



# City of Bellevue 2022 Greenhouse Gas Emissions Inventory

## Executive Summary

Prepared by Cascadia Consulting Group, Inc. and the City of Bellevue  
March 2024



## Executive Summary

### INTRODUCTION

Bellevue 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, Bellevue has completed an analysis of 2022 GHG emissions related to communitywide activities and municipal operations. This summary report presents an overview of findings from this GHG analysis.

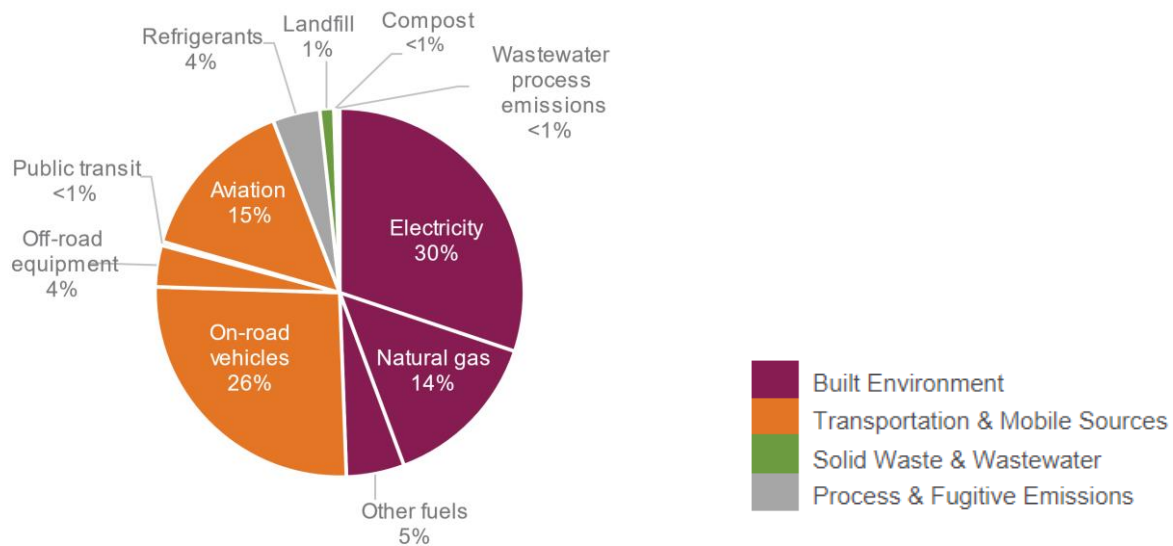
### EMISSIONS OVERVIEW

#### Communitywide Emissions

The Bellevue community emitted an estimated **1,962,572** metric tons of carbon dioxide equivalent (MTCO<sub>2</sub>e) in 2022—equivalent to **12.8** MTCO<sub>2</sub>e per capita. Primary sources of community greenhouse gas emissions include (**Figure 1**):

- ✦ Electricity (**30%**) and natural gas (**14%**) to heat, cool, and power residential and commercial buildings.
- ✦ On-road vehicles including passenger cars and heavy-duty trucks (**26%**).
- ✦ Participation in regional aviation (**15%**).

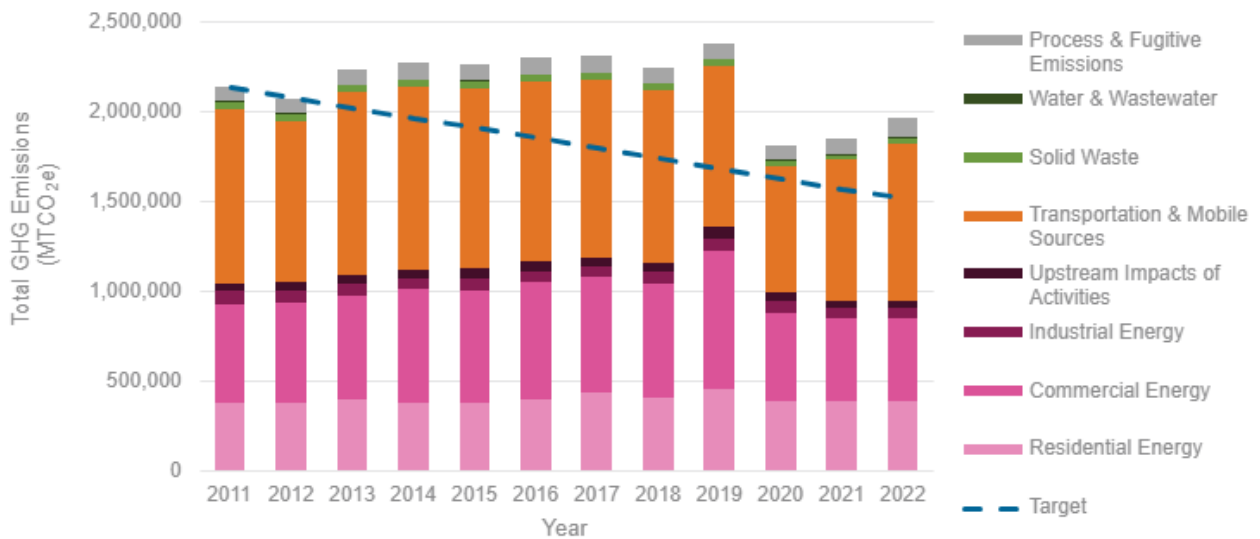
Figure 1. Bellevue’s Community GHG Emissions by Sector



Bellevue’s 2022 communitywide emissions represent a **6% increase** compared to the last GHG inventory in 2021, primarily driven by an increase in on-road transportation emissions as travel continues to resume to pre-COVID-19 levels (**Figure 2**).

Bellevue’s GHG emissions declined by **8% from 2011 to 2022**, despite a population growth of **21%** and an increase in jobs of **13%**.

**Figure 2. Communitywide GHG Emissions Trends Over Time by Sector**

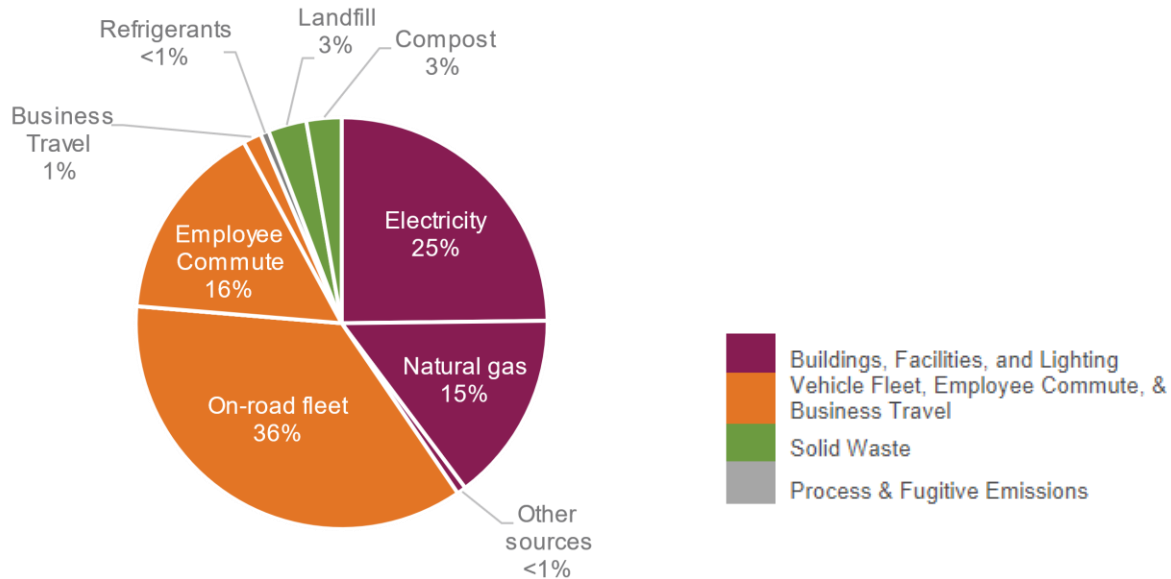


## Government Operations Emissions

Bellevue’s government operations accounted for approximately **8,659 MTCO<sub>2</sub>e** of emissions in 2022, equivalent to **4.9 MTCO<sub>2</sub>e** per fulltime employee—representing **0.44%** of total communitywide emissions. Primary sources of government operations emissions (**Figure 3**) include:

- ← The City’s vehicle fleet and equipment (**36%**).
- ← Electricity (**25%**) and natural gas (**15%**) to heat, cool, and power government buildings and facilities.
- ← Employee commuting (**16%**)

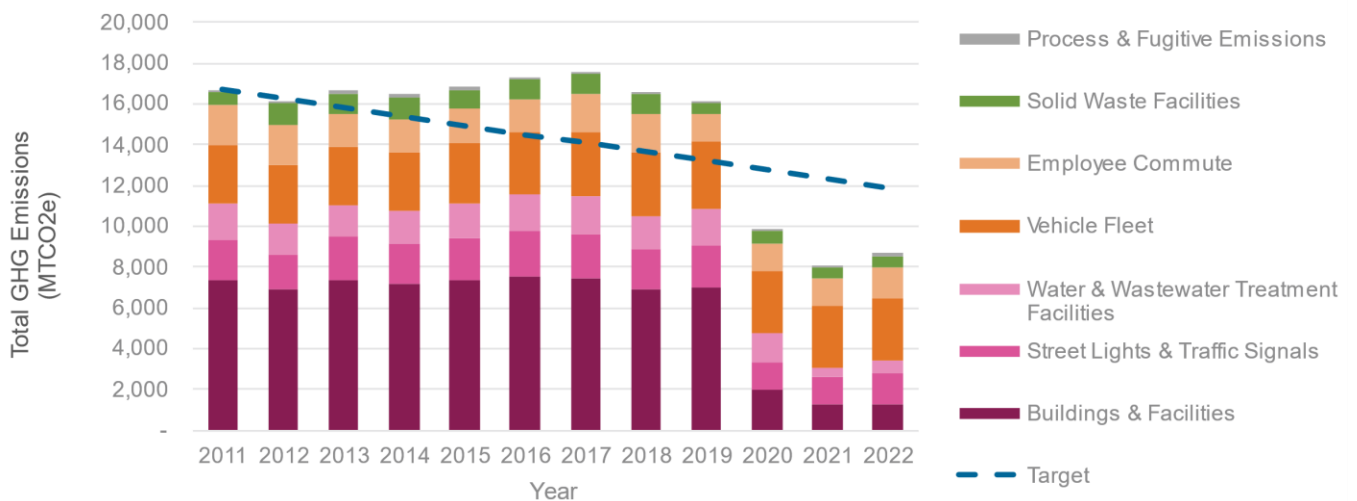
**Figure 3. Bellevue’s Government Operations 2022 GHG Emissions by Sector**



Bellevue’s 2022 government operations emissions represent a **7% increase** compared to the last GHG inventory in 2021 (**Figure 4**).

Government operations emissions decreased by **48%** from 2011 to 2022, due to the City’s investments in renewable energy, energy efficiency in city facilities, reduced employee commuting, and improved solid waste management.

**Figure 4. Municipal Operations GHG Emissions Trends Over Time by Sector**



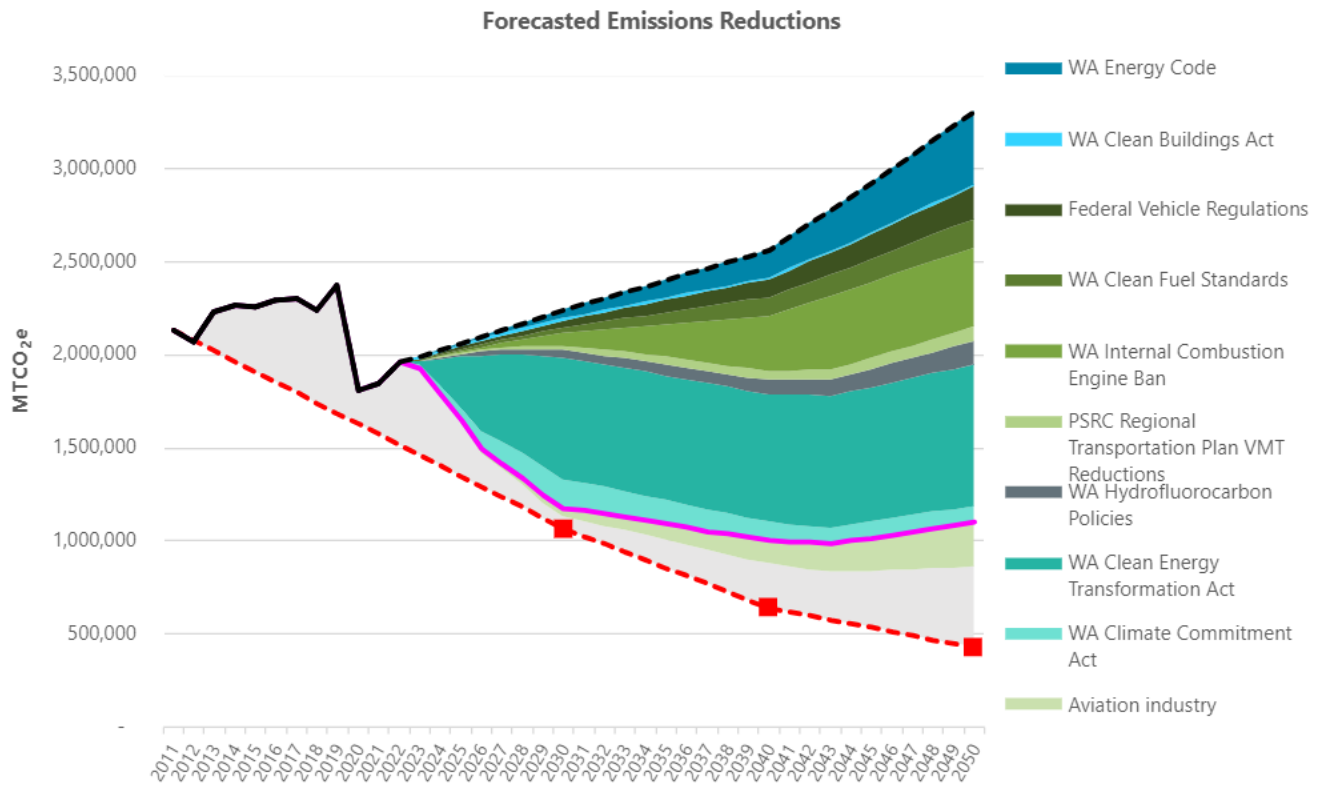
## EMISSIONS WEDGE ANALYSIS

The City of Bellevue updated the Emissions Wedge Analysis (**Figure 5**) to demonstrate how state and regional initiatives support Bellevue's emission reduction goals. The Business-As-Usual (BAU) scenario, indicated by the black dashed line, forecasts emissions growth under expected population and job growth without state, regional, or local action to reduce emissions. If no action is taken under the BAU scenario, Bellevue greenhouse gas emissions will increase 55 percent by 2050 compared to the 2011 baseline.

The red-dashed line displays Bellevue's emission reduction targets of 50% reduction by 2030, 70% by 2040, and 80% by 2050 (compared to the 2011 baseline). The solid colors in between the BAU and reduction targets lines indicate the specific state and regional policies that support emission reductions in Bellevue. External policies and programs are estimated to reduce emissions 49% by 2050, as shown by the solid pink trendline.

The areas below the solid pink trendline show the remaining emissions after state and federal action that Bellevue needs to address at the municipal level to reach our emissions reduction targets. As the Emissions Wedge shows, local reductions of 31% are needed to achieve our 2050 target. The Sustainable Bellevue Plan Update in 2024 will evaluate specific emissions reductions anticipated from energy, mobility and land use, materials management and waste, natural systems, and municipal operations strategies.

Figure 5: Emissions Wedge Analysis



- Historical emissions estimation
  Scenario: federal, state, and regional policies only
- Scenario: no action future
  Emissions gap
- Emissions Reductions Targets (% reduction compared to 2011 baseline)

## EMISSIONS CONTRIBUTION ANALYSIS

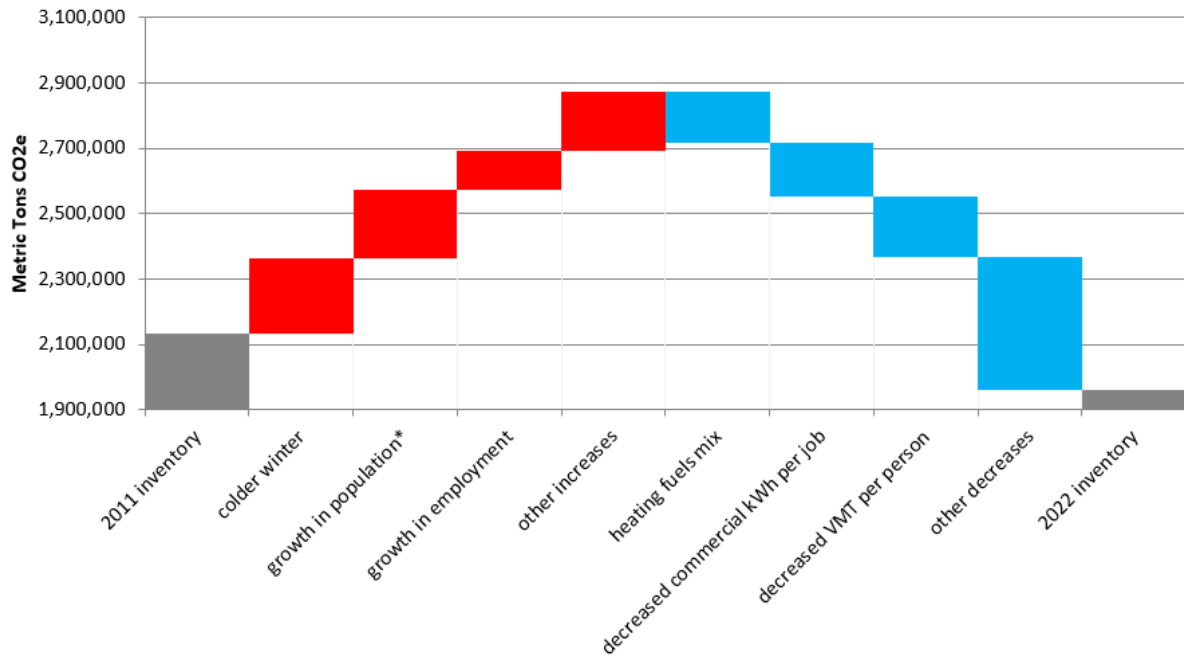
To better understand the factors and drivers contributing to observed changes in Bellevue's greenhouse gas emissions, Bellevue developed a contribution analysis to model underlying causes, environmental factors, and other drivers that impact local emissions from year-to-year. The results from this analysis illuminate important contributors to the city's communitywide emissions.

The contribution analysis summary charts (**Figures 6 and 7**), show the three largest contributors to emissions increases and decreases between the years compared. Red bars represent factors that drove emissions increases, while blue bars represent factors that drove emissions decreases between the two years compared. The length of the bar corresponds to the size of the effect each factor had on emissions overall. "Other increases" and "other decreases" represent the influence of multiple smaller factors, or factors that were beyond the scope of these analyses.

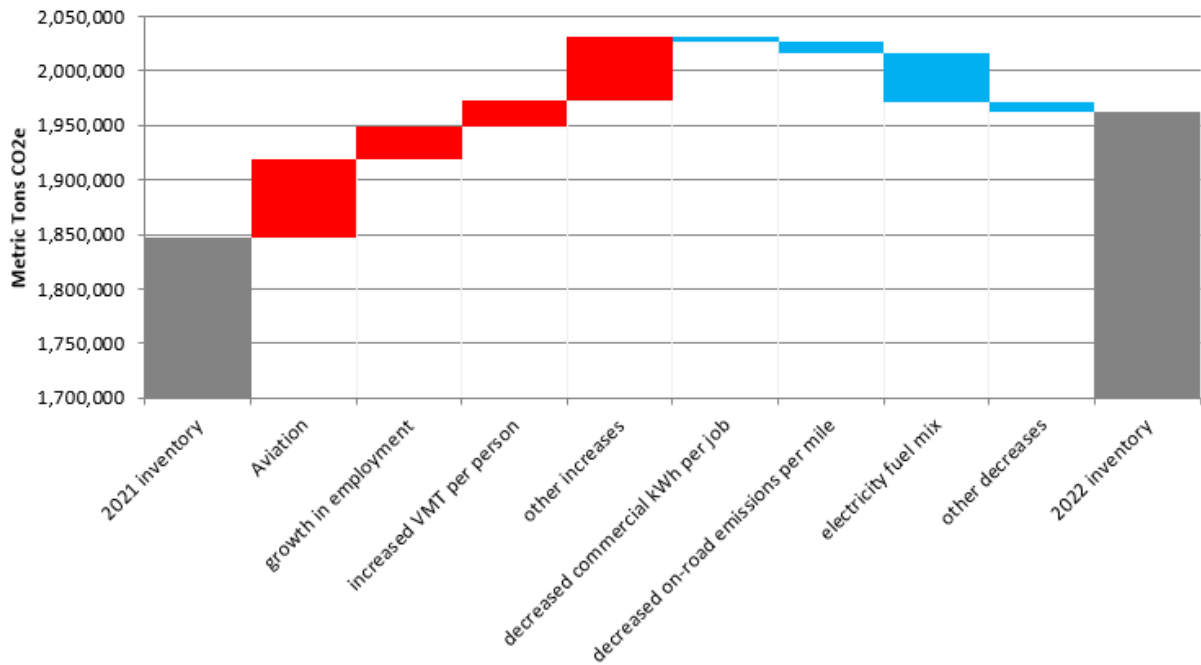
As shown in **Figure 6**, the comparison from 2011 to 2022 reveals that as Bellevue and its surrounding region are experiencing emissions increases from job and population growth, emission reductions from initiatives such as transit-oriented development, cleaner energy, and more efficient buildings outpace the growth-related increases in emissions.

**Figure 7** compares 2021 to 2022, and highlights that returns to pre-pandemic travel, in addition to a growing economy and population, have led to higher emissions in the aviation sector attributable to Bellevue. This analysis reveals certain sectors that Bellevue must focus on, to meet our greenhouse gas emission reduction targets, such as vehicle miles traveled per person, even as per-person emissions have declined in other sectors due to a shift to a cleaner energy mix. Factors that make up "other increases" include increased natural gas use per household, a slightly colder winter, offroad transportation, and process & fugitive emissions.

**Figure 6: Emissions Contribution Analysis Summary 2011-2022**



**Figure 7: Emissions Contribution Analysis 2021-2022**





## NEXT STEPS

Reducing emissions by 80% by 2050 will require a combination of visionary and strategic federal, state, and local action. While external factors such as federal fuel economy standards, state energy code, and a cleaner regional electricity grid are essential to help Bellevue meet emission reduction targets, the city will still need to take significant action and influence others to reduce pollution and climate emissions. More aggressive policies and programs focused on lowering building energy use, shifting to cleaner energy, increasing vehicle fuel efficiency, and reducing miles traveled by passenger vehicles are both essential and beneficial steps to achieve a more sustainable Bellevue for future generations.