Village of Philmont

Climate Action Plan
Government Operations

Prepared by

Philmont Climate Smart Community Task Force

Adopted on

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Supported by the Capital District Regional Planning Commission through the NYSDEC Climate Smart Communities Coordinator Program

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"Village of Philmont operations and expenditures have a history of being practical, based on common sense. The CSC repeatedly presents innovative ideas and policies to the Board that will help the environment while saving the taxpayers some money. That's a plus in my book."

Brian Johnson, Mayor of Philmont

Background Summary

In took longer for Old World settlers to occupy Philmont than the rest of the region. Its rocky, steep terrane was not conducive to settlement until the Massachusetts' mills deficit (early 1800s) provoked westward expansion. The potential found in the confluence of hills laced with vigorous watercourses centered in what was to become Philmont turned out to be an industrial site bonanza. In the few decades before the expansion of the railroad network, a concentration of industrial facilities producing primarily straw paper and fulling or felting woolen textiles formed along the Agawamuck Creek, which drops 250 feet in less than one half mile.

This extraordinary differential (the greatest in Columbia County) lent itself to ingenious engineering and a unique collaborative agreement over how to share the water's power. On the engineering side natural waterpower was increased through dams, tailing ponds and "power canals"; on the policy side, the concept of "water privileges," monitoring, and measuring water use for each facility was adopted.

Most significantly, this utility provided direct waterpower use, i.e., the water literally turned the mechanisms required in the production of pulp paper and woolen textiles. These products were then shipped, primarily by water, to other parts of the burgeoning nation in need of such goods. The entire process had zero carbon emissions. Furthermore, the term "straw paper" refers to the residual waste left in wheat fields after harvest. Instead of burning it off and thus producing carbon emissions, it was recycled into pulp paper – the same concept applied to other byproducts is now, in the 21st c., being revived.

In short, if Philmont were applying for Climate Smart Certification in 1865 instead of 2024, it would receive “Platinum”. Despite some of its direct waterpower mechanisms remaining in use up until 1950, what happened to Philmont, as it did in the rest of the developed world, was the fossil-fuel dependent Industrial Revolution. Two train lines converging just east of the main intersection spurred intense development, mainly to provide housing for the increasing worker population all crammed into just 1-¼ square miles. Today, Philmont has the highest population density, at approximately 1,200 people per square mile, of any village in the County. Despite this density, it still houses a 250-foot differential in natural water body elevations within its boundary – the most spectacular result is the Columbia Land Conservancy’s protected High Falls.

In addition to aligning our carbon emission reduction goals with those of NYS, our climate strategy has been driven by the two prevailing circumstances of -- building density and potential gravity-dependent waterpower. Despite the delays brought on by the Covid pandemic, Philmont has made significant progress in reducing GHG emissions with conventional measures, known as “low hanging fruit,” such as municipal facility lighting change outs, heat pump installations, and EV charging stations. We have also arranged energy audits for nearly all municipal facilities and have completed a government operations GHG inventory. On the less conventional side, we have adopted the NYS Energy Stretch code – one of the few small villages in NYS to do so and offered an LED lightbulb exchange program focused on the disproportionately high tenant population that may not have the wherewithal to gain access to this product on their own. The details of these accomplishments can be referenced in the accompanying report.

Although the cumulative effects of these accomplishments form an impressive base, they are not enough to address the current challenge of carbon neutrality. The complexities of such a goal require the formality of an organized plan – hence the creation of a Government Operations Climate Action Plan. This report lists and describes what Philmont has done so far, proposes and prioritizes ways to meet short- and long-term GHG reduction targets, and suggests actions for achieving short-term goals. It should be noted that Philmont’s density and low average per-capita income place it at the low end of per-capita GHG emissions. The entire Village is served by a common water and sewer facility which is fully electrified, relying on

Summit Mill, 2024

energy-saving variable-speed pumps and gravity. Furthermore, there is increasing interest on the part of newly-arriving developers to tap into the "waterpower canal" in the form of micro-hydro power. The PSCS task force works closely with them to accomplish this goal. Maybe with renewed ingenuity we can once again be known as "the people of the waters that are never still".

Acknowledgements

First, we want to express appreciation for the unique, intact environment left to us by the previous indigenous occupants (Muh-he-con-ne-ok -- the people of the waters that are never still), made possible through their respectful culture and observant way of life. These spectacular natural features remind us why the challenge before us must be successful. We are deeply indebted to the generosity prompting these enduring gifts.

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Introduction

Given the overwhelming consensus that greenhouse gas emissions are causing the climate to change from long-established and expected patterns, Philmont is joining an increasing number of local governments in New York State that are committed to addressing greenhouse gas (GHG) emissions at the local level. Philmont recognizes the risk that climate change poses to its community and is taking actions to reduce its GHG emissions through the initiatives laid out in this Climate Action Plan (CAP).

A CAP is a strategy document that sets goals and outlines initiatives that reduce GHG emissions. Using a GHG emissions inventory as the foundation, a CAP defines GHG reduction targets and provides a framework for achieving those targets. The CAP identifies priority actions and facilitates coordination across government departments. In addition, the CAP supports effective action over time by establishing methods for assessing progress and adjusting the local strategy if GHG targets are surpassed or not fulfilled.

The creation of a CAP will not only address climate protection, but it will also result in energy savings and advance community goals for public health and safety. By choosing to act now, Philmont is taking a leadership role in mitigating the impacts of climate change, providing their community with examples that help to inspire community-wide action and aligning its goals with New York State, particularly with regard to GHG emission reduction.

Summary of Climate Action Plan Goals and Focus Area

A primary goal of the Philmont Climate Smart Community (PCSC) Task Force in preparing the CAP is to reduce municipal greenhouse gas emissions. The plan prioritizes GHG reductions focusing first on municipal entities that emit the highest metric tons of carbon dioxide equivalent (MTCO2e). A government operations GHG emissions inventory was conducted to identify the largest sources of emissions. The results of the inventory allow us to set emissions-reduction targets and outline various actions that can be taken to achieve these goals.

The focus areas addressed in this plan are Municipal Facilities, Renewable Energy, and Transportation. Each focus area includes a list of actions that will help to achieve the goals and reduction targets established during the climate action planning process.

Philmont's emissions reduction targets in this Climate Action Plan are aligned with New York State goals. The Climate Leadership and Community Protection Act, passed in 2019, requires a reduction in GHG emissions of 40% by 2030 and 85% by 2050 (below 1990 levels). This reduction target can be met if each focus area implements the recommended actions to achieve the reduction target set for that sector.

Current Climate Protection Initiatives

Climate change is a result of land-use, transportation, and energy-use decisions that have evolved over generations and require coordinated solutions. Philmont's commitment to implementing energy-efficiency measures, reducing energy costs, and lowering greenhouse gas emissions spans **six** years. The plans, programs, policies, and actions Philmont has taken to reduce GHG emissions are outlined below. With these actions completed and a CAP to guide the way, Philmont is better positioned to implement initiatives to reduce energy use, costs, and GHG emissions for municipal operations.

First, Philmont has been in receipt of several NYS Brownfield Opportunity Area (BOA) grants, justified by the number of abandoned and underutilized sites and buildings in the heart of the Village. Initiatives center on analysis of existing conditions, community involvement, and revitalization. This process is highly cognizant of protecting publicly-accessible natural open space and the sustainable re-use of surviving structures. Second, the Village received a grant in 2023 for consultant services to review its 20-year-old comprehensive plan. The PSCS is actively engaged in the process by encouraging planning policies that would directly address resiliency, adaptation, and GHG reductions. Third is the public availability of a Natural Resource Inventory of the Lake area produced through the BOA program. This invaluable resource helps to guide future development toward solutions respecting nature and conserving energy. The synergy among these activities results in a more livable environment while helping to meet both the State's and Village's climate goals.

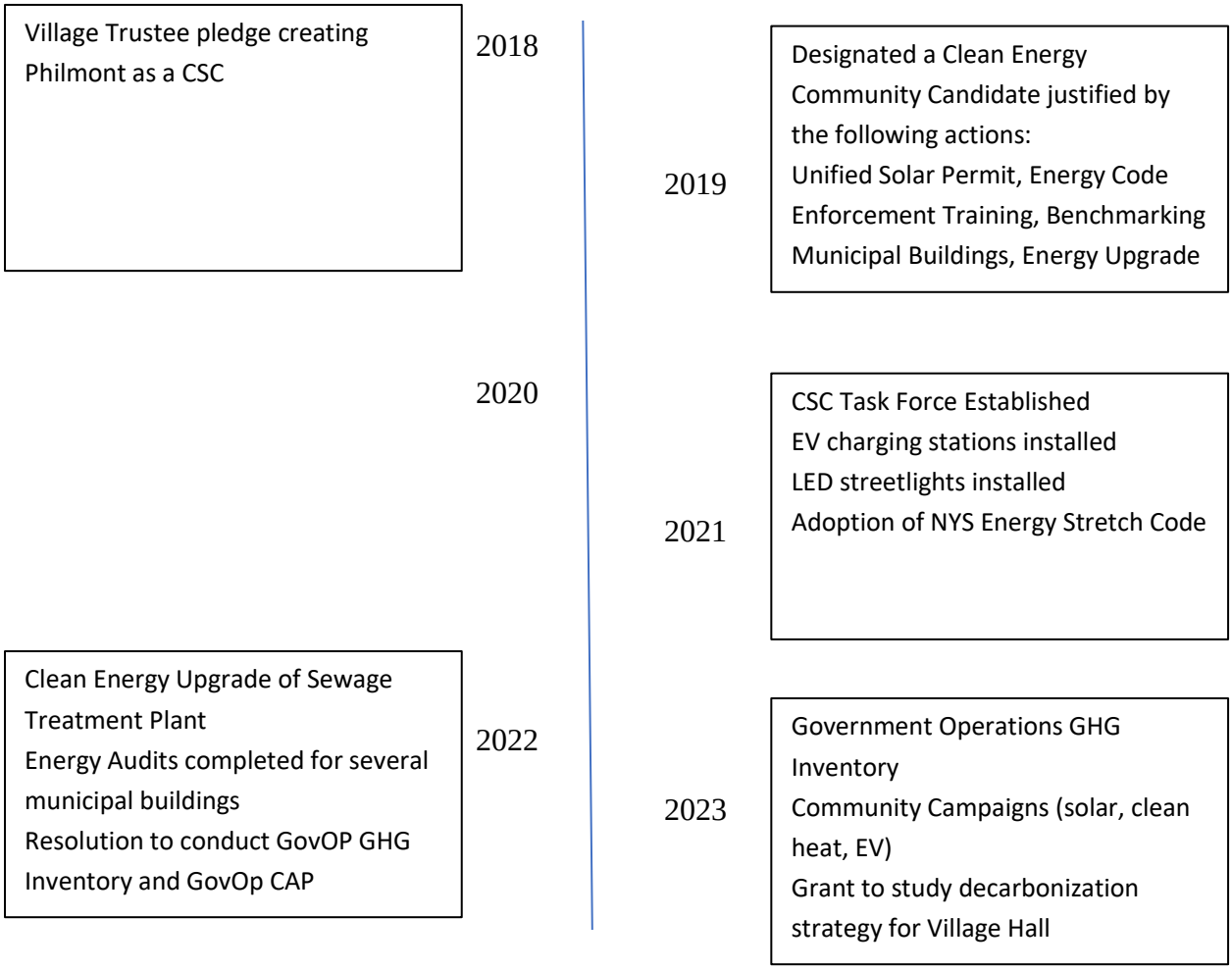
Climate Smart Communities (CSC)

The New York State Department of Environmental Conservation (NYSDEC) launched the Climate Smart Communities (CSC) initiative in February 2009 to foster state and local partnerships and to encourage climate protection. Municipal participation in the program begins with a pledge by the local government to set reduction goals for GHG emissions, to improve government energy efficiency, to encourage renewable energy use, and to take additional steps to combat climate change. In March 2018 Philmont took the CSC pledge, leading to our becoming a registered CSC.

Clean Energy Communities (CEC)

The New York State Energy Research and Development Authority's (NYSERDA) Clean Energy Communities (CEC) Program was launched in 2016. Communities earn points for every High Impact Action focused on energy efficiency and renewable energy that they complete as part of this program. Communities that complete at least four High Impact Actions earn the Clean Energy Communities designation and are eligible to apply for grants to fund additional clean energy projects.

Philmont completed 6 High Impact Actions:
See the date chart below for a listing of the high impact actions plus CSC actions. It should be noted that 6 additional actions are nearing completion including Clean Energy Upgrades – 15%, Community Solar Campaign – Tier 1, Clean Heating and Cooling Campaign – Tier 1, Community Electric Vehicle Campaign – Tier 1, Climate Smart Communities Certification – Bronze, and Municipal Fleet Inventory.



Public Outreach

Public outreach allows for an important partnership between government and residents. The Philmont government employs a variety of methods to inform and engage the public. The Philmont website https://philmont.org/ provides easy access to information related to all

aspects of the Philmont government. The website provides a link to view recorded board meetings, agendas, meeting minutes, staff contact information, committees and boards that support the work of the government. In accordance with NYS Law public hearings are listed in local newspapers, usually the Register Star.

Specific information on PSCS activities can be found at https://philmont.org/climate-smart/ which also provides information on broader environmental issues and what the municipality is doing to address climate change.

A draft was presented to the Village Trustees in May 2024.
A public hearing was held in June 2024.

Climate Action Plan Outreach

A draft of the Philmont Climate Action Plan was made available to the public for comments in the following ways:

- Document posted to Village of Philmont website.
- Board meeting with public comment
  Posted to "Philmont-Neighbors Google Group"
- Notices at frequently used facilities

Following approval of the Philmont Climate Action Plan by the Board, the public will be kept informed of progress toward meeting the GHG emissions reduction targets. Updates will be posted on the Village website.

Government Operations Greenhouse Gas Inventory

The first step toward reducing greenhouse gas emissions is to identify baseline levels of emissions in the Village of Philmont government operations most responsible for those emissions. This information was key to selecting our emissions targets, as well as the short-term and long-term reduction measures contained in this plan. This section is an indication of areas where a reduction in municipal emissions is needed.

A Government Operations Inventory was completed for Philmont with support from Haley Balcanoff, Sustainability Planner, of the Capital District Regional Planning Commission (CDRPC). The GHG Tool used was developed by Climate Action Associates, LLC and follows the Local Government Operations Protocol. The government operations GHG inventory accounts for emissions associated with facilities, vehicles, and other processes that are owned and operated by Philmont**.** The identified sources of emissions related to municipal operations are listed in the figures/tables below.

Baseline Year

All municipal energy data was collected for the year 2021. This year is the baseline to compare with future GHG inventories in order to measure progress towards the established emissions reduction targets. Several energy conservations measures were completed at the end of 2021. Desiring to show the improvement in 2022 and beyond, this was chosen as the baseline year.

Facilities Master List

A key step in creating the GHG inventory is to compile a facility master list that includes Philmont's (5) buildings plus water pumps, streetlights, and vehicle fleet that use at least one form of energy. Each was assigned to a category to indicate the type of infrastructure and organized with similar facilities along with their energy use.

Data Collection

The Local Government Operations Protocol (LGOP), which Philmont followed, defines direct and indirect emissions as follows:

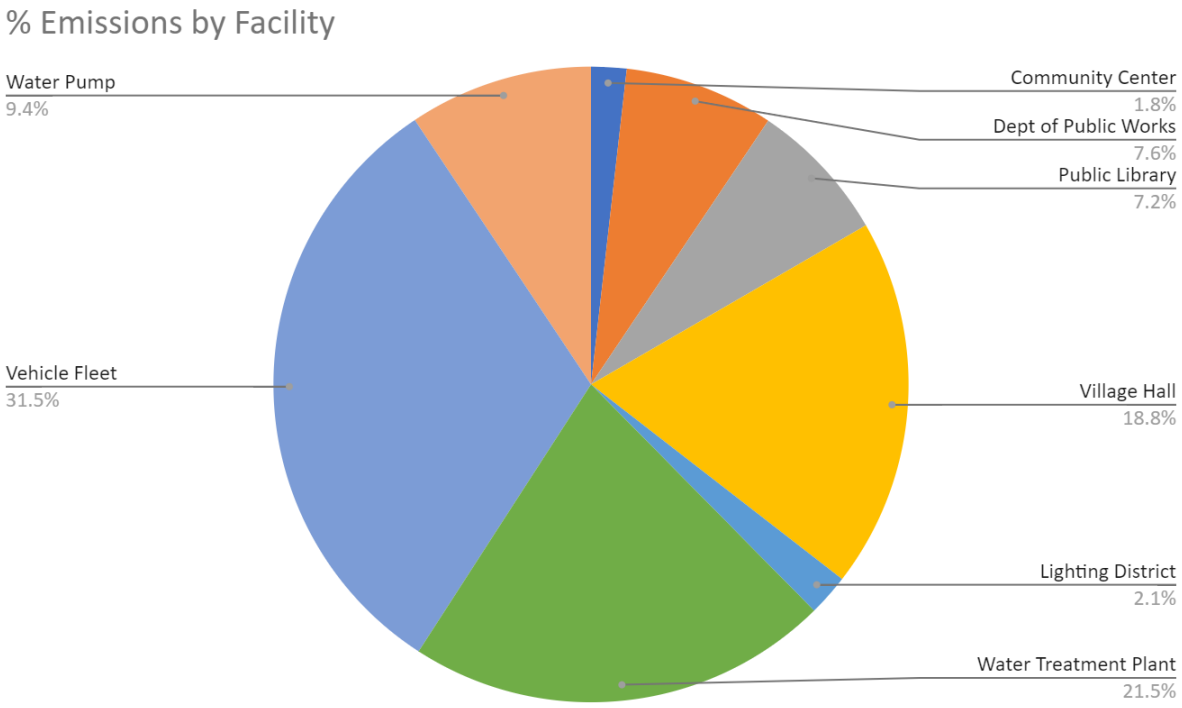
- **Scope 1:** All direct GHG emissions from a facility or piece of equipment operated by the local government, usually through fuel (natural gas, propane, fuel oil, gasoline, and diesel) combustion. Examples include emissions from fuel consumed by the Village of Philmont's vehicle fleet or emissions from a furnace in 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 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.

Emissions Summary Figures

In 2021, GHG emissions from Philmont government operations totaled 148.7 metric tons of carbon dioxide equivalent (MTCO2e). Vehicle Fleet is the largest source of GHG emissions, accounting for 32% of Philmont emissions. The next largest contributor is the water treatment plant with 21.5% of emissions. The remaining emissions come from administrative buildings, totaling 35.4%. It is significant to note however, that water treatment facilities (including pumps) equal 31% of the total. These facilities, as noted in another part of the report, are already operating with energy-saving equipment fueled by electricity. The system itself lowers per-capita energy use and therefore GHG emissions. Therefore, the solution to reduce overall GHG emissions will be energy generation at the facility itself – probably solar.

Facility/Group Name	Administrative Function/ICLEI Category	2021 GHG Emissions (MTCO2e)	Costs
Community Center	Administration Facilities	2.7	$ 1,586.63
Dept of Public Works	Administration Facilities	11.3	$ 5,588.93
Public Library	Administration Facilities	10.7	$ 3,917.00
Village Hall	Administration Facilities	28.0	$ 8,981.27
Lighting District	Streetlights and Traffic Signals	3.1	$ 14,114.40
Water Treatment Plant	Wastewater Facilities	32.0	$ 23,988.95
Vehicle Fleet	Vehicle Fleet	46.8	$ 16,093.16
Water Pump	Water Delivery Facilities	13.9	$ 9,125.01

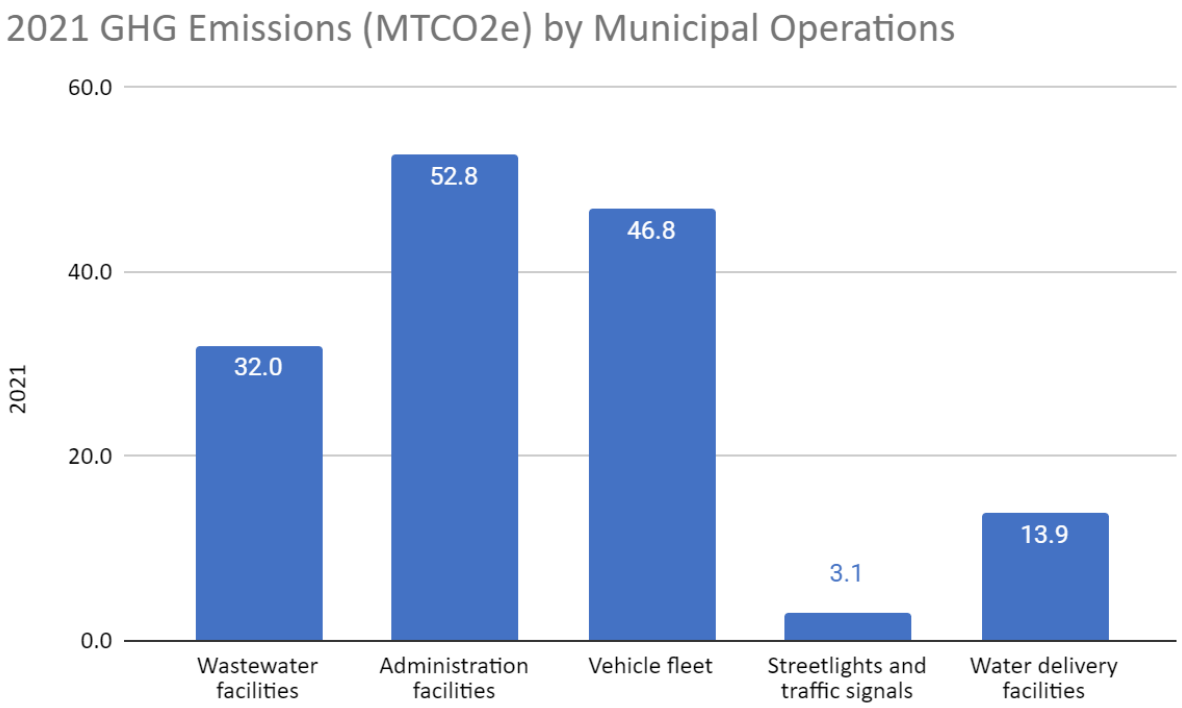


Emissions by Administrative Function

When looking at the Village emissions by function, Administrative Facilities contributed to 35% of total emissions - 52.8 MTCO2e. Administrative Facilities includes the Community Center, Dept of Public Works, Public Library, and Village Hall. The Vehicle Fleet contributes to 32% of the total emissions - 46.8 MTCO2e.

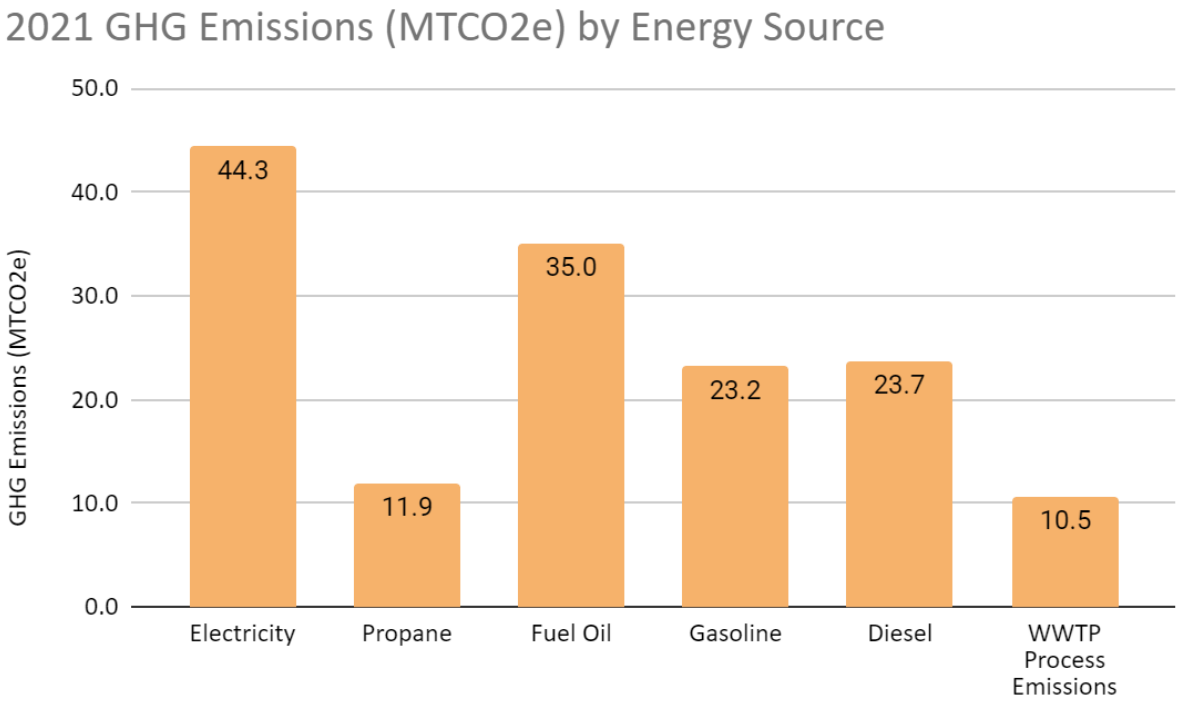
GHG Emission % By Function	
Wastewater facilities	22%
Administration facilities	35%

Vehicle fleet	32%
Streetlights and traffic signals	2%
Water delivery facilities	9%



Emissions by Energy Source

When considering the range of direct and indirect emissions, direct emissions contributed to the most emissions - a combined total of 104.3 MTCO2e. Scope 1 sources for the Vilage include: propane, fuel oil, gasoline, diesel, and WWTP process emissions. Scope 2 includes electricity. The chart below breaks down all these sources individually.



Scope 1/Direct Emissions	104.3
Scope 2/Indirect Emissions	44.3

GHG Emissions Reductions: Goals, Strategies, and Targets

Philmont has adopted the goal of reducing government GHG emissions 40% from the established baseline year, 2021, levels documented in the GHG Inventory. This goal can be achieved by pursuing a combination of strategies.

OVERALL GOALS

Collaborating with State and County government to align Philmont's climate goals to those of NYS CLCPA primarily through the building and transportation sectors.

SHORT-TERM TARGETS

Concentrate on cutting emissions from buildings while developing policy and strategies in transportation and other sectors (40% by 2030).

MID-TERM GOALS

Change the culture of fossil fuel dependency by serving as an example to the broader community through rigorous inventorying, accounting, and implementing innovations.

LONG-TERM TARGETS

Once the building-sector solution becomes the convention, implement innovative solutions.

Strategies

The following section outlines Philmont's strategy for achieving this goal.

Municipal Facilities and Renewable Energy

The municipal facilities sector includes all electricity or energy used in government buildings or facilities, except for the domestic water/sewer system (see Infrastructure). Municipal facilities account for 35.4% of Philmont's total GHG emissions. Philmont's goal for reducing facility emissions is 40% by 2030. The strategies below will help us achieve this goal:

- Improve energy efficiency in government buildings
- Adopt policies
- Eliminate fossil fuels in government facilities

- Install on site energy generation

Infrastructure

Domestic water and sewage collection/treatment serves the entire community as a public utility. Both systems are networked, taking advantage of the hilly terrain and relying on gravity to operate. The inherent sustainability in this design is one of the reasons for Philmont's low per capita emissions rate. Still, the systems rely on fossil fuels for minor pumping, chlorination, disinfection, and other mechanically driven measures. This infrastructure accounts for 31% of Philmont's total GHG emissions. Philmont's goal for a reduction of infrastructure emissions is 40% by 2030. The strategies below will help us achieve this goal:

- Improve energy efficiency in the building segment of the system
- Adopt policies in the building segment
- Eliminate fossil fuels
- Install on site energy generation

Transportation

The transportation sector accounts for all fuel used for all municipal vehicles (fire, police, sanitation and administrative). Transportation accounts for 31.5% of Philmont's total GHG emissions. Philmont's goal to reduce emissions from government fleet is 30% by 2030**.** The strategies below will help us achieve this goal:

- Reduce milage driven
- Increase fleet efficiency
- Reassess operations in collaboration with neighboring towns
  Vehicle replacement

Implementation

This section addresses initiatives for the municipality to reduce its GHG emissions by 40% by 2030**.** The implementation of the actions listed here will position Philmont to make substantial progress toward the overall emissions reduction target.

Metrics for Measuring Progress

The projects listed in this section include two types of actions: (1) actions that will result in direct reduction of GHG emissions; (2) policy actions that when implemented will result in energy savings and GHG emissions reduction.

1. The actions resulting in GHG emissions reduction will be quantified when the next government operations GHG emissions inventory is completed, and results are compared with the current inventory.
2. Policy actions include: Benchmarking municipal buildings, Environmentally preferable purchasing, green power procurement, Recycling, Organic waste, Adoption of NY Energy Stretch code. The cost of implementation is staff time.
3. Prioritizing Projects: The Government Operations GHG inventory reveals that three sectors (buildings, infrastructure, and transportation) are almost tied at approximately 31% each. Furthermore, a high percentage (44%) of emissions stems from electrical use meaning that further switching of the building sector from fossil fuel to electricity will not be enough to reach the goals. When determining priorities for project implementation, two main factors need to be considered: the amount of greenhouse gas the project will reduce, and the funds available to implement the project. Prioritizing projects for implementation depends largely on emissions reductions, budgetary constraints, resources available and grants available to the municipality. Please note the following for how these three sectors will be addressed:

Municipal Facilities and Renewable Energy

All but one of Philmont's municipal buildings have received an energy audit. The Village Hall with a total of approximately 17,000 pounds of CO2 equivalent emissions has been prioritized. To that end, the Village applied for and was awarded a grant from Partners for Climate Action to cover consultant costs to create a comprehensive feasibility study including a strategic pathway to decarbonize this mixed-use building. We expect the implementation of this report to result in considerable GHG reductions, but will not have a percentage until the report is issued in early 2025. Additionally, this exercise can serve as a prototype to be applied to other similar facilities.

Infrastructure

This sector consists of the sewage treatment plant and satellite pumping stations all of which are powered by electricity. Through an awarded NYSERDA grant a complete lighting retrofit including light sensors, timers and fixtures (including some that had to be water and explosion proof) was completed at the end of 2021 with an expected GHG reduction of 10% (to be confirmed). It was designed by The Lighting Center of Rensselaer Polytechnic Institute. Additionally, a professional engineer was engaged to review the facility for further GHG reductions which include WWTP process emissions (denitrification). The plant already employs energy saving-variable-speed motors for pumping and "passive" processing for its settling tanks. It was concluded that it is not economically feasible for a plant of this small scale to take

further measures. Therefore, the approach will be to offset the electrical use through the installation of appropriately sized, onsite solar collectors.

The next step is to engage a professional to assess the feasibility of solar installations at the main plant as well as the satellite pumping locations. It should be noted that single facility serving the entire village versus individual septic solutions represents a considerable reduction in GHG emissions and needs to be considered when justifying the cost of solar installation.

There are several sites on both public and private property conducive to small micro hydro installations. The PCSC has introduced this concept to both the Village and private owners. The new private owner of the Summit Mill has publicly stated an interest in this concept. The PCSC has toured small successful facilities and continues to collect pertinent information so it can act in an advisory role when the appropriate opportunity arises.

Transportation

Converting to hybrids for standard vehicles is already underway. Work vehicles (refuse hauling, snow plowing, landscaping) and emergency vehicles continue to use gas and diesel because of cost and availability. Ongoing talks with the Town of Claverack to merge public works functions with Philmont hold the promise of reducing the overall number of vehicles. Refuse handling has already been merged.

The PSCS has taken on the responsibility to keep abreast of the availability of electrified work vehicles and equipment, especially in other developed countries. One of its members serves on the county Environmental Council and hopes to keep this topic, which is a county wide issue front and center.

The PCSC is currently engaged in researching the feasibility to expand its existing EV charging stations to cover the needs of work vehicles.

Next Steps

This CAP is intended to be a "living" document, with the goal of updating the Government Operations GHG Inventory and emissions reductions initiatives to:

- Track Philmont's progress towards its emissions reduction target.
- Quantify energy and cost benefits of projects and upgrades that are continually being implemented.
- Guide Philmont's planning and prioritization of future projects.
- Support access to funding opportunities.

Climate Action Committee

Designate a subcommittee of PCSC Taskforce to focus on implementing actions identified by this CAP. As new ideas and solutions emerge for reducing GHG emissions, they can be reviewed and discussed by this subcommittee that will add new recommendations to the list. A progress report will be generated every 2 years, and these reports will be made available to the public via the municipality's website. These reports serve to inform the public of efforts being undertaken by the government and results achieved as well as to heighten public awareness and encourage residents to reduce their carbon footprint. The CAP will be updated every ten years as per CSC requirements.

Five-year Inventories

In compliance with CSC requirements, progress towards achieving GHG reduction targets will be measured by conducting subsequent GHG inventories every five years. If goals and targets are reached, a new GHG inventory baseline year will be established with new GHG emissions reduction targets and strategies to achieve those targets.

Appendix

Methodology

Scope

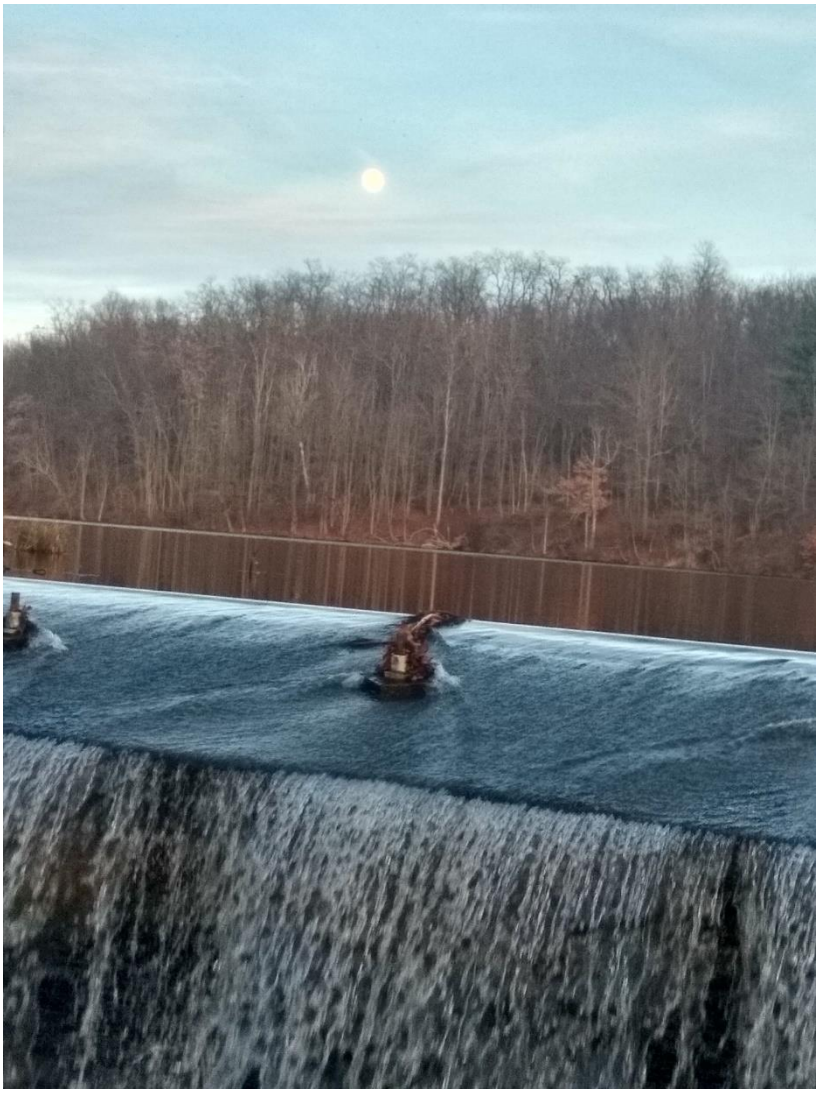
This CAP covers objectives and strategies for reducing GHG emissions resulting from local government activities within Philmont. It addresses major sources of emissions in Philmont's government operations and sets forth objectives and strategies in focus areas dictated by the circumstance of there being approximately evenly-split total GHG emissions among the sectors. Philmont, therefore proposes to achieve the goal set forth in GHG reductions through the following focus areas:

- **Government building retrofits**
- **Public service infrastructure onsite generation**
- **Transportation**
- **Micro Hydro opportunities**

The CAP creates a framework to document, coordinate, measure and adapt efforts moving forward. In addition to listing actions, the CAP discusses how each action will be implemented through timelines, financing, and assignment of responsibilities to departments, staff, and/or community partners where known.

Conclusion

While Philmont has already begun to reduce greenhouse gas emissions and climate risk through a variety of actions, this plan is a critical component of a comprehensive approach to reduce Philmont emissions and increase resilience.



The effects of climate change present a unique set of circumstances in Philmont – its geographically limited area creating high density, its hilly terrane accommodating "waters that are never still" rushing through it and its extensive public utilities. This context offers vulnerabilities as well as advantages demanding thorough analysis that inspires meticulous innovation. That's why, while we acknowledge the importance of each of the three words that describe our committee - Climate Smart Community – we put the emphasis on "***smart***".