

Eastside Climate Partnership Greenhouse Gas Emissions Analysis

**City of Mercer Island
2024 Annual Report**

Prepared by Cascadia Consulting Group, Inc.

INTRODUCTION

The City of Mercer Island has committed to reducing greenhouse gas (GHG) emissions from community sources and municipal operations as part of its climate action strategy. To track its progress in this effort, Mercer Island has completed an analysis of 2024 GHG emissions related to communitywide activities and government operations.

This summary report presents an overview of findings from this GHG analysis.

EMISSIONS OVERVIEW

Communitywide Emissions

The Mercer Island community emitted an estimated **305,668** metric tons of carbon dioxide equivalent (MTCO₂e) in 2024—equivalent to **11.8** MTCO₂e per capita. Primary sources of community greenhouse gas emissions include:

- **On-road vehicles** including passenger cars and heavy-duty trucks (**31%**)
- **Air travel** (**18%**)
- **Electricity** (**22%**) and **natural gas** (**17%**) heat, cool, and power residential, commercial, and industrial buildings.

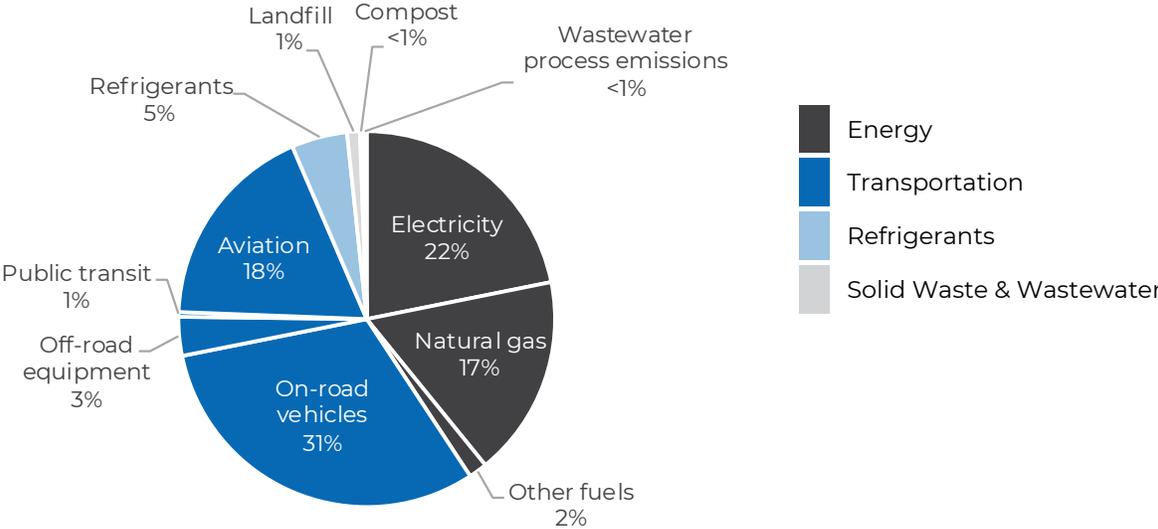


Figure 1. Mercer Island's community GHG emissions, by sector.¹

¹ Due to rounding differences, there may be slight discrepancies between the data labels in Figure 1 and the bullet points above.

Key Trends and Drivers

Mercer Island’s 2024 communitywide emissions **decreased 0.7%** compared to 2023. Key drivers of this change include shifts in community activity—such as decreases in energy consumption and vehicle travel—as well as external factors like the 2024 bomb cyclone and reductions in the carbon intensity of electricity provided by Puget Sound Energy (Figure 2).

Population and job growth continue to place upward pressure on emissions across all sectors. Mercer Island’s GHG emissions declined **15%** between 2019 and 2024, despite a **6%** increase in population and **14%** increase in jobs. Over the same period, Mercer Island’s communitywide per-capita emissions decreased by **19%**.

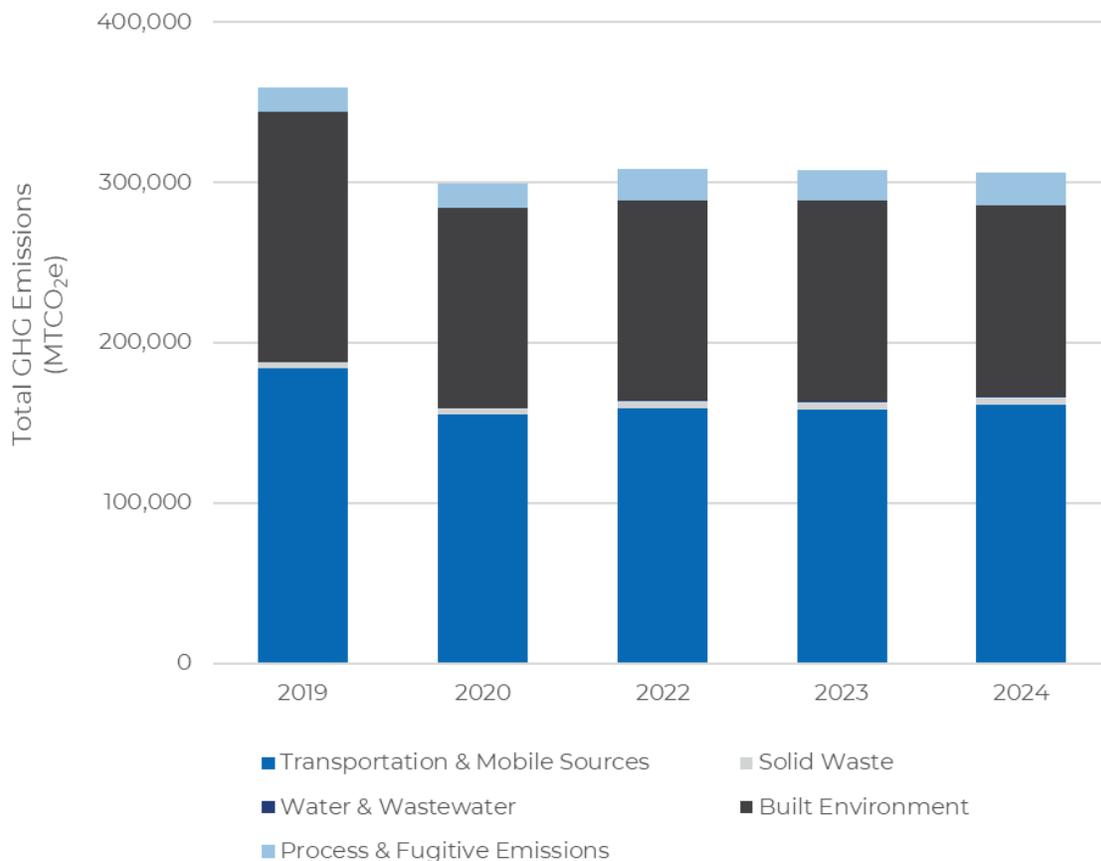


Figure 2. Communitywide GHG emissions trends, by sector. ²

² Refrigerants, as shown in the first pie chart, are a subset of the “Process and Fugitive” emissions shown in the bar graph. “Process and Fugitive Emissions” here to refer to emissions from both refrigerants **and** fugitive natural gas. However, while those are both “fugitive”, they are separated in the pie chart and fugitive natural gas emissions are included in the natural gas category in order to show more granular data.

Energy

Since 2023, communitywide energy-related emissions have declined by 4%, reflecting improvements in electricity generation and consumption trends.

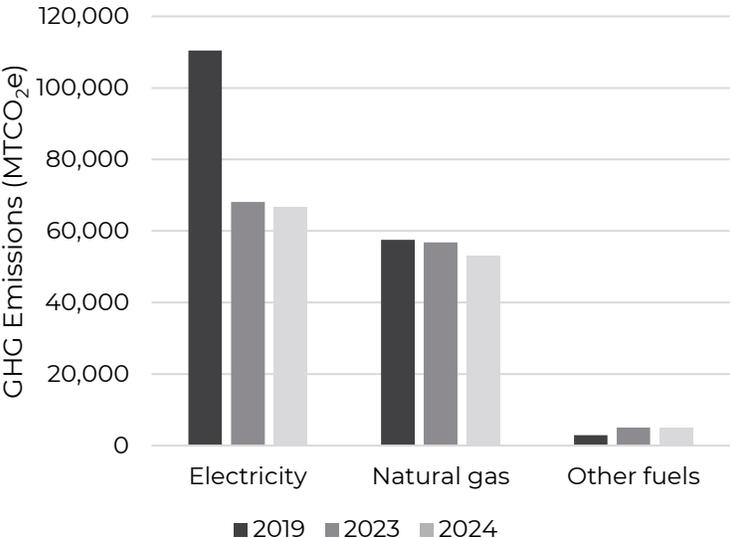


Figure 3. Trends in community energy-related GHG emissions, by fuel type.

Other key energy sector findings are summarized below and in Figure 3:

- **Overall:** Energy emissions decreased by 4% compared to the previous inventory year (2023).
- **Electricity:** Emissions from electricity use decreased by 2% since 2023. This reduction reflects growing participation in Puget Sound Energy (PSE)’s clean electricity programs and a cleaner fuel mix in PSE’s standard electricity supply. The carbon intensity of PSE’s electricity declined by 3% between 2023 and 2024.
- **Natural gas:** Emissions from natural gas consumption in Mercer Island decreased by 7% since 2023, suggesting growing building electrification efforts, as well as continued improvements in energy efficiency and overall building performance.
- **Other fuels (propane and fuel oil):** Emissions from propane and fuel oil consumption decreased by 3% since 2023.³

³ These estimates are based on statewide fuel consumption data scaled to Mercer Island’s housing and employment characteristics. As a result, these results may not fully capture local efforts to reduce propane and fuel oil use.

TRANSPORTATION & MOBILE SOURCES

Since 2019, transportation-related emissions have decreased by 12%, likely reflecting post-COVID19 travel patterns that have stayed below pre-pandemic levels, as well as reflecting a transition to electric vehicles and overall vehicle fuel efficiency improvements.

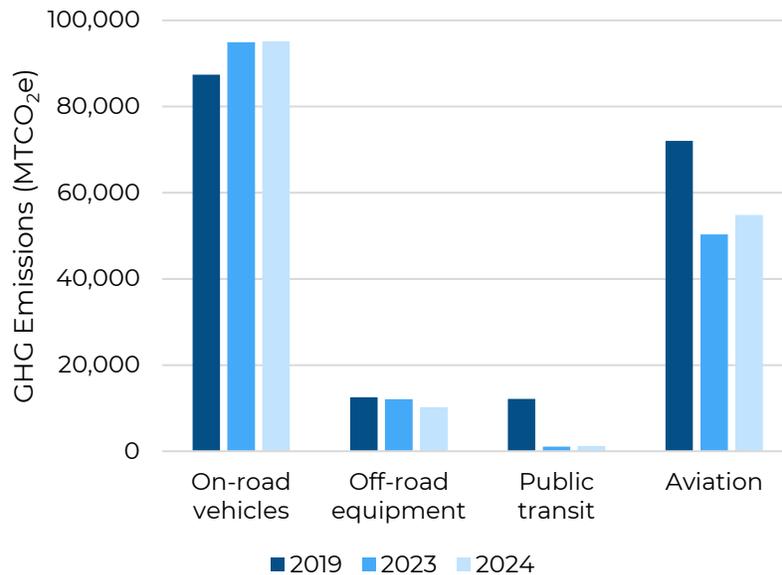


Figure 4. Trends in community transportation-related GHG emissions, by mode.

Other key transportation sector findings are summarized below and in Figure 4:

- **Overall:** Transportation emissions have increased by 2% since the previous inventory (2023).
- **On-road transportation:** Overall on-road transportation emissions increased by 0.2% since 2023.
- **Off-road equipment:** Emissions from off-road equipment decreased 15% from 2023 to 2024.⁴
- **Aviation:** Emissions from air travel increased 9% from 2023 to 2024.⁵

⁴ These estimates are derived from countywide data scaled to Mercer Island's population and may not fully reflect local changes in equipment use.

⁵ These estimates are derived from passenger surveys conducted at Seattle-Tacoma International Airport, scaled to Mercer Island's households based on average household income, and may not fully reflect local changes in air travel patterns.

OTHER SOURCES

Other emission sources include solid waste generation and disposal, wastewater treatment, and refrigerants.

Key trends in other emissions sources include:

- **Solid waste:** Emissions from communitywide solid waste generation have decreased by 5% since 2023, generally reflecting improved waste diversion and reductions in landfilled waste despite increases in Mercer Island's population.
- **Wastewater:** Emissions from wastewater treatment have increased by 0.1% since 2023.
- **Refrigerants:** Fugitive emissions from refrigerant use have increased by 4% since 2023, reflecting population growth, higher cooling demand, and the continued use of high-global-warming-potential refrigerants.⁶

⁶ These estimates are based on U.S. Environmental Protection Agency national data scaled to Mercer Island's population and may not fully capture local refrigerant use patterns.

Government Operations Emissions

Mercer Island’s government operations accounted for approximately **1,125** MTCO₂e of emissions in 2024, equivalent to **5.1** MTCO₂e per FTE (full-time employee)—representing **0.37%** of total communitywide emissions. Primary sources of government operations emissions include (

):

- Employee commute (**39%**)
- City’s vehicle fleet and equipment (**31%**).

Electricity (**11%**) and natural gas (**10%**) to heat, cool, and power government buildings and facilities.

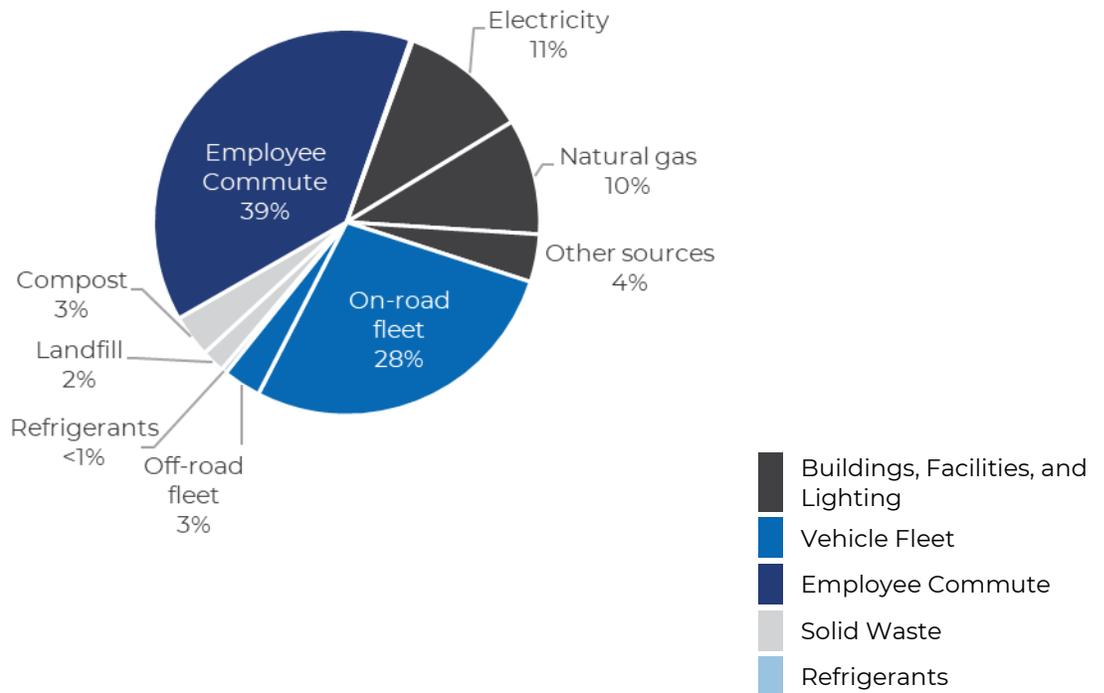


Figure 5. Government operations 2024 GHG emissions, by sector.⁷

Key Trends and Drivers

Mercer Island’s 2024 government operations emissions represent a **55% decrease** compared to the City’s 2019 GHG inventory, and a **14% decrease** compared to the last GHG inventory in 2023. These decreases are primarily driven by reductions in emissions from the City’s vehicle fleet and buildings and facilities (Figure 6).

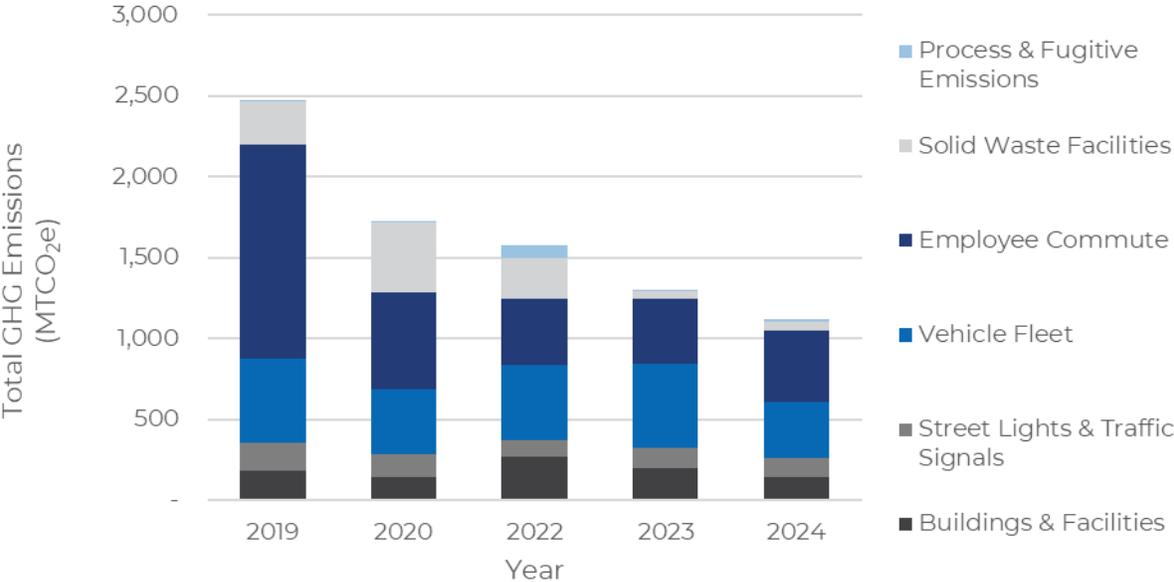


Figure 6. Government operations GHG emissions trends over time, by sector.²

⁷ Due to rounding differences, there may be slight discrepancies between the data labels in Figure 5 and the bullet points above. For example, business travel emissions (not included in Figure 5) represent 0.2% of total emissions. Refrigerants represent 0.4% of total emissions.

ENERGY

Overall, City government energy-related emissions have decreased by 16% since 2023.

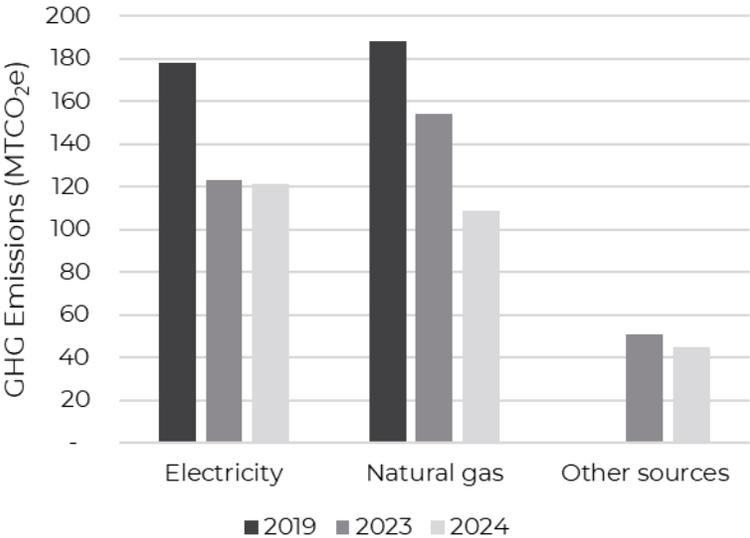


Figure 7. Trends in municipal energy GHG emissions, by fuel type.

Key energy-related trends within Mercer Island’s government operations are summarized below and in Figure 7:

- **Electricity:** Emissions from City facility electricity use decreased by 2% since 2023. In 2024, operation of the two fire stations on the Island transitioned to Eastside Fire and Rescue, so those facilities are no longer included in the City’s reporting.
- **Natural gas:** Emissions from natural gas use decreased by 29% since 2023, driven by reduced consumption due to the removal of the fire stations’ usage from City reporting.
- **Other fuels:** The City uses small quantities of other stationary fuels such as diesel in generators. Since 2023, emissions from these other fuels have decreased by 12% likely due to the removal of the fire stations’ usage from City reporting.

TRANSPORTATION

Overall, the City's transportation-related emissions have decreased 15% since 2023, driven by progress in vehicle fleet and equipment electrification.

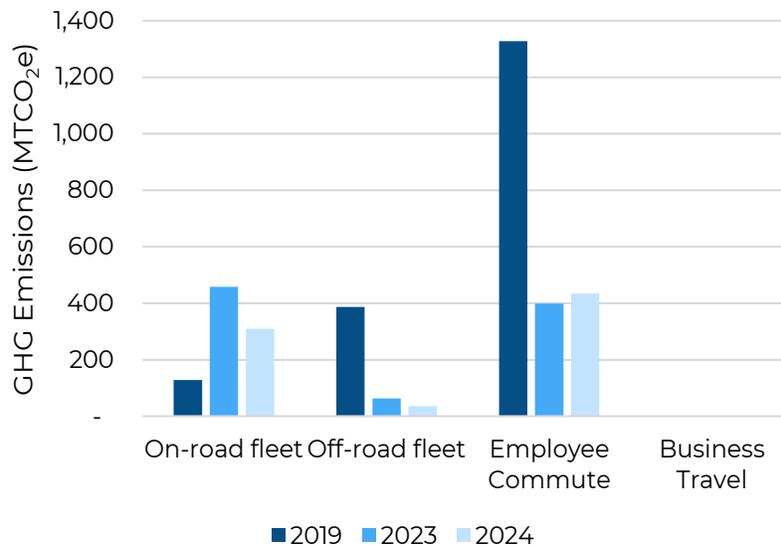


Figure 8. Trends in municipal transportation GHG emissions, by source.

Trends in emissions from each transportation emission source are shown below, and in Figure 8.

- **On-road fleet:** Since 2023, emissions from the City's on-road fleet decreased by 32%. These reductions reflect ongoing fleet efficiency improvements and electrification of City vehicles despite increased municipal operations.
- **Off-road equipment:** Since 2023, emissions from the City's off-road equipment decreased by 43%. These reductions also reflect ongoing electrification of City equipment.
- **Employee commute:** Emissions from employee commuting increased by 9% since 2023, primarily due to growth in the number of full-time employees and a continued return to in-person work.
- **Business travel:** Emissions from business travel, which includes travel by employees for business purposes via passenger vehicles, as well as air travel, made up <1% of the City's 2024 municipal emissions. This is the first time this data has been included in the City's GHG inventory.

OTHER SOURCES

Other emissions sources include City government solid waste generation and disposal and refrigerant use.

Key trends in these sources include:

- **Solid waste:** Emissions from solid waste generation and disposal increased by 17% since 2023, likely primarily driven by the 2024 bomb cyclone which generated large amounts of organic material for disposal. Since 2023, emissions from landfilled waste decreased by 4% due to a decrease in tonnage, while emissions from composted waste increased by 33%.
- **Refrigerants:** Emissions from refrigerant use have increased by 1011% since 2023 but only reflect 0.4% of the City's operational emissions. Sources of City refrigerant use are predominantly facility HVAC maintenance, as well as fleet vehicle air conditioning.

NEXT STEPS

While modest, the continued decrease in communitywide emissions indicates that Mercer Island is making progress toward its Climate Action Plan goal of reducing community emissions 50% by 2030. The 55% reduction in municipal emissions since 2019 also reflects continued movement toward the City's goal of achieving carbon neutrality in municipal operations by 2030.

Findings from this inventory will help inform climate action priorities and budget requests for the upcoming cycle. The City will complete a 2025 inventory to continue tracking emission trends and will provide annual updates moving forward.