



Transportation, Green Infrastructure, Energy and Water: Vision, Goals, Strategies and Projects

Draft April 27, 2021

VISION, GOALS, STRATEGIES AND PROJECTS

A fundamentally important component of the comprehensive plan will be developing the plan's visions, goals, and strategies related to each plan element. This draft document, which focuses on Transportation, Energy, Water, and Green Infrastructure, lays out initial ideas that have been identified in existing plans and programs (e.g. Carrboro Vision 2020, 2050 Metropolitan Transportation Plan), discussions at Task Force meetings, input from the Community Workshop held on November 19, 2020 and interviews with various stakeholders. Items that have come from a particular source are identified below. Other items paraphrase input that has been raised or are best practices from other communities working on similar challenges and initiatives. Racial equity will be included as an overarching vision and associated goals and strategies will be embedded throughout each topic. The following terms are used in the document:

Vision – the big picture of what Carrboro wants to be

Goal – outcome-focused “what” Carrboro is trying to achieve

Strategy – “how” Carrboro will achieve the goal

Project – specific initiatives that will be undertaken to implement the strategy

TRANSPORTATION

Vision: Every Carrboro resident, with particular attention to BIPOC populations, has increased safe and quality access to multimodal transportation options for efficient connections to jobs, recreation, and services.

Goal 1: Address disparate impacts of transportation decisions and investments in Carrboro's BIPOC, lower-income, and non-ambulatory populations.

Strategy 1.1: Center equity in transportation planning processes (2050 Metropolitan Transportation Plan).

Equitable mobility should be the goal of any transportation planning process in order to repair past processes that have limited mobility of marginalized populations.

Projects:

- a) Advocate for the inclusion of equity as a funding criteria at the state level.

- b) Cooperate with regional entities in comprehensive transportation plans (Carrboro Vision 2020) while advocating for a racial equity analysis in development of plans.
- c) Develop an advisory group of disabled residents to inform accessibility needs in transportation infrastructure and service design (Carrboro Vision 2020).
- d) Use a community engagement process to identify barriers to using alternative forms of transportation instead of automobiles (Community Meeting 2020, CCAP 2020).

Strategy 1.2: Improve transportation options for all communities, with a focus on incremental development to increase density to support transit while limiting impacts of displacement of marginalized populations.

Projects:

- a) Locate new high-density development along future public transit routes (Carrboro Vision 2020) that serve denser areas, and BIPOC residents in collaboration with anti-displacement policies.
- b) Identify job centers and commercial hubs and conduct a racial equity impact analysis on current transportation options to these locations, prioritize transportation projects that fill in service gaps (Community Meeting 2020).

Goal 2: Carrboro contains a truly functional multi-modal system that includes prioritizing walking and biking as viable means of transportation and physical activity (2045 Metropolitan Transportation Plan, 2018).

Strategy 2.1 Encourage non-automobile use in the community, reduce vehicle miles travelled through land use decisions and pursue or enhance existing developments that lends itself to public transit use (such as denser mixed-use nodes).

Projects:

- a) Revise land use ordinance to facilitate the development of 15-minute neighborhoods, such that all daily needs outside of employment can be found within a 15-minute walk.
- b) Update land use plan to support mixed use, infill, and redevelopment to further encourage non-vehicular modes (CCAP 2020).
- c) Assess the progress on having developers install new sidewalks and bike paths within new developments (Carrboro Vision 2020).

Strategy 2.2 Create safe streets for pedestrians, bike riders, and transit riders (Residential Management Traffic Plan for Speed and Traffic Control, 1996, Comprehensive Bicycle Transportation Plan Update, 2020).

Projects:

- a) Include more visible pedestrian markings and signals at sidewalk-road intersections and bike lanes (South Greensboro Street Sidewalk Project, 2020).

- b) Ensure that restriping plans include bike lanes, bike boxes, intersection bike markings, center turn lanes, additional crosswalks, maintain parking (East Main Street Operational Analysis and Restriping Plan, 2020).
- c) Identify streets to include bike lanes physically separated from automobile traffic to increase biker safety.
- d) Create safe transition for pedestrians from pedestrian access ways to bus stops (NC 54 Pedestrian and Bicycle Corridor Safety Study, 2019).
- e) Encourage people to “leave their cars behind” by continuing to coordinate biking and walking tours in different parts of Town (Community Workshop 2020).
- f) Invest in stronger public transit with Bus Rapid Transit (BRT), improved connectivity generally, connections to regional transit services, park-and-ride facilities, and transit supportive land use development such as pedestrian friendly, high density, and mixed use (Chapel Hill and Carrboro 2035 Long Range Transit Plan, 2009).
- g) Develop a connected system of on- and off-road facilities to accommodate varying level of bicyclists (Comprehensive Bicycle Transportation Plan Updated, 2009).
- h) Develop programming and financial support (for relevant initiatives) to increase youth education and opportunities (Carrboro Vision 2020) for walking and biking.
- i) Increase ridership in public transit by enabling access for transit mode shifts from pedestrians, bicyclists, and drivers at public transit stops and stations (Chapel Hill Transit Short Range Plan, 2020).

Goal 3: Reduce greenhouse gas emissions from motor vehicle use by 80% by 2030 (CCAP 2020, 2045 Metropolitan Transportation Plan, 2018).

Projects:

- a) Improve and extend the public transit service to include weekends and off-peak hour times (CCAP 2014, Community Meeting, Chapel Hill Transit Short Range Plan, 2020). Ensure that stops include those in the ETJ and serve those who are transit-dependent, low-income households.
- b) Provide a variety of public transit options (buses, small buses, vans, etc) and increase opportunities for alternatively fueled vehicles (Community Meeting 2020).
- c) Improve and market vanpool and carpool options for commuters (CCAP 2014).
- d) Explore and implement land use practices to support greenhouse gas emissions reductions.

Goal 4: Integrate green stormwater infrastructure practices into the Town’s public transportation investments.

Strategy 4.1 Explore manners to apply green stormwater infrastructure assets in transportation plans and projects that will result in dual benefits.

Green stormwater infrastructure included in transportation plans manages the stormwater issues that impervious surfaces (like streets and roads) create by allowing a path for water to travel instead of inundating sewer systems.

Projects:

- a) Integrate green stormwater infrastructure solutions to improve stormwater management practices around transportation infrastructure (streets, alleys, sidewalks, curbs, storm sewers, and greenways).
- b) Invest in green stormwater and grey infrastructure solutions in public right of ways by using design resources such as national best practices explained in NACTO's Urban Street Stormwater Guide that can help retrofit and reconstruct roadways that promote safety and improved stormwater management.
- c) Residents, especially BIPOC identities, provide feedback on transportation plan's incorporation of green infrastructure (Bolin Creek Greenway Conceptual Master Plan, 2009).
- d) Educate residents about the Town's definition of a greenway and its benefits, and foster discussion about greenways (Community Meeting 2020).
- e) Assess areas to build greenways to connect the sidewalk and biking network in partnership with residents, specifically BIPOC identities.

Goal 5: Improve the management of parking spaces in the downtown area.

Strategy 5.1 Revisit and address the long-standing concern of parking management in the Downtown by encouraging visitors to "park once".

Projects:

- a) Conduct additional outreach to business owners, residents, and visitors to understand parking concerns (Community Workshop 2020).
- b) Implement wayfinding/signage improvements (Town of Carrboro Downtown Parking Plan, 2017).
- c) Incorporate and increase parking infrastructure for bicycles in parking plans (Community Meeting 2020).
- d) Town should implement TDM policies as a leader in these policies.
- e) Plan for electric vehicle (EV) charging stations.

Vision: Ensure that current and future generations of Carrboro residents, especially BIPOC populations, can enjoy reliable and affordable access to high quality drinking water, while improving healthy environments and the aquatic ecosystems for Carrboro wildlife.

Goal 1: Maintain and improve the quality of the water supply residents are dependent on (OWASA Long-Range Water Supply Plan, 2010)

Strategy 1.1 Coordinate with OWASA for maintenance and improvement of water supply.

Projects:

- a) Identify resident concerns, especially those of marginalized identities, related to water and share with OWASA (Stakeholder interviews).
- b) Advocate to OWASA for affordable water rates and equitable decision making (Stakeholder interviews).
- c) Work with OWASA to communicate goals and projects to residents in culturally responsive ways (Stakeholder interviews).

Goal 2: Protect, rehabilitate, and restore watersheds and ecosystems (Little Creek Watershed Assessment, Morgan Creek Local Watershed Plan, Bolin Creek Watershed Restoration Plan, 2012).

Strategy 2.1 Develop a suite of stormwater management practices to improve water quality (Bolin Creek Watershed Restoration Plan, 2012, Morgan Creek Local Watershed Plan, 2004, Carrboro: Illicit Discharge Detection and Elimination Program, 2020).

Projects:

- a) Create a program to fund and implement bioengineering stormwater methods (Morgan Creek Local Watershed Plan, 2004).
- b) Invest in educational efforts to residents and business owners about best practices of fertilizer use (Little Creek Watershed Assessment, 2003).

Strategy 2.2 Address the effect of development on stormwater management (Bolin Creek Watershed Restoration Plan, 2012, Little Creek Watershed Assessment, 2003; Morgan Creek Local Watershed Plan, 2004).

Projects:

- a) Implement structural and non-structural management measures for redevelopment and infill and as retrofits in dense locations to increase stormwater volume control (BCWRP, 2012, Morgan Creek Local Watershed Plan, 2004; Little Creek Watershed Assessment, 2003).
- b) Require low impact development practices for any new developments, such as reduced impervious surfaces (Little Creek Watershed Assessment, 2003; Community Workshop 2020).
- c) Establish stabilizing vegetation in new construction (Little Creek Watershed Assessment, 2003).

- d) Implement incentive programs for stormwater management or infrastructure mitigation projects (Bolin Creek Watershed Restoration Plan, 2012) that prioritize BIPOC-led businesses.
- e) Develop programming and accompanying financial assistance for income-eligible households to install green stormwater infrastructure (RainReady Carrboro, 2019).

Strategy 2.3 Implement watershed management and restoration practices.

Projects:

- a) Research and develop pollution prevention and clean up, and erosion control practices to best serve the various ecosystems in Carrboro (Bolin Creek Watershed Restoration Plan 2012).
- b) Limit disturbance of riparian areas while maintaining sanitary sewer infrastructure and greenways (BCWRP, 2012 (Little Creek Watershed Assessment, 2003).
- c) Implement stream channel restoration projects (BCWRP, 2012) Little Creek Watershed Assessment, 2003) prioritizing communities near water that do not currently have safe access to aquatic ecosystems.
- d) Develop regularly administered procedures for detecting and removing illicit discharge sources (Carrboro: Illicit Discharge Detection and Elimination Program 2020).
- e) Educate residents and staff and businesses about hazards of illegal discharge (Carrboro: Illicit Discharge Detection and Elimination Program, 2020).
- f) Conduct racial equity impact analysis of legal discharge policies to reduce any potential disparate impacts.
- g) Establish a program to identify and prioritize opportunities for retrofit projects that will improve water quality (Jordan Lake Rules, BCWRP).
- h) Fund retrofits and other watershed restoration measures through the Stormwater Utility and Enterprise Fund.

Goal 3: Reduce the amount of Carrboro’s treated water use (OWASA Long Range Water Supply Plan, 2013) while increasing water rate affordability (stakeholder interviews).

Strategy 3.1 Promote water conservation and efficiency efforts among residents and businesses (OWASA Long Range Water Supply Plan, 2013).

Projects:

- a) Develop programs to educate residents and business owners education about local water supply and stewardship programs (OWASA Long Range Water Supply Plan, 2013).
- b) Provide financial and technical assistance to income-eligible residents and business owners to install water conservation and efficiency measures (OWASA Long Range Water Supply Plan, 2013; Triangle Regional Water Supply, 2014).
- c) Establish water efficiency standards for new developments and encourage retrofits to older developments (OWASA Long Range Water Supply Plan, 2013).
- d) Develop policies to expand safe use of reclaimed water (Triangle Regional Water Supply, 2014).

- e) Initiate water use audits, repairs, and retrofits in government buildings (Collaborative Report on Water Conservation Strategies, 2008).
- f) Pilot demonstration of water conservation and efficiency projects at public facilities (Collaborative Report on Water Conservation Strategies, 2008).
- g) Assess what level water rates must be set at to improve affordability for low-income residents and advocate to OWASA to set affordable rates.

ENERGY

Vision: Carrboro reduces its dependence on fossil fuel energy sources with opportunities for all residents, especially low-income BIPOC residents, to participate.

Goal 1: 80% reduction 2010 levels of per capita greenhouse emissions by 2030 (CCAP 2020).

Strategy 1.1 Reduce greenhouse gas emissions from motor automobile use by 80% by 2030 (CCAP 2020).

Projects:

- a) Improve and extend the public transit service to include weekends and off-peak hour times (CCAP 2014, Community Meeting 2020). Ensure that stops include those in the ETJ and serve those who are transit-dependent, low-income households.
- b) Provide a variety of public transit options (buses, small buses, vans, etc) and increase opportunities for alternatively fueled vehicles (Community Meeting 2020). Relatedly, improve vanpool and carpool options for commuters and seek funding opportunities from Triangle TDM (CCAP 2014).
- c) Support adoption of electric vehicles by requiring EV charging stations and infrastructure in new developments in the LUO and including EV spaces at popular destinations. (CCAP 2020).

Strategy 1.2 80% reduction 2010 levels of community greenhouse emissions attributed to Carrboro buildings by 2030 (CCAP 2020).

Projects:

- a) Conduct building energy assessments and ratings for all municipal buildings and inventory energy efficiency measures throughout the town (ECPP 2014).
- b) Increase energy efficiency within municipal buildings with technologies used in weatherization efforts (ECPP 2014).
- c) Address limitations to financing energy efficiency for low-income households and renters by creating and administratively supporting a Rental Environmental Task Force including owners and renters (CCAP 2017).
- d) Support energy efficiency financing to small businesses and low-income households through the Energy Efficiency Revolving Loan Fund (CCAP 2017).

- e) Host renewable energy sites in the business district, among clustered commercial buildings, or Town buildings.
- f) Conduct an energy audit of town buildings and develop a Community Energy Dashboard to identify progression or regression from the town's energy goal over time (CCAP 2017).
- g) Create policies that incentivize net-zero construction and energy efficient retrofits in new and old affordable housing developments.
- h) Explore options to increase renewable energy usage through Renewable Energy Credits (RECs) purchases or advocating reinstatement of state solar tax credits. (CCAP 2020).

Strategy 1.3 Increase Carrboro's use of renewable energy (CCAP 2017).

Projects:

- a) Develop a renewable energy portfolio that takes advantage of federal and state tax credits and supports increased solarization (ECPP 2014).
- b) Advocate for state legislation that enables Carrboro to invest in renewable energy generation projects that allows shares solar investment benefits in the community or can generate revenue to be invested in community needs, like affordable housing (Community Meeting 2020).
- c) Develop programs and policies to support homeowners' ability to generate solar energy on roofs, with consideration for low-income homeowners (Community Meeting 2020).
- d) Investigate the opportunity to create a community geothermal utility. (CCAP 2020)

Vision: Carrboro routinely prioritizes green infrastructure over grey infrastructure, throughout the town and ETJ, to enhance ecosystems and improve vibrancy and quality of life in the community.

Goal 1: Increase the use of native plants and vegetation to mitigate climate change impacts.

Strategy 1.1 Rely on community leadership and participation from all residents, including those with financial barriers or that have historically been excluded from participation.

Projects:

- a) Support the formation of a community scale, and community-led urban forestry program for the preservation, protection, and conservation of the community forest (CCAP 2017).
- b) Increase public education of the benefits of native plants and vegetation for stormwater management (NDPES PHASE II).
- c) Pursue regulatory and non-regulatory approaches to discourage non-native and invasive plants and encourage native plant use (CCAP 2017).
- d) Offer a technical assistance and cost-share grant program to residents seeking (RainReady Carrboro, 2019) to abide by regulatory approaches for encouraging native plant use.
- e) Identify local resident “champions” who can partner with the Town to support the development of the program and serve as a liaison to residents (RainReady Carrboro, 2019)
- f) Identify program design options that provide financial support enabling low-income residents’ participation in a technical assistance and cost-share grant program to install green infrastructure (RainReady Carrboro, 2019).
- g) Invest in the completion of a new significant restoration project (NDPES PHASE II).

Goal 2: Enhance the tree canopy along roads.

Strategy 2.1 Improve canopy downtown to create a more vibrant and inviting urban landscape, reduce the heat island and stormwater runoff, and sequester carbon.

Projects:

- a) Develop and implement a downtown street tree master plan.
- b) Make the 2019 “tree tag” outreach an ongoing and regular initiative.
- c) Work with downtown businesses and residents to improve the canopy on private lots.
- d) Seek grant support from the State and other sources to provide financial and technical support

Strategy 2.2 Work with neighborhoods to improve tree canopy and the forest along roads, in neighborhood open spaces, and on private lots.

Projects:

- a) Expand the previous Bolin Forest and Quarterpath trace urban forestry effort into other neighborhoods.
- b) Inventory street trees in residential neighborhoods and develop a master plan for street tree improvements.
- c) Work at a neighborhood scale to “green” the public right of way.
- d) Provide technical assistance for individual residents improvement and expansion of tree canopy.
- e) Seek grant support from the State and other sources to provide financial and technical support.

Goal 3: Expand stormwater green infrastructure as part of watershed restoration and climate resilience efforts (hydrology).

Strategy 3.1. Coordinate transportation and public infrastructure improvements with stormwater green infrastructure.

Projects:

- a) Integrate green stormwater infrastructure solutions to improve stormwater management practices around transportation infrastructure (streets, alleys, sidewalks, curbs, storm sewers, and greenways).

Strategy 3.2. Retrofit existing stormwater infrastructure and add new infrastructure on private property with stormwater green infrastructure

Projects:

- a) Develop programming and accompanying financial assistance for income-eligible households to install green stormwater infrastructure (RainReady Carrboro, 2019).
- b) Develop playbook for stormwater infrastructure retrofits to educate public.