Town of Bethel
Climate Action Plan 2021
Government Operations

Prepared by:
Sustainable Bethel

Adopted by Town Board on:

[Date/2021]

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A Message from Supervisor Daniel Sturm

I am proud to present the 2021 Town of Bethel Government Operations Climate Action Plan (CAP) to our community. This plan, guided by Sustainable Bethel and approved by our Town Board, is a strategic document that sets goals and outlines a set of initiatives to reduce Greenhouse Gas (GHG) Emissions from our Town's municipal operations, reduce its energy expenditures and contribute to New York State's ambitious campaign to mitigate and address the climate crisis. It provides a basis for measuring the Town's future progress in reducing GHG emissions against its 2016 baseline and most recent GHG inventory. It also helps guide the Town Supervisor and Town Board in the years going forward in their on-going efforts to implement energy-efficient and cost-saving measures that will reduce the town's carbon footprint.

Over the past few years, the Town of Bethel has made, and continues to make, enormous progress implementing energy-saving measures and reducing the town's carbon footprint. We have conducted an energy audit of our principal buildings, providing guidance on where energy savings may be most impactful. The Town has purchased its first fully electric vehicle and installed an EV charging station in its public parking lot from which both the municipal government and the community can charge EV cars. We enacted a solar law to encourage adoption of solar technology by residents and commercial enterprises with thoughtful protections to our scenic landscape.

Earlier this year, the Town purchased its streetlights from NYSEG and, in collaboration with New York Power Authority (NYPA), by summer converted all of its fixtures to energy efficient and long lasting LEDs. NYPA has estimated that this project alone will reduce the Town's GHG emissions by 15.4 metric tons of CO2 equivalents a year. Spring 2021 also marked the culmination of another significant initiative---the launch of a community solar campaign in partnership with BQ Energy and Source Power to offer renewable energy subscriptions to Bethel residents and businesses. Ground-breaking for the 2.7 MW solar array, which will be located on the Town's capped landfill and sand mine site, is anticipated this fall. This solar installation will provide 100% of the Town's electricity needs from renewable energy and provide Bethel's government, residents and businesses the opportunity to secure renewable energy at a 10% discount.

The Climate Action Plan challenges us to step up further, as a local government and as a community, to further reduce our carbon emissions and meaningfully contribute to New York State's ambitious efforts to address the climate crisis. Our Town was one of the first municipalities in the State to achieve "Bronze" certification as a Climate Smart Community. Through the adoption and implementation of this Climate Action Plan, we look forward to demonstrating leadership once again as we focus on achieving a sustainable and energy-efficient future.

August 2021 *Daniel Sturm, Town of Bethel Supervisor*

Acknowledgements

On behalf of Sustainable Bethel, we would like to express our gratitude to the following individuals who have helped guide our town in its years-long efforts to promote environmental sustainability and stewardship:

Carla C. Castillo, Deputy Executive Director, Clean Energy Communities Coordinator, Hudson Valley Regional Council
Dazzle Ekblad, Climate Policy Analyst, Office of Climate Change, NYS Department of Environmental Conservation
Heather Brown, Sustainability Coordinator, Sullivan County Office of Sustainable Energy
Carol Roig and Stephen Stuart, Sullivan County Office of Sustainable Energy
Fernando Rosado, Senior Project Officer/ Solar Team, US Environmental Protection Agency, Region 2
Vince Pitruzzello, Consultant to US Environmental Protection Agency, Region 2

Sustainable Bethel Members: Roger Broome, Michael Chojnicki, Vicky Vassmer Simpson, Daniel Sturm and Jennifer Young

Town Clerk: Rita Sheehan

And, most importantly, Town Board members Lillian Henrickson, Dawn Ryder, Bernie Cohen Vicky Vassmer Simpson and, especially, Supervisor Daniel Sturm, who have not only been supportive but our partner in advancing our hopes and aspirations for a healthier and more sustainable town, community and planet.

Jeffrey Allison and Karen London
Co-Chairs

Definitions

Baseline Year - The first full year of energy use and emissions data. The baseline analysis is undertaken in order to provide a comparison for later years.

CH4 - Methane. Methane is a greenhouse gas with a GWP that is 21 times that of CO2. It is produced through anaerobic decomposition of waste, enteric fermentation, production of natural gas and petroleum products, and other industrial processes. (Note: In Bethel, private septic tanks produce the methane gas included in our GHG emission analysis.)

CO2 - Carbon dioxide

CO2e - Carbon dioxide equivalent emissions. This is determined by multiplying the emissions of methane and nitrous oxide by their Global Warming Potential.

Direct Emissions - The emissions generated on-site (as opposed to electricity delivered through a grid system) such as from the combustion of fossil fuels.

GWP - Global Warming Potential. Conversion factor used to compare all greenhouse gas emissions to carbon dioxide equivalent units. The GWP represents the combined effect of the differing times these gases remain in the atmosphere and their relative effectiveness in absorbing outgoing thermal infrared radiation.

Indirect Emissions - Refers to emissions associated with the consumption of purchased or acquired electricity, steam, heating, or cooling. These emissions can be allocated in an inventory to an entity but are generated offsite. An example is electricity that is not generated directly at a facility. A facility uses electricity on-site but the fuels used to generate the electricity are combusted off-site, perhaps at a regional power plant. If the generation source is at a different site that is also operated by the city, it is not an indirect emission source.

kWh - Kilowatt-hour

Mobile Combustion - The combustion of fuels to power a moving vehicle, such as gasoline or diesel fuel in a car or truck.

MT CO2e - Metric tons of carbon dioxide equivalent. This is the standard unit for measuring greenhouse gas emissions.

Mobile Combustion - The combustion of fuels to power a moving vehicle, such as gasoline or diesel fuel in a car or truck.

N2O - Nitrous oxide

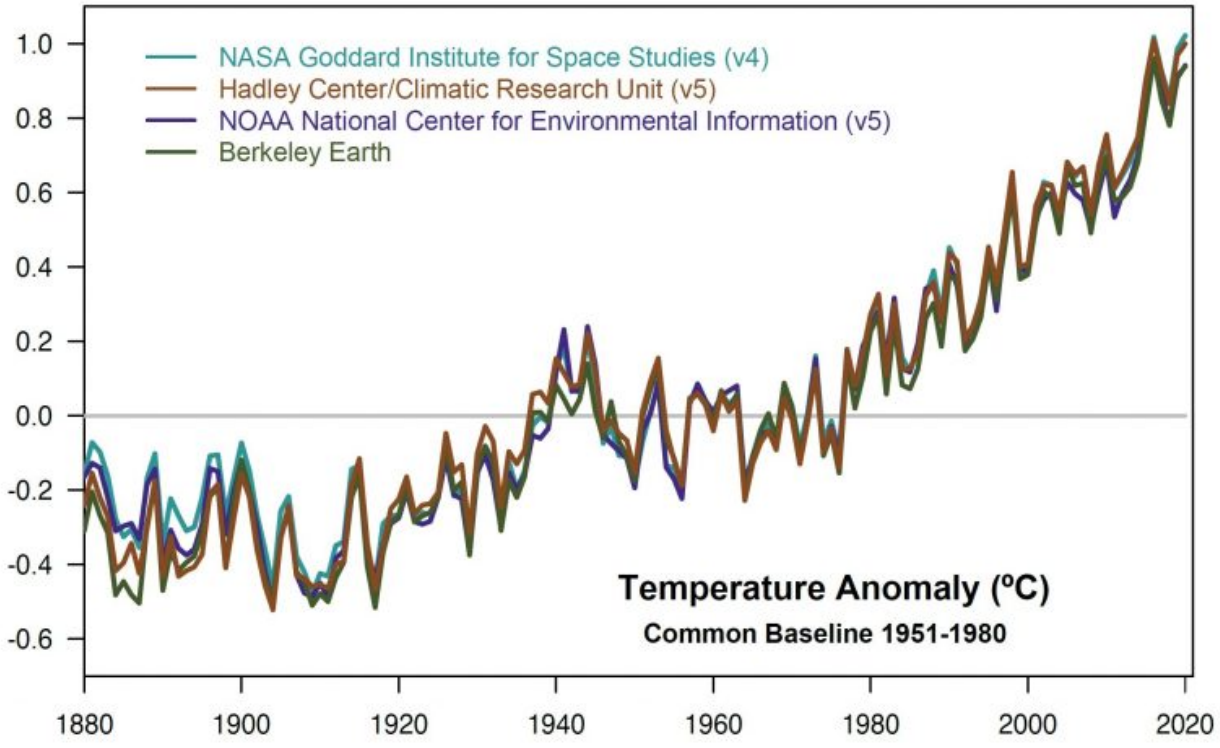
Stationary Combustion - The on-site combustion of fuels to produce electricity, heat, or motive power using equipment in a fixed location.

Executive Summary

Introduction: The Urgency of the Climate Crisis
It is now unequivocal that human influence has warmed the atmosphere, ocean and land and that human-induced climate change is already affecting many weather and climate extremes in every region across the globe. We are experiencing more frequent and more intense heat waves, heavy precipitation, droughts and wildfires. (See: Intergovernmental Panel on Climate Changes-Sixth Assessment Report issued August 9, 2021;"State of the Climate in 2020" report from National Oceanic and Atmospheric Administration, August 2021.) The time for serious action to address the climate crisis is long overdue.

According to the Federal Environmental Protections Agency (EPA)'s Third National Climate Assessment (2014), the severity of climate impacts is directly linked to the amount of carbon dioxide and other heat-trapping gases that are released into the atmosphere. The more of these heat-trapping gases, the worse the impacts will be. Scientists have concluded that avoiding the worst impacts of climate change will require achieving "net zero" carbon emissions as soon as possible but not later than 2050. Net zero means, on balance, that no more carbon is dumped into the atmosphere than taken out.

2020 Tied with 2016 as Warmest Year on Record



Above: Yearly temperature anomalies from 1880 to 2019, with respect to the 1951-1980 mean, as recorded by NASA, NOAA, the Berkeley Earth research group, and the Met Office Hadley Centre (UK).

KEY POINTS FOR OUR REGION

- The Northeast is experiencing warming temperatures and a large increase in the amount of rainfall measured during heavy precipitation events.
- More frequent heat waves in the Northeast are expected to increasingly threaten human health through more heat stress and air pollution. People at greatest risk include young children, the elderly, and those with pre-existing health conditions like asthma. Studies indicate that climate change is lengthening the pollen season of common allergens particularly for northern portions of the U.S. Warmer and wetter conditions may increase seasonal activity and the extent of suitable habitat for ticks and mosquitoes, elevating risks of human exposure to vector-borne diseases like Lyme disease and West Nile Virus.
- The Northeast is home to a diverse mixture of species and ecosystems that are affected by climate change. Ranges of certain tree species are moving northward and to higher elevations where temperatures are cooler. Warmer temperatures are increasing outbreaks of forest pests and pathogens, including hemlock woolly adelgid.
- Climate change is affecting agricultural production in the Northeast. Heavy precipitation events can damage crops and wetter springs may delay planting, resulting in later harvest and reduced yields. Dairy production is important to the Northeast's agricultural economy and is expected to be negatively affected by increasing temperatures. Warmer conditions cause heat stress in farm animals, reducing milk yields and calf birth rates. Projected warming temperatures could also increase operations and production costs alongside reductions in milk and meat production.

Why a Climate Action Plan? Thinking Globally, Acting Locally

A government Climate Action Plan is a strategy document that sets goals and outlines a set of initiatives that reduce Greenhouse Gas (GHG) emissions to combat climate change on the local municipal level. Utilizing a GHG emissions inventory as a baseline, a Climate Action Plan defines GHG reduction targets and provides a framework for achieving those targets. It identifies priority actions and facilitates coordination across government departments. The specified objectives of this Climate Action Plan are to: (1) present information on emission reduction projects and initiatives that are currently being implemented in the Town of Bethel (hereinafter, the "Town"); (2) provide municipal elected officials, community leaders, and residents with information and support to advance these and additional energy sustainability programs; and (3) identify opportunities for new emission reduction programs and initiatives.

In addition, a Climate Action Plan supports effective action over time by establishing methods for assessing the Town's progress and adjusting strategies if GHG targets are not achieved or, conversely, are able to be revised based on newly acquired data or technical capabilities.

The Climate Action Plan also underscores the importance of promoting a climate smart culture throughout our municipal government as well as the community at large. Ensuring that energy and resource efficiency are explicitly considered and examined through Town government decision-making is another important goal of this plan. This plan seeks to accomplish these climate goals in a cost-effective way that, over time, saves the Town and taxpayers money.

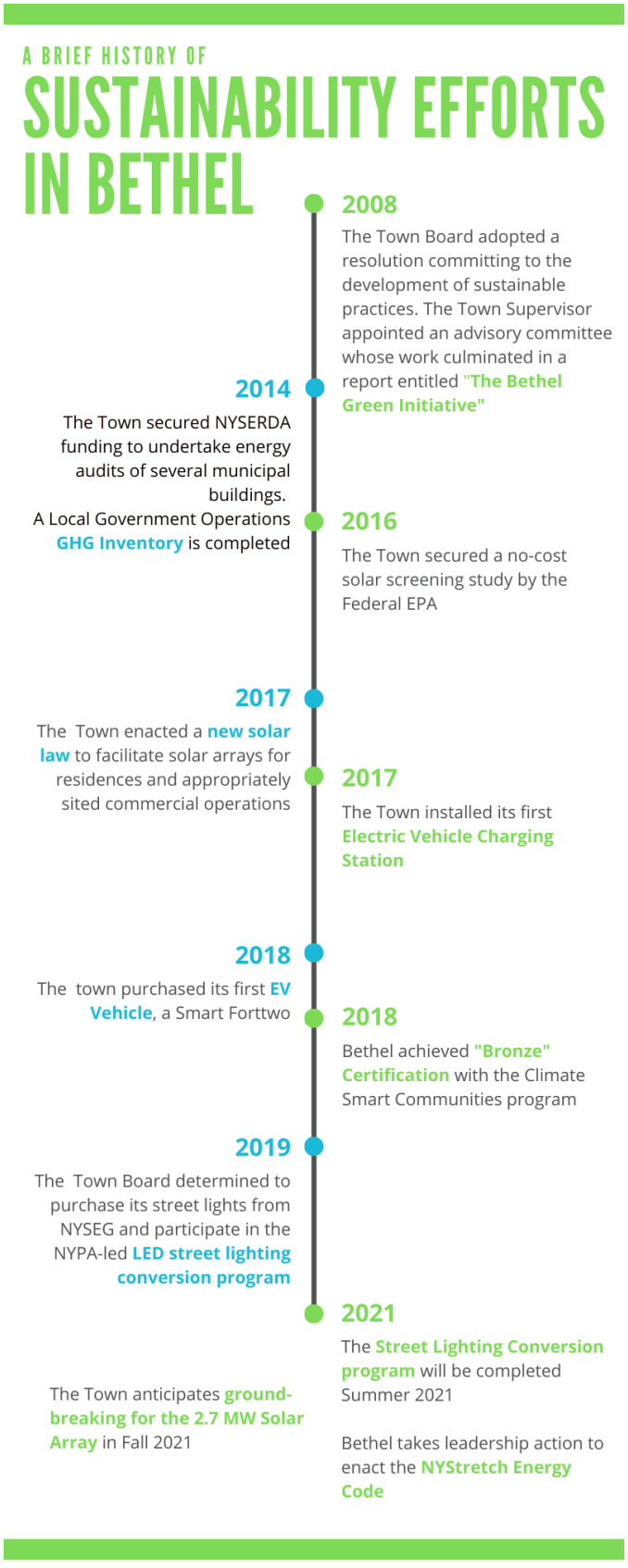
Importantly, in this endeavor, the Town is joining with municipalities across New York State by systematically analyzing our energy information to determine the most environmentally feasible means of addressing our energy needs. Only by municipalities' collective action will we be able to meet New York State's aggressive goals to achieve a sustainable future.

Past and Current Climate Protection Initiatives

Town leadership has long recognized the climate crisis and expressed its commitment to promoting a sustainable future. In 2008, the Town Board unanimously adopted a resolution committing to the development of sustainable practices "including operating Town facilities in a sustainable manner, decreasing energy needs, increasing energy

efficiency and preserving natural resources, peace and tranquility for economic prosperity and the health of future generations." To assist in implementing these goals, the Town Supervisor appointed an advisory committee whose work culminated in a report entitled "The Bethel Green Initiative", outlining proposed strategies and policy changes for the Town's long-term economic and ecological sustainability. In 2013 ,the Town Supervisor designated a new advisory committee, comprised of local officials and community members, to consider the Town's participation in the New York State Climate Smart Communities ("CSC") program and otherwise address the Town's response to the climate crisis. The Bethel Green Committee (subsequently renamed "Sustainable Bethel") encouraged the Town to adopt the Climate Smart Communities pledge that same year. Over the following five years, Sustainable Bethel spearheaded a number of CSC initiatives, culminating in the Town's achieving "Bronze" certification on September 26, 2018--then only the 20th municipality in all of New York State to be so recognized. We are proud of that achievement.

The Town also achieved designation as a Clean Energy Community, completing four of the ten specified high-impact clean energy actions identified by the New York State Energy Research and Development Authority (NYSERDA) as part of the Clean Energy Communities initiative. Since that date, the Town has received recognition for completing four other high-impact actions -- achieving Bronze CSC certification, Advanced Benchmarking, enactment of the NYStretch Code, and completion of its LED street lighting conversion. The Town



will complete its community solar campaign, currently underway, by Fall 2021.

Working with Sustainable Bethel, the Town has made great strides towards increasing its environmental sustainability.

In 2013, the Town protected approximately 125 acres of forest from development in the hamlet of Smallwood by entering into a conservation agreement with Delaware Highlands Conservancy. Now called the Forest Preserve at Smallwood, it remains an unspoiled area enjoyed by Bethel residents for its hiking trails, dog park, exercise equipment and picnic area.

In 2014, the Town secured NYSERDA funding to undertake energy audits of its Town Hall, Highway Garage and the Wastewater Treatment Plant which suggested energy conservation measures for those facilities. In 2017, the Town completed a Local Government Operations GHG inventory which is an accounting, analysis and baseline report of the GHG emissions resulting from the Town's day-to-day operations. As will be discussed more fully below, the Town will utilize the 2016 GHG inventory as a baseline for developing climate mitigation strategies and benchmark for tracking the Town's progress in reducing GHG emissions.

To simplify and encourage the adoption of solar energy, the Town adopted the Unified Solar Permit and, in 2017, enacted a much praised new solar law to facilitate solar arrays for both residences and appropriately sited commercial operations.To that end, in July 2021, NYS Liet. Governor attended the ribbon-cutting for a fully subscribed 6.1 MW solar installation on the Hofstee farm in Bethel, marking NYS' achieving 3 Gigawatts solar energy generation--50% of its 6 GW goal. In addition, a planned solar array on the Town's own capped landfill and sand mine is anticipated to be operational by year-end and will offer residents and businesses the opportunity to secure all of their electricity from renewable sources and at discounted pricing.

In 2017 the Town installed its first Electric Vehicle Charging Station in its municipal parking lot. The charging station is currently free and its location offers full -time and seasonal residents as well as visitors to Bethel's "restaurant row" the opportunity to charge up while dining. In April 2018, the Town purchased its first EV vehicle, a Smart Fortwo. The EV car is used by Town employees to run errands, such as picking up supplies or trips to the County seat, as well as for work trips by the Town assessor --trips that previously were made using a light truck.

Left: Town resident Eric London is one of the first users of the Town's EV Recharging Station Right: Supervisor Daniel Sturm with the Town's electric vehicle, which is used by Town employees. Photo by Jonathan Charles Fox.

In 2016, Sustainable Bethel secured a no-cost solar screening study by the Federal Environmental Protection Agency (EPA) to evaluate the potential of the Town's capped landfill as a potential site for a solar installation. The EPA's favorable assessment led to the completion of a feasibility study undertaken as a class project by Cornell University graduate engineering students and to the Town then issuing a Request for Proposals in late 2017. BQ Energy LLC, a solar developer with extensive experience installing solar panels on capped landfills and brownfields, was selected in 2018. The Town anticipates the 2.7 MW array to be operational by year-end 2021 and expects to be the "anchor" subscriber of the renewable energy generated. Bethel residents and businesses now have the opportunity to subscribe to this community solar project, securing electricity from a renewable source and at a 10% discount. The Town will also benefit from lease payments of at least $26,000 a year-- or more than $650,000-- over the 25 year lease term, the expected life of the solar installation. Additionally, the Town and its residents will have the capability to see real-time and historic production values. Demonstrating the amount of energy produced by the solar installation, how many cars on the road could be offset, and other information is intended to be both educational and inspiring to the Bethel community. Sourcing substantially all of the Town's electricity from the community solar array will reduce municipal GHG emissions by at least 153 MTCO2e annually.

Sustainable Bethel began to investigate the benefits of converting all of the Town's 176 street lights to LEDs in 2015 and in 2017 received a proposal to undertake and finance the conversion

from New York Power Authority (NYPA). After extensive due diligence and guidance from the Hudson Valley Regional Council, the Town Board determined in 2019 to purchase its street lights from NYSEG and participate in the NYPA-led LED street lighting conversion program. The Town completed the purchase with NYPA financing in early 2021 and the conversion was completed in July 2021.

Public Outreach

Public outreach creates an involved citizenry that leads to an important partnership between the government and its residents. The Town Board seeks not only to inform the public but also involve its citizens in government-related initiatives. This will be especially important regarding the efforts of the Town to reduce its environmental "footprint" not only for municipal operations but also for the community at large through both educational efforts and by government example. Sustainable Bethel will next undertake a Community Climate Action Plan to educate and engage residents with respect to sustainability actions that individuals and families can take. This will build off of the Community Solar Campaign, encouraging subscriptions to the Bethel-sited solar array, conducted throughout summer 2021.

The activities of Sustainable Bethel have been posted on the Town's website. In addition, in March 2021, Sustainable Bethel launched a Facebook page, (https://www.facebook.com/SustainableBethelNY).
that aims to provide information about climate change, what the Town is doing to lower its GHG emissions and increase its environmental sustainability, and provide "green tips" for actions citizens can do.

With respect to this Climate Action Plan, a draft was made available to the general public for comments by posting it on the Town's website, Town and Sustainable Bethel's Facebook pages, having a copy available at Town Hall, and alerting residents of its availability in those places through the Town's e-mailed monthly newsletter and Town Board meetings. Following its approval by the Town Board, updates and reports on progress will be made available from time to time on each of those sites.

Government Greenhouse Gas Emissions Inventory

a. Introduction

Bethel is a participating community in the **Climate Smart Communities (CSC)** program sponsored by New York State's Department of Environmental Conservation (NYSDEC). In addition, Bethel also participates in the New York State Energy Research and Development Authority's (NYSERDA) **Clean Energy Communities (CEC)** program. Each of these programs relies on capturing data, benchmarking the data and using it to set goals and report accomplishments regarding our Town government's greenhouse gas emissions (GHG).

- NYSERDA requires we use **EPA Portfolio Manager** to capture and report data on all government buildings larger than 1000 sq ft. In addition to the required buildings, the Town captures all of its electricity and fuel consumption in this tool.
- NYSDEC requires a more robust reporting tool to capture total GHG emissions and not those just stemming from buildings over 1000 sq ft. The Town captures this additional data in NYSDEC's **Local Greenhouse Gas Inventory Tool (LGGIT).** Examples of the more robust reporting include reporting the Town's Wastewater Treatment Plant GHG emissions from residential septic systems as well as mobile emissions data for vehicles operated by the Town--most significantly those used by the Highway Department for road maintenance.

For both the CSC and the CEC programs, the Town has selected and captured its energy consumption and the resulting GHG emissions for calendar year 2016 as its **baseline year.** It is against the baseline year data that performance goals are identified and then measured against.

Buildings account for more than 60% of the energy used in New York State. Adopting a benchmarking policy to measure and share data on building energy use over time allows the Town and its residents to track energy use and compare performance of similar buildings to make smarter, more cost-effective operational and capital investment decisions and drive widespread, continuous improvement.

On December 15, 2016, the Town adopted the Building Energy Benchmarking Policy, which commits it to monitor and make yearly reports of energy use for all Town buildings over 1,000 sq ft. The five buildings meeting this criteria are: Town Hall, the Sewer or Wastewater Treatment Plant, Highway Barn, Senior Center and Justice Court.

The EPA Portfolio Manager system is helpful for tracking performance of building GHG emissions generated from direct building operations such as heating, cooling and electricity usage. The LGGIT system is a good measure of overall performance in reducing total GHG emissions. As such, the Town continues to use both benchmarking tools.

Presented here are estimates of GHG emissions resulting from the Town's internal government operations. It presents a comprehensive depiction of its energy consumption, the costs attributable to that consumption, and the GHGs emitted from that consumption. The data shown is based on the benchmark year 2016, as captured by LGGIT, prior to initiating any major Climate Smart Community initiatives. The 2016 data will establish the baseline against which the Town will be able to compare future performance, enabling it to demonstrate progress in reducing its GHG emissions.

b. Government Greenhouse Gas Emissions Inventory

The Town selected 2016 as its "baseline year" because all of its buildings were in operation that year and energy conservation improvements to building operations commenced after 2016. As such, year to year comparisons to the 2016 baseline year will enable the Town to assess the success of Town initiatives to reduce its energy usage, save taxpayer dollars and reduce the municipal government's carbon "footprint".

Emissions by Source (2016)					
Source	**CO_2**	**CH_4**	**N_2O**	**MTCO2e**	**Percent of Total**
Stationary Combustion	91.94	0.01	0	91.95	9%
Electricity	152.19	0.27	0.46	152.92	15%
Mobile Combustion	362.40	0.32	2.42	365.14	35%
Solid Waste (Scope 3)	-	-	-	-	0%
Wastewater Treatment & Residential Septic Systems*	-	427.01	11.09	438.11	42%
Employee Commute	-	-	-	-	0%
Total	**606.52**	**427.62**	**13.97**	**1048.12**	**100%**

*Note: The LGGIT accounting tool system combines the emissions from our Wastewater Treatment (Sewer) Plant and private septic systems. We therefore identify both in the title of the department.

Methane gas (CH4 in the above table) is the highest single source of Bethel's greenhouse gas emissions (427.01 of the total 1048.12 GHG emissions). Of Bethel's 4255 residents, 2523 residents are estimated to be in the sewer district and therefore connected to the Wastewater Treatment Plant (aka Sewer Plant). The remaining 1731 residents are on private septic tank systems. The private septic systems are the source of all 427.01 of CH4 (methane gas) emissions. Methane is a powerful greenhouse gas with a global climate impact 21 times that of

carbon dioxide over a twenty year time frame.. The Wastewater Treatment Plant produces all of the N2O (nitrous oxide) emissions.

The Town is unable to directly impact the methane gas emissions generated by private septic systems; therefore, when calculating our emission targets and goals we have eliminated methane gas emissions from consideration. However, the Town can educate its residents and promote more environmentally “friendly” aerobic (as opposed to “anaerobic”) septic systems for new construction and septic system replacements and can also keep residents informed regarding future improvements in aerobic septic systems’ cost and maintenance.

The second highest source of Town GHG emissions is Mobile Combustion at 35%. The 365 MTCO2e represents the combination of gasoline and diesel fuel which powers the Town's fleet of vehicles. As of 2016, this totalled 50 vehicles, the vast majority of which are heavy duty vehicles and construction equipment that operate on diesel fuel. Only nine are light trucks or passenger vehicles which afford the Town the opportunity to reduce emissions through their replacement with all-electric or hybrid vehicles. (Not included in this count is the Town's first fully electric vehicle purchased in 2018 as part of its Climate Smart Community initiative.) Electric vehicle models are rapidly increasing for passenger cars and even light trucks and will offer an opportunity to reduce GHG emissions from mobile combustion sources in the years ahead.

Vehicle Type	Highway Department	Town Hall/ Administration	Sewer Plant
Heavy Duty Vehicles—Diesel	30		
Light Trucks—Diesel	1		
Light Trucks—Gasoline	2		1
Passenger Vehicles—Gasoline		5	
Construction Equipment	8		
Trailers	3		
Total	44	5	1

The third highest source of Town GHG emissions is Electricity at 15% and this offers the most attainable target to reduce municipal emissions as it can be derived from renewable sources. To reduce this source of GHG emissions, the Town has subscribed for all of its electricity from the Town-sited 2.7 MW community solar array to be installed on the Town's capped landfill and sand mine by year-end 2021. The Town will be securing 100% of its electricity for government operations from renewable sources, thereby reducing municipal GHG emissions by approximately 153 MTCO2e a year. This will reduce MTCO2e emissions by approximately 15%.

The fourth highest source of Town GHG emissions is Stationary Combustion at 92 MTCO2e representing 9% of the Town's GHG emissions. Stationary Combustion is the on-site combustion of fuels to produce electricity, heat or motive power using equipment in a fixed location. This source of GHG emissions can be reduced if the municipal buildings begin the transition from propane and fuel oil for heating and cooling to electricity via ground or air-source heat pumps and then source electricity needs through renewable energy.

2016 Gross Emissions by Department		
Department	**Total ($MTCO_2e$)**	**Percent of Total**
Streetlights	23.20	2%
Wastewater Plant & Septic	586.59	56%
Highway Dept.	336.39	32%
Town Hall/Administration	58.47	6%
Justice Court	25.44	2%
Senior Center	10.33	1%
Pool	2.30	0%
Town Parks	0.44	0%
Kennel	0.35	0%
Transfer Station	4.63	0%
Total	**1,048.12**	**100%**

2016 Total Emissions by Department and Source ($MTCO_2e$)					
Department	**Stationary**	**Location Based Electricity**	**Mobile**	**Waste water & Septic**	**TOTAL GROSS**
Streetlights	-	23.20	-	-	23.20
Wastewater Treatment (Sewer) Plant & Private Septic	26.44	110.93	11.11	438.11	586.59
Highway Dept	24.72	6.79	304.88	-	336.39
TownHall/ Administration	7.48	1.83	49.15	-	58.47
Justice Court	23.53	1.92	-	-	25.44
Senior Center	9.44	0.89	-	-	10.33
Pool	-	2.30	-	-	2.30
Town Parks	-	0.44	-	-	0.44
Kennel	0.35	-	-	-	0.35
Transfer Station	-	4.63	-	-	4.63
Total	**91.95**	**152.92**	**365.14**	**438.11**	**1,048.12**

The table above shows the distribution of GHG emissions by municipal department.

- The Wastewater Treatment (Sewer) Plant and private septic systems have, by far, the largest footprint with emissions of 586.59 MTCO2e, of which approximately 438 MTCO2e can be attributed to rural septic systems. Town policies will have little impact on GHG emissions from rural septic systems.
- The department with the second highest footprint is the Highway Department. The Highway Department's fleet accounts for 91% (305 out of a total of 336 MTCO2e) of the total GHG emissions for the Highway Department.
- Though a much smaller percentage, the third highest emissions is Street Lights, with 23 MTCO2e emitted in 2016. The recently completed LED street lighting conversion to LEDs of all 176 street lights will reduce municipal GHG emissions by an estimated 15.4 MTCO2e annually.

Goals and Greenhouse Gas Emissions Reduction Targets

a. Performance and Goals

The goals of current and future sustainability efforts include:

- Reducing greenhouse gas emissions by replacing fossil fuel usage with renewable energy wherever logistically and economically feasible
- Reducing costs for the Town and community

Emissions by Source				
	2016		**2020**	
Source	**MTCO2e**	**Percent of Total**	**MTCO2e**	**Percent of Total**
Stationary Combustion	91.95	9%	65	6%
Electricity	152.92	15%	142	15%
Mobile Combustion	365.14	35%	334	34%
Solid Waste (Scope 3)	-	0%		
Wastewater Treatment & private septic systems	438.11	42%	438	45%
Employee Commute	-	0%		
Total	**1,048.12**	**100%**	**979.23**	**100%**

GHG Emissions by Department				
	2016		2020	
Department	Total $MTCO_2e$	Percent of Total	Total MTCO2e	Percent of Total
Streetlights	23.20	2%	23.10	2%
Wastewater (Sewer) Plant & Septic Systems	586.59	56%	562.37	57%
Highway Dept	336.39	32%	305.71	31%
Town Hall/Administration	58.47	6%	65.07	7%
Justice Court	25.44	2%	10.07	1%
Senior Center	10.33	1%	8.26	1%
Pool	2.30	0%	2.20	0%
Town Parks	0.44	0%	0.20	0%
Kennel	0.35	0%	0.02	0%
Transfer Station	4.63	0%	2.22	0%
Total	**1,048.12**	**100%**	**979.23**	**100%**

b. Notable Improvements 2016-2020

Greenhouse Gas Emissions: Benchmarked buildings improved 19.26% from 2016 to 2020 most notably in Justice Court and in Sewer Plant Operations. Improvements in the Justice Court came in 2018/2019 with a new roof, insulation and more efficient heating. Sewer Plant operations have improved by engaging professional plant management and an upgrade to a more efficient ultra-violet system.

Electricity Usage: Benchmarked buildings improved almost 10% from 2016 to 2020 with most improvements coming from the Sewer Plant (for the same reasons as above) and the Highway Barn. Improvements in the Highway Barn may be more likely attributable to milder winter weather rather than specific actions take

2016 and 2020 Comparison of Energy Consumption Costs*			
	Building or Use	**2016**	**2020**
Sewer Plant	Building	$84,506.29	$75,194.29
Highway Barn	Building	$10,799.05	$9,872.47
Justice Court	Building	$5,160.55	$3,272.33
Town Hall	Building	$3,771.99	$3,816.32
Senior Center	Building	$2,891.55	$2,380.45
Street Lighting	Electric	$31,735.22	$31,670.17
Transfer Station	Electric	$4,049.94	$1,705.42
Pool	Electric	$2,174.23	$1,929.55
Town Parks	Electric	$1,089.06	$787.32
Kennel	Heating	$85.06	$5.09
Total Costs		$146,262.94	$130,633.41

*Cost data from EPA Portfolio Manager

The Climate Smart Communities and Clean Energy Communities programs provide specific actions that can be taken by municipalities to reduce greenhouse gas emissions, save taxpayer dollars, and advance community goals for health and safety, economic vitality, energy independence and quality of life. The Town continues to undertake actions in its efforts to advance its environmental sustainability, demonstrate leadership under both the Climate Smart Communities and Clean Energy Communities programs, and enhance eligibility for funding grants thereunder.

c. Reduction Targets

Through this Climate Action Plan, the Town establishes a short-term and long-term goal for reducing GHG emissions associated with municipal operations. Taking into account only the 621 MTCO2e of CO2 (and not the 427 MTCO2 of methane emitted by the private septic systems over which the Town has no control), the Town aims to reduce municipal GHG emissions by at

least 40% or 248 MTCO2 from 2016 levels by 2030 and 85% or 528 MTCO2 below 2016 levels by 2050. These goals are concordant with New York State's aggressive targets under the Climate Leadership and Community Protection Act, enacted in July 2019, to make the same percentage reductions as the State (albeit, in the State's case, from 1990 levels).

With completion of its LED street lighting conversion and solar array sourcing for municipal electricity needs, described below, the Town hopes to reduce its GHG emissions by an additional 168 MTCO2e in 2022. Given its MTCO2 reductions to date since the 2016 baseline (69 MTCO2), the Town anticipates it will achieve no less than a 40% reduction by 2030. Moreover, the Town anticipates reaching 100% zero emissions electricity in 2022 once the community solar array on its capped landfill and sand mine becomes operational.Once a 40% reduction is achieved, a new short-term target will be established.

SHORT-TERM CAP GOAL BY 2030

Baseline Emissions	621 MTCO2e
Reduction Goal	40%
Required Reduction	248 MTCO2e

LONG-TERM CAP GOAL BY 2050

Baseline Emissions	621 MTCO2e
Reduction Goal	85%
Required Reduction	528 MTCO2e

In terms of achieving a long-term goal of 85% reduction of GHG emissions by 2050, the Town expects that all future construction and renovation of municipal buildings, including the planned renovation of Town Hall and the Highway Barn, will incorporate "green building" standards, significantly reducing--if not eliminating--stationary combustion GHG emissions and enabling renewable energy electricity sourcing. Further, if--as anticipated over the next decade--EV light trucks and more efficient heavy construction vehicles become available and economically feasible, GHG emissions from mobile combustion will also be significantly reduced through the systematic replacement of the conventional fleet.

Reduction Measures

ELECTRIFICATION AND RENEWABLE ENERGY

LED Streetlight Conversion

Following a years' long due diligence process, the Town purchased its 176 street lights from NYSEG in March 2021 with a plan to convert 100% of the lights to energy saving LED bulbs through NYPA. The Town's street lighting conversion to LEDs is currently being completed and is projected by NYPA to reduce the Town's annual energy usage by 133,586 kWh and reduce its GHG emissions by 15.4 MTCO2e annually.

Government Facilities Electricity Sourcing
To reduce government facilities' CO2e emissions overall, the Town has committed to securing 100% of its electricity needs from the 2.7 MW community solar project to be sited on the Town's capped landfill and sand mine and anticipated to be operational in Winter 2021. This will enable the Town to be fully reliant on renewable energy sources for government building operations and will reduce GHG emissions by an estimated 153 MTCo2e annually at the outset and more as government buildings are renovated to eliminate reliance on fossil fuels..

FACILITIES

Town Hall Renovation and Expansion

Architectural plans have been prepared for the renovation and expansion of Town Hall, a 50+ year old structure with inadequate insulation, uncontrolled air leakage and other poor construction techniques. The structure is currently heated by fuel oil.

The proposed renovation/addition will incorporate state of the art materials and is being designed to meet Source Net Zero criteria through adherence to Passive House standards, which is recognized as one of the most stringent gages of energy efficiency. The resulting building will eliminate the use of fossil fuel for space conditioning or backup power generation.

Heating and cooling needs will be drastically reduced through careful building envelope design to minimize heat transfer, enhanced natural daylighting, and efficient LED lighting. The all-electric space conditioning would be provided by low temperature air-sourced heat pumps. The relatively small hot water demand would be met with an air-sourced heat pump hot water heater.

Lighting will be replaced entirely with LED fixtures and will incorporate occupancy and daylighting sensors throughout, and natural daylighting is incorporated into all regularly inhabited spaces, including light tubes into interior hallways. Unregulated loads would be drastically reduced with the elimination of portable space heaters and window air conditioning units.

Photovoltaic panels and battery storage will provide adequate power to meet the needs of the building and its occupants to render it source-net-zero throughout the year. Source-net-zero performance would be met using 21,000 kWh/yr solar power generation. Solar panels may be installed on this building or with a dedicated allotment from the Town's newly installed 2.7 MW community solar array on municipal property off-site. The battery storage would be adequate to provide resiliency during power outages, but also power management at all times to lower peak demand.

To further promote the use of EV vehicles by Town residents, two Level 2 EV charging stations are being considered for the parking area.

This project is in the advanced planning stages and construction is anticipated to commence in Spring 2022.

Municipal Green Building Policy

The Town anticipates adopting a Green Building Standard for Government Buildings in 2021. The construction of new buildings or the renovation of existing municipal buildings present a significant opportunity to design with energy efficiency and resource conservation as a priority. Adopting a green building standard for new municipal construction will make green design consistent among newly constructed buildings and renovated buildings, reducing the Town's environmental impact and demonstrating leadership to the community at large. A key goal will be to transition from the use of natural gas, heating oil and propane in favor of geothermal systems and high efficiency air-source heat pumps so that the Town can transition to 100% renewable energy for its buildings.

In addition to the renovation and expansion of Town Hall, the Town plans to construct a new Highway Barn within the next 5-10 years in compliance with the forthcoming "Green Building" policy.

The transition to high efficiency electric heat pumps in government buildings, combined with sourcing from renewable energy, will eliminate a significant portion of municipal GHG emissions.

VEHICLES AND FLEET

The Town's current fleet consists of nine light trucks and passenger vehicles, eight of which are powered by gasoline. They include:

- 4 passenger vehicles used by our local constables (gasoline; 2013, 2014, 2017, 2019 models)
- 1 passenger vehicle used by our animal control officer (gasoline; 2006 model)
- 2 light trucks used by the Highway Department (gasoline; 2014, 2017 models)
- 1 light truck used by the Sewer Department (gasoline; 2009 model)
- 1 light truck used by the Highway Department (diesel; 2000 model)
- 1 fully electric vehicle (2018; electricity)

Each of the above gasoline-fueled vehicles affords Bethel its best opportunity for purchasing an all-electric or a hybrid vehicle which will help to reduce greenhouse gas emissions.

Additionally, the Highway Department has 30 heavy trucks, 8 pieces of construction equipment and 3 trailers used to repair and maintain Town roads. These vehicles account for 82% of our fleet inventory and afford the Town a lesser opportunity for reducing GHG emissions. While a more efficient heavy duty vehicle will assist in reaching this goal, the purchase of an all-electric or hybrid vehicle is not yet a likely outcome because of limited availability.

Total GHG emissions from the municipal fleet was 334 MTCO2e in 2020. In 2021, a Fleet Inventory is underway, and a reporting process initiated, to monitor mileage and fuel consumption of Highway Department vehicles.

The Town will prepare a Fleet Efficiency Policy with a schedule for "Fleet Right-Sizing" and the replacement of its passenger vehicles. The Town added one EV vehicle in 2018 and plans to add other hybrids or EV vehicles for the Town's constable cars as such vehicles need replacing over the next few years.

Transitioning to more efficient and possibly hybrid or fully electric light trucks will be prioritized as such vehicles become readily available and economically feasible. For heavy trucks and construction vehicles, the Town will implement a replacement policy of upgrading to higher efficiency models wherever possible.

In connection with the renovation/expansion of Town Hall and the anticipated addition of EV vehicles, it is anticipated that one or two additional EV recharging stations will be installed.

MATERIALS MANAGEMENT

Resource Recovery Center

Sustainable Bethel is developing plans for a resource recovery center or "dumptique" near its transfer station to encourage non-perishable items that are in good

condition but no longer needed. Under the concept that “one man’s garbage is another person’s treasure”, the resource recovery center would aim to reduce the amount of discarded items destined for landfills. In addition to reducing the waste stream, this resource recovery center would assist those of limited means with free goods, promote volunteerism and community building,and raise awareness of environmental concerns and preservation of limited resources. Sustainable Bethel is currently working on a proposal, including the rules and regulations for the “dumptique” and promotional materials.

Encouraging Recycling
The Town plans to encourage recycling by providing recycling bins in its government buildings and also in public places and at events, such as its park, green market and lakeside music events.

CLIMATE RESILIENCY PLAN AND VULNERABILITY ASSESSMENT

The Town anticipates participating with Sullivan County with respect to the County’s updating of its Comprehensive Plan which will include resiliency planning and a vulnerability assessment. The County has indicated that all 21 municipalities comprising the County will be included and the County has received funding for resiliency planning. The Town has informed the County Legislative Chair and Office of Sustainability that it wishes to work in tandem with the County in addressing the Town’s resiliency planning and vulnerability assessment. This initiative is expected to take place over the course of the next year.

PRIORITIZING PROJECTS AND NEXT STEPS

In determining priorities for project implementation, two main factors must be considered: the extent to which the proposed project will reduce GHG emissions and the funding necessary and available to implement the project. The Town has relied on Federal and State programs offering free consultations and guidance for many of its energy saving and GHG reduction initiatives achieved to date, and will continue to pursue grants to implement the projects in progress and proposed for the future. The Town is striving to demonstrate its leadership under NYSERDA’s Clean Energy Communities Leadership Program and plans to apply for at least $20,000 in anticipated grants pursuant to that program to support energy-efficient components of itsTown Hall project.

Sustainable Bethel will track progress with the implementation of the actions discussed herein At the same time, it will consider and evaluate new ideas and solutions as they emerge to further reduce GHG emissions. A progress report will be generated annually and made

available on the Town's website and Sustainable Bethel's Facebook page to inform the public of efforts undertaken by the Town government and results achieved.

Subsequent GHG inventories will be conducted annually. If goals and targets are achieved earlier than anticipated, a new GHG Inventory baseline year will be established with new GHG emissions reduction targets and strategies to achieve those targets.

Many of the projects discussed in this Government Operations Climate Action Plan may also serve to inspire or educate the public at large about sustainability measures that individuals can undertake. Sustainable Bethel anticipates preparing a Community Climate Action Plan in 2022 to further climate change education and engagement and encourage community and individual action.

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