2022
Town of Crested Butte
Greenhouse Gas Emissions Inventory

October 2024

Climate Action Plan

CRESTED BUTTE, COLORADO
A National Historic District

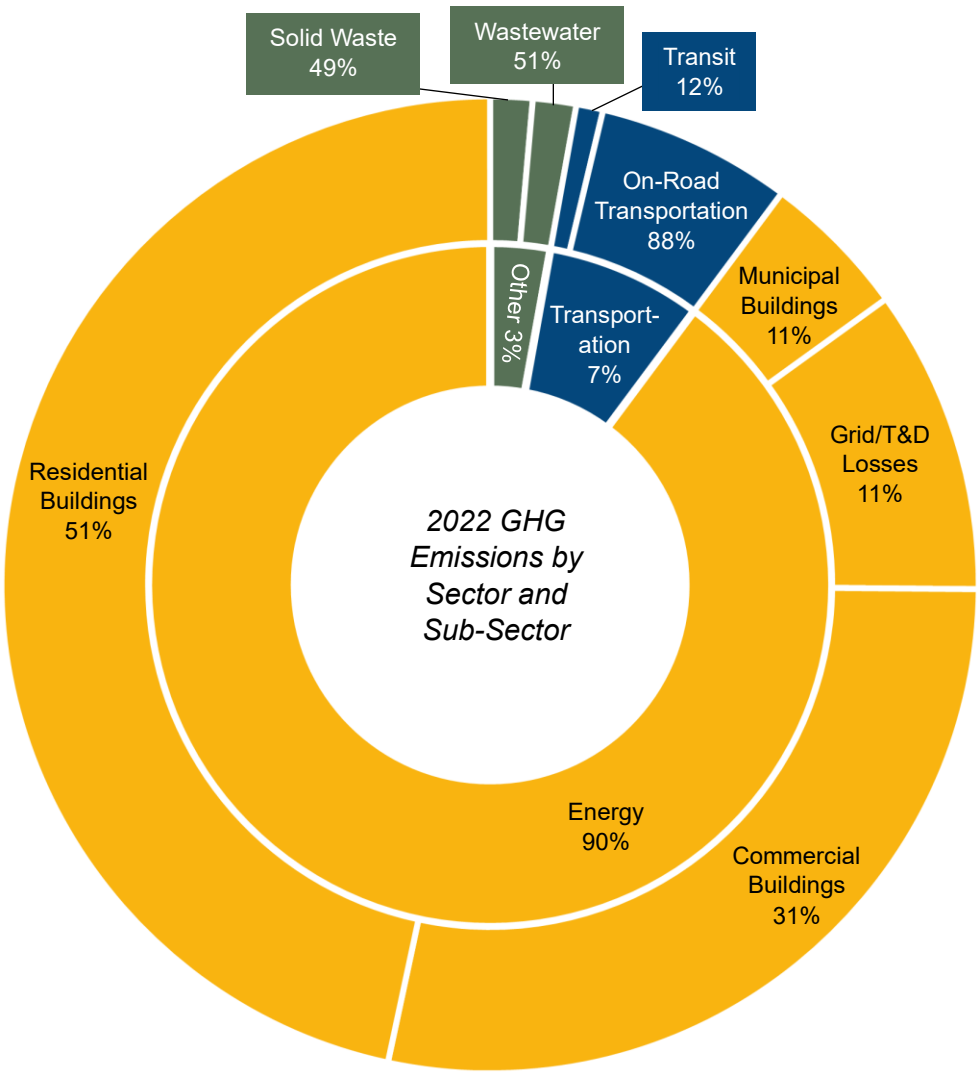
CONTENTS

FIGURES

TABLES

Town of Crested Butte 2022 Greenhouse Gas Emissions Inventory: Executive Summary

In order to inform the Climate Action Plan 2030, the Town of Crested Butte developed a community-wide and municipal greenhouse gas (GHG) emissions inventory. The inventory provides a snapshot of Crested Butte's GHG emissions in 2022, along with a comparison to 2017 data.



23,670 MTCO$_2$e

total community emissions in 2022

5% increase

in calculated community emissions between 2017 and 2022

1,800 MTCo2e

total municipal emissions in 2022, 8% of the community total

Building energy sector

electricity and natural gas are the largest source of emissions

[1] 2017 emissions presented in this report have been recalculated and updated from the original version of the 2017 inventory to align with current best practices.

CHANGE IN EMISSIONS: 2017 TO 2022

The key drivers of change in emissions between 2017 and 2022 include:

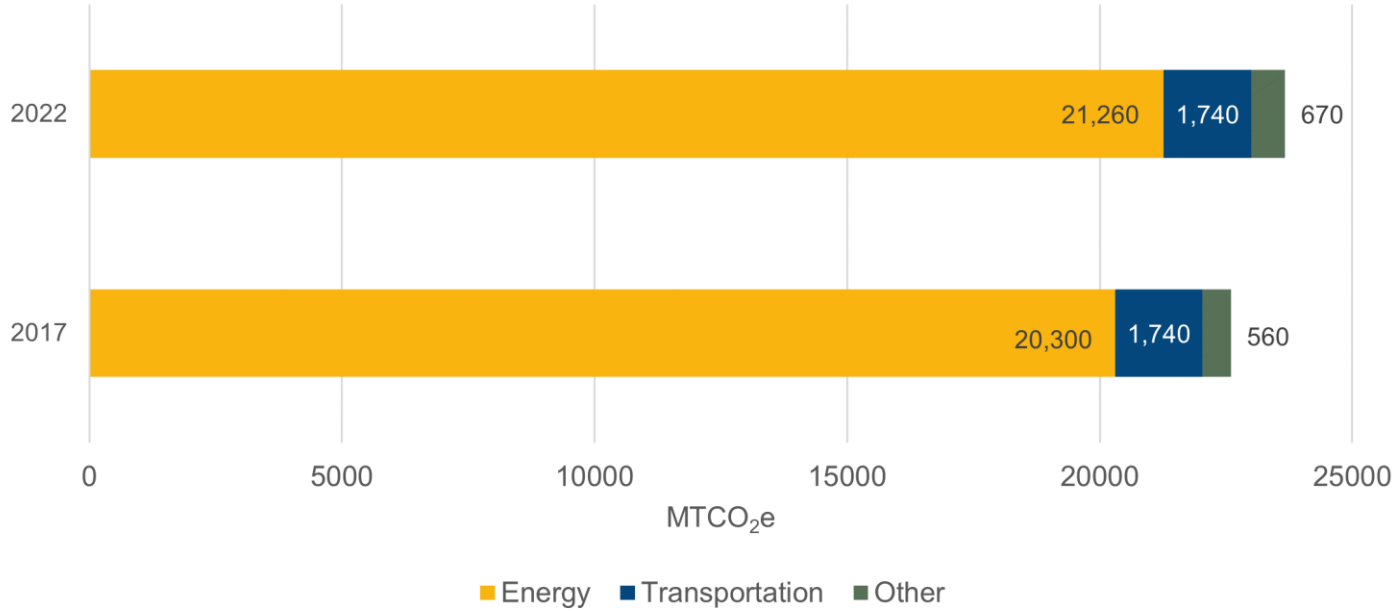
Increased:

- Natural gas usage
- Vehicle miles traveled
- Solid waste generation

Reduced:

- Electricity use
- Emissions factors (electricity, natural gas, vehicle efficiency)

Town of Crested Butte Community Emissions, 2017 and 2022



Sector	2017 ($MTCO_2e$)	2022 ($MTCO_2e$)	Change
Energy	**20,300**	**21,260**	**+5%**
Commercial Buildings	8,750	6,680	-24%
Grid / T&D Losses	1,970	2,390	+21%
Municipal Buildings	Included in Commercial	1,150	N/A
Residential Buildings	9,580	11,040	+15%
Transportation	**1,740**	**1,740**	**0%**
On-Road Transportation	1,740	1,530	-12%
Transit	Not calculated	210	N/A
Other	**560**	**670**	**+20%**
Solid Waste	240	330	+38%
Wastewater Treatment	320	330	+6%
Total Emissions	**22,600**	**23,670**	**+5%**

1. INTRODUCTION

This report provides an estimate of Crested Butte's greenhouse gas (GHG) emissions in 2022 and a comparison to 2017 emissions data.

The purpose of a GHG inventory is to quantify the emissions associated with energy consumption, fuel use, and activities within the community's geographic boundary. The inventory was created as a first step in the development of Crested Buttes Climate Action Plan. The inventory will inform the identification of climate action alternatives in the Climate Action Plan and will enable the Town to evaluate and monitor the impact of alternatives by tracking change in community and municipal emissions over time.

Community Context and Benchmarks

Since actions and trends in the community drive changes in GHG emissions, it is helpful to understand key community characteristics and context that may have influenced 2022 emissions and changes since 2017.

Factor	Description
Population Growth	Population growth is typically associated with increased activity and community emissions. The population of Crested Butte increased 4%, from 1,385 in 2017 to 1,434 in 2022 while the population of Gunnison County increased by 5%. This growth could explain some of the changes in energy use, transportation, and waste generation.
Impact of COVID-19	Evaluating emissions in 2022 avoids the most significant impacts of the COVID-19 global pandemic on activities and emissions in 2020 and 2021. However, since Crested Butte's tourism-driven economy was significantly impacted by the pandemic, some observed changes in emissions may be attributable to lasting indirect impacts of COVID-19.

Establishing New Community Benchmarks

The 2022 inventory establishes new community benchmarks to support GHG emissions trend analysis and evaluation in future years, including:

Factor	2022 Benchmark	Description
Number of Visitors	267,000	Given Crested Butte's small full-time population and high number of visitors, changes in activity may be more closely linked to changes in visitation than changes in the number of residents.
Annual Daily Average Population	2,779 (2021 estimate)	Average daily annual (ADA) is an average of population throughout the entire year.[2] This number was estimated for the Town of Crested Butte Wastewater Treatment Plant Improvements Project.
Heating Degree Days	10,458	Heating degree days (HDD) are a measure of how hot or cold it is in a given year and are a key indicator of natural gas heating demand.
Geographic Area	0.80 square miles	An increase in the geographic area due to annexations into the Town of Crested Butte could be associated with an increase in activity data and services provided by the Town.
Building Area	2,626,995 square feet	An increase in the building area inside the Town could be associated with increased energy use and emissions.

[2] Kingdom, J., and Charbonnet, E., (2021) Wastewater Treatment Plant Improvements Project: Project Memorandum 1

2. SUMMARY OF RESULTS

This inventory was prepared following the Global Protocol for Community-Scale Greenhouse Gas Inventories (GPC) BASIC+ requirements. The 2017 inventory was developed using different methodologies that are not consistent with the GPC protocol. The electricity grid losses, natural gas transportation and distribution losses, on-road transportation, solid waste, and wastewater treatment emissions presented in this report have been recalculated and updated from the original version of the 2017 inventory to align with current best practices that account more holistically for community emissions.

This section provides a summary of community and municipal inventory results by sector and includes a breakdown of community emissions by scope. **The inventory includes Scope 1 and Scope 2 emissions relevant to Crested Butte and accounts for Scope 3 solid waste emissions attributable to activities within Crested Butte.**

Scope	Definition	Sources Included In This Inventory
Scope 1	GHG emissions from sources located within the Town boundary.	• Natural gas use • Wastewater treatment processes • Transportation within Town limits
Scope 2	GHG emissions occurring as a consequence of the use of grid-supplied electricity, heat, steam, and/or cooling within the Town boundary.	• Electricity use
Scope 3	All other GHG emissions that occur outside the town boundary as a result of activities taking place within the Town boundary.	• Solid waste disposal

Community Emissions Summary

Community Emissions By Sector and Scope

Total community emissions for the Town of Crested Butte were 23,670 $MTCO_2e$ in 2022. As shown in **Figure 1**, by far the largest source of emissions was the Energy sector, accounting for 90% of the total, followed by Transportation at 7%, and Other emissions (Wastewater Treatment and Solid Waste) at 3%.

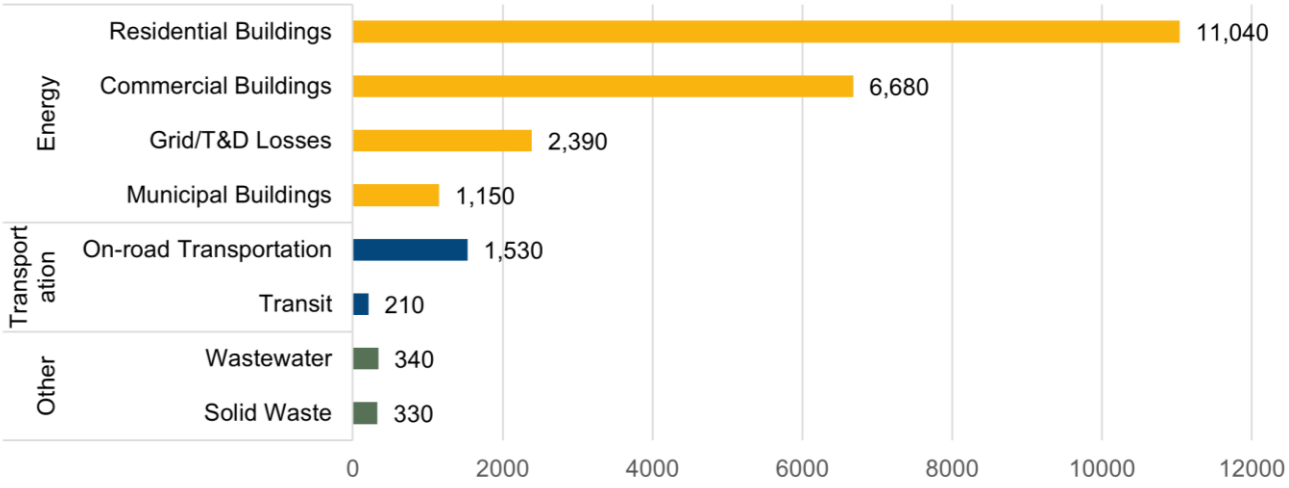


Figure 1. Town of Crested Butte GHG Emissions Summary by Sector And Subsector, 2022

Table 1 provides a more detailed summary of Crested Butte's emissions by sector, source and scope, showing that only a small portion of Scope 3 emissions are included in this inventory. Emissions are fairly evenly distributed between Scope 1 and 2.

Table 1: Community Emissions by Scope, Sector, and Source

Scope, Sector, Source	2022 $MTCO_2e$
Scope 1	**11,370**
Energy	**9,310**
Natural Gas	**9,310**
Commercial	2,590
Municipal	350
Residential	4,580
T&D Losses	1,790
Other	**340**
Wastewater	**330**
Wastewater Treatment Process	10
Wastewater Treatment Fugitive	330
Transportation	**1,720**
On-road Vehicle Transportation	**1,510**
Diesel	250
Gasoline	1,060
Municipal	200
Transit	**210**
Diesel	200
Compressed Natural Gas	10
Scope 2	**11,970**
Energy	**11,950**
Electricity	**11,950**
Commercial	4,090
Grid Loss	600
Municipal	800
Residential	6,460
Transportation	**20**
On-road Vehicle Transportation	**20**
Electric	20
Scope 3	**330**
Other	**330**
Solid Waste	**330**
Grand Total	**23,670**

Change in Community Emissions

While the 2017 emissions data presented in this report were calculated to align with current best practices, caution should still be exercised in drawing assumptions about trends between two individual years. As the Town creates future inventories using consistent methodology, it will become easier to reliably compare emissions and track trends over time.

As shown in **Figure 2** and **Table 2**, calculated emissions for 2022 were 5% higher than those for 2017.

The increase in calculated emissions was driven by increases in natural gas use, residential electricity use, vehicle miles traveled, and solid waste generation. Change in these sub-sectors was offset, in part, by reduced commercial electricity use and decreasing emission factors, including for electricity and vehicle efficiency.

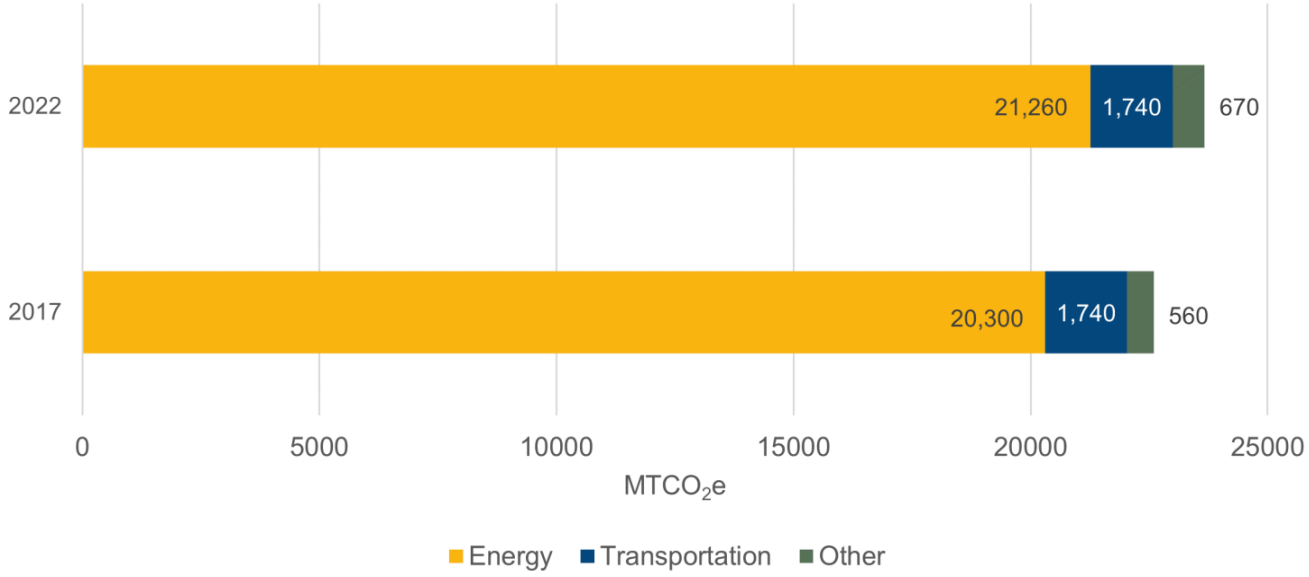


Figure 2. Town of Crested Butte Community GHG Emissions by Sector, 2017 and 2022

Table 2. Community Emissions by Sector and Sub-Sector, 2017 and 2022

Sector	2017 ($MTCO_2e$)	2022 ($MTCO_2e$)	Change
Energy	**20,300**	**21,260**	**+5%**
Commercial Buildings	8,750	6,680	-24%
Grid / T&D Losses	1,970	2,390	+21%
Municipal Buildings	Included in Commercial	1,150	N/A
Residential Buildings	9,580	11,040	+15%
Transportation	**1,740**	**1,740**	**0%**
On-Road Transportation	1,740	1,530	-12%
Transit	Not calculated	210	N/A
Other	**560**	**670**	**+20%**
Solid Waste	240	330	+38%
Wastewater Treatment	320	330	+6%
Total Emissions	**22,600**	**23,670**	**+5%**

Community Emissions Per Capita

Total calculated emissions per capita were approximately 16.5 $MTCO_2e$, a slight increase from 16.3 $MTCO_2e$ in 2017.

For comparison, **Figure 3** below shows per capita emissions from peer cities, the State of Colorado and the United States. Note that while these comparison cities are all mountain communities with tourism-based economies, they vary in size and are all larger than Crested Butte. Additionally, each of these communities have unique characteristics and different scales and scopes included in their GHG inventories, which means that direct comparison should be approached with caution, for example Aspen's inventory includes aviation emissions at the Aspen-Pitkin County Regional Airport.

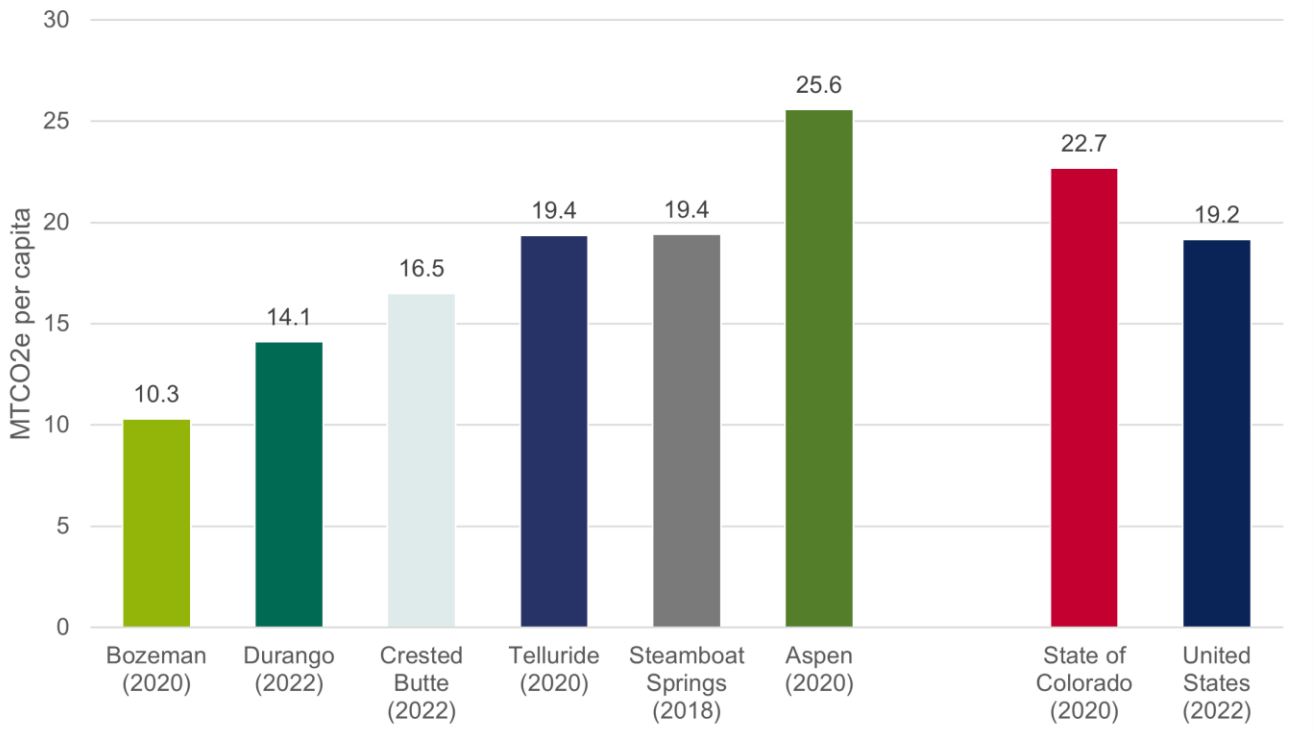


Figure 3. Community Emissions by Capita Comparison[4]

[3] City of Bozeman 2020 Community Greenhouse Gase Emissions Inventory Report, City of Durango 2022 Community and Municipal Greenhouse Gas Emissions Inventory, Town of Telluride 2020 Greenhouse Gas Emissions Inventory, Routt County and City of Steamboat Springs 2018 Greenhouse Gas Inventory and Forecasted Emissions Report, City of Aspen 2020 Greenhouse Gas Emissions Report, 2023 Colorado Statewide Inventory of Greenhouse Gas Emissions and Sinks, U.S. Greenhouse Gas Emissions 2022

Municipal Emissions Summary

This section describes emissions associated with Town of Crested Butte municipal operations. In 2022, total municipal emissions were 1,800 $MTCO_2e$ and accounted for approximately 8% of total community emissions.

Municipal Emissions by Sector

Figure 4 shows municipal emissions by sector and subsector. Energy accounted for 71% of total municipal emissions, fleet vehicles accounted for 11% and wastewater treatment processes accounted for 18%.

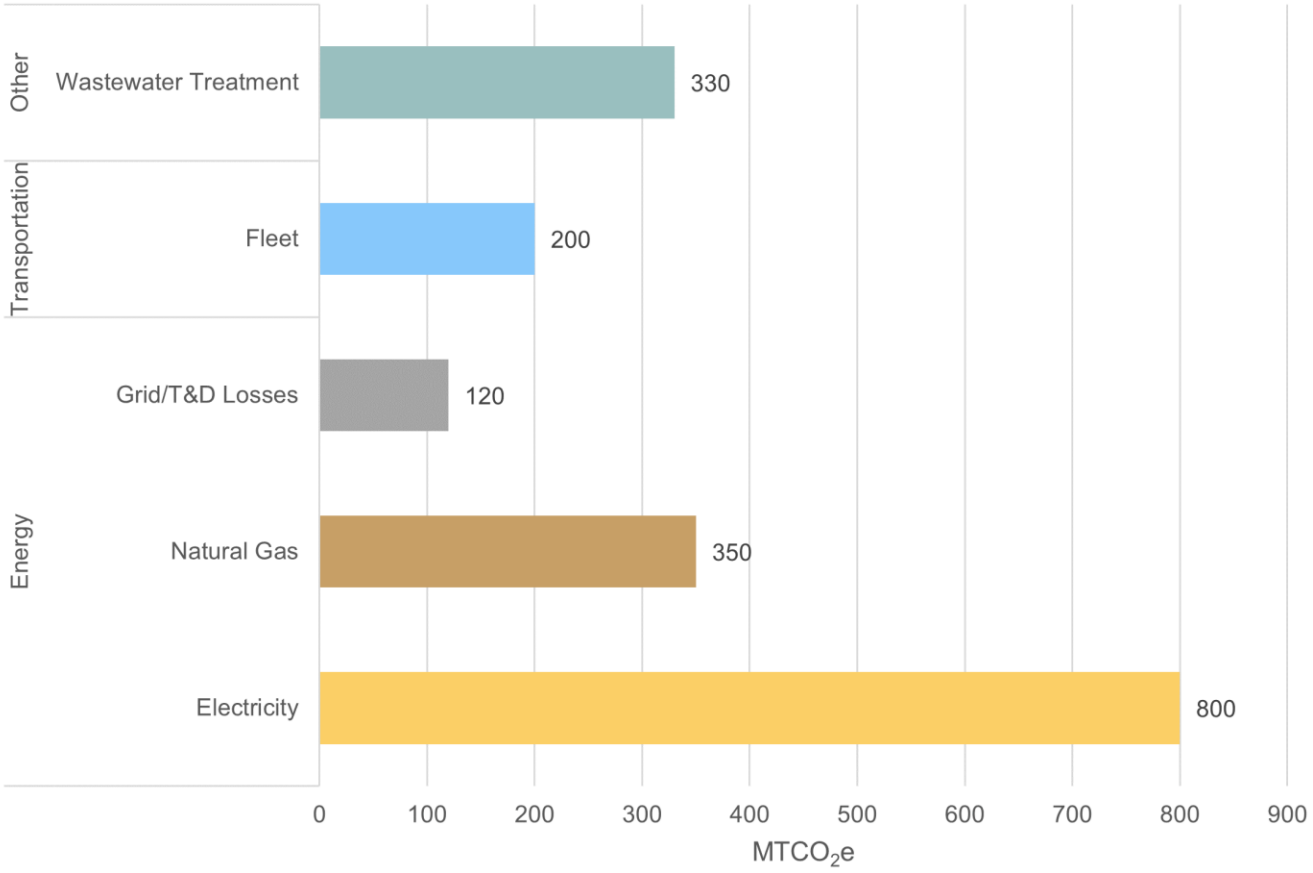


Figure 4. Town of Crested Butte Municipal GHG Emissions by Sector, 2022

Municipal Emissions: New Methodology

Municipal emissions, other than electricity used in wastewater treatment, were not separated out from community emissions in Crested Butte's 2017 inventory. The 2022 municipal emissions inventory was developed to align with best practices outlined in the ICLEI Local Government Operations Protocol and provide a more holistic picture of emissions associated with government operations.

The municipal inventory includes energy emissions from electricity, natural gas usage, and associated losses; gasoline and diesel use by Town fleet; and wastewater treatment process and fugitive emissions. The emissions from electricity used in wastewater production in 2022 are included in the total municipal electricity use total, in accordance with current best practices.

3. ENERGY EMISSIONS

This section provides an overview of emissions associated with energy used in the built environment, including electricity and natural gas use in residential, commercial, and municipal buildings, as well as the associated distribution system losses.

Emissions Snapshot

Total community energy emissions in 2022 were 21,260 $MTCO_2e$, accounting for 90% of Crested Butte's total community emissions. Emissions included in this sector were 5% higher in 2022 than 2017.

As shown in **Table 3**, the increase in energy emissions is driven by a 15% increase in residential building emissions and a 21% increase in energy losses. This increase was partially offset by an 11% reduction in commercial and municipal building emissions. Since municipal building emissions were not separated out from commercial buildings in 2017, Table 3 compares 2022 combined commercial and municipal emissions to the 2017 commercial subsector.

Table 3: Town of Crested Butte Energy Emissions, 2017 and 2022

Subsector	2017 $MTCO_2e$	2022 $MTCO_2e$	Percent Change
Residential Buildings	9,580	11,040	+15%
Commercial Buildings	8,750	6,680	-11%*
Municipal Buildings	Included in commercial	1,150	
Losses (Transmission & Distribution, Process & Fugitive)	1,970	2,580	+21%
Total	**20,030**	**21,260**	**+5%**

*Change in commercial and municipal emissions combined since municipal was not separated out from commercial in 2017.

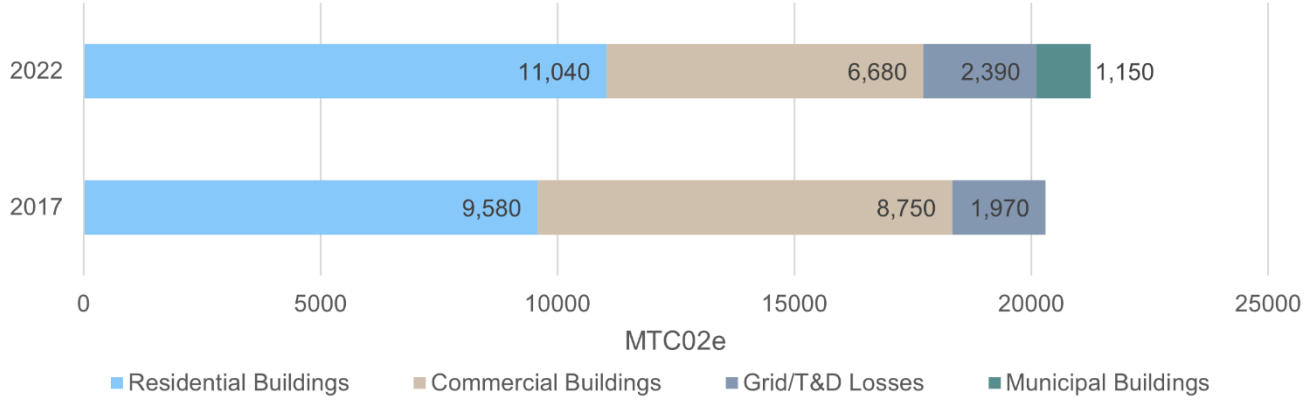


Figure 5. Town of Crested Butte 2017 and 2022 Energy Emissions

Electricity

Total electricity emissions in 2022 were 11,950 $MTCO_2e$, and account for 56% of total energy sector emissions, down from 63% in 2017. As shown in **Table 4** and **Figure 6**, total electricity emissions were 5% lower in 2022 than 2017.

Table 5 shows the change in electricity use between 2017 and 2022.

Table 4: Electricity Emissions, 2017 and 2022

Subsector	2017 $MTCO_2e$	2022 $MTCO_2e$	Percent Change
Residential Buildings	6,080	6,460	+6%
Commercial Buildings	5,960	4,090	-18%*
Municipal Buildings	Not calculated	800	
Transmission & Distribution Losses	510	600	+18%
Total	**12,550**	**11,950**	**-5%**

*Change in commercial and municipal emissions combined since municipal was not separated out from commercial in 2017.

Figure 6. Electricity Emissions by Sub-sector, 2017 and 2022

Table 5: Electricity Inputs

Source	Unit[4]	2017 Input	2022 Input	Percent Change
Residential Use	kWh	8,697,045	9,371,583	+8%
Commercial Use	kWh	8,530,477	5,926,335	-17%*
Municipal Use	kWh	0	1,159,667	
Total	**kWh**	**17,227,522**	**16,457,585**	**-4%**
Emissions Factor	lbs CO_2e/MWh	1,541	1,520	-1%
Grid Loss Factor	%	4.2%	5.3%	+26%

[4] A kilowatt-hour (kWh) is a unit of measurement for energy consumption and the amount of energy used by a 1,000-watt appliance running for one hour. A megawatt hour (MWH) is equal to 1,000 kWh.

*Change in commercial and municipal use combined since municipal use was not separated out from commercial in 2017.

Key Drivers of Change in Electricity Emissions

The reduction in community electricity emissions is driven by a combination of lower commercial electricity consumption, and a reduced electricity emissions factor. Together, these changes offset an increase in residential electricity use and the grid transmission and distribution loss factor from 2017 to 2022.

Key drivers of change include:

- **Reduced total electricity usage:** Total electricity consumption in 2022 was 4% lower than in 2017, contributing to the overall reduction in emissions.
    - **Reduced commercial electricity consumption:** Electricity used in commercial buildings accounted for approximately 34% of total electricity emissions in 2022. As shown in
    - **Table** 5, total combined commercial and municipal electricity use decreased by 17% between 2017 and 2022. While the reason for this reduction is unknown, it could be connected to commercial energy efficiency measures and/or a reduction in commercial activity or the number of businesses operating in Crested Butte.
    - **Municipal electricity consumption:** Electricity used in municipal buildings and facilities was not separated out from commercial use in 2017 but accounted for approximately 7% of total community electricity emissions in 2022.
    - **Increased residential electricity consumption:** Electricity used in residential buildings accounted for 54% of total electricity emissions in 2022 and consumption was 8% higher in 2022 compared to 2017.
- **Reduced electricity emissions factor**: The local emissions factor (CO_2e per MWH) provided by Gunnison County Electric Association (GCEA) has decreased by 1% since 2017, as shown in
- **Table** 5. This change resulted in a 6% decrease in emissions associated with residential, commercial, and municipal electricity use, larger than the 4% reduction in total consumption. The emissions factor of GCEA's electricity supply is forecasted to continue decreasing as more renewable generation is brought online.
- **Increased transmission and distribution loss factor:** The loss factor associated with electricity use increased from 4.2% in 2017 to 5.3% in 2022. Grid losses accounted for 4% of total electricity emissions in 2017 and 5% in 2022.

Solar Generation

In 2022 there was a total of 226kW of solar photovoltaic (PV) capacity installed in Crested Butte, including 126kW of residential, 70kW of commercial and 30kW of municipal solar. This installed solar generates approximately 343,700kWh of local renewable electricity each year and reduces the total amount of electricity that residents, businesses, and the Town of Crested Butte need to purchase from the grid. Monitoring the amount of installed local renewable generation going forward will enable the Town to track the impact on electricity use and emissions.

Natural Gas

Total natural gas emissions in 2022 were 9,310 $MTCO_2e$ and accounted for 44% of total energy sector emissions, up from 38% in 2017. As shown in **Table 6**, total natural gas emissions were 20% higher in 2022 than 2017. **Table 6** shows the change in natural gas use between 2017 and 2022.

Table 6: Natural Gas Emissions, 2017 and 2022

Subsector	2017 $MTCO_2e$	2022 $MTCO_2e$	Percent Change
Residential Buildings	3,500	4,580	+31%
Commercial Buildings	2,790	2,590	+5%
Municipal Buildings	Not calculated	350	
Process & Fugitive	1,460	1,790	+23%
Total	**7,750**	**9,500**	**+20%**

*Change in commercial and municipal emissions combined since municipal was not separated out from commercial in 2017.

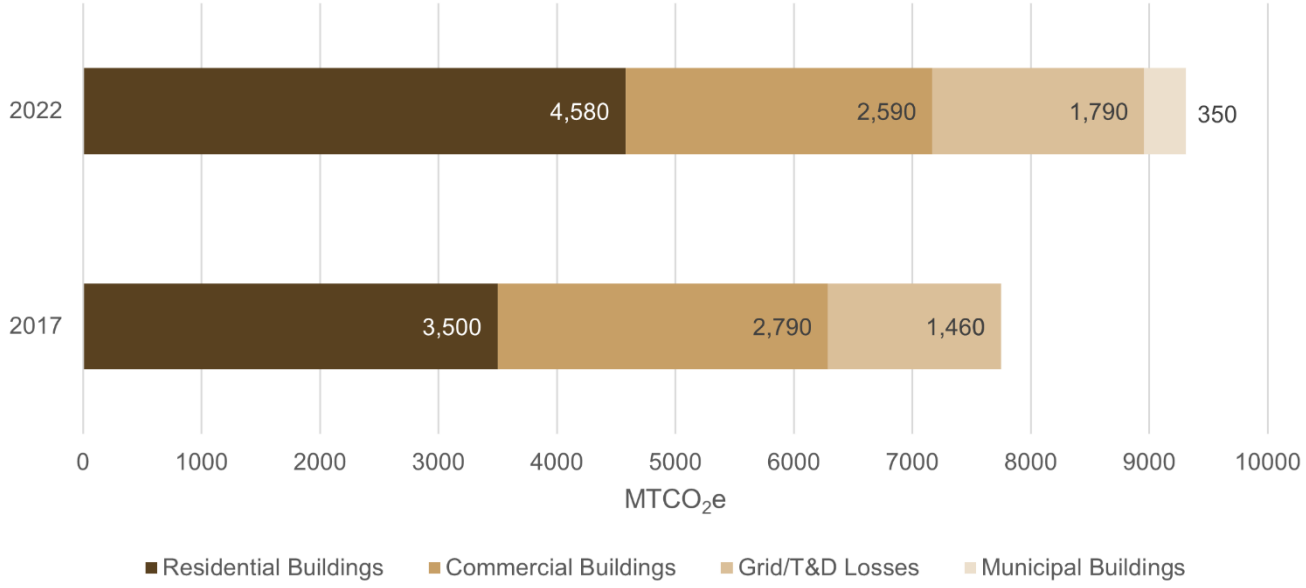


Figure 7. Natural Gas Emissions by Sub-sector, 2017 and 2022

Table 7: Natural Gas Inputs

Sector	Unit[5]	2017 Input	2022 Input	Percent Change
Residential Use	MCF	64,090	86,000	34%
Commercial Use	MCF	51,074	48,659	8%
Municipal Use	MCF	0	6,511	
Total	**MCF**	**115,164**	**141,170**	**23%**
Emissions Factor	MT/MCF	0.055	0.053	-2%
Leakage Rate	g CH_4/MCF	425	425	-

*Change in commercial and municipal use combined since municipal use was not separated out from commercial in 2017.

[5] MCF is an abbreviation for thousand cubic feet, a measurement of natural gas.

Key Drivers of Change in Natural Gas Emissions

Changes to natural gas consumption as well as an update to the associated fugitive emissions impacted natural gas emissions, driving the overall increase in energy emissions.

- **Increased natural gas consumption**: Total natural gas usage was 23% higher in 2022 compared to 2017.
    - **Increased residential natural gas consumption**: Residential buildings account for 49% of total natural gas emissions and consumption increased by 34% in 2022 compared to 2017. Residential natural gas use has increased steadily since at least 2019, with a 12% increase between 2019 and 2023. The 2022 increase compared to 2017 is also associated with 42% higher in Heating Degree Days (HDDs)[6], indicating that 2022 was a colder year than 2017 with a significantly higher home heating demand. Additional years of data will be needed to understand if there is a trend in natural gas use.
    - **Increased commercial natural gas consumption**: Natural gas in commercial buildings accounted for 28% of natural gas consumption. As shown in
    - **Table** 7, municipal natural gas use was not separated out from commercial use in 2017. Total combined commercial and municipal natural gas use increased by 8% between 2017 and 2022. Commercial gas use has been relatively steady between 2019 and 2023. Similar to residential natural gas use, the increase in commercial use in 2022 compared to 2017 is likely linked to the higher HDDs.
    - **Municipal natural gas consumption**: Natural gas used in municipal buildings and facilities was not separated out from commercial use in 2017 but accounted for 4% of natural gas emissions in 2022.
- **Updated natural gas emissions factor:** The 2022 inventory uses standard natural gas emissions factors updated annually by The Climate Registry. The emissions factor used in the 2017 inventory was 2% higher than that used in the 2022 inventory.
- **No change in natural gas leakage rate:** The 2017 and 2022 emissions inventories include an estimate of natural gas process and fugitive emissions based on survey data of natural gas system leaks in the United States. Leakage rates of the natural gas system have been found to be significantly higher than is estimated by the EPA and can vary significantly between municipalities and utilities. The inventory utilizes surveyed leakage rates in Denver, CO, which are slightly below the median leakage rate for U.S. cities surveyed. These emissions accounted for 19% of natural gas emissions in 2022.

[6] Heating Degree Days (HDD) are a measure of how cold the weather was over a time period and are used as an indicator of the amount of energy needed to heat a building over that period.

4. TRANSPORTATION EMISSIONS

This section provides an overview of transportation emissions, including on-road transportation within the Town boundary, as well as a portion of emissions from public transit that is attributable to the mileage driven by buses within the Town.

Emissions Snapshot

Total transportation emissions in 2022 were 1,740 $MTCO_2e$, accounting for 7% of total community emissions as shown in **Table 8**, down from 8% in 2017. The difference between 2017 and 2022 emissions was negligible shown in **Table 8** and **Figure 8** and Transit emissions were not calculated for 2017. **Table 9** shows the change in transportation sector inputs.

Table 8: Transportation Emissions, 2017 and 2022

Subsector	2017 $MTCO_2e$	2022 $MTCO_2e$	Percent Change
On-road Transportation	1,740	1,530	-12%
Transit	Not calculated	210	-
Total	**1,740**	**1,740**	**0%**

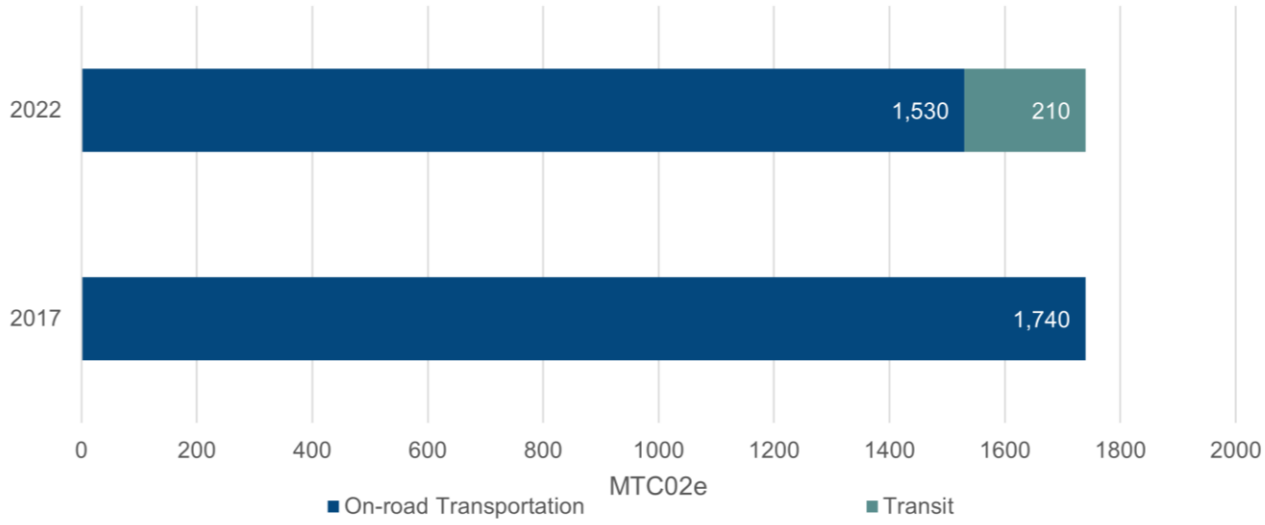


Figure 8. Transportation Emissions by Sub-sector, 2017 and 2022

Table 9: Transportation Inputs

Category	Source	Unit	2017 Inputs	2022 Inputs	Percent Change
On-Road Miles Traveled	Vehicle Miles Traveled (VMT)	VMT	3,567,016	3,578,796	0%
Public Transit	Diesel – Gunnison Valley RTA	Gallons	N/A	331	-
	CNG – Gunnison Valley RTA	GGE[7]	N/A	1,423	-
	Diesel – Mountain Express	Gallons	N/A	18,970	-
	VMT – Gunnison Valley RTA	VMT	N/A	9,011	-
	VMT – Mountain Express	VMT	N/A	85,364	-

[7] Gasoline gallon equivalent (GGE) is used to measure the amount of compressed natural gas (CNG) used.

Key Drivers of Change in Transportation Emissions

A reduction in on-road transportation emissions was negated by the inclusion of transit emissions in 2022, resulting in negligible change in total transportation emissions between 2017 and 2022.

- **Reduced vehicle emissions:** Total on-road vehicle emissions accounted for 8% of total transportation emissions and 6% of community emissions in 2022. On-road emissions decreased by 12% from 2017 to 2022.
    - **Negligible change in on-road VMT:** On-road VMT was back-calculated using an updated methodology for 2017 and there was negligible change in estimated VMT between 2017 and 2022.
    - **Increased internal combustion engine vehicle efficiency:** Since 2016, vehicle efficiencies have increased, and the national allocation of gasoline vehicles by class has shifted, leading to a larger percentage of more efficient vehicles on the road and a reduction in emissions per vehicle miles traveled.
    - **Electric vehicles:** Emissions associated with electricity used to power electric vehicles (EVs) were included in the 2022 inventory. While EVs represent a very small percentage of total emissions, tracking the impact of transportation electrification will be important as EV adoption increases.
- **Transit:** The 2022 inventory separates out emissions associated with public transit routes inside the Town of Crested Butte. This sub-sector accounts for 12% of transportation emissions.

Active Transportation

While the majority of visitors to Crested Butte drive to the Town, 95% of trips with an origin and destination within Crested Butte are completed on foot or by bike. This very high percentage of active transportation trips helps reduce Crested Butte's in-Town community transportation emissions.

Transportation Outside Crested Butte Town Limits

While this emissions inventory does not account for the impacts of transportation associated with Crested Butte but occurring outside of Town limits, also known as Scope 3 transportation emissions, the Climate Action Plan may still consider actions to reduce the impact of visitor and resident travel to and from Crested Butte.

5. OTHER EMISSIONS

This section provides an overview of emissions associated with the disposal of solid waste and wastewater generated inside Town limits in landfills located outside of Crested Butte.

Emissions Snapshot

Total solid waste emissions in 2022 were 330 $MTCO_2e$ and wastewater treatment process and fugitive emissions were 340 $MTCO_2e$ as shown in **Table 10**. Together, solid waste and wastewater treatment emissions accounted for just 3% of total community emissions. The 2022 solid waste emissions were 38% higher than the updated 2017 emissions and wastewater treatment emissions were 6% higher as shown in **Table 10** and **Figure 9**.

Table 11 shows the waste and wastewater inputs.

Table 10: Solid Waste and Wastewater Treatment Emissions, 2017 and 2022

Subsector	2017 $MTCO_2e$	2022 $MTCO_2e$	Percent Change
Solid Waste Total	**240**	**330**	**38%**
Wastewater Treatment Processes	10	10	0%
Wastewater Fugitive Emissions	310	330	6%
Wastewater Total	**320**	**340**	**6%**
Other Total	**560**	**670**	**20%**

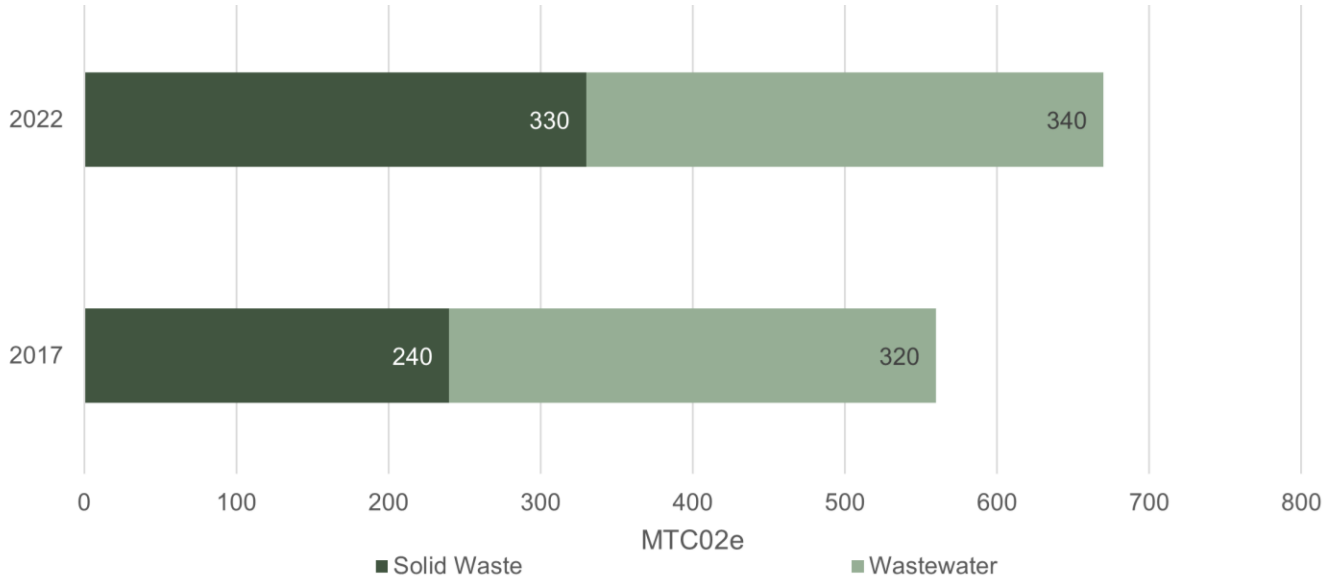


Figure 9. Solid Waste and Wastewater Treatment Emissions, 2017 and 2022

Table 11: Waste Inputs

Sector	Unit	2017 Amount	2022 Amount	Percent Change
Total Landfilled Waste	tons	466	629	35%
Average Daily Population	people	2,673	2,818	5%

Key Drivers of Change in Other Emissions

Both solid waste and wastewater emissions for 2017 were recalculated to allow for comparison using emissions factors and methodology aligned with current best practices. The increase in emissions for both sub-sectors from 2017 to 2022 was therefore directly in-line with change in the inputs used for calculation.

- **Community waste generation:** Both the volume of waste sent to landfill and emissions associated with waste generation increased, by 35% and 38% respectively between 2017 and 2022. While this increase could be driven by increased visitor numbers, additional years of data will be required to infer a trend.
- **Wastewater treatment process and fugitive emissions:** Wastewater treatment emissions are tied to the processes used for treatment and directly proportional to the population served. Both the average daily population served by Crested Butte's wastewater treatment plant and the emissions associated with treatment increased from 2017 to 2022, by 5% and 6% respectively.

Waste Diversion

In 2022, 30% of Crested Butte's total waste generation was diverted from landfill, including 263 tons of material sent for recycling and 11 tons of material composted locally. Diverting waste from landfill reduces waste emissions and tracking the total diversion rate over time will enable the Town to monitor the impact of actions to reduce and divert waste in the future.