TOWN OF JAY

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Town of Jay
Greenhouse Gas Inventory for Government Operations
2023 Summary Report

CREDITS AND ACKNOWLEDGEMENTS

This report was prepared by the Town of Jay Climate Smart Communities Taskforce, spearheaded by Councilor Knut Sauer, and with the support of Carlie Leary from ANCA. Special thanks to Supervisors Clerk Michelle Axtell, Town Clerk Carol Greenley Hackel, and Highway Clerk Jessie McDonald for all their input and data collection. The taskforce also appreciates the ongoing support provided by the town council, town supervisor, and all town staff.

BACKGROUND

The Town of Jay recognizes that greenhouse gas (GHG) emissions from human activity are causing climate change, the consequences of which pose substantial risks to the future health and well-being of our community. To demonstrate its commitment to addressing the growing threat of climate change, in 2021 the Town of Jay became a registered Climate Smart Community by formally adopting the New York State Climate Smart Communities (CSC) pledge.

The CSC program, administered by the New York State Department of Environmental Conservation (DEC), is a certification program that provides a robust framework to guide the actions local governments can take to reduce GHG emissions and adapt to the effects of climate change. The first step in this process is to perform a GHG Inventory for all buildings, vehicles and operations controlled by the local government. Using data from 2023, this GHG inventory provides a baseline for which the Town can set emissions and operation costs reduction goals, determine ways in which those goals can be reached, and track progress.

This GHG Inventory for Government Operations Report summarizes the GHG emissions from the Town of Jay's consumption of energy and materials within town-owned buildings, the Water Treatment Plant, vehicle fleet, outdoor lighting, and other facilities. This data was generated from electric, propane, and fuel oil bills for all Town owned buildings and operations, as well as fuel records for the Town's vehicle fleet. The GHG emissions for all local government operations are measured in metric tons of CO2 equivalents (CO2e) and were calculated using emissions factors by the US Energy Information Administration (EIA), US Environmental

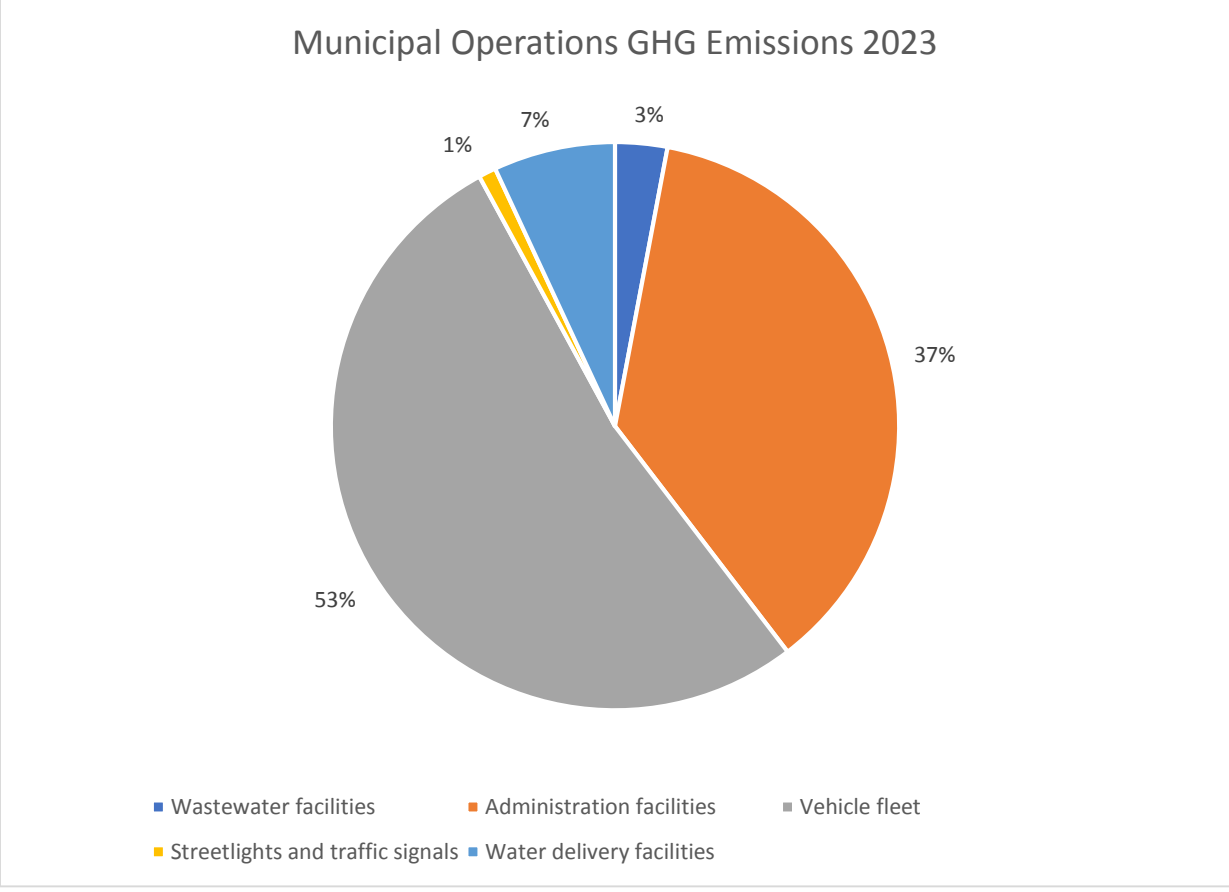
Protection Agency (EPA) and the Climate Action Associates (CAA), LLC's GHG Inventory Tool.

KEY FINDINGS

In 2023, GHG emissions from the Town of Jay's government operations totaled 413 CO2e. Figure 1 shows the emissions for government operations broken down by sector. The vehicle fleet accounts for the largest percentage of GHG emissions at 53%. The second largest contributor is the Town's administration facilities, which includes buildings, parks, and sheds with 37% of emissions. Water delivery, wastewater treatment, and streetlights make up the remaining 11% of emissions.

The Inventory Results section of this report provides a detailed profile of emissions sources within the Town of Jay. This data will also provide a baseline from which the Town will be able to compare future performance and demonstrate progress in reducing emissions.

Figure 1: 2023 Town of Jay Government Operations Emissions by Sector



DATA GATHERING AND METHODOLOGY

The first step toward achieving tangible greenhouse gas emission reductions requires identifying baseline emissions levels and sources and activities generating emissions in the community. The Town of Jay is focusing first on government operations emissions to lead by example and will inventory community-wide emissions in a future report.

The CSC Task Force appointed Knut Sauer to lead the GHG Inventory data collection effort, with the help of the Adirondack North Country Association (ANCA). The GHG Inventory spreadsheet used was developed by Climate Action Associates, LLC.

Emissions Scopes

For the government operations inventory, emissions are categorized by scope. Using the scopes framework helps prevent double counting. There are three emissions scopes for government operations emissions, as defined below:

- Scope 1: All direct emissions from a facility or piece of equipment operated by the local government, usually through fuel (natural gas, propane, and fuel oil) combustion. Examples include emissions from fuel consumed by the Town's vehicle fleet and emissions from a furnace in a municipal building.
- Scope 2: Indirect GHG emissions from purchased electricity. This refers to operations powered by grid electricity.
- Scope 3: All other indirect GHG emissions not covered in scope 2. Examples include contracted services, emissions in goods purchased by the local government and emissions associated with disposal of government generated waste.

This inventory only accounts for only Scope 1 and 2 emissions, as they are the most essential components of a government operations greenhouse gas analysis and are most easily affected by local policy making. Under the DEC's CSC program, tracking Scope 3 is encouraged, but optional.

Baseline Year

The inventory process requires the selection of a baseline year. Local governments examine the range of data they have over time and select a year that has the most accurate and complete data for all key emission sources. It is also preferable to establish a base year several years in the past to be able to account for the emissions benefits of recent actions. A local government's emissions inventory should comprise all greenhouse gas emissions occurring during the selected baseline year. The Town of Jay chose 2023 as the baseline year in an effort to reflect the most current state of operations.

Quantification Methods

Greenhouse gas emissions in this inventory are quantified using calculation-based methodologies. Calculation-based methodologies calculate emissions using activity data and emissions factors. To calculate emissions accordingly, the basic equation is used:

$$Activity\ Data \times Emissions\ Factor_{(Fuel,\ GHG)} = GHG\ Emissions_{(Fuel,\ GHG)}$$

Activity data refer to the relevant measurement of energy use or other greenhouse has-generating processes such as fuel consumption by fuel type, metered annual electricity consumption, and annual vehicle miles traveled. To obtain this data, the Town gathered and reviewed all electric, propane, and fuel oil bills for the Town's accounts, as well as fuel records for gasoline and diesel used to power the Town's vehicle fleet.

Calculations for this inventory were made using CAA's GHG Inventory Tool. Data was first measured in kWh for grid electricity and gallons for gasoline, fuel oil, diesel, and propane. Using the CAA tool, this data was multiplied by emission factors published by the EPA and EIA to convert the energy usage, or other activity data in quantified emissions.

Emissions Factors

Each GHG has an emission factor unique to each fuel. The electricity emission factor is based on the EPA eGRID subregion, which in this case is NYUP (Upstate). The propane, heating oil/diesel, and gasoline emissions factors are taken from the EIA database on carbon dioxide emissions coefficients. The GHG emissions in this inventory are measured in metric tons of CO2 equivalents (CO2e).

Facilities Master List

A key step in creating the GHG inventory is to compile a facility master list that includes the Town's buildings, parks, sheds, and streetlights that use at least one form of energy. Each was assigned to a category to indicate the type of infrastructure and then similar facilities along with their energy use.

INVENTORY RESULTS

For developing emissions reduction policies, it is often most useful to look at emissions broken down by sector, as each sector will have a particular set of strategies to reduce emissions. Figure 1 shows the emissions for government operations broken down by sector. Figure 1 and Table 1 show the Town of Jay's government operations emissions broken down by sector, while Figure 2 and Table 2 show the emissions by source.

Figure 1: 2023 Town of Jay Government Operations Emissions by Sector

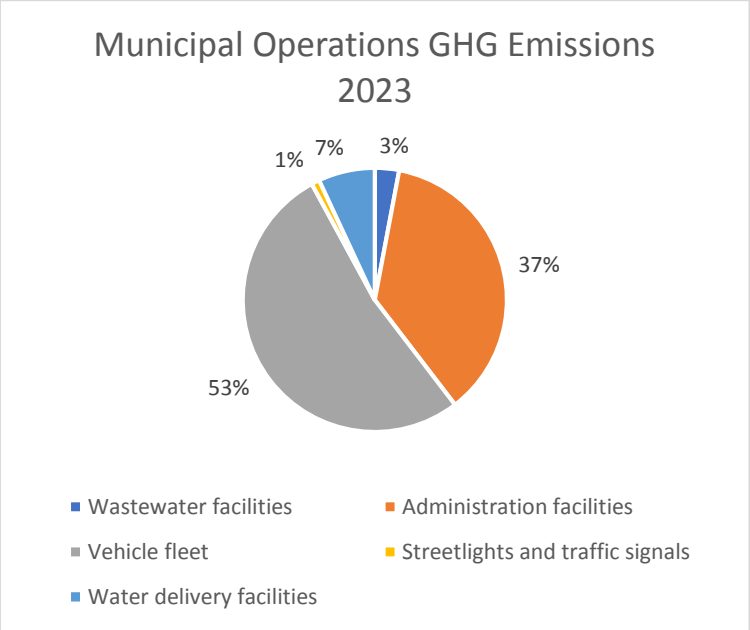


Table 1: 2023 Town of Jay Government Operations Emissions by Sector

	GHG Emissions (MTCO2e)
	Year: 2023
All Municipal Operations	413.32
Wastewater facilities	12.4
Administration facilities	153.7
Vehicle fleet	217.3
Streetlights and traffic signals	2.5
Water delivery facilities	27.4

Wastewater facilities includes the energy used to power the wastewater treatment plant as well as fugitive emissions from treatment processes. Administration facilities includes all buildings, sheds, garages, and parks. The Vehicle fleet includes any equipment that uses diesel or gasoline (including on-road vehicles, off-road vehicles, and landscaping equipment). Water delivery services includes water treatment and pump stations.

Figure 2: 2023 Town of Jay Government Operations Emissions by Source

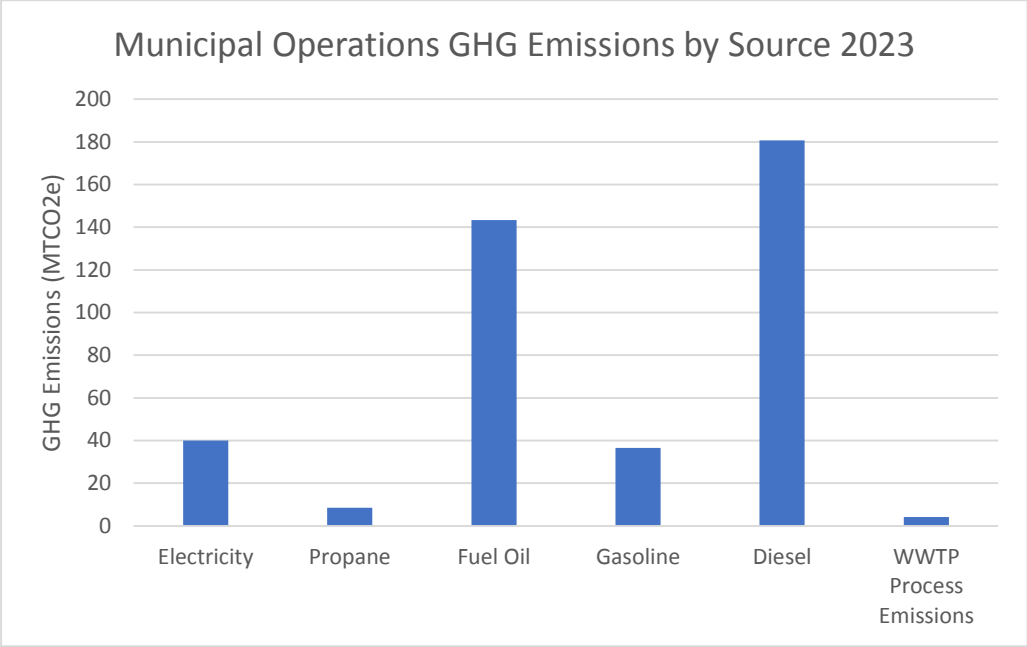


Table 2: 2023 Town of Jay Government Operations Emissions by Source

	GHG Emissions (MTCO2e)
	2023
All Sources	413.3
Electricity	40.01
Propane	8.56
Fuel Oil	143.37
Gasoline	36.58
Diesel	180.71
WWTP Process Emissions	4.1

Diesel is the largest emitter for the Town of Jay's municipal operations. This is typical for a rural, North Country community as there are many miles of roads that need to be plowed and maintained. Fuel oil is the second largest contributor to GHG emissions and is used for heating in the Community Center and Sheldrake Shed.

OPPORTUNITIES TO REDUCE GREENHOUSE GASES

Developing a GHG emissions baseline enables the Town to set goals and targets for future reduction of GHG emissions.

The Town has been proactive to reduce GHG emissions and energy costs. The Town of Jay is active in NYSERDA's Clean Energy Communities (CEC) Program. Through CEC, the Town has completed:

- Benchmarking: passed a resolution to track energy use in buildings over 1,000 square feet
- CEC Energy Study: Energy study on the Community Center (one of the largest users of energy) to identify recommended efficiency upgrades
- Electric Landscaping Equipment: reduces the use of fossil fuels in daily operations
- LED Streetlights
- Municipal Clean Fleets Inventory: tracking vehicle condition and use to plan for transition away from fossil fuel dependent fleet

Other upgrades include:

- LED interior lighting replacements in the Community Center and the Highway Garage
- Insulating heating pipes in the Community Center to reduce fuel oil needed for heating
- Heat pump installation in main room of Community Center
- Upgrading diesel powered equipment to be more efficient

The Town of Jay has several projects that are either in process or have future plans for including:

- Solar array installation on the Highway Garage is scheduled for 2025
    - Estimated to generate 70,000 kWh per year (About 18% of 2023 electricity usage)
    - Future plans to put solar on other municipally owned buildings
- LED interior lighting replacements at the wastewater treatment plant and water delivery buildings
- Continue to install heat pumps in buildings that rely on fossil fuel heating (including the Community Center)
- Purchase of electric vehicle (EV) for light-duty vehicle replacements
- Signing up municipal electric accounts for community solar

After implementing these proposed projects and identifying other Climate Action Plan (CAP) priorities / actions, total GHG emissions will inevitably be reduced.

The next steps are to set an emissions reduction target, and to develop a climate action plan that identifies specific quantified strategies that can cumulatively meet that target. In the meantime, Town of Jay will continue to track key energy use and emissions indicators on an ongoing basis. DEC recommends conducting a new inventory at least every five years to measure emissions reductions progress.

This inventory shows that, in the short term, it will be particularly important to focus on reducing fuel oil usage for heating in the Community Center and Sheldrake Shed. Future emissions reductions strategies for Town of Jay to consider for its climate action plan include transitioning away from diesel powered equipment when technology and cost allow.

If community members would like more detailed data or to learn more about how this inventory was completed, please reach out to Town of Jay's Climate Smart Communities (CSC) Task Force Coordinator, Knut Sauer.