TOWN OF CARRBORO

NORTH CAROLINA

**TRANSMITTAL** **PLANNING DEPARTMENT**

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

**To:** **David Andrews, Town Manager**
**Board of Aldermen**

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

**Date:** **December 4, 2018**

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

**Summary**

The purpose of this memo is to provide implementation updates on the Energy and Climate Protection Plan, adopted May 28, 2014, and the Community Climate Action Plan, adopted January 24, 2017. The Energy and Climate Protection Plan concentrates on lowering municipal greenhouse gas emissions and the Community Climate Action Plan establishes a 50% reduction goal in per capita greenhouse emissions by 2025. Town staff and residents are examining and pursuing several initiatives to reach the emissions reductions goals.

Town staff began implementation of the Stormwater Utility's rate structure in July and August 2018 and have continued work with responses to significant storm events, including Hurricane Florence. In August 2018, Chris Lazinski, consultant, completed the 2017 Municipal Greenhouse Gas (GHG) Inventory, detailing a 3.4% decrease from 2016 emissions levels. Town staff are also currently working with Duke Energy to obtain cost estimates for conversion of Town streetlights to light-emitting diode (LED) lighting, which would reduce municipal energy use by approximately 10%.

In addition, usage of the Town Commons electric vehicle charging stations has increased steadily since installation in August 2017. Town staff are currently discussing pursuit of a grant to fund additional charging stations through the Volkswagen (VW) Mitigation Funding.

From July-November 2018, Town staff participated in a four-part Cities Initiative to discuss barriers to greenhouse gas emissions reductions at the state level and develop solutions to these issues. Town staff have also analyzed data from the 2017 Kessler Solid Waste Study and met to discuss options for Every-Other-Week (EOW) garbage collection and composting.

Furthermore, in September 2018, Mr. Jim Porto, former Carrboro mayor and founder of CommunityCAPS, Inc., applied for a Southeast Sustainable Communities Fund Grant, which was competitive but not awarded funding. In order to continue progress towards realizing emissions reduction goals, Town Staff will form a Climate Action Committee focused on project

implementation. Additionally, the Environmental Advisory Board (EAB) will shift its focus to climate action and emissions-reduction.

**Stormwater Utility**

- *Policy Connections*: The Stormwater Utility fulfills Community Climate Action Plan Ecosystem Recommendation #1, and ensures dedicated funding for stormwater projects while supporting public education.

The following activities have been pursued by staff subsequent to the Board of Aldermen adopting a rate structure for the utility in June:

- Implementation of the rate structure in the annual property tax billing with the assistance of Orange County; bills were distributed in July/August
- Staff response to billing inquiries
- Collaboration with the Stormwater Advisory Commission on referred items
- Recruiting and hiring a new Stormwater Specialist, who started in early September
- Ongoing stormwater workload (related to infrastructure, development, field, and community services)
- Pursuing and coordinating stormwater-related activities across Public Works Divisions and Town Departments
- Hurricane Florence response

**Town of Carrboro 2017 Greenhouse Gas Inventory**

- *Policy Connections*: The 2017 GHG Inventory fulfills Section 4 of the Energy and Climate Protection Plan (Measurement, Inventory, Assessment, and Reporting), which states that pursuing these activities will inform actions and stakeholders and create transparency.

On August 29, 2018, the seventh annual GHG inventory was submitted to Town staff by Chris Lazinski, consultant. This inventory tracks the Town's progress in reducing GHG emissions from municipal operations.

The total emissions for 2017 were 1499.4 metric tonnes of carbon dioxide equivalent (MTCDE), a decrease of 52.6 MTCDE or 3.4% from 2016 emissions levels. This inventory represents Scope 1 emissions, which are direct emissions ensuing from the combustion of fuel on-site, as well as Scope 2 emissions, which are indirect emissions related to the utilization of purchased or acquired energy. The emissions under the scope of this analysis represent approximately 25% of all municipal emissions. Emissions outside the scope of this analysis include emissions from Chapel Hill transit and the Chapel Hill-Carrboro School system.

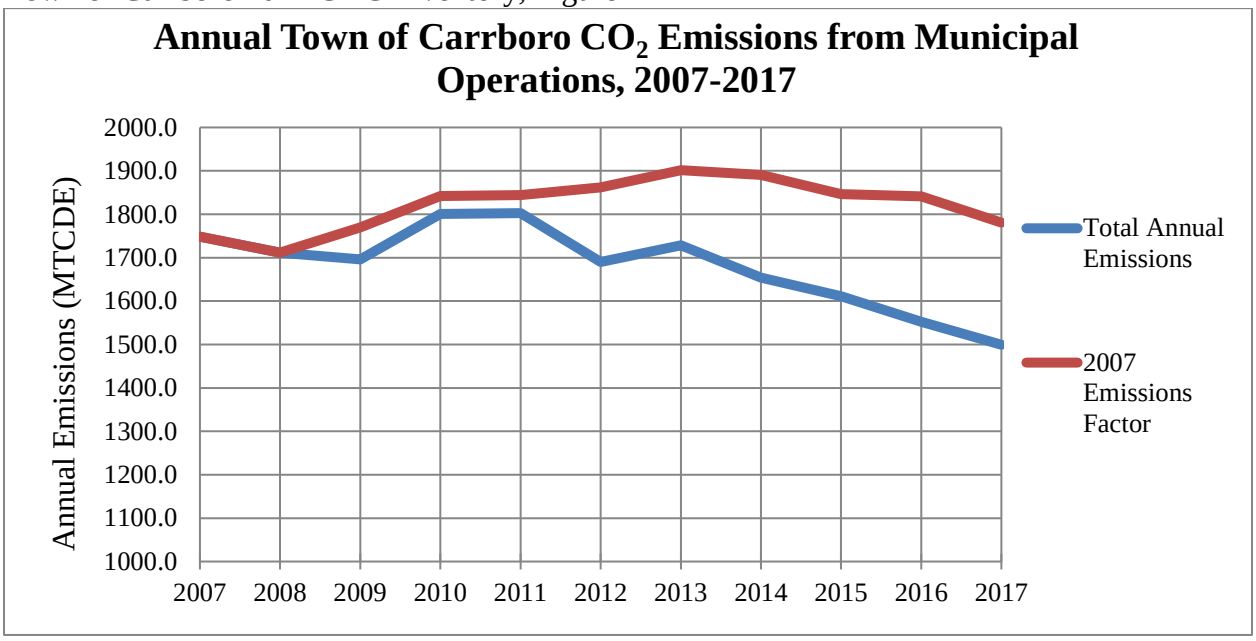
Electricity usage accounts for roughly 50% of the Town's emissions. These emissions are directly affected by changes in fuels used for electricity generation in the SERC Virginia/Carolina (SRVC) region. The fuels used in this region have transitioned from a reliance on coal to natural gas since 2007, changing the emissions intensity factors used in emissions inventory. The Town's total Scope 1 and Scope 2 emissions have decreased approximately 14% since 2007. However, the transition from coal to natural gas must be taken into account in the inventory, and if the shift

had not occurred, the Town's overall Scope 1 and Scope 2 emissions would have increased by 1.8% since 2007.

While the region's transition from coal to natural gas results in cleaner emissions, the environmental impacts of natural gas are more wide-ranging. Natural gas can escape into the air during the fracking process before being burned for use in the electrical grid. Natural gas consists predominantly of methane, which has a very high global warming potential. According to the Intergovernmental Panel on Climate Change (IPCC), methane is 84 times more potent than carbon dioxide over a 20-year period and 28 times more potent over a 100-year period.

Despite changes in emissions due to fuels used in the electrical grid, the Town's emissions have distinctly declined overall from 2013 to 2017. Figure 2 from the GHG Inventory shows this progress in municipal emissions-reduction plan implementation. The figure also details Town emissions levels using the 2007 emissions factor, showing emissions if the SVRC transition from coal to natural gas had not occurred.

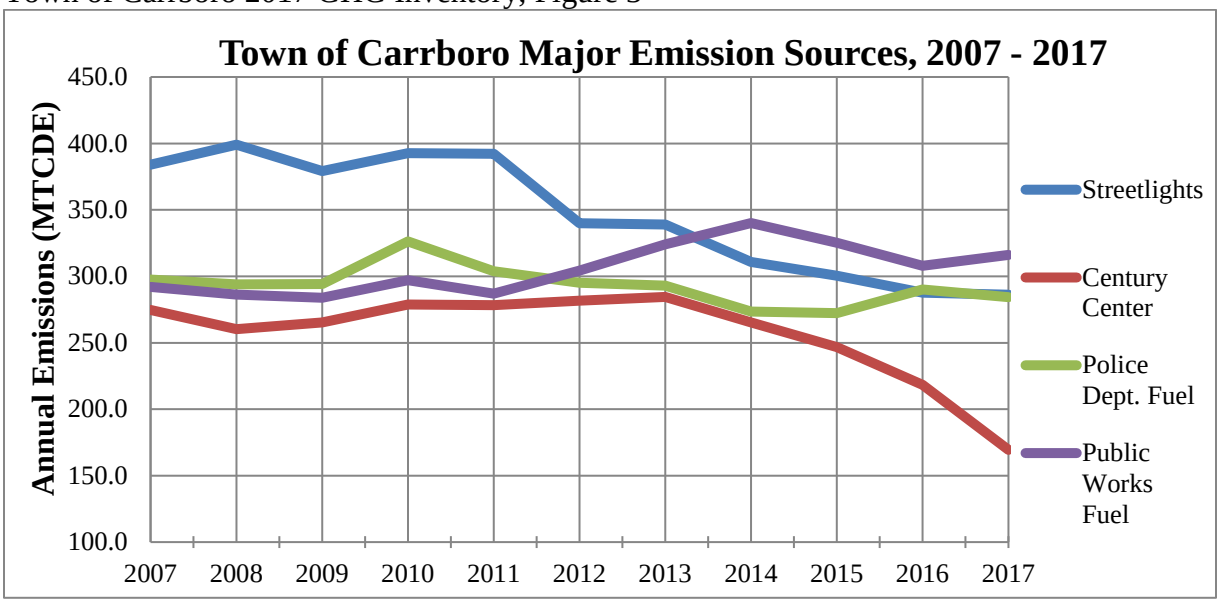
Town of Carrboro 2017 GHG Inventory, Figure 2



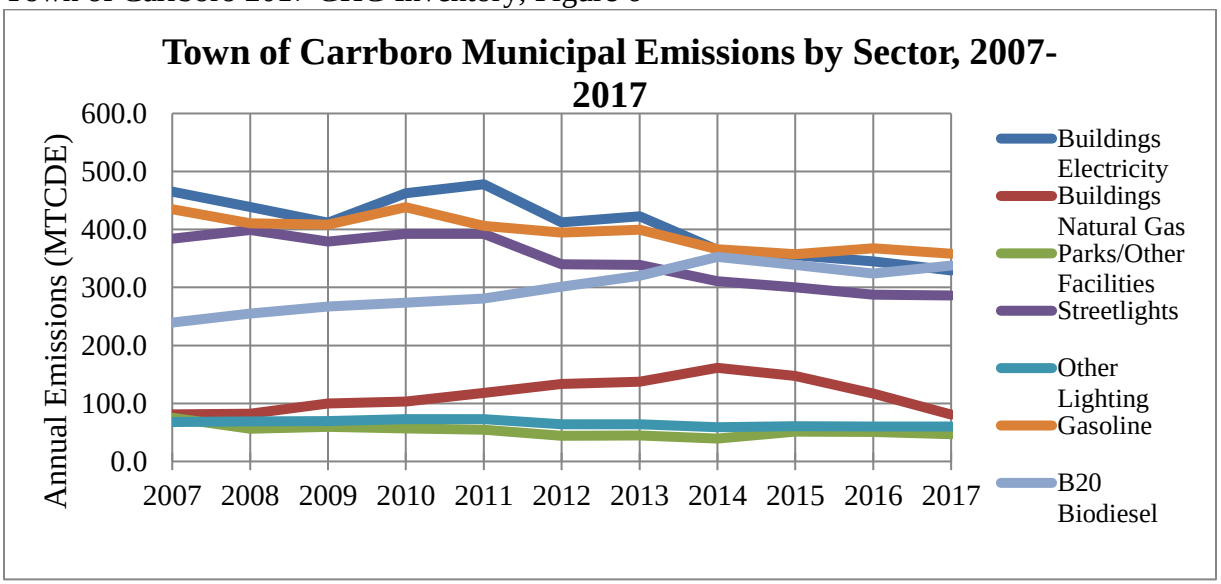

The four largest sources of emissions for the Town in 2017 were Public Works fuel, streetlights, Police Department fuel, and the Century Center operations. Public Works fuel emissions are the largest contributor to Town emissions, with an 8.4 MTCDE, or 2.7%, increase over 2016. Police Department fuel emissions have increased 12.1 MTCDE, or 4.4%, from 2015.

The emissions attributable to the Century Center have shown a significant decline in 2017, with a 22% reduction compared to 2016 levels. In addition, the Century Center used 21.5% less electricity than its maximum usage in 2013, and 61.4% less natural gas than its maximum usage in 2014. A decline this substantial has not been seen since Town monitoring began in 2007. This drop in emissions is attributed to upgrades to the Century Center HVAC system, including a new boiler, controls, and rebalancing, which were completed in 2017. Figure 3 from the GHG Inventory shows trends in major Town emission sources from 2007-2017. Figure 6 from the GHG Inventory illustrates municipal emissions by sector from 2007-2017.

Town of Carrboro 2017 GHG Inventory, Figure 3




Town of Carrboro 2017 GHG Inventory, Figure 6




**Light-Emitting Diode (LED) Streetlight Conversion**

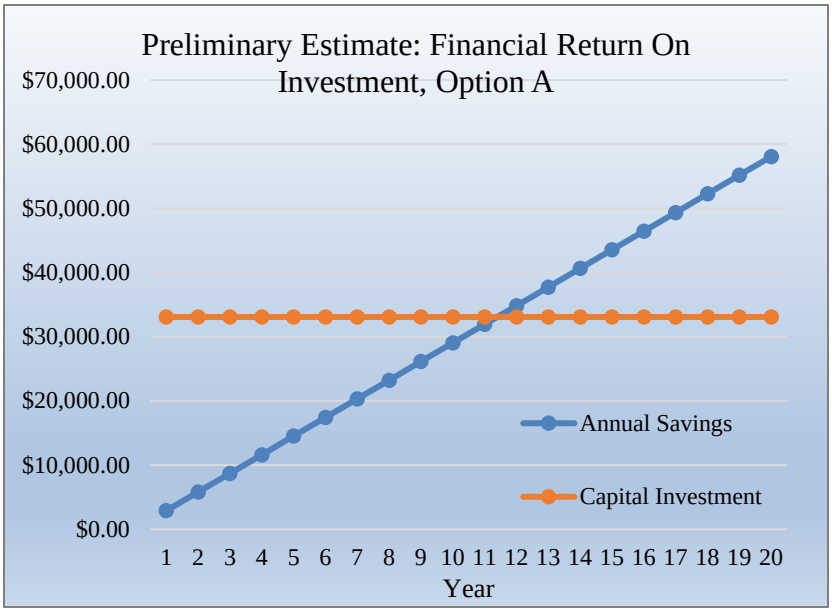
- *Policy Connections*: Conversion of Town streetlights to LED lighting fulfills Section 2A of the Energy and Climate Protection Plan (LED Outdoor Lighting). This section recommends conversion to LED streetlights as a high-priority action.

Town staff received an estimate from Duke Energy in April 2018 summarizing all costs associated with converting Town of Carrboro streetlights from Mercury Vapor (MV) and High-Pressure Sodium (HPS) to LED lights. The costs included a one-time transition fee, calculated per streetlight, as well as new monthly rates for each light. However, in September 2018, Duke

Energy adopted a new rate schedule. In this new schedule, the transition fee for converting to LED streetlights decreased from $54.00/light to $40.00/light.

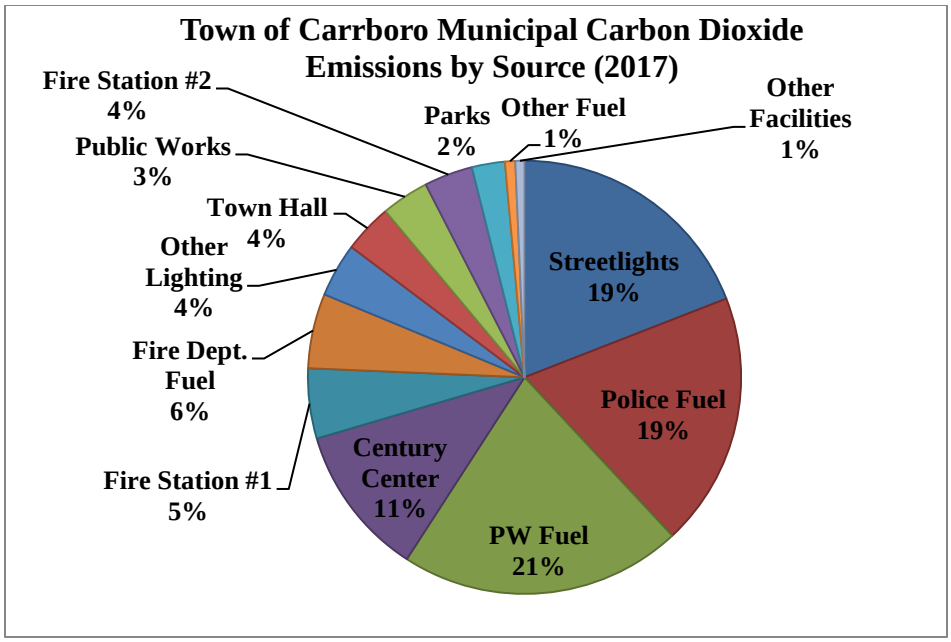
Town staff have contacted Duke Energy and will be working with a Duke Energy engineer to determine the total cost to transition to LED streetlights. Duke Energy prices streetlights based on the amount of light produced, or lumens. LED streetlights produce more lumens than MV or HPS streetlights while using less energy. The costs for transition to LED will depend on the amount of LED lumens recommended to replace each current MV and HPS streetlight. Town staff used a range of potential LED lumens to update the April 2018 cost estimate using September 2018 rates. The following chart outlines the range of options:

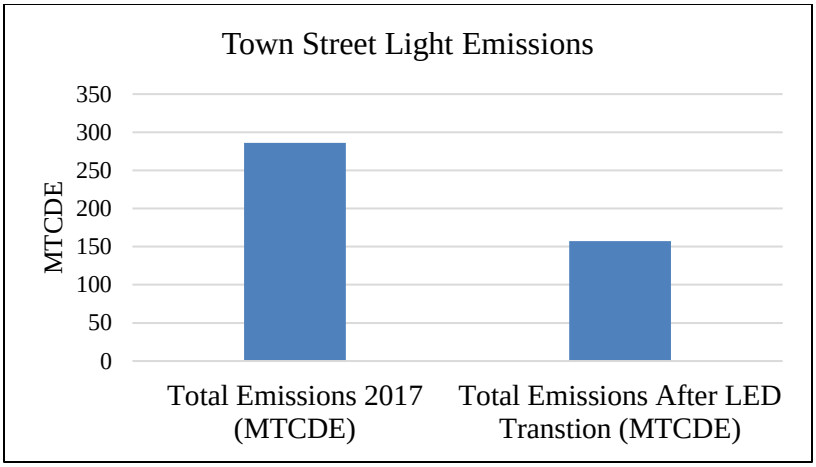
| **Preliminary Cost Estimates** | | |
|---|---|---|
| | Option A | Option B |
| **Capital Costs: Initial Transition Fee** | $33,080.00 | $33,080.00 |
| **Yearly Operational Savings** | $2,903.52 | $2,596.32 |
| **Return on Investment (Years)** | 11.4 | 12.7 |



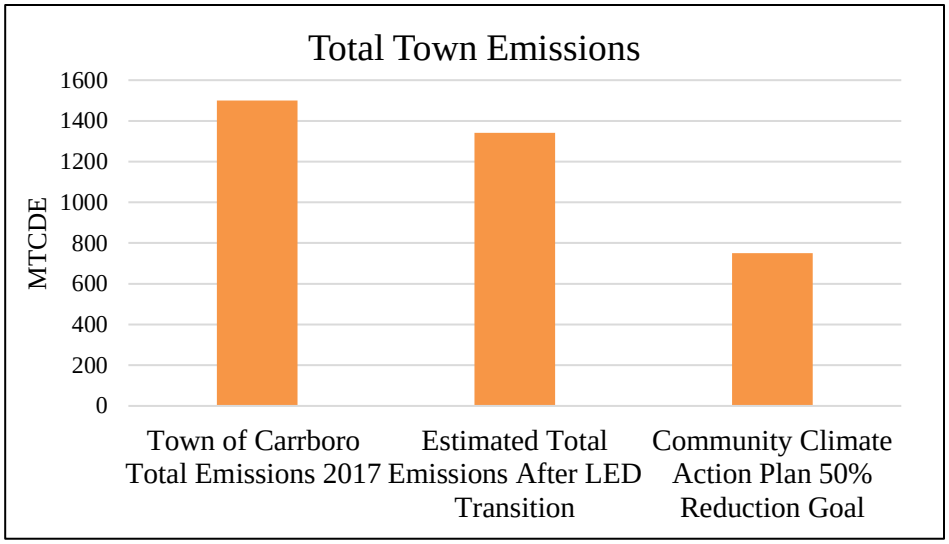

The initial transition fee can be paid upfront or spread over a four-year period, billed annually. Currently, Duke Energy is not offering Town ownership of streetlight poles.

The greenhouse gas emissions return on investment will produce rapid payback. LED streetlights will use 40-50% less energy and produce less emissions than existing lights. Street lighting is a significant contributor to all municipal emissions, comprising 19.1% of total municipal emissions in 2017.




Using the Town's emissions data from 2017, a 45% reduction in streetlight energy use will reduce the Town's total emissions from 1499.4 MTCDE to 1342 MTCDE, a 10.5% reduction.

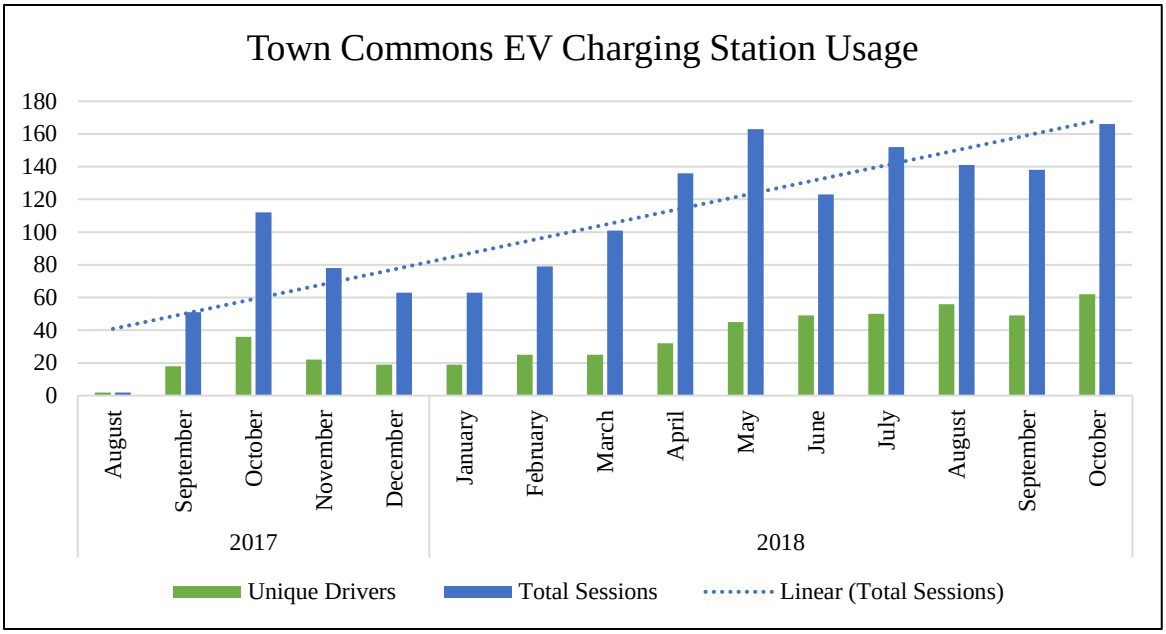


**Electric Vehicle (EV) Charging Stations**

- *Policy connections*: Installing additional EV charging stations through the VW Mitigation Funding will promote the Town's and State's following climate action goals:

- Community Climate Action Plan
  - Transportation Recommendation 1: Reduce Greenhouse Gas Emissions from Motor Vehicle Use by 50% by 2025.
- Governor Roy Cooper's Executive Order No. 80, North Carolina's Commitment to Address Climate Change and Contribute to a Clean Energy Economy
  - Goal to increase registered ZEVs and increase ZEV infrastructure installation

*EV Charging Station Usage*
Usage of the EV charging stations at Town Commons has increased significantly since installation in fall 2017. The EV charging stations have been used for 1,568 sessions since August 2017, with an average session length of 2 hours, 35 minutes.

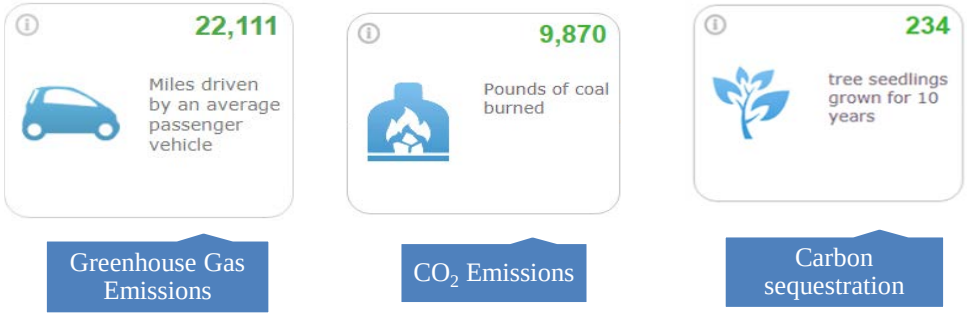



*$CO_2$ Emissions Savings*
The following equation is used to calculate emissions savings by Chargepoint, the company which manages Carrboro's EV charging stations and remote cloud network:

(Internal Combustion Engine (ICE) vehicle emissions x electric vehicle (EV) efficiency / ICE vehicle fuel efficiency – Emissions generating efficiency to fuel EVs) ÷ 95%

(19.4 lbs CO2/gal x 3.0 mi/kWh / 23.9 mi/gal – 0.8053 lbs $CO_2$/kWh) ÷ 95% = 1.7156 lbs/kWh of $CO_2$ Emissions Savings

The EV charging stations have prevented 19,888.95 lbs of $CO_2$ emissions since installation in August 2017. Using the EPA's Greenhouse Gas Equivalencies Calculator, this savings is equivalent to the following quantities:




*Electricity Usage*

The EV charging stations have used 10,912 kWh of electricity over 14 months, averaging 779.21 kWh/month.

During 2016-2017, the photovoltaic (PV) solar panels located at Town Commons produced an average of 581 kWh/month, or approximately three-quarters (75%) of the electricity usage of the EV charging station.

However, examining the data from the past six months separately shows an average EV charging station usage of 1,063.5 kWh/month. The PV solar panels have produced 55% of the EV charging stations' electricity usage during this time period.

The cost of the electricity at the Town Commons facility increased from an average of $81.93/month to an average of $187.20/month after the installation of the EV charging stations, averaging a cost of $105.27/month or $1,263.24/year. The EV Charging station will cost approximately $1,628.2/year if usage continues to follow the trends shown from May-Oct. 2018.

*EV Charging Stations Summary*

| Category | Quantity |
|---|---|
| Greenhouse Gas Emissions Savings | 19,888.95 lbs $CO_2$ |
| Average Monthly Electricity Usage | 779.21 kWh/month |
| Average Monthly Electricity Usage May-Oct. 2018 | 1,063.5 kWh/month |
| Average Cost of EV Station Usage | $105.27/month; $1,263.24/year |
| Average Cost of EV Station Usage May-Oct. 2018 | $135.68/month; $1,628.20/year |

**Volkswagen (VW) Mitigation Funding**

- *Policy connections*: Installing additional EV charging stations through the VW Mitigation Funding will promote the Town's and State's following climate action goals:
  - Community Climate Action Plan
    - Transportation Recommendation 1: Reduce Greenhouse Gas Emissions from Motor Vehicle Use by 50% by 2025.
  - Governor Roy Cooper's Executive Order No. 80, North Carolina's Commitment to Address Climate Change and Contribute to a Clean Energy Economy
    - Goal to increase registered ZEVs and increase ZEV infrastructure installation

- Adding EV charging stations will benefit the Town's following economic goals:
  - Carrboro Vision2020
    - Section 3.2: Downtown Vitality
    - 3.21 Goal: To improve the downtown infrastructure (e.g. parking facilities, sidewalks, lighting, shading) to meet the needs of the community.

In 2016, the U.S. Environmental Protection Agency (EPA) and VW resolved a case involving VW's violations of the Clean Air Act (CAA) through the sale of approximately 590,000 diesel motor vehicles furnished with software to deceive federal emissions tests, particularly in the case of NOx emissions. As part of the settlement, VW agreed to fund a $2.7 billion trust fund to mitigate NOx emissions.

In August 2018, North Carolina submitted its Mitigation Plan, detailing strategies for use of the mitigation funding. The N.C. Department of Environmental Quality (DEQ) will manage the state's portion of the funding. One-third of the funding will be allocated in Phase 1 (2018-2020), and will be used for school and transit bus replacement, heavy-duty equipment replacement, and zero-emission vehicle (ZEV) infrastructure.

Chargepoint has offered to assist the Town in the pursuit of a grant for additional charging stations from this funding source. The grant request for proposals will be open during winter 2018-19, and will include $14.3 million for light-duty charging infrastructure. Publicly-available stations will be 100% funded, including hardware installation, software, and remote maintenance.

Planning and Public Works staff met with Whitney Schmidt, Director of Chargepoint Carolinas and Tennessee in October to discuss grant details and budgets, which should include a request for $25,000 for each Level 2 charging station location, which will include two charging ports.

The Town Hall EV charging stations receive extensive usage. Usage in October 2018 was nine times higher than usage in September 2017, and trends predict that usage will continue to increase. EV parking spaces will prepare Carrboro's parking infrastructure for future increases in EV and ZEV ownership and will provide economic incentives for the Town. Zip code data from the Town Hall stations show usage by residents from the entire Triangle area, other local cities (Greensboro, Pittsboro), and from other East Coast states from Florida to Massachusetts.

New EV charging stations funded through the grant could be located in municipal parking lots or in private parking lots through partnerships with local businesses. Town Staff are currently exploring public and private location options for this project.

**Cities Initiative**

- *Policy Connections*: The Cities Initiative helps the Town of Carrboro work towards solutions for implementing all goals set in the Energy and Climate Protection Plan as well as the Community Climate Action Plan.

The Environmental Defense Fund (EDF) organized the Cities Initiative to provide opportunities for cities throughout the state to collaborate and address challenges in reducing greenhouse gas emissions. Local government staff representing different specialties and perspectives, such as planning, sustainability, and transportation, met at four roundtable discussions throughout fall 2018 to discuss successful projects within their jurisdictions as well as legislative and legal barriers impeding larger-scale progress at the state level.

At the third roundtable meeting, EDF staff invited staff from relevant non-profit organizations, businesses, and utilities, such as Duke Energy, the Sierra Club, and the NC Building Performance Association. These participants provided background knowledge to explain implementation obstacles and provided guidance on feasible, realistic approaches to remove project barriers.

During the third and fourth meetings, participants developed a list of solutions, including:

- Obtain authority for additional locally-controlled revenue for transportation projects to reduce GHG emissions.
- Adjust State Transportation Improvement Program (STIP) Allocations to remove caps and local matches for projects that reduce GHG emissions, while increasing the percentage for non-highway projects and regions that reduce GHG emissions.
- Add GHG impact to project scoring formulas for state-funded projects.
- Develop a state-wide voluntary carbon tracking system to help cities monetize GHG emission reductions.
- Aggregate data access at a safe level for program prioritization and to assist high energy-burden communities.
- Enhance utility billing platform to help cities and customers understand energy use.
- Increase options for renewable energy procurement, including:
  - Third party sales
  - Reduce cost and increase access to Green Source Advantage program
  - Expand the utility cost benefit methodology at the Public Utilities Commission to include societal and environmental benefits

- Increase speed and transparency of the Interconnection Process.

- Address state barriers to Commercial Property Assessed Clean Energy (C-PACE), including:
  - Inability of local governments to delegate C-PACE program administration to a statewide or regional entity.
  - Inability of using a statewide or regional entity to levy assessments and take on debt for C-PACE programs.

- Develop a state clean energy fund, such as a green energy bank, with public and private funds to support energy efficiency efforts such as PACE and on-bill financing.

- Improve Energy Impact of Building Codes
  - Auto-adopt the International Energy Conservation Code (IECC).
  - Allow local jurisdictions to require more than state code.
  - Professionalize energy code inspections.
  - Add optional code appendices which could be incentivized.

- Revisit current composition of NC Building Code Council membership to include members with expertise such as sustainability, health and safety, or local government.

Many of these priorities will require legislative action at the state level, however, several can be accomplished through administrative actions, public utility commission engagement, or utility partnerships. EDF will is currently working to raise funding for Phase 2 of the Cities Initiative, where participants will advance these ideas towards legislative or administrative action.

Phase 2 will include:

- Solution prioritization
- Quantifying impacts
- Determine ways to engage additional stakeholders and rural areas of the state.
- Summarize priority solutions for state agencies and officials to include in yearly governor's report.

The Cities Initiative presented at the North Carolina League of Municipalities in Asheville in November 2018. This initiative has allowed cities to collaborate, develop partnerships, and put forward a unified, cohesive plan to achieve lasting change.

**Every-Other-Week (EOW) Garbage Collection**

- *Policy Connections*: EOW Garbage Collection and composting implementation will promote the Town's following climate action goals:
  - Ecosystem Recommendation #3: Accelerate/Expand Organic Waste Collection/Composting
  - Community Integration Recommendation #3: Create Green Neighborhood Program

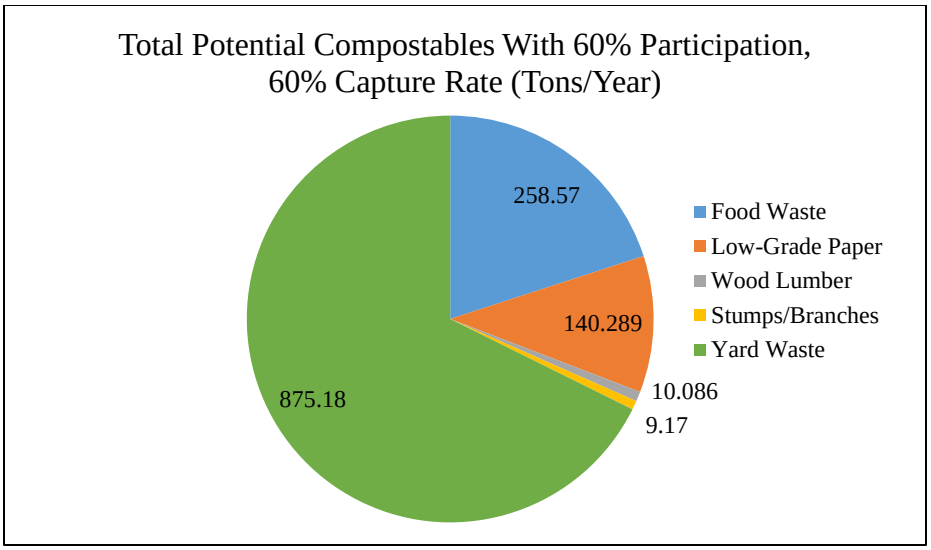
On September 1, 2017, Kessler Consulting delivered a Solid Waste Study to the Town. This study recommended a transition to EOW garbage collection in order for the Town to reduce fuel costs, decrease greenhouse gas emissions, allow for Public Works staff to dedicate time to additional projects, and implement a composting program. Findings were presented to the Board of Aldermen on October 10, 2017 (https://carrboro.legistar.com/LegislationDetail.aspx?ID=3188548&GUID=CF0090E0-69CC-4F8D-BB79-92ED2EF06F9E&Options=&Search=).

Town staff met September 4 and November 19, 2018 to discuss this project and to consider options for implementation. In order to determine which option to implement, Town staff performed analyses of potential financial and greenhouse gas emissions savings. Costs for the program will depend on the number of routes, number of collection days, fuel efficiency of the vehicles used, vehicle route allocation, and the negotiated composting facility tip fee. The potential quantity of waste collected, which affects trips to the transfer station, will influence the decision as well.

To evaluate potential reductions in greenhouse gas emissions from composting program implementation, Town staff used the EPA's Waste Reduction Model (WARM) and data from the 2017 Kessler Solid Waste Study. WARM is a tool available as an Excel workbook which calculates total greenhouse gas emissions of baseline and alternative waste management practices. It incorporates source reduction, recycling, combustion, composting, anaerobic digestion, and landfilling. The model includes a variety of material types regularly found in municipal solid waste (MSW) in its emissions calculations and compares the emissions associated with managing materials under an alternative scenario with the emissions associated with the user's current practices.

To obtain an estimate for greenhouse gas emissions savings under a Town composting program, Town staff analyzed the quantity of potential compostable materials found in Carrboro's MSW stream. A composting program following a successful pilot and community outreach could potentially reach a 60% participation rate and a 60% capture rate of organic material. The Solid Waste Study recommended combining single-source organics and other compostable materials with yard waste, including seasonal loose leaf collection.

The following chart represents the amount of total potential compostable materials in Carrboro under this scenario.




Town staff analyzed multiple scenarios using the travel distances to the two potential composting facilities, Brooks Contractor and McGill Compost. In addition, the Town's MSW travels from a transfer station in Durham to Sampson County Landfill in Roseboro, NC. The Sampson County Landfill uses a reciprocating engine to recover landfill gas (LFG) from its facility, significantly reducing landfill methane emissions. The LFG recovers approximately 3.08 million standard cubic feet per day (mmscfd) and flares approximately 2.1 million mmscfd.

The following results were obtained from the WARM model:

Brooks Contractor

| | |
|---|---|
| Total GHG Emissions from Baseline MSW Generation and Management ($MTCO_2E$): | 759.48 |
| Total GHG Emissions from Alternative MSW Generation and Management ($MTCO_2E$): | 439.64 |
| Incremental GHG Emissions ($MTCO_2E$): | -319.84 |

McGill Compost

| | |
|---|---|
| Total GHG Emissions from Baseline MSW Generation and Management ($MTCO_2E$): | 759.48 |
| Total GHG Emissions from Alternative MSW Generation and Management ($MTCO_2E$): | 436.33 |
| Incremental GHG Emissions ($MTCO_2E$): | -323.15 |

The WARM Model incorporates emissions from waste and travel to the disposal site. In order to account for additional emissions from waste collection and disposal, Town staff analyzed 2016 and 2017 data from Public Works Solid Waste vehicles. The average weekly fuel used during these years was 440.98 gallons. In addition, Town staff considered other implementation options involving pickup from neighborhood composting sites instead of home composing pickup, or

promoting backyard composting. The following chart summarizes the total potential greenhouse gas emissions reductions occurring from each program implementation option.

| Summary of Emissions Reductions Estimates | | | | | |
|---|---|---|---|---|---|
| | MSW and Landfill Transport Emissions (MTCDE/year) | Route Collection + Disposal Fuel Use Emissions (MTCDE/year) | Total GHG Emissions (MTCDE/year) | GHG Emission Reduction (MTCDE/year) | Total GHG Emission Reduction |
| **Current** | 759.48 | 185.97 | 945.45 | | |
| **EOW Collection** | 759.48 | 138.9 | 898.38 | 47.07 | 4.98% |
| **EOW + Composting: Brooks Contractor** | 439.64 | 226.28 | 665.92 | 279.53 | 29.57% |
| **EOW + Composting: McGill Compost** | 436.33 | 197.44 | 633.77 | 311.68 | 32.97% |
| **EOW + Neighborhood Composting Sites (Brooks)** | 599.61 | 161.5 | 761.11 | 184.34 | 19.50% |
| **EOW + Neighborhood Composting Sites (McGill)** | 597.91 | 155.08 | 752.99 | 192.46 | 20.36% |
| **Backyard Composting** | 595.37 | 185.97 | 781.34 | 164.11 | 17.36% |

To determine the potential financial impact of implementing each program, Town staff used data from the Solid Waste Study and Public Works fuel cost data from 2016 and 2017.

| | Yearly Fuel Cost | Change in Cost (Fuel) |
|---|---|---|
| **Current** | $35,313.81 | |
| **EOW Only** | $26,375.65 | -$8,938.17 |
| **EOW + Brooks** | $42,968.16 | $7,654.35 |
| **EOW + McGill** | $37,491.16 | $2,177.34 |
| **EOW + Neighborhood Composting (Brooks)** | $30,666.75 | -$4,647.07 |
| **EOW + Neighborhood Composting (McGill)** | $29,447.68 | -$5,866.13 |

The following chart details the total cost estimates for each program option.

| | Change in Yearly Cost (Disposal) | Change in Yearly Cost (Fuel) | Total Change in Yearly Cost | Total Yearly Cost |
|---|---|---|---|---|
| **Current** | | | | $684,567.64 |
| **EOW Only** | | -$8,938.17 | -$8,938.17 | $675,629.47 |
| **EOW + Brooks** | -$2,675.16 | $7,654.35 | $4,979.19 | $689,546.83 |
| **EOW + McGill** | -$2,675.16 | $2,177.34 | -$497.82 | $684,069.82 |
| **EOW + Neighborhood Composting (Brooks)** | $1,383.02 | -$4,647.07 | -$3,264.05 | $681,303.59 |
| **EOW + Neighborhood Composting (McGill)** | $1,383.02 | -$5,866.13 | -$4,483.11 | $680,084.53 |
| **Brooks Collect** | Collection Fee* | $17,656.91 | TBD | TBD |

A composting program will require additional expenses, such as the purchase of collection bins and the distribution of educational and promotional material. Town staff are researching grant options to procure this funding, including NC Department of Environmental Quality's 2019 Community Waste Reduction and Recycling Grant Program.

Pursuing an EOW program without organics diversion will not result in significant financial or greenhouse gas emissions savings due to the fact that potential tonnage for EOW service would exceed truck weight capacity, requiring additional trips to the Durham transfer station each day. MSW diversion through composting would reduce the tonnage collected during EOW routes. However, participation rates and diversion rates would each need to exceed 60%. The following chart details estimated average tons/route on an EOW schedule after implementing a composting program with 60% participation and 60% diversion. In order to follow legal roadway weight limits, loads in trucks carrying MSW must not exceed approximately 10 tons.

Fiscal Year 2015-16 Residential Garbage Tonnage

| Month | Current Avg. Tons/Route | Est. Avg. Tons/Route EOW | Est. Avg. Tons/Route Compostable | Est. Avg. Tons/Route with 60% Participation, 60% Diversion | Est. Avg. Tons/Route EOW + Composting |
|---|---|---|---|---|---|
| **July** | 9.39 | 18.78 | 9.63 | 3.47 | 15.31 |
| **August** | 7.26 | 14.53 | 7.45 | 2.68 | 11.85 |
| **September** | 7.96 | 15.92 | 8.17 | 2.94 | 12.98 |
| **October** | 7.84 | 15.68 | 8.04 | 2.90 | 12.78 |
| **November** | 7.38 | 14.77 | 7.58 | 2.73 | 12.04 |
| **December** | 9.79 | 19.58 | 10.04 | 3.62 | 15.96 |
| **January** | 7.82 | 15.65 | 8.03 | 2.89 | 12.76 |
| **February** | 7.02 | 14.03 | 7.20 | 2.59 | 11.44 |
| **March** | 8.26 | 16.53 | 8.48 | 3.05 | 13.48 |
| **April** | 8.11 | 16.22 | 8.32 | 3.00 | 13.22 |
| **May** | 7.80 | 15.6 | 8.00 | 2.88 | 12.72 |
| **June** | 9.41 | 18.82 | 9.65 | 3.48 | 15.34 |

Town staff are currently considering options and researching whether route optimization could alleviate this issue. In addition, staff will use other municipal composting initiatives to inform estimates for anticipated and actual participation and diversion rates. A pilot study could also provide information regarding participation and diversion rates by Carrboro residents.

The solid waste study also recommended combining food waste with yard waste. However, McGill Compost will only accept comingled food and yard waste if the yard waste has been ground to a 3-5 inch particle size. Town staff have contacted Brooks Contractor to determine their requirements for comingling food and yard waste collection.

The next potential steps for this project include: route optimization discussion and research, timeline development, neighborhood pilot study design, determining evaluation metrics, education and outreach material preparation, and community engagement discussion.

**Southeast Sustainable Communities Fund 2018**

- *Policy Connections*: This grant will help fulfill Community Climate Action Plan Buildings Recommendation #4, which recommends addressing emissions reductions on rental property and aligning landlord and rental interests towards energy efficiency.

Mr. Jim Porto, former Carrboro mayor and founder of CommunityCAPS, Inc., submitted a Letter of Intent (LOI) for a Southeast Sustainable Communities Fund Grant through the Southeast Sustainability Directors Network (SESDN). After receiving comments on the LOI, Carrboro was invited to submit a full proposal. Mr. Porto invited input from stakeholders to collaborate on a joint grant application. All participants and grant partners met on August 10, 2018 at the Carrboro Hampton Inn, and Mr. Porto authored a draft and final version to meet the September 28 submission deadline.

The grant's objective involved the development of a community-wide effort to remediate affordable rental units for energy efficiency without raising rents. This issue is known as the split incentive problem, as the financial structure of rental units does not create motivation for owners or renters to retrofit units for energy efficiency.

The proposal included two main strategies:
1. Reduce the split incentive effect by providing renters with sufficient information to make rental choices on combined total rental costs, including energy and water, rather than solely on published rental rates.
2. Develop the capacity to retrofit affordable rental units through a comprehensive training program in partnership with Durham Technical Community College (DTCC).

The project components included:

**1. Total Rent Calculator**
The Total Rent Calculator will allow renters to make informed rental choices. This platform will be available through a Rentlab website and phone app tool, free through RentRocket.org. This

project will build the initial database to launch the Orange County site. UNC-Chapel Hill IT will coordinate the modification, data build, and local dissemination of the Total Rent Calculator.

**2. Training and Apprentice Program**
This grant will also fund the creation of a TradesCraft Training program for workforce development through DTCC and other partners. The training program will establish a curriculum and resources to train candidates for entry jobs in building inspections, stormwater management, repair, building and grounds maintenance, and energy auditing and retrofitting. Graduates of this program will conduct work as apprentices for Orange/Durham County employers.

**3. Affordable Rental Unit Remediation**
Working with Empowerment Inc., a community organizer and broker for affordable units in the Chapel Hill/Carrboro area, grant partners will identify rental units primarily occupied by low income families. After auditing the units, they will develop an action plan to build a sustainable process which can be applied to other community units after acquiring additional funds.

**4. Documentary**
Grant funding and in-kind matches will be used for project documentation, made available to others who seek to set up similar initiatives.

**5. Evaluations**
University students will conduct Capstone project evaluations at the beginning of the initiative and after each of the first two years of project work.

Additionally, this grant will engage community organizations and build a community consortium to pursue further grant opportunities to implement Carrboro's Climate Action Plan.

Partners in this grant include:

- Town of Carrboro
- Empowerment, Inc.
- Durham Technical Community College
- Chapel Hill Carrboro City School System
- Club Nova
- Refugee Community Partnership
- El Centro Hispano
- Orange County DSS
- Orange Water and Sewer Authority
- Carrboro Storm Water Utility
- RentRocket
- UNC-Chapel Hill IT
- Center For Sustainable Urban Design (fiscal agent)
- CommunityCAPS, Inc.
- Orange County Sustainability Program

This grant was not awarded funding by the SESDN in 2018. However, it remains a valuable resource and can provide framework for future funding submissions and Town initiatives. Mr. Porto will continue to search for funding opportunities for two project components: the RentRocket Calculator and the SkillsCraft Training Center.

**Climate Action Committee and Environmental Advisory Board**

In order to continue progress towards realizing emissions reduction goals outlined in the Community Climate Action Plan and Energy and Climate Protection Plan, Town Staff will form a

Climate Action Committee. The Climate Action Committee will function as a working group to pursue implementation of emissions-reducing strategies. Additionally, the establishment of the Stormwater Advisory Commission has allowed the EAB to shift its focus away from stormwater issues, allowing greater emphasis on climate action and related issues.