



TOWN OF CARRBORO

TRANSMITTAL

Manager's Office

DELIVERED VIA: *HAND* *MAIL* *FAX* *EMAIL*

To: David Andrews, Town Manager

From: Laura Janway, Environmental Planner
Patricia McGuire, Planning Director

Date: June 22, 2021

Subject: Implementation Update: Energy and Climate Protection Plan (2014)
& Community Climate Action Plan (2017)

Summary

The purpose of this memo is to provide the Board with a progress report on implementation of the Energy and Climate Protection Plan (ECPP), adopted May 28, 2014, and the Community Climate Action Plan (CCAP), adopted January 24, 2017. The ECPP concentrates on lowering municipal greenhouse gas (GHG) emissions and the CCAP has recently been updated with an 80% reduction goal in per capita greenhouse emissions by 2030. Town staff are examining and pursuing several initiatives to reach the emissions reductions goals.

Staff have continued to implement the ECPP through the Facilities Rehabilitation and Renovation Project. The Town Council and the Environmental Advisory Board provided input on the definition of net zero for Town buildings. Staff also provided guidance to a graduate student who finalized an update to the Town's municipal and community GHG inventories and analyzed additional emissions related to natural gas usage.

Recent CCAP implementation measures include submitting a grant for two electric vehicle (EV) charging stations on Town property. The proposals were successful and the stations will be installed this summer. Staff are also moving forward with the Green Neighborhoods Grant Program and are finalizing a program for independent volunteer work to remove invasive species. Staff drafted a charge for a new advisory board, the Climate Action Team (CAT), which the Town Council approved. Planning Department and Public Works staff organized a volunteer event to plant landscape-sized trees and other riparian vegetation in Henry "Hank" Anderson III Community Park as part of a grant received from the NC Urban Forest Council. Additionally, staff, along with a volunteer from the Environmental Advisory Board (EAB), are in the final stages of an analysis to create a baseline food emissions profile for the Town to inform future implementation of CCAP Food Choices recommendations.

Energy and Climate Protection Plan

Facilities Rehabilitation and Renovation

- *Policy Connections:* ECPP Section 2.B.i: Building Assessments and Ratings

Planning Department and Public Works staff worked to coordinate the presentation of net zero choices for the Facilities Rehabilitation and Renovation project to the Environmental Advisory Board. On January 11, 2021, Christian Kaltreider and Ish Sud from Sud Associates, P.A. presented to the EAB. The EAB provided comments and agreed with the definition preferred by the Town Council. Staff brought a resolution to the Council to approve the definition and receive additional feedback. In May 2021, the Council received presentations on the Town Hall & Century Center Concept Plans and an overview of energy and sustainability options and recommendations from the Public Works Department and consultants.

Municipal and Community Greenhouse Gas Inventories

- *Policy Connections:* ECPP Section 4 (Measurement, Inventory, Assessment, and Reporting). Pursuing these activities will inform actions and stakeholders and create transparency.

Mr. Jacob Becker recently worked to update Carrboro’s municipal and community greenhouse gas inventories for his Master’s Project The project had three goals:

- Explore the effectiveness of Carrboro’s policies in decreasing greenhouse gas emissions from the Town’s most recent municipal and community greenhouse gas inventories.
- Quantify the impact of fugitive methane on GHG inventories.
- Recommend additional policies to meet Carrboro's goal of 80% carbon reduction by 2030 compared to 2010 levels.

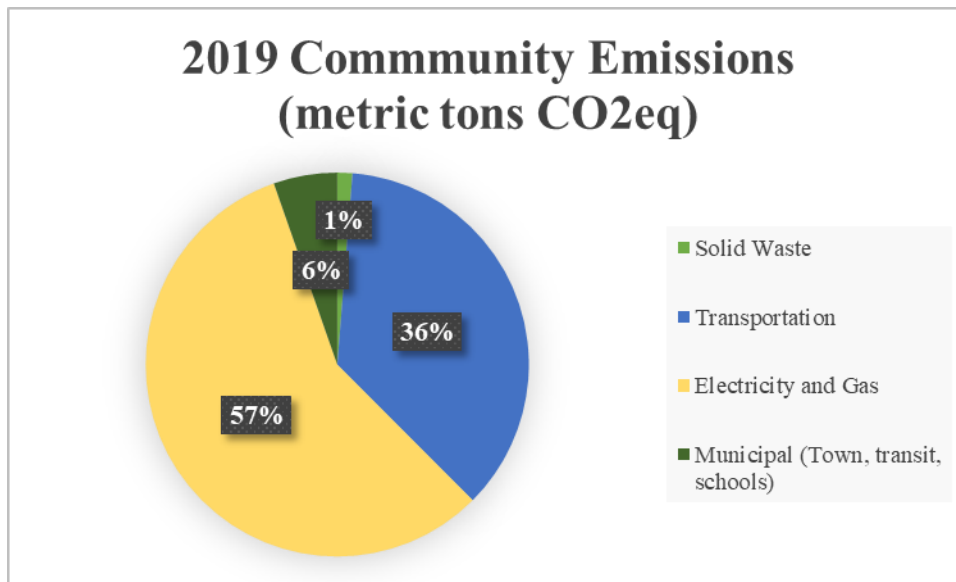
The results from Mr. Becker’s analysis comparing municipal and community emissions from 2009, 2012, and 2019 are shown in the table below. Emissions were measured in metric tons of carbon dioxide equivalent (CO₂eq).

Emissions 2009-2019

Community Emissions	2009 Emissions (metric tons CO₂eq)	2012 Emissions (metric tons)	2019 Uncorrected Emissions (metric tons)	Change 2012 to 2019	% Change 2012 to 2019
Solid Waste	1,678.00	3,034.00	1,336.77	(1,697.23)	-56%
Transportation	31,576.00	31,183.00	38,342.34	7,159.34	23%
Electricity and Gas	71,645.00	70,355.00	60,433.53	(9,921.47)	-14%
Total Community	104,899.00	104,572.00	100,112.64	(4,459.36)	-4%
Per Capita	5.27	5.31	4.72	(0.59)	-11%
Municipal Emissions	8,718.00	7,382.00	5,681.56	(1,700.44)	-23%

Total community emissions have decreased 4% since 2012. There has been a 11% decrease in per capita emissions since 2012 and municipal emissions have decreased 23% in this time period. Vehicle emissions increased 23% due to an increase in miles driven in Carrboro. Emissions from electricity and natural gas decreased by 14% due to changes in the electric grid, however, overall energy usage increased by 6% due to an increase in natural gas usage.

In each of the three inventoried years, residential and commercial electricity use are responsible for most greenhouse gas (GHG) emissions, followed by transportation and gas heat. At the municipal level, emissions from electricity usage and gas heat produce the most emissions, followed by transit and vehicle use. Emissions from landfill trash account for ~1% total GHG emissions.



In addition, Mr. Becker performed an analysis to account for additional methane emissions created from the entire lifecycle of natural gas production, transmission, storage, and downstream distribution. Methane is a more potent greenhouse gas than carbon dioxide and in previous inventories, the factor sets used did not account for a leaked methane from pipelines and supply chains. Using research on estimated methane leak rates, Mr. Becker found that accounting for these methane emissions increases the total CO₂eq emissions for 2019 by 9.2%, or 8,650 metric tons.

If the Town Council has interest, staff can provide deeper analysis of this report in the fall.

Police Department Electric Vehicle (EV) Exploration

In March 2021, the Town Manager asked staff to research the potential for electric police vehicles for Carrboro. Staff have been researching potential vehicle models, return on investment, greenhouse gas emissions savings, and infrastructure needs. In FY21-22, the Town will continue to evaluate alternatives and options to convert its entire fleet to a fuel source other than gas to reduce greenhouse gas emissions.

FY21-22 Budget

In March 2021, staff completed a budget request for the FY21-22 Budget, along with the FY21-22 Environmental Sustainability Work Plan. The Work Plan was presented to the Environmental Advisory Board at their June 7th meeting.

Climate Action Team (CAT)

- *Policy Connections:* CCAP Community Integration Recommendation #5: Expand Capacity

The Town Council adopted a Town Code Amendment to create the Climate Action Team on October 20, 2020. The Town Code has been updated and the Town Clerk is promoting open seats and collecting applications for this advisory board. As of June 16th, seven applications have been received. The timeline for bringing applicants to the Town Council for appointment will be determined as additional applications are received.

Green Neighborhoods Grant Program

- *Policy Connections:* CCAP Community Integration Recommendation #3: Create Participatory Green Neighborhood Budgeting Program to Reduce Carbon Emissions, Build Community, Save Money, and Reallocate Savings to New Green Project Initiatives

Staff have incorporated comments from the Town Council into the program. Staff are currently planning to move forward at the beginning of July with an outreach campaign for the program. EAB members have indicated interest in holding meetings this summer to help launch the program. Applications will be due in the Fall 2021.

Modules Project

- *Policy Connections:* CCAP Community Integration Recommendation #5: Expand Capacity

Staff have been working with members of the community to create a library of modules to share with the public and local partners. Four modules have been reviewed by the Environmental Advisory Board and edited by volunteers and staff. These modules discuss transportation, ecosystems, composting, and food choices.

Orange County Community Climate Action Grant Program

- *Policy Connections:* CCAP Buildings Recommendation #1: 80% Challenge; Ecosystem Recommendation #3: Accelerate/Expand Organic Waste Collection/Composting; ECPP

Recommendation 3.C: Renewable Portfolio

Staff are exploring the submission of applications to this program in July 2021 to fund several projects, involving solar photovoltaic panels, a green roof, and organics collection/composting.

Building Energy Efficiency Measures

Energy Efficiency Revolving Loan Fund (EERLF)

- *Policy Connections:* Buildings Recommendation #1, #2: Reduce Emissions Attributed to Carrboro Buildings by 50% by 2025; Energy Audit/Performance Rating; Community Integration Recommendation #4, #6: Integrate Climate Action with Local Living Economy; Facilitate Low Cost Financing for Energy Efficiency and Renewable Energy Projects

Staff expect to be actively working to move forward with this program in the next quarter. Staff will also examine opportunities to leverage this funding with larger-scale Federal programs.

Transportation

Volkswagen (VW) Settlement Phase 1 – Level 2 Charging Station

- *Policy Connections:* ECPP Goals; CCAP Transportation Recommendation #1: Reduce Greenhouse Gas Emissions from Motor Vehicle Use by 50% by 2025.

Town staff submitted two applications for Level 2 Charging Stations on Town property in January 2021. In March 2021, staff were informed that the proposals were successful. The charging stations will be located in Dr. Martin Luther King Jr. Park and the Rosemary St. Municipal Parking Lot. Staff have executed agreements with the North Carolina Department of Environmental Quality for both stations. Public Works staff have been in contact with Duke Energy, charging station vendors, and electricians and are moving forward to install the charging stations this summer. The stations are required to be in operation by September 2021.

Transportation Demand Management (TDM) Grant – Fresh Starts Project

- *Policy Connections:* CCAP Transportation Recommendation #4: Further Promote Walking, Biking, Transit

This project will involve a partnership between the Center for Advanced Hindsight, the Town of Carrboro, and Orange County to design and study the efficacy of transportation welcome packets for new residents. Project work will begin at the start of the next fiscal year in July 2021.

Contribution to Piedmont Electric Membership Corporation (PEMC) for Level 1 Electric Vehicle (EV) Charging Station at Carrboro Plaza

- *Policy Connections:* ECPP Goals; CCAP Transportation Recommendation #1: Reduce Greenhouse Gas Emissions from Motor Vehicle Use by 50% by 2025.

Piedmont Electric Membership Corporation has been awarded funding from the Volkswagen Settlement Phase 1 Zero Emission Vehicle Infrastructure Program for a DC Fast Charging Station in Carrboro Plaza (https://files.nc.gov/ncdeq/Air%20Quality/motor/vw-phase-1-images/DCFAST_AWARDEES.pdf). The Town will contribute funding towards PEMC's match for the grant, as it will help Carrboro work toward CCAP goals. Staff have been in discussion with PEMC and are finalizing the payment of this contribution.

Ecosystem Protection and Enhancement

NC Urban Forest Council Grant

- *Policy Connections:* Ecosystem Recommendation #4: Tree Preservation, Protection and Conservation; Ecosystem Recommendation #6: Pursue Watershed Restoration Actions to Protect Local Streams from Changes in Rainfall Due to Climate Change

Staff had planned to organize a second volunteer event for this project in January to plant live stakes along the stream. However, due to high levels of local and statewide COVID-19 cases and the extension of the Governor's Stay-at-Home Order, staff decided to hold a virtual event. On March 6th, staff held a live presentation using Zoom to discuss the project with Carrboro residents, followed by a question and answer session. Staff submitted the final project report in April 2021.

Bee City USA

Staff submitted a yearly report and renewed the Town's participation in Bee City USA in February 2021. In March 2021, Mayor Lavelle joined the Mayors' Monarch Pledge, which involves committing to create habitat for the monarch butterfly and pollinators and to educate residents about how they can make a difference at home and in their community. Staff worked to determine that the following action items would fit within the Town's FY21-22 Environmental Sustainability Work Plan:

- Issue a Proclamation to raise awareness about the decline of the monarch butterfly and the species' need for habitat.
- Launch or maintain a public communication effort to encourage residents to plant monarch gardens at their homes or in their neighborhoods
- Host or support a native seed or plant sale, giveaway or swap.
- Host or support a monarch neighborhood challenge to engage neighborhoods and homeowners' associations within the community to increase awareness and/or create habitat for the monarch butterfly.
- Launch, expand, or continue an invasive species removal program that will support the re-establishment of native habitats for monarch butterflies and other pollinators.

- Display educational signage at monarch gardens and pollinator habitat beyond monarch demonstration gardens.
- Change weed or mowing ordinances to allow for native prairie and plant habitats.
- Direct city property managers to consider the use of native milkweed and nectar plants at city properties, where appropriate.
- Change ordinances so pesticide, herbicide, insecticide or other chemicals used in the community are not harmful to pollinators.
- Adopt ordinances that support reducing light pollution

Invasive Species Volunteer Events

- *Policy Connections:* Ecosystem Recommendation #5: Improve Regulations and Community Capacity to Discourage Invasive Plants and Encourage Native Plants

The Town’s Environmental Sustainability Coordinator will continue to supervise small monthly meet-ups at Wilson Park to control invasive species. Public Works staff have also worked to coordinate pickups to remove the vegetation. Staff are now working on a new direction for this project and are pursuing the creation of a program for volunteers to work independently, which will be presented to the Council in the fall. Staff have reached out to local municipalities with Adopt-a-Park/Trail programs for input and will be modeling the program to meet the Town’s needs.

Composting Bin Sales

- *Policy Connections:* Ecosystem Recommendation #3: Accelerate/Expand Organic Waste Collection/Composting

Town staff have launched composting bin sales and are working with the Town’s Communication Manager to promote the sales and perform additional outreach with a composting how-to video. Carrboro residents can purchase compost bins by mailing an order form and payment to Town Hall. Planning Department staff will provide contactless bin delivery. Staff will work to provide additional purchasing options, including in-person purchasing, when COVID-19 precautions no longer need to be in place.

Managed Natural Landscape Ordinance

- *Policy Connections:* Ecosystem Recommendation #5: Improve Regulations and Community Capacity to Discourage Invasive Plants and Encourage Native Plants

Town staff have incorporated comments from the North Carolina Botanical Garden and New Hope Audubon Society as requested by the Town Council in October 2020. Staff have also incorporated comments from Carrboro residents and will continue to meet with residents to discuss the ordinance. A new draft ordinance will be presented to the Council in the fall and staff will perform outreach about the ordinance to Carrboro residents.

Stormwater

Planning Department staff have been working with a local Boy Scout to discuss a potential Eagle Scout Service Project to upgrade the rain garden stormwater control feature at the intersection of James Street and Hillsborough Street. Stormwater Utility staff will also be providing input and expertise if the project moves forward.

Food Choice Measures

Build Dietary Greenhouse Gas (GHG) Emissions Profile

- *Policy Connections:* CCAP Food Choice Recommendation #2: Develop Local Dietary Consumption and Associated GHG Profile

Using the 2019 CCAP survey's annual self-reported meat and dairy consumption among Carrboro residents, the Town's Environmental Sustainability Coordinator worked with Doctoral Candidate and Environmental Advisory Board (EAB) member Chrissie Schalkoff to perform an analysis of associated greenhouse gas emissions. Staff are currently working to discuss and finalize the report.