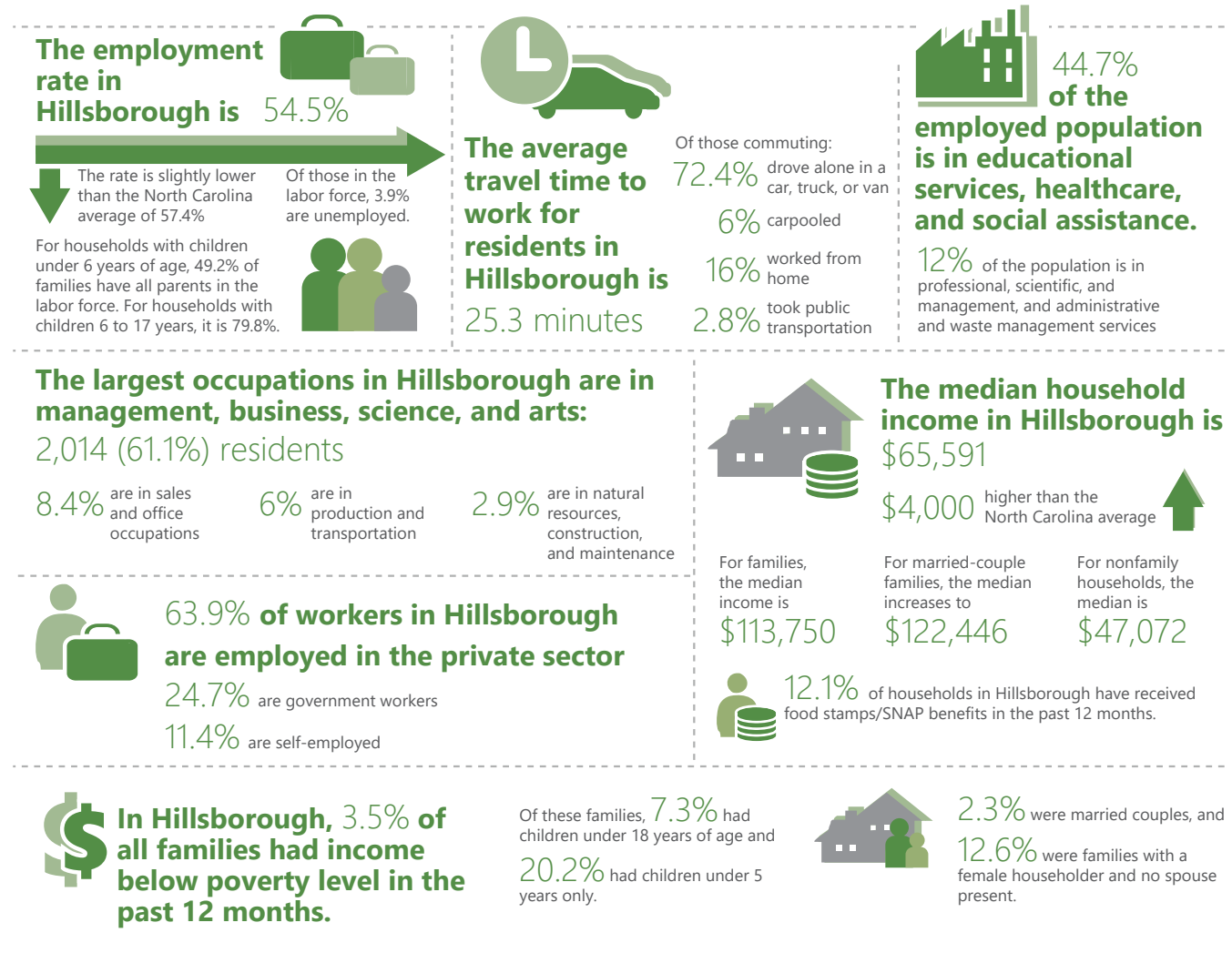


# Introduction

A comprehensive understanding of a community's economic landscape helps inform successful economic development policies and outcomes that can promote growth while preserving valuable natural resources; bring jobs and increase commercial tax base; and provide amenities to residents and visitors.

Hillsborough provides strong regional connectivity for residents and businesses as it is centered along two of the region's highly traveled interstate highways and within commuting distance to major employers of the Triangle region. Being centrally located between the Triad and Triangle, Hillsborough has experienced increased development interest and economic growth. As a desirable residential community, Hillsborough has become one of the more affluent areas in Orange County. The high incomes in Hillsborough represent strong buying power and potential to support local retailers. *Figure 9.1* illustrates the community characteristics that drive the economic system in Hillsborough.

**Figure 9.1.** Hillsborough's Community Characteristics



Source: U.S. Census, American Community Survey 5-Year Estimates



# Planning Context

## Planning and Economic Development Division

In the Town of Hillsborough, economic development is managed under the Planning and Economic Development Division.

The Planning and Economic Development Division:

- › Plans for future development and growth within the town and extraterritorial jurisdiction
- › Enforces land development regulations
- › Issues permits
- › Oversees development projects
- › Supports town appointed boards
- › Assigns addresses
- › Creates and maintains geographic information system zoning and development databases
- › Represents the town on regional planning committees

The town understands the importance of continued growth and support to existing businesses. It invests significant effort into an economic development strategy that focuses on business development, tourism, smart growth, and branding.

New, large-scale business development is incentivized through the offer of tax grants and other non-financial incentives when businesses meet performance standards (detailed in the Hillsborough Economic Development Incentive Policy). These incentives can be earned through new job creation at various market-rate pay levels and through investment in building and operations infrastructure. The incentives are intended to attract new businesses, create jobs, and target development in specific areas of the town.

The town's economic development also focuses on supporting entrepreneurs and small local businesses, filling in market gaps with new businesses to meet consumer demand, and supporting existing businesses so they can grow and thrive. The town does this by supporting and interacting with the local chambers of commerce, participating in workforce development initiatives, and partnering with other local and regional economic development stakeholders.

## Existing Conditions

### Employment and Industries

Historically, Hillsborough's major industries were rooted in textiles, merchant trade, and governance. Today, Orange County and the Town of Hillsborough are among the top employers in the town. Several successful corporations started in Hillsborough, including PHE Inc., Sports Endeavors, Redeye, and Summit Design and Engineering. In addition, international companies have chosen to locate in Hillsborough due to its proximity to Raleigh-Durham International Airport, access to Interstate 85, and quality of life for employees. These companies have clustered largely in the southeastern region of the town. Over the last 10 years, retail and food service employment has grown within the town. Hillsborough's largest industry is healthcare and social services, with the UNC Hospitals Hillsborough Campus as the largest employer in this sector. The top five industries in town, based on 2020 Census data, include:<sup>1</sup>

- › Health care and social assistance
- › Educational services
- › Professional, scientific, and technical services
- › Retail trade
- › Public administration



*UNC Hospitals Hillsborough Campus*

<sup>1</sup> U.S. Census, American Community Survey 5-Year Estimates, Esri Business Analyst Online

## Local Businesses

A strong local business community and entrepreneurial spirit exist in Hillsborough. Some local businesses are congregated in the downtown and its surrounding core as well as in nearby West Hillsborough and at the historic Eno River Mill. These business districts are connected by the Riverwalk greenway.

In these business districts, you can find bars, restaurants, retail shops, art galleries, event venues, a boutique hotel, and a cooperative food market. The majority of these businesses are locally owned and actively participate in the community. The local business community thrives with the support of residents and visitors to town through the tourism program. It is important for the town to continue to support locally owned businesses to create a sustainable local economy. Business inclusion — engaging woman, veteran, and BIPOC (Black, Indigenous and People of color) owned businesses to support retention and expansion of these businesses is particularly important for the town's economic growth.

The COVID-19 pandemic brought challenges with coordination and communication among downtown businesses, the town, and nonprofits. Reestablishing an active merchants group or local business association could strengthen the downtown, West Hillsborough, and the local business community. It could also inform businesses about events happening within the town and allow them to collaborate on joint marketing opportunities. During the development process for this plan, stakeholders made up of downtown merchants and other partners were asked about the status of the business community. Their comments are summarized in these key points:

- › Communication within the nonprofit businesses has been going well and takes a concerted effort among the different partners. The external communication within the business community could be improved; however, this is not to understate the friendliness and welcoming nature of everyone in Hillsborough as they effortlessly make sure new members are plugged into community efforts.
- › Serving, programming, and collaborating with neighborhoods outside the intimate downtown area are areas the town and merchants aim to improve on as many customers and visitors to Hillsborough live within a 30-minute drive of Hillsborough's downtown.

## Hillsborough Chamber of Commerce

The Hillsborough Chamber of Commerce works with the town to support economic development and attract businesses to Hillsborough. As the voice of the local business community, the chamber serves as a space for business development and economic growth through community collaboration and events to promote local businesses. Currently, the chamber has 179 member businesses.

Studies continue to show that locally owned businesses support sustainability and resiliency of a place. Local and existing businesses can also help preserve the unique character of Hillsborough and keep dollars in the local economy. Supporting local entrepreneurs and employers through promoting the business community and investing in public infrastructure is vital for economic development and continued economic resiliency.



## Hillsborough's Commercial Centers

Hillsborough's major hubs of commercial and economic activity are: Downtown, West Hillsborough, the North Hills and Hampton Point shopping centers, the South Churton Street/Interstate 85 corridor, the Millstone and Meadowlands business parks, Oakdale Village, Waterstone, and the Valley Forge Road and

Figure 9.2. Hillsborough Commercial Centers



Source: Hillsborough Planning and Economic Development Division



Elizabeth Brady Road areas (see *Figure 9.2*). These areas of town offer local and regional employment, local and chain restaurants, office, and light manufacturing.

## Coordination with Orange County

The partnerships that the town has with Orange County are important for a strong economic development strategy. The county invests significant resources into economic growth for the county, which the town can use and build upon at a local level.

### Orange County Economic Development Districts around Hillsborough

In 1984, Orange County outlined areas around Interstate 40 near Hillsborough as economic development districts (identified in lavender in *Figure 9.3*). These areas encompass all four corners of the Interstate 40 exchange with Exit 261 south of Hillsborough, totaling 703 acres that include Waterstone Business Park, UNC Hospitals Hillsborough Campus and Durham Technical Community College's Orange County Campus. Approximately 208.08 acres of these economic development districts have been developed.

**Figure 9.3.** Orange County Economic Development Districts



Source: Hillsborough Planning and Economic Development Division

## Analysis of Development Areas

In 2017, Orange County prepared a site-specific analysis of strengths, weaknesses, opportunities, and threats that included an existing economic development district within Hillsborough, summarized in *Table 9.1*.

**Table 9.1.** Analyzed Development Areas from Orange County Analysis

Development Area	Total Area (Acre)	Total Parcels	Largest Parcel (Acre)	Developable Area (Acre)*	Zoning	Watershed Restrictions	Road Distance to Interstate Interchange (#)
Hillsborough Economic Development District	703	56	106.41	83	Economic Development Hillsborough-1,2,4,5	None	Located at Interstate 40, Exit 261
U.S. 70 / Cornelius Street	44	64	5.87	30	General Commercial, Residential-10 and 20, Multi-Family	None	3 miles to Interstate 85

\*Developable area based on vacant and or known available lands greater than 5 acres without environmental constraints identified as "PODS".

Source: Orange County Economic Development, Orange County SWOT Analysis

The Hillsborough Economic Development District was analyzed for its availability for future development and use in economic development. The study found:

- › The main strengths of the site are a large overall size, interstate access with access to Interstate 40 from both sides of the interstate, and the aesthetic appearance of being located across the street from an existing development. As detailed in *Table 9.2*, Hillsborough's economic development district includes over 300 acres of developable land.
- › The main weaknesses are the area is divided by Interstate 40 and several residential properties are along Old N.C. 86, which is the access to the larger buildable tracts.
- › Opportunities in the Economic Development District are existing utilities (water, natural gas, and telecommunications) and multiple points of access from major roadways, including to the larger parcels.
- › Threats to economic development in the district are environmental constraints with existing residential development and wetland restrictions as some parcels contain floodplains and streams. Additionally, Old N.C. 86's structural integrity is not known and may need future upgrades.



**Table 9.2.** Orange County Acres Analysis of Hillsborough Economic Development District

Description	Parcels	Total Acres	Environmental Coverage	Potential Developable Acres
Parcels Greater than 5 Acres	43	83.48	25.77	57.71
Parcels Greater than 5 Acres with Structures	6	170.49	63.9	106.59
Available Parcels and Parcels Greater than 5 Acres without Structures	7	225.45	82.34	143.11
<b>Totals</b>	<b>56</b>	<b>479.42</b>	<b>172.01</b>	<b>307.41</b>
<b>Total Developable Acres (PODS)* = 83 Acres</b>				

\*Total Developable Area (PODS) is the area with the highest development potential based on the overall SWOT analysis.

Source: Orange County Economic Development, Orange County SWOT Analysis

## Workforce Development

Building a workforce that is relevant to the needs of Hillsborough businesses and consistent with the town's economic strategy is paramount to build a sustainable local economy.

Broad partnership initiatives with educational institutions and community organizations provide innovative training and mentoring programs that support continued economic prosperity for residents, businesses, and community across all skills and income levels. Focusing on workforce development leverages local institutions and better link employers with the local workforce in the community.

*Workforce development is a people-first approach to assist workers in learning new skills to maximize job success and career growth.*

Potential methods used in workforce development include:

- › Increasing the capacity of existing small and independent businesses
- › Intentionally creating a culture of innovation
- › Supporting entrepreneurship to grow new businesses and developing a pipeline to external markets for Hillsborough-made goods

In Hillsborough, the rate of new businesses created every year (0.6%) is lower than the national average (10.7%). Therefore, there is a need to foster a dynamic business climate and entrepreneurial ecosystem, including the support of compatible mixed uses like small retail and service businesses in residential neighborhoods, that brings together all the talents and assets of the town and region.<sup>2</sup>

<sup>2</sup> NC Works/ Skills Development Center

Addressing income inequality and creating sustainable paths of upward economic mobility will be critical for maintaining racial and income diversity in Hillsborough, a foundational element of fostering entrepreneurs and small businesses. Despite Hillsborough's success in becoming a more desirable place to live and visit, disadvantaged communities with households living in poverty remain. Providing communities where a diverse workforce can afford to live and work is imperative for strong economic growth. Hillsborough should continue to support the provision of affordable housing (workforce and the missing middle) and link low-income individuals to living wage jobs, quality education, healthy and affordable food, and transportation options that will allow them to fulfill their potential locally.

## N.C. Works and Orange County Skills Development Center

The Orange County Skills Development Center is a one-stop shop that assists individuals in seeking and obtaining employment as well as in accessing education and training. The center also offers referrals to community-based agencies for assistance with additional needs, all of which is free of charge and open to all members of the public. The center works in partnership with N.C. Works, which helps job seekers and aids employers in addressing their employment needs. N.C. Works staff provide talent management strategies and solutions to meet specific needs at little to no cost.

Employers are helped in addressing :

- › Skills gaps through employee access to training resources that offer on-the-job instruction as well as off-site classes at local colleges and other training avenues to help employers retain a vital and talented workforce.
- › Staffing challenges through the recruitment of qualified applicants to help businesses fill critical openings with the right people.

### Employment

Orange County Living Wage is a volunteer-driven, nonprofit organization that certifies, recognizes, and promotes Orange County businesses which pay a living wage and assists workers seeking living wage jobs. The organization has a volunteer-based board with voting members serving two-year terms. The board meets monthly, and volunteers work on committees, such as for certification approval or outreach to employers. The organization also posts listings for jobs offering living wages to its website.

Orange County Living Wage offers a certification program for businesses. Applying businesses are vetted by the organization and receive certification stating their commitment to providing a living wage to all full- and part-time employees of at least \$16.60 per hour or \$15.10 per hour with employer-provided insurance.



## Durham Technical Community College — Orange County Campus

With Durham Technical Community College — Orange County Campus located just outside Hillsborough, the community college and town have a strong partnership in providing access to higher education and employment opportunities. Not only does the Orange County Campus provide curriculum programs for university transfers as well as health and wellness, human services, and public safety careers, but it also provides extensive opportunities for continuing education, employment skills training, and career development. These programs are accessible to students, adults, and non-native speakers of English.

Within the community college is the Center for Workforce Engagement, which supports the development and promotion of curriculum programming and certification and short-term training that meets local labor market demand and increases employment opportunities for Hillsborough and Orange County. The center serves as the resource for creating work-based learning opportunities, such as apprenticeships and internships, within the Guided Career Pathways of the community college. This helps create equitable opportunities for all students to develop the knowledge, skills, and networks needed to be successful in college, work, and life.



*Durham Technical Community College — Orange County Campus*



## Tourism

The tourism and hospitality sector is steadily growing in Hillsborough's local economy and brings positive economic outcomes and employment opportunities for the town. Revenue generated by visitor spending in local businesses and hospitality businesses provide a variety of jobs for local residents.

Tourism is built on creating and developing unique and desirable destinations. Hillsborough has numerous assets for drawing visitors, including a vibrant arts and live music scene, outdoor recreation and trails, historic sites and museums, unique shopping, and innovative food and beverage options. Tourism adds dollars into the local economy that may not otherwise be spent here, resulting in small business stability and creation and retention of available jobs in the community.

To continue incrementally growing tourism, the town collects a 1% food and beverage tax and a 3% occupancy tax on lodging night stays. These funds are reinvested into the tourism program through initiatives like operating a visitors center and investing in local historic site destinations and museum operations, special event support, signage projects, public and private art, and other initiatives that bring visitors into town and ensure they have an enjoyable experience while here. These tax revenue streams are managed by the Hillsborough Tourism Board and Hillsborough Tourism Development Authority, which are appointed boards comprised of residents and local business owners.

To plan for future growth, maintain momentum, and stay relevant to new and repeat visitors, the town prepared a 5-Year Strategic Tourism Plan in 2017. The plan outlined strategies for continuing to promote and celebrate the town's history while also recognizing and promoting other emergent strengths, such as music and art, outdoor recreation assets, and a thriving food and beverage scene. Tourism must be appropriate to the scale of the town, with strategies for minimizing traffic congestion and considering impacts to neighborhoods and residents.



*Street performers*



*Gospel Music Celebration*

The town has agreed on several strategies to continue and expand the success of the Hillsborough tourism program, as indicated in the 5-Year Strategic Tourism Plan:

- 1.** Incrementally grow the tourism base and expand the types of tourists visiting Hillsborough by providing information, creative marketing, consistent communications, and interesting arts, music, outdoor, and cultural events.
- 2.** Market Hillsborough as a beautiful and charming small town with a long, rich history, vibrant art and music scene, great outdoor recreation opportunities, and delicious food and beverage.
- 3.** Maintain a vibrant, friendly, clean, and attractive destination to keep visitors coming here and returning year after year, and work to improve the built and natural environment for visitors and residents.
- 4.** Maintain and work to expand the economic vibrancy and diversity in business types of the townwide commercial community.
- 5.** Provide updated, stocked, and complete visitor information, guides, maps, and brochures for the convenience of visitors.
- 6.** Foster and support long-term strategic tourism planning while continuing to grow and improve the tourism program.
- 7.** Maintain a well-trained staff and Tourism Board through professional development, workshops, trainings, and conference attendance.

The Hillsborough tourism program is robust and is managed by a full-time tourism program manager. Program components include the operations of the Hillsborough Visitors Center; tourism marketing; research and implementation of current tourism trends and best practices, and data collection. It also includes the provision of funding and resources to local organizations that are actively working to create and promote interesting attractions, events, and programs to attract visitors and enhance visitor and resident experiences in the town.

The Tourism Board is dedicated to driving economic development through tourism by promoting Hillsborough as a unique destination and by providing visitor services. To accomplish this, the board reinvests the prepared food and beverage tax in funding for a visitors center, grants, special projects and partnerships, and contract services with local organizations and historic sites.

The Tourism Development Authority is a volunteer board that promotes travel, tourism and conventions; sponsors tourism-related events; and finances tourism-related capital projects. To accomplish this, the Tourism Development Authority reinvests the 3% occupancy tax into special projects and partnerships, events, and promotions to encourage visitors to stay in local lodging facilities. The Tourism Development Authority works collaboratively and individually as a partner in the overall tourism program.

### Tourism Stakeholders, Partners, & Supporters

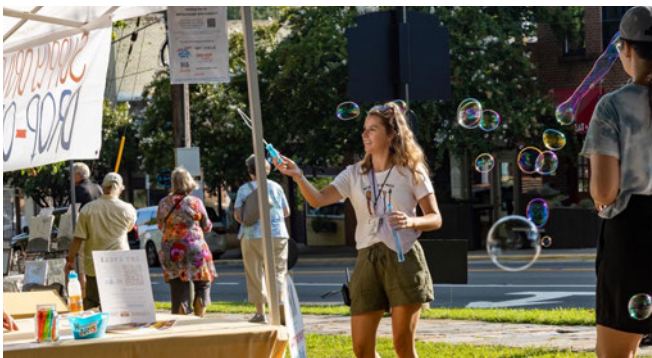
- › Ayr Mount Historic Site (Classical American Homes Preservation Trust)
- › Hillsborough/Orange County Chamber of Commerce
- › Hillsborough Arts Council
- › Hillsborough Tourism Board
- › Hillsborough Tourism Development Authority
- › Occoneechee/Orange Historic Speedway Group
- › Moorefields historic site
- › Orange County Arts Commission
- › Orange County/Chapel Hill Visitors Bureau
- › Orange County Historical Museum
- › Orange County
- › The Burwell School Historic Site and Historic Hillsborough Commission
- › The Alliance for Historic Hillsborough
- › Town of Hillsborough

## Events

The Hillsborough Tourism Program provides funding and support for many events and arts, and history programs. Festivals and events held include:

- › Last Fridays Art Walk (*monthly March–November*)
- › Last Fridays Festival Series (*monthly April–September*)
- › Handmade Parade and Handmade Market (*April*)
- › River Park Concert (*Spring and Fall*)
- › Ladies Night Out (*Spring and Fall*)
- › Hillsborough Garden Tour (*Spring in odd-numbered years*)
- › Carolina Tarwheels BikeFest (*Summer*)
- › Hillsborough Hog Day barbecue festival (*Fall*)
- › Moorefields Bluegrass Festival (*Fall*)
- › Historic Hillsborough Half Marathon and 5K (*Fall*)
- › Hillsborough Halloween Spirits Tours (*Fall*)
- › Hillsborough Holiday Parade and Tree Lighting (*Winter*)
- › Solstice Lantern Walk (*Winter*)
- › Revolutionary War Living History Day (*Spring*)
- › Uproar Public Art Festival (*Bi-annually, Summer*)

The most popular of these events include the Handmade Parade, Last Fridays, Hog Day, Hillsborough Half Marathon, and River Park Concert. Uproar is a new festival added in 2023. The Handmade Parade is a walking theatrical performance on Churton Street. Last Fridays takes place monthly between March and November and host live music, gallery exhibits, dancing, poetry, and more. Hog Day is Orange County's longest running festival. The two-day event features pulled pork competitions, music, crafts, emergency vehicle displays, antique cars, a 5K run, and children's activities.



Handmade Market



Handmade Parade



## What We've Heard

Throughout the planning process for this plan, stakeholders and community members provided input on strengths and opportunities related to economic development and tourism. Several key concepts heard from the focus groups are noted throughout this section in blue text.

### Promoting the Business Community

Hillsborough should leverage existing tourism and marketing resources to promote the business community and make sound investments in the public realm. Stakeholders emphasized that Hillsborough's arts, food, and culture are vital elements critical for tourism in Hillsborough and are a priority for the community. To sustain tourism, Hillsborough should encourage and develop these areas.

*The meals and hotel tax are very helpful to the town's arts and businesses and are one way the town can reduce negative environmental impacts that tourism may have on the town. It's important for bars, restaurants and hotels to see a return for the tax.*

Hillsborough's growth and sustainability should be measured and tracked to properly understand current and future needs. Hillsborough must be mindful of growth and think about the sustainability of nonprofit organizations to ensure they are well funded and supported within the town.

### Hillsborough's Brand and Communication

Arts and culture events often compete with Carrboro, Chapel Hill, Durham, and Raleigh; therefore, increasing brand awareness of Hillsborough is valued by stakeholders. Communication among the town, residents, and downtown merchants is important. One solution stakeholders recommended is having a specific person to shepherd communication and collaboration efforts within the downtown and greater area.



Arts and culture events of Hillsborough



Hillsborough could benefit from having a dedicated downtown development manager/special event coordinator, which is a requirement for the Main Street America program that also would be beneficial to the town. Such a position could fulfill the role of a downtown special event facilitator, and joining the Main Street America program could further Hillsborough's economic development goals.

*Targeted marketing that uses collaboration to reach those who might want to join the conversation, such as senior citizens or the general public.*

## Event Venues

Indoor event venues for cultural and performing arts was noted as a high need by stakeholders. Since many of Hillsborough's existing events are outdoors, having an indoor space can help in planning for events regardless of weather conditions and can provide greater access to all members of the community.

*Residents identified a need in Hillsborough for music and performance venues, which could be an opportunity for collaborating on different space appropriate for music shows. Efforts should be made to keep such ideas on the table when discussing future recreational projects or opportunities for additional venue capacity within new developments.*



Music event in Hillsborough

# Economic Development & Tourism

## Goals and Actions

These goals outline Hillsborough's priorities regarding economic development and tourism. These strategies and recommended actions identify how Hillsborough will reach its goals while supporting the overall health of its economy.

### Goals

- 1** Support the development of a sustainable local economy by focusing on long-term balanced economic growth.
- 2** Foster a sustainable and resilient economic system that yields equitable outcomes and improved quality of life for all.
- 3** Increase access to opportunity, education, employment, and wealth.
- 4** Continue to develop and maintain a sustainable and effective tourism program.



# Strategies

## **Plan for and monitor progress toward meeting economic system and tourism goals in an equitable and sustainable manner.**

- › Develop and adopt a local business support plan that includes initiatives for supporting disadvantaged business enterprises.
  - › Create a process and database for business owners to document business certifications (e.g, woman-owned, veteran-owned, BIPOC-owned, small business).
- › Conduct market analysis and schematic plan or planned unit layout for the future train station property.
- › Conduct a downtown parking study and develop and adopt a long-range parking plan.
- › Update the hazard mitigation plan to incorporate potential economic disruptions and post-disaster economic recovery strategies.

## **Develop and adopt policies that contribute toward meeting economic system and tourism goals in a sustainable and equitable manner.**

- › Promote the economic development incentive policy.
- › Develop a snow removal policy for sidewalks in the Central Commercial District.
- › Promote and encourage tourism events, programs, and projects that bring people to a variety of neighborhoods and commercial areas in town.

## **Invest in public projects that contribute to meeting economic system and tourism goals.**

- › Complete train station development master plan.
- › Continue to develop and implement the interpretive and wayfinding signage programs.
- › Update the town website to highlight economic development and tourism opportunities.
- › Initiate one project per year that provides new visitor or general public amenities or beautification to town.
- › Investigate options to provide façade grants to local businesses.
- › Conduct semi-annual market analysis on visitor data and demographics to inform marketing plans.

## **Participate in partnerships and programs that contribute toward meeting economic system and tourism goals in a sustainable and equitable manner.**

- › Coordinate with and support organizations and agencies that provide jobs, employment education, and training opportunities.
- › Continue to qualify as an Orange County living wage employer and help to market and promote the program to area employers.
- › Partner with Orange County and other organizations on workforce training and development programs.

- › Strengthen partnerships with local and regional government, educational institutions, employers and businesses, and nonprofit organizations to increase economic opportunity.
- › Coordinate with and support organizations and agencies that provide business support programs.
- › Coordinate with and support organizations and agencies that provide tourism programming in Hillsborough (Orange County, Visitors Bureau, Chamber of Commerce, Hillsborough Visitors Center, and others).
- › Coordinate with and support organizations and agencies on resilience and preparedness planning.

### **Adopt development regulations that contribute to meeting economic system and tourism goals in a sustainable and equitable manner.**

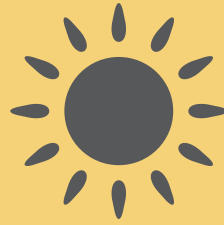
- › Update and rewrite the Unified Development Ordinance and Future Land Use Plan to incorporate sustainability, environmental and climate best practices, economic resiliency, and equity measures in development and redevelopment.
- › Review and update signage regulations as part of the Unified Development Ordinance rewrite.
- › Review and update sidewalk dining regulations as part of the Unified Development Ordinance rewrite.
- › Review and update the noise ordinance to ensure it meets the needs of residents and the business community.
- › Refine regulations and processes to make it easier to start, expand, or relocate a business with flexibility to support compatible businesses in residential neighborhoods.

### **Engage with community groups and individuals on topics and decisions that contribute toward building and maintaining sustainable and resilient economic systems and tourism program.**

- › Practice equitable and authentic community engagement on topics related to economic systems and tourism.
- › Educate town staff and elected officials on available economic development incentives and strategies.
- › Educate the community on the nondiscrimination ordinance that prohibits discrimination in public accommodations and employment.
- › Provide economic development education and outreach materials.
- › Provide information on the town website and through town communication channels about activities and initiatives that contribute toward sustainable economic systems and the tourism program.
- › Enforce ordinances and policy that provide for a vibrant, economically successful community while maintaining a high quality of life for residents.







# Climate & Energy

The climate crisis continues to threaten the health of the planet and negatively affect billions of lives worldwide. The United Nations Department of Economic and Social Affairs states that over the current decade, global emissions are estimated to increase by almost 14%, which could lead to a climate catastrophe unless governments, the private sector, and civil society work together to take immediate action.<sup>1</sup> Addressing climate impacts and conserving energy are foundational elements of creating a more sustainable future.

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<sup>1</sup> United Nations Department of Economic and Social Affairs. "Sustainable Development Goals: Goal 13." Retrieved from <https://sdgs.un.org/goals/goal13>



## Clean Energy Pledge

In 2017, the Town of Hillsborough set a goal to transition from using fossil fuels to power operations to using 100% clean and renewable energy by the year 2050 and 80% by 2030 to build a more resilient and sustainable community. The clean energy resolution, below and available on the town's website, was a driving force behind the development of this Hillsborough Comprehensive Sustainability Plan. This chapter serves as the Town of Hillsborough Climate Action Plan. It includes goals, strategies, and actions to meet the clean energy goals and prepare for hazards expected to be exacerbated or brought on by climate impact.



### **Resolution Supporting the Goal of 100% Clean Energy by 2050 for the Town of Hillsborough, and the Fostering of a Resilient and Sustainable Community**

Whereas, climate change is real, is affecting our community now, and the choices we make today will affect future generations;

Whereas, climate change is human-caused, primarily due to emissions from burning coal, oil, and natural gas, is already affecting and will continue to affect North Carolina's temperatures, precipitation, and sea level with harmful consequences;

Whereas, 15 of the 16 hottest years on record have occurred since the year 2000, and the 3 hottest years on record were 2014, 2015, and 2016;

Whereas, the ongoing increase in global temperature, if not stopped, will continue having major adverse impacts on both natural and human-made environments including the effects of more and frequent and intense extreme weather events;

Whereas, the harmful consequences are already being felt locally and across the state, for example, in wetter, more destructive storms; longer, deeper droughts, and heavy rains that threaten our local food system and economy; increased suffering from seasonal allergies and asthma; increased threat and instances of tick-borne and other diseases;

Whereas, these consequences will be most severe for low-income neighborhoods and communities; low-income communities and communities of color in North Carolina and the United States are inordinately exposed to pollution, which causes serious health problems such as cancer and asthma, from fossil fuels, including the dirtiest coal-fired power plants, which produce coal ash, are disproportionately located in communities of color; and the town of Hillsborough contributes to that pollution by dependency on coal-fired energy;

Whereas all scientific bodies in the U.S. and the world have concluded, based on the evidence, that human activities are the dominant cause of climate change. These scientific bodies include the Intergovernmental Panel on Climate Change, U.S. National Academy of Science, American Meteorological Society, U.S. Environmental Protection Agency, U.S. Department of Defense, and many more;

Whereas, leading economists, policy experts, and business leaders conclude that transitioning to a clean energy economy available for all would create millions of green jobs nationally and improve the living standard for a wider range of people;

Whereas, Stanford University and University of California-Davis studies conclude the United States energy supply could be based entirely on renewable energy by the year 2050 using current technologies and 80% renewable energy by 2030, while creating numerous green jobs;

Whereas the Intergovernmental Panel of Climate Change Fifth Assessment Report found that near zero greenhouse gas emissions are necessary to stabilize the global temperature and avoid climate catastrophe;

Whereas government bodies at every level, including local government, have a moral obligation to adopt practices and policies to make our communities more resilient to the consequences of climate change and prevent climate change from getting worse, wherever possible;



Whereas, North Carolina installed 1,140 MW of solar electric capacity in 2015, ranking our state second in the nation; and nearly \$1.7 billion was invested on solar installations in North Carolina; and there are currently more than 200 solar companies at work throughout the value chain in North Carolina; and there are state companies employing some 6,000 people; and North Carolina ranks third in the nation in installed solar capacity, enough to power 260,000 homes; and North Carolina has more offshore wind energy potential than any Atlantic state;

Whereas, 600 colleges and universities including 20 North Carolina (and four Triangle-based) institutions of higher learning have committed to reduce greenhouse gases; the Mayor of Hillsborough has signed on to the Climate Mayors Agreement; the Mission of the Town is to act as stewards of the Public trust to “manage, provide the infrastructure, resources, and services that enhance the quality of public life for the living beings and land within our town”; and the Town is pledged to serve the Community by enhancing economic vibrancy;

Now therefore, be it resolved by the Hillsborough Town Board that it endorses the following;

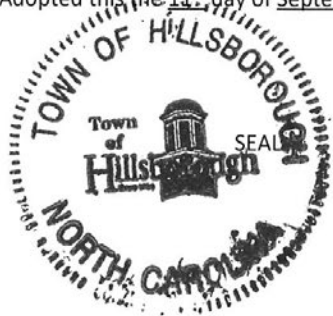
Section 1. The Town of Hillsborough, North Carolina shall establish a transition from fossil fuel-powered operations to 100% clean/renewable energy by December 31, 2050 or sooner and 80% clean, renewable energy by 2030, to build a more resilient community, promote an environmentally sustainable economy, and to protect our local community and the Earth for current and future generations. This commitment shall aspire to transition all energy sectors in town operations, including electricity, heating and cooling, and transportation. Clean, renewable energy is defined as carbon and pollution free energy sustainably collected from renewable sources including wind, solar, and geothermal. Other approaches may be included after being evaluated for sustainability and environmental justice implications. The Town firmly commits to achieving equity, affordability, and access for all members of the community in the transition to renewable energy. Nuclear, natural gas, coal, oil based, or any other forms of carbon-based energy production are not included as clean or renewable sources of energy.

The Town also calls on The State of North Carolina to establish a transition from fossil fuels to 100% clean renewable energy for all energy sectors by 2050 or sooner and 80% clean renewable energy for all energy sectors by 2030. We appreciate Governor Cooper’s current efforts on clean energy, and call for Governor Roy Cooper to establish a Governor’s Work Group to assist local governments across the state achieve this goal, and for the North Carolina General Assembly to enact policies and budgetary decisions that support a sustainable, clean energy economy for our state. Furthermore, we commit to a transparent and inclusive process for planning and implementation, ensuring that the public has an opportunity to participate as the town adopts a transition roadmap.

The Town commits to work with surrounding communities and municipalities in achieving aligned clean energy and equity goals as well as advocating for policies or regulations at the state, regional and/or federal level that aid our Town in this just transition.

Section 2. This resolution is effective upon adoption.

Adopted this the 11<sup>th</sup> day of September, 2017.



  
Tom Stevens, Mayor

ATTEST:

  
Katherine Cathey, Town Clerk





# Introduction

The harmful consequences of climate change, which will be referred to as climate impacts in this chapter, are being felt locally and across North Carolina through wetter, more destructive storms; longer, deeper droughts; and heavy rains that threaten the local food system and economy.<sup>2</sup> People with lower incomes and from racial and ethnic minority groups in North Carolina and the United States are most directly impacted by dirty energy (i.e., oil, gas, and coal) because coal-fired power plants and similar operations are disproportionately located in these communities. As a result, vulnerable populations are inordinately exposed to the pollution released from the burning of fossil fuels, which is linked to cancer, asthma, and other health problems. Addressing climate action through an equity and justice lens acknowledges that the consequences of climate change and fossil fuel use are disproportionately borne by people who are at higher risk and seeks to remedy the unequal burden.

Clean and renewable energy sources, such as solar and wind, release zero greenhouse gas emissions during power production. They also are often less expensive, provide price certainty, contribute to energy resilience, and can lead to job growth, economic development, and environmental benefits. As the term “renewable” implies, clean energy is abundant and cannot be depleted in the same way as fossil fuel sources like coal or natural gas.

It is critical for Hillsborough to prepare for the hazards expected to be exacerbated by climate change as well as adapt to changing conditions. Smart growth principles assist communities in mitigating and adapting to climate change through reducing building footprints, reducing costs and energy associated with transportation, and improving connections to living, working, and playing. This focus on sustainability for the town—identifying areas to sustain and grow, and coordinating land use patterns—will prepare the community will prepare the community for the projected climate changes.



### What are fossil fuels?

Non-renewable fuels made from decomposing plants and animals, such as coal, crude oil, and natural gas. The burning of fossil fuels generates greenhouse gas emissions.



### What is climate change?

Long-term shifts in temperatures and weather patterns, which can have consequences such as rising sea levels, flooding and droughts.



### What are greenhouse gases?

Gases that trap heat in the earth's atmosphere, primarily including carbon dioxide, methane, and nitrous oxide. This heat-trapping process contributes to climate change.



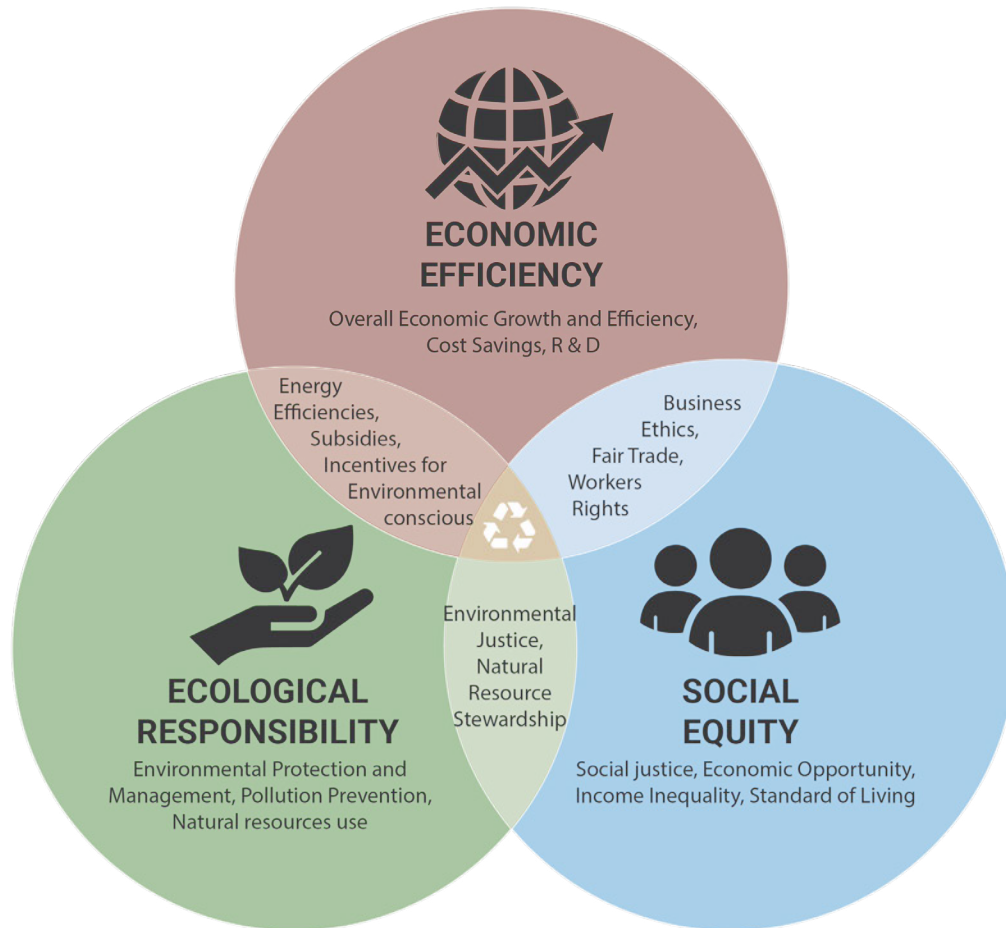
### What is clean energy?

Sources of energy that release zero greenhouse gas emissions during power production. Examples include solar energy, wind energy, hydropower, and geothermal energy.

<sup>2</sup> Town of Hillsborough (September 11, 2017). Resolution Supporting the Goal of 100% Clean Energy by 2050 for the Town of Hillsborough, and the Fostering of a Resilient and Sustainable Community.



**Figure 10.1.** Three E's of Global Sustainability



Sustainability planning requires holistic thinking to better understand how a community can balance environmental stewardship, economic prosperity, racial justice, and quality of life while reducing contributions to climate change and adapting to expected impacts, such as heatwaves and flooding, as demonstrated in *Figure 10.1*.

For hundreds of years, the burning of fossil fuels, deforestation, and other human activities have increased the levels of carbon dioxide and other greenhouse gases in the atmosphere, culminating in the climate crisis. To avoid the most catastrophic impacts of climate change, world leaders reached an historic agreement (the Paris Agreement) at the U.N. Climate Change Conference held in December 2015. The Paris Agreement calls for limiting the global average temperature to a maximum increase of 2°C above the pre-industrial baseline, with a goal to keep warming below 1.5°C. In 2020, the global average temperature reached 1.2°C above this pre-industrial baseline.<sup>3</sup> Continued warming will exacerbate the climate impacts already being felt around the world, including temperature extremes, droughts, water availability, flooding, sea level rise, species extinction, and food insecurity.

<sup>3</sup> United Nations Department of Economic and Social Affairs. "Sustainable Development Goals: Goal 13." Retrieved from <https://sdgs.un.org/goals/goal13>



## Planning Context

In 2017, the Town of Hillsborough adopted a resolution supporting the goal of using 100% clean and renewable energy by 2050. This commitment, which applies to all energy-consuming sources in town operations (including electricity, heating and cooling, and transportation), includes an interim goal of using 80% clean and renewable energy by 2030. The town’s clean energy pledge guides town operations, and the associated climate goals are supported by federal, state, and regional initiatives to reduce energy use and greenhouse gas emissions.

## Federal Initiatives

There are significant efforts occurring within the federal government to analyze, monitor, and address climate impacts. Providing current and accurate climate-science information is a priority for the United States Environmental Protection Agency (EPA). The United States is part of the Paris Agreement and established the National Climate Task Force, which is generating solutions for:

- › Reducing U.S. greenhouse gas emissions 50% to 52% below 2005 levels by 2030.
- › Reaching 100% carbon pollution-free electricity by 2035.
- › Achieving a net-zero emissions economy by 2050.
- › Delivering 40% of the benefits from federal investments in climate and clean energy to disadvantaged communities.



## State Initiatives

### North Carolina Executive Order No. 80

In October 2018, Governor Roy Cooper signed Executive Order No. 80: *North Carolina’s Commitment to Address Climate Change and Transition to a Clean Energy Economy*.<sup>4</sup> The order called for the state to support the 2015 Paris Agreement goals and honor the state’s commitments to the U.S. Climate Alliance by striving to accomplish three objectives by 2025. These objectives included:

- › Reducing statewide greenhouse gas emissions to 40% below 2005 levels.
- › Increasing the number of registered, zero-emission vehicles to 80,000.
- › Reducing energy consumption per square foot in state-owned buildings by 40% from 2002–2003 levels.

The executive order also called on state agencies to evaluate climate change impacts on their programs and operations and integrate climate impacts mitigation and adaptation practices into these programs. Importantly, the order brought about the development of the North Carolina Clean Energy Plan.



<sup>4</sup> North Carolina Executive Branch. (2018). "Executive Order No. 80: North Carolina’s Commitment to Address Climate Change and Transition to a Clean Energy Economy." Retrieved from <https://governor.nc.gov/media/967/open>





## North Carolina Clean Energy Plan

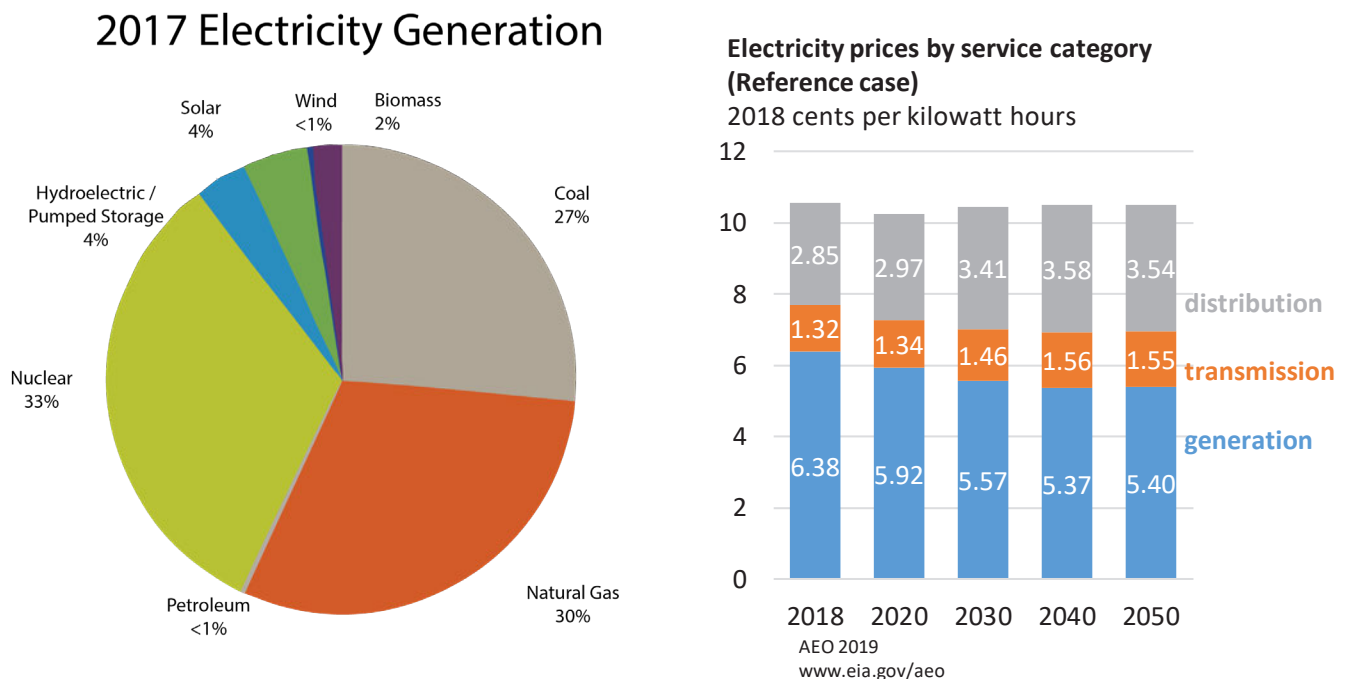
Directed by Executive Order 80, the North Carolina Department of Environmental Quality developed the North Carolina Clean Energy Plan.<sup>5</sup> The plan encourages the use of clean energy resources, including energy efficiency, solar, wind, energy storage, and other innovative technologies, in the public and private sectors and the integration of those resources to facilitate the development of a modern and resilient electric grid.

The plan also details the capacity levels and electricity generation by resource type, demonstrating that traditional fuel resources (coal, nuclear gas, and nuclear stations) generate most of the state's annual output (see *Figure 10.2* for excerpts from the plan).

While prices of electricity generation are expected to decrease over time, cost for transmission and distribution will increase, keeping the overall cost relatively the same. This plan, which was presented to Governor Cooper in September 2019, sets the following goals for North Carolina:

- › Reduce electric power sector greenhouse gas emissions by 70% below 2005 levels by 2030 and attain carbon neutrality by 2050.
- › Foster long-term energy affordability and price stability for North Carolina's residents and businesses by modernizing regulatory and planning processes.
- › Accelerate clean energy innovation, development, and deployment to create economic opportunities for both rural and urban areas of the state.

**Figure 10.2.** N.C. Clean Energy Plan Excerpts



<sup>5</sup> North Carolina Department of Environmental Quality. (2019). "North Carolina Clean Energy Plan: Transitioning to a 21st Century Electricity System." Retrieved from [https://files.nc.gov/ncdeq/cli-mate-change/clean-energy-plan/NC\\_Clean\\_Energy\\_Plan\\_OCT\\_2019\\_.pdf](https://files.nc.gov/ncdeq/cli-mate-change/clean-energy-plan/NC_Clean_Energy_Plan_OCT_2019_.pdf)



To achieve these goals and successfully transition to a clean energy future, the plan specified that the state would need to establish a 21st century regulatory model that incentivizes business decisions that benefit both the utilities and the public in creating an energy system that is clean, affordable, reliable, and equitable. As such, the plan included the following overarching recommendations.

- › Develop carbon reduction policy designs for accelerated retirement of uneconomic coal assets and other market-based and clean energy policy options.
- › Develop and implement policies and tools such as performance-based mechanisms, multi-year rate planning, and revenue decoupling that better align utility incentives with public interest, grid needs, and state policy.
- › Modernize the grid to support clean energy resource adoption, resilience, and other public interest outcomes.

## House Bill 951

In October 2021, two years after the release of the North Carolina Clean Energy Plan, Governor Cooper signed House Bill 951: modernize Energy Generation (HB951) into law.<sup>6</sup> The bill was passed with bipartisan support and codified goals set forth in the plan.

Notably, the law requires the North Carolina Utilities Commission to take steps needed to reach a 70% reduction in carbon emissions from 2005 levels by 2030 and achieve carbon neutrality by 2050. In the context of this bill, carbon neutrality means that for every ton of carbon dioxide emitted in the state from electric generating facilities owned or operated by (or on behalf of) electric public utilities, an equivalent amount of carbon dioxide is reduced, removed, prevented, or offset. Any offsets used must be verifiable and not exceed 5% of the authorized reduction goal.

In addition to cutting carbon emissions, the law will retire coal-fired power plants and replace them with solar and other renewable energy options, meaning that clean and renewable energy sources will be fundamental for North Carolina's electric grid. For solar specifically, utility companies will need to purchase 45% of their solar power from small power producers.

## Executive Order 246

In January 2022, Governor Cooper issued Executive Order 246: North Carolina's Transformation to a Clean, Equitable Economy.<sup>7</sup> This order builds upon the governor's previous actions to support clean and renewable energy, including Executive Order 80 and House Bill 951, and directs next steps in the state's plan to achieve net zero greenhouse gas emissions and create economic opportunities for North Carolinians across the state, especially in under-served communities.

Executive Order 246 updates North Carolina's carbon emissions reduction goals to align with climate science, reduce pollution, create jobs, and protect communities. It increases the statewide goal to a 50% reduction from 2005 levels by 2030 and aims to achieve net zero greenhouse gas emissions as soon as

<sup>6</sup> General Assembly of North Carolina. (2021). "House Bill 951: Modernize Energy Generation." Retrieved from <https://www.ncleg.gov/Sessions/2021/Bills/House/PDF/H951v5.pdf>

<sup>7</sup> North Carolina Executive Branch. (2022). "Executive Order No. 246: North Carolina's Transformation to a Clean, Equitable Economy." Retrieved from <https://governor.nc.gov/media/2907/open>



possible, with a hard deadline of 2050. Accordingly, the order directs the state to update a statewide greenhouse gas emissions inventory to measure current emissions levels and evaluate potential pathways for achieving net zero greenhouse gas emissions by 2050.

As part of the clean energy transition, the order also calls for an increase of zero-emission vehicles and directs the North Carolina Department of Transportation (NCDOT) to develop a clean transportation plan for decarbonizing the transportation sector.

## N.C. Clean Transportation Plan

NCDOT is currently developing the N.C. Clean Transportation Plan through collaboration with stakeholders across the state to create plans for the rapid decarbonization of the transportation sector. The plan will include actionable strategies associated with:

- › Availability and usage of zero-emission vehicles, focusing on medium and heavy-duty vehicles.
- › How to reduce vehicle miles traveled.
- › Increasing clean transportation infrastructure.
- › Expanding multimodal options.
- › Transitioning to zero- and low-emission fuels.
- › Equitable access to mobility options.

NCDOT recently completed the statewide Electric Vehicle Infrastructure Deployment Plan to drive the development of the state's public electric vehicle charging network. This plan demonstrates the proposed alternative fuel corridors based on guidance from the National Electric Vehicle Infrastructure Program. This program includes \$5 billion over five years (2022–2027) to build out a national electric vehicle charging network, with North Carolina expected to receive approximately \$109 million.<sup>8</sup>

The Electric Vehicle Infrastructure Deployment Plan identifies I-85 as an alternative fuel corridor and Hillsborough as a community that has an existing station (Sheetz 647) that meets National Electric Vehicle Infrastructure criteria (see *Figure 10.3*).

Progress also continues to be made on the North Carolina Zero Emission Vehicle Plan, originally published in 2019. The August 2022 plan update summarizes the progress on many zero-emission vehicle initiatives in the state, including:

- › A 220% increase in the number of registered electric vehicles (battery and plug-in hybrid).
- › Using Volkswagen settlement funds for 6 electric school buses, 11 electric transit buses, and \$3+ million in charging infrastructure.
- › Participating in a multi-state medium- and heavy-duty, zero-emission vehicle memorandum of understanding.
- › Adding 41 zero-emission vehicles to the state motor fleet and ordered 500+ hybrid vehicles.
- › Adding climate change policy advisors to NCDOT and the Governor's Office.

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<sup>8</sup> North Carolina. (2018). "2018 North Carolina State Building Code: En





**Figure 10.3.** Alternative Fuel Corridors and Existing Stations Meeting National Electric Vehicle Infrastructure Criteria



Source: NCDOT Statewide Electric Vehicle Infrastructure Deployment Plan

## Additional Statutes and Regulations

In addition to the regulatory policy described above, the Town of Hillsborough is subject to the 2018 North Carolina Energy Conservation Code, based on the International Energy Conservation Code 2015 (IECC 2015).<sup>9</sup> The energy conservation code provides minimum efficiency standards, such as wall insulation.

North Carolina is also one of over 30 states with a Renewable Portfolio Standard. This standard requires that a specified percentage of the electricity sold by utilities is generated from renewable sources. Such standards are put in place by states to diversify energy resources and promote domestic energy production, among other reasons. North Carolina's Renewable Energy and Energy Efficiency Portfolio Standard was enacted in 2007 and requires all investor-owned utilities in the state to procure 12.5% of their retail electricity sales through renewable energy resources or energy efficiency measures by 2021. Rural electric cooperatives and municipal electric suppliers are mandated to procure 10% of their electricity sales from renewable sources.<sup>10</sup>

**Funding opportunities are available for electric vehicle charging and fueling infrastructure, particularly through the USDOT's Charging and Fueling Infrastructure Grant Program. This program will provide \$2.5 billion over 5 years (starting in 2022-2023) to deploy electric vehicle charging infrastructure and other fueling infrastructure projects in communities around the country.**

<sup>9</sup> North Carolina. (2018). "2018 North Carolina State Building Code: Energy Conservation Code." Retrieved from <https://codes.iccsafe.org/content/NCECC2018>

<sup>10</sup> North Carolina Utilities Commission. (2007). Renewable Energy and Energy Efficiency Portfolio Standard (REPS). Retrieved from <https://www.ncuc.net/Reps/reps.html>



## Regional Initiatives

There is substantial coordination occurring at the regional level with Hillsborough, surrounding municipalities, and Orange County to address climate impacts and prioritize clean energy. This is driving forward movement in the region, but it is important to understand that resolutions and policy adhere to jurisdictional boundaries. As such, the town does not have jurisdiction over Orange County facilities, nor does Orange County have a role in managing town facilities.

### Orange County

Orange County has a sustainability program that sets goals and targets for both operational and county sustainability. This program also administers the Community Climate Action Grant Program, which provides funding for climate impacts mitigation and resilience projects. In addition to this program, like the Town of Hillsborough, Orange County is guided by a clean energy resolution. The Intergovernmental Climate Council of Orange County, formed by the county and the towns of Hillsborough, Carrboro, and Chapel Hill, to coordinate on climate related issues including exchanging information, maintaining and updating an inventory of climate change initiatives, promoting communication, providing informational updates, and sharing public education and outreach. Orange County has had a specific line item in the county's budget since 2019 that supports county projects addressing climate change. The budget is funded with a quarter-cent property tax rate.

### Clean Energy Resolution

On June 6, 2017, the Board of Orange County Commissioners passed a resolution to proportionally uphold the Paris Climate Agreement to reduce greenhouse gas emissions between 26% and 28% by 2025 from 2005 levels. The following September, the board adopted a resolution to transition to a 100% renewable energy-based economy by 2050. For Orange County facilities, the county has set a utility reduction goal to reduce the energy intensity (i.e., energy used per square foot) of these facilities by 3% compared to the previous year. These goals build on previous work and are supported by countywide programs addressing building energy consumption, vehicle fuel savings, water consumption, and other aspects of community sustainability.<sup>11</sup>

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<sup>11</sup> Orange County, North Carolina. (n.d.). Goals and Targets. Retrieved from <https://www.orangecountync.gov/479/Goals-and-Targets>



## Other Regional Initiatives

- › The Triangle J Council of Governments has been a leader in clean energy and hosts the Triangle Clean Cities program, which focuses on advancing affordable, domestic transportation fuels, energy efficient mobility systems, and other fuel-saving technologies and practices through partnerships within the region.<sup>12</sup>
- › There are numerous nonprofit organizations with a mission to address climate change threats. These organizations provide technical analyses and coordination efforts that are valuable to the local municipalities.
- › The Cities Initiative, led by the Environmental Defense Fund, is a collaborative effort among North Carolina local governments that are working to reduce their greenhouse gas emissions. In 2018, a dozen cities came together to identify 12 action items to accelerate greenhouse gas reductions in North Carolina. The next phase of the Initiative will include the development of strategies to implement the identified actions.
- › Public Level 2 Electric Vehicle Supply Equipment Location Suitability Analysis, detailed below (see *Figure 10.4*).

## Level 2 Electric Vehicle Supply Equipment Location Suitability Analysis

Orange County, the University of North Carolina at Chapel Hill, and the towns of Carrboro, Chapel Hill, and Hillsborough recently developed the Public Level 2 Electric Vehicle Supply Equipment Location Suitability Analysis, which demonstrates areas within the county that may be well suited for new public electric vehicle charging stations. Level 2 chargers can take between 2.5 and 4.5 hours to recharge a typical electric vehicle, while Level 3 charging can recharge a vehicle in 30 to 40 minutes. This analysis will assist in prioritizing projects, development, and competing for federal and state funding opportunities. As demonstrated in *Figure 10.4*, several pockets of Hillsborough are extremely well suited for electric vehicle supply equipment. This model is a publicly-available resource and is posted on the town's website.

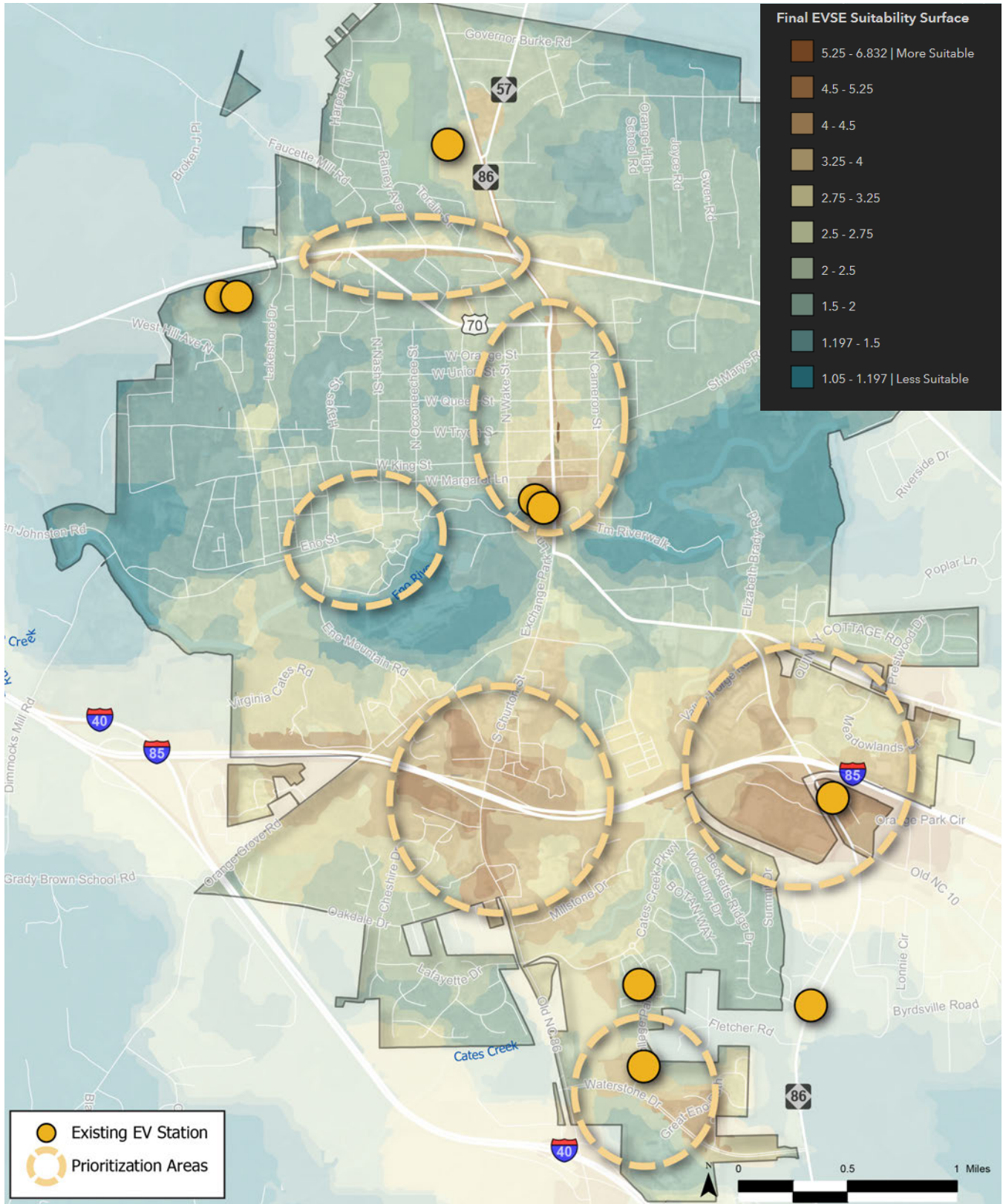
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<sup>12</sup> <https://tricleancities.org/about/about-us/>





**Figure 10.4.** Public Level 2 Electric Vehicle Supply Equipment Suitability Analysis Map



Source: Orange County Level 2 Electric Vehicle Supply Equipment Location Suitability Analysis



## Local Initiatives

As mentioned, the Town of Hillsborough has adopted a resolution supporting the goal of using 100% clean and renewable energy by 2050 to build a more resilient community, promote an environmentally sustainable economy, and protect the environment for current and future generations. This commitment, which applies to all energy-consuming sources in town operations (i.e., electricity, heating and cooling, and transportation), includes an interim goal of achieving 80% clean and renewable energy by 2030.

Qualifying sources of energy include solar energy, wind energy, hydropower, and geothermal energy. Nuclear, natural gas, coal, oil, or any other forms of carbon-based energy production are not included as clean or renewable sources of energy.

The development of Hillsborough’s clean energy resolution was informed by research on the future of clean energy that was available at that time. Studies conducted by Stanford University and the University of California, Davis concluded that the U.S. energy supply could be based entirely on renewable energy by the year 2050 using current technologies and 80% renewable energy by 2030, while creating numerous green jobs.

As part of the Clean Energy Resolution, the Town of Hillsborough called on the State of North Carolina to mirror its renewable energy goals for 2030 and 2050. Further, the town asked for the establishment of a governor’s work group to assist local governments across the state in achieving this goal and for the North Carolina General Assembly to enact policies and budgetary decisions that support a sustainable, clean energy economy for the state.



**The resolution also builds on a previous commitment made by the town, including joining Climate Mayors ([www.climatemayors.org](http://www.climatemayors.org)). Climate Mayors is a network of more than 470 member cities across the United States that have committed to greenhouse gas emissions reductions and upholding the Paris Agreement through significant climate action and policy.**

The commitments at a regional and state level will assist the town in reducing its greenhouse gas emissions associated with purchased electricity leading up to its 100% clean and renewable energy by 2050 commitment and will also reduce the town’s need to develop on-site renewable energy systems or otherwise enter into renewable energy contractual agreements to meet this commitment.



# Town of Hillsborough Baseline Energy Assessment

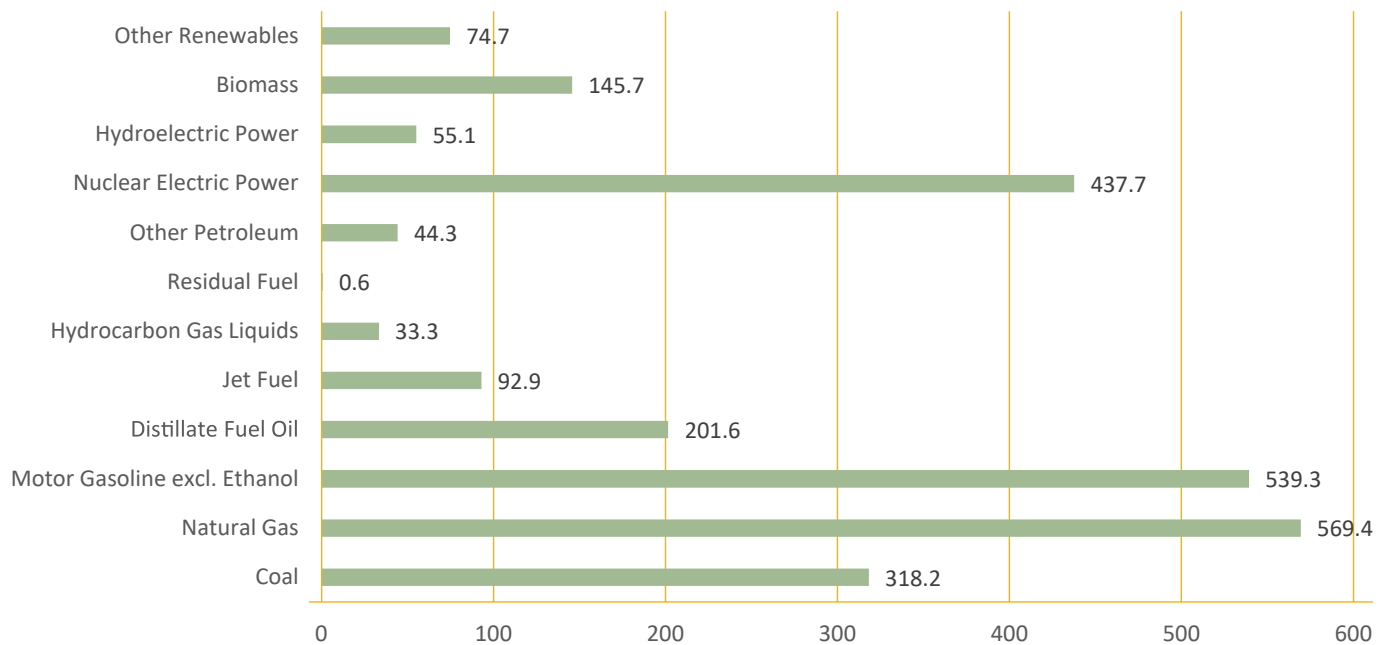
The following sections summarize baseline energy supply and consumption data pertinent to the Town of Hillsborough facilities. The statewide energy landscape discussed provides useful context for understanding local energy supply and consumption in Hillsborough.

## Summary of Statewide Energy Landscape

North Carolina consumes energy from various sources, including renewable resources and fuel derived from fossil fuels. In 2019, the primary fuel sources used for energy were natural gas (22.7%), motor gasoline (21.5%), and nuclear electric power (17.4%). *Figure 10.5* provides an estimate of total energy consumption by source, spanning all sectors.

In terms of supply and transport, the major gas companies operating in North Carolina include Piedmont Natural Gas, Dominion Energy North Carolina, and Frontier Natural Gas. The primary electric companies are Duke Energy (Progress and Carolinas), Piedmont Electric, and Dominion Energy North Carolina.

**Figure 10.5.** North Carolina Energy Consumption Estimates, Trillion British thermal units (Btu) (2019)



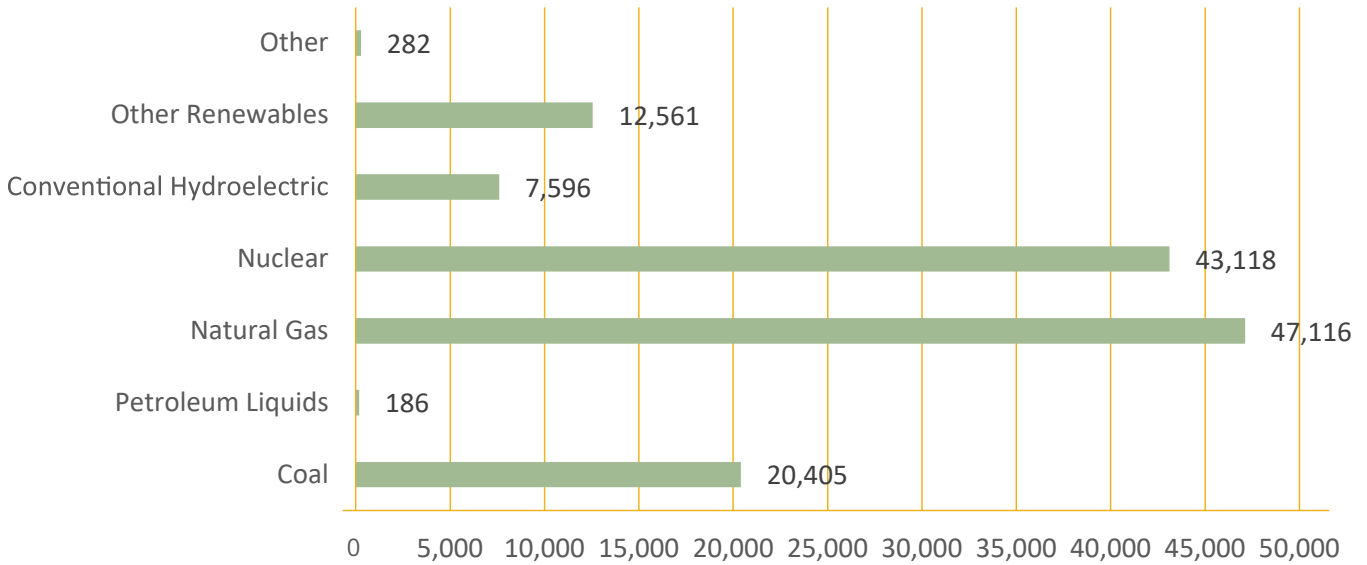
Source: Energy Information Administration, State Energy Data System





Figure 10.6 provides a snapshot of North Carolina’s electricity generation by source, using 2021 as a representative year. During this year, most of the state’s electricity was generated by natural gas (35.9%) or nuclear (32.8%) sources. Renewables were responsible for just 15.4% of total electricity generation.

**Figure 10.6.** North Carolina Net Electricity Generation by Source, Thousand Megawatt-hours (2021)



Source: Energy Information Administration, State Energy Data System

The share of renewable energy generation is expected to increase in the coming years and decades. For instance, Duke Energy is required by a law enacted in October of 2021 (House Bill 951) to achieve 70% reduction in carbon emissions below 2005 levels by 2030 and carbon neutrality for the electric power sector by 2050. Duke Energy filed its plan for how to meet the law’s requirements in May 2022 and numerous other parties submitted plans for how Duke Energy can achieve those goals more effectively and at lower cost. Many intervening parties have criticized Duke Energy’s proposed carbon plans for relying too heavily on new gas-fired power plants (both combustion turbines and a new combined cycle plant), for planning to convert gas plants to burn zero-carbon hydrogen when no such infrastructure for green hydrogen exists, and for assuming that they will be able to install small modular nuclear plants, a technology that is not yet commercially viable. The Town of Hillsborough has been an important advocate in pushing Duke Energy to meet carbon reduction goals in recent integrated resource planning dockets before the Utilities Commission. The Utilities Commission adopted an initial carbon plan in December 2022 to meet the carbon dioxide emissions reduction mandates of House Bill 951, which directs Duke Energy on several actions towards meeting the mandates.



In the meantime, North Carolina continues to be a leader in the nation for installed solar capacity and for electric vehicle charging and other markers of a clean energy future. In 2020, North Carolina ranked third in the United States for total installed solar power generating capacity and fourth in actual solar generation. Further, according to the N.C. Sustainable Energy Association:

- › Rooftop solar generation increased by 54 megawatts from 2019 to 2020, a 24% increase.
- › Utility-scale solar capacity increased by 474 megawatts from 2019 to 2020, a 10.4% increase.
- › The state ranked 14th in the number of electric vehicle charging stations and 26th for the number of stations per 1,000 people.
- › Clean energy brought North Carolina \$2.16 billion in revenue in 2018.

Recent growth in rooftop solar was spurred by Duke Energy's Solar Rebate Program, which expired in January 2023, and by reduced costs for solar installations that persisted until supply chain and inflationary pressures affected the market over the last year. Duke Energy has proposed a new incentive for rooftop solar installations that would recognize the benefit that behind-the-meter solar energy has for reducing the need for new power generation along with new net metering rates for solar customers that take advantage of a time-of-use framework that should encourage customers to reduce energy use at times of system peak demand.

Solarize the Triangle is a community-based, group-purchasing program for solar energy, battery storage, and other clean energy technologies in the Triangle region. The program's objectives include making solar energy more accessible and affordable, education, and advocacy for solar energy policies.



## Local Supply and Infrastructure

Energy supplied to the Town of Hillsborough primarily includes natural gas and electricity, as well as other fuel sources gasoline, diesel, and ethanol. The town is served by the electric utilities Duke Energy and Piedmont Electric and by the gas utility PSNC Energy, which is a subsidiary of Dominion Energy.<sup>13</sup>

While renewable energy technologies, such as hydroelectric, generate electricity in North Carolina, solar photovoltaic technology is currently the only type of renewable energy system generating electricity in Hillsborough. There are approximately 657 solar photovoltaic systems in Orange County, totaling 20.4 megawatts of installed capacity. Of this total, 15 megawatts is generated by four utility-scale systems (i.e., “front-of-the-meter” systems that sell the power they generate directly into the electric grid), none of which are in Hillsborough.<sup>14</sup>

The advancement of solar photovoltaic systems in the region is supported by Solarize the Triangle, a community-based, group-purchasing program for solar energy, battery storage, and other clean energy technologies. Orange County and the Town of Hillsborough are both program participants.

As of January 2023, there were 65 solar photovoltaic installations within Hillsborough (see *Figure 10.7*). Residential systems supply 90% of this total capacity, providing 0.27 megawatts through 44 systems. The remaining 5 systems are commercial and provide 0.07 megawatts of capacity. These commercial systems are at the Durham Technical Community College and Cup-A-Joe.<sup>15</sup> Additionally, solar photovoltaic systems are installed on each of the four in-town bus shelters, generating electricity for the shelters. Total renewable capacity in Hillsborough is 0.34 megawatts, which comprises 1.7% of Orange County solar capacity. Using population as a comparison point, Hillsborough has an estimated 0.05 kilowatts of solar capacity per capita, while Orange County has approximately 0.14 kilowatts per capita.

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<sup>13</sup> Some areas of Hillsborough are provided electricity by Piedmont Electric Membership Corporation, an energy cooperative based in Hillsborough. Piedmont Electric Membership Corporation purchases power from wholesale suppliers like Duke Energy rather than producing power itself.

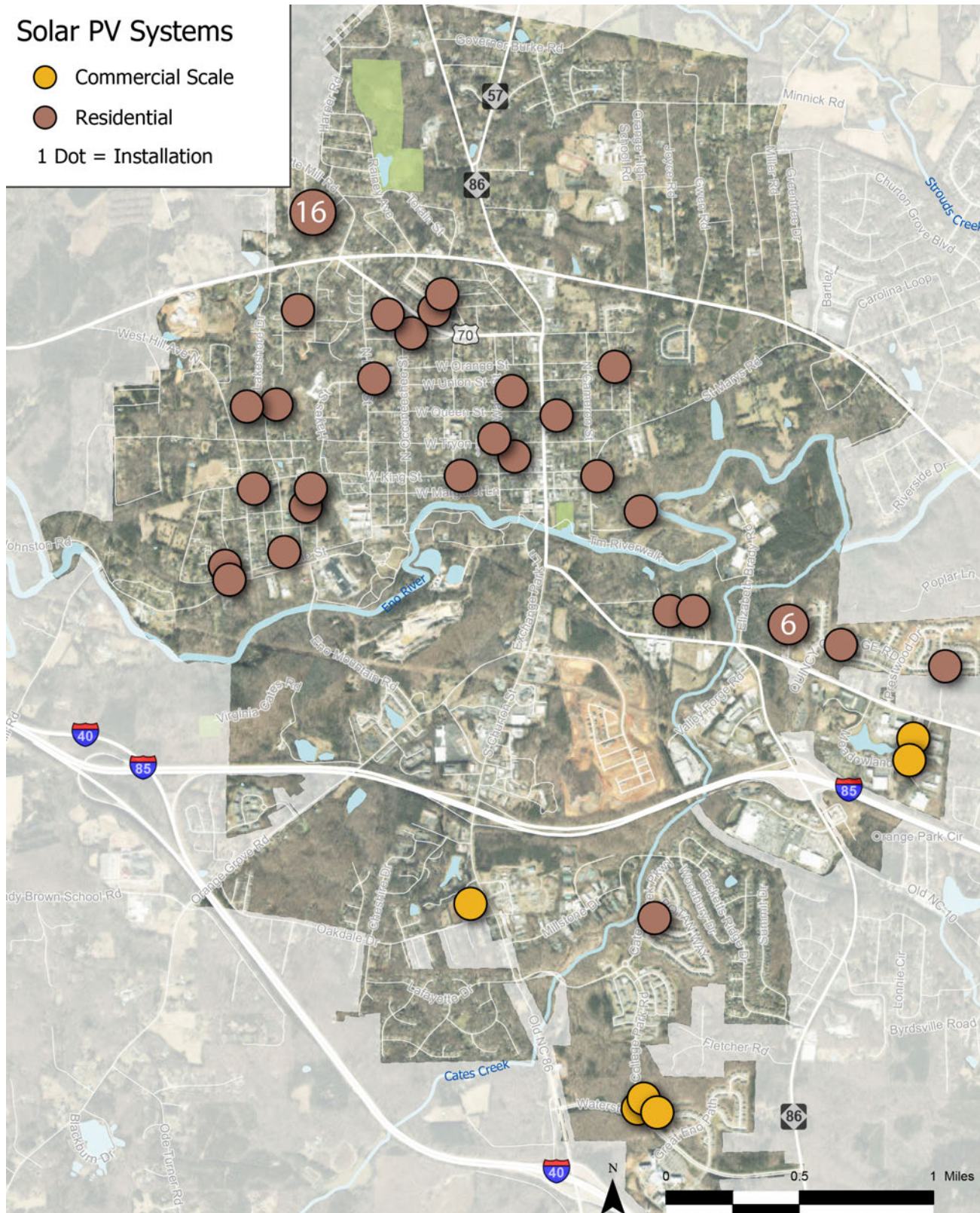
<sup>14</sup> N.C. Sustainable Energy Association. (2022). Interactive Maps. Retrieved from Clean Energy Maps | North Carolina Sustainable Energy Association ([energync.org](http://energync.org))

<sup>15</sup> N.C. Sustainable Energy Association. (2022). “local Government Clean Energy Report: Hillsborough, North Carolina.” Name noted as Joe Van Gogh Coffee Roastery.





**Figure 10.7.** Solar Photovoltaic Systems Installed in Hillsborough



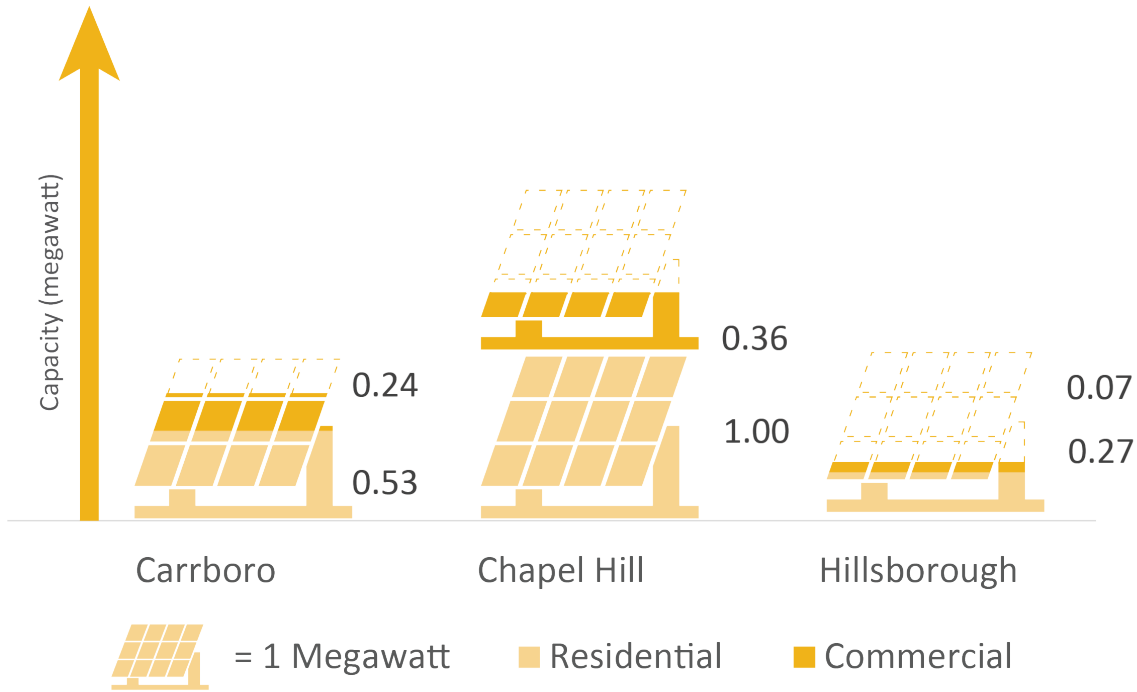
Source: N.C. Sustainable Energy Association, Town of Hillsborough



Since 2014, the number of solar energy systems in Hillsborough has grown over 1,300%, while overall generating capacity has increased by 2,500%. Compared to three of Hillsborough’s neighboring communities — Carrboro, Chapel Hill, and Durham — Hillsborough has fewer installed solar photovoltaic systems (see *Figure 10.8*) and the lowest renewable generating capacity (3.4 megawatts). None of these communities have utility-scale systems within their boundaries. There is a possibility for integrating storage systems with renewable energy projects (e.g., solar photovoltaic plus battery storage) for added benefits including augmented demand charge savings, added resilience, and environmental benefits. An energy storage system makes it possible to store electricity generated during the day to be used at another time.

The Town of Hillsborough does not have any contractual instruments for the procurement of renewable energy, such as renewable energy credits. Power purchase agreements and renewable energy credits are financial agreements to which a municipality would commit with a power generator (physically or virtually) to close the gap after maximizing on-site renewable energy generation. Physical power purchase agreements involve renewable electricity from a specific project located within the same regional transmission grid, while virtual agreements may involve projects that exist outside of the town’s power market. The town does not purchase carbon offsets (verified emissions reductions) to reduce greenhouse gas emissions attributable to its natural gas, gasoline, or diesel consumption.

**Figure 10.8.** Renewable Generating Capacity in Carrboro, Chapel Hill, and Hillsborough



Source: N.C. Sustainable Energy Association



## Municipal Energy Consumption

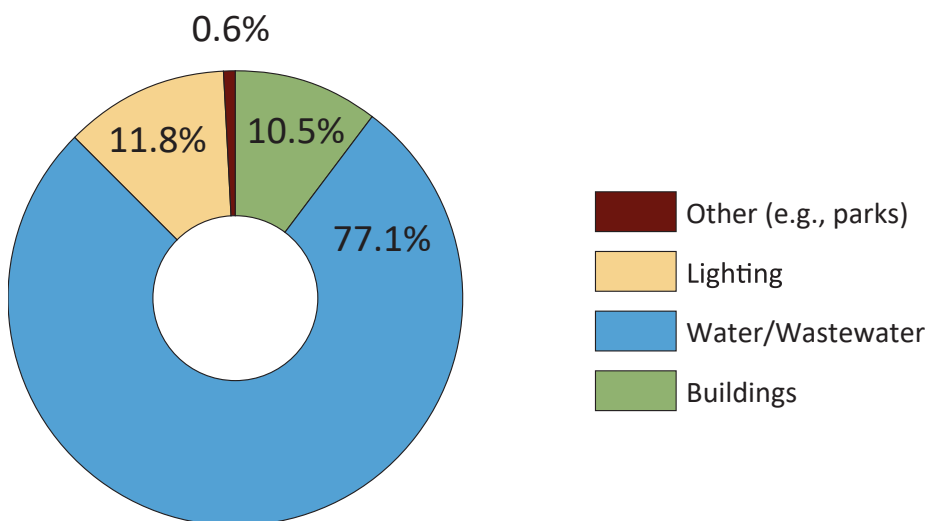
The Clean Energy Resolution specifically applies to energy sectors in town government operations, including electricity, heating and cooling, and fuel consumption in the transportation sector. This energy consumption supports the services the town provides to its residents and businesses, including the operation of its buildings (e.g., Town Hall Annex) and facilities (e.g., streetlights and treatment plants), as well as the maintenance of town-owned infrastructure (e.g., streets and sidewalks).

It is important to understand municipal energy consumption, energy costs, and the town's largest energy consumers to strategically identify reduction opportunities. The Town of Hillsborough currently does not have an organized, central approach to managing its facility data, including associated energy consumption data. A comprehensive energy audit will document existing energy-consuming systems, identify energy efficiency opportunities, and estimate related energy use reduction potential, along with project costs and return on investment. Building retrofits can include packages of measures (e.g., roof, window, or siding replacements and major equipment replacements) to be implemented over time (e.g., planned alongside end- or near-end lifecycles) that can collectively achieve between 40% and 60% energy reductions.

To determine an energy use baseline, the town contracted with the Triangle J Council of Governments to develop an inventory of buildings, water and wastewater treatment facilities, and vehicles and evaluate energy and fuel usage data. The council collected data from utility meters and town records from January 2016 to July 2018 and quantified the energy use of town operations. Having this energy baseline is crucial to inform the scale of the town's energy reduction and clean energy goals.

Between August 2017 and July 2018, the town used 4,557,361 kilowatt hours of electricity. The town's water treatment and wastewater treatment plants were responsible for the most consumption during this period (77.1%), followed by the town's buildings (11.8%) and lighting (10%). *Figure 10.9* provides a high-level breakdown of electricity usage in the town in Fiscal Year 2018 (August 2017 through July 2018).

**Figure 10.9.** Town of Hillsborough Electricity Consumption (Fiscal Year 2018)



Source: Triangle J Council of Governments

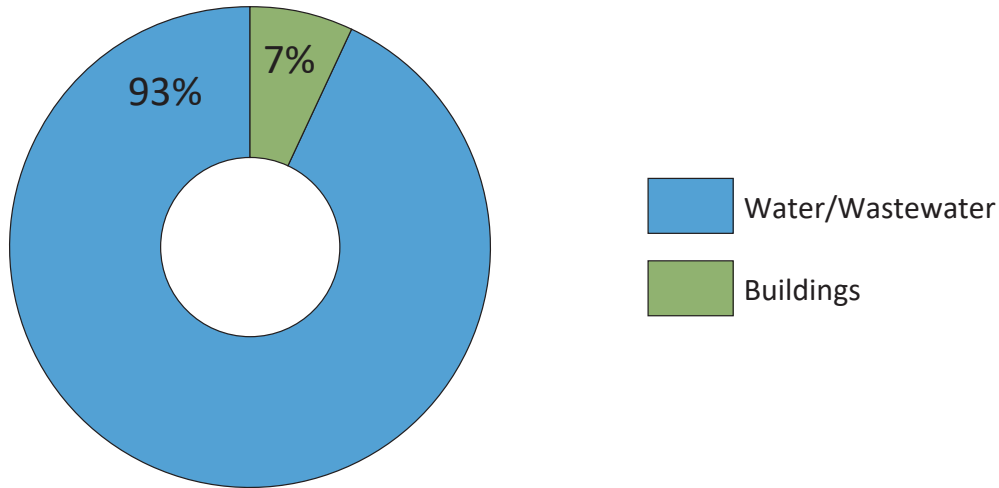




Source: Triangle J Council of Governments

The operations data shows a spike in electricity consumption during the winter months, from November to March, reflecting weather-related fluctuations in energy demands (e.g., increased heating requirements). This trend aligns with a spike in natural gas usage over the same winter stretch that is even more pronounced than the electric usage. Natural gas usage in FY18 amounted to 6,916 hundred cubic feet, following the breakdown showed in *Figure 10.10*.

**Figure 10.10.** Hillsborough Natural Gas Consumption (Fiscal Year 2018)



Source: Triangle J Council of Governments

### Fleet Consumption

Fuel consumption by town operations during FY18 included gasoline (e.g., passenger and light duty fleet vehicles, such as police patrol car) and diesel (i.e., medium- and heavy-duty vehicles and back-up generators) with ethanol comprising an almost negligible percentage of overall use. Total fuel consumption for the year amounted to 56,193 gallons, with gasoline responsible for 67% and diesel responsible for 33% of this total. Compared to electricity and natural gas usage, monthly fuel consumption is relatively consistent throughout the year. *Table 10.1* lists the town's fleets and associated fuel consumption.

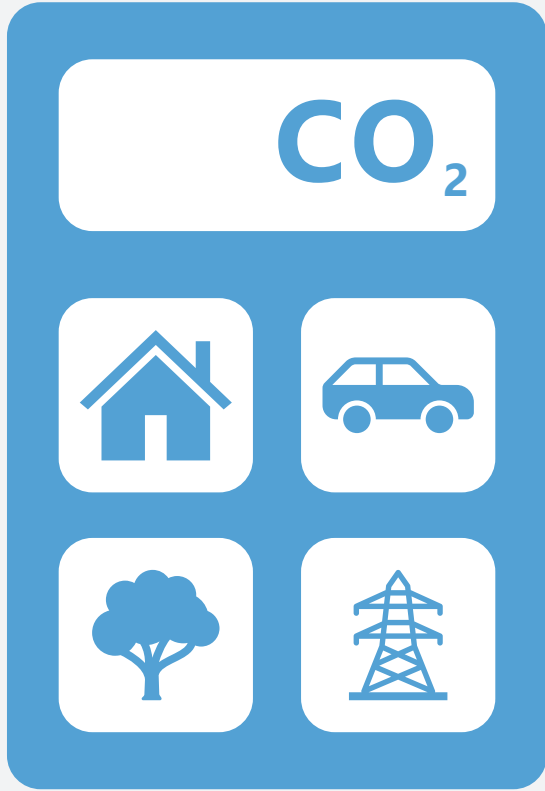
**Table 10.1.** Hillsborough Fuel Consumption by Fleet/Vehicle (Fiscal Year 2018)

Fleet/Vehicle	Gasoline (gallons)	Diesel (gallons)	% of Total Fuel
<b>Police</b>			
Police Patrol	16,009	9	29%
Police Investigation	3,242	--	6%
Police Administration	843	--	2%
Community Policing	709	--	1%
<b>Utilities</b>			
Water Distribution/ Wastewater Collection	6,420	1,868	15%
Water Distribution	320	5,977	11%
Meter Reading	1,808	--	3%
Wastewater Plant	719	247	2%
Utilities Administration	844	--	2%
Water Plant	499	--	1%
<b>Community Services</b>			
Solid Waste	940	9,133	18%
Street Maintenance	3,336	1,057	8%
Stormwater	164	--	0%
<b>Fire Inspection</b>			
	816	--	1%
<b>Fleet Maintenance</b>			
	607	--	1%
<b>Safety and Risk Management</b>			
	450	--	1%
<b>TOTAL</b>	<b>37,726</b>	<b>18,291</b>	<b>100%</b>

Source: Triangle J Council of Governments (Note: "Solid Waste" is listed as "Sanitation" in the council's report.)

In FY18, the police patrol fleet consumed the largest percentage (29%) of total fuel used for town operations, followed by large trucks used for solid waste (18%) and water distribution/wastewater collection (15%). Each facility or department's consumption of gasoline and diesel highlights the potential for fuel use reduction and greenhouse gas emissions reduction by switching to zero-emission vehicles, which include hydrogen fuel cell electric vehicles and plug-in electric vehicles (both pure battery electric vehicles and plug-in hybrid electric vehicles). By creating a plan for switching the fleet to more fuel-efficient and zero-emission vehicles, as practicable and available, the town will reduce the consumption of gasoline and diesel.

Similar to fuel consumption, the facilities with the greatest total energy use demonstrate the greatest potential for energy efficiency and emissions reduction. *Table 10.2* provides the electricity and natural gas consumption of facilities owned and/or operated by the Town of Hillsborough, as reported by the Triangle J Council of Governments in its report on FY18.



## Greenhouse Gas Equivalencies **CALCULATOR**

The EPA Greenhouse Gas Equivalencies Calculator allows you to convert emissions or energy data to the equivalent amount of carbon dioxide emissions from using that amount. It can translate measurements into annual emissions for items like cars, homes, and power plants.

Try it out here: [www.epa.gov/energy/greenhouse-gas-equivalencies-calculator](https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator)

Altogether, greenhouse gas emissions associated with the Town of Hillsborough’s energy consumption at its facilities amounted to 27,402 metric tons carbon dioxide equivalent in FY18, with 97% deriving from the town’s electricity purchases and 3% deriving from the town’s natural gas consumption. According to the EPA’s Greenhouse Gas Equivalencies Calculator, 27,402 metric tons carbon dioxide equivalent is equivalent to greenhouse gas emissions from 5,904 gasoline-powered passenger vehicles driven for one year or 68,017,397 miles driven by an average gasoline-powered passenger vehicle.<sup>16</sup>

To understand the community’s broader contribution to climate beyond just municipal operations (e.g., from residents and businesses), a community-wide greenhouse gas emissions inventory would need to be conducted that would encompass all emissions generated within the town’s jurisdictional boundaries.

<sup>16</sup> U.S. Environmental Protection Agency. (2022). “Greenhouse Gas Equivalencies Calculator.” Retrieved from <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>



**Table 10.2.** Facility Energy Use Breakdown by Sector (Fiscal Year 2018)

	Annual Electricity Use (kWh) <sup>1</sup>	Annual Natural Gas Use (CCF) <sup>1</sup>	Total MMBtu <sup>1</sup>	Total kBtu <sup>1</sup>
<b>Town-Owned Facilities (excluding Water/Wastewater)</b>				
Police Department	99,128	--	338	338,225
Town Hall Campus <sup>2</sup>	79,782	820	356	355,856
Orange Rural Fire Station 1	76,913	1,880	454	454,187
Highway 86 North Facility	76,434	1,110	374	374,013
Police Annex	46,038	--	157	157,082
Town Hall Annex	37,336	1,883	319	319,456
Public Works Facility	36,337	--	124	123,982
Dorothy N. Johnson Community Center <sup>3</sup>	26,150	724	163	163,072
Gold Park	9,279	--	32	31,660
Cates Creek Park	7,598	--	26	25,924
Public Safety Training Facility	1,096	--	4	3,740
<b>Water/Wastewater</b>				
Wastewater Plant	2,127,683	--	7,260	7,259,654
Water Treatment Plant	927,776	--	3,166	3,165,572
Pump Stations	345,054	406	1,219	1,218,736
Water Supply Tank Station	73,762	--	252	251,676
Water Treatment Intake	34,236	--	117	116,813
Elizabeth Brady Road Pumping Station	10,608	--	36	36,194
Waterstone Water Tower	2,180	--	7	7,438
West Fork Reservoir Site	2,001	--	7	6,827
U.S. 70A Water Tower Generator	--	93	9	9,486
<b>Lighting</b>				
Street Lighting	532,739	--	1,818	1,817,781
Christmas Lighting	5,231	--	18	17,849
<b>Total</b>	<b>4,557,361</b>	<b>6,916</b>	<b>16,256</b>	<b>16,255,797</b>

Source: Triangle J Council of Governments

Notes:

1. kWh = kilowatt hour, CCF = 100 cubic feet, MMBtu = 1 million British thermal units, kBtu = 1,000 British thermal units
2. Town Hall Campus includes all facilities at 101 E. Orange St. including Town Hall, Stormwater and Environmental Services Division offices, Administration Building, Planning and Economic Development manager's office, and a 54-kilowatt Generac generator.
3. Dorothy N. Johnson Community Center was listed as Fairview Substation in the assessment.
4. Energy consumption at the Orange County Historical Museum is not represented in Table 10.2 above. While the town owns this facility and its associated energy systems (i.e., lighting, boilers, etc.), it does not currently pay the utility bills. Data on energy consumption at this facility was not available at the time of this writing.



As shown in *Table 10.2*, water and wastewater treatment plants and their associated facilities were collectively responsible for approximately 12,202 million British thermal units (Btu) of energy consumption in FY18, making them the largest energy consumers for the Town of Hillsborough.

The town has undertaken several initiatives to reduce the energy use at these facilities. Going forward, the town should continue to evaluate energy saving opportunities in ways that do not negatively affect community health.

To fairly compare the energy efficiency of different-sized buildings and assess the comparative need for energy efficiency measures, energy consumption should be presented in terms of energy use intensities (EUIs). *Table 10.3* presents site energy use intensities for buildings owned and/or operated by the Town of Hillsborough, where data is available, along with national median site energy use intensities provided by Energy Star® Portfolio manager® for benchmarking purposes. Site energy use intensities for benchmarking Hillsborough's municipal buildings were selected based on their primary functions.

**Table 10.3.** Energy Use Breakdown by Sector (Fiscal Year 2018)

Building	Square Feet	Annual kBtu	Site EUI	National Median Site EUI
Police Department	5,674	338,225	59.6	63.5
Town Hall Campus <sup>1</sup>	6,501	355,856	54.7	52.9
Orange Rural Fire Station 1	5,733	454,187	79.2	63.5
Highway 86 North Facility	5,894	374,013	63.5	40.1
Police Annex	3,336	157,082	47.1	52.9
Town Hall Annex	6,575	319,456	48.6	52.9
Public Works Facility <sup>2</sup>	5,615	123,982	22.1	22.7
Dorothy Johnson Community Center	2,553	163,072	63.9	63.5
Public Safety Training Facility	9,260	3,740	0.4	22.7

Source: Triangle J Council of Governments, Interlocal Risk Financing Fund of North Carolina, Energy Star Portfolio

Manager Notes:

1. Town Hall Campus includes all facilities at 101 E. Orange St. including Town Hall, Stormwater and Environmental Services Division offices, Administration Building, Planning and Economic Development manager's office, and a 54-kilowatt Generac generator.
2. Public Works Facility includes the Adron F. Thompson Water/Sewer Facility at 715 Dimmocks Mill Road, as well as the three-bay garage and break room at 719 Dimmocks Mill Road.

As shown in *Table 10.3*, several town buildings are underperforming compared to the national median for buildings with similar primary functions. These include those located in the Town Hall Campus, Orange Rural Fire Station 1, Highway 86 North Facility, and the Dorothy Johnson Community Center, formerly Fairview Substation. This suggests there may be opportunities for significant energy efficiency gains at these buildings. For all its buildings, the town should strive to reach a target that improves upon the national median. Comprehensive energy auditing at each building will assist in identifying energy efficiency projects and estimate associated energy savings.



The calculated site energy use intensities presented in *Table 10.3* represent the best data available at the time of this assessment. Total square footages for facility complexes, such as the Town Hall Campus and Public Works Facility, were summed to include all associated facilities identified in the town's property schedule prepared by the Interlocal Risk Financing Fund of North Carolina. However, based on the presentation of the collected data, it was not possible to map consumption to individual facilities within a larger complex. Accordingly, it is possible that the square footage values have been overcounted in relation to consumption values. In such cases, the calculated energy use intensities would be higher than reported. It is recommended that the town enhance its data collection to better ascertain facility energy performance.

## Recent Climate Efforts

The Town of Hillsborough has a long history of environmental stewardship, with actions having direct or indirect benefits in the form of reduced energy consumption and lower greenhouse gas emissions generation. Recent actions include:

- › A wastewater treatment plant upgrade in 2014 that significantly reduced the amount of electricity used to treat the town's wastewater.
- › Conversion of mercury vapor streetlights to Type 2, 50-watt, 3000-kelvin, LED fixtures.
- › Implementation of a control system at the Wastewater Treatment Plant to reduce energy used for aeration of the treatment basins.
- › Multiple LED retrofits and the implementation of lighting controls like occupancy sensors throughout town-owned or operated facilities.
- › The use of programmable thermostats and a tankless water heater on the Town Hall Campus.
- › Fewer higher energy consuming desktop computer purchases in favor of more efficient laptops.
- › A new police department e-bike patrol program and the purchase of hybrid patrol vehicles.
- › Implementation of green infrastructure projects such as riparian buffer plantings, compost blankets, and managed natural landscapes.
- › Integration of responsible land management practices, such as reducing leaf collection and leaf blowing, eliminating the use of fertilizers, and reducing the use of pesticides and herbicides.
- › A partnership with the Orange County transit demand coordinator to expand education about commuter options to town employees.
- › Formal policy for telecommuting that promotes remote work flexibility, reducing fuel required for daily commuting.
- › Integration of best management practices for water management such as preventing runoff and capturing and treating stormwater.
- › Planning and design of a net zero ready train station.





*Left: Managed natural landscapes on Riverwalk | Right: Police Department e-bike patrol program*





## Local and Regional Energy Partners and Supporting Programs

The adoption of the Clean Energy Resolution and this plan further demonstrate the town's commitment to advancing its sustainability and resiliency goals and doing so in a way that is just and equitable for all people. As a small town, Hillsborough has an opportunity to partner with large energy users in the region to adopt sustainability measures for even greater impact.

The Town of Hillsborough is part of a larger network committed to sustainability and clean, renewable energy. For example, it is a member of the Southeast



Sustainability Directors Network, which works to “accelerate, scale, and implement sustainable best practices so that communities are equipped to adapt to and mitigate climate impacts.” The network provides a wealth of programs and resources, including peer learning, a state policy program, the Southeast Sustainable Recovery Center, equity resources, and support for grants and funding.

As part of the process to develop the Town of Hillsborough's energy baseline in 2018, the Triangle J Council of Governments coordinated with both public and private stakeholders to discuss beneficial partnerships as part of the Clean Energy



Resolution. The list of partners included utility providers, nonprofits, leadership from town departments, and other communities with similar energy goals. Specifically, the council engaged:

- › Duke Energy, the town's electric utility provider, regarding the specifics of the town's clean energy goals and potential challenges related to current connection and infrastructure limitations.
- › City representatives from Durham, Greensboro, and Charlotte to prioritize solutions and actions.
- › Advanced Energy, a nonprofit energy consulting firm, to discuss clean energy strategies and explore N.C. Greenpower as a mechanism for purchasing renewable energy credits or carbon offsets to help the town meet its goals.
- › North Carolina Clean Energy Technology Center to review local rooftop solar photovoltaic use and discuss alternative fuel use.
- › Leadership from ICIEI — Local Governments for Sustainability, a global network of more than 2,500 local and regional governments committed to sustainable urban development, to evaluate their ClearPath software platform.
- › The director of utilities for the City of Aspen, Colorado, which is one of the few cities in the United States that has met a clean, renewable energy goal.



*Duke Energy Distribution Center for Hillsborough, Chapel Hill and Durham area*

Following these discussions, the Triangle J Council of Governments recommended that the town continue regular conversations with the energy utility providers who serve customers within town limits (Duke Energy, PSNC, and Piedmont Electric). This is crucial from a feasibility standpoint to ensure the town has adequate infrastructure in place to support the desired expansion in clean energy. It was also recommended that Hillsborough explore what opportunities there are to collaborate with the National Renewable Energy laboratory, which has assisted other communities in meeting their 100% renewable energy goals.

The council recommended the town coordinate with Orange County and the town of Carrboro to share progress and best practices related to their clean energy goals, which is occurring on a regular basis. Orange County representatives may include the Orange County sustainability coordinator, Orange County Public Transportation, and Climate Council of Orange County. The town of Carrboro has set a goal to achieve 80% reduction in per capita greenhouse gas emissions by 2030 compared to 2010 levels community wide (as opposed to municipal alone). Carrboro also has adopted a goal to achieve an 80% reduction in municipal operations by 2030. Both towns are committed to climate action strategies that advance equity and environmental justice.

Additional opportunities for partnerships may include:

- › Triangle Clean Energy for partnerships and vendors who can work with and across town departments and are committed to reducing the town's energy use and emissions.
- › Piedmont Conservation Council, an organization that helps partners identify grant funding for environmental and sustainability initiatives. The Town of Hillsborough has partnered with the council in the past.
- › Durham Technical Community College's Electrical line Technician program and solar providers to advance solar development.
- › GoTriangle and Orange County, which are both regional public transportation providers.
- › NCDOT, which is implementing the statewide EV Infrastructure Deployment Plan.





## Orange County LEED Community

Orange County was recently certified as a LEED Gold Community through U.S. Green Building Council's LEED for Cities and Communities certification. This certification is meant to help local leaders create responsible, sustainable, and specific plans for natural systems, energy, water, waste, transportation, and other elements that contribute to quality of life. Through this certification, Orange County can benchmark performance, demonstrate a commitment to sustainability, develop a culture of data-driven and transparent decision making, and improve the standard of living. Regarding energy specifically, applicants are required to measure greenhouse gas emissions (carbon dioxide equivalent) in tons per year per person. The application submitted to the U.S. Green Building Council contained information specific to building energy performance, alternative fuel vehicles, smart water systems, utility grid harmonization, renewable energy, and more. Hillsborough, along with Chapel Hill and Carrboro, contributed information, data, and support for the application.



*It will take significant efforts at the state, regional, and local levels for Hillsborough to achieve its clean energy resolution.*



Orange County



## Climate & Energy Goals and Actions

The following recommendations are provided to advance the Town of Hillsborough's energy optimization, facility and fleet electrification, and energy decarbonization. Where applicable, these recommendations have been expanded beyond the scope of municipal operations to have broader community benefits. Each of the recommendations supports the Climate and Energy goals set forth by the Town of Hillsborough. Several of the actions are identified as priority and/or those that can most readily be done to make progress towards the climate and energy goals.

### Goals

- 1** Transition fossil-fuel powered municipal operations to 100% clean and renewable energy by 2050 in support of the town's clean energy pledge.
- 2** Reduce energy consumption to the greatest extent practicable in town facilities in support of the town's clean energy pledge.
- 3** Reduce the town's non-energy derived greenhouse gas emissions, such as process and fugitive emissions, to the greatest extent practicable.
- 4** Strengthen community-based initiatives to support a more sustainable Hillsborough.



# Strategies

## **Conduct town business and operations in accord with all applicable state laws.**

- › Plan for and monitor progress toward meeting the town’s clean energy pledge and building a more sustainable future.
- › Engage an energy consultant to conduct energy audits of the town’s buildings.
- › Assess renewable energy generation potential (i.e., generating capacity) for solar photovoltaics and wind energy projects on town-owned properties and identify priority sites for planning and implementation.

## **Develop and adopt policies that contribute to meeting the town’s clean energy pledge and building a more sustainable future.**

### **FACILITIES**

- › Develop and adopt a policy that requires all new facility construction and major facility renovations undertaken by the town to achieve net-zero status/LEED equivalent/Energy Star (i.e., all energy consumed annually by the building must be completely offset by energy renewably produced on site) or better. This policy should encourage the use of building materials with low embodied carbon.

### **FLEET**

- › Develop and adopt a policy that requires all municipal departments to incorporate zero-emission vehicles and manual or electric-powered equipment when feasible. Incorporate reasonable timeframes based on vehicle class (i.e., light-duty, medium-duty, heavy-duty) and informed by market availability of alternatives.
- › Develop and adopt a “no idling” policy for vehicles that is enforceable. Communicate the “no idling” policy to employees, contractors, and guests of town facilities.
- › Evaluate purchasing additional e-bikes as part of the town’s regular fleet.

### **STAFF BEHAVIORS**

- › Develop and adopt a green purchasing policy that outlines environmental criteria and purchasing requirements for ongoing consumables (e.g., paper, batteries, desk accessories, food, and beverages) and durable goods (e.g., furniture and appliances). Maintain a list of qualifying purchases and available suppliers.
- › Develop and adopt a policy that prohibits the acquisition and use of single-use plastics and Styrofoam for town use when feasible.
- › Prioritize electronic filing and discourage printing and copying when feasible.
- › Integrate life cycle costing into the town’s capital and asset management planning to ensure that total cost of ownership is considered, not just upfront one-time, non-recurring costs.





## **Invest in public projects that contribute toward the town’s clean energy pledge and build a more sustainable future.**

The following measures may be implemented independently or together in packages, as applicable. Such decisions should be made in consideration of planned facility upgrades and cost effectiveness (i.e., modeled energy savings and estimated costs).

### **FACILITIES**

- › Set time-of-day scheduling for heating, ventilating and air-conditioning systems at town facilities, which should include setting proper occupied and unoccupied temperature setpoints.
- › Install bottle fillers on water fountains.
- › Perform energy retrofits and strive to enable buildings to be net-zero energy capable.
- › Electrify all fossil fuel-consuming end uses to the extent practicable, including space heating and hot water systems, through ground and air heat pump technologies.
- › Fully replace all lighting fixtures, including exit signs, with LED technology. Where applicable, couple LED fixtures with automatic or smart sensors.
- › Convert public streetlights in residential areas to the town standard Type 2, 50-watt, 3000 kelvin, LED fixtures.
- › Convert public streetlights on high traffic roadways to LED fixtures.
- › Investigate opportunities and incorporate to the greatest extent possible sustainability and climate initiatives in facility development including geothermal, solar, weatherization, and green infrastructure.
- › Conduct weatherization improvements and upgrades to conserve energy and reduce energy costs in town facilities. Weatherization strategies may include insulation, leak repair, window replacements, and other measures.
- › Assess the potential for energy savings and proceed with any efficiency opportunities with the town’s water pumping infrastructure, including replacing with more efficient models.
- › For on-site renewable energy generation, explore the feasibility of energy storage systems (e.g., solar photovoltaic plus battery storage).
- › Track and monitor the town’s electricity, natural gas, and other fuel use.
  - Identify what options might be available for more detailed or real-time energy monitoring to further understand operational needs and trends.
  - Use benchmarking platforms, such as the EPA’s Energy Star Portfolio manager, to continuously monitor building performance.
- › Track energy use at town facilities and monitor energy conservation measures.
- › Develop an energy efficiency operations and maintenance program for the town facilities and provide necessary trainings to staff and hired contractors. Incorporate best practices, such as turning off lights and electronics when not in use.
- › Provide recycling at all town facilities and expand materials accepted for recycling as practicable.
- › Hire a grant administrator to research and identify, apply for, and administer grants that help to accomplish climate and energy goals.



## **FLEET**

- › Evaluate the town's vehicle fleet to determine right-sizing and transition to electric vehicle potential.
- › Transition the town's vehicle fleet to zero emission alternatives on a schedule consistent with vehicle lifecycles and market availability. Advance the schedule of this transition as feasible.
- › Ensure electric vehicle charging infrastructure is appropriately provided to support the town's electric vehicle transition.
- › Transition the town's maintenance equipment to manual or electric-powered alternatives.

## **STAFF BEHAVIORS**

- › Launch an educational campaign to inform staff on the ways they can assist the town in reducing its energy use, among other ways to improve the town's sustainability performance.
- › Develop a recognition and incentive program to reward staff for making positive contributions to the town's sustainability performance.
- › Establish a green team to champion sustainability and climate initiatives.
- › Regularly report and communicate sustainability performance data to town staff and external stakeholders, such as residents.

## **GENERAL**

- › Develop a sustainability performance dashboard.
- › Complete a formal greenhouse gas emissions inventory for local government operations to capture the full range of emissions sources owned or influenced by the town's operations and activities.
- › Evaluate best practices for resilient power, such as backup generation sources, fuel, micro-grids, telecommunications, and emergency service providers. Prepare a community-wide greenhouse gas emissions inventory to understand how to reduce emissions associated with the broad set of activities occurring within town's jurisdictional boundary (e.g., energy consumption in residential buildings, on-road transportation, and waste generation).
- › Prepare a Community Sustainability Action Plan that celebrates progress to date, and evaluates and identifies strategies for the residents, businesses, property owners and visitors of Hillsborough to implement that address social equity, climate resiliency, and energy conservation.



## **Develop and participate in partnerships and programs that contribute toward the town's clean energy pledge and building a more sustainable future.**

### **FACILITIES**

- › Install smart meters in town buildings to enable more efficient energy management.
- › Identify and leverage applicable rebates, grants, and low-cost financing programs offered by federal and state governments (e.g., Qualified Energy Conservation Bonds, Clean Renewable Energy Bonds) and utilities (e.g., Duke Energy Carolinas' Non-Residential Smart \$aver Incentive Program and NC Solar Rebate Program).
- › Engage in energy savings performance contracting, where typically the financing for large energy efficiency projects, such as deep energy retrofits, is arranged and implemented by an energy service company and the project is paid for by guaranteed energy savings. Energy service companies can also be engaged in the development of on-site renewable energy projects.

### **GENERAL**

- › Advocate for state-level legislation, policies, and incentives that decarbonize the state's electricity supply and expand access to energy efficiency programs and technologies.
- › Coordinate with state, regional, and nonprofit partners to advance climate and energy goals.
- › Explore power purchase agreements, both physical and virtual, to close the gap after maximizing on-site renewable energy generation. The town may also want to consider purchasing renewable energy credits separately, unbundled from the electricity in a power purchase agreement.
- › Advocate for Duke Energy to prioritize clean energy solutions over coal or natural gas-burning practices.
- › Work with regional partners (e.g., Orange County and NCDOT) to expand the number of electric vehicle charging stations in the town to support electric vehicle readiness and encourage widespread adoption, especially in key places like Gold Park and the Town Hall Campus. Prioritize the installation of level 3 fast chargers along the interstate fast-charge corridor, where possible.
- › Continue to coordinate at a regional level on the Electric Vehicle Supply Equipment location Suitability Analysis.
- › Coordinate with NCDOT on the Electric Vehicle Infrastructure Plan and potential funding opportunities under the National Electric Vehicle Infrastructure Program.





## **Adopt regulations that contribute toward establishing the town's clean energy pledge and building a more sustainable future.**

- › Establish incentives for new developments and redevelopments to incorporate climate and energy initiatives, including but not limited to the potential for solar photovoltaic and electric vehicle readiness.
- › Update the Unified Development Ordinance to incorporate requirements for the plan review process to evaluate the potential for green infrastructure and energy efficient practices of a proposed development.

## **Engage with community groups and individuals on community-based initiatives and building a more sustainable future.**

- › Develop educational and training materials and take advantage of outreach opportunities that advance climate and energy goals.
- › Practice equitable and authentic community engagement on topics related to climate and energy initiatives.
- › Share best practices for climate and energy actions at community events and through public information platforms.











# Implementation

This chapter serves as the implementation element of the Comprehensive Sustainability Plan. It provides the framework for actualizing the recommended actions that have been identified throughout the course of the planning process. These actions were developed through a review of previous planning efforts at the town and regional levels, ideas generated through public and stakeholder engagement, peer reviews, best practices, and emerging trends and technologies.





## Implementation Priorities and Phasing

The adoption of this plan is the first step toward ensuring a more sustainable Hillsborough. Further action is required to reap long-term benefits from the substantial effort the community invested in this plan. Organizational alignment of town departments, management, and the town board on implementing the plan's actions is critical for success. Recommended actions should inform and be incorporated into the town's strategic plan, budget development, and departmental priorities. Using the Comprehensive Sustainability Plan to guide operations and decision-making will create structure to better impact resource commitments and overall town direction.

The implementation of the recommended actions will support the achievement of the community's vision and supporting goals through 2030. This chapter describes how the policies and actions in the plan should be carried out. All the actions from each chapter are included in the following Implementation matrix. This matrix defines several critical implementation elements for each action, including:

- › **Action Type** — Most actions in each chapter are compiled by strategies based on plans, policies, public projects, partnerships, regulations, and engagement.
- › **Project Initiation** — Project initiation is determined (and constrained) by several factors. This process attempts to assess when an action can and should be initiated. Some actions (indicated in bright green) are identified as priority actions. Issues of equity, policy, and interdependencies among projects (such as one project being contingent on another) also must be weighed and balanced. In terms of implementation schedule, three windows or phases are identified for the initiation of each action:
  - **0-3 years (short-range)** — These actions are readily implementable, and the timeframe is consistent with the town's strategic planning process.
  - **4-7 years (medium-range)** — There may be initial steps needed for these actions prior to implementation. However, these actions are important in working towards the town's 2030 clean energy goal.
  - **7+ years (long-range)** — These actions are anticipated to occur in future years and may represent a broader strategic direction or build on actions initiated in earlier timeframes.
- › **Lead** — This is the department or division that holds primary responsibility for implementing a recommended action, seeing it through to completion.
- › **Partners** — These are the department or division that will assist the implementation lead in actualizing a recommended action, providing valuable input or services.



## Implementation Program

Upon endorsement of this plan by the community and formal adoption by the Hillsborough Board of Commissioners, it is recommended that the town develop an implementation program. It will be important to prioritize actions, track progress, and regularly report, both internally and externally, the implementation status of recommended actions for accountability and transparency purposes. Further, it is critical that the town monitor its progress toward goal achievement and, if necessary, make adjustments to the implementation plan and program to ensure success. The implementation program should be flexible and allowed to evolve as the community and its operating environment change. For example, grant funding not available today may be available later.

This plan was prepared to work in coordination with the town's strategic plan, which is currently under development and has a 0-3 year timeframe. This plan will guide the town in sustainable growth decisions, providing recommendation actions or what the town "should do". The strategic plan will prioritize what the town "shall do" based on direction from the town board and management.

In support of the implementation program, it is recommended that the town identify who will coordinate with the implementation lead on actions, track implementation progress, and regularly report on that progress to the town and the community at-large. This plan has identified the lead for implementation as the town department or division that is responsible for topic or resource area on a regular basis. The identified lead may change over time and partners added based on the current need for that action. Due to the uncertainty of the future, it will be important to reevaluate implementation priorities and shift as trends change and the future comes into focus. This coordination should occur on a regular basis, perhaps quarterly, to stay on track in advancing a sustainable Hillsborough.

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Ensure the town is managing government records in compliance with the Records Retention and Disposition Schedule for local agencies and other relevant regulations.	Regulation				Administrative Services	—
Ensure the town is following all applicable procurement procedures for purchasing goods and contracting services.	Regulation				Financial Services	All Departments and Divisions
Update the ethics document in the Code of Ordinances for the Board of Commissioners and in the Unified Development Ordinance for staff and appointed boards.	Policy				Administrative Services	—
Prioritize the fiscal needs of the community in the annual budget and implement strategies for a balanced budget (where spending is less than or equal to revenues the majority of the time).	Plan				Budget	—
Ensure the Capital Improvement Plan is based on priorities that help accomplish town goals.	Plan				Administrative Services	Community Services
Conduct transparent reporting of the town's financial health.	Plan				Financial Services	—
Develop, adopt, and implement an overall strategic plan and departmental plans that are aligned with the Comprehensive Sustainability Plan.	Plan				Administrative Services	All Departments and Divisions
Participate in regional and county planning efforts that help to accomplish the Comprehensive Sustainability Plan.	Plan				Community Services	—
Develop, adopt, and implement a racial equity plan.	Plan				Diversity, Equity, & Inclusion Team	Town Board
Update, adopt, and implement the Emergency Operations Plan.	Plan				Police	Administrative Services; Town Board
Create a communications policy that includes direction on internal and external communications and incorporates reaching all members of the community.	Policy				Communications	—
Continue participating in the Government Alliance on Race and Equity to build policies on equity throughout the community.	Policy				Diversity, Equity, & Inclusion Team	—
Invest in sustainability initiatives that help the town achieve its renewable energy pledge.	Policy				Public Space & Sustainability	All Departments and Divisions
Ensure that the process for reviewing town policies addresses consistency among departments, boards, and commissions.	Policy				Administrative Services	Community Services
Engage in state and regional policymaking that help to accomplish the Comprehensive Sustainability Plan.	Policy				Town Board	—
Regularly review and update town policies as new information is garnered and achievements are met.	Policy				Administrative Services	Community Services
Use the Comprehensive Sustainability Plan to inform the Capital Improvement Plan and prioritize projects.	Project				Administrative Services	Community Services
Develop a process to demonstrate that budget and departmental priorities and projects are aligned with the goals of the Comprehensive Sustainability Plan.	Project				Administrative Services	Public Space & Sustainability

### UDO - Unified Development Ordinance

High Priority



Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Participate in projects and programs with regional partners that help accomplish the Comprehensive Sustainability Plan.	Project				Community Services	—
Promote communication and coordination among departments, divisions, and staff members to ensure consistency in decision making.	Engagement				Administrative Services	Communications
Strengthen staff accessibility and accountability to the public through demonstrating how the community can connect with staff and by providing regular updates on what town staff is achieving.	Engagement				Communications	—
Ensure public safety is prioritized through investing in building trust and legitimacy with the community.	Engagement				Police	—
Coordinate with community organizations to prepare for and respond to emergencies together.	Engagement				Police	Communications
Use equitable and effective strategies to engage with the public.	Engagement				Communications	Community Services
Continue conducting regular market analysis on staff compensation and benefits to assess competition and create strategies for recruitment and retention.	Engagement				Human Resources	—
Continue offering regular training opportunities to town employees.	Engagement				Human Resources	—
Ensure employee safety through regular maintenance of facilities and by establishing an open-door policy, conducting hazard assessments, and addressing staff concerns in a timely manner.	Engagement				Safety & Risk Management	—
Incorporate a comprehensive guide to serving on the town board to the onboarding process for town board members.	Engagement				Administrative Services	—
Build a training program, beginning with onboarding, that includes in-person, self-guided, and mentorship opportunities for town employees throughout their career with the town.	Engagement				Human Resources	—
Create a training toolbox for appointed board members to ensure members understand the board's mission, authority, roles, and responsibilities.	Engagement				Administrative Services	—
Strengthen the advertisement of available training to the community, such as Government 101, to ensure people know about these educational opportunities.	Engagement				Communications	—
Continue providing diversity, equity, and inclusion training for town staff aligned with principles of the Government Alliance on Race and Equity and a town racial equity plan.	Engagement				Diversity, Equity, & Inclusion Team	—
Ensure training and education materials are updated with new and revised town policies. Create a regular update for town staff on updates to policies.	Engagement				Human Resources	—

**UDO - Unified Development Ordinance**

**High Priority**



# Land Use & Development

## Recommended Actions from Chapter 04

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Coordinate all plans, including land use, zoning, utility and infrastructure provision, and annexation policies, to ensure that future growth and development — including infill and redevelopment — establishes and follows land use and growth preferences.	Plan				Planning & Economic Development	Water Distribution & Wastewater Collection; Public Space & Sustainability
Revise the Urban Service Boundary to reflect a 2040 actual water and sewer capacity and availability with already identified improvement as well as incorporate preferred future land use and growth patterns.	Plan				Water Distribution & Wastewater Collection	Planning & Economic Development
Analyze additional opportunities for infill and redevelopment and increased density in existing neighborhoods, focusing on the provision of water and sewer and other infrastructure and services.	Plan				Planning & Economic Development	Water Distribution & Wastewater Collection
Update the Future Land Use Plan to simplify land use categories and express current preferred future land use and growth patterns.	Plan				Planning & Economic Development	—
Adopt an annexation policy that ensures future growth and development align with preferred growth and development patterns.	Policy				Planning & Economic Development	Town Board
Continue to monitor and track the distribution of commercial and residential development to ensure a balance of land uses in accordance with Future Land Use Plan (Table 4.1).	Project				Planning & Economic Development	—
Upgrade and maintain existing infrastructure and facilities to support preferred land use and growth patterns.	Project				Planning & Economic Development	Public Space & Sustainability; Public Works; Stormwater & Environmental Services; Water Distribution & Wastewater Collection
Use the recommendations from water and sewer calibrated hydraulic modeling to guide improvements while systematically continuing to evaluate and reduce extraneous flows and illicit connections in the system.	Project				Water Distribution & Wastewater Collection	Public Space & Sustainability; Public Works; Stormwater & Environmental Services
Target public investments to support preferred land use and growth patterns that will leverage desired private investments in those areas. Include mechanisms to cost share water and sewer improvements with private developments to meet town and system-wide needs when feasible.	Project				Water Distribution & Wastewater Collection	Public Space & Sustainability; Budget
Evaluate development opportunities for town-owned property in accordance with preferred land use and growth patterns.	Project				Planning & Economic Development	—
Prioritize public projects that support preferred growth and development patterns and goals.	Project				Planning & Economic Development	—
Create a master address repository using GIS/CAD digital submission standards for subdivision plats and other planning process documents to reduce the need for physical copies.	Project				Planning & Economic Development	—
Facilitate transit-oriented developments around the future train station project to better align with future densities and demand for public transportation.	Project				Planning & Economic Development	Public Space & Sustainability
Focus on smart water and sewer systems that provide real-time monitoring and system management.	Project				Water Distribution & Wastewater Collection	—
Identify opportunities to collaborate regionally on initiatives and plans that will help to accomplish smart growth in the Triangle area.	Partnership				Planning & Economic Development	Public Space & Sustainability

### UDO - Unified Development Ordinance

High Priority



# Land Use & Development

## Recommended Actions from Chapter 04

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Evaluate capacity and identify staff that can participate in prioritized regional initiatives and plans.	Partnership				Planning & Economic Development	Public Space & Sustainability
Create Board of Commissioners policy on regional coordination to ensure town board members represent the town in these organizations.	Partnership				Planning & Economic Development	Public Space & Sustainability; Town Board
Update the Water and Sewer Management, Planning and Boundary Agreement and Central Orange Coordinated Area Land Use Plan to reflect revisions represented in the plan.	Plan				Planning & Economic Development	Water Distribution & Wastewater Collection
Revise zoning and development regulations in accordance with Future Land Use Plan and Future Land Use Map and water and sewer needs. Condense land use classifications.	Regulation				Planning & Economic Development	—
Overhaul the Unified Development Ordinance and Zoning Map to reflect current development trends and patterns to incorporate sustainability, environmental and climate best practices, economic resiliency measures, and equity in development and redevelopment as well as meet water and sewer system-wide needs. Incorporate utility standards in UDO.	Regulation				Planning & Economic Development	All Departments & Divisions
Incorporate Universal Design and accessibility standards into zoning and development regulations.	Regulation				Planning & Economic Development	—
Ensure that the UDO incorporates strategies to achieve a mix of housing types through zoning.	Regulation				Planning & Economic Development	—
Coordinate with the county to ensure they are aware of town limitations on water and sewer and desired growth types and areas, and the town considers mutual aid to neighbors for water capacity.	Regulation				Water Distribution & Wastewater Collection	—
Provide guidance on green infrastructure and low-impact development practices to interested developers.	Regulation				Public Space & Sustainability	Planning & Economic Development
Incorporate a sustainability checklist in the existing development review process to promote excellent design and inform applicants of design options available that can enhance the existing built environment.	Regulation				Public Space & Sustainability	Planning & Economic Development
Provide accelerated and smart monitoring of the water and sewer systems to track capacity use and alignment with modeled values.	Regulation				Water Distribution & Wastewater Collection	—
Update the UDO to ensure development review processes are clear, responsive, predictable, and equitable while ensuring flexibility within design. Include requirement to obtain capacity assurance and Water and Sewer Extension Contract prior to rezoning or annexation requests.	Regulation				Planning & Economic Development	—
Use effective maps and public communication to convey preferred land use and growth patterns to development community and limitations on water and sewer availability.	Regulation				Planning & Economic Development	Public Space & Sustainability; Communications
Establish a timeline for development projects at pre-submittal.	Regulation				Planning & Economic Development	—
Clarify the roles and responsibilities of internal town department reviewers, appointed boards, and the town board in the development review process.	Regulation				Planning & Economic Development	Administrative Services; Town Board

### UDO - Unified Development Ordinance

High Priority





# Land Use & Development

## Recommended Actions from Chapter 04

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Map service areas for provision of water and sewer, stormwater, electricity, natural gas, high speed internet, and cable for the development community and make available online in an interactive dashboard.	Regulation				Water Distribution & Wastewater Collection	Planning & Economic Development; Information Technology; Community Services; Public Works; Stormwater & Environmental Services
Align all future development decisions with the goals of the Comprehensive Sustainability Plan.	Regulation				Planning & Economic Development	Public Space & Sustainability
Continue to evaluate the building permits and fire inspections needs of the town and coordinate building inspections processes and fire inspection services with Orange County to provide timely and effective services to the community. Analyze feasibility of town inspections and permitting.	Regulation				Planning & Economic Development	—
Create a development repository where all documents and plans related to a project/address/PIN are kept and accessible by all applicable departments.	Regulation				Planning & Economic Development	—
Solidify acceptance process amongst departments and conditions of bond release.	Regulation				Planning & Economic Development	All departments
Foster active participation and authentic community engagement in land use and development planning and decision-making through informing, consulting, involving, collaborating, and empowering community members, especially underserved, minority, disenfranchised, disadvantaged, or impacted groups and individuals.	Engagement				Planning & Economic Development	Communications
Approach land use and development planning and decisions with an equity lens to mitigate negative impacts.	Engagement				Planning & Economic Development	Diversity, Equity, & Inclusion Team

### UDO - Unified Development Ordinance

High Priority



# Environment & Natural Systems

## Recommended Actions from Chapter 05

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Update and adopt a comprehensive stormwater management plan.	Plan				Stormwater & Environmental Services	Town board
Develop and adopt a jurisdiction-wide watershed improvement plan.	Plan				Stormwater & Environmental Services	Town board
Update and monitor progress toward accomplishing the Bellevue Branch Watershed Improvement Plan.	Plan				Stormwater & Environmental Services	Public Space & Sustainability
Update and monitor progress toward accomplishing the Stormwater Retrofit Plan.	Plan				Stormwater & Environmental Services	—
Update drought policy and monitor drought conditions to best protect our water supplies.	Plan				Stormwater & Environmental Services	Water Distribution & Wastewater Collection
Develop and adopt a source water protection plan.	Plan				Stormwater & Environmental Services	Water Distribution & Wastewater Collection
Develop and complete a holistic water systems masterplan to ensure quantity and quality of potable water for our customers as the population served increases.	Plan				Water Distribution & Wastewater Collection	Stormwater & Environmental Services
Develop and complete a holistic water systems masterplan to ensure environmental protection and regulation compliance as the population served increases.	Plan				Water Distribution & Wastewater Collection	Stormwater & Environmental Services
Develop and adopt a tree inventory for town-owned and town-maintained properties.	Plan				Public Space & Sustainability	Tree Board
Develop and adopt reforestation plans for town-owned and town-maintained properties.	Plan				Public Space & Sustainability	—
Endorse and incorporate pertinent recommendations in the Eno-New Hope Landscape Conservation Plan.	Plan				Public Space & Sustainability	Town board
Develop and adopt invasive species removal and habitat conservation and restoration plans for town-owned and town-maintained properties.	Plan				Public Space & Sustainability	—
Develop and adopt forest management plans for town-owned and maintained properties.	Plan				Public Space & Sustainability	—
Map critical environmental and sensitive areas and significant landforms, such as slopes, ridges, streams, and wetlands, to inform other plans and development decisions.	Plan				Planning & Economic Development	—
Develop and adopt a green infrastructure policy for town projects.	Policy				Public Space & Sustainability	—
Develop and adopt a tree preservation policy for town-owned and town-maintained properties.	Policy				Public Space & Sustainability	—
Develop and adopt a landscape management policy for town-owned and town-maintained properties.	Policy				Public Space & Sustainability	—
Develop and adopt a forest management policy for town-owned and town-maintained properties.	Policy				Public Space & Sustainability	—

### UDO - Unified Development Ordinance

High Priority



# Environment & Natural Systems

## Recommended Actions from Chapter 05

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Develop and adopt a native and adapted plant policy that improves and expands habitat for wildlife and pollinators for town-owned and town-maintained properties.	Policy				Public Space & Sustainability	—
Develop and adopt an integrated pest management policy for town-owned and town-maintained properties.	Policy				Public Space & Sustainability	—
Advocate for local authority over environmental protections measures and regulations.	Policy				Stormwater & Environmental Services	—
Endorse state and regional initiatives and polices that contribute to the sustained ecological health of the environment and natural systems.	Policy				Town Board	—
Advocate for and endorse regulations that advance best management practices for development projects.	Policy				Planning & Economic Development	—
Develop and implement a capital improvement projects plan for stormwater infrastructure improvements.	Project				Stormwater & Environmental Services	—
Implement Bellevue Branch Watershed Improvement Plan recommendations.	Project				Stormwater & Environmental Services	—
Implement green infrastructure projects on town-owned and town-maintained properties.	Project				Public Space & Sustainability	Stormwater & Environmental Services
Implement stream restoration projects.	Project				Stormwater & Environmental Services	—
Create educational materials about the best practices and the benefits of incorporating green infrastructure and other sustainability initiatives on private properties and development sites.	Project				Stormwater & Environmental Services	Communications
Incorporate life cycle costs of green infrastructure and sustainability initiatives compared with traditional stormwater systems and construction techniques when making public infrastructure investment decisions.	Project				Stormwater & Environmental Services	—
Analyze and revise stormwater program fee rate structure to meet stormwater program goals.	Project				Stormwater & Environmental Services	—
Acquire properties or easements for critical environmental areas as needed.	Project				Stormwater & Environmental Services	Public Space & Sustainability
Complete identified critical sewer system rehabilitations to reduce and prevent sewer system overflows.	Project				Water Distribution & Wastewater Collection	—
Complete identified critical sewer system expansions to allow for future growth.	Project				Water Distribution & Wastewater Collection	—
Develop a bulk reuse water program and infrastructure.	Project				Water Distribution & Wastewater Collection	—
Implement reforestation and planting plans to improve and expand biodiversity and habitat for wildlife and pollinators on town-owned and maintained properties.	Project				Stormwater & Environmental Services	Public Space & Sustainability
Add edible plants on town-owned and town-maintained properties where appropriate.	Project				Public Space & Sustainability	—
Update building and site lighting to timed, LED, cutoff fixtures for town-owned and town-maintained properties.	Project				Public Works	—

**UDO - Unified Development Ordinance**

**High Priority**





# Environment & Natural Systems

## Recommended Actions from Chapter 05

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Develop and update GIS inventories of impervious surfaces, critical environmental areas, tree canopy coverage and tree inventories, riparian zones and stream buffers, pollinator gardens, and wildlife corridors.	Project				Stormwater & Environmental Services	Public Space & Sustainability
Develop and adopt a sustainability tool to incorporate in the budget process.	Project				Public Space & Sustainability	Administrative Services
Identify funding and resources needed to support plans and policies that protect and restore ecological health.	Project				Stormwater & Environmental Services	Public Space & Sustainability
Invest in professional development for town staff that contributes toward meeting environment and natural systems goals.	Project				Stormwater & Environmental Services	Public Space & Sustainability
Investigate options to develop incentives for developers to incorporate sustainable environmental best practices for managed natural areas and landscapes.	Project				Planning & Economic Development	Public Space & Sustainability
Support floodplain reclamation projects.	Project				Stormwater & Environmental Services	—
Investigate opportunities to restore the Eno River to its natural channel in Gold Park.	Project				Stormwater & Environmental Services	—
Implement state and federal stormwater program requirements.	Program				Stormwater & Environmental Services	—
Investigate options for cost-sharing, green infrastructure, and nature based initiatives on private property.	Program				Stormwater & Environmental Services	—
Continue to offer and oversee leaf removal and street sweeping programs.	Program				Public Works	Stormwater & Environmental Services
Continue to participate in the Tree City USA program.	Program				Public Space & Sustainability; Tree Board	—
Investigate options for cost-sharing, tree planting programs on private property.	Program				Public Space & Sustainability; Tree Board	—
Continue to participate in the Bee City USA program.	Program				Public Space & Sustainability; Tree Board	—
Investigate options for cost-sharing initiatives that expand and improve habitat for wildlife and pollinators.	Program				Public Space & Sustainability; Tree Board	—
Continue to coordinate litter removal program.	Program				Public Works	—
Continue to coordinate invasive species removal program.	Program				Public Space & Sustainability	—
Develop a leaf composting program.	Program				Stormwater & Environmental Services	Public Space & Sustainability
Develop a rainwater harvesting or rain barrel cost-sharing program.	Program				Stormwater & Environmental Services	Public Space & Sustainability
Investigate options to retain and reuse top soil from development sites.	Program				Stormwater & Environmental Services	Public Space & Sustainability



# Environment & Natural Systems

## Recommended Actions from Chapter 05

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Investigate opportunities to rescue native plants at development sites with programs such as plant rescue squads.	Program				Stormwater & Environmental Services	Public Space & Sustainability
Maintain membership and participate in programs that contribute toward meeting environment and natural systems goals.	Program				Stormwater & Environmental Services	Public Space & Sustainability
Coordinate with housing partners to incorporate green infrastructure and best management practices into housing developments and property management policies.	Partnership				Planning & Economic Development	Public Space & Sustainability
Coordinate with state, regional, and nonprofit partners to plan for, expand, and improve wildlife habitat and corridor projects.	Partnership				Public Space & Sustainability	—
Support nonprofit partners like the Eno River Association, Triangle Land Conservancy, Seven Mile Creek, and others to conserve natural and critical environmental areas.	Partnership				Stormwater & Environmental Services	All Departments & Divisions
Support Eno River Association, North Carolina State Parks, and the North Carolina Archaeological Conservancy to conserve the Oxbow property and Historic Oconeechee Speedway and expand Eno River State Park into town.	Partnership				Stormwater & Environmental Services	Public Space & Sustainability
Coordinate with state, regional, nonprofit, and educational partners to advance environment and natural systems goals.	Partnership				Stormwater & Environmental Services	Public Space & Sustainability
Maintain membership and participate in partnerships that contribute toward meeting environment and natural systems goals (Upper Neuse River Basin Association, Clean Water Education Partnership, Stormwater Association of North Carolina, and American Public Works Association).	Partnership				Stormwater & Environmental Services	Public Space & Sustainability
Employ land suitability analysis to guide built environment policy and development decisions.	Regulation				Planning & Economic Development	—
Develop and adopt regulations that limit slopes on development sites to 3 to 1 or gentler.	Regulation				Planning & Economic Development	Town Board
Develop and adopt regulations and standards for soil amendment on development sites.	Regulation				Planning & Economic Development	Town Board
Develop and adopt incentives to expand the use of green infrastructure (such as bioswales, rain gardens, and green roofs) for development sites.	Regulation				Planning & Economic Development	Public Space & Sustainability; Town board
Develop and adopt regulations for pet waste.	Regulation				Planning & Economic Development	Town Board
Develop and adopt regulations for fertilizer use.	Regulation				Planning & Economic Development	Town Board
Update and enforce elicit discharge ordinance to incorporate best practices.	Regulation				Stormwater & Environmental Services	—
Update tree preservation ordinance to incorporate best practices.	Regulation				Public Space & Sustainability	—
Encourage boring rather than trenching near existing trees on development sites.	Regulation				Planning & Economic Development	—
Update street tree and landscape planting regulations to incorporate best practices.	Regulation				Planning & Economic Development	Public Space & Sustainability

### UDO - Unified Development Ordinance

High Priority



# Environment & Natural Systems

## Recommended Actions from Chapter 05

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Update recommended and prohibited plants list to incorporate drought-tolerant, deer resistant, and climate hardy species.	Regulation				Public Space & Sustainability	—
Develop and adopt landscape management standards that incorporate best practices for development with homeowners' associations.	Regulation				Public Space & Sustainability	Town Board
Continue to restrict development in floodplains.	Regulation				Planning & Economic Development	—
Update buffer regulations to require conserved, undisturbed, or open space in developments to be located in critical environmental areas or wildlife corridors rather than unconnected buffers between neighborhoods.	Regulation				Planning & Economic Development	—
Update recommended and prohibited plant list in the Unified Development Ordinance.	Regulation				Planning & Economic Development	Public Space & Sustainability
Develop educational materials and take advantage of outreach opportunities that advance the Stormwater and Environmental Services program.	Engagement				Stormwater & Environmental Services	Communications
Develop educational materials and take advantage of outreach opportunities that advance tree canopy preservation, landscape maintenance best practices, biodiversity, invasive species removal, and wildlife and pollinator habitat expansion and improvement.	Engagement				Public Space & Sustainability	Communications
Update and distribute educational materials that advance sustainable water usage and conservation.	Engagement				Water Distribution & Wastewater Collection	Communications
Update and distribute educational materials about the Fats, Oils, and Grease program to help prevent sewer overflows.	Engagement				Water Distribution & Wastewater Collection	Communications
Practice equitable and authentic community engagement on topics related to sustained ecological health of the environment and natural systems.	Engagement				Stormwater & Environmental Services; Public Space & Sustainability	Communications
Provide information on the town website and through town communication channels about plans, policies, projects, partnerships, and programs that contribute to sustained ecological health of the environment and natural systems.	Engagement				Stormwater & Environmental Services; Public Space & Sustainability	Communications
Utilize interpretive signs to educate the community on topics related to sustained ecological health of the environment and natural systems.	Engagement				Stormwater & Environmental Services; Public Space & Sustainability	Communications
Develop education training materials for town staff and contractors on best practices that contribute to sustained ecological health of the environment and natural systems.	Engagement				Stormwater & Environmental Services; Public Space & Sustainability	Communications
Install additional interpretative signs that educate the public on natural systems and best management practices.	Engagement				Public Space & Sustainability	Communications
Develop educational materials for private property owners to care for and reestablish riparian buffers.	Engagement				Stormwater & Environmental Services	Communications

### UDO - Unified Development Ordinance

High Priority





# Transportation & Connectivity

## Recommended Actions from Chapter 06

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Develop a schedule for repairs and maintenance for sidewalks and greenways, prioritizing connectivity improvements.	Plan				Public Works	Public Space & Sustainability
Develop and submit transportation projects to be included in regional transportation plans that address connectivity.	Plan				Public Space & Sustainability	Town Board
Develop an accessibility plan to address mobility issues, supporting multimodal planning, and more compact development within the town.	Plan				Public Space & Sustainability	—
Develop local electric vehicle deployment plans consistent with state and regional plans.	Plan				Public Space & Sustainability	—
Develop a local funding plan for the implementation of prioritized transportation and connectivity projects.	Plan				Administrative Services	—
Incorporate transportation-specific strategies from the Orange County Master Aging Plan into local plans and project prioritization.	Plan				Public Space & Sustainability	—
Develop a comprehensive safety action/vision zero plan.	Plan				Public Space & Sustainability	—
Adopt a Complete Streets policy that guides the design, construction, operation, and maintenance of streets that are safe for all road users.	Policy				Public Space & Sustainability	Town Board
Adopt a public/private streets policy.	Policy				Planning & Economic Development	Town Board
Allocate annual dedicated funding to connectivity projects.	Policy				Public Space & Sustainability	Town Board
Update the current traffic-calming policy to ensure a prioritization of multiple modes and consistency with the recommended Complete Streets policy.	Policy				Public Space & Sustainability	Town Board
Adopt a micromobility policy, including guidance on electric bikes and scooters.	Policy				Public Space & Sustainability	Town Board
Adopt a policy for ownership and maintenance of trails and greenways constructed as part of private development projects.	Policy				Public Space & Sustainability	Planning & Economic Development; Town Board
Determine if any existing trails and greenways need public easements or town ownership and maintenance, such as those owned by Bellevue Mill Apartments, the Corbinton Commons homeowners association, and the Fiori Hills homeowners association.	Policy				Public Space & Sustainability	Planning & Economic Development
Ensure that strategies for aging in place are included in local transportation policies.	Policy				Public Space & Sustainability	—
Prioritize implementing transportation priorities as detailed in Figure 6.1 of this plan.	Project				Public Space & Sustainability	—
Prioritize implementing sidewalk recommendations as detailed in Figure 6.10 of this plan.	Project				Public Space & Sustainability	—
Prioritize implementing greenway and trail recommendations as detailed in Figure 6.16 of this plan.	Project				Public Space & Sustainability	—
Prioritize incorporating crosswalks at locations detailed in Figure 6.13 of this plan.	Project				Public Space & Sustainability	—

### UDO - Unified Development Ordinance

High Priority



# Transportation & Connectivity

## Recommended Actions from Chapter 06

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Inventory town neighborhoods for areas that need crosswalk and accessible curb ramp improvements.	Project				Public Space & Sustainability	—
Implement Safe Routes to Schools Plan recommendations within the town limits.	Project				Public Space & Sustainability	—
Complete feasibility and implement the Ridgewalk greenway system.	Project				Public Space & Sustainability	—
Complete the train station design as a mobility hub, with a focus on multimodal connections.	Project				Public Space & Sustainability	—
Develop a project for adding pedestrian and bicycle amenities to parks and public spaces (including benches, waste containers, bicycle racks, and other amenities).	Project				Public Space & Sustainability	Parks & Recreation Board
Work with transit agencies on a project to add shelters and benches to bus stops.	Project				Public Space & Sustainability	—
Develop a prioritization system for expanding the town's network of publicly accessible electric vehicle charging stations.	Project				Public Space & Sustainability	—
Monitor potential federal, state, and private funding sources to complete transportation improvement projects.	Project				Public Space & Sustainability	—
Develop a comprehensive parking study to evaluate existing conditions and provide strategies for addressing parking needs in and around Hillsborough's downtown, including payment options, signage, and enforcement (with county participation due to county-owned parcels).	Project				Planning & Economic Development	—
Evaluate the need for traffic-calming treatments on town streets.	Project				Public Space & Sustainability	—
Adopt a Vision Zero policy to improve the roadway environment and policies to lessen the severity of crashes.	Policy				Public Space & Sustainability	Town Board
Coordinate with NCDOT on all relevant transportation projects.	Partnership				Public Space & Sustainability	—
Partner with Orange County Public Transportation and GoTriangle to advance transit and mobility options.	Partnership				Public Space & Sustainability	—
Coordinate with Orange County to locate a regional multimodal hub in the town.	Partnership				Public Space & Sustainability	—
Coordinate with Orange County and other partners on regional trail and greenway planning and implementation.	Partnership				Public Space & Sustainability	—
Support Safe Routes to Schools area projects.	Partnership				Public Space & Sustainability	—
Participate in regional planning and development of first-to-last-mile connections.	Partnership				Public Space & Sustainability	—
Advocate for Amtrak train service to the future Hillsborough train station.	Partnership				Public Space & Sustainability	Town Board
Coordinate with NCDOT, transit providers, railroad, and regional agencies on developing commuter rail options.	Partnership				Public Space & Sustainability	—
Participate in transportation planning efforts at the county and regional level.	Partnership				Public Space & Sustainability	—

### UDO - Unified Development Ordinance

High Priority



# Transportation & Connectivity

## Recommended Actions from Chapter 06

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Update the sidewalk ordinance and payment in lieu system to include requirements for sidewalks, crosswalks, and ADA compliant ramps on new streets (public and private) (UDO).	Regulation				Planning & Economic Development	Public Space & Sustainability
Update the sidewalk ordinance to prohibit barriers to connectivity and accessibility and incorporate universal design standards for new sidewalks, shared-use paths, and greenways (UDO).	Regulation				Planning & Economic Development	Public Space & Sustainability
Update the town's parking requirements for simplicity and flexibility based on outcomes of the recommended parking study (UDO).	Regulation				Planning & Economic Development	—
Update street standards to incorporate roadway, sidewalk, shared-use path, greenway, utilities, and right-of-way design treatments as detailed in this plan (UDO).	Regulation				Planning & Economic Development	Public Space & Sustainability
Adopt regulations that require developers to include an integrated traffic impact study and transportation demand management program for development and redevelopment projects to evaluate and address the multimodal transportation impacts of the development.	Regulation				Planning & Economic Development	—
Adopt regulations that require developers to incorporate bicycle and pedestrian connectivity and amenities into development projects (UDO).	Regulation				Planning & Economic Development	Public Space & Sustainability
Adopt regulations that require developments to be accessible by multiple modes, including transit and microtransit (UDO).	Regulation				Planning & Economic Development	Public Space & Sustainability
Update parking requirements to incorporate best practices for reducing surface parking through mechanisms such as eliminating parking minimums, adopting parking maximums, and encouraging shared and structured parking (UDO).	Regulation				Planning & Economic Development	—
Develop and adopt electric vehicle requirements for developments (UDO).	Regulation				Planning & Economic Development	Public Space & Sustainability
Offer incentives for electric vehicle charging infrastructure in developments (UDO).	Regulation				Planning & Economic Development	Public Space & Sustainability
Update regulations and street standards to incorporate the recommended Complete Streets policies (UDO).	Regulation				Planning & Economic Development	Public Space & Sustainability
Develop structured parking standards (UDO).	Regulation				Planning & Economic Development	—
Develop green design standards and incentives for parking facilities (UDO).	Regulation				Planning & Economic Development	Public Space & Sustainability
Update the Code of Ordinances to align with this plan and provide clear enforcement authority.	Regulation				Planning & Economic Development	Public Space & Sustainability
Ensure that the technical specifications for water and sewer systems and standard utilities details align with this plan, the UDO, and the street standards.	Regulation				Planning & Economic Development	Water Distribution & Wastewater Collection
Provide clear enforcement of the regulations in the Code of Ordinances related to the safety of roadways, parking areas, sidewalks, and rights of way.	Regulation				Planning & Economic Development	Police; Public Works
Conduct an annual public safety summit to share information and gather feedback from community members on issues related to safety.	Engagement				Communications	All Departments

### UDO - Unified Development Ordinance

High Priority





# Transportation & Connectivity

## Recommended Actions from Chapter 06

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Approach and evaluate transportation and connectivity planning and decisions with an equity lens to create a transportation system that benefits and is accessible to all users.	Engagement				Public Space & Sustainability	—
Educate community leaders, groups, and individuals on the benefits of alternative modes of transportation through promotional materials and awareness campaigns.	Engagement				Communications	Public Space & Sustainability
Develop and support education and outreach campaigns about transit options.	Engagement				Communications	Public Space & Sustainability

### UDO - Unified Development Ordinance

High Priority



# Social Systems & Public Space

## Recommended Actions from Chapter 07

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Update Parks and Recreation Master Plan and park master plans to include accessibility, sustainability, safety, and equity initiatives and best practices.	Plan				Public Space & Sustainability	Parks & Recreation Board
Develop and adopt a racial equity plan for the town.	Plan				Diversity, Equity, & Inclusion Team	Town Board
Develop and adopt a policy to incorporate universal design principles in public spaces.	Policy				Public Space & Sustainability	Town Board
Develop and adopt policies for the inclusion of public art in town projects and public spaces.	Policy				Public Space & Sustainability	Town Board
Develop and adopt policies for communications that incorporate best practices for equitable and authentic community engagement.	Policy				Communications	Town Board
Develop and adopt an equity lens or tool to inform budget allocations.	Policy				Diversity, Equity, & Inclusion Team	Town Board
Support and contribute town resources to arts and cultural initiatives and community events that assist in meeting social systems and public space goals.	Project				Public Space & Sustainability	Town Board
Implement recommendations of park master plans that advance accessibility, sustainability, safety, and equity in public spaces.	Project				Public Space & Sustainability	Parks & Recreation Board
Allocate resources to improve the accessibility, sustainability, and equity of public spaces.	Project				Public Space & Sustainability	Town Board
Allocate resources to fund public art projects in public spaces.	Project				Public Space & Sustainability	Town Board
Implement Master Aging Plan recommendations that contribute to meeting social system and public space goals.	Project				Public Space & Sustainability	—
Advance One Orange Racial Equity Framework recommendations that contribute to meeting social system and public space goals.	Project				Diversity, Equity, & Inclusion Team	—
Continue to develop and implement wayfinding and interpretive signage programs.	Project				Public Space & Sustainability	—
Continue to provide pedestrian amenities like site furnishing and placemaking features that advance accessibility, sustainability, safety, and equity in public spaces. Install LED fixtures for street and site lighting to provide consistent light levels for public safety.	Project				Public Space & Sustainability	—
Provide public Wi-Fi in town parks and at town facilities.	Project				Information Technology	—
Work with communities and partners to install kiosks for communication in suitable locations around town.	Project				Public Space & Sustainability	Tourism
Coordinate with and support local organizations and agencies that provide arts and cultural, events and entertainment programming and projects (Orange County Arts Commission, Hillsborough Arts Council, Orange County Historical Museum, and others).	Partnership				Tourism, Public Space & Sustainability	—
Coordinate with and support local organizations and agencies that provide food access and health and wellness programs (Orange County, PORCH, OCIM, Family Success Alliance, and others).	Partnership				Town Board	Communications

### UDO - Unified Development Ordinance

#### High Priority



# Social Systems & Public Space

## Recommended Actions from Chapter 07

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Develop and support local organizations and agencies that promote and provide community gardens, urban agriculture, edible landscapes, and farmers markets.	Partnership				Public Space & Sustainability	—
Coordinate with county and regional agencies on future parks and greenway planning efforts and funding opportunities.	Partnership				Public Space & Sustainability	—
Coordinate with organizations and agencies to expand access to high-speed internet.	Partnership				Information Technology	—
Continue to build the community liaisons program for communications, seeking representation from each community in town.	Partnership				Communications	—
Further develop partnerships for communications with agencies that serve non-English-speaking community members.	Partnership				Communications	—
Seek to participate in programs to build capacity for communicating with residents in community languages (Building Integrated Communities' Local Government Language Access Collaborative).	Partnership				Communications	—
Coordinate with and support local organizations and agencies that advance equity and inclusivity.	Partnership				Communications	All Departments & Divisions
Revise historic district regulations and standards to advance sustainability and equity best practices.	Regulation				Planning & Economic Development	Historic District Commission
Develop and adopt standards for street lighting and pedestrian lighting in the right of way.	Regulation				Public Space & Sustainability	Public Works; Planning & Economic Development
Develop and adopt standards for pedestrian and placemaking amenities in the right of way.	Regulation				Public Space & Sustainability	—
Update street standards to incorporate the town standard for streetlights - Type 2 LED 50-Watt, 3000 Kelvin fixtures.	Regulation				Planning & Economic Development	Public Works
Incorporate crime prevention through environmental design best practices into development regulations.	Regulation				Planning & Economic Development	—
Provide enforcement of safety and nuisance regulations.	Regulation				Police	Planning & Economic Development
Conduct regularly scheduled community outreach and engagement efforts on topics related to safety through Engage Hillsborough.	Engagement				Communications	All Departments & Divisions
Continue to maintain and develop a contact database of neighborhood and community contacts to assist with community outreach and engagement efforts.	Engagement				Communications	—
Continue to provide and increase Spanish translation of key documents and services and identify other translation and interpretation services that may be necessary, including American Sign Language.	Engagement				Communications	—
Maintain and publish the community events calendar.	Engagement				Planning & Economic Development	—
Assess town website's accessibility.	Engagement				Communications	Information Technology

### UDO - Unified Development Ordinance

High Priority





# Social Systems & Public Space

## Recommended Actions from Chapter 07

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Conduct social media and website audits.	Engagement				Communications	—
Conduct communications survey.	Engagement				Communications	—
Connect with neighborhood groups to share communication methods and learn concern and gaps in communication.	Engagement				Communications	—
Establish semiannual meetings with community liaisons to share information and learn community concerns, questions and gaps in communication.	Engagement				Communications	—

### UDO - Unified Development Ordinance

High Priority



# Housing & Affordability

## Recommended Actions from Chapter 08

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Participate in the creation of a countywide housing plan that includes a gap analysis, housing security analysis, and housing needs assessment.	Plan				Community Services	—
Participate with Partnership to End Homelessness to fill the gaps identified in the plan to end homelessness.	Plan				Community Services	—
Monitor conditions for early warning signs of issues in housing supply to help the town identify and address incipient changes to before they become urgent problems.	Plan				Community Services	—
Monitor housing policies, programs, and initiatives for progress in closing gaps in housing need, supply, and demand.	Plan				Community Services	—
Create an annual action plan and develop a dashboard for the town website that tracks affordable housing progress, highlights challenges and successes, and is reviewed quarterly.	Plan				Community Services	—
Adopt guiding principles for affordable housing.	Policy				Community Services	Town Board
Create resilient neighborhoods through housing policy that supports thriving neighborhoods.	Policy				Community Services	—
Establish an affordable housing fund and begin contributing to it in the following fiscal year, increasing to 2% of the town's general fund over three to five years. Dedicate funding to support housing programs.	Policy				Community Services	—
Research establishing an affordable housing trust fund to support affordable housing development.	Policy				Community Services	—
Consider affordable housing payment in lieu only for smaller developments and dedicate these funds to the affordable housing fund once established.	Policy				Community Services	—
Encourage changes to state law that hamper the development of affordable housing efforts or block Town efforts to increase the stock of affordable housing.	Policy				Community Services	—
Identify a town staff member to manage affordable housing efforts, including working with developers, maintaining an inventory of units, identifying relevant resources, and collaborating with stakeholders and peer municipalities to learn about best practices and funding opportunities.	Policy				Administrative Services	—
Support the creation of affordable housing through strategic acquisition and use of public land.	Project				Community Services	Town Board
Explore public-private partnerships to purchase vacant land, land entering foreclosure, or land in other forms of receivership and to build affordable housing on town-owned land, especially in areas with low transportation costs.	Project				Community Services	—
Prioritize surplus town-owned land for potential affordable housing.	Project				Community Services	—
Dedicate at least a third of the remaining buildable train station land to future affordable housing in partnership with a trusted entity.	Project				Community Services	—
Invest in public projects that support aging in place and accessibility.	Project				Public Space & Sustainability	—
Investigate tools to acquire land outside the traditional real estate market that can be made available for affordable housing development by others.	Project				Community Services	—

### UDO - Unified Development Ordinance

High Priority



# Housing & Affordability

## Recommended Actions from Chapter 08

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Coordinate with regional partners on housing assistance programs.	Partnership				Community Services	—
Coordinate with housing agencies, regional partners, and the private sector to implement initiatives.	Partnership				Community Services	—
Streamline existing programming to maintain continued housing affordability and the ability of residents to remain in their homes.	Partnership				Community Services	—
Develop a metric to assess the cost of government and consider the impact of increased government costs on cost burdened households.	Partnership				Community Services	—
Work with regional housing partners to ensure housing goals and policies guide implementation of affordable and workforce housing developments within the town's planning area.	Partnership				Community Services	—
Continue preserving existing, naturally occurring affordable housing through the creation and expansion of programs targeted on home repair for income-eligible owners and those renting to income-eligible households. Place focus on housing in areas experiencing growth.	Partnership				Community Services	—
Partner with housing agencies to implement policies and programs to retain existing housing and residents, including actions to rehabilitate and restore homes to a state of good repair.	Partnership				Community Services	—
Continue to encourage landlord participation in existing federal and other voucher programs to maximize housing options within the county.	Partnership				Community Services	—
Develop or partner with others to develop educational efforts to encourage preservation of generational wealth through careful estate planning.	Partnership				Community Services	Communications
Increase funding of programs to help residents stay in their homes by supporting repairs and efficiency improvements.	Partnership				Community Services	Town Board
Foster connections with residents and other agencies and organizations that provide repair and efficiency improvement services to help residents stay in their homes.	Partnership				Community Services	—
Work with regional housing agencies, regional planning bodies, the private sector, and other partners to increase the supply of affordable and workforce housing.	Partnership				Community Services	—
Leverage financial resources or debt capacity to support incorporating affordable housing into new development projects.	Partnership				Community Services	—
Supplement federal voucher programs through locally funded rental vouchers or direct income supports.	Partnership				Community Services	—
Create a program that identifies beneficial and challenging site characteristics for housing developments, such as beneficial connections to public transportation and burdens like siting, topography, above-average construction costs, and restrictions by funders or regulator.	Partnership				Community Services	—
Investigate regulatory requirements and incentives for affordable housing that require 15% of housing units to be affordable in new residential developments and more in property zoned other than residential but have flexibility to achieve overall goals of the town.	Regulation				Community Services	Town Board
Investigate town-wide regulatory programs that require or incentivize development of affordable housing in mixed-income developments, in standalone affordable housing developments, and in targeted neighborhoods.	Regulation				Community Services	—

### UDO - Unified Development Ordinance

High Priority





# Housing & Affordability

## Recommended Actions from Chapter 08

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Increase housing opportunities for households or individuals that have limited access by increasing the number of affordable rental units, targeting those at 80% or less of the average median income.	Regulation				Community Services	—
Support affordable housing opportunities in transit corridors or transit supportive developments and neighborhoods.	Regulation				Community Services	Public Space & Sustainability
Increase diversity of housing stock through development regulations and decisions.	Regulation				Community Services	Town Board
Update the UDO and regulations to result in broader range of quality housing types of different sizes, configurations, tenures, price points, ownership structure, and income levels within close proximity.	Regulation				Planning & Economic Development	—
Enact regulations that make building smaller, moderately priced homes easier (incentivized), including zoning reforms; relaxing dimensional requirements such as minimum lot sizes, setbacks, lot coverage, or floor-to-area ratios; reducing minimum parking requirements; and flexibility in design standards.	Regulation				Planning & Economic Development	—
Revise the UDO to allow for higher density housing or lower cost housing types in accordance with the Future Land Use Plan.	Regulation				Planning & Economic Development	—
Incorporate universal design principles and share information with developers.	Regulation				Public Space & Sustainability	Public Space & Sustainability
Encourage housing in existing and proposed commercial areas (mixed use) in accord with the Future Land Use Plan.	Regulation				Planning & Economic Development	—
Adopt regulations that ensure housing developments are accessible and connected.	Regulation				Planning & Economic Development	Public Space & Sustainability
Retain affordable and workforce housing units by managing gentrification, displacement, and redevelopment within existing neighborhoods.	Regulation				Planning & Economic Development	—
Adopt regulations that promote a variety in housing that fills the missing middle housing.	Regulation				Planning & Economic Development	Town Board
Evaluate additional practices to encourage the construction of accessory dwelling units.	Regulation				Planning & Economic Development	—
Incentivize green housing developments and retrofits.	Regulation				Planning & Economic Development	Public Space & Sustainability
Streamline the permitting process for multiple parts of the housing development process.	Regulation				Planning & Economic Development	—
Improve outreach and education to encourage resident participation in existing county tax relief programs for homeowners.	Engagement				Communications	Community Services
Provide outreach and education to promote housing accessibility and affordability.	Engagement				Communications	Community Services

### UDO - Unified Development Ordinance

High Priority



# Economic Systems & Tourism

## Recommended Actions from Chapter 09

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Develop and adopt a local business support plan that includes initiatives to supporting disadvantaged business enterprises.	Plan				Planning & Economic Development	—
Create a process and database for business owners to document business certifications (e.g. woman-owned, veteran-owned, BIPOC-owned, small business).	Plan				Planning & Economic Development	—
Conduct market analysis and schematic plan or planned unit layout for the future train station property.	Plan				Planning & Economic Development	—
Conduct a downtown parking study and develop and adopt a long-range parking plan.	Plan				Planning & Economic Development	—
Update the hazard mitigation plan to incorporate potential economic disruptions and post-disaster economic recovery strategies.	Plan				Community Services	—
Promote the economic incentive policy.	Policy				Planning & Economic Development	—
Develop a snow removal policy for sidewalks in the Central Commercial District.	Policy				Public Works	Town board
Promote and encourage tourism events, programs, and projects that bring people to a variety of neighborhoods and commercial areas in town.	Policy				Planning & Economic Development	Communications; Tourism Board; Tourism Development Authority
Complete train station development master plan.	Project				Public Space & Sustainability	—
Continue to develop and implement the interpretive and wayfinding signage programs.	Project				Public Space & Sustainability	—
Update the town website to highlight economic development and tourism opportunities.	Project				Communications	Planning & Economic Development
Initiate one project per year that provides new visitor or general public amenities or beautification to town.	Project				Planning & Economic Development	Tourism Board; Tourism Development Authority
Investigate options to provide façade grants to local businesses.	Project				Planning & Economic Development	—
Conduct semi-annual market analysis on visitor data and demographics to inform marketing plans.	Project				Planning & Economic Development	—
Coordinate with and support organizations and agencies that provide jobs, employment education, and training opportunities.	Partnerships				Planning & Economic Development	—
Continue to qualify as an Orange County living wage employer and help to market and promote the program to area employers.	Partnerships				Planning & Economic Development	—
Partner with Orange County and other organizations on workforce training and development programs.	Partnerships				Planning & Economic Development	—
Strengthen partnerships with local and regional government, educational institutions, employers and businesses, and nonprofit organizations to increase economic opportunity.	Partnerships				Planning & Economic Development	—
Coordinate with and support organizations and agencies that provide business support programs.	Partnerships				Planning & Economic Development	—

UDO - Unified Development Ordinance

High Priority



# Economic Systems & Tourism

## Recommended Actions from Chapter 09

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Coordinate with and support organizations and agencies that provide tourism programming in Hillsborough (Orange County, Visitors Bureau, Chamber of Commerce, Hillsborough Visitors Center, and others).	Partnerships				Planning & Economic Development	Tourism Board; Tourism Development Authority
Coordinate with and support organizations and agencies on resilience and preparedness planning.	Partnerships				Public Space & Sustainability	—
Update and rewrite the UDO and Future Land Use Plan to incorporate sustainability, environmental and climate best practices, economic resiliency, and equity measures in development and redevelopment.	Regulation				Planning & Economic Development	—
Review and update signage regulations as part of the UDO rewrite.	Regulation				Planning & Economic Development	—
Review and update sidewalk dining regulations as part of the UDO rewrite.	Regulation				Planning & Economic Development	—
Review and update the noise ordinance to ensure it meets the needs of residents and the business community.	Regulation				Planning & Economic Development	—
Refine regulations and processes to make it easier to start, expand, or relocate a business with flexibility to support compatible businesses in residential neighborhoods.	Regulation				Planning & Economic Development	—
Practice equitable and authentic community engagement on topics related to economic systems and tourism.	Engagement				Communications	Planning & Economic Development; Tourism Board; Tourism Development Authority
Educate town staff and elected officials on available economic development incentives and strategies.	Engagement				Communications	Planning & Economic Development
Educate the community on the nondiscrimination ordinance that prohibits discrimination in public accommodations and employment.	Engagement				Communications	—
Provide economic development education and outreach materials.	Engagement				Communications	Planning & Economic Development
Provide information on the town website and through town communication channels about activities and initiatives that contribute toward sustainable economic systems and tourism program.	Engagement				Communications	Planning & Economic Development; Tourism Board; Tourism Development Authority
Enforce ordinances and policies that provide for a vibrant, economically successful community while maintaining a high quality of life for residents.	Engagement				Planning & Economic Development	Police; Public Works

### UDO - Unified Development Ordinance

High Priority





# Climate & Energy

## Recommended Actions from Chapter 10

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Plan for and monitor progress toward meeting the town's clean energy pledge and building a more sustainable future.	Plan				Public Space & Sustainability	—
Engage an energy consultant to conduct energy audits at the town's buildings.	Plan				Public Space & Sustainability	—
Assess renewable energy generation potential (i.e., generating capacity) for solar photovoltaics and wind energy projects on town-owned properties and identify priority sites for planning and implementation.	Plan				Public Space & Sustainability	—
Develop and adopt a policy that requires all new facility construction and major facility renovations undertaken by the town to achieve net-zero status/LEED equivalent/Energy Star (i.e., all energy consumed annually by the building must be completely offset by energy renewably produced on-site) or better. This policy should encourage the use of building materials with low embodied carbon.	Policy				Public Space & Sustainability	Facilities Manager; Planning & Economic Development; Budget
Develop and adopt a policy that requires all municipal departments to incorporate zero emission vehicles and manual or electric-powered equipment when feasible. Incorporate reasonable timeframes based on vehicle class (i.e., light-duty, medium-duty, heavy-duty) and informed by market availability of alternatives.	Policy				Fleet Maintenance	Public Space & Sustainability
Develop and adopt a "no idling" policy for vehicles that is enforceable. Communicate the "no idling" policy to employees, contractors, and guests of town facilities.	Policy				Fleet Maintenance	Public Space & Sustainability
Evaluate purchasing additional e-bikes as part of the town's regular fleet.	Policy				Finance Services	Fleet Maintenance
Develop and adopt a green purchasing policy that outlines environmental criteria and purchasing requirements for ongoing consumables (e.g., paper, batteries, desk accessories, food and beverages) and durable goods (e.g., furniture, appliances). Maintain a list of qualifying purchases and available suppliers.	Policy				Finance Services	Public Space & Sustainability
Develop and adopt a policy that prohibits the acquisition and use of single-use plastics and Styrofoam for town use when feasible.	Policy				Finance Services	Public Space & Sustainability
Prioritize electronic filing and discourage printing and copying when feasible.	Policy				Administrative Services	—
Integrate life cycle costing into the town's capital and asset management planning to ensure that total cost of ownership is considered, not just upfront, non-recurring costs.	Policy				Budget	Public Space & Sustainability; Planning & Economic Development; Public Works; Financial Services
Set time-of-day scheduling for HVAC systems at town facilities, which should include setting proper occupied and unoccupied temperature setpoints.	Project				Public Space & Sustainability	Facilities Manager
Install bottle fillers on water fountains.	Project				Public Space & Sustainability	Facilities Manager
Perform energy retrofits and strive to enable buildings to be net-zero energy capable.	Project				Public Space & Sustainability	Facilities Manager
Electrify all fossil fuel-consuming end uses to the extent practicable, including space heating and hot water systems, through ground and air heat pump technologies.	Project				Public Space & Sustainability	Facilities Manager

### UDO - Unified Development Ordinance

High Priority



# Climate & Energy

## Recommended Actions from Chapter 10

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Fully replace all lighting fixtures, including exit signs, with LED technology. Where applicable, couple LED fixtures with automatic or smart sensors.	Project				Public Space & Sustainability	Facilities Manager
Convert public streetlights in residential areas to the town standard Type 2, 50-watt, 3000 Kelvin, LED fixtures.	Project				Public Works	—
Convert public streetlights on high traffic roadways to LED fixtures.	Project				Public Works	—
Investigate opportunities and incorporate to the greatest extent possible sustainability and climate initiatives in facility development including geothermal, solar, weatherization, and green infrastructure.	Project				Public Space & Sustainability	Facilities Manager
Conduct weatherization improvements and upgrades to conserve energy and reduce energy costs in town facilities. Weatherization strategies may include insulation, leak repair, window replacements, and other measures.	Project				Public Space & Sustainability	Facilities Manager
Assess the potential for energy savings and proceed with any efficiency opportunities at the town's water pumping infrastructure, including replacements with more efficient models.	Project				Utilities	—
For on-site renewable energy generation, explore the feasibility of energy storage systems (e.g., solar PV plus battery storage).	Project				Public Space & Sustainability	Facilities Manager; Public Works
Implement a water conservation and efficiency program marketed towards residents and local businesses with the aim of reducing water treatment loads and associated energy use.	Policy				Utilities	Public Space & Sustainability
Track and monitor the town's electricity, natural gas, and other fuel use. Identify what options might be available for more detailed or real-time energy monitoring to further understand operational needs and trends. Use benchmarking platforms, such as the US Environmental Protection Agency's Energy Star Portfolio Manager, to continuously monitor building performance.	Project				Public Space & Sustainability	Facilities Manager
Track energy use at town facilities and monitor energy conservation measures.	Project				Public Space & Sustainability	Facilities Manager
Develop an energy efficiency operations and maintenance program for the town facilities and provide necessary trainings to staff and hired contractors. Incorporate best practices, such as turning off lights and electronics when not in use.	Project				Public Space & Sustainability	Facilities Manager
Provide recycling at all town facilities and monitor energy conservation measures.	Project				Public Works	Facilities Manager
Hire a grant administrator to research and identify, apply for, and administer grants that help to accomplish climate and energy goals.	Project				Public Space & Sustainability	Administrative Services
Evaluate the town's vehicle fleet to determine right-sizing and transition to EV potential.	Project				Fleet Maintenance	Public Space & Sustainability
Transition the town's vehicle fleet to zero emission alternatives on a schedule consistent with vehicle lifecycles and market availability. Advance the schedule of this transition as feasible.	Project				Fleet Maintenance	Public Space & Sustainability

### UDO - Unified Development Ordinance

High Priority



# Climate & Energy

## Recommended Actions from Chapter 10

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Ensure EV charging infrastructure is appropriately provided to support the town's electric vehicle transition.	Project				Public Space & Sustainability	Planning & Economic Development; Public Works
Transition the town's maintenance equipment to manual or electric-powered alternatives.	Project					Public Works
Launch an educational campaign to inform staff on the ways they can assist the town in reducing its energy use, among other ways to improve the town's sustainability performance.	Project				Public Space & Sustainability	Communications; Human Resources
Develop a recognition and incentive program to reward staff for making positive contributions to the town's sustainability performance.	Project				Public Space & Sustainability	Communications; Human Resources
Establish a green team to champion sustainability and climate initiatives.	Project				Public Space & Sustainability	—
Regularly report and communicate sustainability performance data to town staff and external stakeholders, such as residents.	Project				Public Space & Sustainability	Communications
Develop a sustainability performance dashboard.	Project					Facilities Manager
Complete a formal GHG emissions inventory for local government operations to capture the full range of emissions sources owned or influenced by the town's operations and activities.	Project				Public Space & Sustainability	Facilities Manager; Public Works; Utilities
Evaluate best practices for resilient power, such as backup generation sources, fuel, micro-grids, telecommunications, and emergency service providers. Prepare a community-wide GHG emissions inventory to understand how to reduce emissions associated with the broad set of activities occurring within town's jurisdictional boundary (e.g., energy consumption in residential buildings, on-road transportation, waste generation).	Project				Public Space & Sustainability	Facilities Manager; Public Works; Utilities; Police; Fire
Prepare a Community Sustainability Action Plan that celebrates progress to date, and evaluates and identifies strategies for the residents, businesses, property owners and visitors of Hillsborough to implement that address social equity, climate resiliency, and energy conservation.	Project				Public Space & Sustainability	—
Install smart meters in town buildings to enable more efficient energy management.	Project					—
Identify and leverage applicable rebates, grants, and low-cost financing programs offered by federal and state governments (e.g., Qualified Energy Conservation Bonds, Clean Renewable Energy Bonds) and utilities (e.g., Duke Energy Carolinas' Non-Residential Smart \$aver Incentive Program and NC Solar Rebate Program).	Partnerships				Public Space & Sustainability	Utilities; Financial Services
Engage in energy savings performance contracting, where typically the financing for large energy efficiency projects, such as deep energy retrofits, is arranged and implemented by an ESCO and the project is paid for by guaranteed energy savings. ESCOs can also be engaged in the development of on-site renewable energy projects.	Partnerships				Public Space & Sustainability	Financial Services Department
Advocate for state-level legislation, policies, and incentives that decarbonize the state's electricity supply and expand access to energy efficiency programs and technologies.	Partnerships				Public Space & Sustainability	—
Coordinate with state, regional, and nonprofit partners to advance climate and energy goals.	Partnerships				Public Space & Sustainability	—

### UDO - Unified Development Ordinance

High Priority





# Climate & Energy

## Recommended Actions from Chapter 10

Action	Action Type	Project Initiation			Lead	Partners
		0-3 YRS	4-7 YRS	7+ YRS		
Explore purchase power agreements, both physical and virtual, to close gap after maximizing on-site renewable energy generation. The town may also want to consider purchasing renewable energy credits separately, unbundled from the electricity in a purchase power agreement.	Partnerships				Public Space & Sustainability	Financial Services
Advocate for Duke Energy to prioritize clean energy solutions over coal or natural gas-burning practices.	Partnerships				Public Space & Sustainability	—
Work with regional partners (e.g. Orange County and NCDOT) to expand the number of electric vehicle charging stations in the town to support electric vehicle readiness and encourage widespread adoption, especially in key places like Gold Park and the Town Hall Campus. Prioritize the installation of level 3 fast chargers along the interstate fast-charge corridor, where possible.	Partnerships				Public Space & Sustainability	Planning & Economic Development
Continue to coordinate at a regional level on the EVSE Location Suitability Analysis.	Partnerships				Public Space & Sustainability	Planning & Economic Development
Coordinate with NCDOT on the EV Infrastructure Plan and potential funding opportunities under the NEVI Program.	Partnerships				Public Space & Sustainability	Planning & Economic Development
Establish incentives for new developments and redevelopments to incorporate climate and energy initiatives, including but not limited to the potential for solar PV and EV readiness.	Regulations				Public Space & Sustainability	Planning & Economic Development
Update the UDO to incorporate requirements for the plan review process to evaluate the potential for green infrastructure and energy efficient practices of a proposed development.	Regulations				Planning & Economic Development	Public Space & Sustainability
Develop educational and training materials and take advantage of outreach opportunities that advance climate and energy goals.	Engagement				Public Space & Sustainability	—
Practice equitable and authentic community engagement on topics related to climate and energy initiatives.	Engagement				Communications	Public Space & Sustainability
Share best practices for climate and energy actions at community events and through public information platforms.	Engagement				Communications	Public Space & Sustainability

### UDO - Unified Development Ordinance

High Priority





HILLSBOROUGH  
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