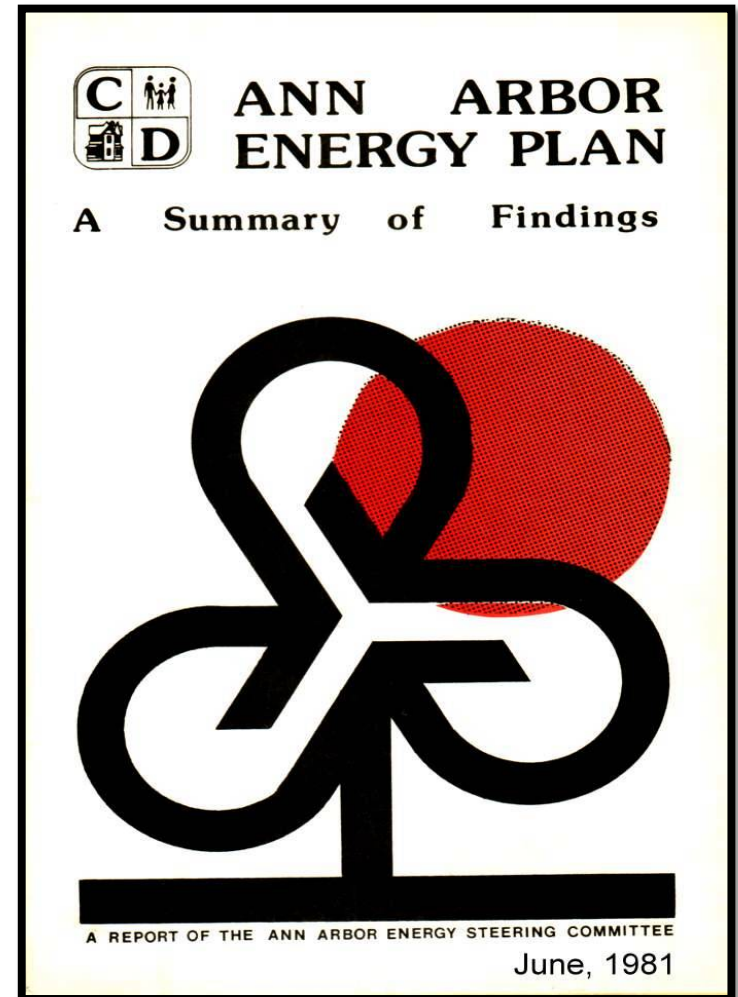


# Ann Arbor Climate Action Plan



# History

- First Energy Plan – 1981
- Established Energy Commission
- Energy Plan update – 1994
- Climate focus:
  - Joined ICLEI's (Local Governments for Sustainability) Cities for Climate Protection campaign – 1997
  - School of Natural Resources (SNRE) Master's Project : *Greenhouse Gas Emissions Reduction Strategy*– 2003
  - Signee – U.S. Mayors Climate Protection Agreement – 2006
  - Pollution Prevention grant from DEQ for climate planning – 2011-2012



# Energy Challenge

- Mayor's Green Energy Challenge 2006 & 2011
  - Original 2006 Challenge focused on renewable energy
    - Reached 20% share of municipal operations in 2010
    - Goal of 20% community-wide in 2015
    - Secondary GHG goal
      - 20% reduction from 2000 levels by 2015 for entire community – a long shot.
  - 2011 Challenge puts focus on GHG reductions
    - Reduce community greenhouse gases 8% below 2000 levels by 2015
    - Reduce municipal emissions 50% below 2000 levels by 2015
  - Task Force focus is community goals NOT municipal

# Purpose of Climate Action Plan Task Force

- ▣ Identify measures to reduce greenhouse gas emissions to:
  - ▣ Meet established short term goals for 2015
  - ▣ Help set mid and long-range reduction targets for future years
  - ▣ Contribute to the development of a Climate Action Plan for the Ann Arbor community, focused beyond municipal operations

# The ICLEI 5-Milestone Process



# GHG Inventory Basics

## □ Purpose of GHG inventory

- Establishes a baseline
- Enables the development of a targeted strategy
- Helps track progress towards meeting reduction goals
- First step towards achieving tangible greenhouse gas emissions and tracking future progress

## □ Challenges with an inventory

- Precision of data
  - ▣ Transportation measurements
- Boundaries
- Assumptions
- Continuous improvement process
- Politics

# Methodology

## □ Boundaries

### □ Community

- ▣ Ann Arbor city boundaries (some exceptions: e.g., landfill)
- ▣ Not accounting for personal air travel, food and materials consumption, point source emissions, stationary equipment, community airport

## □ Protocols

- International Local Government Emissions Analysis Protocol (IEAP)

## □ 2000 base year established by 2003 SNRE Report

## □ CO<sub>2</sub> equivalents

- Standard is metric tonnes (2,205 lbs = 1 MT)

# Primary GHG Included in Community Emissions Inventory

Greenhouse Gas	Chemical Formula	Global Warming Potential
Carbon Dioxide	CO <sub>2</sub>	1
Methane	CH <sub>4</sub>	21
Nitrous Oxide	N <sub>2</sub> O	310

Calculations:

*activity data \* emission factor = emissions*

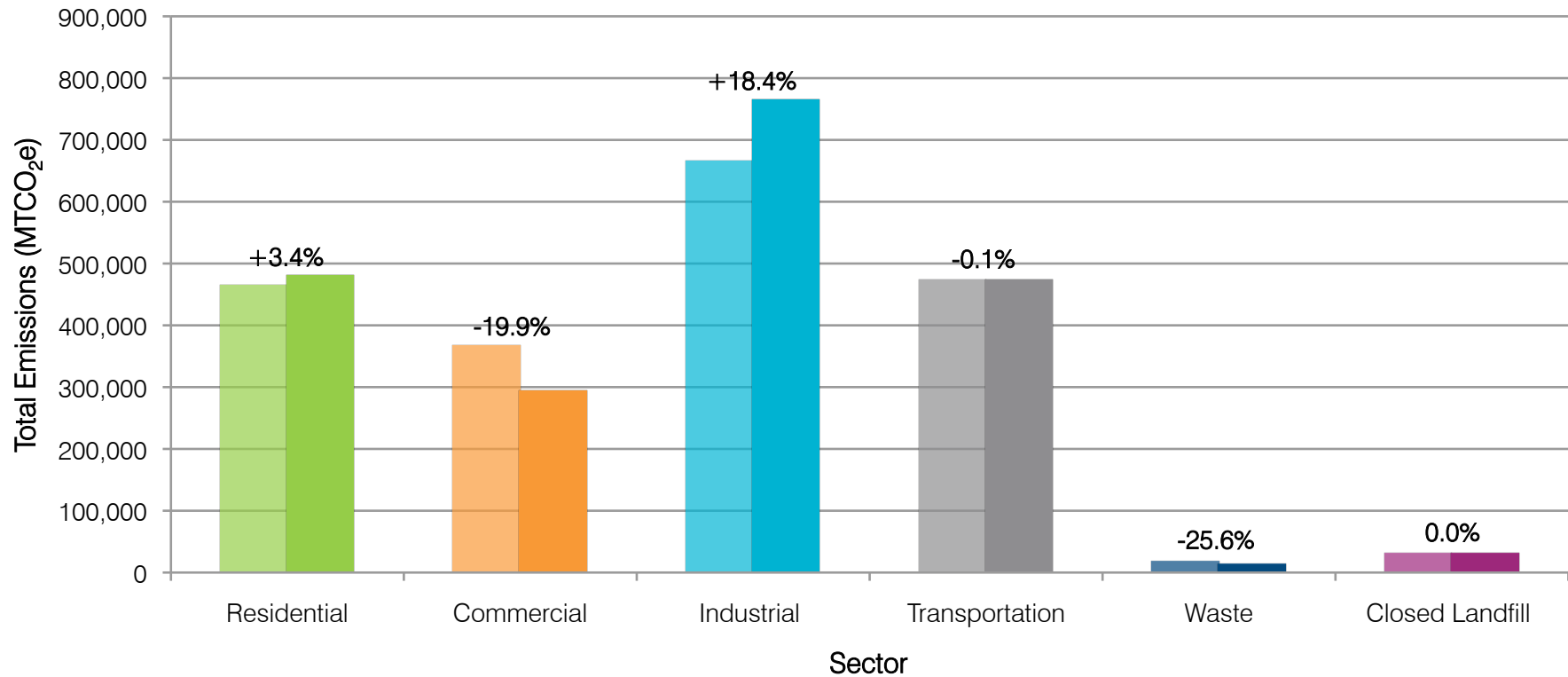
*(i.e. X kWh of electricity \* 1.66 lbs of CO<sub>2</sub>e/kWh = GHG emissions)*

# Community Emissions Sectors

Sector	Data Source	Emissions Source	Measurement
Residential	DTE	Electricity Natural gas	kWh therm
Commercial	DTE	Electricity Natural gas	kWh therm
Industrial	DTE U of M Central Power Plant	Electricity Natural gas	kWh therm
Transportation	WATS	Gasoline Diesel	VMT
Waste	City of Ann Arbor	Food waste Paper products	Tons

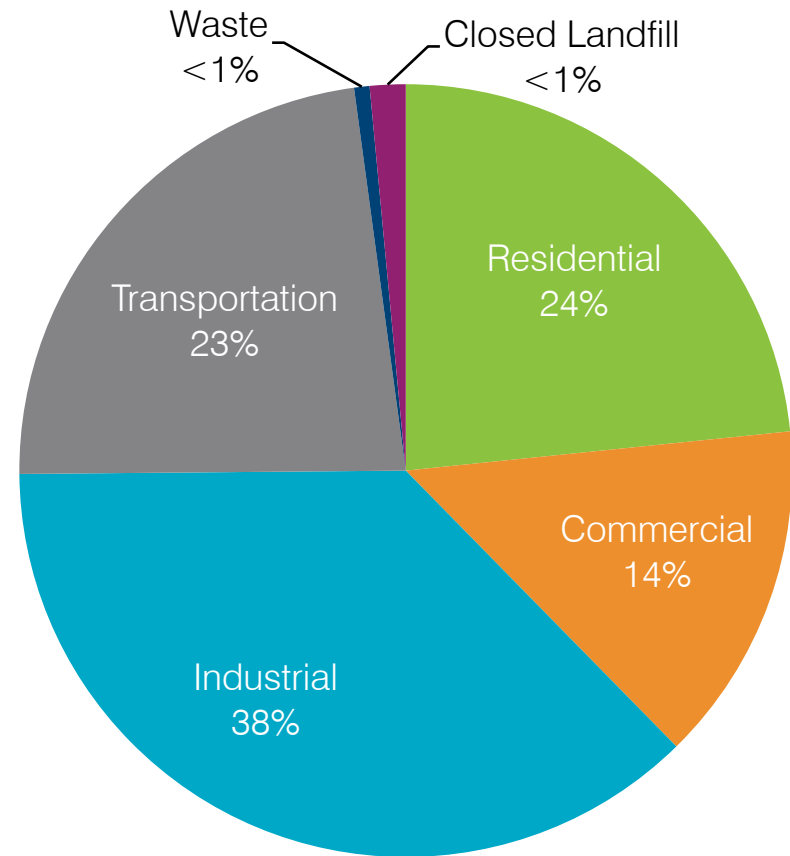
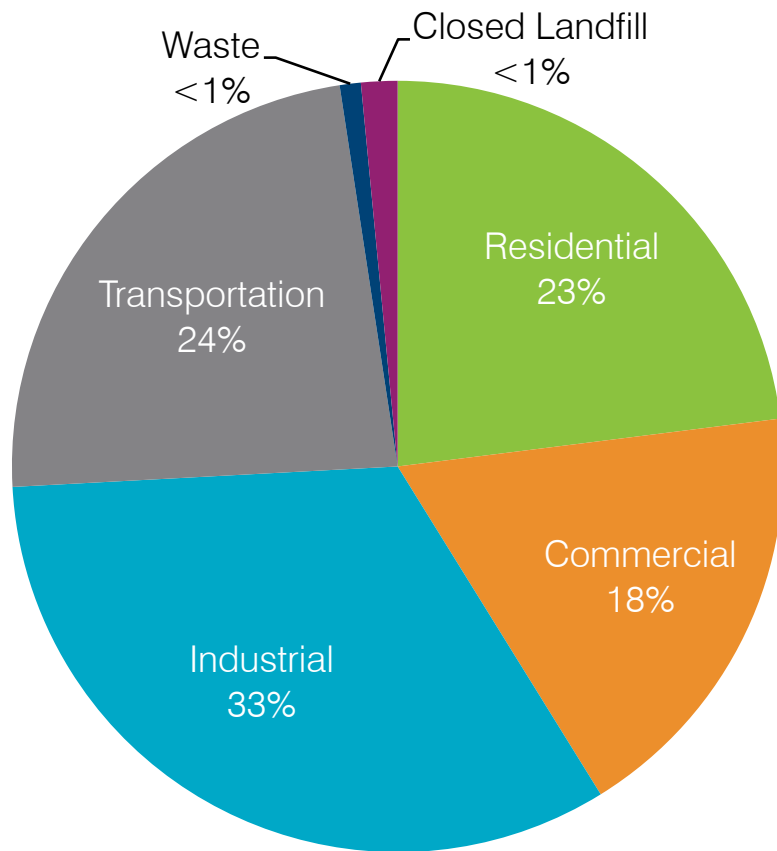
# Ann Arbor Community GHG Emissions, 2000 and 2010

DRAFT - NOT FINAL INVENTORY #s



# Emissions by Sector - 2000, 2010

DRAFT - NOT FINAL INVENTORY #s

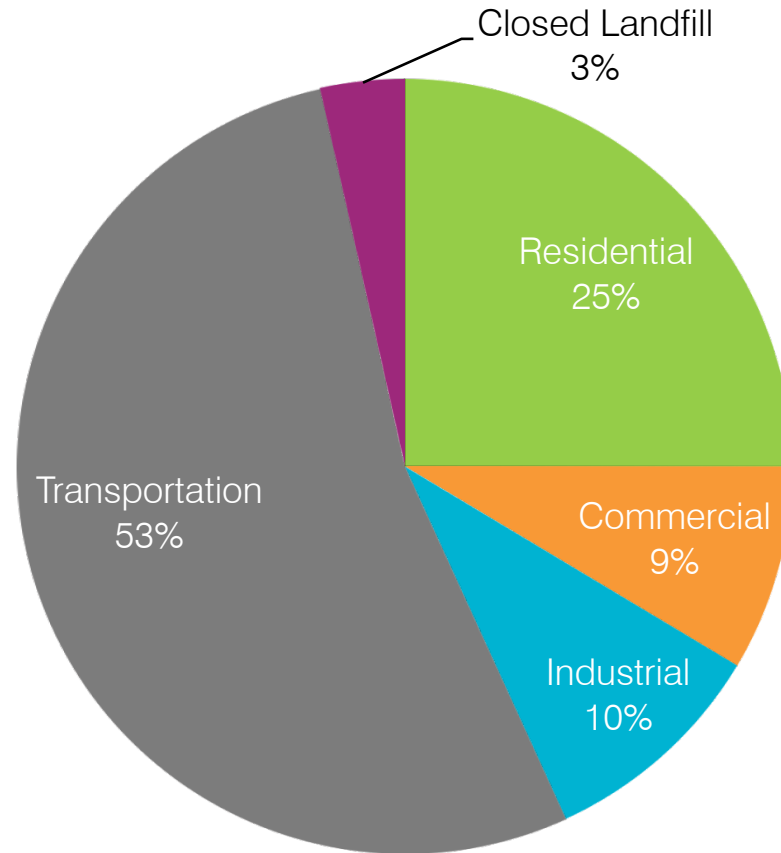


# Emissions by Scope

Sector	Scope 1: within city boundaries	Scope 2: outside city boundaries	Scope 3: other indirect emissions
Residential	Natural gas	Electricity	
Commercial	Natural gas, point source emissions	Electricity	
Industrial	Natural gas, electricity (UM CPP), point source emissions	Electricity	
Transportation	Gasoline, diesel		
Waste	Waste generated		Future emissions from current waste

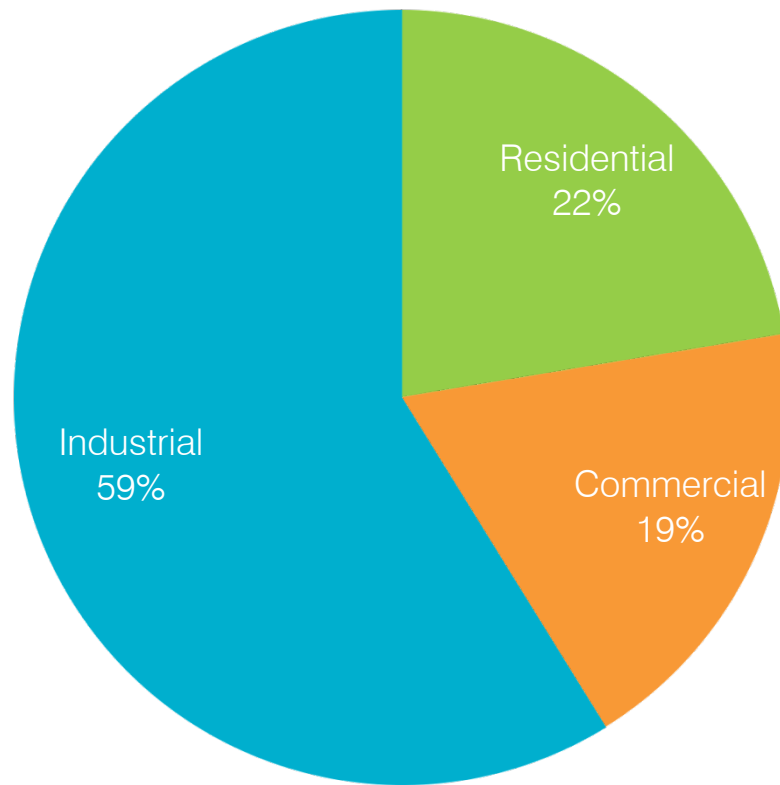
# Community Scope 1 GHG Emissions, 2010

DRAFT - NOT FINAL INVENTORY #s



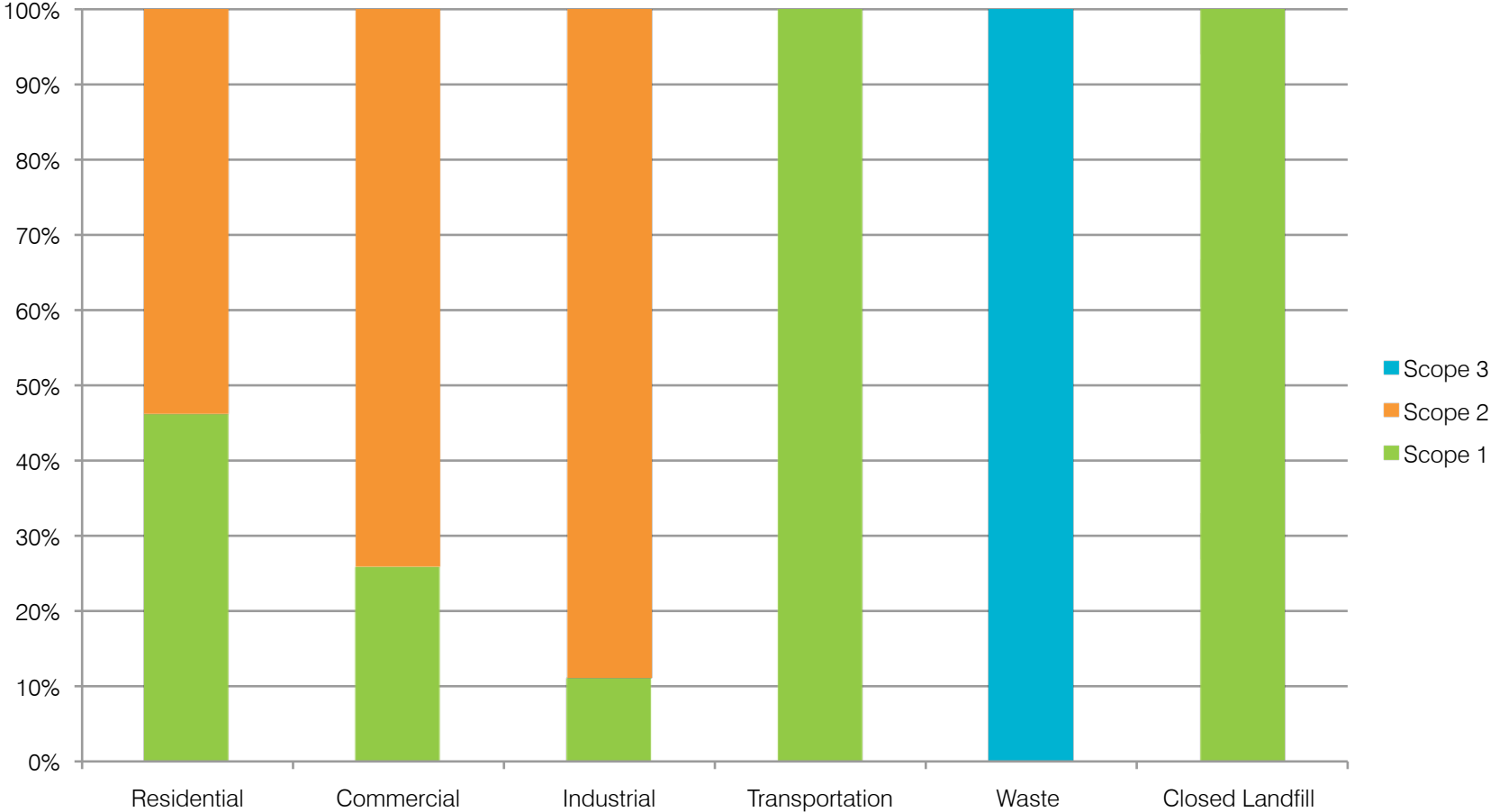
# Community Scope 2 GHG Emissions, 2010

DRAFT - NOT FINAL INVENTORY #s



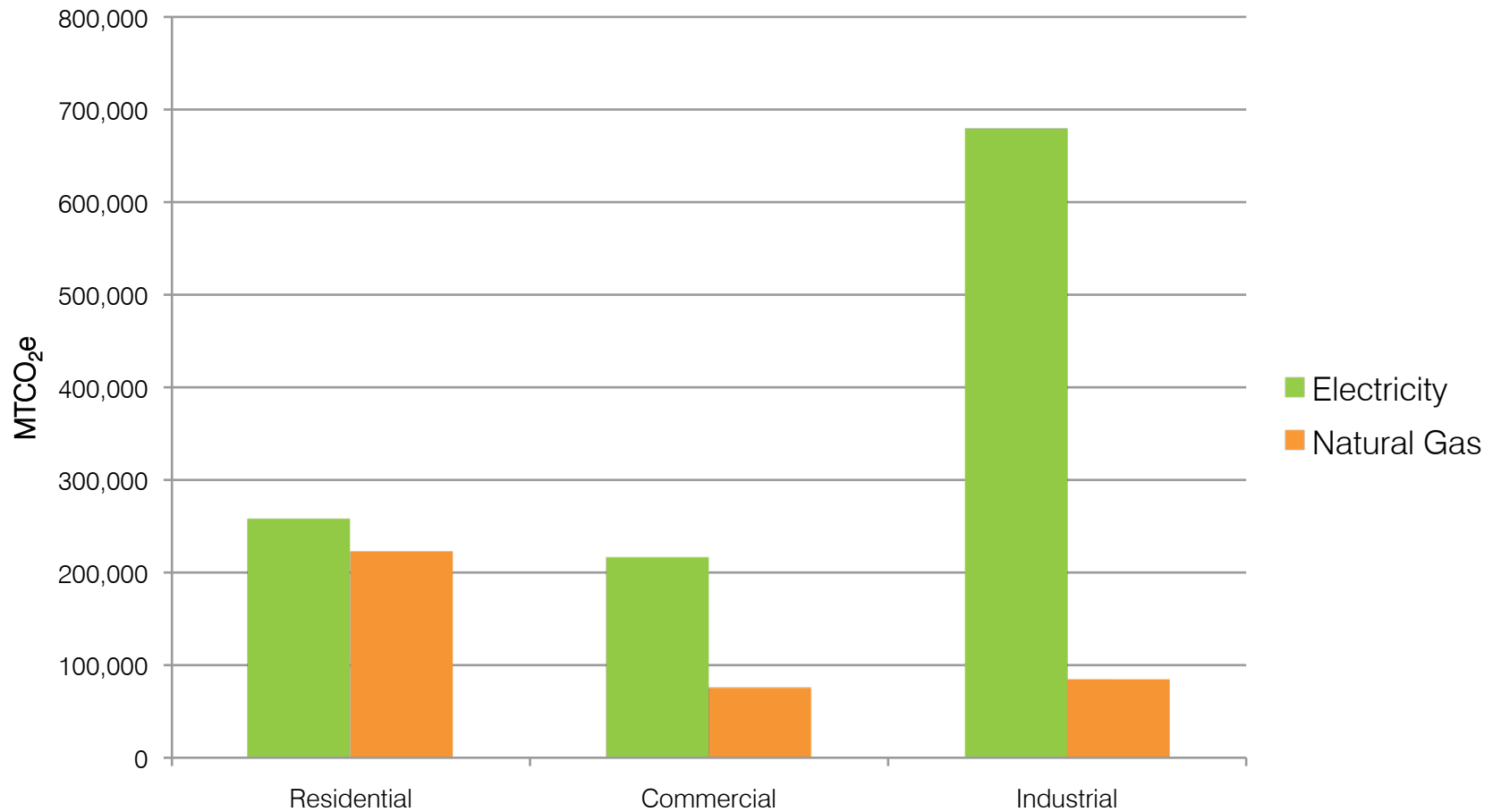
# GHG Emissions by Scope, 2010

DRAFT - NOT FINAL INVENTORY #s



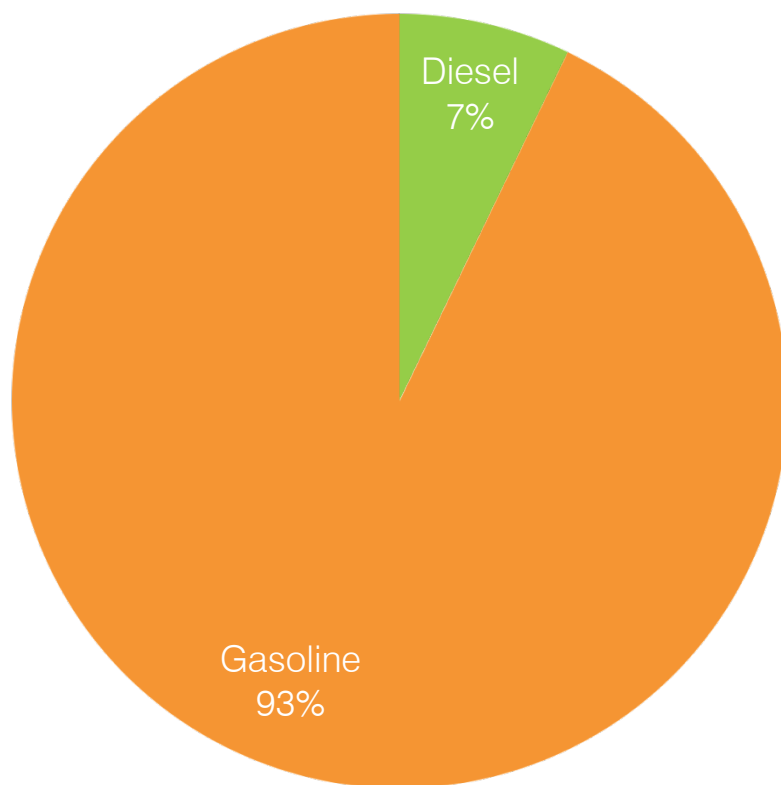
# Building Related Emissions by Fuel Type, 2010

DRAFT - NOT FINAL INVENTORY #s



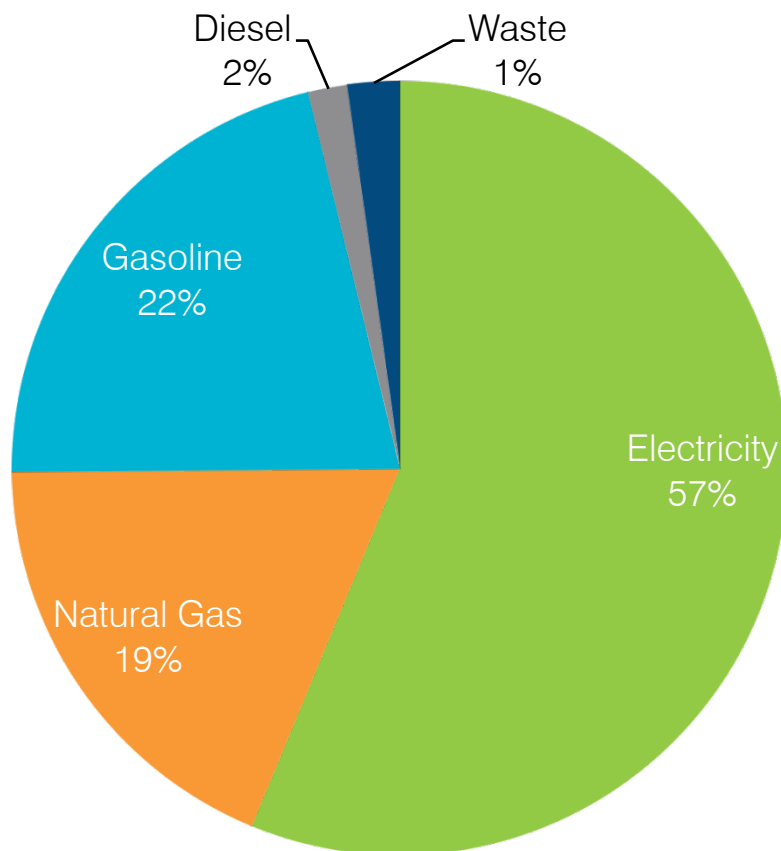
# Transportation Emissions by Fuel Type, 2010

DRAFT - NOT FINAL INVENTORY #s



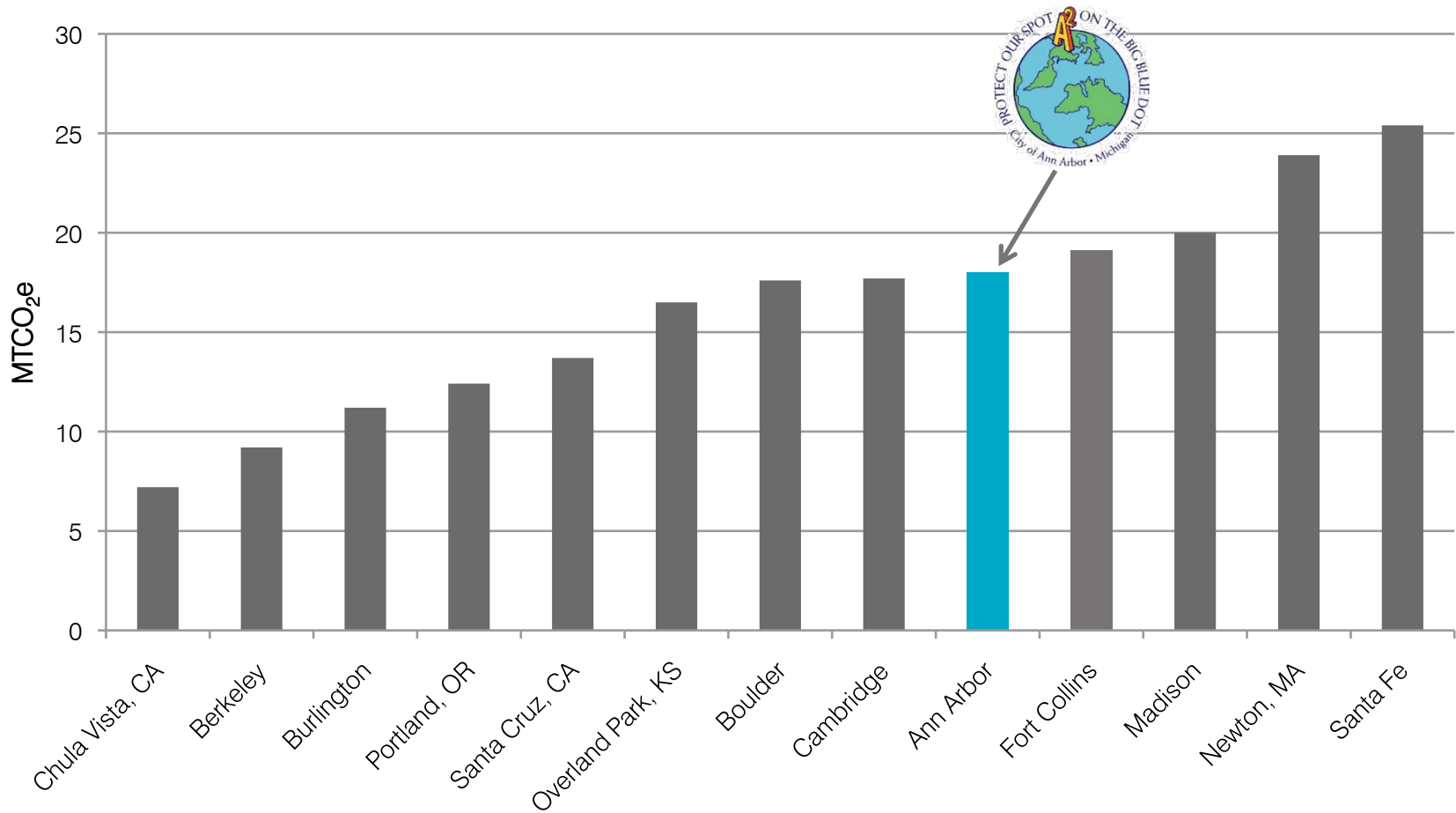
# Emissions by Raw Fuel and Waste Source, 2010

DRAFT - NOT FINAL INVENTORY #s



# Per Capita Emissions

DRAFT - NOT FINAL INVENTORY #s



# Summary

- ▣ Minimal change in 10 years
- ▣ City's focus has largely been on municipal efforts
- ▣ Shows need to develop detailed plan
- ▣ Measures should focus on larger sources of emissions to have greater impact