Environmental Advisory Commission

May 3, 2018

5:30pm City Council Chambers

Agenda

Greenville NORTH CAROLINA

Find yourself in good company

Basic Motions

Motion
Calls for Action
Debatable
Simple Majority

Motion to Amend
Changes Original
Debatable
Simple Majority

Other Motions

Table
Postpone Vote
No Discussion
Simple Majority

Close Debate
End Debate & Vote
No Discussion
2/3 Majority

Reconsider
Change Prior Decision
Voted in Majority
Within One Meeting
Debatable
2/3 Majority

Recess
Take a Short Break
No Discussion
Simple Majority

Consensus Process
If 1-Vote Majority
Debatable
3 Votes to Pass

Adjourn
End the Meeting
No Discussion
Simple Majority

Actions and discussion are governed by motions. Only 3 motions on the table at once (a 4th would be out of order). Most recent motion is considered first.

❑ **Convene meeting + Reminder: Turn off Cell Phone**

I. Roll Call/Quorum _____ Board Members (quorum = 4)

II. Pledge of Allegiance

III. Additions/Deletions/Approval of Agenda

IV. Approval of April 5, 2018 Minutes (Attachment A)

V. Announcements

VI. Public Comment Period

Public Comment Period is a period reserved for comments by the public. A total of 30 minutes is allocated with each individual being allowed no more than 3 minutes each. The Public Comment Period will be closed once the allocated time has been reached.

VII. New Business

a. None

VIII. Old Business

a. Sustainability Reports Discussion (15 mins) – D. Ames
b. Volkswagen Settlement Mitigation Update (15 mins) – D. Tyson
c. Cool Cities Initiative Update (10 mins) – D. Tyson
d. Plastic Bag Resolution Update (10 mins) – D. Tyson

IX. Commission Reports

a. ECU Sustainability Report (10 mins) – C. Carwein
b. Bike & Pedestrian Commission Update (10 mins) – E. Kane

X. Other – FYI

a. Sustainability Report Information (Attachment B)

XI. Proposed Agenda Items – June 7, 2018

a. 2017-2018 EAC Grant Final Presentation
b. Greenville Utilities Commission Update (D. Tyson)
c. Neighborhood Advisory Board Update (A. Maxwell)

XII. Adjourn

Items for Future Consideration

_____ _____

_____ _____

_____ _____

2018

Board Members

Chair

1. Durk Tyson

Commission Members

2. David Ames
3. Drake Brinkley
4. Nathaniel Hamilton
5. Emilie Kane (Vice-Chair)
6. Ann Maxwell
7. Diego LLerena

Ex-officio

Kevin Mulligan
(Public Works)

Staff Liaison

Daryl Norris
(Public Works)

City Council Liaison

Brian Meyerhoeffer

Environmental Advisory Commission Mission:

The Environmental Advisory Commission is hereby created for the primary purpose of recommending matters of environmental concern and serve as technical advisory to the City Council.

Environmental Advisory Commission Purpose:

- Inventory and review, on a continuing basis, the condition of and threats to the environmental resources of the City; and as technical advisors, to report all needs for improvement and corrective actions to the City Council.
- To be advisory to the City Council. The commission will recommend to the City Council matters of city-wide environmental concern and shall serve as technical advisors to the City Council on environmental matters. In addition, it will review Environmental Impact Statements required by the City on major development projects.

ATTACHMENT A

(April 5, 2018 Minutes)

Action: For your review and approval.

DRAFT OF MINUTES PROPOSED FOR ADOPTION BY THE ENVIRONMENTAL ADVISORY COMMISSION MARCH 1, 2018

CALL TO ORDER

Members of the Environmental Advisory Commission met on the above date at 5:30 p.m. in the City Council Chambers. Durk Tyson, Chairperson, called the meeting to order and welcomed all those present. The following attended the meeting:

1. ROLL CALL

MEMBERS:

David Ames
Drake Brinkley
Emilie Kane
Diego LLerena
Ann Maxwell

OTHERS PRESENT:

Daryl Norris, City of Greenville
Craig Becker, ECU

2. PLEDGE OF ALLEGIANCE

3. ADDITIONS/DELETIONS TO THE AGENDA

Mrs. Maxwell made a motion to approve the agenda as presented. The motion was seconded by Dr. Ames and passed unanimously.

4. APPROVAL OF MARCH 1, 2018 MINUTES

A motion was made by Dr. Ames to approve the minutes of February 1, 2018 as presented. The motion was seconded by Ms. Maxwell and passed unanimously.

5. ANNOUCEMENTS

Dr. Ames announced that the Sierra Club meeting being held on Monday April 9, 2018, 7:00pm at the Unitarian Church on Oakmont Drive will feature a guest speaker presenting information on climate.

Dr. Kane stated there was an article in the newspaper regarding plastics. Dr. Kane provided copies of the article and will discuss further at the May 3, 2018 meeting.

6. PUBLIC COMMENT PERIOD

There were no public comments

7. NEW BUSINESS

A. 2018-2019 EAC Grant

Mr. Norris announced no applications were received for the 2018-2019 EAC Grant were received. Mrs. Maxwell stated the Love A Sea Turtle (LAST) Foundation informed her they had not applied for the upcoming grant as they were recipients for the past two years and wasn't confident in the assumption they could apply for a third. Mrs. Maxwell asked if the deadline could be extended to accommodate an application for LAST. Mr. Norris stated he would research this possibility; however, further commented that the deadline would need to be extended a full month to hold a formal meeting for voting and was not sure if the budget deadline would allow ample time to process the grant application if awarded.

Dr. Kane asked if a workshop could be held for potential applicants to provide ideas and examples for future grant projects. Mr. Brinkley added he felt it would be beneficial to contact previous recipients and let them know they could reapply as well. Mr. Norris stated he felt this was a great idea and this would be tabled to a future meeting closer to the new grant cycle.

8. OLD BUSINESS

A. Sustainability Report Discussion

Mr. Carwein stated Ms. Pandya had meetings with Council Members and also contacted other cities in North Carolina regarding their sustainability efforts. However, in investigating past information obtained from the City of Greenville, Ms. Pandya felt the options offered in the past were still currently relevant and the efforts needed to be enacted by the City.

Dr. Kane asked if Ms. Pandya would be providing her information to EAC. Mr. Carwein stated he was not certain as the efforts were continuously being duplicated with no commitment by the City. Dr. Kane asked if the information Ms. Pandya could be presented to EAC. Mr. Carwein stated the information was given to the Sierra Club and asked Dr. Ames could provide the information to EAC. Dr. Ames will speak with Dr. Becker, Ms. Pandya's advisor and work in obtaining the information.

9. Commission Reports

A. ECU Sustainability Report

Mr. Carwein reported the Sustainability Master Plan for ECU is on schedule and a meeting will be held on April 4, 2018 with stakeholders with adoption by ECU by Fall 2018. Mr. Carwein also reported Earth Day will recognized by ECU during the week of April 22, 2018 with activities being held across campus.

B. Community Appearance Commission Update

Dr. Ames reported the Community Appearance Commission met in October and December and awarded a Community Appearance Award to the antiques store on Dickinson Avenue and to Elmhurst School. Dr. Ames stated he did not feel there were any efforts EAC could collaborate with the Commission on at this time.

C. SWAC Update

Mr. Brinkley reported SWAC went through the billing efforts of various property types within the City and proposed rate increases based on the needs of the Stormwater Program.

10. OTHER– FYI

A. Volkswagen Mitigation Draft Plan (See attachment)

11. PROPOSED AGENDA ITEMS

The following items are proposed for the May 3, 2018 meeting:

A. Bike & Pedestrian Commission Update (E. Kane)
B. Volkswagen Settlement Mitigation Update (D. Tyson)
C. SWAC Update (D. Brinkley)
D. Cool Cities Initiative Update
E. Plastic Bag Resolution Update

11. ADJOURNMENT

There being no further business to discuss, Mr. Brinkley made a motion to adjourn. The motion was seconded by Dr. Ames and passed unanimously.

ATTACHMENT B

(Sustainability Report Information)

Action: For your information.

CITY OF GREENVILLE, NORTH CAROLINA - SUSTAINABILITY

by

Scott Michael Barber

A Senior Honors Project Presented to the

Honors College

East Carolina University

In Partial Fulfillment of the

Requirements for

Graduation with Honors

by

Scott Michael Barber

Greenville, NC

May 2014

Approved by:

Dr. Robert Chin:

Robert Chin

City of Greenville, North Carolina - Sustainability

Scott Michael Barber
East Carolina University
Faculty Mentor: Dr. Robert Chin
East Carolina University

ABSTRACT
Sustainability has been defined by the Brundtland Comission as "meeting the needs of present generations without compromising the needs of future generations." Seeking to become more sustainable, the City of Greenville, North Carolina developed a Municipal Operations Sustainability Plan, which presents the vision for the city and specific goals to become environmentally, socially, and economically sustainable. Reducing greenhouse gas emissions, reducing municipal electricity, reducing the use of potable water, increasing the number of street trees, and establishing a sustainability fund are among the goals that, when achieved, will help Greenville become more sustainable. The Public Work's Department has been working with Schneider Electric to reduce the amount of energy use in municipal buildings. Schneider Electric specializes in energy management, and is known worldwide for its success in saving energy and improving energy efficiency. Along with the work completed with Schneider Electric within the Public Work's Department, Greenville has joined ICLEI - Local Governments for Sustainability. ICLEI is a nonprofit, international, membership organization of cities, towns, and counties seeking to become more sustainable, addressing climate change and clean energy. ICLEI provides valuable resources, and experience and leadership for local governments to help save money, reduce energy use, and reduce greenhouse gas emissions. This research presents what Greenville has achieved thus far with Schneider Electric and ICLEI USA, and states what the next steps are to reach their goals, as well as evaluating other cities in North Carolina that are more sustainable in order to understand what can be achieved in Greenville.

INTRODUCTION

In the past fifty years, people have begun to recognize and understand the relationships between the environment, the economy, and social well-being. Rachel Carson's *Silent Spring*, which was published in 1962, has been widely viewed as the turning point towards sustainability, although that term wasn't initially connected with the book. Since that time, people and organizations have sought to lessen their impact on the environment, while still meeting economic demands and maintaining social equity. These three concepts (economic, environmental, and social) have since been identified as "the three pillars of sustainability," and now serve as the driving force behind many laws, personal convictions, and organizational goals.

The Brundtland Commission's report in 1987 provided a definition for sustainability that has become the foundation for sustainability: "development which meets the needs of current generations without compromising the ability of future generations to meet their own needs" (Brundtland Commission, 1987). There is a growing need for sustainability in our world today to ensure adequate water and other materials and natural resources for the future. While there are many companies and organizations that are striving to be more sustainable, such as creating energy efficient electronics and hybrid vehicles, there is still a need to make improvements in our world today. The overuse of natural resources has led to the loss of fertile soil, forests, and other natural resources (Adams, 2012), and its impact is seen through the rising costs of gas prices and other materials. By evaluating our impact on the environment, we can not only conserve nonrenewable resources, but we can often save money long-term, as well.

Since the end of the 20th century (ICLEI USA, 2009), local governments in the United States of America have begun to establish sustainability plans and determine how to save money, reduce the community's impact on the environment, and still meet social expectations effectively. By identifying needs and goals for their city or county, they are then able to create strategies and plans to accomplish their goals. In 2011, it was estimated that 240 cities had a sustainability plan or were taking steps towards developing a sustainability plan (Desouza & Schilling, 2012), and that the number has increased significantly as the need for sustainability has become more widely recognized.

This paper presents an accumulation of information regarding sustainability in Greenville, North Carolina, including the background of sustainability in the city, work with Schneider Electric and ICLEI USA, and future goals and possibilities for the community as well. The goal of this review is to inform the reader of the history of sustainability in Greenville and ways that the city is aiming to become more energy efficient and reduce their emission of greenhouse gases, and the future prospects, to help raise awareness and involvement in the local government's goals.

SUSTAINABILITY IN GREENVILLE

In North Carolina, eight cities had sustainability plans in 2012, while 43 were identified as cities that had initiatives to reduce climate change to some degree (Thomas, 2012). Greenville, North Carolina has been in the process of developing a "Greenville Sustainability Plan" since 2012, having identified sustainable practices already in place as well as areas in need of improvement. The following areas are already being practiced to make Greenville more sustainable, identified by Chad Thomas (Thomas, 2012):

- Creation of the Environmental Advisory Commission/Greenville Climate Protection Partnership
- Erosion Control & Sedimentation Program
- Greenville's Horizon Plan
- Recycling Collection
- GREAT Bus Transit
- Center City and West Greenville Revitalization
- Energy Efficiency Savings Projects

These are just a few of the steps that Greenville has taken to become more sustainable, but developing a sustainability plan will allow the city to coordinate among various departments and measure their overall progress towards sustainability. There has been significant progress in the past few years as Greenville has worked on creating a sustainability plan for the city, has worked alongside Schneider Electric to reduce energy use in municipal buildings, and has recently joined ICLEI – Local Governments for Sustainability. While great strides have been made, there is still a long road ahead for Greenville as it continues to evaluate and seek to meet the needs of the city in a sustainable manner.

The Public Works Department developed goals for the Municipal Corporation of the city of Greenville within GreenWorks 2013, the Municipal Operations Sustainability Plan. The goals for this plan

are “to improve business practices within the municipal corporation to a “Best Practices” level, to lead by example, and to communicate and advocate our experiences to the community” (Municipal Corporation, 2013). The plan is focused on performance within municipal operations and external outreach, not to mandate externally or determine the city-wide goals. The eleven goals set by this plan are (Municipal Corporation, 2013):

1. Reduction in Greenhouse Gas Emissions for Municipal Operations
2. Ensure that all city-owned buildings (new construction or significantly renovated) meet Green Building standards
3. Reduction in municipal electricity
4. Reduction in municipal use of potable water
5. Run city fleet vehicles on renewable sources
6. Municipal materials meet environmentally-preferential purchasing and disposable standards
7. Increase number of street trees
8. Utilize native landscaping on low profile municipal facilities
9. All city staff and public officials are engaged in making Greenville a more sustainable community
10. Increase the amount of solid waste diverted from the landfill
11. Establish a sustainability fund

These goals establish the vision of sustainability for the municipal operations of Greenville and helps direct the changes that are necessary to help Greenville make progress towards being a more sustainable community. Through the process of making these changes, the municipal operations of Greenville will have a lower impact on the environment, save energy for the citizens, and set an example for the area in ways to become more sustainable.

Strengthening the progress towards becoming a sustainable community, the City of Greenville hired Schneider Electric at the end of 2011 to perform an investment grade audit to increase the energy

performance savings. Within the past few months, Greenville has also joined ICLEI, which will help make significant progress towards the city's sustainability goals. Through the work with Schneider Electric and ICLEI, Greenville will be better equipped to make progress in regards to energy savings and a reduction of greenhouse gas emissions. Both companies have successful backgrounds in these areas, and will be valuable support, providing resources and knowledge for Greenville as advancements are made.

SCHNEIDER ELECTRIC

As the City of Greenville has been working towards energy savings, they began working with Schneider Electric, an international company that specializes in energy management. Schneider Electric provides products, services, and support to help companies and organizations increase efficiency in many different areas such as energy use, lighting, machine control systems, and renewable energy. Schneider Electric is the energy services company (ESCO) approved by City Council in mid-November of 2011 which would be used to complete an investment grade audit for the city. The investment grade audit (IGA) includes (City of Greenville, 2011):

- A list of energy conservation measures planned for each facility
- A description of how the energy conservation measures will interact with the existing equipment in the facilities
- Financial analysis of the effect on the City's annual utility cash flow that is the result of the energy conservation measures
- Utility analysis demonstrating effect of installed energy conservation measures
- Performance Assurance Support Services (PASS) Plan for the facilities
- Project pricing for a turnkey installation of the proposed project scope
- Guaranteed energy services contract for the facilities

The steps within the IGA will allow the city of Greenville to accurately measure statistics for municipal buildings including lighting, HVAC controls, water, and mechanical systems. Robert Williams of Schneider Electric stated at Greenville's City Council meeting that the goal for this project is to "take low cost, high savings conservation measures and mesh them with higher cost items that have lower savings to come up with a comprehensive facilities improvement project." Essentially, the company works along with the city to find out the needs of each building and structure the project around those findings. One of the benefits of working with Schneider Electric is that if the City doesn't save as much money to pay off the note, Schneider Electric will pay the difference. This is very helpful, as the price is fixed up-front for the City and any unforeseen costs will not have to be covered by Greenville.

The eight steps that the City is working through with Schneider Electric are a feasibility assessment, workshop, preliminary audit, advertising for proposals, selection of a partner, investment grade audit, Local Government Commission review and approval, and project installation. The project is estimated to be complete between April and July of 2013, and the savings resulting from the project installation are projected for 15 years at $140,000 annually (Barwick, 2011). The contract was approved by a unanimous vote during the City Council meeting on December 8, 2011.

The City of Greenville also has a "Guaranteed Energy Performance Contract" with Schneider Electric, a contract where Schneider Electric will evaluate, recommend, and implement energy conservation measures. At minimum, guaranteed energy performance contracts include "the design and installation of equipment to implement 1 or more of such measures and, if applicable, operation and maintenance of such measures; that the amount of guaranteed actual savings must meet or exceed the total annual contract payments made by the contracting agency for the guaranteed performance contract; and the finance charges incurred by the agency over the life of the contract" (State Government, 2005). As a result of this contract, the City of Greenville should see a savings of over 49,245 tons of carbon emissions per year, which is similar to planting about 2 million trees (Evans, 2002)

or removing almost 10,000 cars from the road (EPA, 2011). This project will result in energy savings for lighting, water conservation, HVAC improvements, testing and balancing, controls upgrades and additions, and solar renewable energy.

For part of this project, flyers were created for specific City of Greenville buildings to present the progress Schneider Electric is making for energy efficiency to the general public. Appendix A shows the basic format for these flyers, and includes an image of the building, basic building information, overall energy savings, building facts, a visual representation of energy use, and a monthly savings tip. These flyers are designed to quickly and effectively communicate the energy savings for each individual building and provide ways for readers to save energy as well. These flyers can be posted in the appropriate buildings and be viewed by the general public. At this point, flyers have been created for City Hall, the Municipal Building, the Police-Fire Rescue building, the Public Works Complex, the Jaycee Park Building, and the Greenville Aquatics and Fitness Center. However, the template provided can be easily utilized for any of the city's building to present the energy savings to the public.

ICLEI – LOCAL GOVERNMENTS FOR SUSTAINABILITY

Greenville, North Carolina has also joined and has begun working alongside ICLEI - Local Governments for Sustainability. ICLEI is a nonprofit, international, membership organization of cities, towns, and counties seeking to become more sustainable, addressing climate change and clean energy. The mission statement of ICLEI is "to build, serve, and drive a movement of local governments to advance deep reductions in greenhouse gas emissions and achieve tangible improvements in local sustainability." ICLEI once stood for the "International Council for Local Environmental Initiatives" but in 2003 the name was changed to show their overall focus on sustainability, beyond just environmental initiatives. The organization supports local governments by providing tools, assistance, training, peer

networks, and more resources that assist their members. ICLEI explains what they help local governments achieve (ICLEI, 2014):

- Save money, reduce energy use and waste, and lower greenhouse gas emissions to address climate change
- Measure energy use, greenhouse gas emissions, climate resiliency and sustainability performance
- Set achievable goals and develop sustainability plans, climate action plans, or energy plans
- Create more sustainable, economically prosperous communities

By joining ICLEI, the City of Greenville will have the services, resources, and support to become more sustainable. The knowledge and experience ICLEI provides will help Greenville make wise and informed decisions for reducing greenhouse gas emissions and making and implementing a sustainability plan. The programs ICLEI has help local governments identify and meet specific goals of the cities involved. As Greenville already has a Municipal Operations Sustainability Plan, ICLEI will be able to help the city carry out this plan more effectively, and determine the best ways to increase community involvement in their efforts to become more economically efficient, reduce the impact on the environment, and meet the social needs of the Greenville and surrounding community.

CLIMATE MITIGATION: CLIMATE PATHWAYS PROGRAM

The primary program that the City of Greenville will be using within ICLEI is the Climate Pathways, a program “empowers staff to measure, plan for, and reduce missions and energy use while building a better future for their communities” (Climate Pathways, 2014). This program provides five milestones to help reduce greenhouse gas emissions. Conducting a greenhouse gas (GHG) inventory, establishing the reduction target, developing a local climate action plan, implementing the climate action plan’s policies and measures, and monitoring the progress and reporting results are the five

milestones for this program. ICLEI provides the necessary tools and structure to successfully reduce greenhouse gas emissions, laying the foundation for changing the climate and saving energy.

By reducing greenhouse gas emissions, ICLEI identifies four specific benefits: fiscal benefits, climate leadership, community benefits, and regulatory preparedness. First of all, developing and implementing a climate mitigation plan will decrease the amount of taxpayer dollars being spent, reducing the energy used by the local government. The greenhouse gas emission inventory, conducted in the first milestone, will show specific areas that can be improved. “Climate leadership” is the second benefit to climate mitigation. Addressing the problems of climate change will help set the example for other local governments or organizations to follow. By taking steps to reduce the impact on the environment, the community will become healthier overall, new jobs can be created, and the economy will be stimulated as well. In addition to these benefits, being prepared for future regulations is another advantage of conducting GHG inventories and taking steps to reduce these emissions.

Within this program, ICLEI uses ClearPath software, which was released this year and is a valuable resource for local governments. ClearPath is used to “develop baseline and subsequent inventories, track emissions progress over time, forecast multiple scenarios for future emissions, analyze benefits of emissions reduction measures, visualize alternative planning scenarios, and [provide] guidance and training at your fingertips” (ClearPath, 2014). By using this improved software, Greenville will be able to meet their goals of GHG reductions more effectively and present it to the public in a way that is easier to understand.

The first milestone for ICLEI’s Climate Pathways plan is to conduct a baseline emissions inventory and forecast. There are multiple steps that are involved in this process. As this is the first stage of work, designating and training a coordinator for the project is essential. Defining the scope of the study is also necessary, as it determines what will be encompassed by the project, and ensures that the project is feasible. Once these steps have been taken, determining what the base year will be and the

sources of data for the study will be decided and then the information will be gathered and sorted. After the statistics have been gathered, the base year emissions will be calculated, and trends will be estimated through an emissions forecast. It is then necessary to present the results of the study. With the completion of all of these steps, the results will be submitted to ICLEI for the Milestone Award.

While this process may appear straightforward, the work accomplished in Milestone 1 is essential to the future success of the project. Determining the baseline inventory allows future results to be compared and measure progress that is being made. The steps mentioned above require a significant amount of background work and data collection, and the report of the study results must adequately communicate the data that was collected in a way that is easy to comprehend.

The second milestone for climate mitigation is to adopt an emissions reduction target for the forecast year. In this milestone, the emissions inventory and forecast is revisited from milestone one. The next step is to either align with established targets from local, state, or regional governments or to review common targets from climate science. After these targets have been established, it is necessary to set the short-, medium-, and long-term goals to achieve the desired targets. These targets are then presented to the city or city council to be adopted. After they have been accepted, results are again presented to ICLEI for the Milestone Award.

Milestone three for climate mitigation is to develop a local climate action plan. The first two milestones are revisited regarding the greenhouse gas emissions inventory, forecast, and the reduction target. A Climate Action Planning Team is formed and a Public Engagement Strategy is created to provide guidance for the next steps for milestone three. A planning process is selected, and significant greenhouse gas emission sources are identified to be reduced. Specific analysis is conducted and the plan strategies are assembled, and the timeline and framework is produced for the climate action plan. A draft of the plan is then created and submitted by the appropriate Board or Council for the city. Once

the plan is revised, if necessary, and approved, it is released to the public. The results are sent to ICLEI for the Milestone Three Award.

All of the information that has been gathered through the first two steps is essential to creating the climate action plan for milestone three, as it provides the information necessary to determine what needs to be focused on within the plan. The work within this milestone is very important, setting the framework for the city's specific goals and identifying how the goals will be achieved regarding the limiting of greenhouse gas emissions. Allowing the plan to be approved and then submitted to the public will give the citizens an understanding of what is being done by the local government to limit greenhouse gas emissions. This could also be a motivation for others to see how they can reduce their impact on the environment by limited their personal emission of greenhouse gas, increasing public awareness and involvement.

After the local climate action plan is completed, approved, and released, milestone four is implementing the plan. The specific parts of this milestone are divided into four categories: administration and staffing, financing and budgeting, developing a timeline, and public involvement. These areas make up the different portions relevant for the climate action plan, and ICLEI's guidance helps ensure that the plan can be effectively carried out.

For the administration and staff, it is essential to assign and define the specific responsibilities of each individual involved. There needs to be a specific staff member who is able to be in charge of the implementation of the Climate Action Plan. While there will be others who assist in the process, establishing a coordinator over the plan will help establish the management for the program. Communication is essential throughout this process, and ICLEI suggests creating an interdepartmental committee to be sure there is effective communication among those implementing the project.

Finances are also very important as the climate mitigation plan is implemented. ICLEI provides specific questions to ask regarding financing and budgeting:

- What actions can be made part of existing projects or expenditures?
- What actions will require new expenditures?
- Can funds be found in existing budgets?
- Where can we turn when municipal resources fall short?

Answering these questions can help reduce the amount of money that needs to be spent by identifying related projects or budgets that aspects of the new climate mitigation plan can fit within. The initial costs for implementing the plan can be expensive, so saving costs wherever possible is very helpful.

Developing a timeline is another important part of milestone four. Scheduling dates to meet targets, time for outside feedback from citizens, committees, and professionals, and determining when specific parts of the plan will be executed are all important. Realizing that all of the parts of this plan will likely be implemented at different times is important to remember, and determining what ought to begin first can be very helpful.

Throughout the entire process, allowing the general public to be involved is important. This will not only help ensure that there is still support for the plan, but it will also help citizens be aware of how they can contribute to the process and what steps they can take to mitigate their greenhouse gas emissions on a regular basis.

The final milestone for this program is to monitor progress and report results. While the first three milestones build to the implementation of the plan in milestone four, the last milestone is an evaluation of how effective the plan is. By measuring the greenhouse gas emissions, the city can determine if progress is being made, if goals are going to be reached, and to determine if changes need to be made. The data gathered in milestone five will help provide the specific results that can be shared with the public and used in any future plans of the city.

Another program ICLEI provides for local governments is similar to the “Five Milestones of Climate Mitigation” but is broadened to look at sustainability as a whole rather than just greenhouse gas emissions. This program is beneficial for local governments who want to become more sustainable as a whole, addressing multiple issues that the community is facing. This program helps determine how sustainable the city is, identify sustainability goals, and then create, implement, and monitor a sustainability plan. As the City of Greenville has created a Municipal Operations Sustainability Plan, this program within ICLEI will most likely not be used to the full extent. Essentially, the milestones for this sustainability program are identical to the milestones for climate mitigation.

The first milestone is to conduct a sustainability assessment. This involves researching the city and determining the various environmental, economic, and social equity challenges, and any current programs or projects that already address these issues. A greenhouse gas emissions inventory may be conducted within this milestone, as well as an inventory of energy use or transportation. By determining what areas need to be improved, this leads to milestone two, to set sustainability goals.

After milestone one has been completed, the next milestone is to set goals that address the specific challenges observed in the previous milestone. These goals will vary for different cities depending on the needs and future goals. They may include energy use, address transportation or housing challenges, amount of waste created, or water usage. It is important to set goals that align with the community’s needs and desires, so that when the plan is implemented it will make a difference in the city and encourage public involvement.

The next step is to develop a sustainability plan for the city which should include input from stakeholders and the general public. A schedule, details regarding the finances for the plan, and the description of responsibilities for management and relevant departments all ought to be a part of the plan, as well as how the goals will be met.

Milestone four is the implementation of the sustainability plan, and milestone five monitors and evaluates the progress of the plan. As long as sufficient time has been put into the first three milestones and the plan is complete and clearly defines responsibilities and methods, the execution of the plan should be fairly straightforward. While there may be difficulties as the plan is carried out, these uncertainties ought to have been addressed within the plan and any unforeseen circumstances will be managed as appropriate. Milestone five is an ongoing process of monitoring, and involves an annual report of progress that can be shared with stakeholders and the general public.

ICLEI CITY EXAMPLES

The strong network of ICLEI includes over 1,000 cities and local governments worldwide, with 450 member cities and counties in the United States (ICLEI USA, 2014). These members range from metropolises to small rural towns, but all serve as leaders in regards to climate mitigation and sustainability, and have "led the effort in recent years to envision, accelerate and achieve strong climate protection goals and create cleaner, healthier, more economically viable communities" (ICLEI USA, 2014). There are currently a number of members of ICLEI within North Carolina, including Asheville, Carrboro, Cary, Chapel Hill, Charlotte, Durham, Fayetteville, Orange County, Raleigh, and Winston-Salem. Each of these communities have made progress towards sustainability in different ways through the support of ICLEI.

The city in North Carolina with some of the greatest progress towards sustainability with ICLEI is Durham. According to ICLEI's 2010 Annual Report, Durham had completed all five milestones for the greenhouse gas emissions inventory, both in government operations and community-wide (ICLEI USA, 2010). Durham has set community and local government targets for greenhouse gas emissions, with an established plan containing an inventory of their greenhouse gas emissions in the county, a prediction of the emissions in 2030, measures to reduce emissions, and a plan to achieve their goals. Durham has

several programs assisting local businesses and citizens to become more sustainability, such as the "Charge Ahead Durham" program, that challenges people to make small changes that will have a big impact on the environment. As citizens report progress and help others take action towards sustainability, they are entered to win prizes each week. For their community, they provide energy conservation workshops, rebates to residents who install water-efficient toilets, electric vehicle charging stations, and other programs to increase community involvement. Their website also provides information on what the city is working on to become more sustainable.

Winston-Salem is also a member of ICLEI USA, having created a resource center to promote sustainability in the city, with a Board of Directors and advisory council and projects that focus on various needs of the city. These include the Block by Block Program, Community Sustainability Education Program, Sustainable Business Community, Sustainable Local Food System, Sustainable Alternative Transportation, Sustainability Outreach Programs, and the Sustainable Business Awards and Celebration (Winston-Salem, 2011). The Block by Block Program helps make energy upgrades to different neighborhoods one block at a time to help show the benefits of energy efficiency in residential areas. The sustainable business community program helps businesses improve profits and save money through energy conservation, recycling, minimized waste, and other methods. Winston-Salem also provides information for their transportation infrastructure, commercial energy-efficiency, residential energy-efficiency, water quality, agriculture and food, renewable energy, recycling, and land use, showing solutions to the problems in each of these areas (Winston-Salem, 2012). Winston-Salem is also "implementing a revolving energy fund, developing a process to integrate energy performance into budget reviews for all departments, and developing partnerships to install electric vehicle infrastructure around the city" (Yewdall, 2013). All of these improvements are allowing Winston-Salem to be a leader in North Carolina for sustainability, and the programs and projects in place will continue to help the community grow in this area.

Another one of the North Carolina members of ICLEI is Cary. Some of the projects included in their sustainability progress include protecting waterways through storm water treatment, diverse transportation options, water conservation, and mixed use centers. Cary currently has 45 mixed use areas, places that are physically and aesthetically unified, and may consist of residential or commercial structures, but each are designed to function completely, rather than a series of unconnected developments. There are also resources for businesses and citizens to help with sustainability issues, and projects and initiatives are highlighted on the Town of Cary website to present progress to the public. According to Eli Yewdall, Cary "is nearing completion of the GHG inventory for government operations, and plans to develop a Strategic Energy Plan over the next year. The vehicle fleet and water and wastewater facilities will be areas of focus in the plan" (Yewdall, 2013). Having worked with ICLEI to achieve these goals shows the unique benefits that can be achieved toward sustainability. Cary has made significant progress towards sustainability, and part of the success is a result not only of creating a sustainability manager to help understand and meet the community's goals, but also by joining ICLEI and utilizing its benefits and resources.

Each of these cities have made significant steps towards become more sustainability and helping the surrounding community become more involved in the process as well. The knowledge, resources, and support from ICLEI have helped these local governments establish goals for sustainability and the reduction of greenhouse gas emissions, create a plan to reach these goals, and have provided tools to help achieve these goals. Greenville not only be able to learn from the progress of these towns and others in North Carolina who have become more sustainable, but they will also be connected with local governments and cities around the nation to provide advice and guidance. Testimonies from around the nation show that ICLEI is irreplaceable in regards to making progress towards sustainability (Member Testimonials, 2014):

> *"ICLEI has been an invaluable partner in our mission to become a national leader in protecting the global climate through local action. For more than 15 years, ICLEI has assisted the city in*

developing sustainable solutions that have saved taxpayer dollars and make Saint Paul a leader in energy efficiency."

- Mayor Chris Coleman of Saint Paul, MN

"I have found ICLEI to be an essential and generous partner in Eugene's many initiatives to address climate change. With their expertise we have completed our emissions inventory. Membership has also benefitted us through fostering regional, national and international networks, providing access to a ready-made pool of "experts" and supporting us in the fulfilling our goal to become a model for other cities. Their assistance is worth many times the membership fees."

- Mayor Kitty Piercy of Eugene, OR

"We are pleased to reach our fifth milestone toward emission reductions this year! ICLEI coached us through the process of measuring our emissions and this has helped us put sustainability into action. Our crowning achievement this year is that City operations will have emissions below 1990 levels. Now that we have proven we can do it, we can go out to our community with confidence to ask them to do the same."

- Former Mayor Mark Foutch of Olympia, WA

It can be assumed that as Greenville works with ICLEI, similar statements can be made in the future, as the city and surrounding community make progress towards sustainability and reducing greenhouse gas emissions.

CONCLUSION

Observing what has been done in other areas in the state, it is clear that Greenville, North Carolina can make significant progress and become more sustainable. There are many examples that can be followed, but it is important to establish what the sustainability goals are for this community and work to reach those objectives. The achievements thus far by Greenville employees are certainly notable, and their work and guidance in the future will be very beneficial. By working with Schneider Electric and ICLEI, the progress will increase greatly as they provide resources and assistance.

As the City of Greenville continues to strive towards sustainability, it will be essential for the citizens in the community to make similar changes. The City can only accomplish so much outside of the support and participation of the citizens, but as the importance and effectiveness of being sustainable are established by progress of the City, those living in Greenville and in the county will likely join in the

efforts. Programs and projects initiated by the local government will help residents of Greenville recognize the value of the improvements, and should help motivate them to take similar measures for their businesses and their personal lives.

While there is likely a difficult road ahead, the future for the City of Greenville is bright. With growing support for sustainability, working with Schneider Electric to increase energy efficiency, and working with ICLEI USA to reduce greenhouse gas emissions and achieve sustainability goals, it is clear that the City will be able to make significant strides towards sustainability.

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Appendix A

City of Greenville

Energy Use Building Report

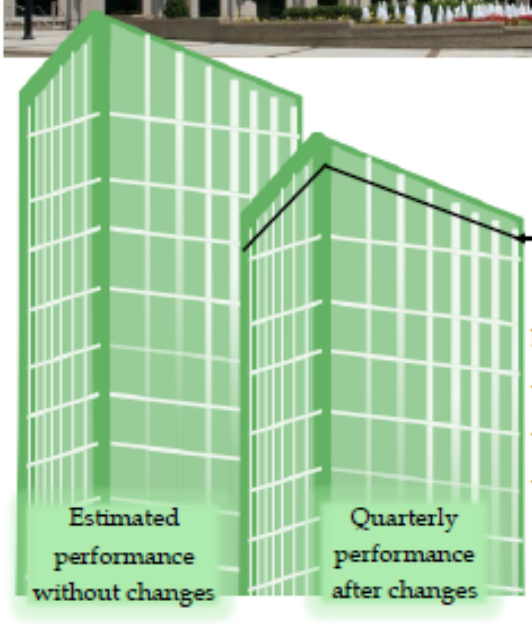
City Hall

200 W 5th St

7%

LESS ENERGY

than its projected usage for this quarter



Annual Goal

On target

Building Facts

- Built in ____
- Lighting Retrofit (2013)
- ____ heated square feet

Monthly Energy Saving Tip

Lighting — Replace halogen light bulbs with CFL or LED bulbs. These typically use about 25-80% less energy and can last 3-25 longer than traditional incandescent light bulbs.

Schneider Electric

Data collection on Sustainability offices in other cities of NC.

Prepared for the Sierra Club Sustainable Energy Committee.
March 2018.

Interview questions.

Municipal staff in 3 cities, Asheville, Raleigh and Chapel Hill, were interviewed and the following questions asked:

1. What was (city) like before hiring a sustainability coordinator? After, did things change and if so how?
2. Did you follow a specific structure or model to build your sustainability program?
3. What evidence indicates a sustainability program provides value to the city?

Staff responses.

Asheville

Coordinator: Amber Weaver, Sustainability Officer: 828-271-6141
Adopted in 2009

1. What was (city) like before hiring a sustainability coordinator? After, did things change and if so how?
    - No coordinator when I was hired. Suspect that community people, activists, help create office of sustainability. Prior 2009 sustainability was just coming on the scene and people wanted to work on. Community really emphasized the 3 pillars of sustainability, more environmental, business and social.
    - Active community; County worked with utilities to have a collective effort in reducing megawatts while growing the city. 100% renewable energy interest due to Trump climate accord. Led by community. Help achieve those goals together
2. Did you follow a specific structure or model to build your sustainability program?
    - Website, sustainability management plan
    - Check out the reports as well
3. What evidence indicates a sustainability program provides value to the city? (Does it attract businesses, have proper values changed)
    - Help those that are tax payers, provided what the city needed to do for cleaner act, no deep research.
    - climate resilient study.
    - Add value and gain insight to increase their property values.

Raleigh

Coordinator, Cindy Holmes, 919-996-3070
Created in 2008

1. What was (city) like before hiring a sustainability coordinator? After, did things change and if so how?
    - Established in 2009. It centralized the activities in one home but some of the work was already being done throughout the organization. Allowed us to get into it deeper; conduct greenhouse gas inventory…community wide research was not done before there was a sustainability coordinator. Specific things can be done in detail. Essentially it was allowing one group to be responsible for the many things already being done.
2. Did you follow a specific structure or model to build your sustainability program?
    - Ad hoc, actually working as a part of EAC, the city gave responsibilities and then accomplished those. With block grant money created a sustainability program.
    - Created at the same time a lot of cities were creating

3. What evidence indicates a sustainability program provides value to the city? (Does it attract businesses, have proper values changed)
    - Greenhouse gas emission, quantify emission, reduction in municipal 2007-2014, measure things 19% decrease, emission increase 2% community due to city landfill closed
    - Progressive mayor, interested in, assistant city managers, progressive, real interested in electric vehicles, "project get ready".
    - "it was really important to educate staff and citizens and really hard for people to understand climate change greenhouse gas emission, hard concepts to understand. If we can save money with energy use, then we can decrease costs, decrease emissions" (Same verbiage in report)
    - Focused on money; could be a good person to speak to again, as she was on EAC and then persuaded city to have this coordinator.

Chapel Hill

Coordinator, John Richardson

1. What was (city) like before hiring a sustainability coordinator? After, did things change and if so how? Why were you hired?
    - I can't say for certain because what I know is mostly anecdotal. That said, it's my sense that Chapel Hill has always been a leader in the three legs of community sustainability. Many of the policies and practices that we use today were in place when I arrived. Several have been developed since I arrived – thanks of course to our elected officials and the various staff members who work on social, economic and environmental sustainability. To me, the creation of a Sustainability Officer position (now Community Resilience Officer) has been about having a person whose job it is to help coordinate the Town's implementation and monitoring in these efforts. For instance, we are currently looking at ways of sharing more by way of a dashboard and open data portal.
2. Did you follow a specific structure or model to build your sustainability program?
    - Prior to the creation of the position, the Town Manager asked for a recommendation from staff about the type of model that the Town should use to create a sustainability program. We looked at several other programs around the country and made a recommendation based on what we thought would best fit Chapel Hill's needs and structure. The chosen model placed the Sustainability position in the Manager's Office, allowing it to coordinate across multiple departments and divisions.
3. What evidence indicates a sustainability program provides value to the city? (Does it attract businesses, have proper values changed)
    - This is an excellent question, but not one that I have tracked in terms of a community response. That said, I think that there are probably secondary indicators which support the idea that Chapel Hill's values of social, economic and environmental sustainability—as well as community resilience—all make it a desirable place to live, work and play. For example, the Town performs a community survey every two years and the responses we have to a number of questions suggest that the community sees value in the efforts that are being made towards environmental stewardship, economic prosperity and social equity and inclusion. That's not to say that the Town feels it's work is done, but rather that we do feel the progress is something the community sees and enjoys.

<u>Conclusions:</u>

Through the research thus far, findings indicate that cities' community members collaborate for more Green Initiatives, but they come to a point where a sustainability program needed to be created to house all the initiatives. If they don't hire a sustainability coordinator or someone to manage the program right away, they eventually do lead to hiring one, because this one person ends up speaking for the community members and voices their concerns. The Sustainability Coordinator is educated on how to collaborate with members within the community and bring new initiatives to the city. There have been various efforts to establish a sustainability program to Greenville, NC throughout the years. Several reports by students indicating the need for a sustainability coordinator prove the necessity. The proof is there to have a sustainability coordinator, the actions need to be taken. (Omit if unable to finish timeline)

FINDINGS

Sustainability Programs Established in:

Figure 1: Indicates initiation of Sustainability Programs

Interview Comparison

	ASHEVILLE	CHARLOTTE	RALEIGH	DURHAM	CHAPEL HILL
Did hiring a sustainability coordinator change things?	X		X		X
Did you follow a specific structure or model to build your sustainability program?	X		X		X
Evidence to indicate value of sustainability program	X		X		X

Figure 2: Interviewees' responses. Note: Red "X" indicates "Yes" response.

Initiative Comparison

	ASHEVILLE	CHARLOTTE	RALEIGH	DURHAM	CHAPEL HILL	GREENVILLE
Recycling	X	X	X	X	X	X
City-Wide Transportation	X	X	X	X	X	X
Green Infrastructure Rebates/ Incentives	X					
LEED Building Initiative	X					
LED use in City	X		X	X		
Community Partnership/ Initiative	X	X	X	X	X	
Tree Banding		X		X		
Affordable Housing	X					
Solar Energy			X		X	
Incentives for Renewable Energy					X	
Electric vehicles and Charging Stations	X				X	

Figure 3: Displays comparison of initiative programs among 6 cities. Note: Red "X" indicates "Yes" response.