



# 2023 Greenhouse Gas Emissions Inventory

**Parks, Trails, and Environment Committee**

February 2, 2026

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Director

Office of Environmental Quality & Sustainability



# Presentation Overview



- **Background for conducting greenhouse gas emissions inventories**
- **Summarize protocols used**
- **Review community-wide emissions**
- **Review local government operations emissions**
- **Overview of results**
- **Questions**

# Greenhouse Gas Emissions Inventories



Transparency



Planning



Accountability

# Background

- Greenhouse gas inventories take 18-24 months to complete
  - Current inventory looking at year 2023 data initiated October 2024
  - Aided by Gresham Smith (consultant) & ICF (sub-consultant)
  - Environmental Management System objective & target for OEQS
- Collect data from multiple sources
  - City departments, utilities, NCTCOG, state & federal databases
  - All data needed may not be available; best practices are used to aid in calculating emissions
- Calculations and QA/QC
  - International Council for Local Environmental Initiatives (ICLEI) ClearPath tool used for emissions calculations and reporting.

# Greenhouse Gas Inventory History

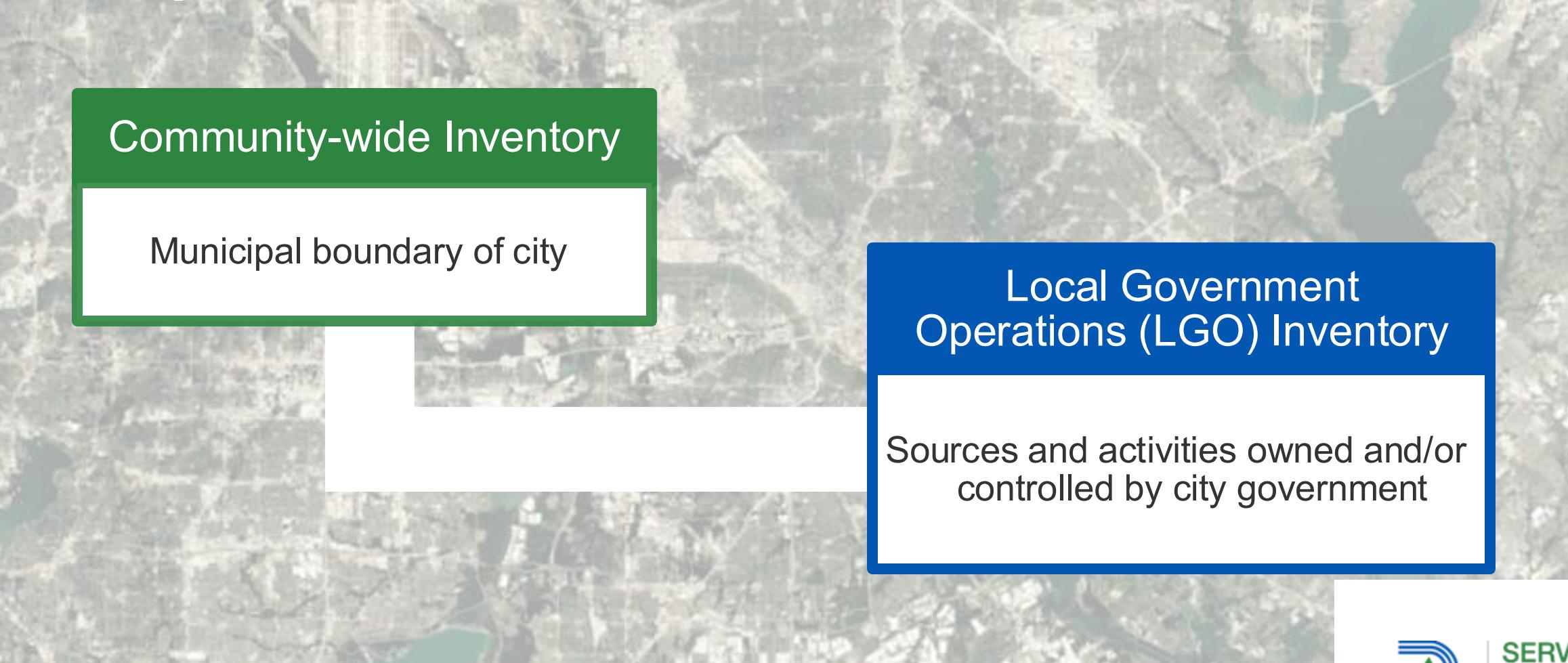
2006	2008	2012	2018	2020	2022	2026
Report on 2005 emissions from City of Dallas owned fleet and stationary sources published.	2005 Community and LGO GHG inventory published.	2010 Community and LGO GHG inventory published.	2015 Community and LGO inventory published. Baseline inventory for CECAP	Dallas CECAP adopted.	2019 Community and LGO GHG inventory published.	2023 Community and LGO GHG inventory published.

- Early inventories used to verify meeting emission reduction goals set by previous mayors.

# CECAP

- 45 actions aimed at reducing GHG emissions
- GHG emission reduction targets
  - 43% reduction from 2015 emission levels by 2030
  - 100% reduction from 2015 emission levels by 2050
- Results of GHG inventories used to measure progress of meeting emission reduction goals

# Scope of Inventories



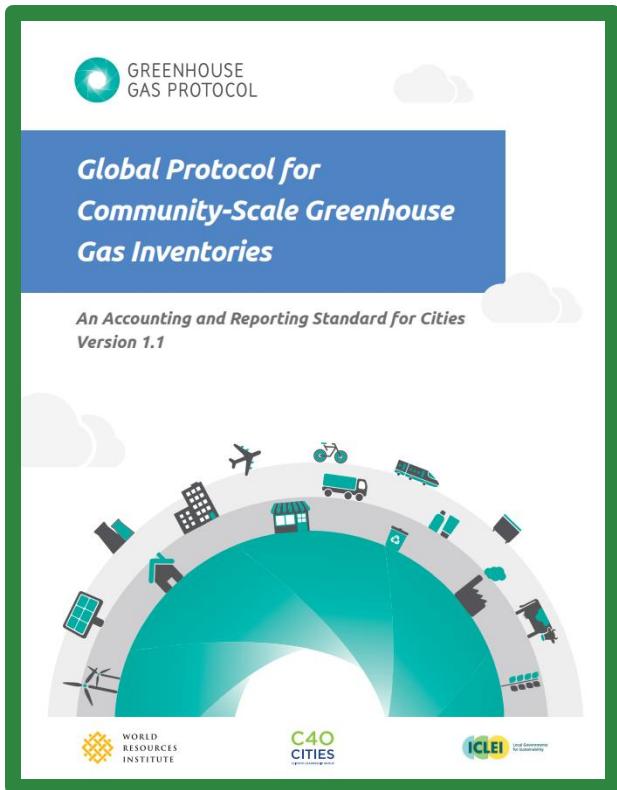
Community-wide Inventory

Municipal boundary of city

Local Government  
Operations (LGO) Inventory

Sources and activities owned and/or  
controlled by city government

# Protocols for Inventories



Local Government Operations Protocol  
*For the quantification and reporting of greenhouse  
gas emissions inventories*

Version 1.1

May 2010

Developed in partnership and adopted by:  
California Air Resources Board  
California Climate Action Registry  
ICLEI - Local Governments for Sustainability  
The Climate Registry

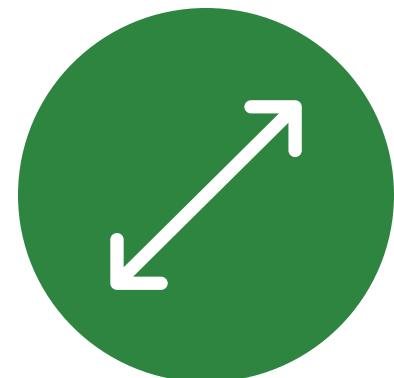
# Greenhouse Gases 101

- CO<sub>2</sub> is the most abundant GHG on the planet.
- A Global Warming Potential (GWP) value has been developed for each greenhouse gas.
- The value accounts for the difference in climate impact for each GHG by comparing it to one molecule of CO<sub>2</sub> whose GWP value is one.
- MT CO<sub>2</sub>e=Metric tons of carbon dioxide equivalent

Table 1-1. AR5 Global Warming Potentials (GWPs)

Gas	GWP	Gas	GWP
CO <sub>2</sub>	1	HFC-227ea	3,350
CH <sub>4</sub>	28	HFC-236fa	8,060
N <sub>2</sub> O	265	HFC-4310mee	1,650
HFC-23	12,400	CF <sub>4</sub>	6,630
HFC-32	677	C <sub>2</sub> F <sub>6</sub>	11,100
HFC-125	3,170	C <sub>4</sub> F <sub>10</sub>	9,200
HFC-134a	1,300	C <sub>6</sub> F <sub>14</sub>	7,910
HFC-143a	4,800	SF <sub>6</sub>	23,500
HFC-152a	138	NF <sub>3</sub>	16,100

# What's New for 2023



Expanded  
Scope



Updated  
Methodologies



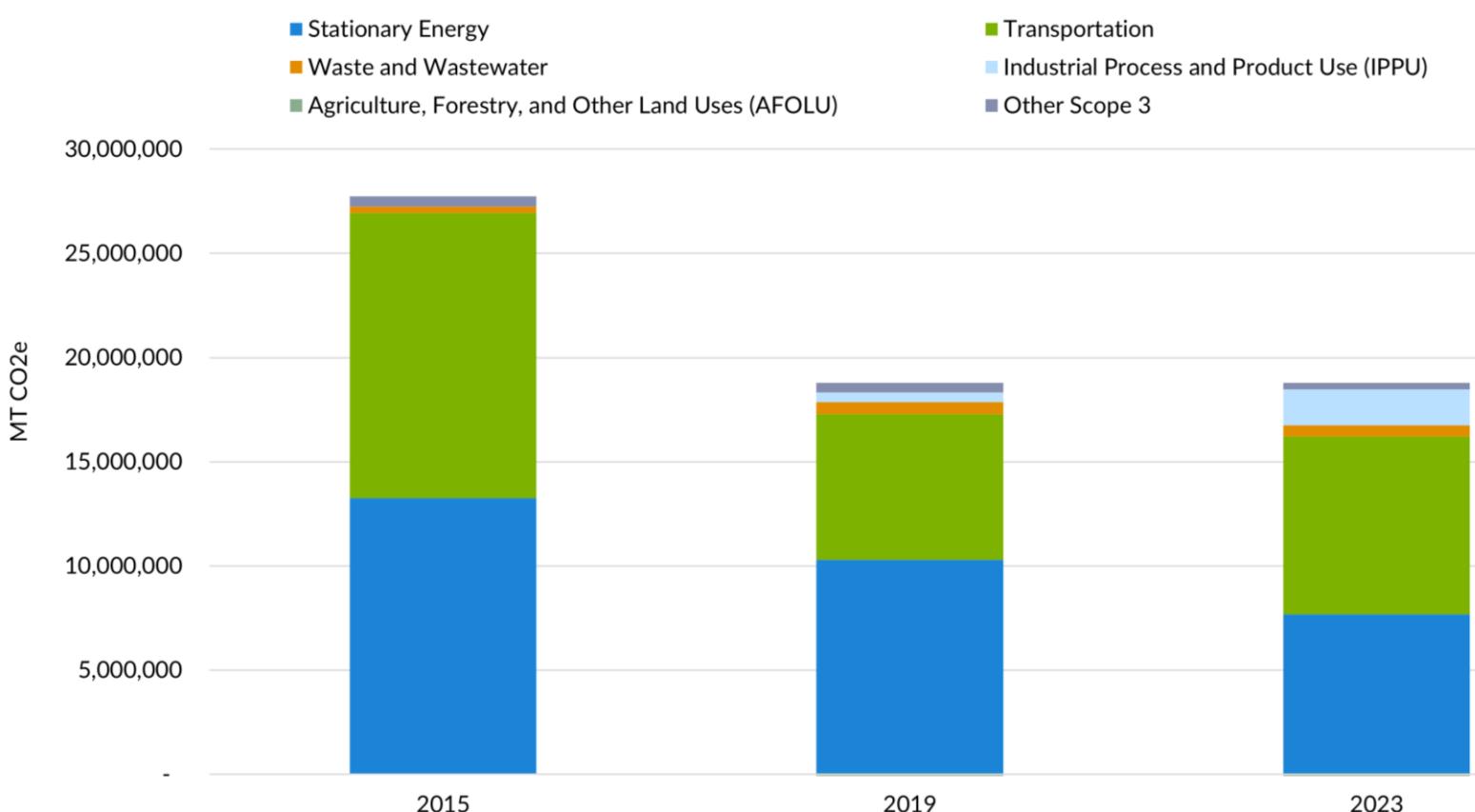
Recalculated  
Estimates



# Community-wide Inventory

2023

# Community-wide Inventory



## Key Metrics

18.6 Million MT CO<sub>2</sub>e  
+1% from 2019  
-11% from 2015

## Takeaways

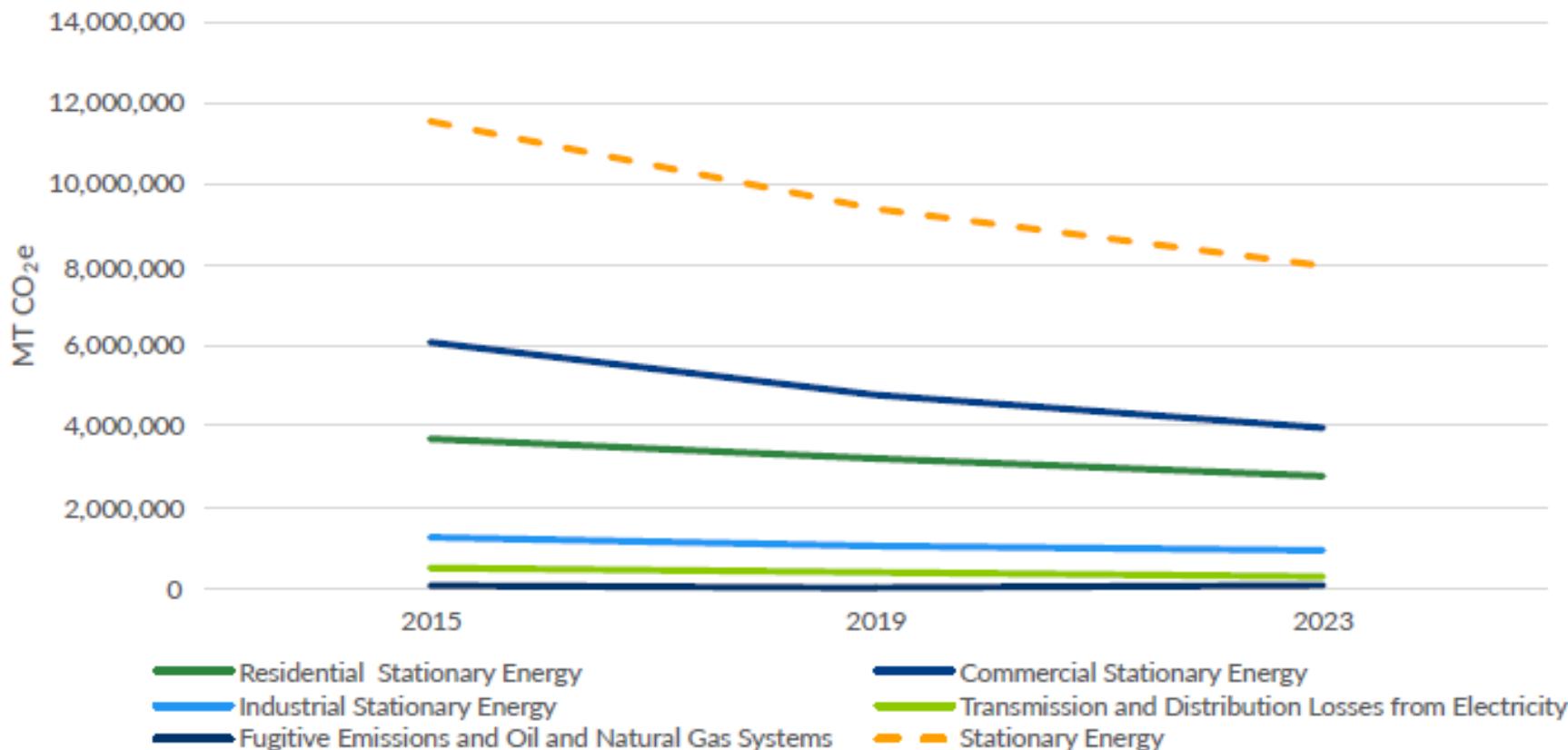
- Strongest decrease in stationary energy emissions
- Slight rise in transportation emissions
- Expansion of aviation emissions accounting
- Totals when excluding aviation emissions:
  - -6% from 2019
  - -17% from 2015



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# Stationary Energy

Figure 3-3. Stationary Energy Emissions by Category



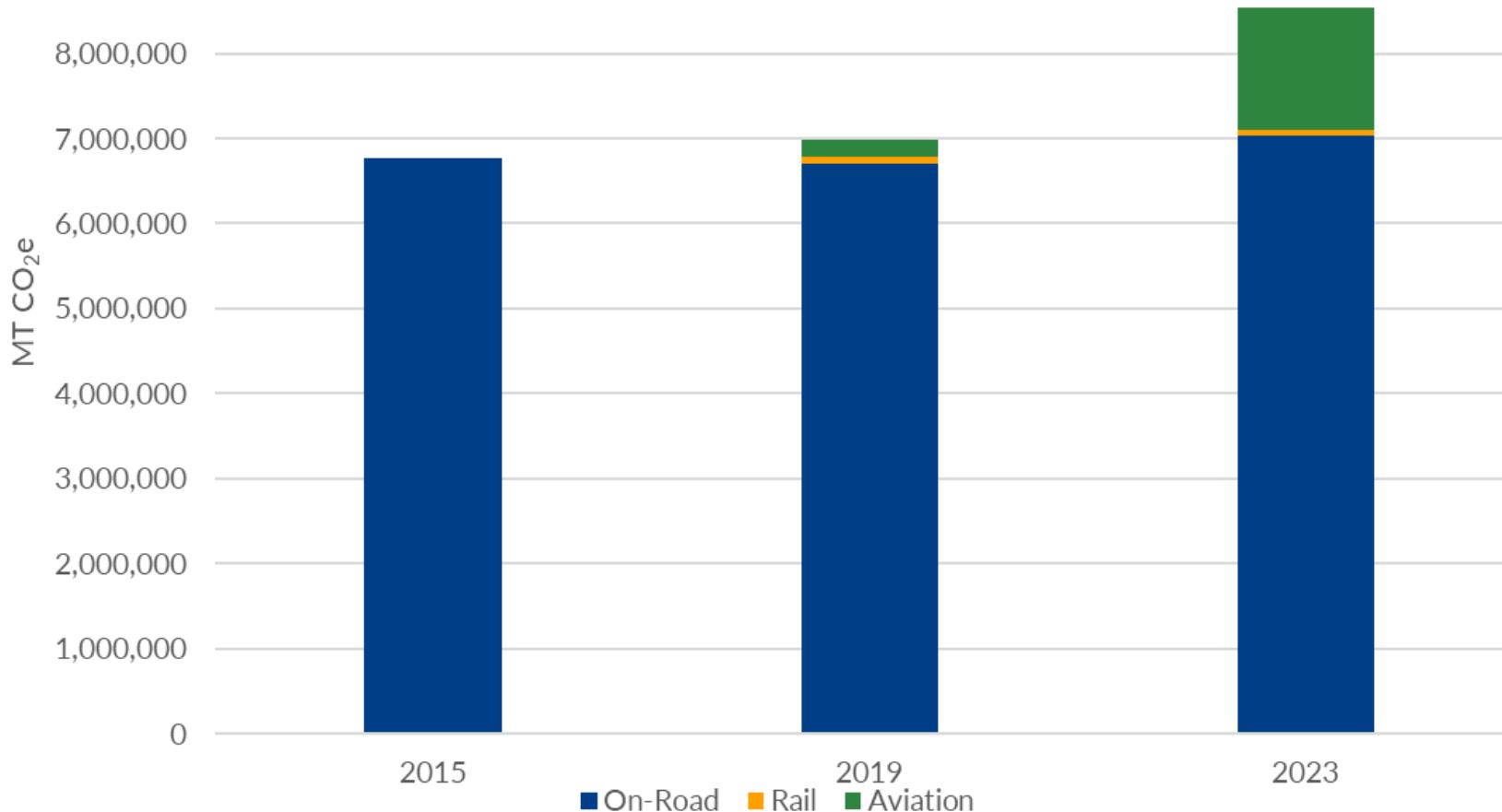
## Key Metrics

7,979,459 MT CO<sub>2</sub>e  
-15% from 2019  
-31% from 2015

## Main Emission Sources

- Electricity generation to power our City
- Natural gas use to heat our homes and buildings

# Transportation



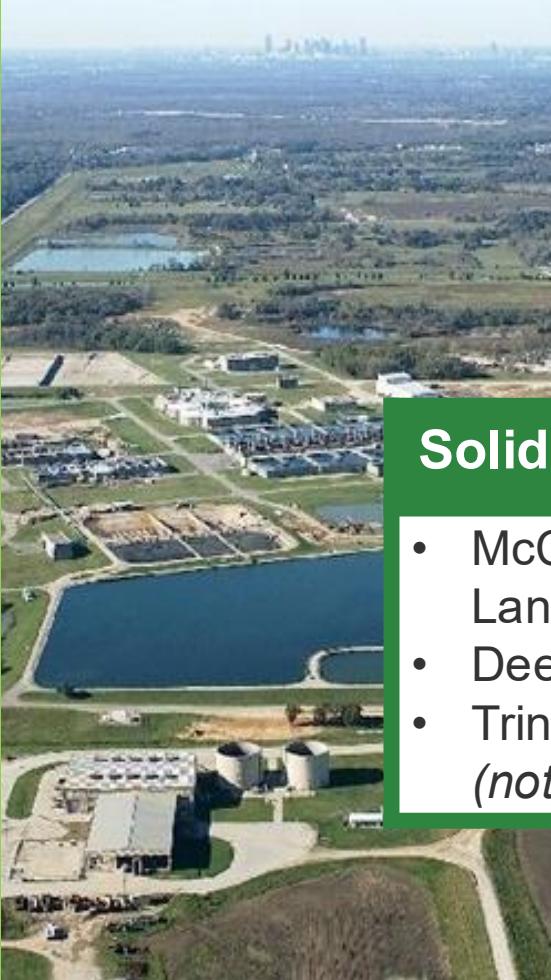
## Key Metrics

8,544,056 MT CO<sub>2</sub>e  
+22% from 2019  
+19% from 2015

### Main Emission Sources

- Cars
- Trucks
- Passenger rail
- Freight rail
- Aviation

# Waste



## Key Metrics

479,318 MT CO<sub>2</sub>e  
-28% from 2019  
-21% from 2015

## Main Emission Source

- Decomposition of garbage at landfills

### Solid Waste Treatment

- McCommas Bluff Landfill
- Deepwood Landfill
- Trinity Oaks Landfill  
*(not City-owned)*

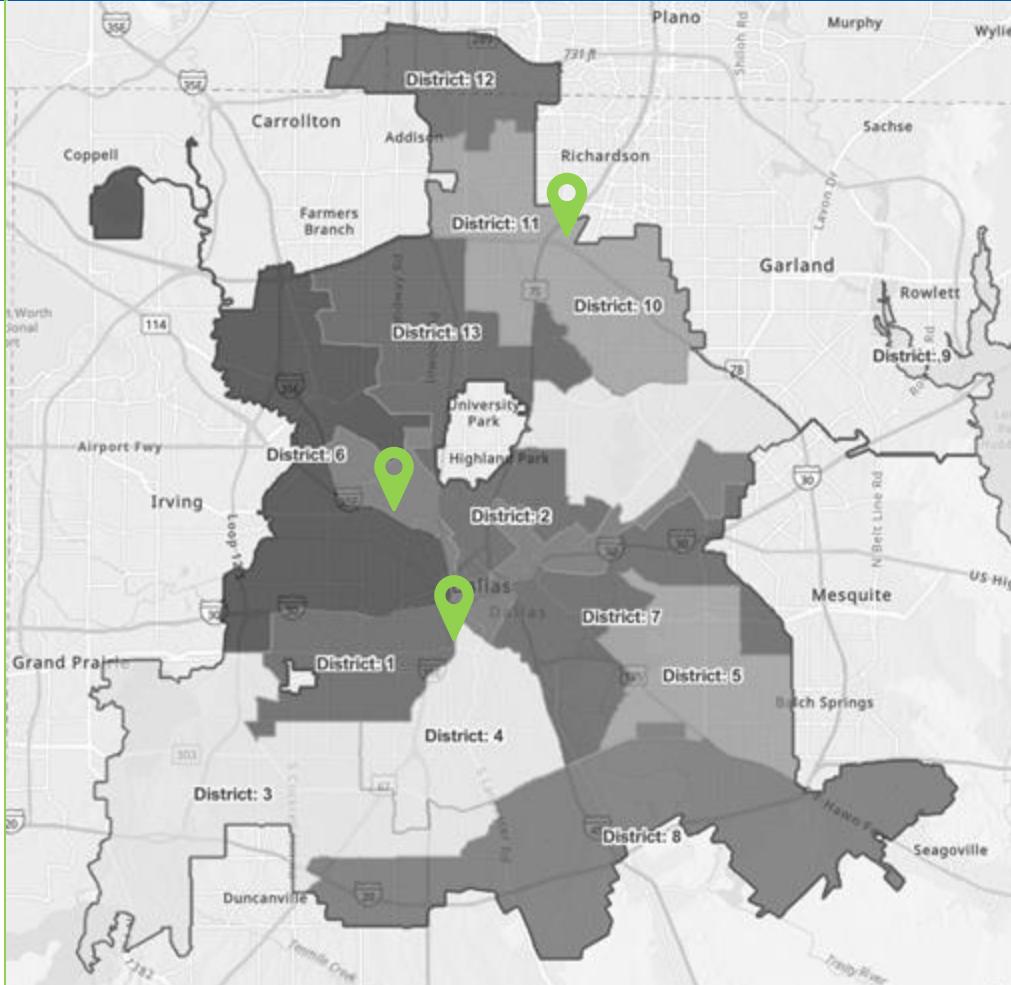
### Water Treatment

- Bachman WTP
- East Side WTP
- Elm Fork WTP

### Wastewater Treatment

- Central WWTP
- Southside WWTP

# Industrial Processes & Product Use



## Key Metrics

1,715,157 MT CO<sub>2</sub>e  
+17% from 2019  
+5% from 2015

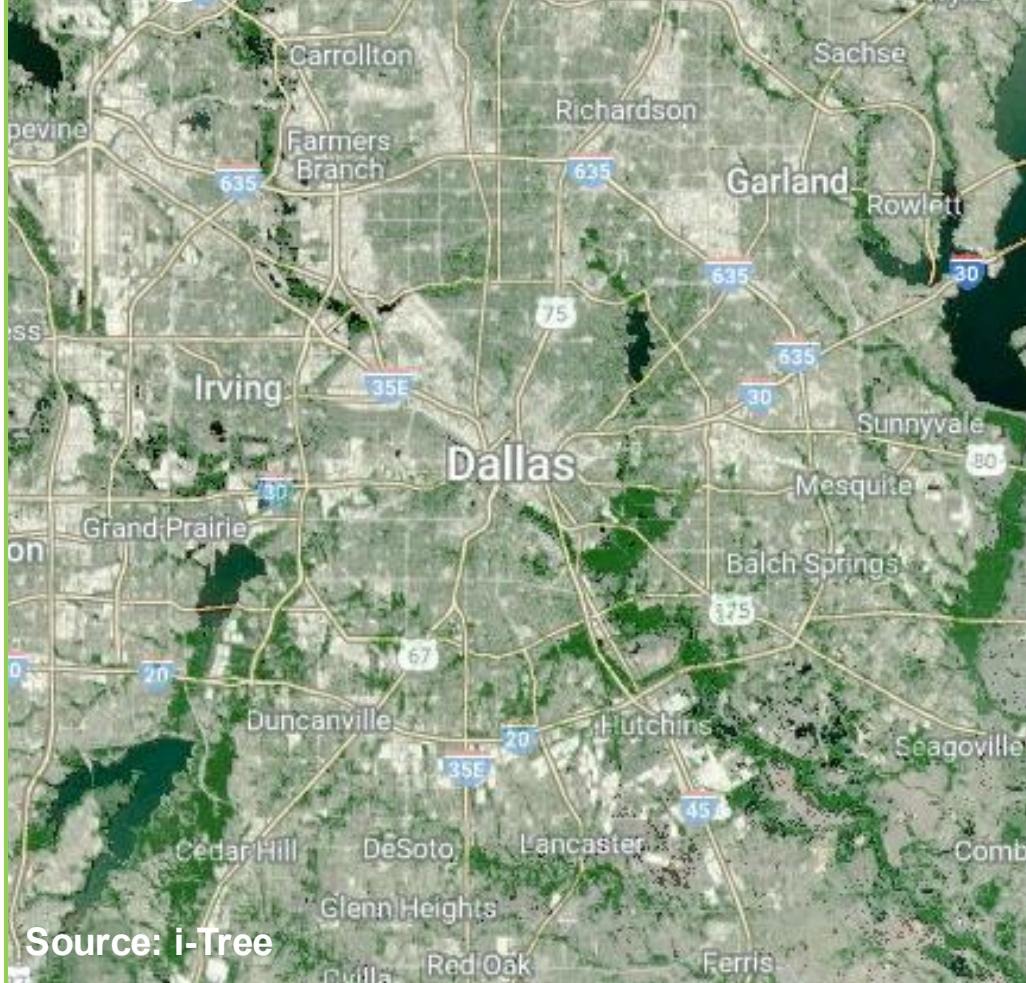
## Main Emission Source

- Refrigerant leaks from home and business refrigeration units and home, business, and auto air conditioning units

## Industrial Facilities listed in EPA Facility Level Information on Greenhouse Gases Tool

- Texas Instruments North Campus
- UT Southwestern Medical Center
- WestRock Paper Mill

# Agriculture, Forestry & Other Land Use



Tree Canopy Cover Legend

nodata	20%	41%	62%	83%
0%	21%	42%	63%	84%
1%	22%	43%	64%	85%
2%	23%	44%	65%	86%
3%	24%	45%	66%	87%
4%	25%	46%	67%	88%
5%	26%	47%	68%	89%
6%	27%	48%	69%	90%
7%	28%	49%	70%	91%
8%	29%	50%	71%	92%
9%	30%	51%	72%	93%
10%	31%	52%	73%	94%
11%	32%	53%	74%	95%
12%	33%	54%	75%	96%
13%	34%	55%	76%	97%
14%	35%	56%	77%	98%
15%	36%	57%	78%	99%
16%	37%	58%	79%	100%
17%	38%	59%	80%	
18%	39%	60%	81%	
19%	40%	61%	82%	

## Key Metrics

-87,072 MT CO<sub>2</sub>e  
0% from 2019  
+11% from 2015

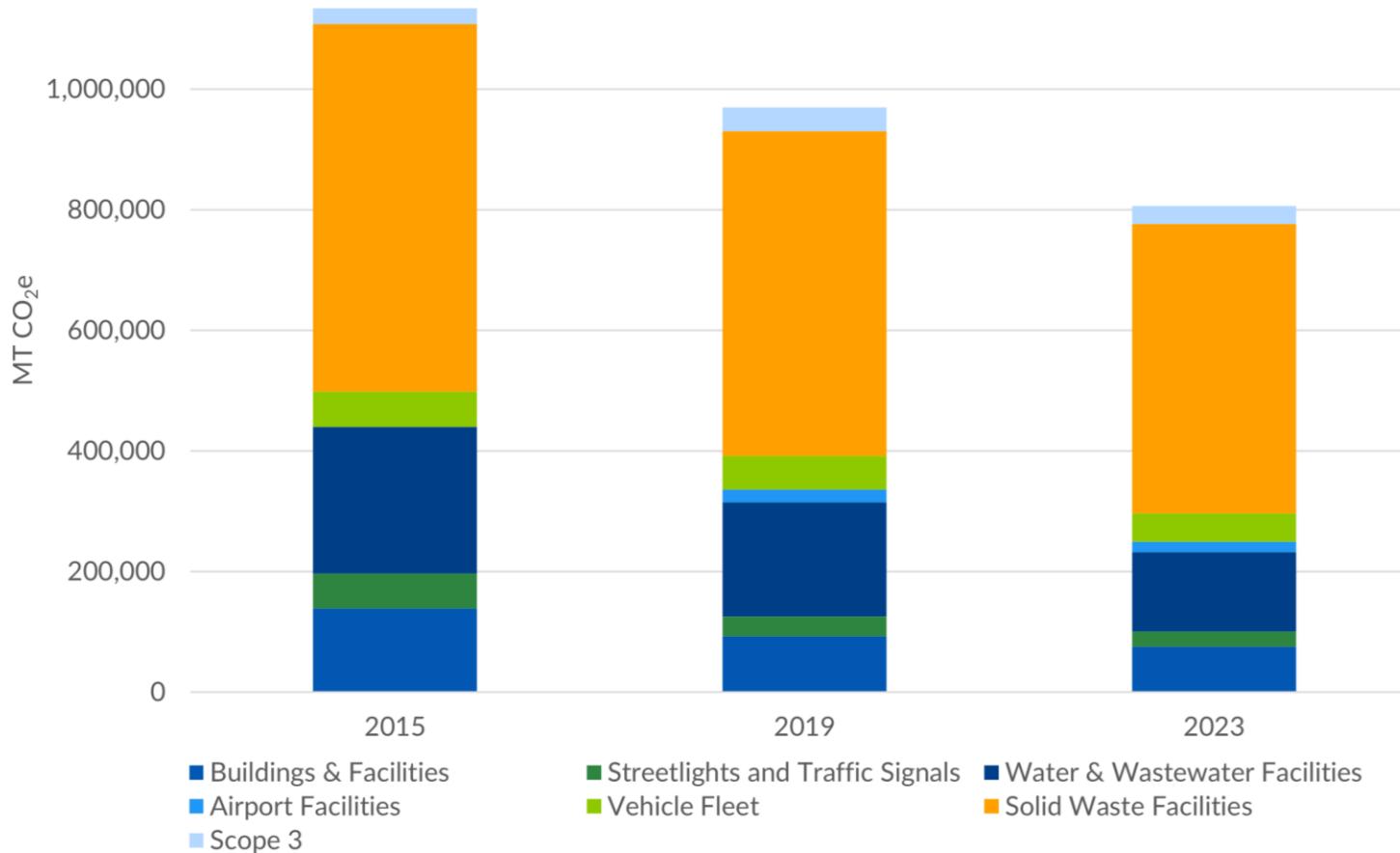
**Biologic** carbon sequestration involves storing CO<sub>2</sub> in places where it is stored naturally as part of the [carbon cycle](#). Some carbon is stored in plants—especially woody plants and grasslands—as a result of the biological process of photosynthesis. This process removes CO<sub>2</sub> from the atmosphere and transforms it into living plant tissues.



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# Local Government Operations Inventory

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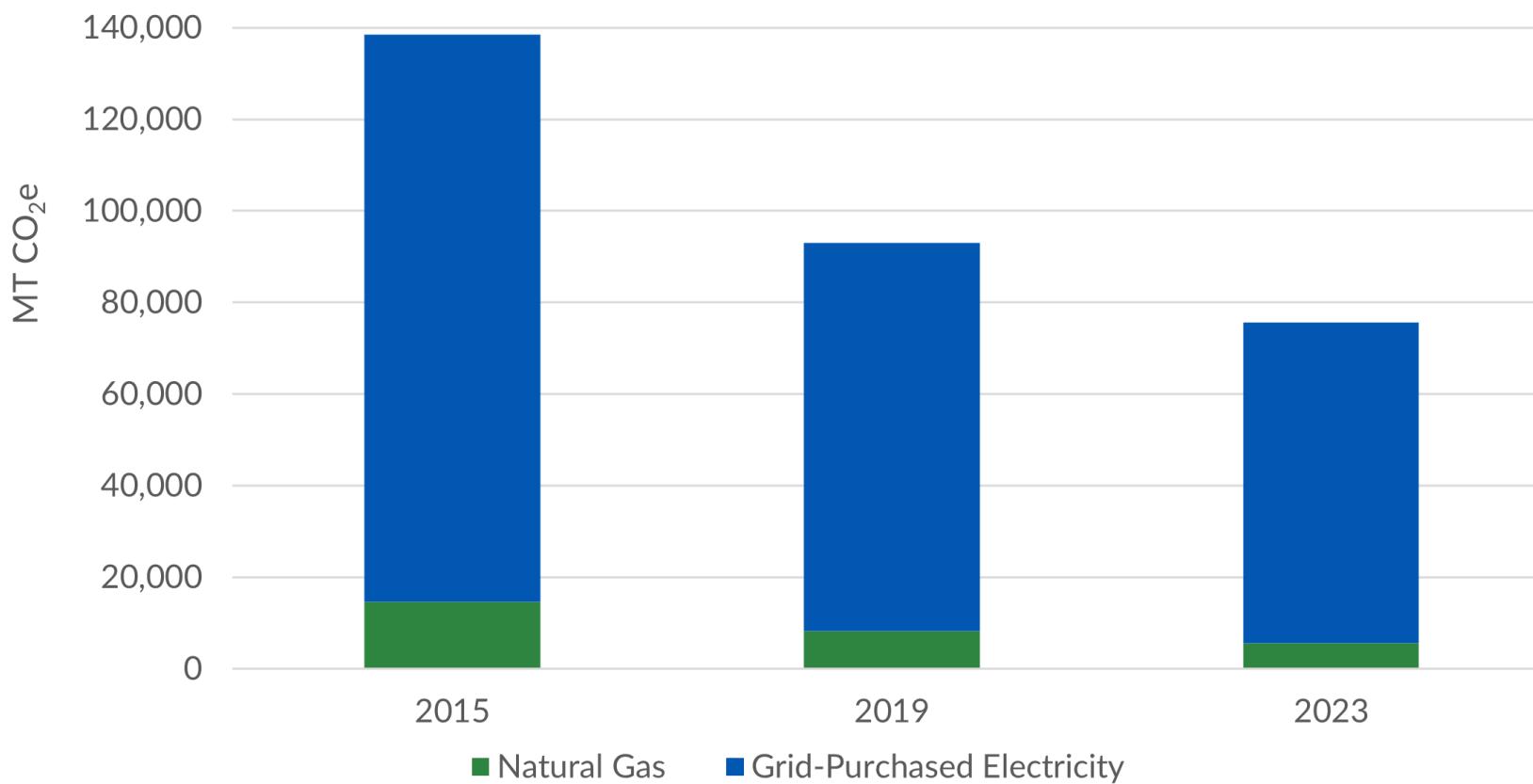
## Key Metrics

804,033 MT CO<sub>2</sub>e  
-17% from 2019  
-29% from 2015

## Takeaways

- 4% of community-wide emissions
- Strongest decrease in electricity
- Reduced waste generated emissions
- Reduced fleet emissions

# Buildings & Facilities



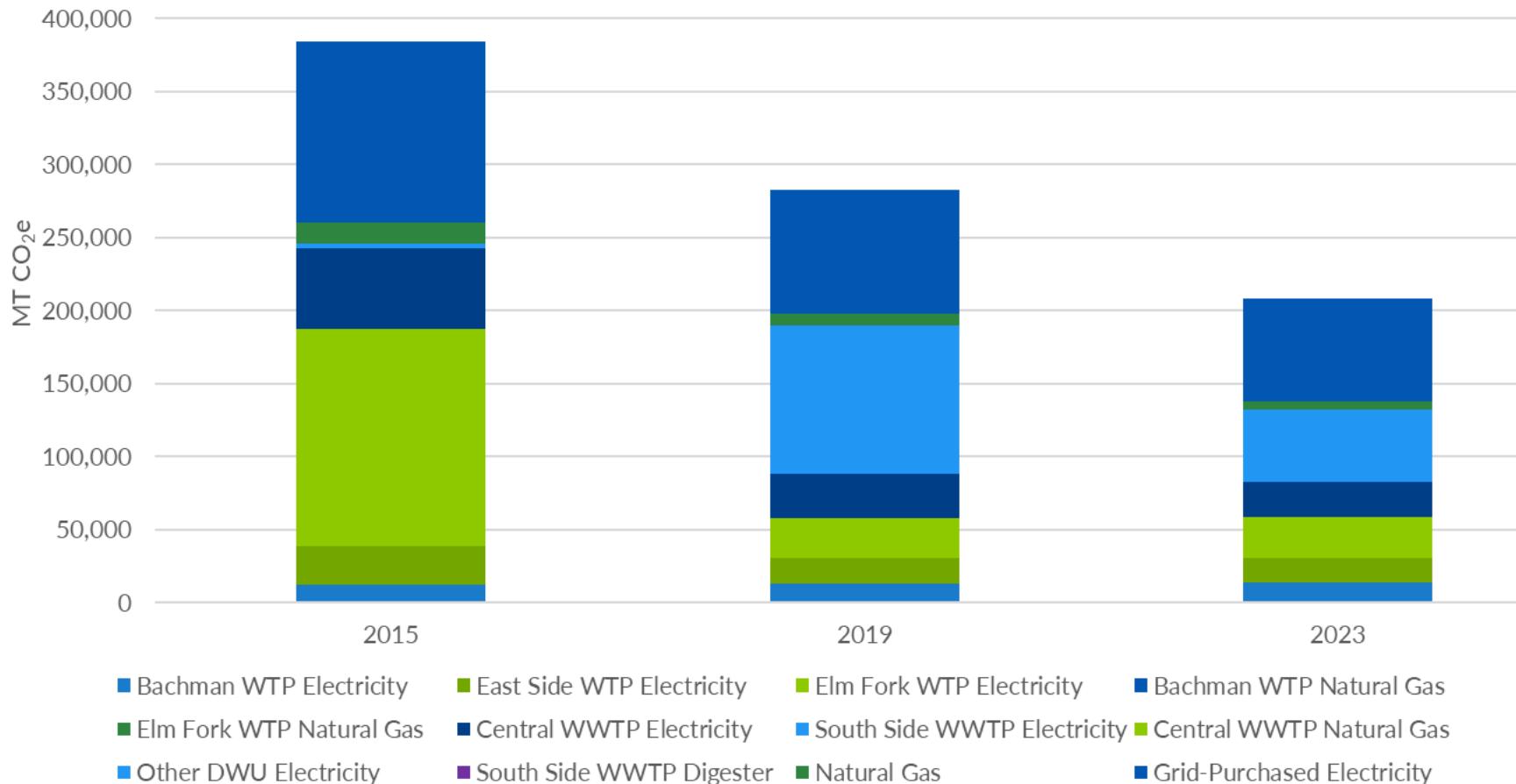
## Key Metrics

75,570 MT CO<sub>2</sub>e  
-19% from 2019  
-45% from 2015

## Main Emission Sources

- Electricity use to power City facilities
- Natural gas use to heat City buildings

# Water & Wastewater Facilities



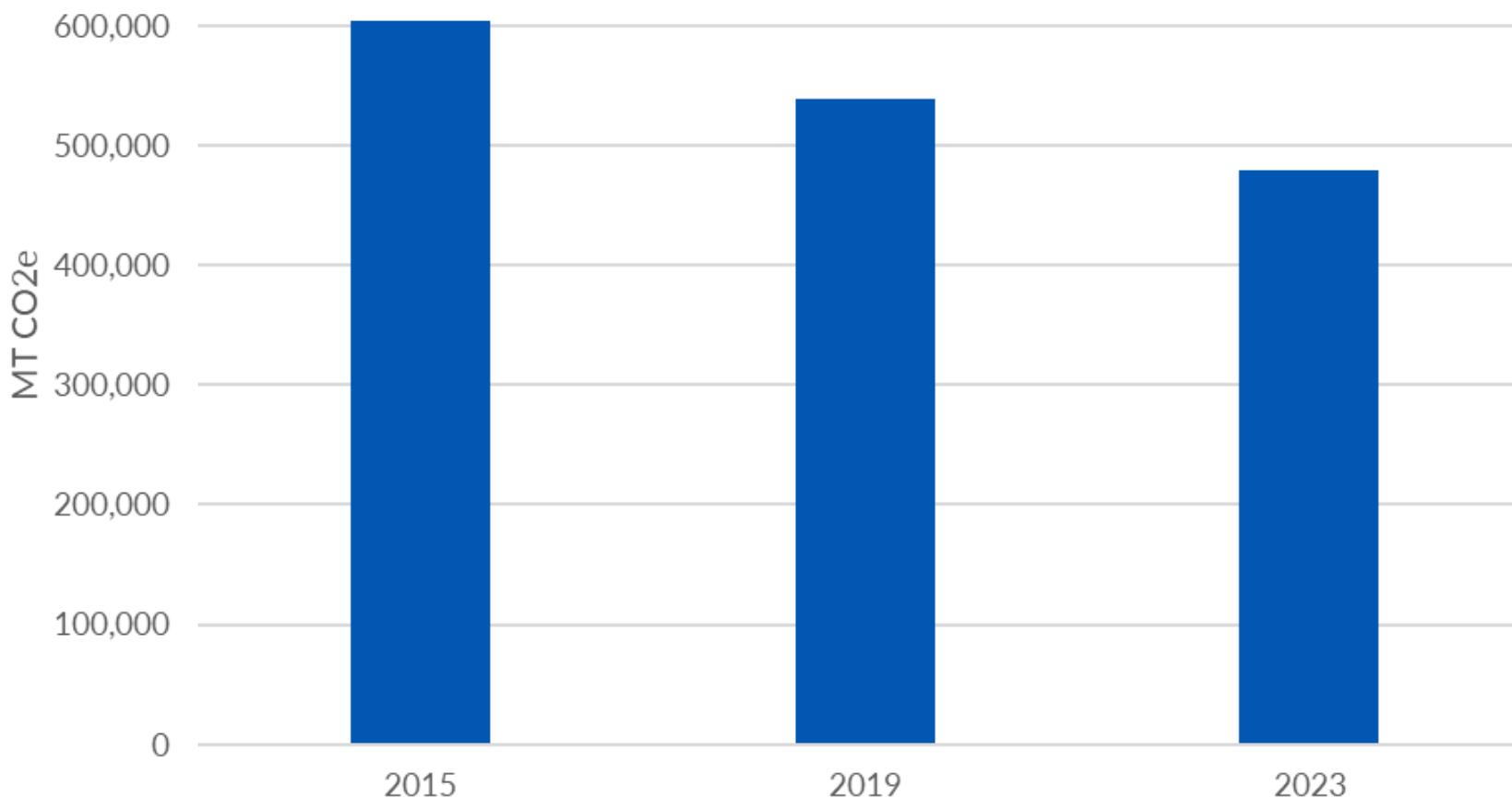
## Key Metrics

132,154 MT CO<sub>2</sub>e  
-30% from 2019  
-46% from 2015

## Main Emission Source

- Electricity use to power our water and wastewater treatment plants

# Solid Waste Facilities



## Key Metrics

477,202 MT CO<sub>2</sub>e  
-11% from 2019  
-21% from 2015

### Main Emission Source

- 1.4 million wet tons of waste landfilled at McCommas in 2023



City of Dallas

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# Airport Facilities



## Key Metrics

16,805 MT CO<sub>2</sub>e  
-17% from 2019

## Main Emission Sources

- Electricity use at Aviation facilities
- Natural gas use to heat Aviation buildings

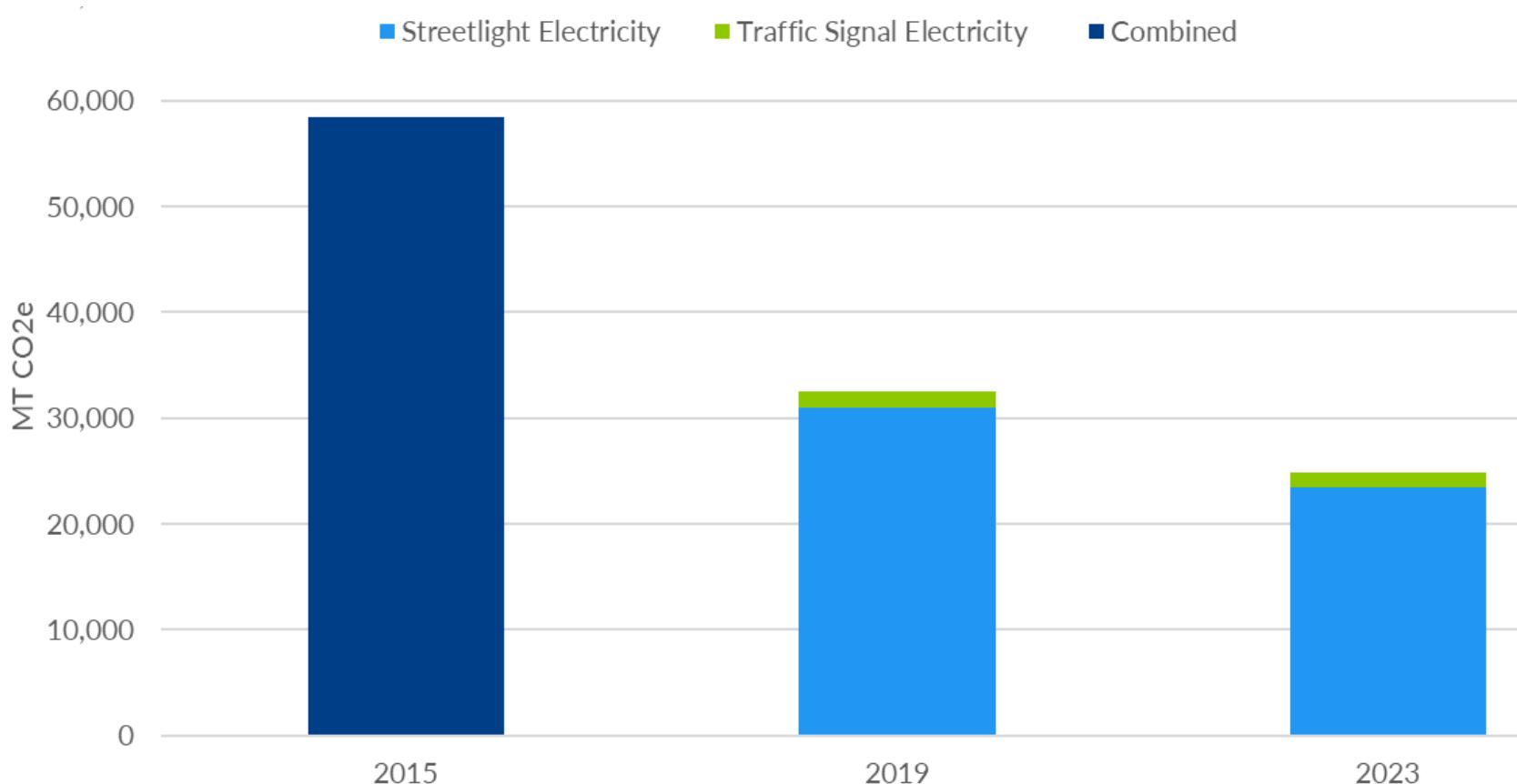
## Facilities

- Dallas Love Field
- Dallas Executive Airport
- Dallas Heliport/Vertiport



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# Streetlights & Traffic Signals



## Key Metrics

24,867 MT CO<sub>2</sub>e  
-24% from 2019  
-57% from 2015

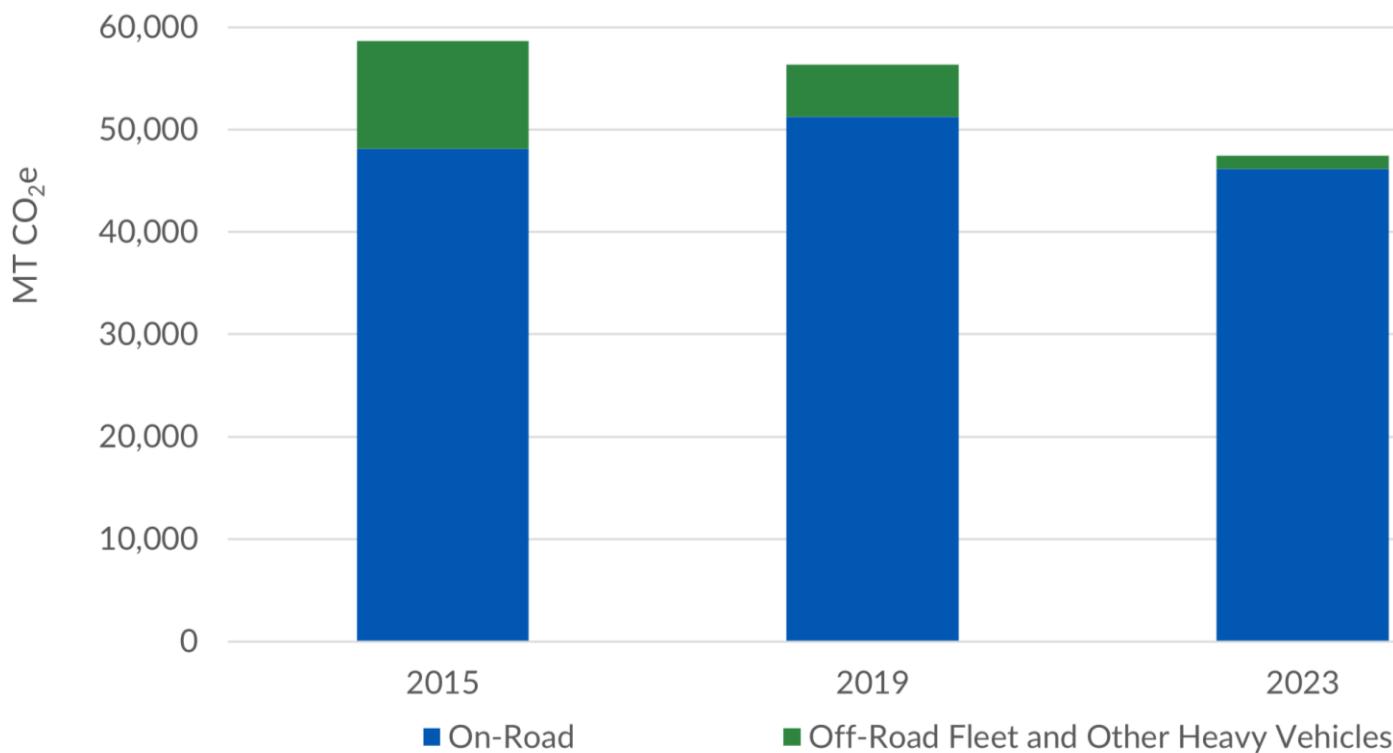
### Main Emission Source

- Electricity use



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# Fleet & Equipment



## Key Metrics

47,418 MT CO<sub>2</sub>e  
-16% from 2019  
-19% from 2015

## Main Emission Source

- Fuel use



3,771 Light Duty Units



376 Medium Duty Units



743 Heavy Duty Units



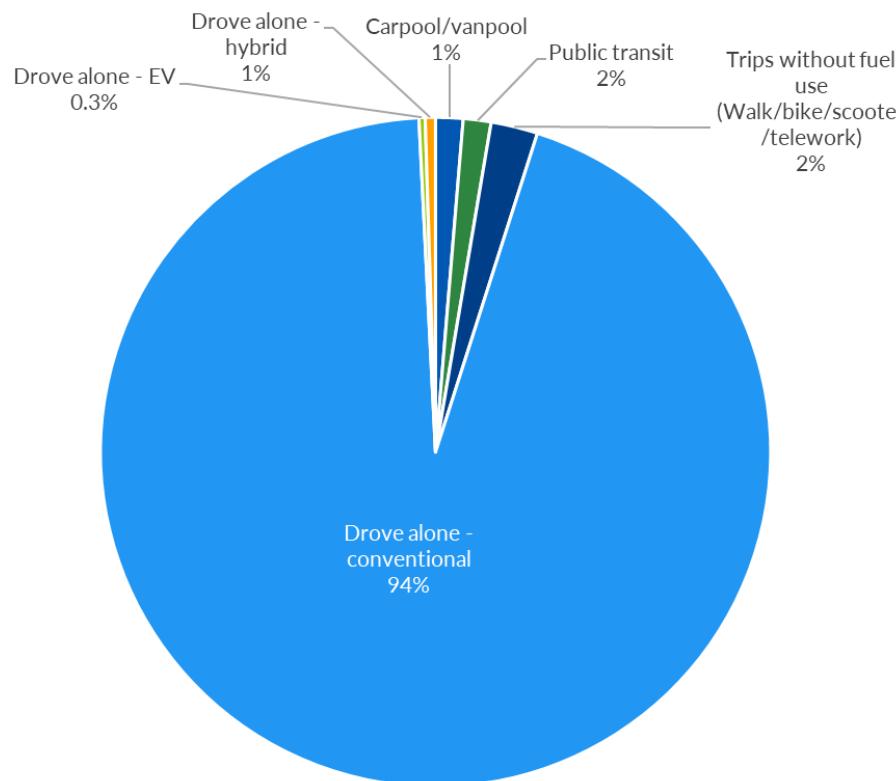
899 Off-road Units



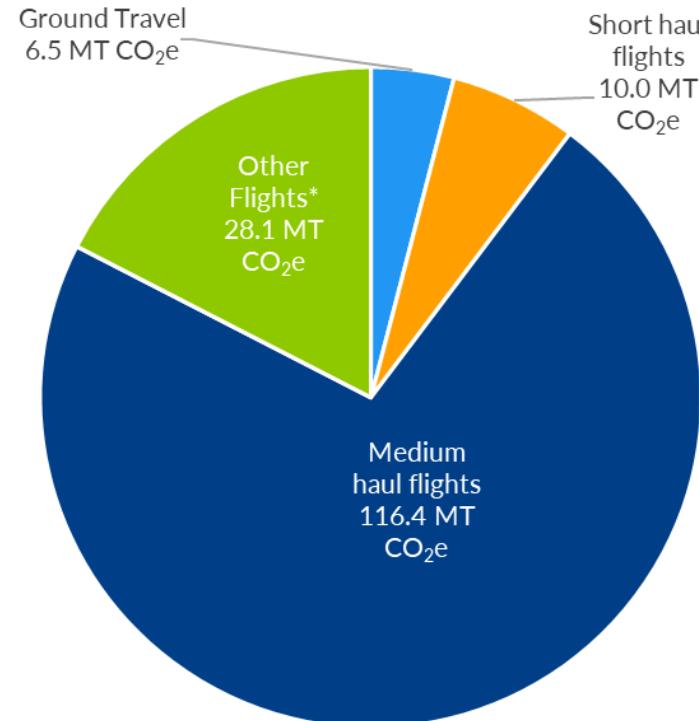
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# Scope 3 Emissions

## Employee Commute



## Business Travel



## Key Metrics

30,017 MT CO<sub>2</sub>e  
-24% from 2019  
+16% from 2015

## Main Emission Source

- Employees commuting to work and back home.

Try  
Parking  
It



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# Summary

# 2023 Greenhouse Gas Inventory Summary

## Community-wide Inventory

### Key Metrics

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### Takeaways

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## Local Government Operations Inventory

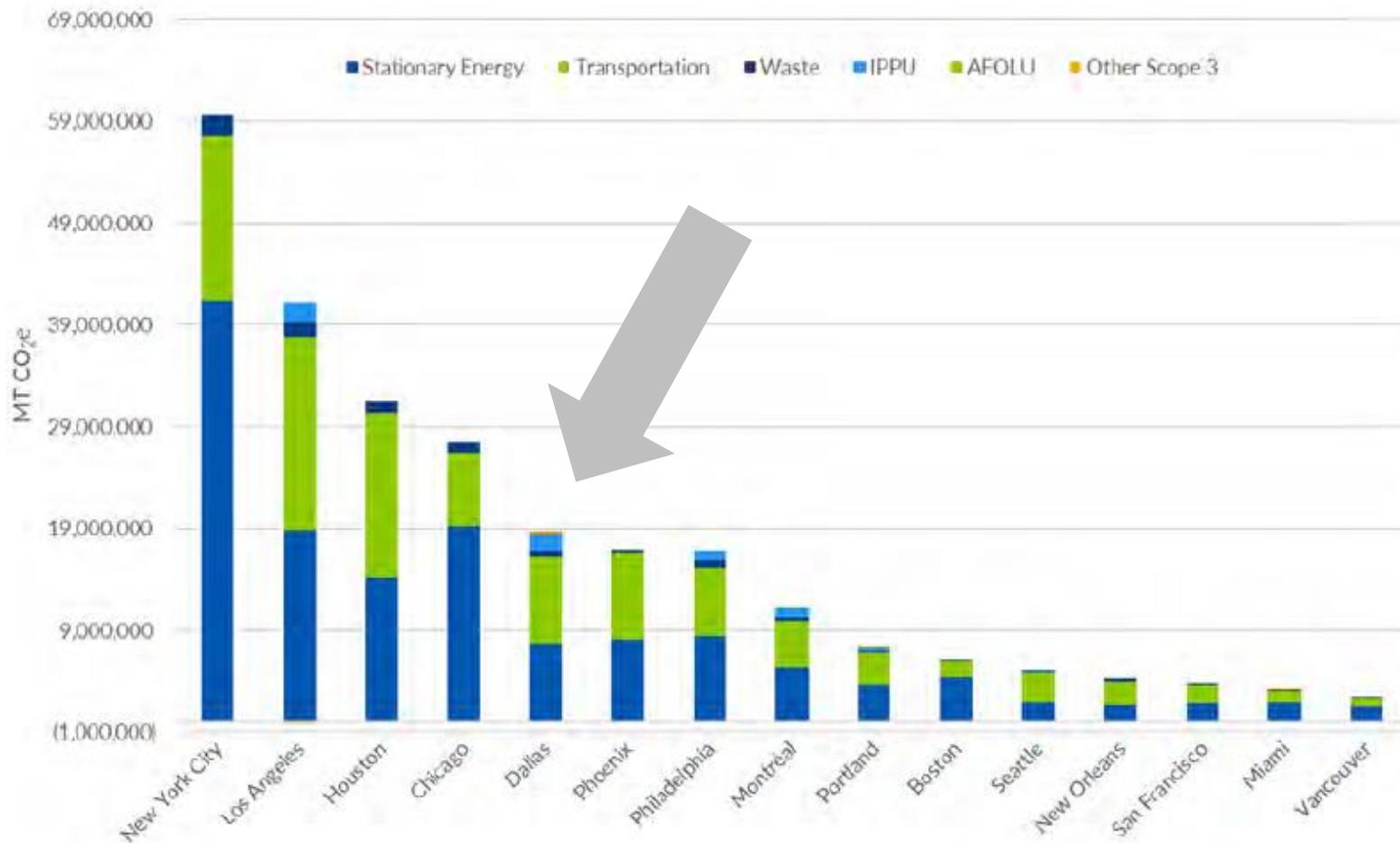
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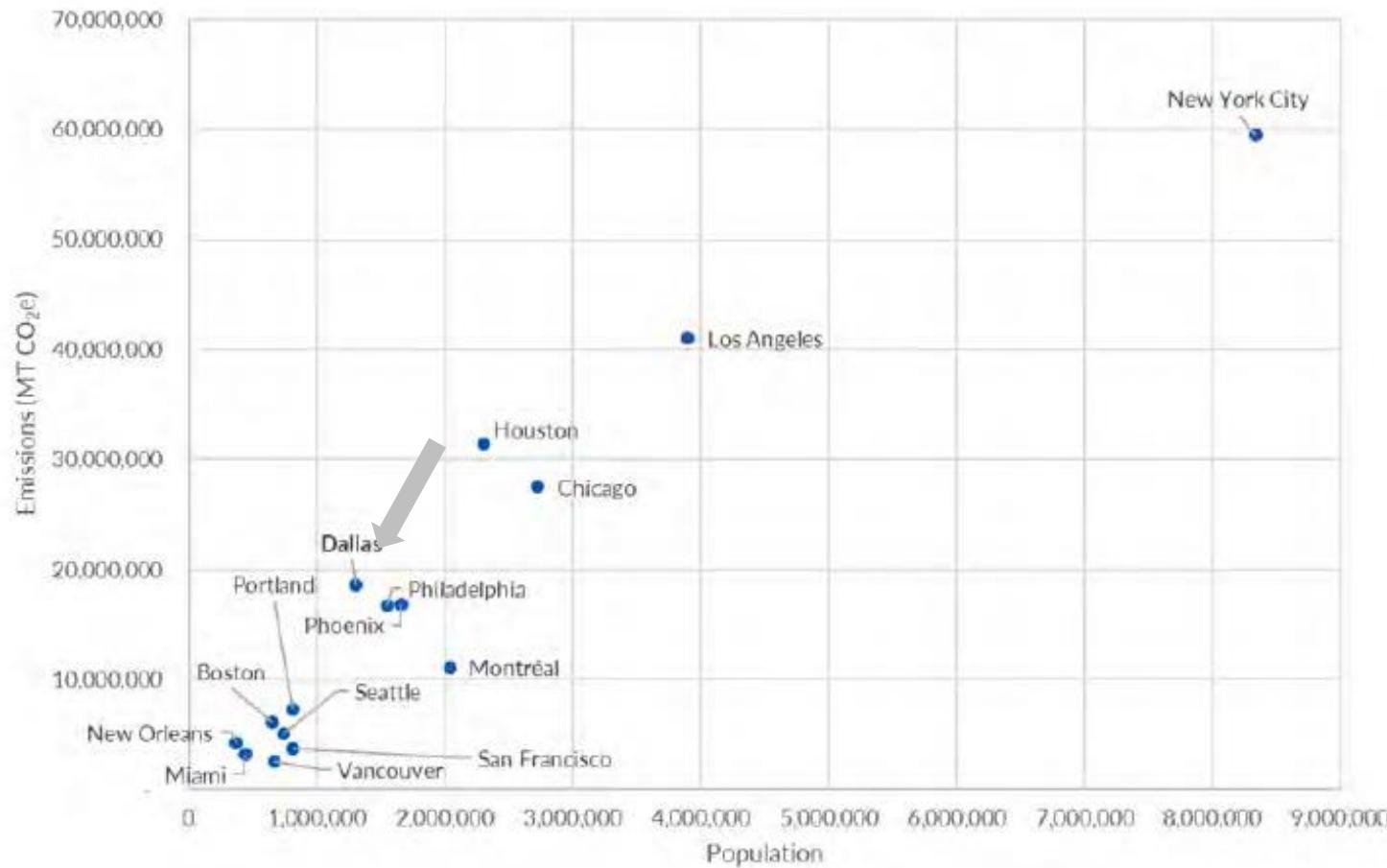
- 4% of community-wide emissions
- Strongest decrease in electricity emissions
- Reduced waste generated emissions
- Reduced fleet emissions

# Comparison to C40 Cities



The C40 is a network of 94 city mayors across the globe that are taking climate action that aligns with science-backed targets.

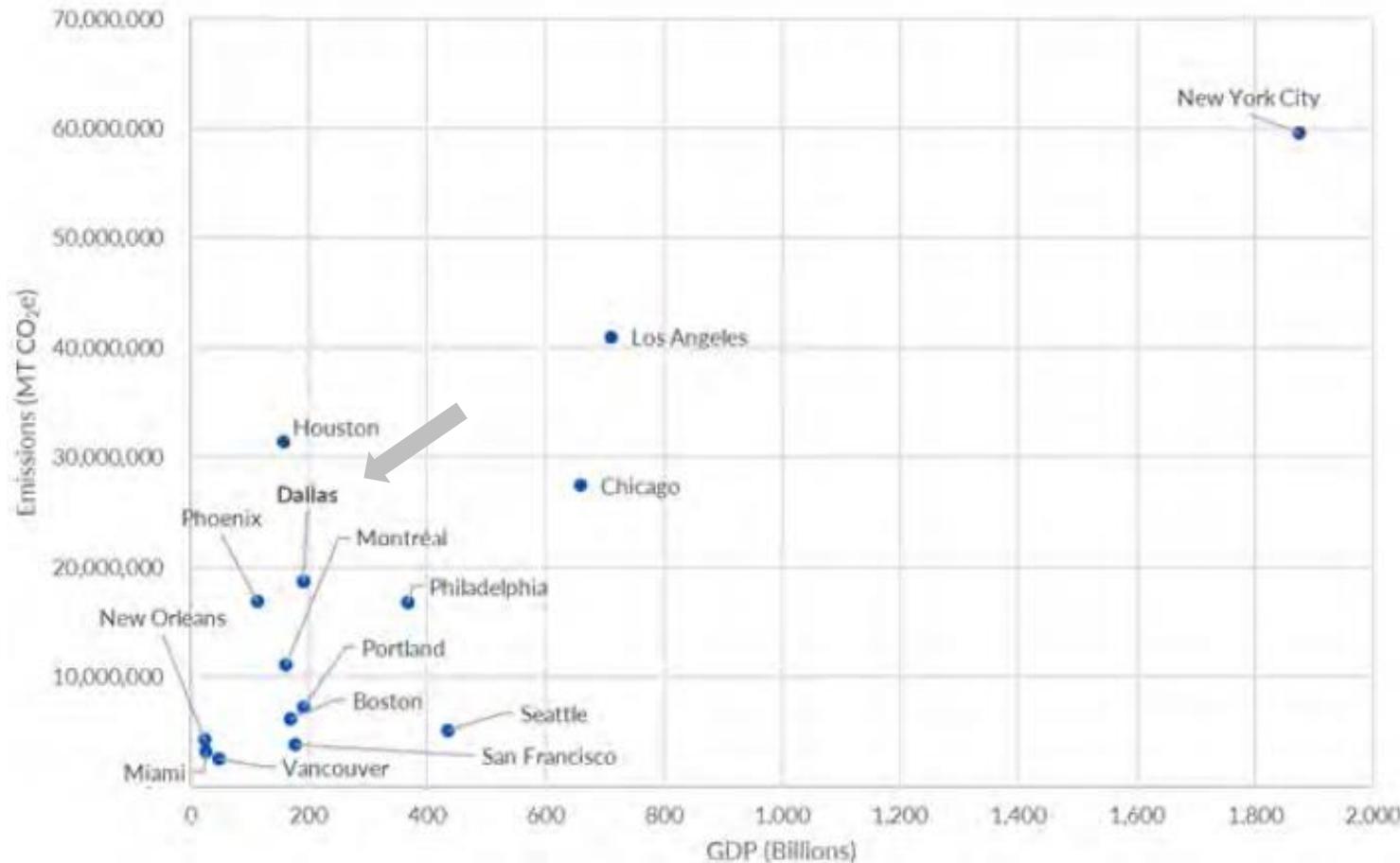
# Dallas vs Cities of similar population



# Dallas vs Cities of similar area



# Dallas vs Cities of similar GDP



# Next Steps

- Develop 5-year government operations priority climate action plan
- Data to assist departments investing in programs to reduce greenhouse gas emissions
- 2026 community-wide and local government operations emissions inventory

# Questions?



# 2023 Greenhouse Gas Emissions Inventory

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