



2023 Greenhouse Gas Emissions Inventory

Parks, Trails, and Environment Committee

February 2, 2026

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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

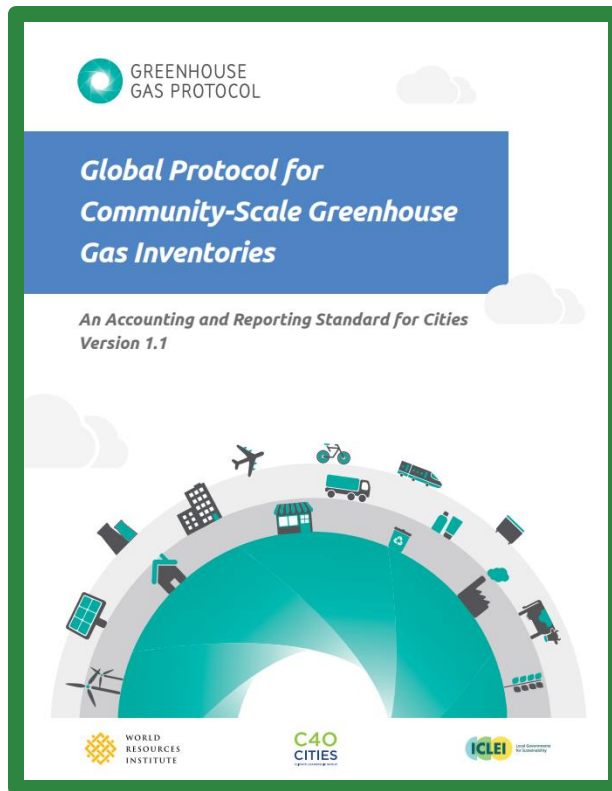
Community-wide Inventory

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

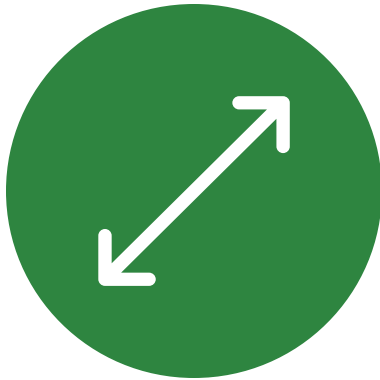
Greenhouse Gases 101

- CO₂ 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 CO₂ whose GWP value is one.
- MT CO₂e=Metric tons of carbon dioxide equivalent

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

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

What's New for 2023



Expanded
Scope



Updated
Methodologies

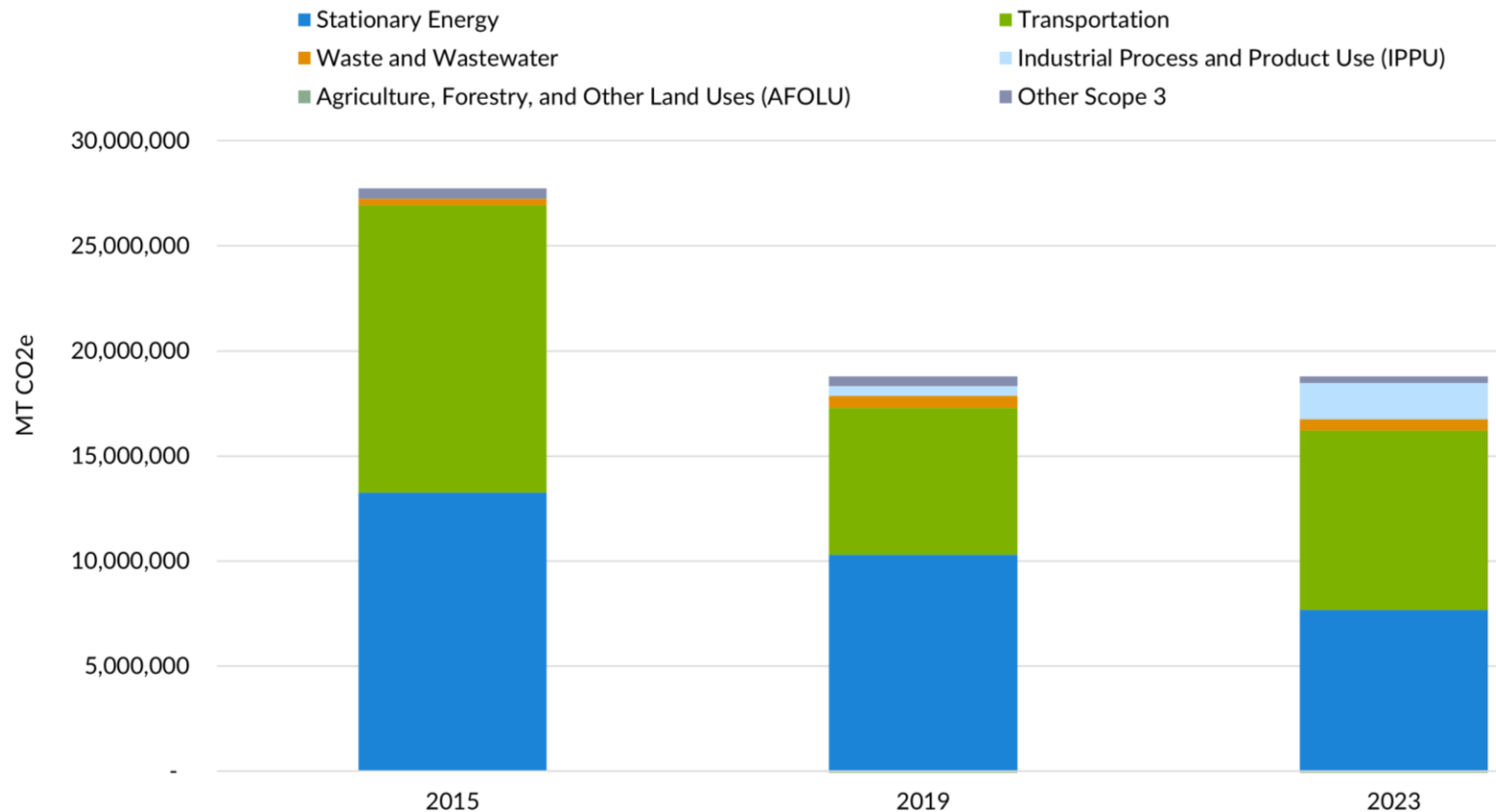


Recalculated
Estimates



Community-wide Inventory 2023

Community-wide Inventory



Key Metrics

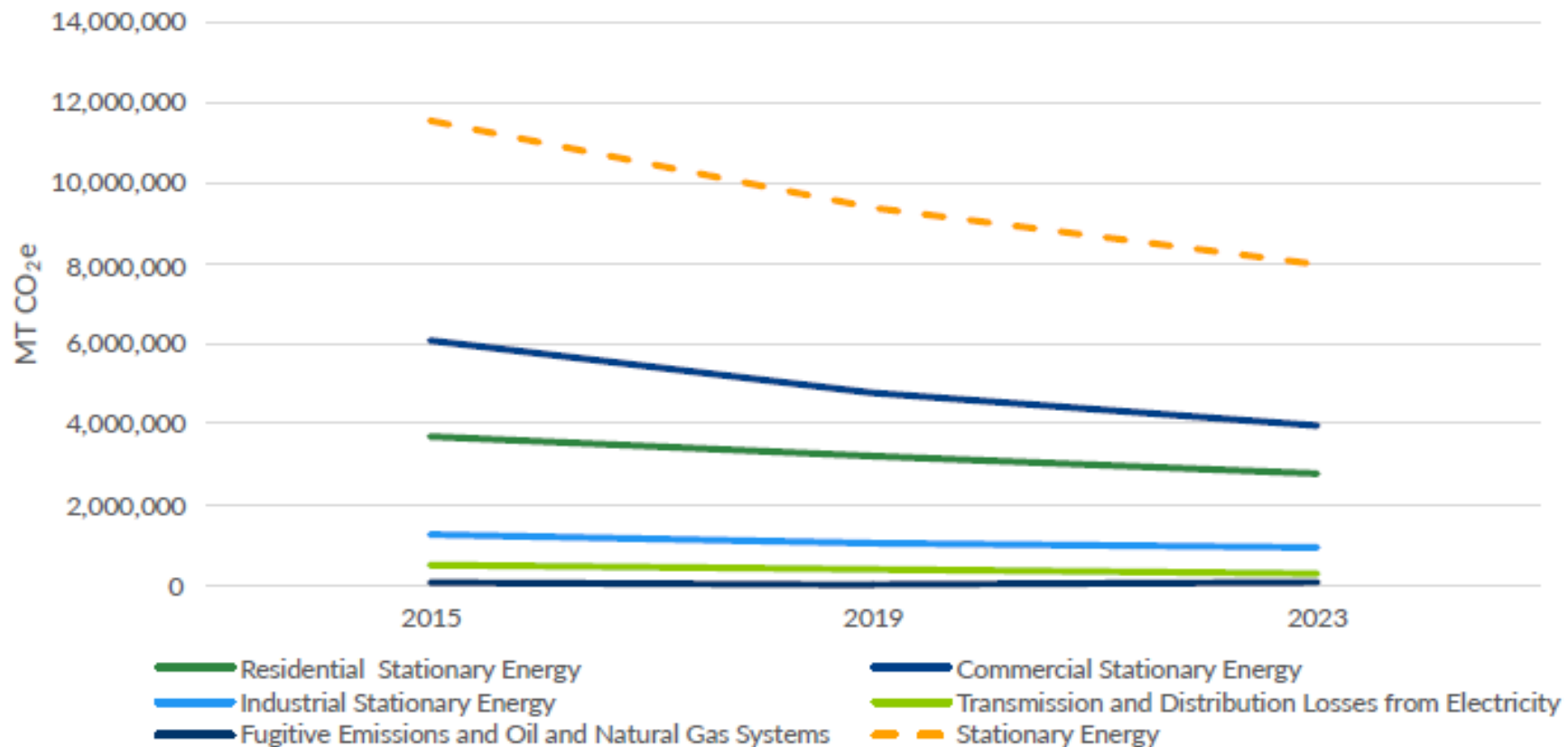
18.6 Million MT CO₂e
+1% from 2019
-11% from 2015

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

Stationary Energy

Figure 3-3. Stationary Energy Emissions by Category



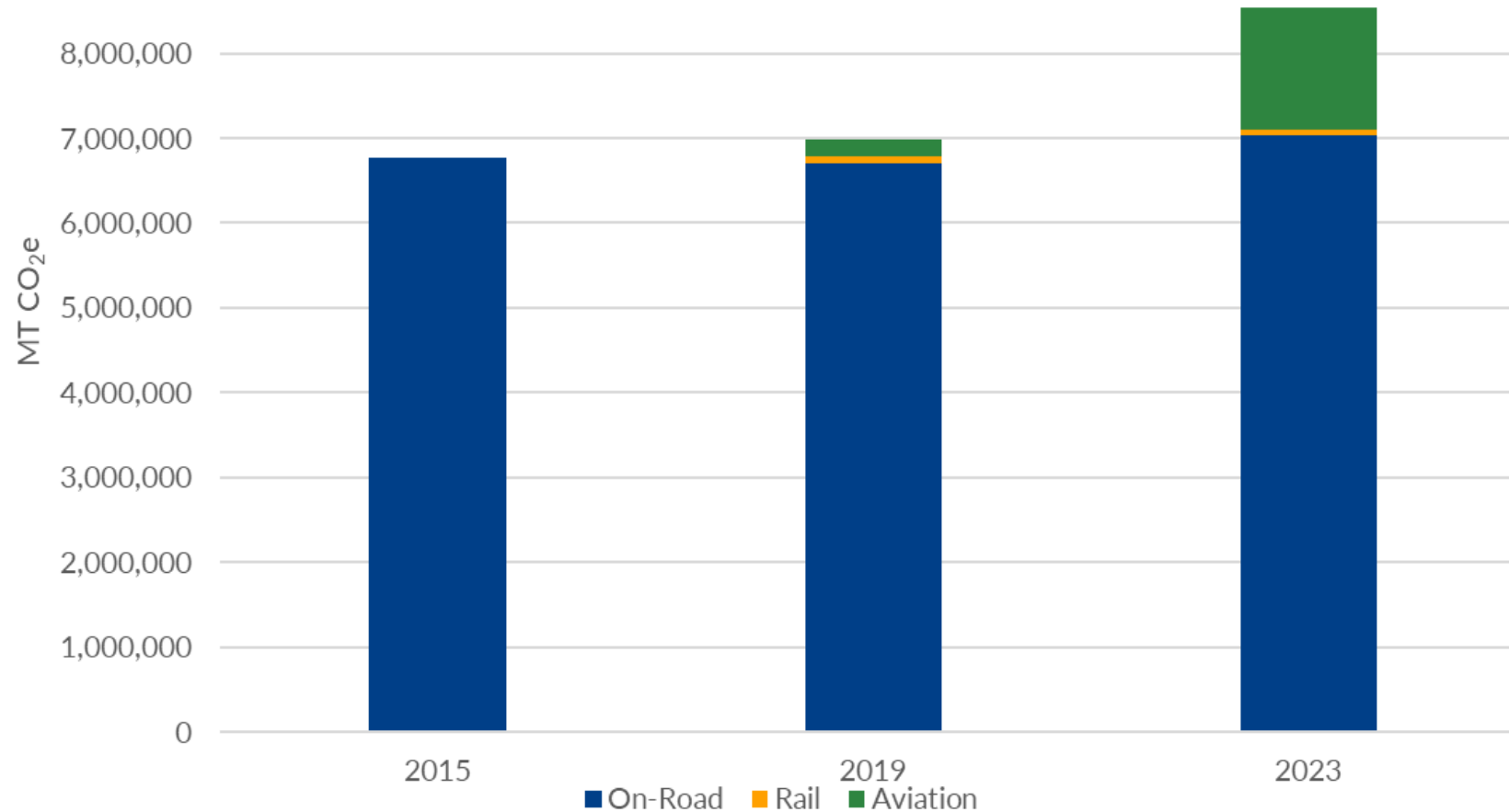
Key Metrics

7,979,459 MT CO₂e
-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 CO₂e
+22% from 2019
+19% from 2015

Main Emission Sources

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

Waste



Key Metrics

479,318 MT CO₂e
-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)

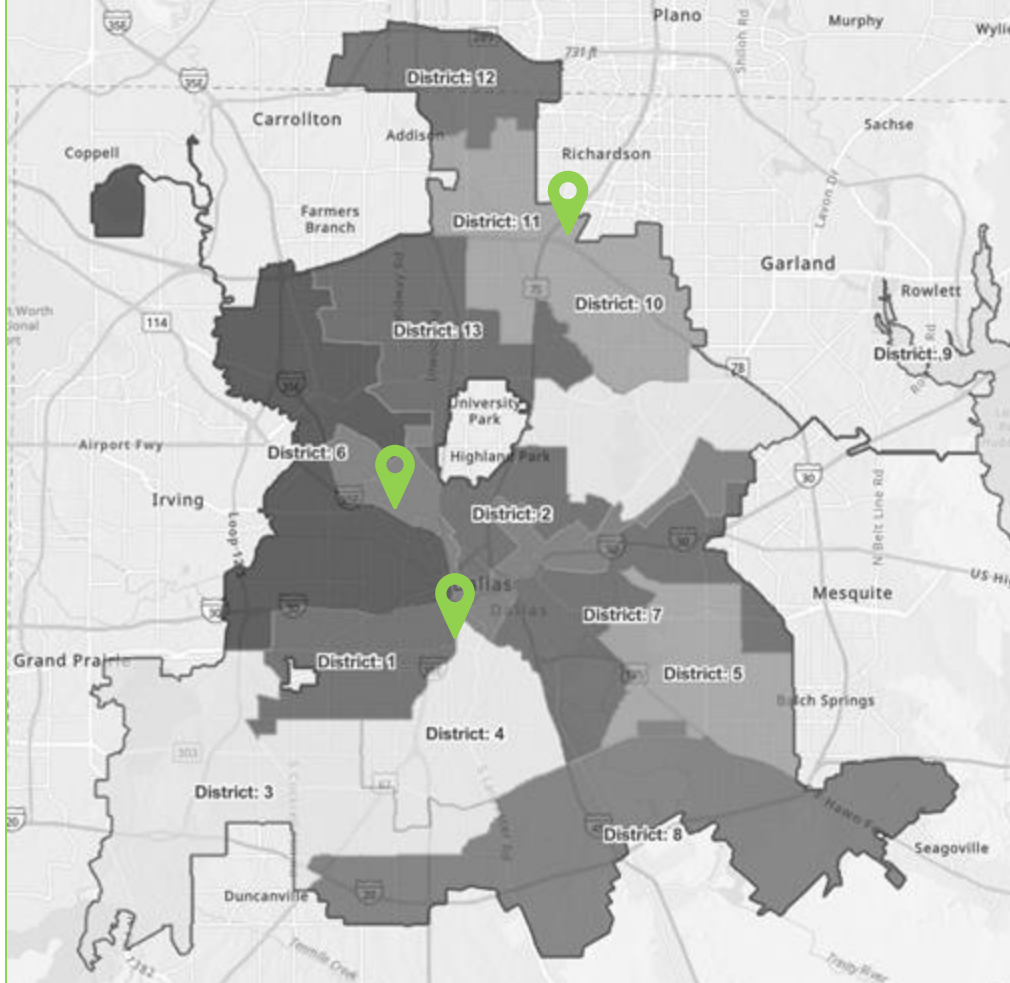
Water Treatment

- Bachman WTP
- East Side WTP
- Elm Fork WTP

Wastewater Treatment

- Central WWTP
- Southside WWTP

Industrial Processes & Product Use



Key Metrics

1,715,157 MT CO₂e
+17% from 2019
+5% from 2015

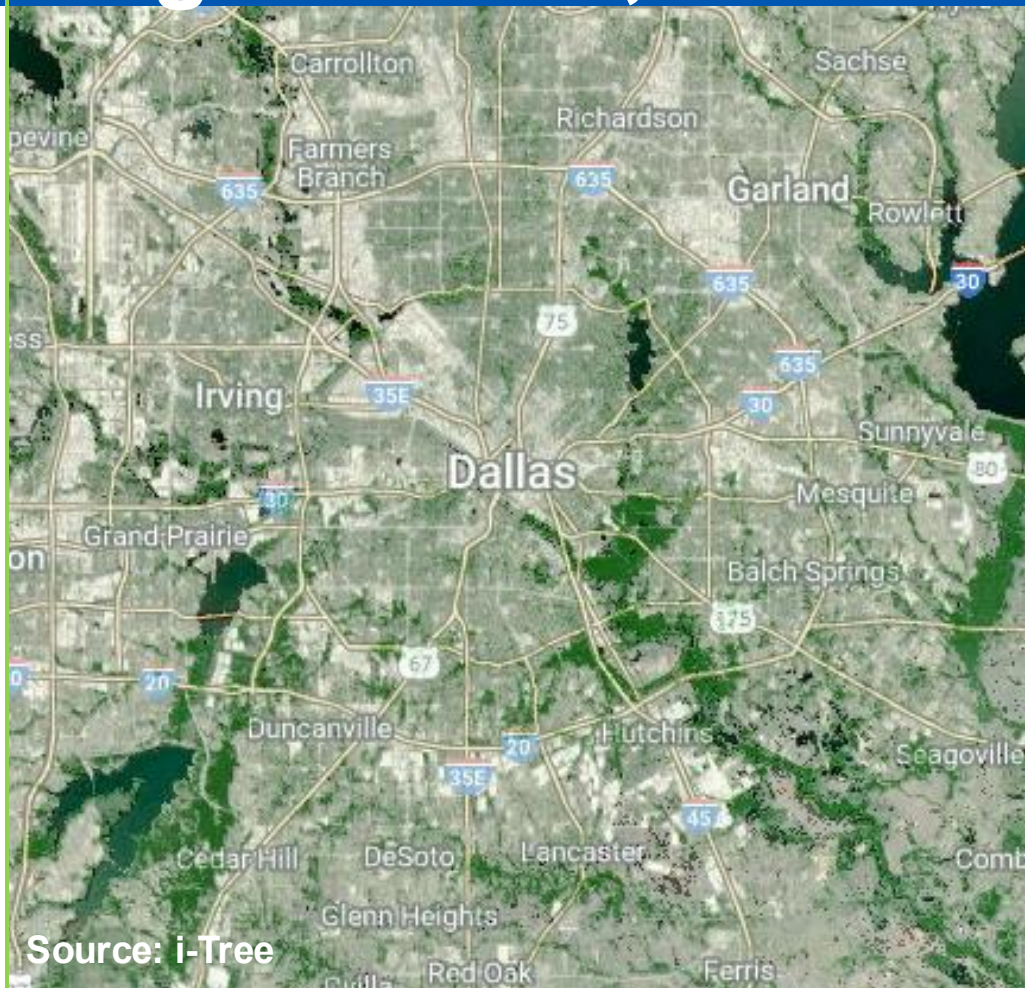
Main Emission Source

- 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



Source: i-Tree

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 CO₂e

0% from 2019

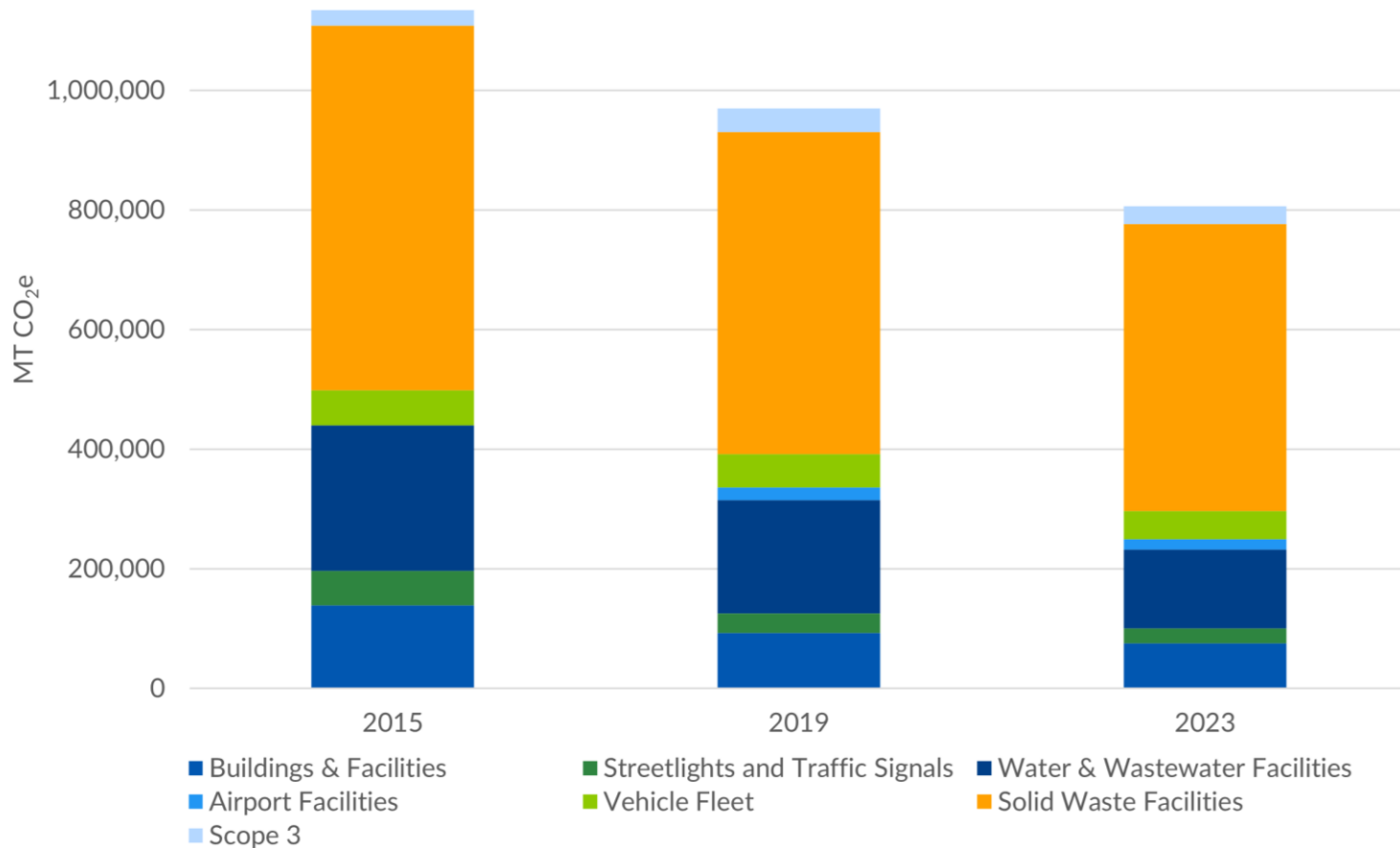
+11% from 2015

Biologic carbon sequestration involves storing CO₂ 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 CO₂ from the atmosphere and transforms it into living plant tissues.



Local Government Operations Inventory

Local Government Operations Inventory



Key Metrics

804,033 MT CO₂e

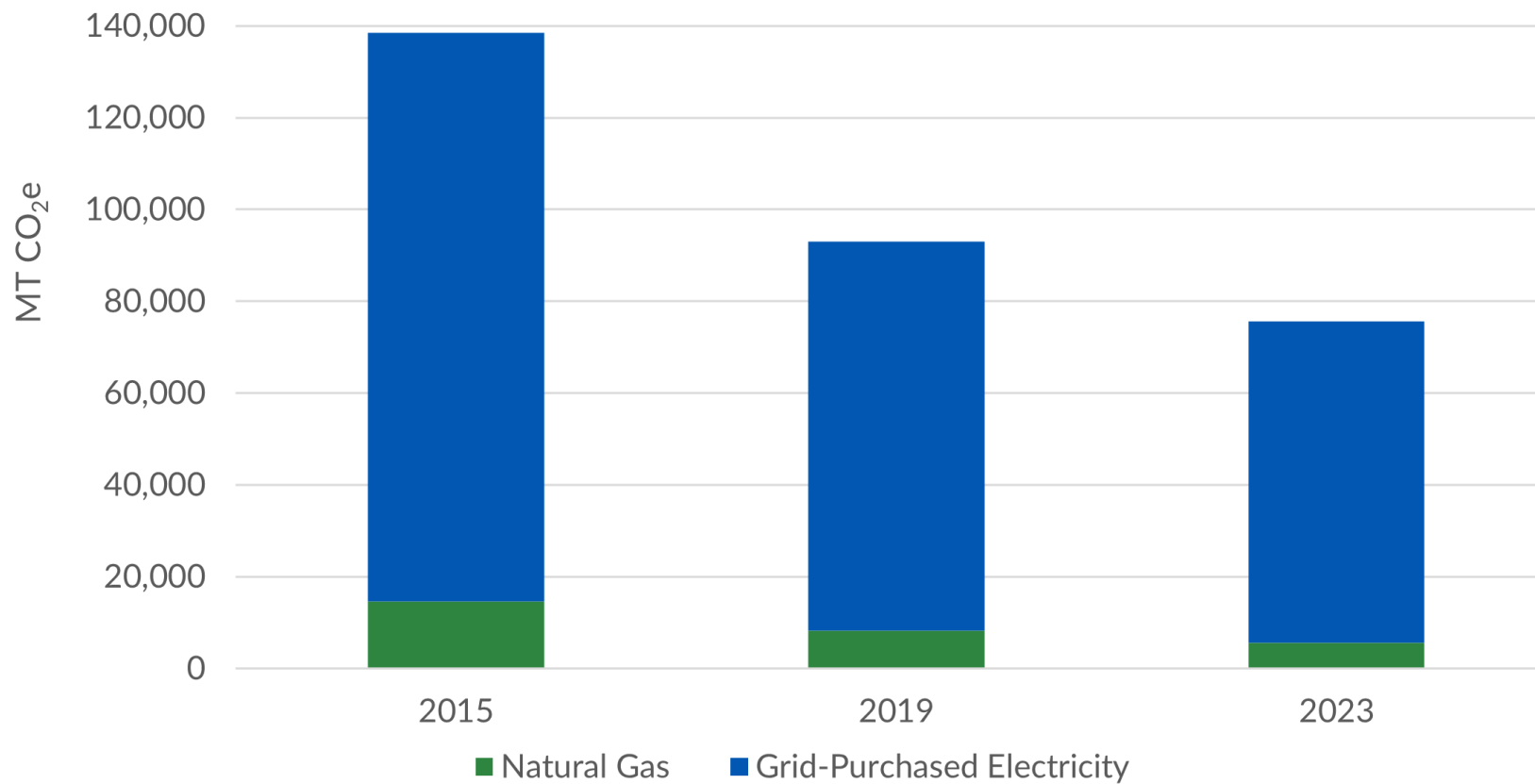
-17% from 2019

-29% from 2015

Takeaways

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

Buildings & Facilities



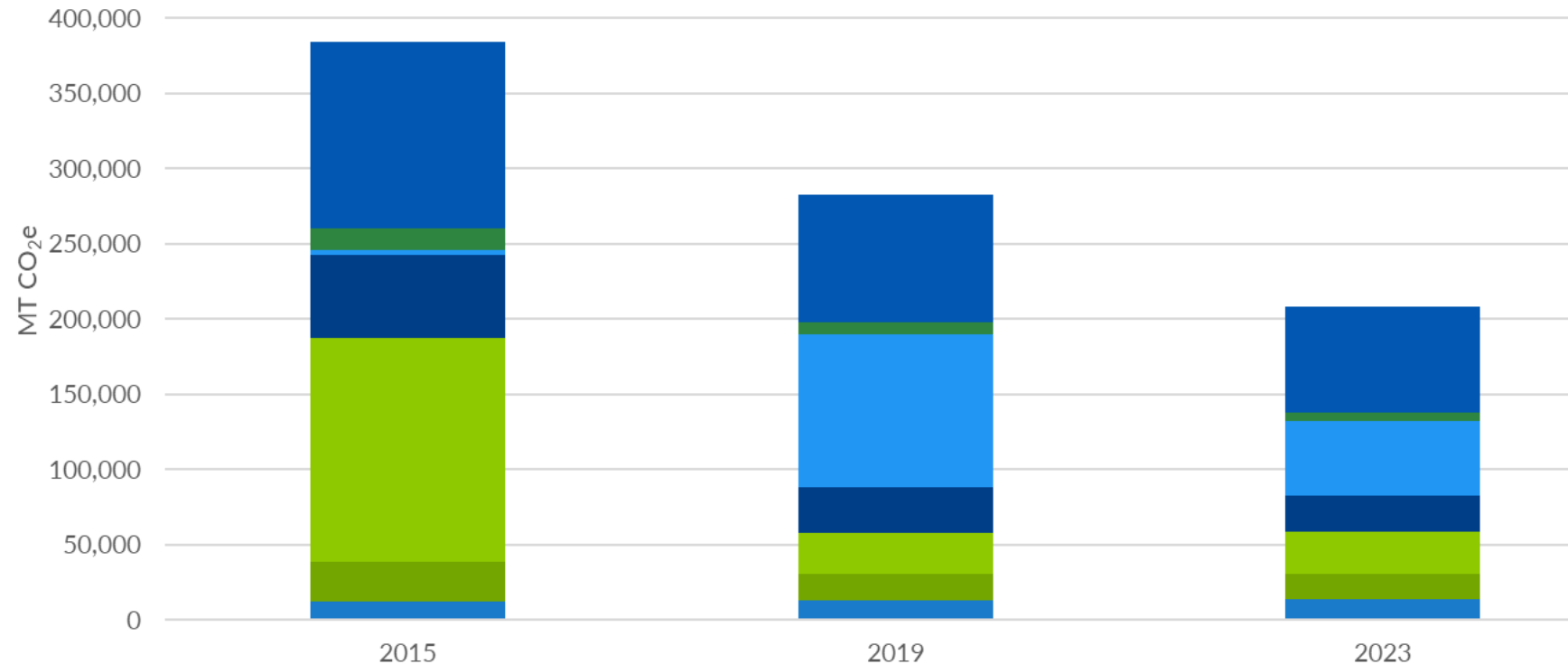
Key Metrics

75,570 MT CO₂e
-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 CO₂e

-30% from 2019

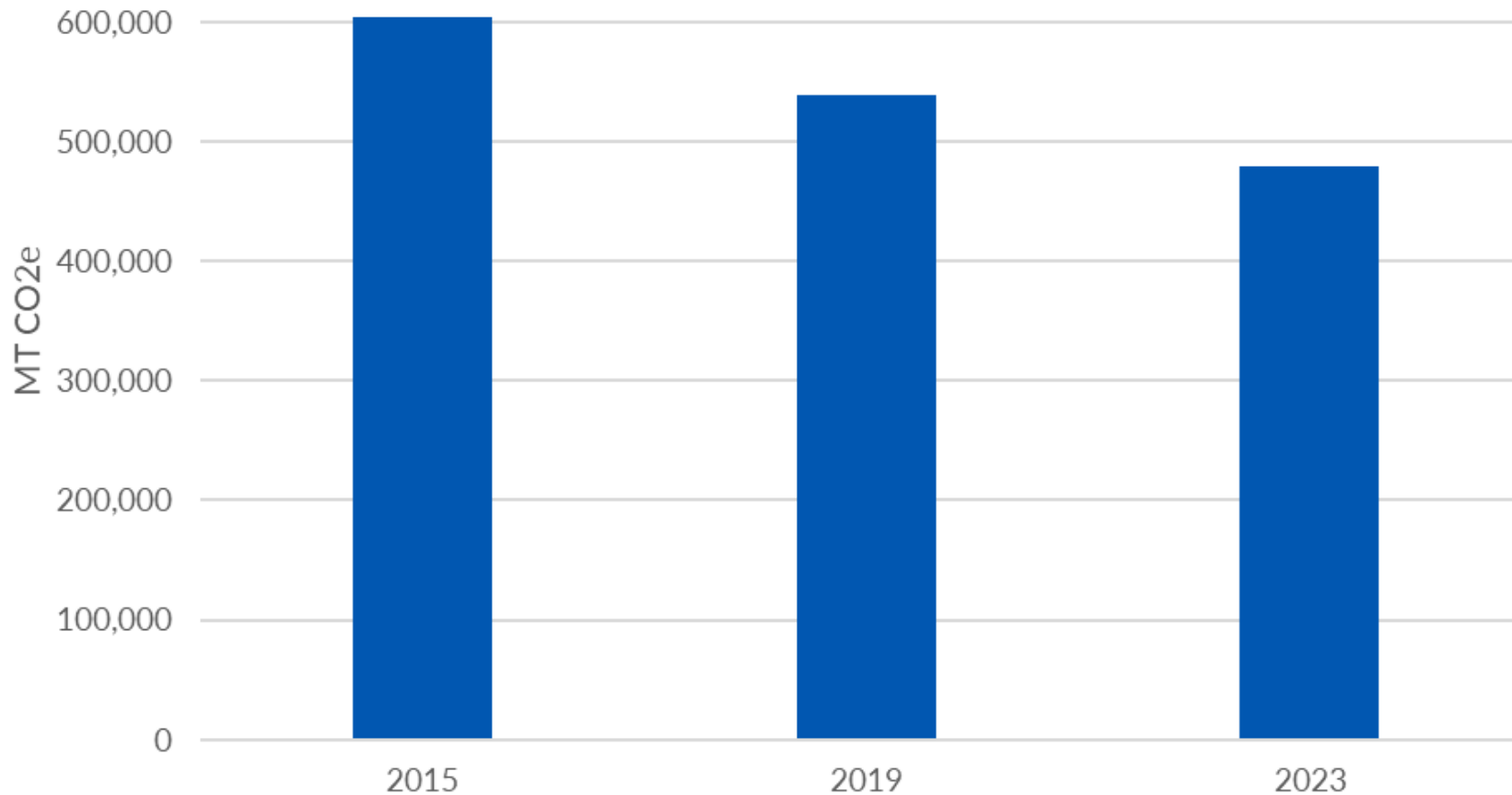
-46% from 2015

Main Emission Source

- Electricity use to power our water and wastewater treatment plants

■ Bachman WTP Electricity ■ East Side WTP Electricity ■ Elm Fork WTP Electricity ■ Bachman WTP Natural Gas
 ■ Elm Fork WTP Natural Gas ■ Central WWTP Electricity ■ South Side WWTP Electricity ■ Central WWTP Natural Gas
 ■ Other DWU Electricity ■ South Side WWTP Digester ■ Natural Gas ■ Grid-Purchased Electricity

Solid Waste Facilities



Key Metrics

477,202 MT CO₂e
-11% from 2019
-21% from 2015

Main Emission Source

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

Airport Facilities



Key Metrics

16,805 MT CO₂e
-17% from 2019

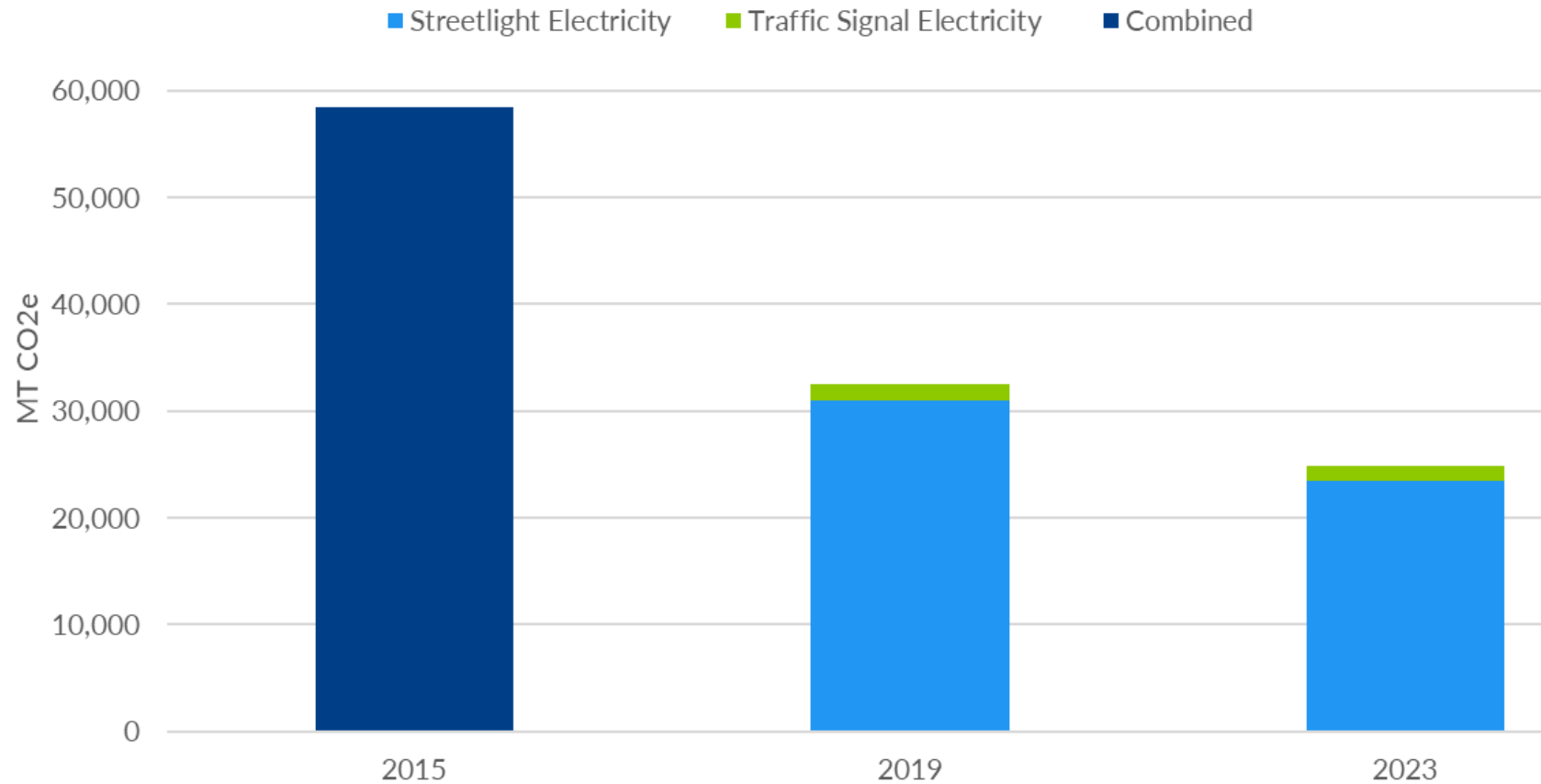
Main Emission Sources

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

Facilities

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

Streetlights & Traffic Signals



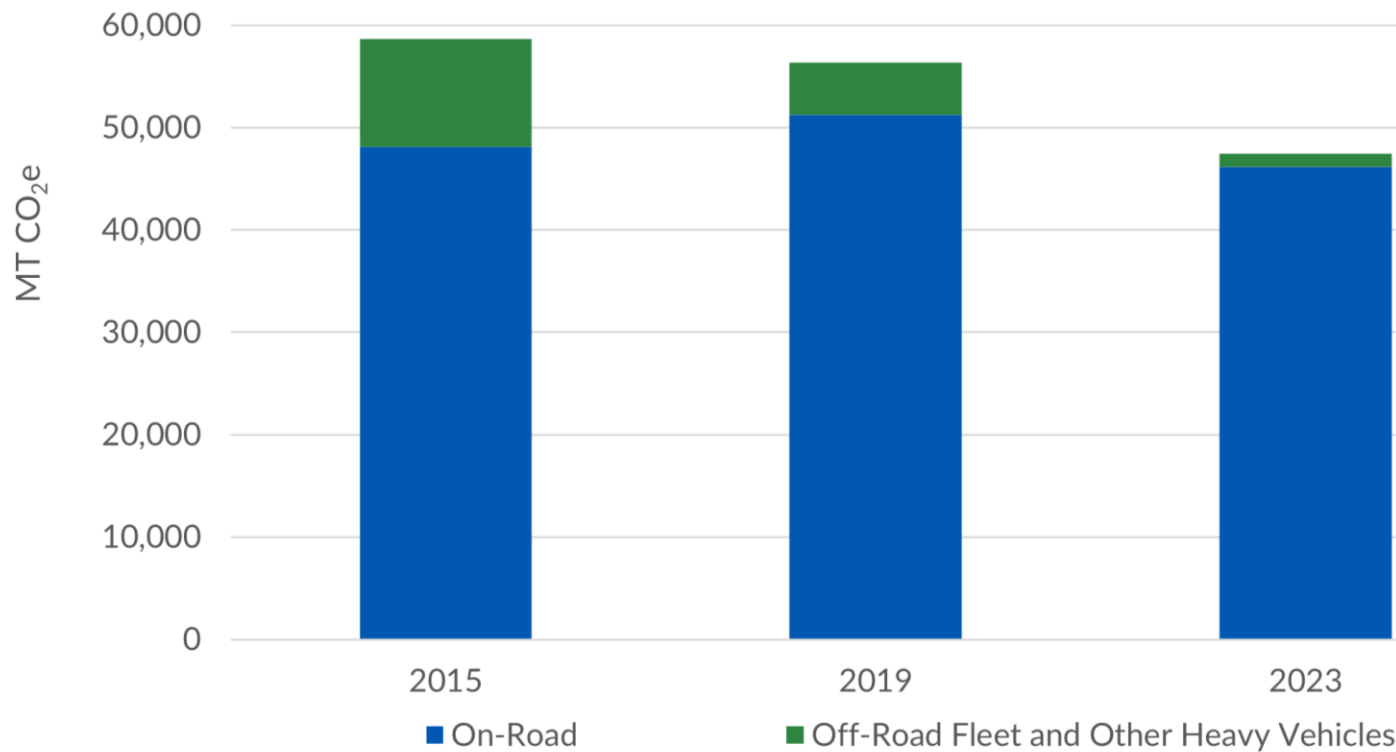
Key Metrics

24,867 MT CO₂e
-24% from 2019
-57% from 2015

Main Emission Source

- Electricity use

Fleet & Equipment



Key Metrics

47,418 MT CO₂e
-16% from 2019
-19% from 2015

Main Emission Source

- Fuel use



3,771 Light Duty Units



376 Medium Duty Units



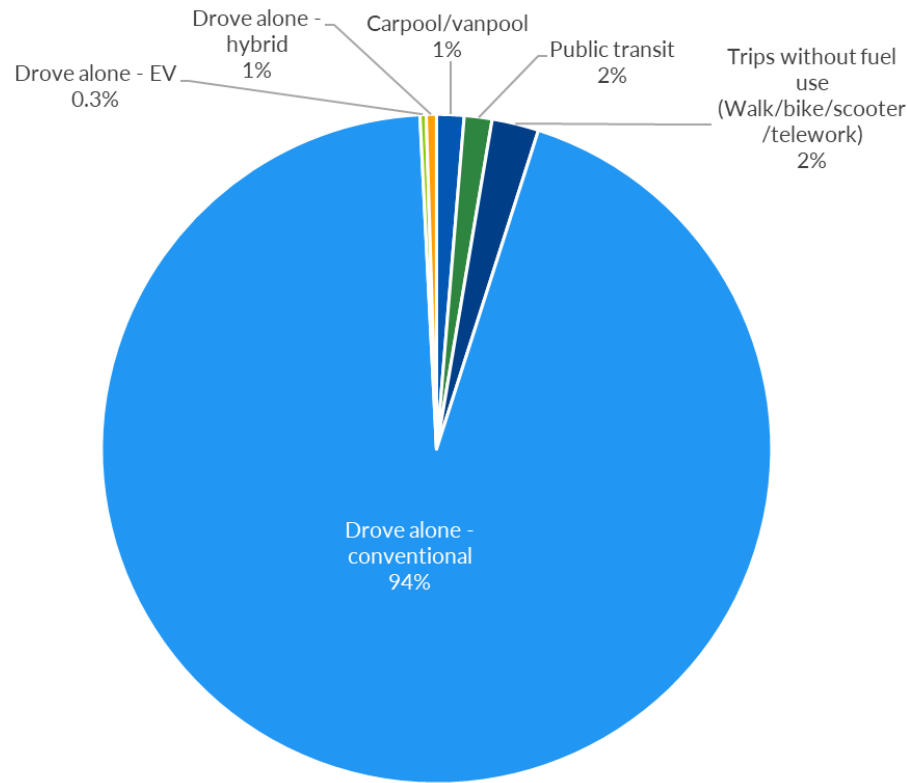
743 Heavy Duty Units



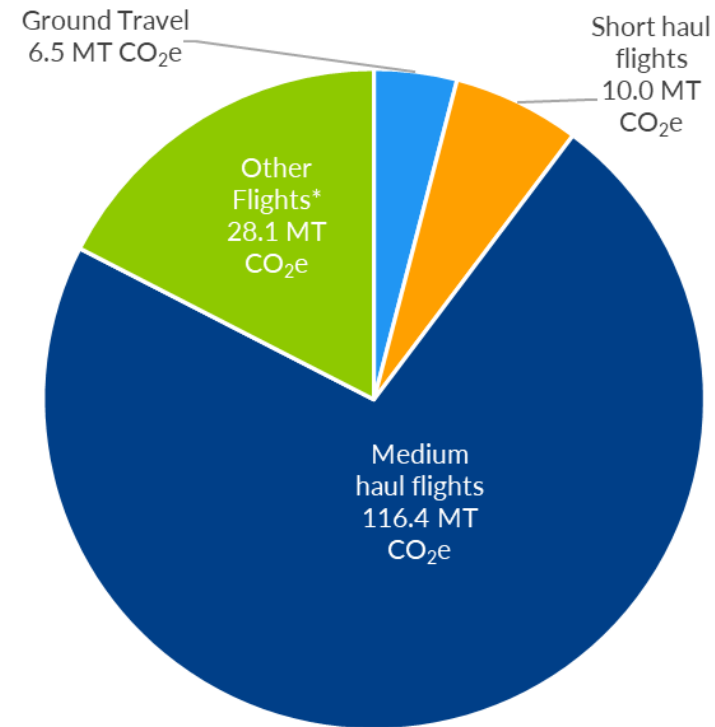
899 Off-road Units

Scope 3 Emissions

Employee Commute



Business Travel



Key Metrics
30,017 MT CO₂e
-24% from 2019
+16% from 2015

Main Emission Source

- Employees commuting to work and back home.

*Try
Parking
It*





Summary

2023 Greenhouse Gas Inventory Summary

Community-wide Inventory

Key Metrics

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Local Government Operations Inventory

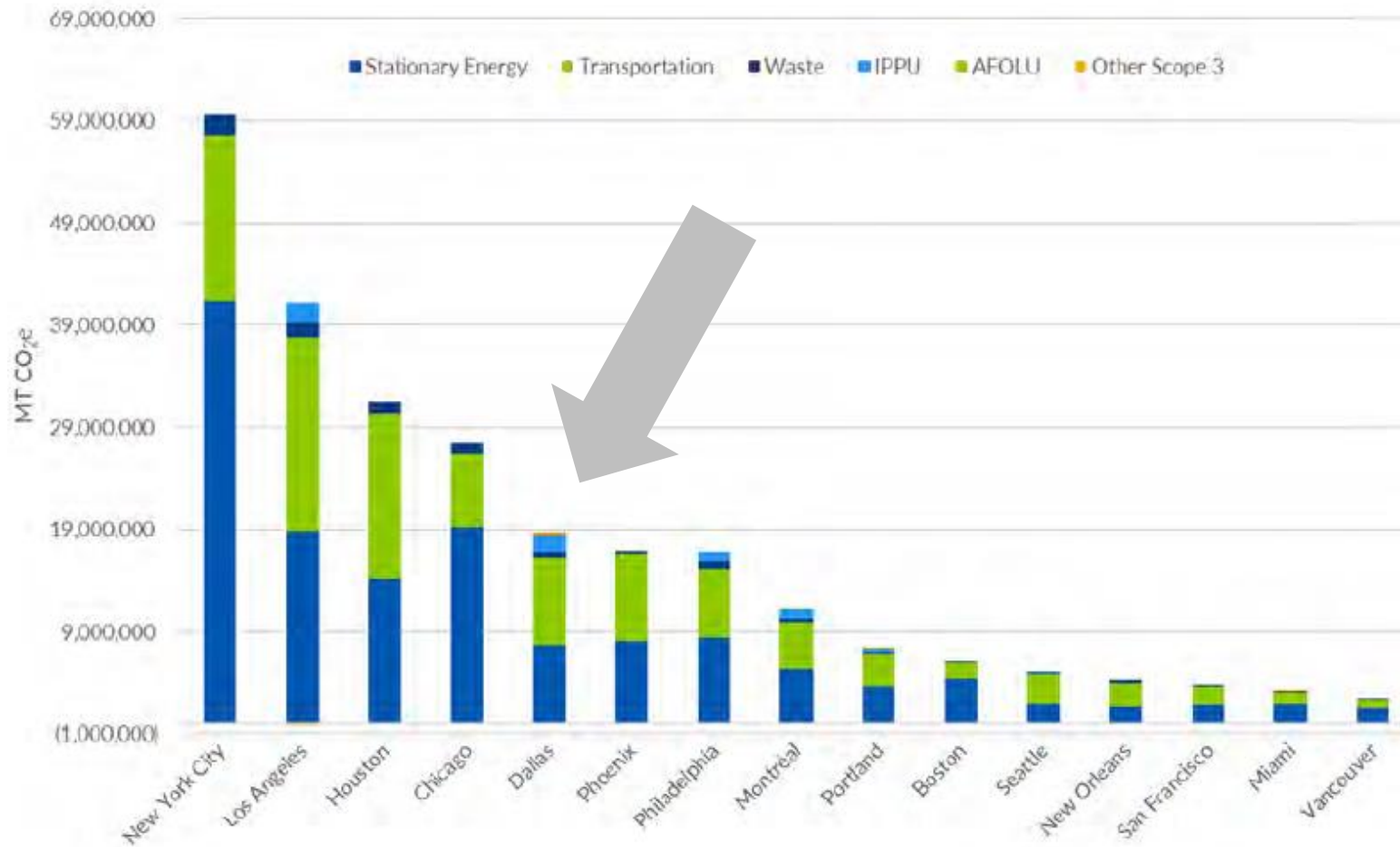
Key Metrics

804,033 MT CO₂e
-17% from 2019
-29% from 2015

Takeaways

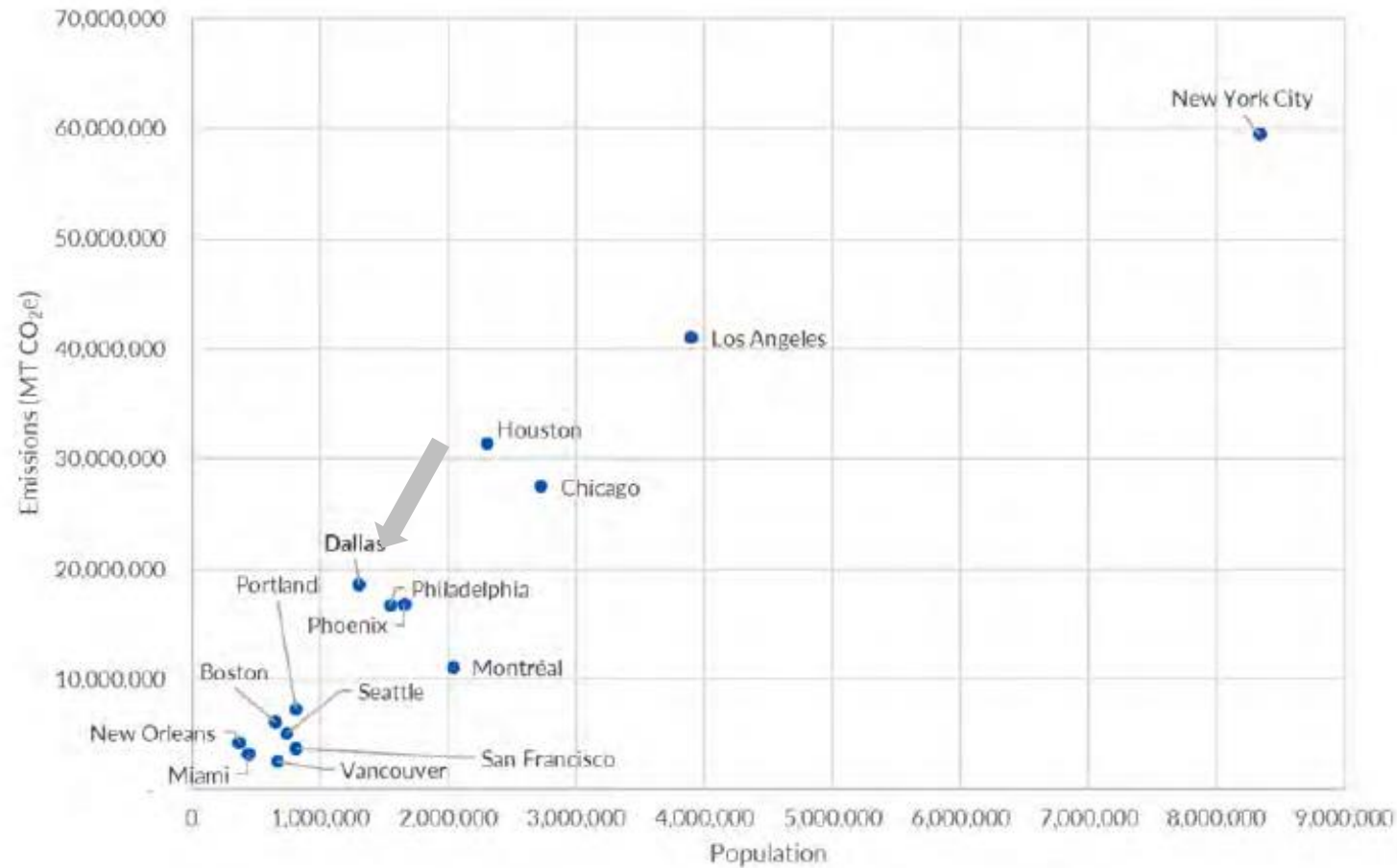
- 4% of community-wide emissions
- Strongest decrease in electricity emissions
- Reduced waste generated emissions
- Reduced fleet emissions

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.

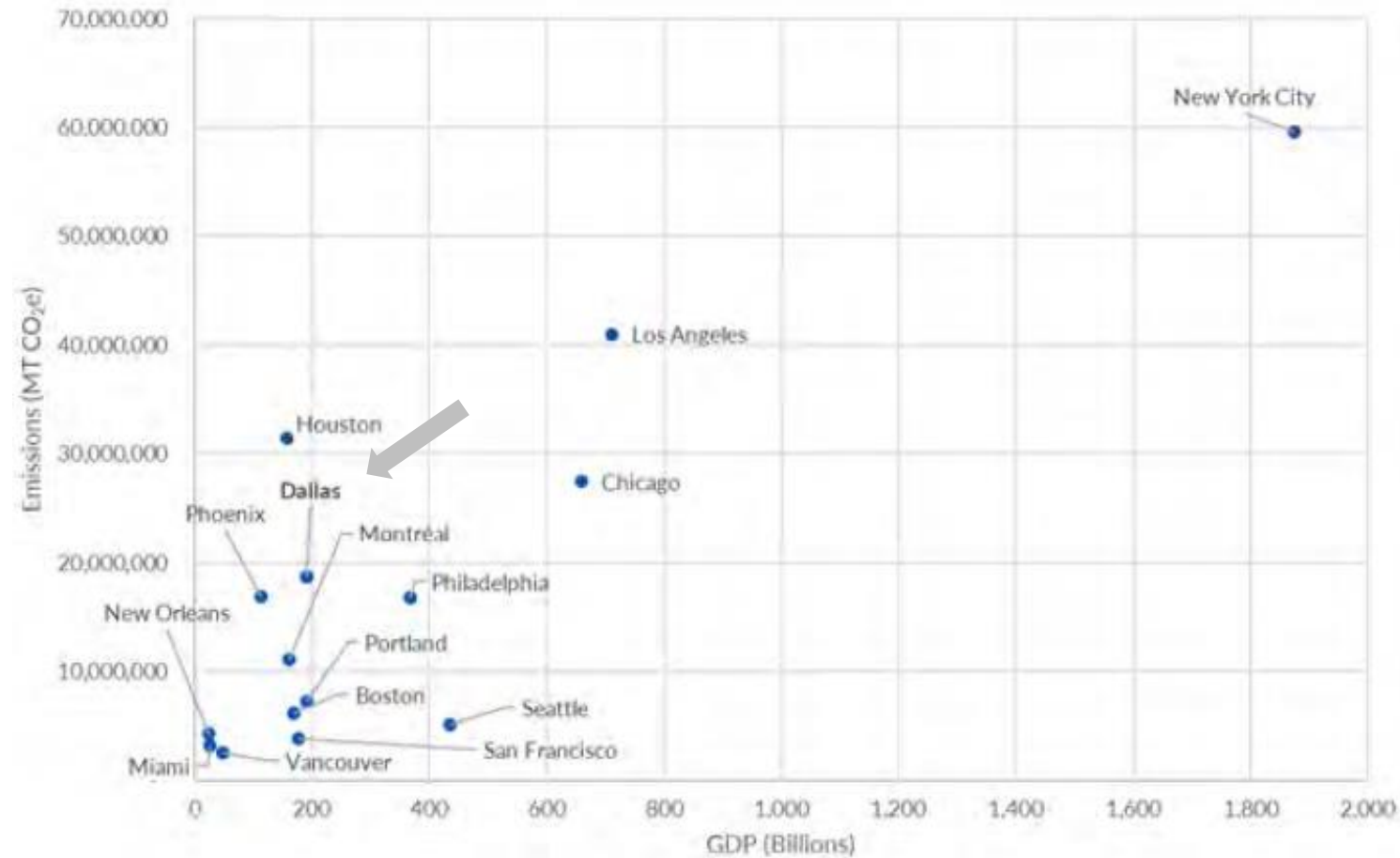
Dallas vs Cities of similar population



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?



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