#### ENVIRONMENTAL ADVISORY BOARD

The Environmental Advisory Board of the City of Raleigh held a meeting on Thursday, December 8, 2016 at 5:00 p.m. in Room 402, Raleigh Convention Center, 500 Salisbury Street, Raleigh, North Carolina, with the following present:

#### **BOARD MEMBERS**

#### **STAFF**

Anya Gordon, Chair Rob Gelblum, Vice Chair Aranzazu Lascurain Laurel Passera Justin Senkbeil Brian Starkey Megan Anderson, Sustainability Manager Cindy Holmes, Assistant Sustainability Manager

#### **ABSENT**

Beverley Clark Larry Larson Dave Toms

#### 1. Meeting Called to Order

Ms. Anya Gordon, Chairperson called the meeting to order.

#### 2. Approval of Meeting Minutes

The minutes of the November meeting were approved as written.

#### 3. Greenhouse Gas Emissions Presentation – AECOM

Kerri Hartung with AECOM, presented the Greenhouse Gas Emissions Report to the members of the Environmental Advisory Board members and community members present.

#### 4. Upcoming Meetings/Events

- a. January 12, 2017 EAB meeting
- b. 2017 Environmental Awards Celebration Tuesday, April 25, 2017 Fletcher Theater

#### Attachment

Greenhouse Gas Emissions Presentation



## Greenhouse Gas Emissions Inventory Update

December 8, 2016



### **BEFORE WE START**

**Cyndy Yu-Robinson** – AECOM Public Involvement Specialist



### Real-Time Polling/Questionnaire

- We'll be gathering input during the meeting via two methods. Please choose one method only to avoid double-counting.
  - 1. Three real-time, web-based polling questions posed at different times during the meeting
  - 2. A printed copy of the polling questions for those who prefer not to engage using a web-enabled device
- There is free visitor Wi-Fi available look for the "Raleigh Convention Center" network and accept terms and conditions to access.



## **Instructions for Real-Time Polling**

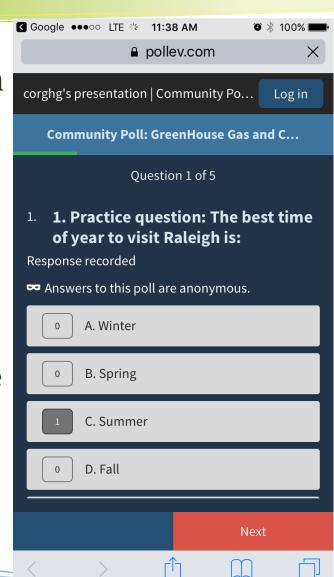
**Step 1**: On your web enabled device (smartphone, laptop, tablet, etc.), open your web browser (Chrome, Safari, Firefox)

**Step 2**: Navigate to the following website: **pollev.com/corghg** 

**Step 3**: Select the "Start survey" link

**Step 4**: Only respond to individual survey questions when directed by the Presenters. All responses are anonymous and aggregated.

**Step 5**: Begin with the following Practice Question





## **Practice Question 1**

- The time of year to visit Raleigh is:
  - A. Winter
  - B. Spring
  - C. Summer
  - D. Fall
  - E. Virtually, on the web
- Use your device now to provide your response A,B,C,D, or E or complete your paper questionnaire. <u>Stop after Question 1</u>.
- You will be reminded when to progress to the next question.



### **Practice Question Results**

### 1. Practice question: The best time of year to visit Raleigh is:

When poll is active, respond at **PollEv.com/corghg** Text **CORGHG** to **22333** once to join

Answers to this poll are anonymous

A. Winter

B. Spring

C. Summer

D. Fall

E. Virtually, on the web

0%

https://www.polleverywhere.com/multiple\_choice\_polls/DfN uSMX94Mnb4pP?preview=true



## WELCOME AND ACKNOWLEDGEMENTS

Megan Anderson – Sustainability Manager, City of Raleigh



### Overview

- Welcome and Acknowledgements
- Introduction
- Greenhouse Gases (GHGs) and Their Impacts
- The GHG Inventory Update
- Placing the Results in Context
- Why This Matters to Raleigh
- What Raleigh Can Do
- Engagement Opportunities
- Questions, Comments and Feedback



### Internal Team and EAB

### City of Raleigh

- Office of Sustainability
- Solid Waste Services
- Fire
- Public Utilities
- Transportation
- Engineering Services
  - Facilities and Operations
  - Vehicle Fleet Services

#### **EAB**

- Beverly Clark
- Robert Gelblum
- Anya Gordon
- Larry Larson
- Aranzazu Lascurain
- Justin Senkbeil
- Brian Starkey
- Dave Toms
- Laurel Varnado



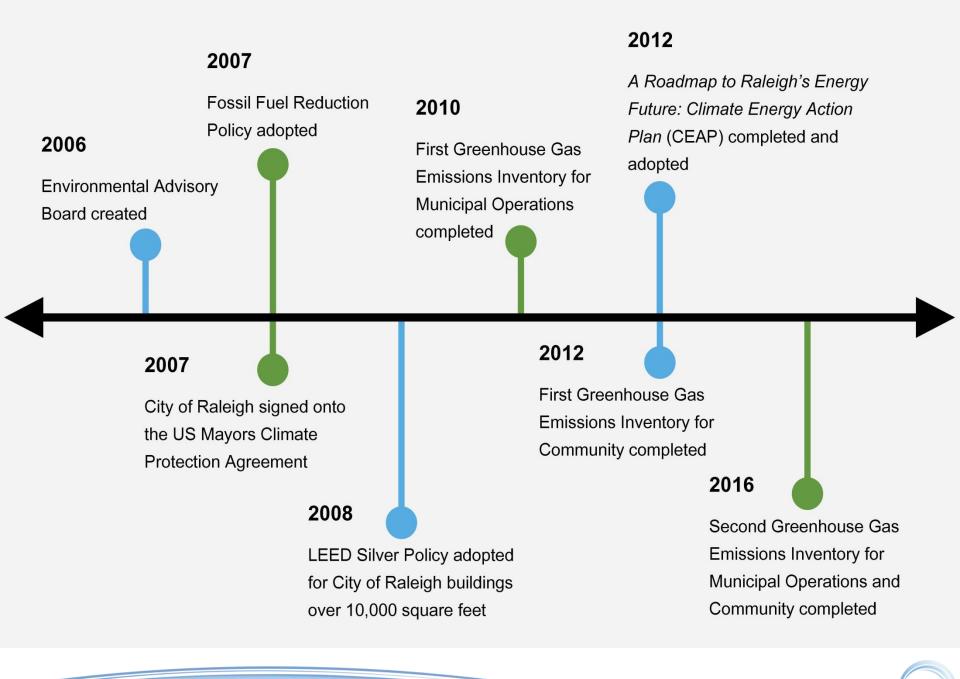
### External Team

- Duke Energy
- PSNC Energy
- Capital Area Metropolitan Planning Organization
- North Carolina Department of Environmental Quality, Division of Air Quality
- Wake County Solid Waste Management Division

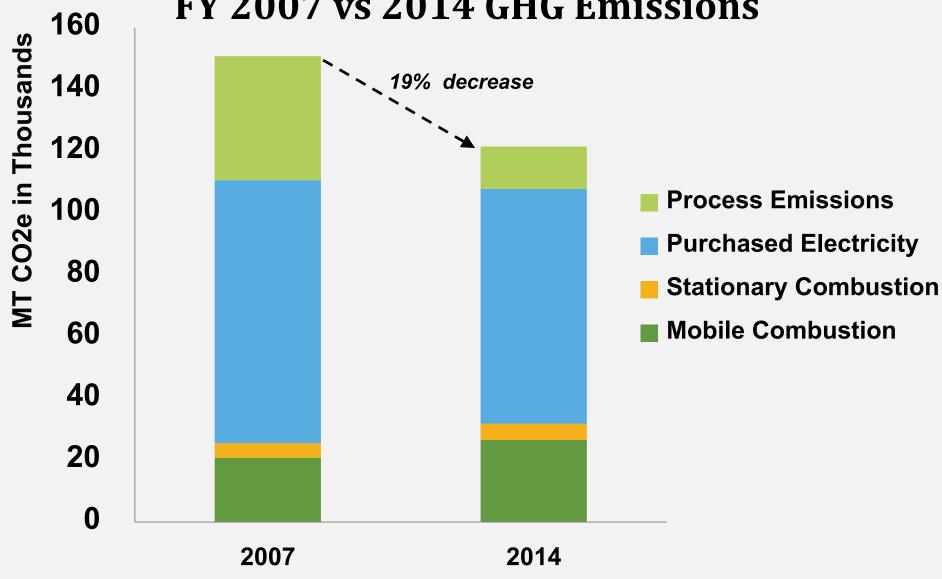


### **INTRODUCTION**

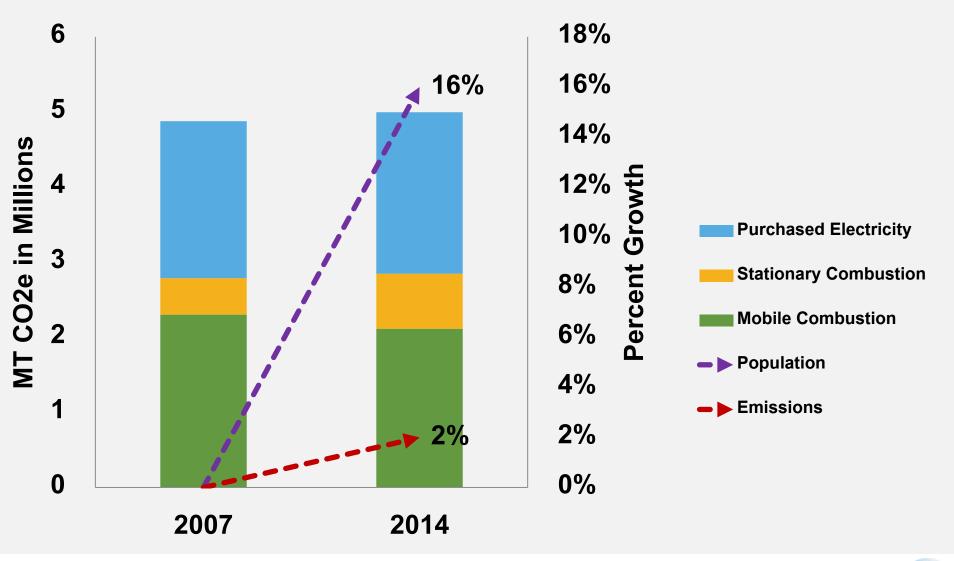
Cindy Holmes - Project Manager, City of Raleigh



## Comparable Local Government Activities FY 2007 vs 2014 GHG Emissions



## Comparable Community Activities FY 2007 vs 2014 GHG Emissions





### GHGs AND THEIR IMPACTS

**Kerri Hartung** – AECOM Project Manager



## **Polling Question 2**

- Do you think you have seen the effects of a changing climate in your daily life?
  - A. I think I have seen effects
  - B. I think climate change is happening, but I don't think I've seen any effects in my daily life
  - C. I haven't thought about it
  - D. I don't think climate change is happening
  - E. I don't think I have seen any effects
- Use your device now to provide your response, or complete your paper questionnaire.
- On your device, scroll down in your browser and hit "next" to get to Question 2. Choose A,B,C,D, or E and stop at Question 2.



## Polling Question 2 Results

2. Do you think you have seen the effects of a changing climate in your daily life?

When poll is active, respond at **PollEv.com/corghg** Text **CORGHG** to **22333** once to join

Answers to this poll are anonymous

A. I think I have seen effects

B. I think climate change is happening, but I don't think I've seen any effects in my daily life

C. I haven't thought about it

D. I don't think climate change is happening

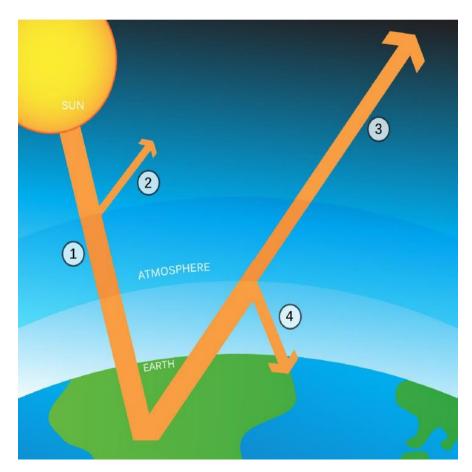
E. I don't think I have seen any effects

0%

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### The Greenhouse Effect



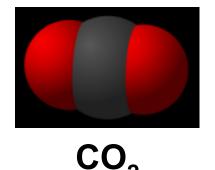
Source: AECOM 2014

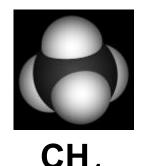
- Light and heat pass through the Earth's atmosphere from the Sun
- A small amount of light and heat are reflected before entering the atmosphere
- After reaching the Earth's surface, some heat radiation is emitted back through the atmosphere
- Some heat radiation is absorbed by greenhouse gases and stays in the atmosphere

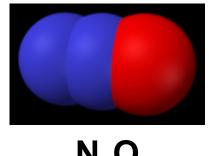


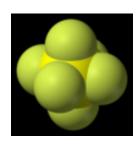
### What Are Greenhouse Gases (GHGs)?

- Carbon Dioxide CO<sub>2</sub>
- Methane CH<sub>4</sub>
- Nitrous Oxide N<sub>2</sub>O
- Fluorinated gases Hydrofluorocarbons/
   Perfluorocarbons/Sulfur Hexafluoride/nitrogen
   trifluoride (HFCs/PFCs /SF<sub>6</sub>/NF<sub>3</sub>)









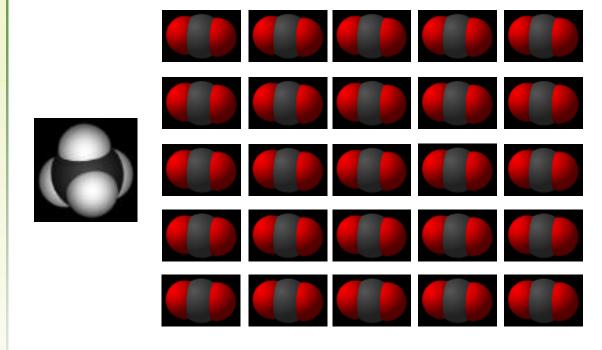
 $N_2O$ 

SF<sub>6</sub>



CO<sub>2</sub>e – the Universal Standard for GHGs

Global Warming
Potential (GWP)
allows comparisons
of the global warming
impacts of different
gases

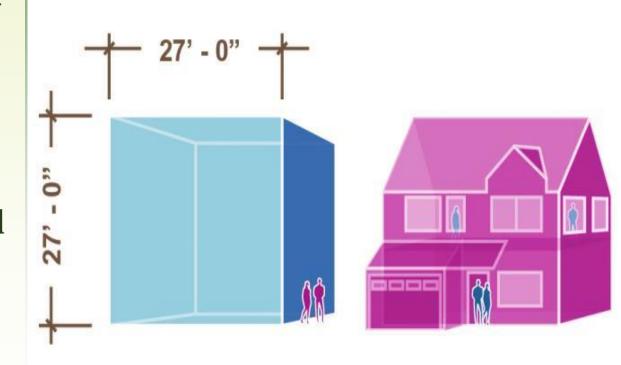


A Metric Ton of Methane Has the Same Heat Trapping Effect as 25 Metric Tons of CO<sub>2</sub> (i.e., 25 MT CO<sub>2</sub>e)



# How Large is One Metric Ton of CO<sub>2</sub>?

One metric ton of carbon dioxide would fill about the size of a two-story home, totaling more than 1,400 square feet





## What Activities Create GHGs?

Mainly using energy...







## What Activities Create GHGs?

...but also from certain kinds of industrial and chemical processes







Exploring Climate Change: Fishel reflects on his quest (Episode 5)









#### **NC Climate Stories**

http://climatestoriesnc.org/



## THE GHG INVENTORY UPDATE FISCAL YEAR 2014

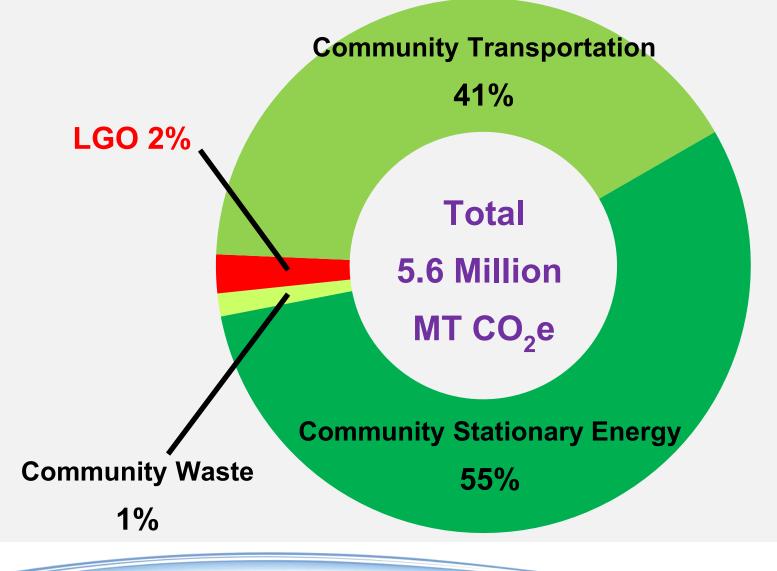
**Kerri Hartung** – AECOM Project Manager



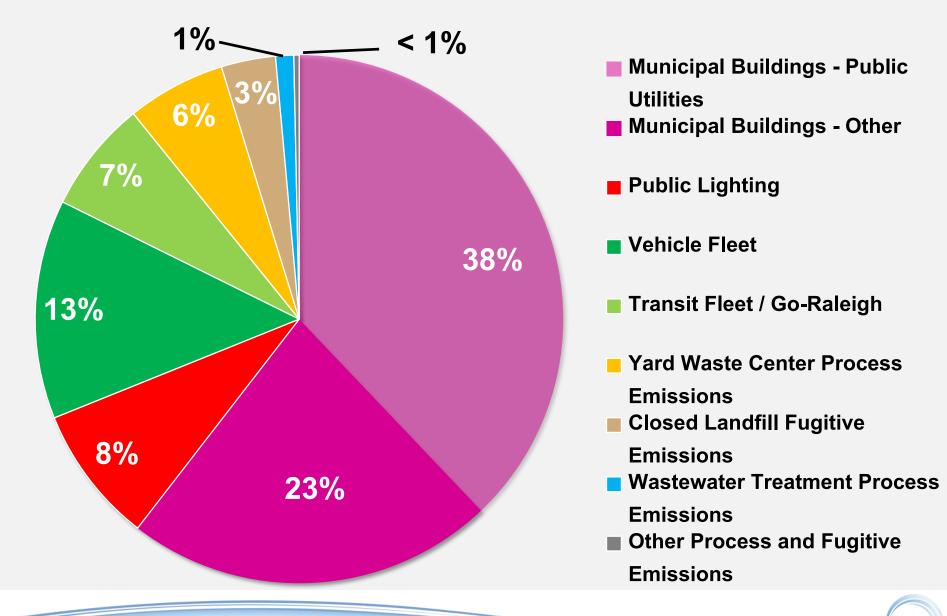
## Why Prepare a GHG Inventory?

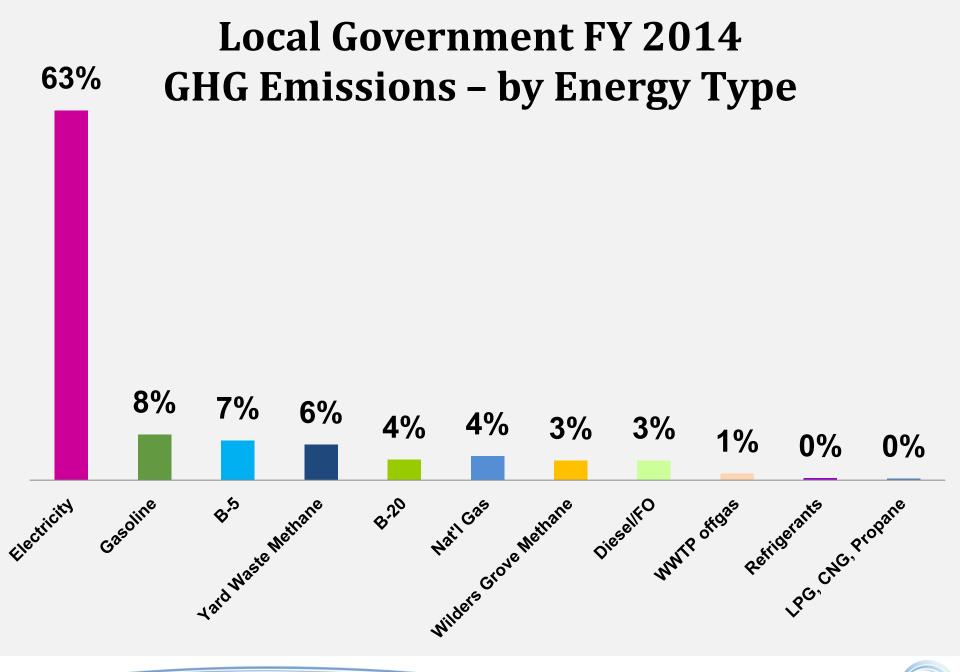
- A city's ability to take effective action on mitigating climate change, and to monitor progress, depends on having access to good quality data on GHG emissions
- Grants targeted at cities are starting to require GHG inventories as an application pre-requisite
- Inventories are requirements of climate leadership initiatives such as CDP Cities, STAR Communities, and Compact of Mayors/Covenant of Mayors

## Local Government and Community FY 2014 GHG Emissions

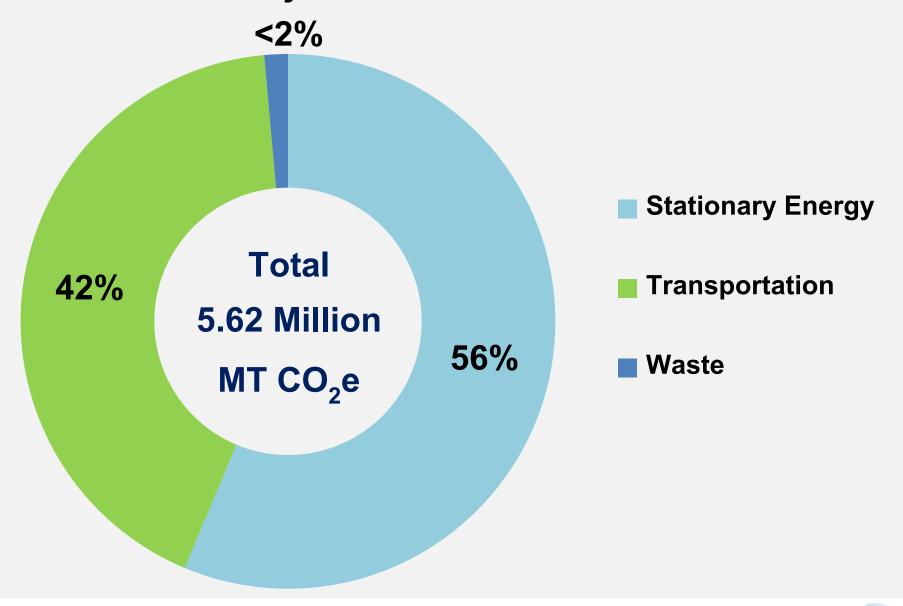


### **Local Government FY 2014 GHG Emissions**

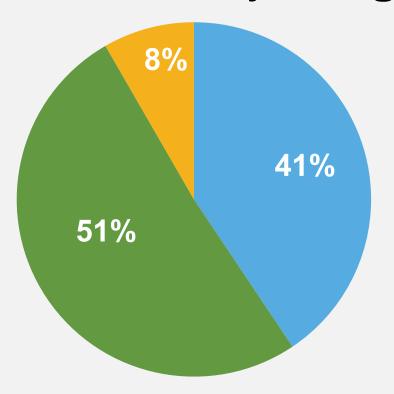


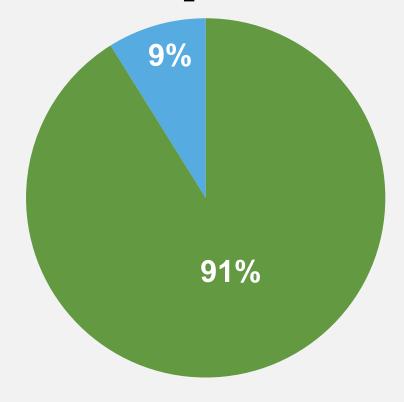


### **Community FY 2014 GHG Emissions**



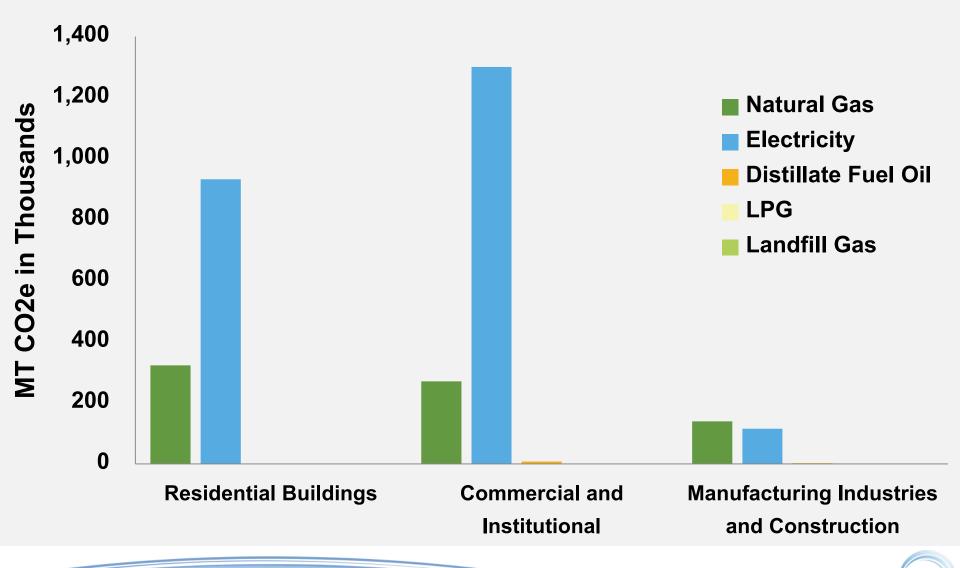
## Community FY 2014 GHG Emissions – Stationary Energy and Transportation



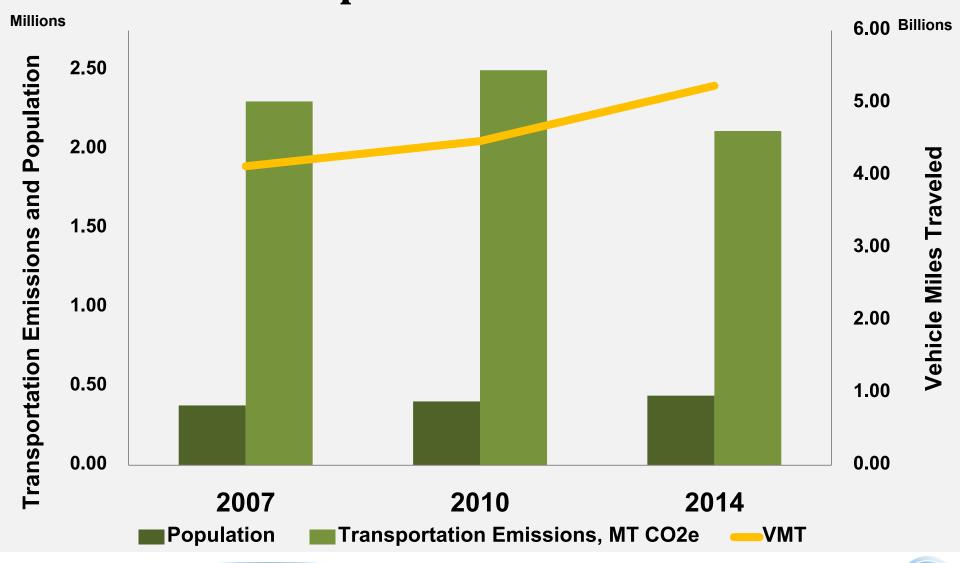


- Residential Buildings
- Commercial and Institutional
- Manufacturing Industries and Construction
- On-Road Transportation
- Off-Road Equipment

## Community FY 2014 GHG Emissions – Stationary Energy by Energy Type



## Community FY 2014 GHG Emissions – Transportation Emissions

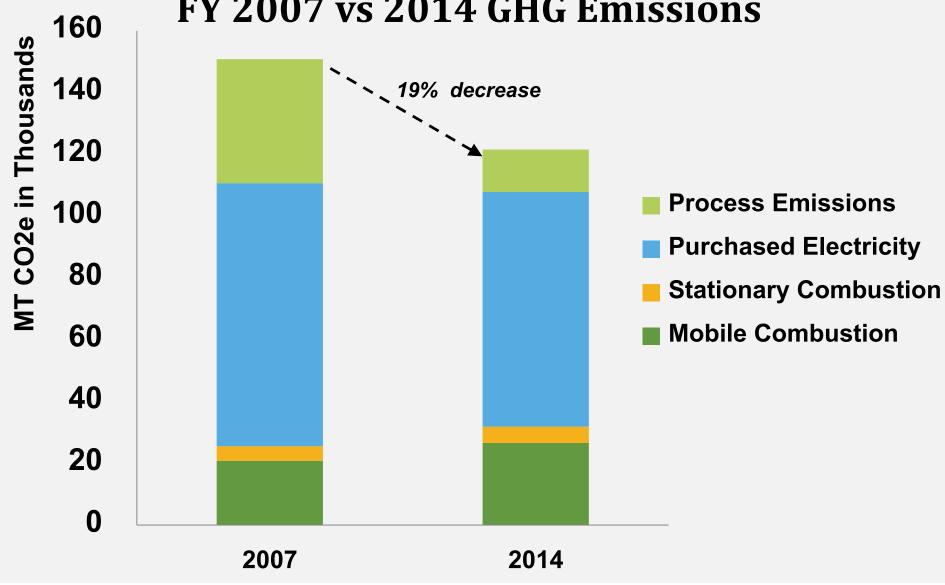




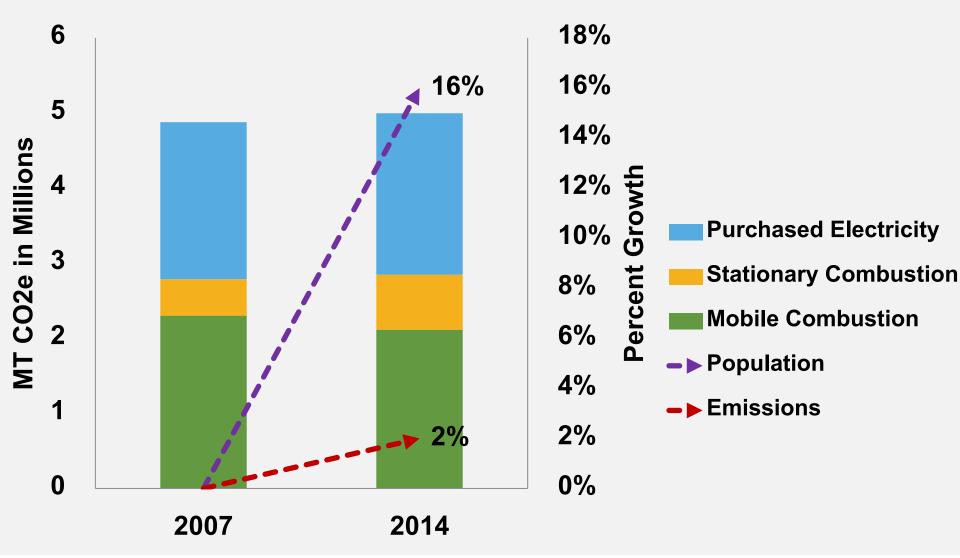
## PLACING THE RESULTS IN CONTEXT

Kerri Hartung – AECOM Project Manager

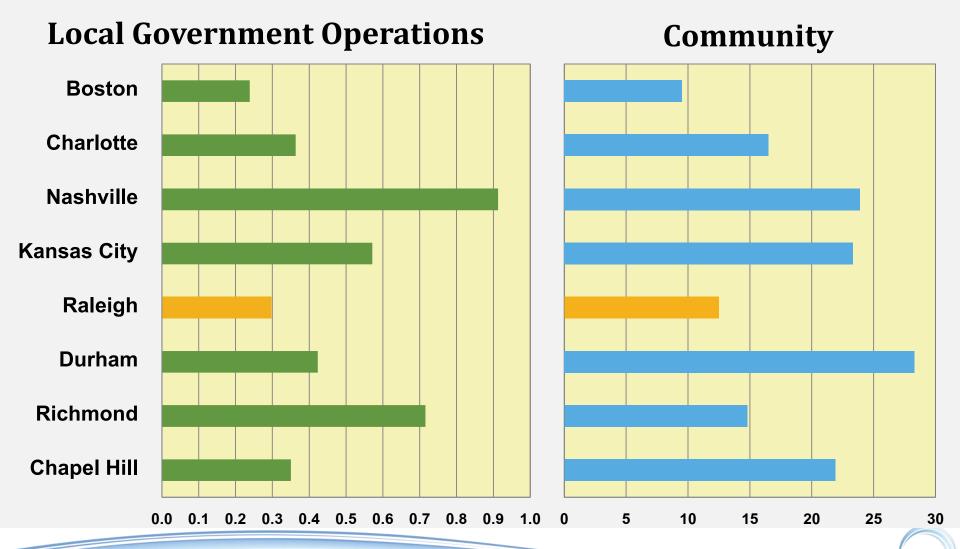
## Comparable Local Government Activities FY 2007 vs 2014 GHG Emissions



# Comparable Community Activities FY 2007 vs 2014 GHG Emissions



## Comparison of Emissions to Peer Cities – MT CO2e per Capita, in Decreasing Order by Population





# WHY THIS MATTERS TO RALEIGH

**Kerri Hartung** – AECOM Project Manager



## Cities Play a Significant Role

Cities are a significant, and growing, source of energy consumption and account for a large percentage of global GHG emissions













#### Global Changes Can Mean Local Impacts

- Warming temperatures can mean more energy use and unhealthy, even dangerously, hot days
- Record cold can still occur on a warming planet
- More extreme weather events greater rainfall, more snow, more intense storms – can result in loss of life, property damage, and economic disruption
- Sources that create GHG emissions also impact other measures of air quality and our health



## Polling Question 3 (Revisit of Q.2)

- Do you think you have seen the effects of a changing climate in your daily life?
  - A. I think I have seen effects
  - B. I think climate change is happening, but I don't think I've seen any effects in my daily life
  - C. I haven't thought about it
  - D. I don't think climate change is happening
  - E. I don't think I have seen any effects
- Use your device now to provide your response, or complete your paper questionnaire.
- Using your device, scroll down in your browser and hit "next" to get to Question 3. Choose A,B,C,D, or E and stop at Question 3.



## Polling Question 3 Results

#### 3. Do you think you have seen the effects of a changing climate in your daily life?

When poll is active, respond at **PollEv.com/corghg** Text **CORGHG** to **22333** once to join

Answers to this poll are anonymous

A. I think I have seen effects

B. I think climate change is happening, but I don't think I've seen any effects in my daily life

C. I haven't thought about it

D. I don't think climate change is happening

E. I don't think I have seen any effects

0%

https://www.polleverywhere.com/multiple\_ch\_ oice\_polls/Xdsn5kDYCYo3tKM?preview=true



#### What Raleigh Can Do

- 1. Set and publicly communicate targets for future reduction in GHG emissions relative to a baseline year
- 2. Regularly and consistently track progress on emissions trends compared to the baseline year
- 3. Review data collection and management systems
- 4. Update the Climate Energy Action Plan
- 5. Engage with the community



#### ENGAGEMENT OPPORTUNITIES

**Cindy Holmes** – Project Manager, City of Raleigh **Megan Anderson** – Sustainability Manager, City of Raleigh



#### **Engagement Opportunities**

- Community outreach AmeriCorps VISTA member
- Drop a card into the box outside the meeting room
- Send an email to sustainable.raleigh@raleighnc.gov
- Request a presentation from the Office of Sustainability
- Take a pledge on the back of your handout and write it on the "pledge board" outside the meeting room



#### Polling Question 4A

- What are you most willing to do from the following list?
  - A. Seal and insulate my home
  - B. Turn off my vehicle when waiting in line
  - C. Compost my food scraps and yard waste
  - D. Replace leaky toilets and faucets and use water efficient shower heads
  - E. Plant a tree
  - F. Eat local and seasonal foods and plant a garden
  - G. Calculate my personal or family carbon footprint and create a plan to reduce
  - H. Something different from this list
- Use your device now to provide your response, or complete your paper questionnaire.
- Using your device, scroll down in your browser and hit "next" to get to Question 4A. Select your response.



### Polling Question 4A Results

#### 4A. What are you most willing to do from the following list?

When poll is active, respond at **PollEv.com/corghg** Text **CORGHG** to **22333** once to join

Answers to this poll are anonymous

A. Seal and insulate my home

B. Turn off my vehicle when waiting in line

C. Compost my food scraps and yard waste

D. Replace leaky toilets and faucets and use water efficient shower heads

E. Plant a tree

F. Eat local and seasonal foods and plant a garden

G. Calculate my personal or family carbon footprint and create a plan to reduce

H. Something different from this list

0%



#### Polling Question 4B

Is there something that you are most willing to do that is different from the list presented in Question 4A? Let us know!

I am most willing to \_\_\_\_\_\_\_.

- Use your device now to type in your response, or complete your paper questionnaire.
- Using your device, scroll down in your browser and hit "next" to get to Question 4B. You can provide up three responses via your device.



### Polling Question 4B Results

4B. Is there something that you are most willing to do that is not on the list from Question 4A? Let us know!

When poll is active, respond at **PollEv.com/corghg** Text **CORGHG** to **22333** once to join

Answers to this poll are anonymous



# QUESTIONS, COMMENTS AND FEEDBACK



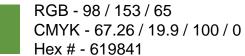
#### **Engagement Opportunities**

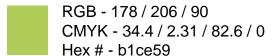
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#### Color Palette

#### Green





RGB - 241 / 245 / 210 CMYK - 5.35 / 0.08 / 21.28 / 0 Hex # - f1f4d2

#### Blue

RGB - 86 / 172 / 224 CMYK - 61.24 / 17.16 / 0 / 0 Hex # - 56ace0

RGB - 142 / 195 / 234 CMYK - 41.5 / 10.76 / 0 / 0 Hex # - 8ec3e9

RGB - 205 / 228 / 247 CMYK - 17.73 / 3.05 / 0 / 0 Hex # - cce4f6

#### Yellow

RGB - 244 / 177 / 27 CMYK - 3.09 / 32.86 / 100 / 0 Hex # - f3b01b

RGB - 242 / 220 / 21 CMYK - 7.45 / 6.82 / 98.38 / 0 Hex # - f1dc14

RGB - 246 / 243 / 170 CMYK - 4.15 / 0 / 42.25 / 0 Hex # - f6f3a9