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: **June 18, 2019**
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 emissions and the CCAP establishes a 50% reduction goal in per capita greenhouse emissions by 2025. Town staff are examining and pursuing several initiatives to reach the emissions reductions goals.

To continue ECPP implementation, Town Staff have scheduled the LED streetlight conversion project with Duke Energy, increased staff composting efforts, installed energy-efficiency upgrades to Town buildings, and have scheduled a new energy-efficient roof to be installed on Town Hall in July.

Recent CCAP implementation measures include Bee City USA outreach events and the purchase of composting bins to begin unrolling a backyard composting program as the first phase of the Green Neighborhood Initiative. The Town has also drafted a phone survey to gather baseline data for CCAP implementation. The survey will ask questions regarding habits of Town residents related to food choices, composting, gardening, and other actions. The survey will be refined and conducted later this summer. This baseline data will be used for future benchmarking to track progress of CCAP initiatives, projects, and outreach.

Light-Emitting Diode (LED) Streetlight Conversion

- *Policy Connections:* ECPP Section 2A.

Public Works staff have been working with Duke Energy to implement the LED streetlight conversion. The project has been tentatively scheduled to begin in July and be completed in approximately 4 weeks. The conversion is estimated to reduce municipal emissions by 10%.

Energy-Efficiency Upgrades to Town Buildings

- *Policy Connections:* ECPP Section 2.B.ii and CCAP Buildings Recommendation #1: Reduce Emissions Attributed to Carrboro Buildings by 50% by 2025.

Recent upgrades to Town buildings include:

- Minor remodeling in Town Hall, including installation of 33 new high-efficiency LED panel lighting fixtures. The Town is receiving rebates from Duke Energy on some of the fixtures.
- Installation of two new high-efficiency air source heat pumps at Town Hall to replace older, less efficient units.
- The existing roof on Town Hall is scheduled to be replaced with a white membrane roof with added insulation in July of this year. White roofs can reduce summer energy use by 10-40% and can lower peak energy demand, saving money and reducing emissions.

Composting at Town Hall

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

Staff are continuing to collect coffee grounds in the Town Hall break room and Inspections Department for composting through the partnership between the Carrboro Farmers' Market and Orange County Solid Waste Management.

The Town also worked with Orange County to provide composting at the employee Spring Picnic. Compostable utensils were used at the event and each staff member received a reusable Town of Carrboro glass water bottle. Staff will estimate the yearly emissions reduction related to composting efforts.

Electric Vehicle Charging Stations

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

The VW Emissions Mitigation Fund Request for Proposals has not yet been released. The NC Department of Environmental Quality has provided the following information:

Phase 1 Timeline

- Plan submission to trustee (August 2018)
- Release request for proposals (Winter 2019)-RFP will be open for 90 days
- Proposal evaluations (Spring 2019)
- Phase 1 project selections (Summer 2019)
- Phase 2 planning (Fall 2019/Winter 2020)

Staff will proceed with a funding proposal when the Request for Proposals is released, per the Board's direction in the update on December 4, 2018.

Bee City USA

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

Town staff completed the 2018 report for Bee City USA and renewed the Town's membership for 2019. The Town has multiple outreach events planned for June to celebrate National Pollinator Week, beginning with a Proclamation recognizing June 17th through 23rd as Carrboro Pollinator Week. Staff will be performing public outreach at a table with activities and educational material at the Carrboro Farmers' Market on June 15th. Seeds for native pollinator-friendly plant species such as butterfly milkweed (*Asclepias tuberosa*) will be given out to residents at the Farmers' Market to encourage pollinator conservation and the development of residential pollinator gardens.

The Town will also hold a Father's Day movie on June 16th at the Carrboro Century Center and will distribute pollinator-friendly plants to attendees. Additionally, Town staff, members of the Environmental Advisory Board and a community volunteer met on the morning of May 10th to perform maintenance of the pollinator garden at the corner of West Main Street and Hillsborough Road.

Mayors Water Conservation Challenge

- *Policy Connections:* As a social media outreach campaign and partnership between Carrboro, Chapel Hill, OWASA, the University of North Carolina, and Chapel Hill-Carrboro City Schools (CHCCS), this initiative helps to fulfill CCAP Community Integration Recommendation #2: Expand Public Partnerships to More Explicitly Consider Climate Action.

The Town of Chapel Hill invited staff from Carrboro, OWASA, the University of North Carolina, and CHCCS to participate in a challenge to save water. The group created a unique Mayors Challenge for Carrboro and Chapel Hill to promote OWASA's new "Agua Vista" Metering Initiative. Agua Vista promotes water conservation by allowing customers to track their daily water usage and providing leak detection alerts.

The Mayors Water Conservation Challenge ended in May and Agua Vista was named winner of

the challenge, as over 3,700 accounts were registered throughout Chapel Hill and Carrboro over a two-month period.

Staff will work with OWASA to obtain data regarding the number of pledges completed online and calculate greenhouse gas emissions savings based on reductions in the quantity of wastewater cleaned and delivered due to pledged water savings from the challenge.

Planning Department and Public Works staff also met with OWASA to discuss the Town's water use. Staff will utilize Agua Vista to manage leaks and analyze water use patterns at municipal buildings to design water-saving measures and strategies.

Green Neighborhoods Initiative

- *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

Outreach Goals

The goals of the Green Neighborhoods Initiative include:

- Enlisting and engaging neighborhoods in efforts to reduce greenhouse gas emissions within the community
- Quantifying and tracking emissions reductions of successful projects and efforts
- Fostering a cooperative spirit and building community within neighborhoods
- Creating a community-scale dashboard on the Town website to track emissions savings and highlight successful projects and active neighborhoods
- Locating clusters of actively-participating champions to identify a neighborhood to implement an Every-Other-Week Trash Collection pilot initiative

Green Neighborhoods Phase 1: Backyard Composting

The Town anticipates unrolling a backyard composting program as the first phase of the Green Neighborhood Initiative this summer. Through composting promotion, the Town can begin to build communication networks within neighborhoods and between neighborhoods and the Town. These networks can be used to expand public outreach to encourage other emissions reduction initiatives outlined in the Community Climate Action Plan.

The Community Climate Action Plan includes a recommendation to promote composting to improve soil quality, increase soil organic content, enhance water quality by improving infiltration, and decrease methane gas landfill emissions and greenhouse gas emissions from trash pickup.

- *Policy Connections:* CCAP Ecosystem Integration Recommendation #3: Accelerate Efforts to Study and Implement a Comprehensive Organics Collection and Composting Program

To encourage composting, the Town is purchasing kitchen composting bins and backyard composting bins, which will be offered at a discount to Carrboro residents. Composting is an ideal option for the initial phase of this initiative due to its accessibility to many residents of Carrboro. All Carrboro residents make choices related to food each day, and diverting organic material for composting in a simple step that many can integrate into their daily routines. Composting bins are inexpensive compared to other emissions-reducing purchases such as electric vehicles and solar panels.

Multifamily Housing

While backyard composting will be relatively simple for single-family homeowners, approximately 56% of residents within the Town are renters. Those who live in rental units will have less ability to compost at home. The Town will need to ensure that these residents have access to participate. The Town will begin by offering discounted kitchen bins to residents of multifamily housing and by promoting the free composting drop-off at the Carrboro Farmers' Market. Next, the Town will pursue a pilot project with a multifamily complex to organize organic waste collection by a composting company such as CompostNow or Brooks Compost.

The Town will also promote vermicomposting for renters in the Town. Vermicomposting is the process of using earthworms to create compost. It is a more time-efficient method than backyard composting and will not result in odors indoors if performed properly. Worm bins can be placed on outdoor apartment balconies when the temperatures are higher than 40 degrees Fahrenheit.

Different types of worm bins are available commercially online. The Town can also provide instructions for residents to make their own worm bins in a brochure and on a dedicated page on the Town website.

The Franklin County Solid Waste Management District in Franklin, MA recommends a 15" x 1.5' x 2' worm bin for a household of 1-2 individuals. To prepare the bins, bedding made of shredded high-carbon materials, such as dry leaves, newspaper, or paper towels is recommended. After adding the worms and drilling ventilation holes, food scraps cut into small pieces can be added every few days. Earthworms will aerate the material in the bin as they move and produce nutrient-rich, organic waste. After three months, more bedding can be added to one side of the bin, and after the worms move to new bedding, the compost can be removed.

Public Outreach

In order to ensure public outreach is effective, the Town will need to create enthusiasm for composting and highlight the positive aspects of participation. The Washington State Compost Educators' Guide recommends emphasizing the circular nature of composting, where nutrients are returned to the soil to grow additional food. Composting promotes sustainability by connecting people to the food they eat and promoting a borrow-use-return mindset instead of a take-make-waste lifestyle.

Outreach will need to be multilingual, including Spanish and Karen translations, and can include:

- Kickoff event at Town Hall

- Social Media, Radio Promotion
    - Dedicated page on Town Website
        - Link on front page and separate page for more information
    - Twitter, Nextdoor, WHCL Radio
- Printed Materials
    - Newspaper ads, postcards, flyers
    - Cards to collect stickers from fruit and vegetables to avoid compost contamination. These cards can be mailed into Town for coupon/prize related to climate action.
- Word of Mouth
    - Announcements and updates at Environmental Advisory Board Meetings
    - E-mails
    - Tables at the Carrboro Farmers' Market
- Tie-in all materials to Community Climate Action Plan; include thermometer progress icon
- Create a Green Neighborhoods or Carrboro Composts icon
- Perform outreach to environmental groups with mailing lists and current community email listservs

Outreach can utilize the following strategies to overcome barriers to change:

Table 1. Community Based Social Marketing Tools (McKenzie-Mohr & Smith, 1999)

Strategy	Example
Pledging to try small changes makes residents more likely to follow up with broader actions.	Small changes such as leaving yard trimmings on the lawn are easier to incorporate into established routines.
Promising to try a new practice makes follow-through more likely.	Ask for verbal commitments, such as "Will you compost your yard trimmings the next few times you mow?"
Written commitments are more binding than verbal.	Ask residents to sign a petition or pledge to complete specific actions on a handout.
Involvement in an activity invests people and makes them secure enough to repeat the actions individually.	Use hands-on educational activities and encourage audience participation.
Public or group commitments are especially effective.	Ask neighbors to commit to composting yard trimmings
When people identify as environmentalists (or concerned about any issue) they are likely to adopt behavior that is consistent with this image.	Recognize and praise a measure the resident has taken. Ask resident about specific concerns and inform them of measures to combat those issues.
Providing a discounted tool makes people feel obliged to use the item.	The Town will provide low-cost kitchen and backyard compost bins.

Table 2. Prompts: Reminders help break habits that may overwhelm plans to change. It is easier to follow an old routine than to remember intentions.

Strategy	Example
Visual cues are useful reminders to break habits.	Provide a sticker that says, "Turn your compost pile before adding."
Effective prompts must be specific and self-explanatory.	Saying, "Water the lawn once inch per week during dry summer weather" is more effective than saying "Water wisely".
Effective prompts must be noticeable and be located in physical proximity to where the action takes place.	Placing a composting reminder sticker on a trash bin is more effective than on a mailed postcard.
Positive prompts are more effective than threats. Avoid negative messaging.	Stick with prompts for specific behavior such as, "Put in compost pile instead of putting in trash can."

Table 3. Norms: Most members of a community want behaviors to fit in with community values. Many residents are likely to use sustainable practices if our neighbors do it, even if it seems less convenient than another method.

Strategy	Example
Make people aware that their neighbors are adopting sustainable practices.	Mention the number of composting bins which have been purchased from the Town or the number of residents who drop off composting at the Farmers' Market/
Model the behavior you want others to adopt. Offer to help others change	The Town should continue to promote composting at Town Hall.
Make conservation behaviors visible.	Signs provide a visual reminder
Publicizing involvement makes norms visible, and goads people to follow through so they are seen as consistent.	Suggest that you may profile a resident's sustainable practices in a local news story or use their name on a list.

Educational Events

- Workshops
- Farmers' Market Demonstrations

Purpose: Educational events provide an in-person opportunity to learn about composting and to answer community questions.

Workshops will include:

- Explanation of composting, basics of decomposition
- Operation of composting bins
- Benefits of composting, including: reduced emissions, improved soil and water quality, waste diversion from the landfill
    - Information about the properties and functions of soil and its role in nutrient cycling, preventing stormwater issues through filtering and buffering water,

providing physical stability for plant roots, and contributing to biodiversity and habitat
    - Explain how the addition of organic matter helps stabilize and add nutrients to soil
- Optimal placement of backyard bins to most effectively produce compost
- How to rodent-proof composting bins using hardware fabric
- What materials can be composted
- What materials to avoid in compost
- How to create the best ratio/mixture for optimal composting
- How to use finished compost in gardens and yards
- Frequently Asked Questions
    - Why is composting important?
    - How does composting help reduce greenhouse gas emissions?
    - How can I use compost in my garden?
    - Will it attract pests?
    - How long will it take to make compost?
    - Should I add water to my compost?
- How to measure composting success/reporting to the Town
- Participants will need to provide their address (for Green Neighborhood Initiative) and preferred contact for reporting (e-mail/SurveyMonkey or postcard)

Table 4. Timeline

May/June	• Obtain quotes for kitchen bins, backyard composting bins, and phone survey • Order composting bins • Draft public outreach materials, web page, and workshop presentations • Reach out to multi-family housing units for potential partnerships
June/July/August	• Begin workshops and compost bin distribution • Promote composting on social media • Create neighborhood participation heat map • Begin pilot project in multifamily housing • Begin calculating emissions reduction based on estimated weights of reported organic waste diverted from the landfill
August/September	• Evaluate participation rates and neighborhood participation for every-other-week garbage collection pilot • Design every-other-week garbage collection pilot to begin in fall 2019

Metrics, Reporting, Evaluating Participation

In order to determine the greenhouse gas emissions reduction based on participation in backyard composting, staff will use the Town's SurveyMonkey subscription.

Staff will create a separate page on the Town website containing composting links, resources, instructions, frequently asked questions, and a link to the SurveyMonkey reporting form. The reporting form will contain information needed for Town staff to calculate greenhouse gas emissions reduction and to determine participation in each neighborhood, including:

- Number of times kitchen bin is emptied each week
- Estimated percentage of kitchen bin filled with material when emptied
- Approximate percentage of specific categories of organics composted (food waste, yard waste)
- Resident address

Participants who purchase a composting bin will be asked to provide an email address and report their bin usage to the Town monthly for a specified time period. Staff will calculate greenhouse gas emissions reductions using the EPA's Waste Reduction (WARM) Model.

In the December 4, 2018 Energy and Climate Protection Plan and Community Climate Action Plan Implementation Update, Town staff analyzed multiple composting scenarios using EPA's WARM model. Staff updated the WARM model by removing yard waste components to obtain additional estimates of emissions reduction from different composting scenarios. The average emissions reduction from a composting program was 236.89 MTCDE/year. The analyzed scenarios involved only single-family housing. Promoting composting efforts in multifamily housing will increase the estimated emissions reduction.

Survey

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

In order to gauge backyard composting progress, the Town will also need statistically-valid data regarding current composting habits. A survey can provide data for a baseline snapshot of habits related to other CCAP recommendations as well, including food choices and gardening. CCAP Food Choice Recommendation #2 involves capturing diet-related greenhouse gas emissions in order to measure progress towards the Town's reduction goal. The survey will include questions about composting habits, gardening habits, and food choices. This baseline data will allow the Town to begin benchmarking and tracking progress towards emissions-reduction goals.

Town staff have drafted the basic survey outline and questions. A research team will assist Town staff in refining and formatting questions to ensure the results provide the Town with necessary information.

To complete the survey, a research team will call 400 Carrboro residents over age 18 randomly, and call each number four times if no answer is received. This result in a +/- 5% error rate, the industry standard.

Once the survey begins, it will take 4-6 weeks to complete. A research team will cross-tabulate the data with demographic information to illustrate further trends in residents' habits.

Program Expansion

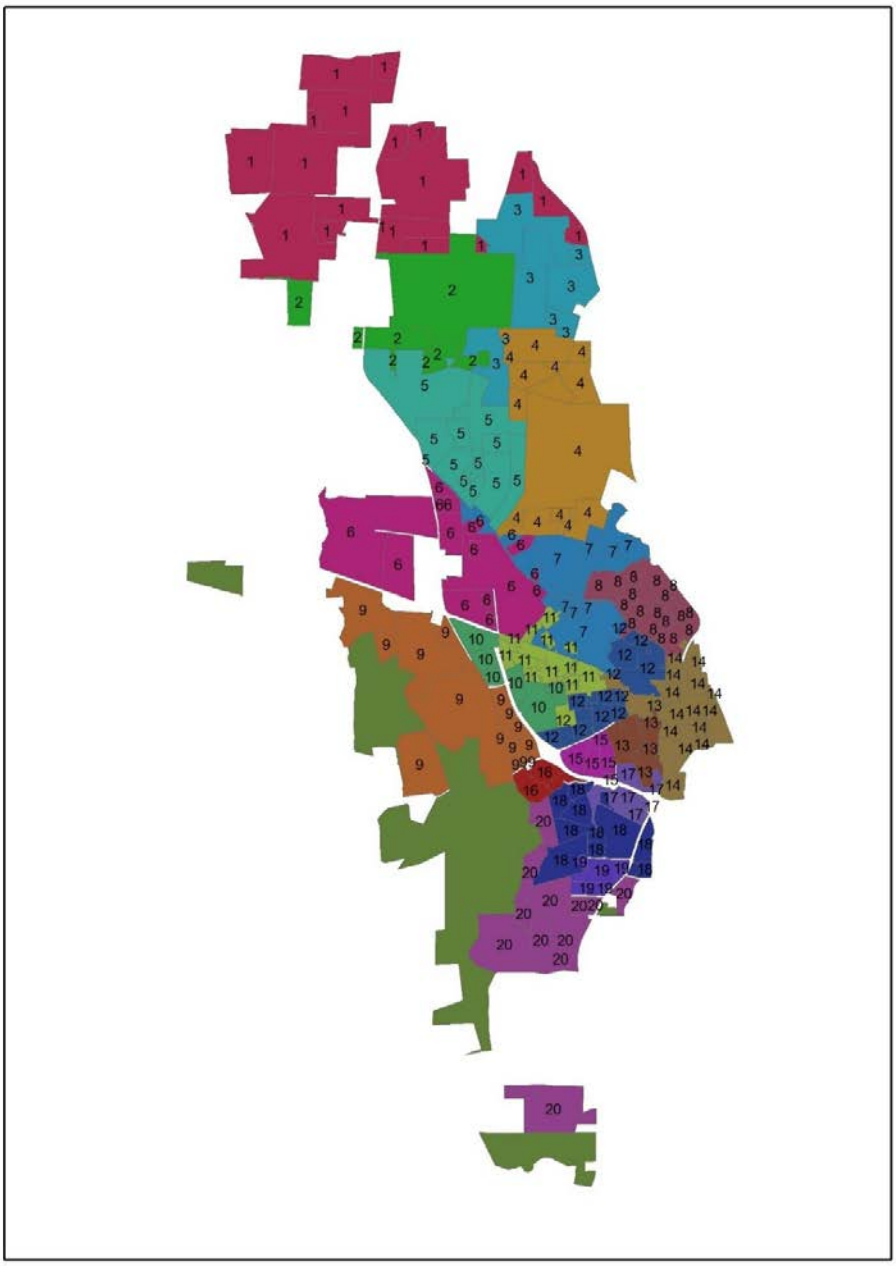
In order to maximize emissions reduction, the Town will need to continue to promote composting beyond backyard efforts. The Town will explore the following options to expand the program:

- Hold discussions with Orange County and Brooks for potential organics drop-off station in Town Hall parking lot
    - Brooks currently collects bins from Town Hall for the Farmers' Market composting initiative with Orange County.
- Hold discussions with local businesses such as restaurants to expand composting through CompostNow, Brooks, or McGill
- Identify local institutions and businesses that generate substantial quantities of food scraps and assess potential for on-site composting
- Explore incentives and grants for businesses and institutions to purchase supplies and equipment to facilitate the organics collection and on-site composting.

The Town has created a preliminary Green Neighborhoods Map (Figure 1). As residents purchase bins and provide address information, the Town will create a heat map showing neighborhoods actively participating in organic waste diversion. An active neighborhood will be chosen for an Every-Other-Week pilot initiative designed by Planning Department and Public Works staff. The heat map will also provide information about the success of composting in rental units and inform Town staff how to modify strategies for greater waste diversion.

The Green Neighborhood initiative will be expanded as composting momentum grows. Town staff will pursue other initiatives outlined in the CCAP, such as promoting home energy efficiency and invasive species management as Green Neighborhoods are formed and communication channels are established.

Figure 1. Town of Carrboro Green Neighborhoods Map



TOWN OF CARRBORO
301 W. Main St.
Carrboro, NC 27510

Created on March 7, 2019
by Evan Crane

THIS MAP IS NOT A CERTIFIED SURVEY
NO RELIANCE MAY BE PLACED IN ITS ACCURACY

The Town of Carrboro assumes no liability for damages caused by inaccuracies in this map or supporting data and makes no warranty, expressed or implied, as to the accuracy of the information presented. The fact of distribution does not constitute such a warranty.

Environmental and Climate Action Advisory Board and Staff Climate Action Working Group

- *Policy Connections:* CCAP Community Integration Recommendation #5: Expand Capacity to Pursue Community Sustainability Initiatives.

The Board of Aldermen will consider a Land Use Ordinance Text Amendment to modify the Environmental Advisory Board's title to the Environmental and Climate Action Advisory Board (ECAAB) to more fully identify its role in CCAP implementation. The ECAAB will work to prioritize CCAP recommendations and outline a process for the Town to continue CCAP implementation.

The Interdepartmental Staff Climate Action Committee met on May 30th. At the meeting, staff and provided a summary of current ECPP and CCAP implementation. Staff discussed the committee's transition from implementation of the municipal plan to the community plan and also outlined methods of sharing resources and ideas, coordinating projects, and interdepartmental communication. Staff shared ideas for project prioritization related to the municipal fleet, buildings, and renewable energy, and listed items that were important to each department when considering emissions reduction.

Staff also discussed a potential fleet assessment to help with efforts for right sizing, clean energy assessment and planning, and CFAT grant preparation through the NC Clean Energy Technology Center.

Energy-Efficiency Loan Program

- *Policy Connections:* CCAP Buildings Recommendation #1: Reduce Emissions from Buildings by 50%.

The Town currently has available funding to provide residents with loans to perform energy-efficiency upgrades. Planning Department staff will work with Economic and Community Development staff and perform outreach to promote a new initiative.

The average cost for energy-efficiency upgrades is $3,365.29 per MTCDE in emissions reduction. Reducing emissions from buildings by 50% will reduce total community emissions by 33.7%.

Table 5. Carrboro WISE Program Data: Average Energy and Cost Savings for Installed Measures

Carrboro WISE Program Data: Average Energy and Cost Savings for Installed Measures			
Costs and Savings	**Residential Average**	**Multi-family Average**	**Commercial Average**
Retrofit Invoiced Cost	$8,123.81	$2,996.52	$32,037.60
Annual Electricity Savings (kWh)	1,877.94	3,268.44	1,648.00
Annual % Electricity Savings (kWh)	13%	22%	15%
Annual Natural Gas Savings (Therms)	138.13	550	164.6
Annual % Natural Gas Savings	30%	89%	76%
Average Annual Cost Savings ($)	$363.12	$361.24	$359.15

Government Alliance on Race and Equity (GARE)

- *Policy Connections:* CCAP Community Integration Recommendation #7: Integrate Climate Action and Social/Equity Initiatives.

In October 2018, the Town joined the GARE initiative. GARE will provide the Town with tools to integrate consideration of racial equity in decisions, policies, practices, programs, and budgets. The Town has formed a GARE Core Team with representatives from each department who will use GARE toolkits to when working to implement climate action initiatives. As a first step in participation, the Town will be conducting an employee survey to review employee understanding of equity and inclusion. The Urban Sustainability Directors Network (USDN) recommends this type of internal review as a first step for municipalities when designing an equitable climate action or clean energy program. The USDN next recommends meeting and listening to community members in order to ensure program design is responsive and fits the needs of the community.

Green Development Recognition Program

- *Policy Connections:* CCAP Buildings Recommendation #3: For New Developments and/or Individual New Buildings or Major Retrofits, Pursue Compliance with Voluntary Section of Building Code, or Request Specific Energy Performance Rating/Measures as Part of Land Use and/or Building Permit.

This recommendation would require the Town to pursue statutory authority or voluntary compliance from developers/builders. At the May 7th Board of Aldermen meeting, a member of the Environmental Advisory Board (EAB) provided a presentation outlining an idea to

incentivize developers to construct buildings that will use less resources and integrate emissions-savings into project design. Town staff plan to research the feasibility of these incentives and also work with members of the EAB to outline a plan to recognize developers who help the Town reach emissions reduction goals.

Solar Projects

- *Policy Connections:* CCAP Buildings Recommendation #1: Reduce Emissions from Buildings by 50% and Renewable Energy Recommendation #1: Pursue Community Solar Projects.

Town staff are in the process of comparing options for solar projects on Town buildings, including solar leasing.

Municipal Greenhouse Gas Inventory

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

Town staff will complete the 2018 Municipal Greenhouse Gas Inventory this summer to continue to track ECPP implementation progress.

References

Appelhof, M., & Olszewski, J. (2017). *Worms Eat My Garbage: How to Set Up and Maintain a Worm Composting System: Compost Food Waste, Produce Fertilizer for Houseplants and Garden, and Educate Your Kids and Family*. Storey Publishing.

Fostering Sustainable Behavior: An Introduction of Community Based Social Marketing by Doug McKenzie-Mohr and William Smith

Franklin County Solid Waste Management District. *Vermicomposting: Indoor Composting with Earthworms*. Retrieved from: http://www.franklincountywastedistrict.org/vermicomposting.html.

Montgomery County, Maryland Department of Environmental Protection, Division of Solid Waste Services. (2018). *Strategic Plan to Advance Composting, Compost Use, and Food Scraps Diversion in Montgomery County, Maryland*. Retrieved from: https://www.montgomerycountymd.gov/SWS/Resources/Files/foodwaste/Strategic%20Plan%20to%20Advance%20Composting,%20Compost%20Use,%20and%20Food%20Scraps%20Diversion%20in%20Montgomery%20County,%20MD.pdf

Seattle Public Utilities and the Seattle Tilth Association. (2003). *The Natural Soil Building Resource Manual.* Retrieved from: https://www.skagitcounty.net/PublicWorksSolidWaste/Documents/Home%20Composting%20Booklet.pdf.

The City of Portland Planning and Sustainability. (2019). *Portland Composts!* Retrieved from: https://www.portlandoregon.gov/bps/article/402972.

Urban Sustainability Directors Network (2018). A Guidebook on Equitable Clean Energy Program Design for Local Governments and Partners. Retrieved from: https://cadmusgroup.com/wp-content/uploads/2018/09/Cadmus-USDN-Equitable-Clean-Energy-Guidebook.pdf?utm_referrer=https%3A%2F%2Fcadmusgroup.com%2Fpapers-reports%2Fa-guidebook-on-equitable-clean-energy-program-design-for-local-governments-and-partners%2F.

Westcott, H., Cogger, C., Bary, A., Sullivan, C., Mack, A. Washington State University. Washington State Compost Educators' Guide. Retrieved from: http://www.sheltonwa.gov/document_center/Departments/PublicWorks/Recycling/CompostingBook2.083109pdf.pdf