



TJ Lynch,  
*Assistant Director*  
***Raleigh Water***

## LNBA / NRCA Operator Training



# What is the City of Raleigh doing to meet its Sustainability Goals?

# What is Sustainability?



# What is Raleigh's Office of Sustainability

## Mission of the Office

- Work collaboratively to prioritize **economic, social, and environmental efforts** at an individual, organizational, and community-wide level.
- Test new technologies and encourage new ways of thinking to positively impact the environment, our local economy, and all who live, work, and play in Raleigh.

## Current Projects Examples

- Climate Energy Action Plan → Community Climate Action
- Resilience & Equity
- Innovation & Smart Cities, Electric Vehicles
- Environmental Stewardship, Food Insecurity



# Sustainability Tracking & Rating (STAR) Metrics

Built Environment	Climate & Energy	Economy & Jobs	Education, Arts & Community	Equity & Empowerment	Health & Safety	Natural Systems
Ambient Noise & Light	Climate Adaptation	Business Retention & Development	Arts & Culture	Civic Engagement	Active Living	Green Infrastructure
Community Water Systems	Greenhouse Gas Mitigation	Green Market Development	Community Cohesion	Civil & Human Rights	Community Health & Health System	Invasive Species
Compact & Complete Communities	Greening the Energy Supply	Local Economy	Educational Opportunity & Attainment	Environmental Justice	Emergency Prevention & Response	Natural Resource Protection
Housing Affordability	Industrial Sector Resource Efficiency	Quality Jobs & Living Wages	Historic Preservation	Equitable Services & Access	Food Access & Nutrition	Outdoor Air Quality
Infill & Redevelopment	Resource Efficient Buildings	Targeted Industry Development	Social & Cultural Diversity	Human Services	Indoor Air Quality	Water in the Environment
Public Spaces	Resource Efficient Public Infrastructure	Workforce Readiness		Poverty Prevention & Alleviation	Natural & Human Hazards	Working Lands
Transportation Choices	Waste Minimization				Safe Communities	



# Climate Action Background

- ❖ **2007:** Raleigh City Council endorsed the U.S. Conference of Mayors' Climate Protection Agreement
- ❖ **2010:** Office of Sustainability initiated Raleigh's first GHG emissions inventory (municipal operations only)
- ❖ **2012:** Climate Energy Action Plan for Raleigh's municipal operations  
Community-wide GHG emissions inventory
- ❖ **2016:** Updated municipal and community GHG emissions inventories
- ❖ **2018:** Triangle Regional Resilience Assessment
- ❖ **2019:** Transportation Electrification Study  
City Council Greenhouse Gas Emissions Goal Set – 80% ↓ by 2050
- ❖ **2021:** **Community Climate Action Plan** (CCAP) adopted by City Council





# Climate Action Guiding Documents



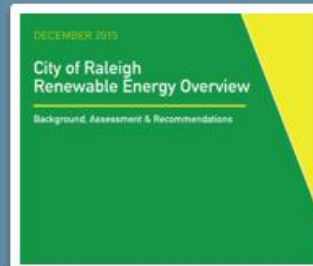
Strategic Plan



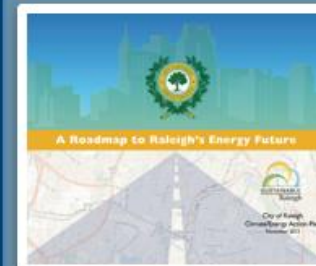
Business Plans



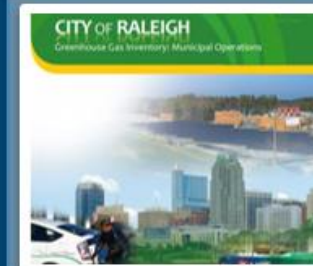
Comprehensive Plan



Renewable Energy



Climate Energy Action Plan



Greenhouse Gas Inventory 2007



Greenhouse Gas Inventory 2014



Fuel & Fleet Transformation



Electrification Study



Environmental Advisory Board

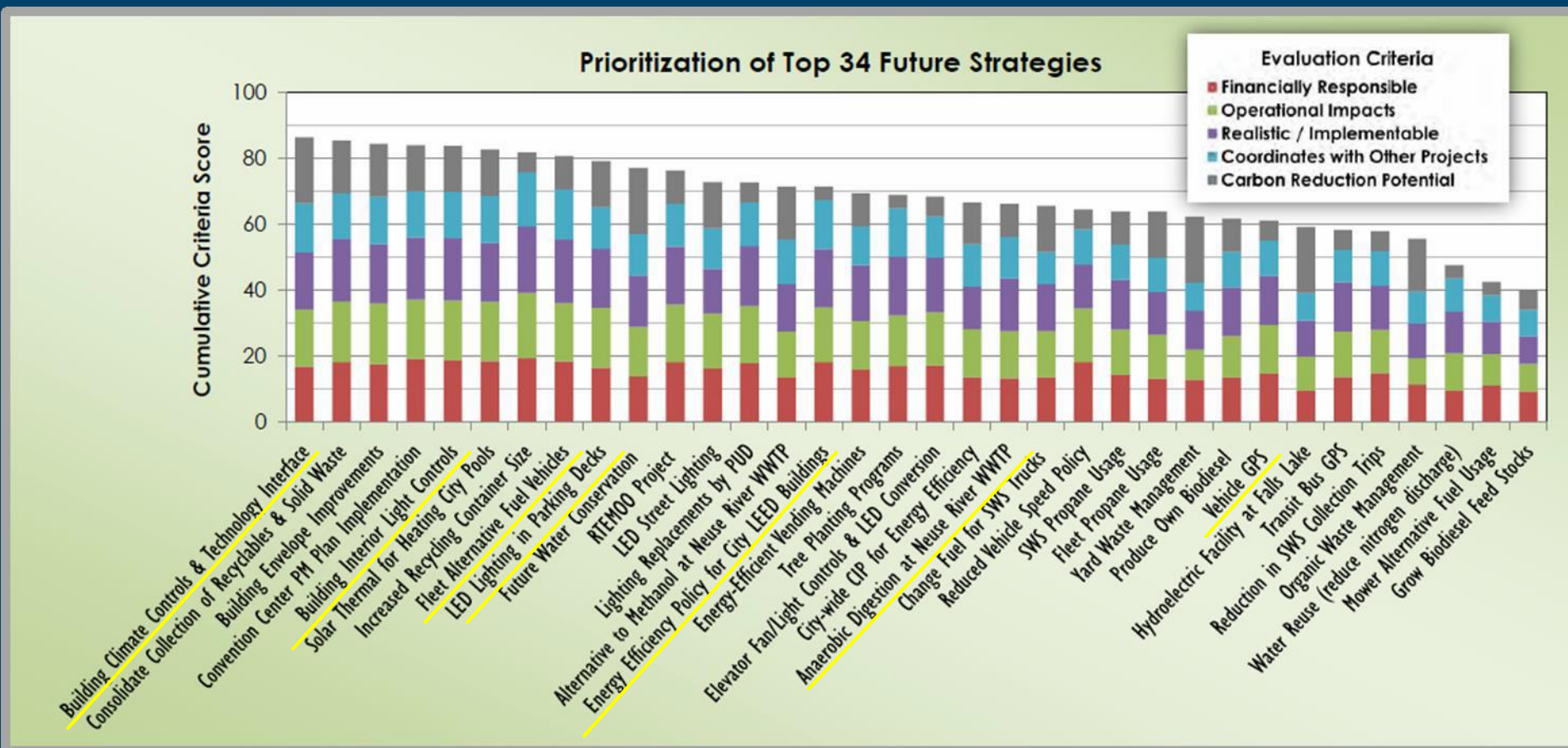


Triangle Regional Resilience Project

# CEAP Top 34 Strategies

## Evaluation Criteria

- Financially Responsible
- Operational Impacts
- Realistic / Implementable
- Coordinates with Other Projects
- Carbon Reduction Potential



# Electrification of Transportation Study

## Identify current and future opportunities in Raleigh

- ❖ Electrification of light-duty motor pool
- ❖ Publicly accessible charging infrastructure
- ❖ Public charging needs and demand assessment
- ❖ IT infrastructure and data-driven decision making
- ❖ Aligning transportation electrification with existing City plans and budgets
- ❖ Equitable economic development and public engagement
- ❖ Equity and access
- ❖ City roles and responsibilities

**By 2040, Over  
50% of All New  
Cars Could Be  
Electric**



# Municipal Fleet Electrification

- *How to integrate into replacement cycles?*
- *How to use current funding mechanisms?*
- *How are we tracking data?*
- *How do we expand infrastructure?*



# Public Charging Infrastructure

- *What is the City's role?*
- *What is the demand?*
- *How can it complement other projects?*





# Other Climate Initiatives

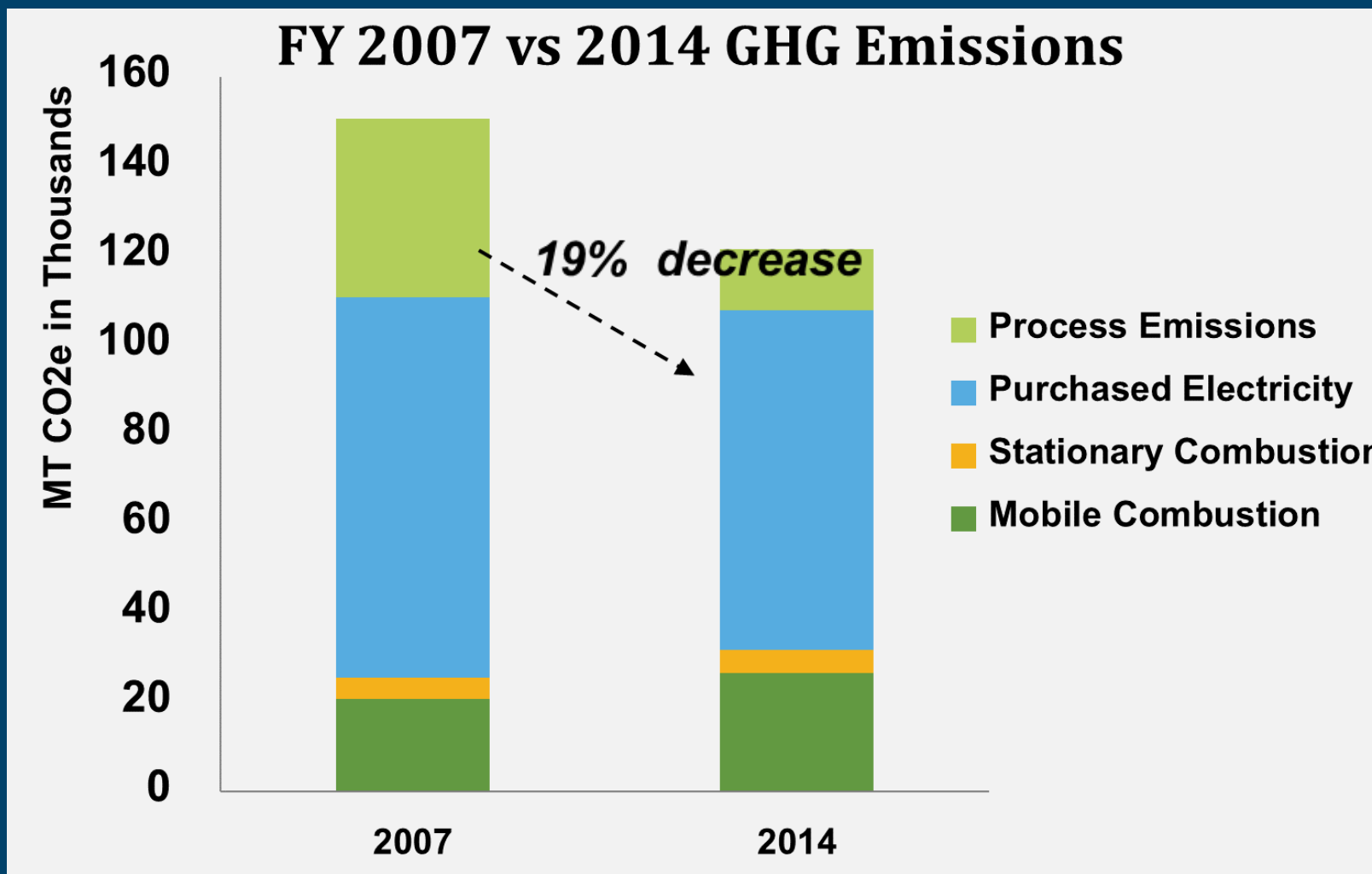


- **Urban Sustainability Directors Network**
  - High Impact Practices study
- **NC Cities Initiative**
  - Governments/stakeholders working on climate across NC
- **Executive Order 80- State of North Carolina**
  - Governor Cooper's - Executive Order 80
  - 40% reduction in GHG emissions by 2025
  - 80,000 new EV's on the road by 2025
- **Triangle Regional Resilience Assessment**
  - Climate and non-climate impacts



# Our Current Performance

## Municipal GHG emissions

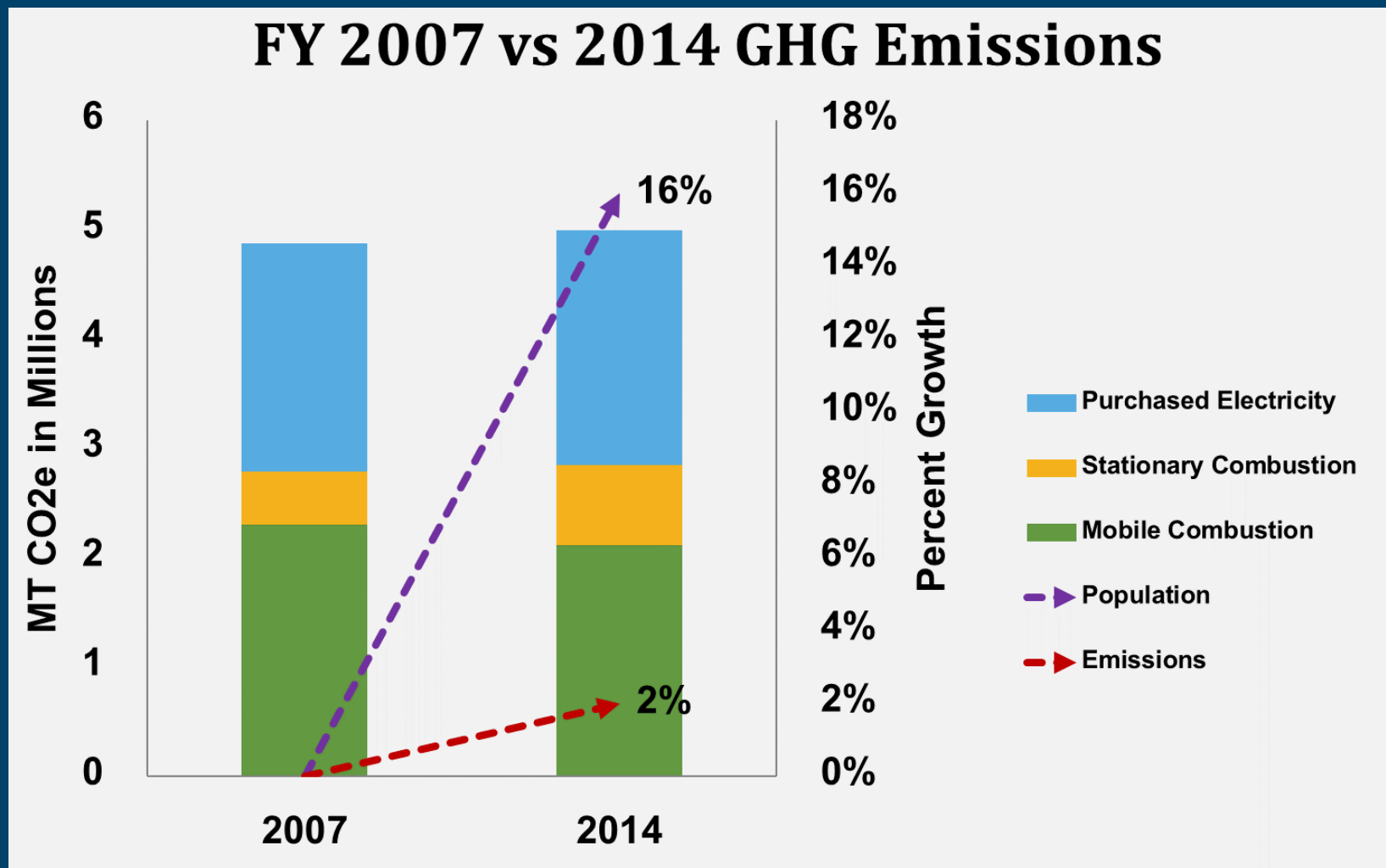


There was a 19% decrease in GHG Emissions from the 2007 baseline to 2014. A large decrease was seen in methane emissions at the closed Wilder's Grove Landfill and some energy efficiency.





# Community-wide Greenhouse Gas Emissions

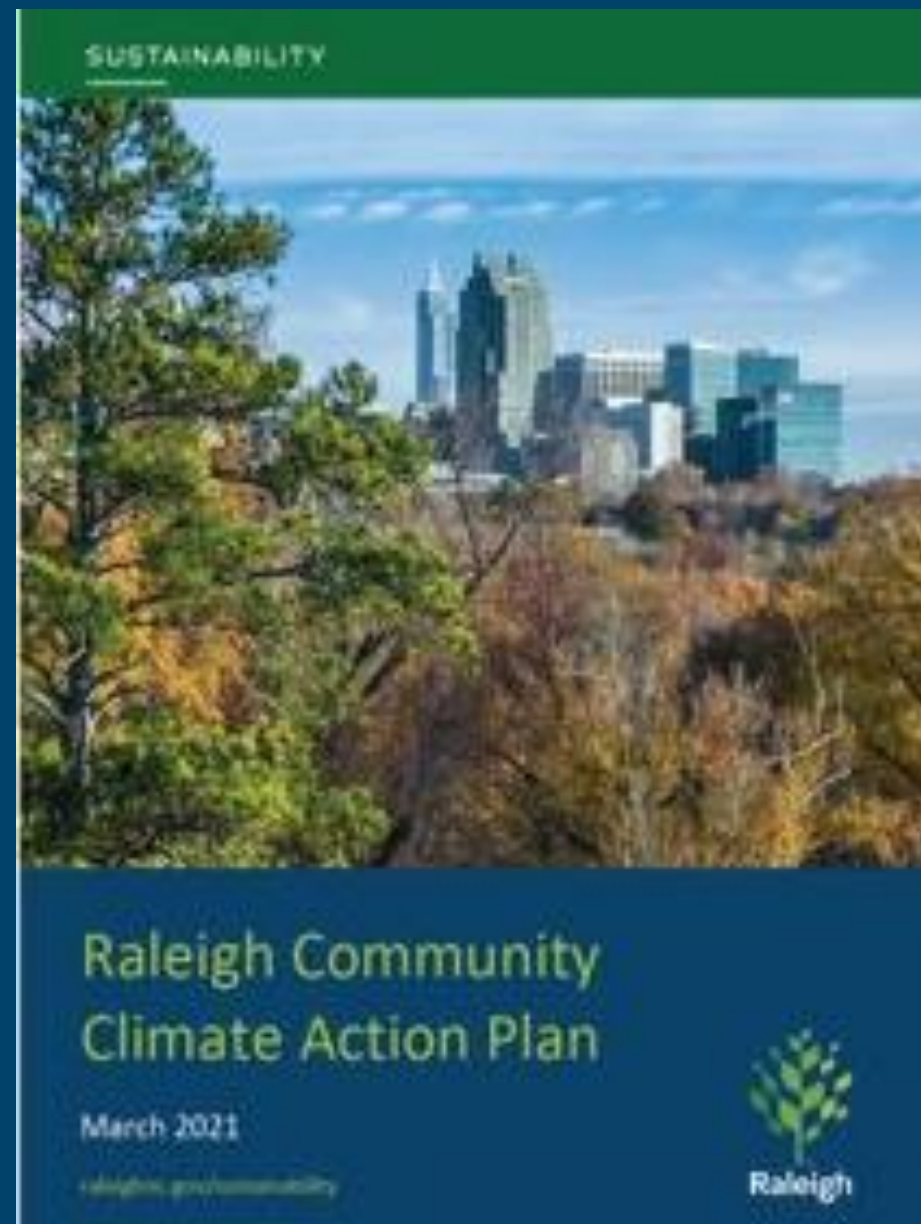


**Buildings: 55%**  
**Transportation: 42%**  
**Waste: 1%**

There was a 2% increase in GHG Emissions from the 2007 baseline to 2014 despite an approximate 16% increase in population

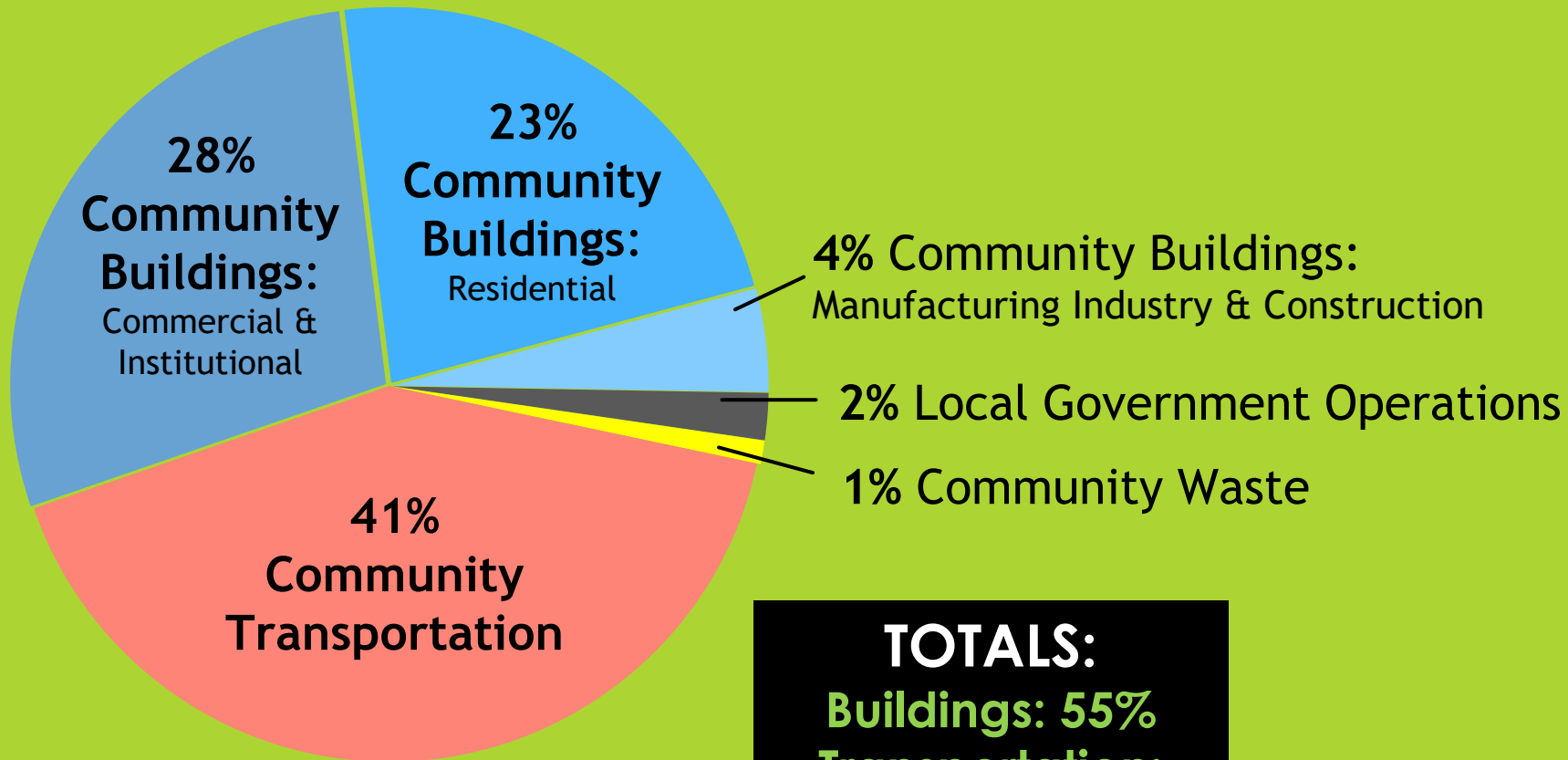


# *Raleigh's Community Climate Action Plan*



# Community-wide Climate Action Plan

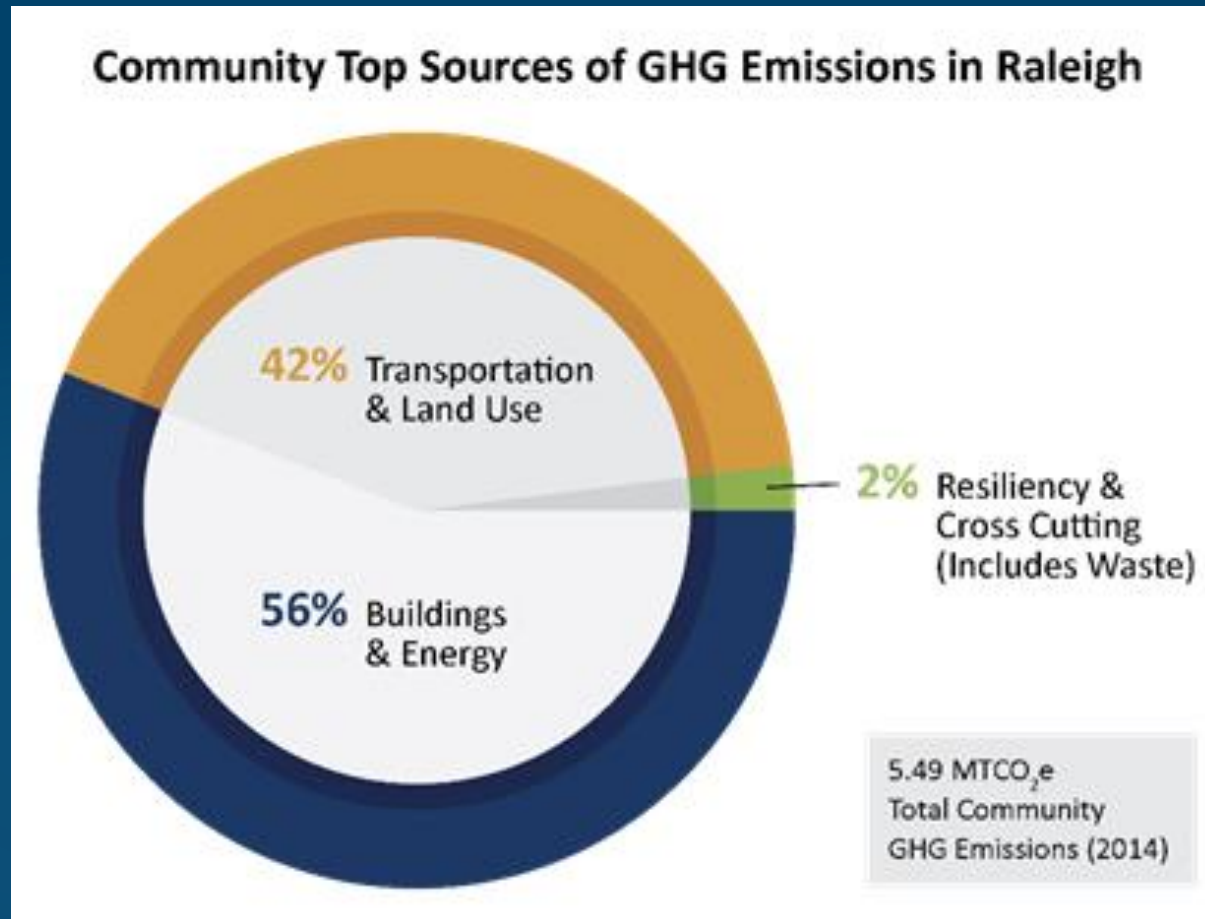
## Top Sources of Greenhouse Gas Emissions in the Raleigh Community



**TOTALS:**  
**Buildings: 55%**  
**Transportation:**  
**41%**  
**Waste: 1%**

**GOAL:**  
**80% Reduction**  
**in GHG**  
**emissions**  
**by 2050**

# Community Climate Action



**Buildings & Energy**  
56%

**Transportation & Land Use**  
42%

**Resilience & Cross Cutting**  
2%  
(including waste and local government emissions)

Raleigh's municipal operations are 2% of the total community emissions- we ALL need to take action to impact change.





# CCAP Strategies and Actions

Strategy categories aligned with high impact to address: GHGs, Resilience and Equity

- ❖ Buildings & Energy
- ❖ Transportation & Land Use
- ❖ Resilience & Cross Cutting

Short- term: 0-7 years; Long-term: 7+ years

# Community-wide Climate Action Plan

## Objectives

- ❖ Evaluate setting goals- climate/GHG emissions and renewable energy
- ❖ Community Education and Outreach
- ❖ Define Raleigh's climate challenges and opportunities
- ❖ Forecast future GHG emissions and set goals for reductions
- ❖ Apply national best practices in climate action planning
- ❖ Engage scientific, business and grassroots community leaders to develop strategies
- ❖ Analyze the needs and potential impacts of climate change to vulnerable communities using an Equity Framework
- ❖ Educate, Engage and Empower residents, businesses and institutions to implement positive actions to reduce emissions



# Community Climate Plan

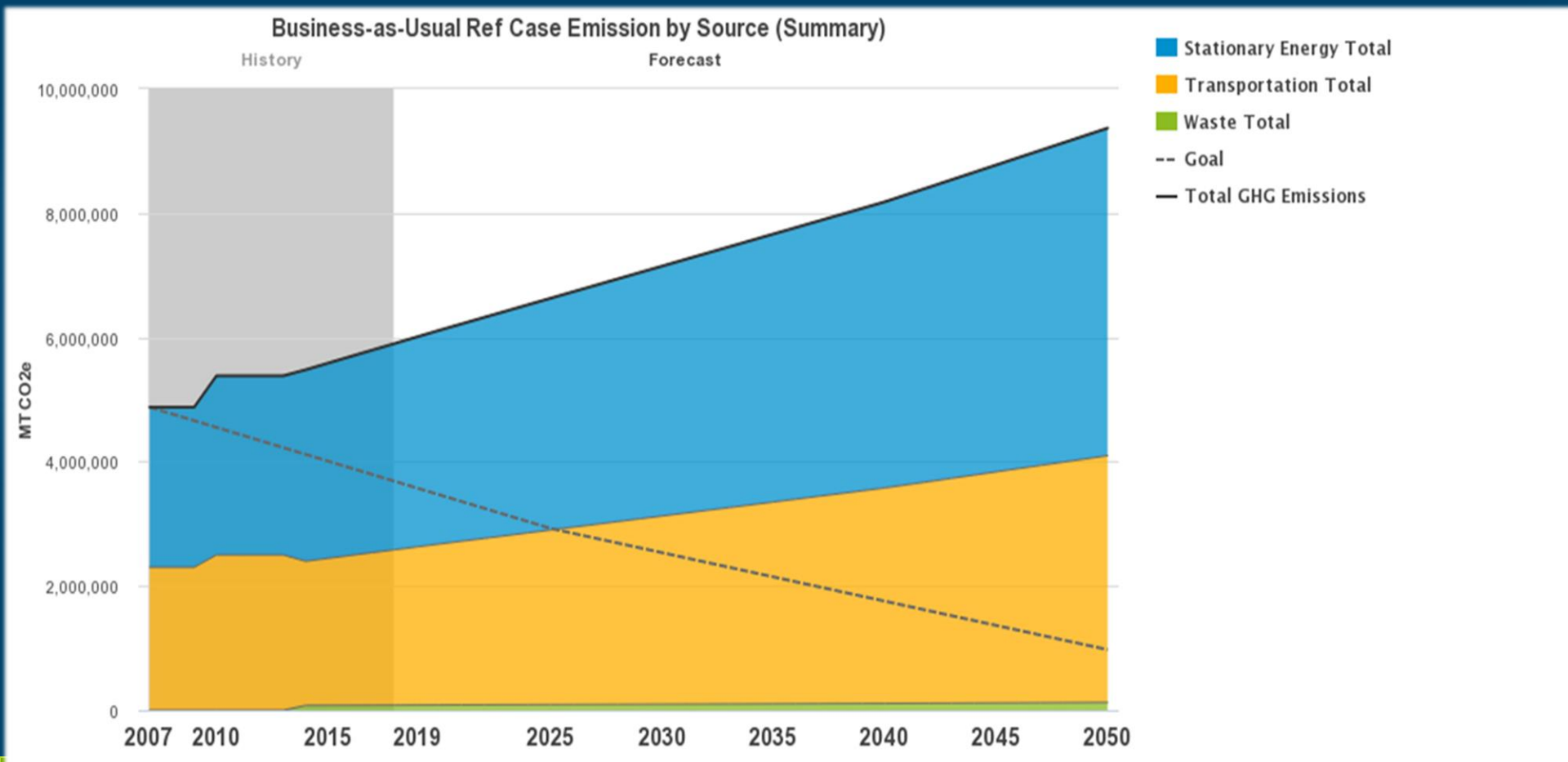
## Equity in the context of Climate Change

Climate equity involves addressing:

- responsibilities for greenhouse gas emissions -contributions/generators
- disproportionate distribution of climate change burdens and climate impact vulnerabilities
- just distribution of the benefits of climate protection efforts
- This requires climate strategies that deal with the systems that contribute to climate change, the conditions that perpetuate existing inequities and the effects of climate change and their distribution.

# CCAP Forecasting and Goals

## Business as Usual (BAU)



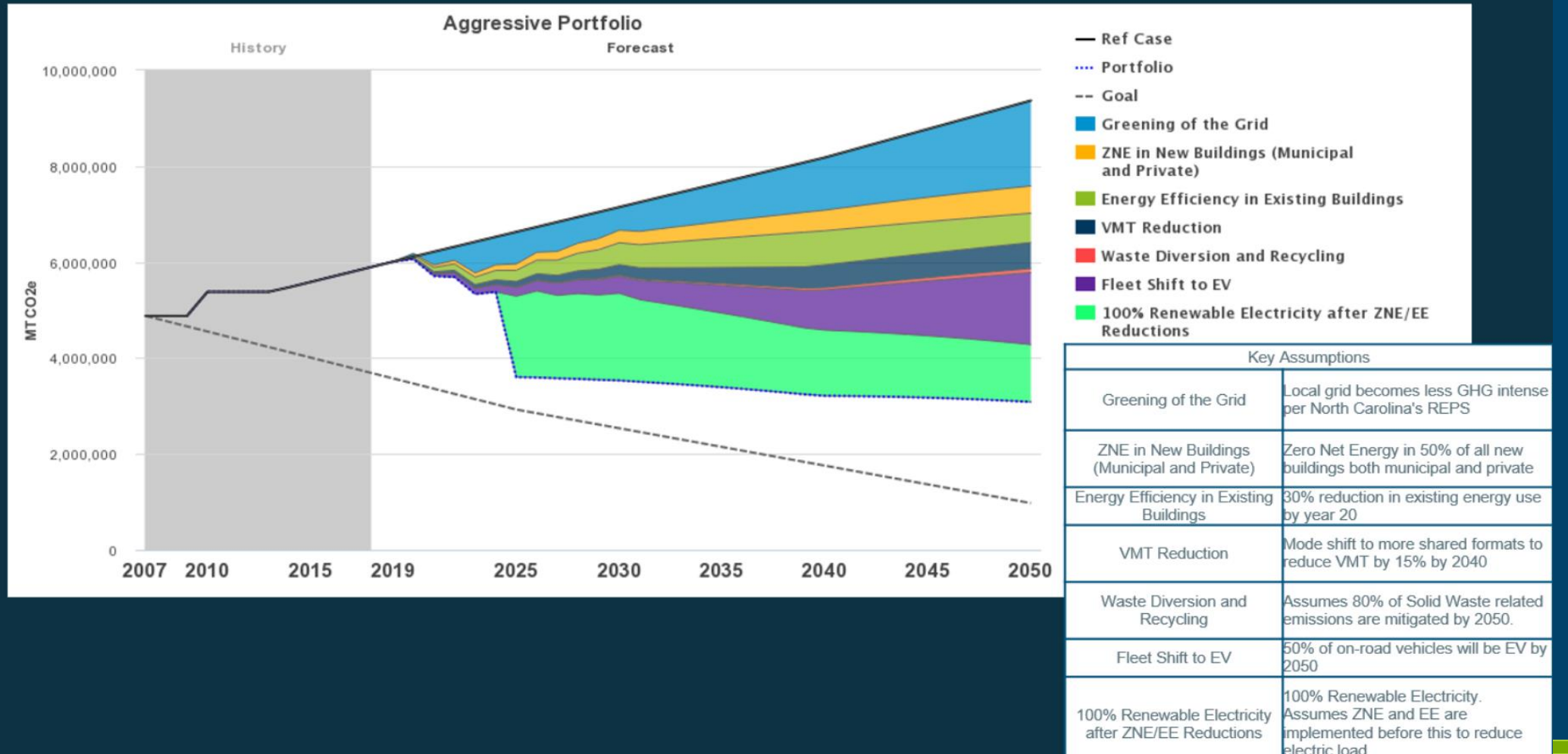
- ❖ BAU 68% ↑  
(9.4 million MTCO<sub>2</sub>e)
- ❖ Buildings & Energy (5.2 million)
- ❖ Transportation (3.9 million)
- ❖ Waste (125,870)
- ❖ 80% GHG reduction by 2050 (1.8 Million MTCO<sub>2</sub>e)



# CCAP Forecasting and Goals

## Aggressive Forecast

### Illustrative Portfolio – Aggressive



# CCAP Teams at work



understanding strategies and goals

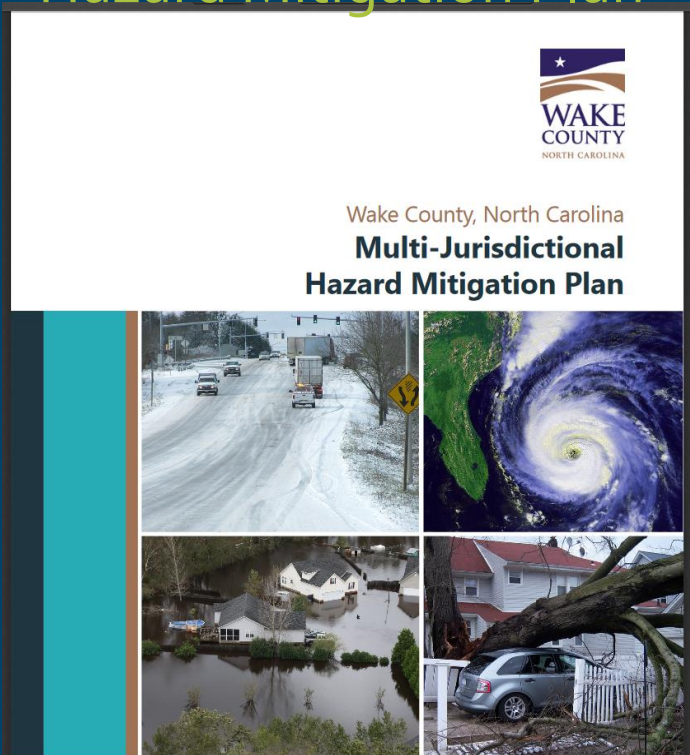




# Community Climate Plan

## Resilience

### The Wake County Hazard Mitigation Plan



wood.

### The Triangle Regional Resilience Assessment



### Fourth National Climate Assessment

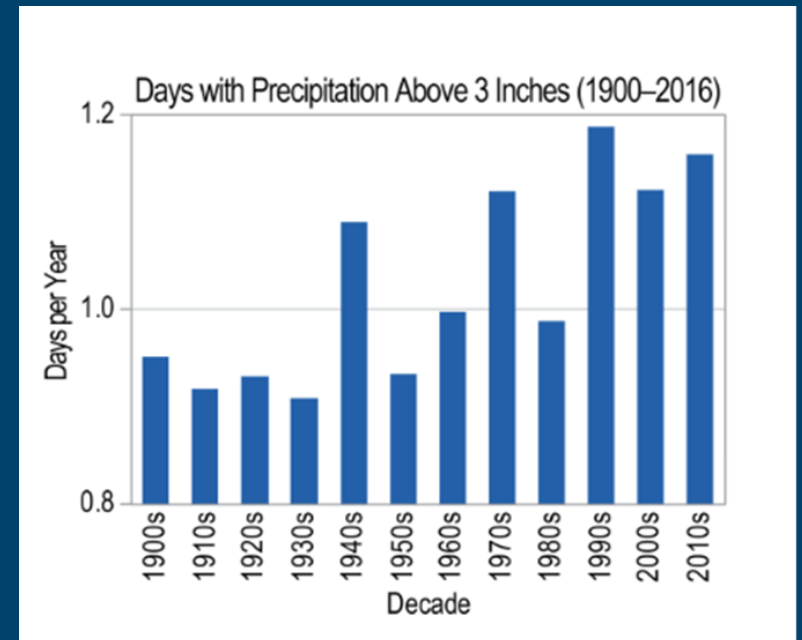


Figure 1: Historic heavy rainfall in US Southeast. Source: Fourth National Climate Assessment, Volume II Impacts, Risks and Adaptation in the United States, Chapter 19: Southeast <https://nca2018.globalchange.gov/chapter/19/>

# CCAP wins the Internet!

March 12 Instagram  
post on CCAP is  
COR's

**biggest post  
ever!!**

*-23,374 impressions*

*-871 interactions*

**....so far!**



**raleighgov** • Following  
City of Raleigh - Government



**raleighgov** Raleigh's first  
Community Climate Action Plan is  
complete! We worked with over 150  
community stakeholders to develop  
this plan, but that was the easy part.  
Now we all have to work together to  
tackle climate change.



# Raleigh Water CEAP Project



Bioenergy



# GHG Evaluation: Footprint

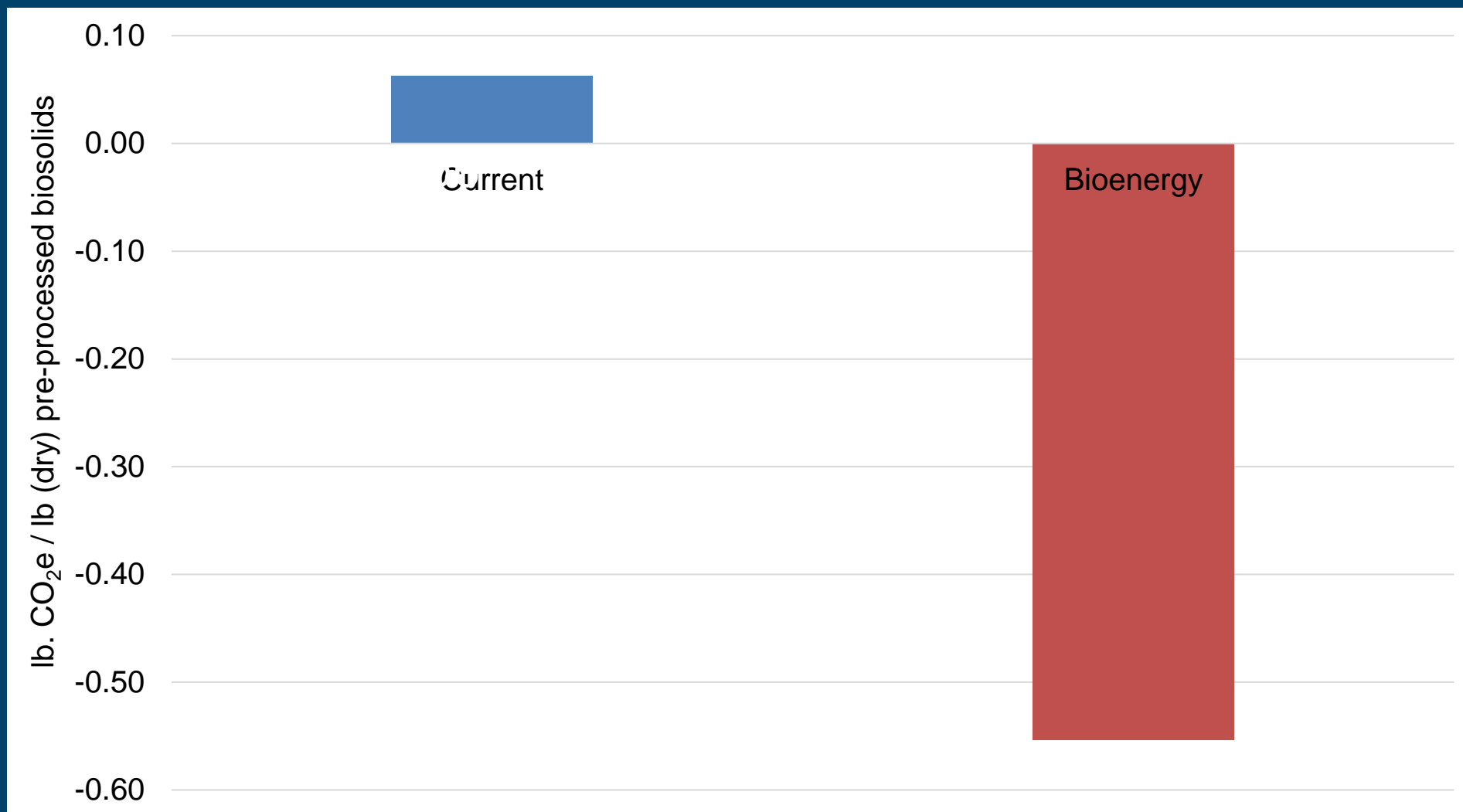
Units: lb. CO<sub>2</sub>e / Functional Unit



- Editable Excel Workbook
  - Option for default and/or user defined values for inventory items and GHG equivalents
- References / explanations for default values
- Dynamic figures
  - Total GHG comparison across alternatives
  - GHG hotspot analysis within alternatives

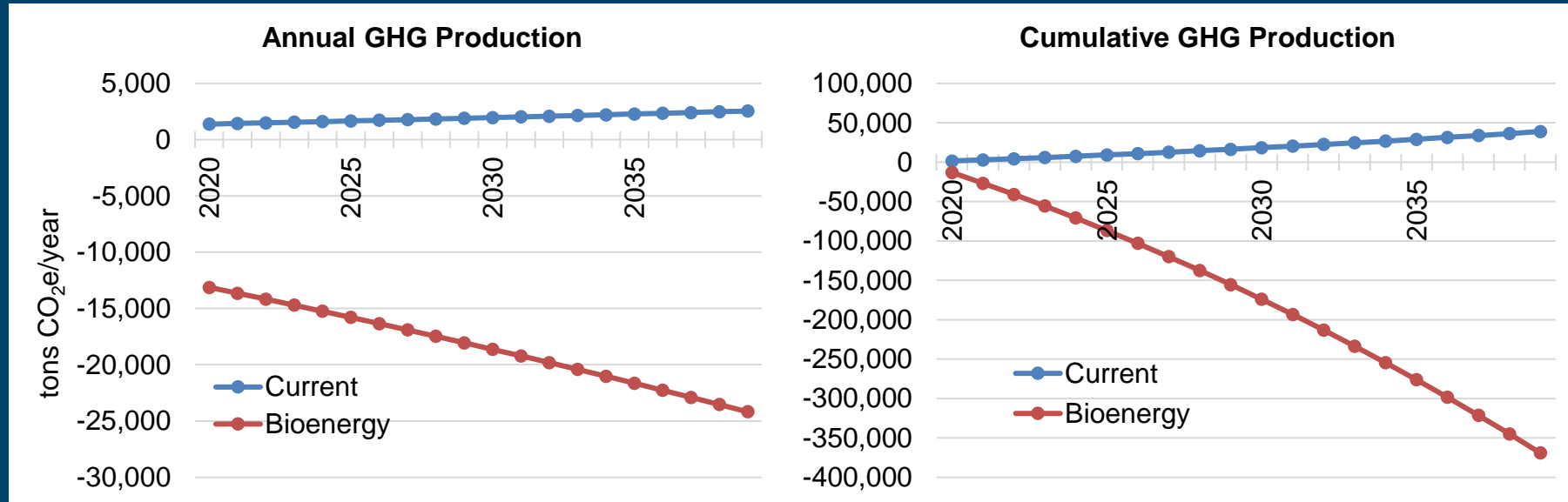


# GHG Footprint





# Current vs. Bioenergy GHG Production



- Part of bioenergy project will convert digester gas to RNG which allows for GHG footprint to decrease with increasing flow to Neuse River RRF.
- Typical Passenger Car is estimated to emit 5.5 tons CO<sub>2</sub>e per year.



# Thank you!

T.J. Lynch, Assistant Director, Raleigh Water  
[tj.lynch@raleighnc.gov](mailto:tj.lynch@raleighnc.gov)

<https://www.youtube.com/watch?v=IPEX2nAedm8&t=8s>