



**Meeting Date:** January 8, 2025  
**Subject:** 2022 GHG Inventory Results  
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## **Background**

The City Council's Climate Action and Adaptation Plan (CAAP), specifically Goal 4.6C, mandates biennial updates of the City's Greenhouse Gas (GHG) emissions inventory to track progress against established targets. The last inventory was conducted in 2018. However, due to the COVID-19 pandemic, City staff and the Environmental Commission (EC) jointly decided to conduct an inventory for the year 2022 to ensure a more accurate reflection of GHG emissions.

## **Analysis**

Utilizing the ClearPath software as done so in previous inventories, staff conducted the 2022 inventory for the Community Sector. Based on ICLEI guidance and in keeping with the 2013 CAP, the sectors included in the 2022 Community inventory included in the are:

- Transportation
  - On-road emissions
  - Off-road emissions
- Energy
  - Residential energy
  - Commercial energy
- Solid waste
- Water & wastewater

Staff utilized several data sources such as EPA's eGRID, local data sources from SVCE, PG&E, Palo Alto Public works, etc. to gather the necessary information.

Due to limited documentation of previous methodologies and availability of data sources, staff encountered challenges in replicating certain aspects of the inventory, particularly in the Energy and Water/Wastewater sector. Further analysis is required to improve accuracy for these sectors, but its impact on the overall inventory is minimal and does not impede the continuation of climate action planning.

The findings of this analysis are as follows:

| COMMUNITY SECTOR        | 2018 ACTIVITY DATA | 2022 ACTIVITY DATA | UNITS              | ACTIVITY CHANGE | % CHANGE |
|-------------------------|--------------------|--------------------|--------------------|-----------------|----------|
| Residential Electricity | 80,391,486         | 76,031,756         | kWh                | 4,359,730       | 5.73%    |
| Residential Natural gas | 6,640,225          | 6,645,808          | therms             | (5,583)         | (0.08%)  |
| Commercial Electricity  | 58,760,342         | 49,161,509         | kWh                | 9,598,833       | 19%      |
| Commercial Natural Gas  | 1,329,206          | 1,195,995          | therms             | 133,211         | 11%      |
| On-Road Transportation  | 166,865,877        | 197,635,123        | VMT                | (30,769,246)    | (16%)    |
| Off-road Transportation | 6,725              | 15,074             | MTCO <sub>2e</sub> | (8,349)         | (55%)    |
| Municipal Solid Waste   | 9,273              | 19,040             | tons               | (9,767)         | (51%)    |

\*Water and Wastewater data are excluded from this table pending further review.

| COMMUNITY SECTOR              | 2005 EMISSIONS | 2018 EMISSIONS | 2022 EMISSIONS | % CHANGE   | EMISSIONS REDUCTION (MTCO <sub>2e</sub> ) |
|-------------------------------|----------------|----------------|----------------|------------|---|
| Transportation/Mobile Sources | 96,610         | 63,280         | 73,785         | 17%        | (10,505)                                  |
| Solid Waste                   | 3,950          | 2,653          | 3,748          | 41%        | (1,095)                                   |
| *Water & Wastewater           | 2,250          | 1,063          | 832            | (22%)      | 231                                       |
| Commercial Energy             | 20,070         | 7,535          | 7,610          | 1%         | (75)                                      |
| Residential Energy            | 59,950         | 35,661         | 37,816         | 6%         | (2,155)                                   |
| <b>Community Total</b>        | <b>182,830</b> | <b>110,192</b> | <b>123,791</b> | <b>43%</b> | <b>(13,599)</b>                           |

\*Water and Wastewater data included in this table may be inaccurate and require further review.

The data reveals an overall community-wide emissions increase of 43% from 2018 to 2022, remaining below 2005 levels. This represents an increase of 13,599 CO<sub>2e</sub>. However, activity data shows some decreases in usage, indicating that further investigation is needed to fully understand the factors contributing to this emissions increase, as it may not be solely attributed to increased activity.

**Transportation:** The transportation/mobile sources sector remains the largest contributor to community emissions, increasing by 17% from 2018. This is likely due to an increase in vehicle miles travelled (VMT) for on-road vehicles and increased activity in off-road equipment.

**Solid Waste:** Emissions from this sector increased by 41% from 2018 to 2022. This increase is likely attributable to the inclusion of organics recycling as a separate data point in the 2022 inventory. In 2018, green waste and garbage tonnage were combined. The Mission Trail Waste Systems (MTWS) 2022 annual report indicates an increase in material generated (up 5% from 2021), primarily driven by an expansion of recycling and organics collection programs.

**Water & Wastewater:** This sector shows a significant 22% reduction in emissions, warranting further review to determine the cause of this change. One possible contributing factor could be major efficiency improvements in treatment processes.

**Commercial and Residential Energy:** Both the Commercial and Residential Energy sectors show slight emission increases, 1% and 6% respectively, despite a decrease in kWh usage. This discrepancy likely stems from a change in the calculation methodology since 2018.

This GHG inventory provides a comprehensive assessment of community-wide emissions for 2022. While significant progress has been made in reducing emissions since 2005, the overall trend shows an increase from 2018, with an estimated 13,599 MTCO<sub>2</sub>e increase. However, this analysis is based on the data provided and availability and may not capture all the nuances of emissions within the community.