TOWN OF PITTSFORD 2024

Climate Action Plan
For Municipal Operations

Credits & Acknowledgements

Town of Pittsford Government Officials and Staff

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Town of Pittsford Environmental Board

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Audrey Clignette – Board Member
Jacqueline Ebner - Board Member
Ethan Greene – Board Member
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Julie Marcellus – Board Member
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Plan Contributors

Rachel Scudder – Climate Smart Communities Coordinator, Genesee Finger Lakes Regional Planning Council
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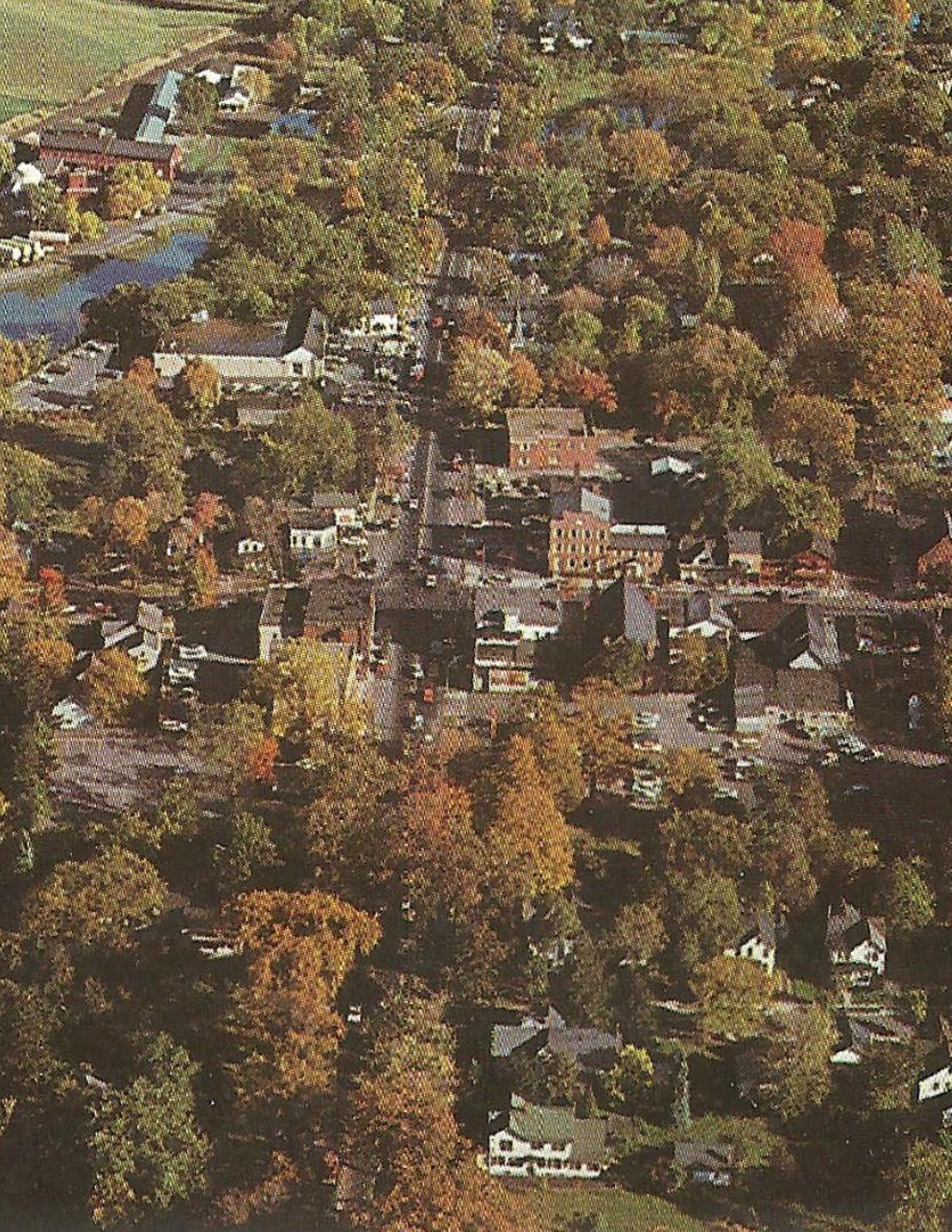
External Agencies and Partners

Genesee/Finger Lakes Regional Planning Council
New York State Department of Environmental Conservation
New York State Energy and Research Development Authority
New York State Climate Smart Communities

The Climate Smart Communities (CSC) program began in 2009 as an interagency initiative of New York State. The program is jointly sponsored by the following New York State agencies: Department of Environmental Conservation (DEC); Energy Research and Development Authority (NYSERDA); Department of Public Service; Department of State; Department of Transportation; Department of Health and the Power Authority (NYPA). DEC acts as the main administrator of the program.



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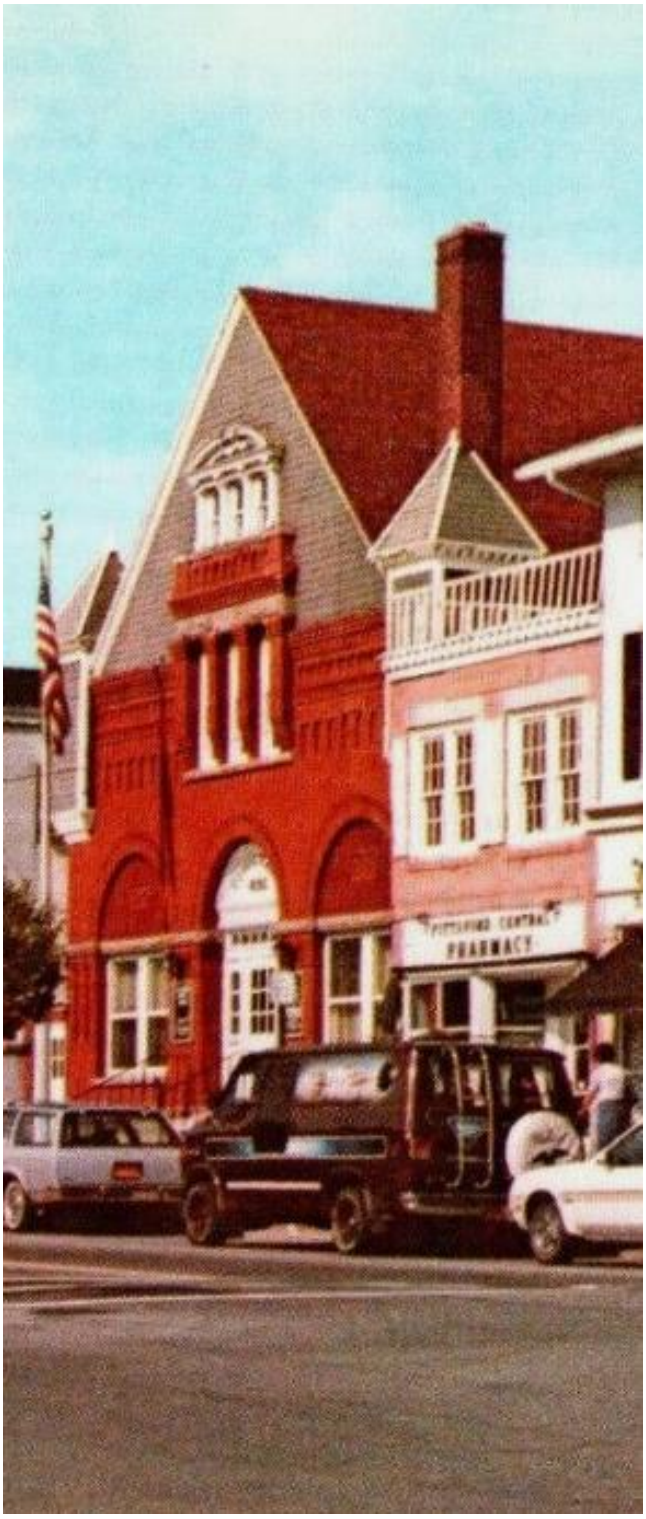

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Acronyms

ASHP	Air Source Heat Pump
CAP	Climate Action Plan
CEC	Clean Energy Community
CJWG	Climate Justice Working Group
CLCPA	Climate Leadership and Community Protection Act
CNG	Compressed Natural Gas
CSC	Climate Smart Community
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
GFLRPC	Genesee/Finger Lakes Regional Planning Council
GHG	Greenhouse Gas
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MSA	Metropolitan Statistical Area
NOAA	National Oceanic and Atmospheric Administration
NYS	New York State
PDR	Purchase of Development Rights
UN	United Nations
ZEV	Zero Emission Vehicle

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Local Government Commitment

APPROVAL OF CLIMATE ACTION PLAN FOR MUNICIPAL OPERATIONS

Supervisor Smith made the motion to approve the Climate Action Plan for Municipal Operations, seconded by Councilmember Townsend and voted on by members as follows:

Resolved, that the Town Board adopt the Town of Pittsford 2024 Climate Action Plan for Municipal Operations in the form submitted herewith.

Vote:

Supervisor William A. Smith	Voting	Aye
Councilmember Naveen Havannavar	Voting	Aye
Councilmember Cathy Koshykar	Voting	Aye
Councilmember Kim Taylor	Voting	Aye
Councilmember Stephanie Townsend	Voting	Aye

The Resolution was declared adopted.

I, RENEE M. MCQUILLEN, TOWN OF CLERK OF THE TOWN OF PITTSFORD, certify that the above resolution is a true and exact copy of a resolution adopted by the Town Board of the Town of Pittsford at a regular meeting held on Tuesday, August 20, 2024 at 6:00 P.M. local time in Pittsford Town Hall.

Dated: August 23, 2024

RENEE M. MCQUILLEN, TOWN CLERK
TOWN OF PITTSFORD, NEW YORK

Letter from the Town Supervisor

The Town of Pittsford has a long history of engaging in local natural resource protection and climate initiatives. Continuing its efforts to move towards a greener future, the Town has followed in Monroe County's footsteps and investigated the benefits of adopting a Municipal Operations Climate Action Plan (CAP). This plan serves as a guide of potential actions to be implemented in order to reduce greenhouse gas emissions produced as a result of the Town's municipal operations and to bolster climate resilience.

The Town Department of Public Works, the Town Environmental Board, and the Genesee/Finger Lakes Regional Planning Council (GFLRPC) have partnered to develop the Town of Pittsford 2024 Climate Action Plan for Municipal Operations. The group looked at the Greenhouse Gas Inventory produced by students at the Rochester Institute of Technology and created a list of specific, potential action items that would help decrease municipal operations emissions. The group then analyzed the cost, time, and impact of each action. Using this analysis, the actions were then ranked by priority. Rachel Scudder, the GFLRPC Climate Smart Communities Coordinator, separated the ranked action items into specific categories within the Town's municipal operations, including transportation, municipal facilities, materials management, renewable energy, and adaptation and resilience. Guidance of how to implement specific recommended measures and priorities are included in the framework of the Town CAP.

While the CAP amounts to agency planning or policy-making activities that may affect the environment, it does not commit the Town to a definite course of future decisions. This plan will serve as a decision-making guide to the Town of Pittsford to promote a greener future for our local community.

Bill Smith, Pittsford Town Supervisor

Executive Summary

New York State (NYS) is experiencing the impacts of global climate change and has made climate mitigation and adaptation one of its top priorities. NYS created the Clean Energy Community (CEC) and Climate Smart Community (CSC) programs to reduce greenhouse gas (GHG) emissions and prepare for the changing climate. Pittsford is among the hundreds of local governments that NYS has certified as CECs (2017) and CSCs (2022). The Town of Pittsford's inclusion in these programs is exemplary of its long history of environmental stewardship that includes the adoption of its Greenprint in 1994. Continuing this dedication, the Town has adopted this Climate Action Plan (CAP) to ensure its future work will strategically reduce energy demand and GHG emissions across four focus sectors. Additionally, the plan makes recommendations for adaptation and resilience as a fifth focus sector.

The Town of Pittsford's CAP not only addresses climate protection but also promotes energy savings and advances community goals for public health and safety. By acting now and aligning its goals with those of the NYS Climate Leadership and Community Protection Act (CLCPA), the Town of Pittsford is taking a leadership role in mitigating the impacts of climate change.

The Town developed the CAP following these steps:

1. Analysis of the demographic makeup of the Town.
2. Establishment of a representative working group.
3. Development of an engagement strategy for a scenario-building workshop.
4. Evaluation of climate hazards to understand the most at-risk community assets, populations, and systems.
5. Creation of a vision for climate mitigation, adaptation, and resilience.
6. Development of strategies to adapt and mitigate GHG emissions.

Introduction

Call for Local Climate Action

Compelled by the knowledge that GHG emissions are driving climate change, the Town of Pittsford is among an increasing number of local governments in NYS committed to GHG emissions at the local level. The Town of Pittsford recognizes the risk that climate change poses to the community and will reduce GHG emissions through the initiatives in this CAP for municipal operations.

The Town of Pittsford has long been dedicated to environmental stewardship. The Town's Greenprint, adopted in 1994, identified 1,438 acres (about twice the area of Central Park in New York City) of valuable green space from development. Since its adoption, the Town has protected more than 1,000 acres to the Greenprint. Currently, 22% of Pittsford is protected from future development. The Town has continued to demonstrate its commitment to climate action by purchasing 100% renewable energy to power municipal buildings, conducting energy audits of, and making improvements to, municipal buildings, installing solar arrays on municipal buildings and electric vehicle charging stations on Town properties, converting streetlights to energy efficient LEDs, piloting a food scrap recycling program, and offering a community solar option to residents and small businesses. Through these actions and others, the Town registered as a CSC in 2017 and achieved a CSC bronze-level certification in 2022.

In 2023, the Town conducted a GHG inventory for municipal operations. The GHG inventory establishes the current state of emissions in the Town and was used to create the goals of this CAP. The CAP represents the Town's commitment to further strategic climate action that aligns with the goals of the CLCPA for NYS and Monroe County's CAP.

Benefits of Climate Action Planning

This CAP proposes common-sense approaches to improve air quality, lower energy costs, improve transportation and accessibility, reduce the municipality's carbon footprint, and benefit the Town of Pittsford for years to come. While the Town of Pittsford cannot address climate change by itself, government policies and practices can dramatically reduce GHG emissions from a range of sources in government operations.

Climate Action Plan Focus Areas

Transportation
Fuel use for light and heavy-duty vehicles.

Municipal Facilities
Energy used in government buildings and facilities.

Waste & Recycling
Non-energy GHG emissions produced from waste.

Renewable Energy
Energy from a source that is not depleted when used that offsets GHG emissions.

Adaptation & Resilience
Preserving existing resources; the capacity of an ecosystem to respond to a disturbance by resisting damage and recovering.

The CAP identifies GHG emissions resulting from local government operations within the Town of Pittsford. It addresses major sources of emissions in four focus areas: transportation, municipal facilities, Material Management, and renewable energy. The plan sets goals for the reduction of GHG emissions and outlines strategies that the Town of Pittsford can implement to achieve them. Additionally, this municipal operation plan targets projects, goals, and policies to improve climate adaptation and resilience. Although this CAP focuses specifically on municipal operations, a plan for community wide GHG mitigation is anticipated to follow.

CAP Process, Goals, & GHG Reduction Targets

Local Climate Action Planning Process

Town staff, the Town of Pittsford Environmental Board, and the Genesee/Finger Lakes Regional Planning Council (GFLRPC) collaborated to:

1. Determine leadership and CAP framework.
2. Develop a communication & engagement strategy.
3. Complete and analyze baseline assessments.
4. Identify goals and GHG reduction targets.
5. Identify existing and potential initiatives.
6. Prioritize initiatives.
7. Create a plan for implementing the chosen initiatives.
8. Adopt the CAP and make it publicly available.

The planning process was completed in three stages:

1. Assessing the Town's climate vulnerability
2. Planning for community wide adaptation and resilience
3. Planning for municipal GHG mitigation

Planning for community-wide GHG mitigation is anticipated to come at a future date.

Outreach Efforts

The Environmental Board met publicly with GFLRPC a number times during the development of the CAP to discuss progress and conduct open discussions about climate action and adaptation methods. The Environmental Board also met in subgroups to discuss climate actions that are applicable to specific sectors of Town operations. In December 2023, GFLRPC and the Town hosted a public Scenario-Building Workshop to work through adaptation strategies and methods. The complete CAP development process involved students, Town Board members, Planning Board members, members of Color Pittsford Green, Environmental Board members, Town staff, and residents.

Disadvantaged Communities

NYS recognizes that climate change does not affect all communities equally. Under the CLCPA, the Climate Justice Working Group (CJWG) was charged with the development of criteria to identify disadvantaged communities to ensure that frontline and otherwise underserved communities benefit from the state's historic transition to cleaner sources of energy, reduced pollution and cleaner air, and economic opportunities.

The CJWG identified census tracts that qualify as disadvantaged communities by evaluating 45 indicators, including environmental exposures, burdens, and climate change risks; sociodemographic factors, such as age, race, and income; pollution characteristics; and health vulnerabilities. Although the Town of Pittsford currently has no block groups that fit these criteria, the Town does acknowledge that there are residents who are disproportionately affected by climate change. According to the U.S. Environmental Protection Agency's (EPA) Environmental Justice Screening tool, some of these groups in the Town include individuals over the age of 65 who make up a large part of the population, and those living in areas of high flood risk as defined by Federal Emergency Management Agency (FEMA) flood maps.

CAP Framework and Goals

The Town of Pittsford completed a GHG emissions inventory in 2023 to identify the largest contributors of emissions. The CAP identifies focus areas for emission reduction based on the GHG baseline analysis and input from community stakeholders. The Town of Pittsford CAP creates a framework for documenting and coordinating these efforts by outlining each initiative's estimated implementation timeframe, cost, and potential leaders and partners. Each focus area includes a list of actions that will help achieve the goals and reduction targets established during the climate action planning process.

GHG Reduction

The Town of Pittsford is committed to achieving an overall reduction in GHG emissions. The CAP is a critical component of a comprehensive approach to reducing emissions created by the Town and offers reduction targets with recommended actions for achieving them in four sectors of municipal operations.

GHG and the Effect on our Climate

According to the EPA and NYS Department of Environmental Conservation (DEC), climate change refers to a long-term change in temperature, precipitation, increasing ocean temperatures, melting of glaciers, changes in extreme weather events, and shifts in ecosystem characteristics that affect the growing season, length of seasons, and the habitats of plants and animals.

GHG emissions have radically changed the Earth's climate. GHG emissions result from burning fossil fuels, deforestation, wetland loss, and other human activities, causing the greenhouse effect and global warming. The GHGs that have the most Global Warming Potential (GWP) are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). GWP refers directly to the impact of one unit of each gas in the atmosphere compared to one unit of CO_2 (see Table 1: Intergovernmental Panel on Climate Change (IPCC) 5th Assessment 20-year Global Warming Potential Values).

Table 1: Intergovernmental Panel on Climate Change (IPCC) 5th Assessment 20-year Global Warming Potential Values

GHG (GHG)	Global Warming Potential (GWP)
Carbon Dioxide (CO_2)	1
Methane (CH_4)	85
Nitrous Oxide (N_2O)	264

Climate Projections for the Region and Town of Pittsford

This section uses scientific data to describe climate change effects and impacts already occurring and projections for future change in NYS, Western New York Great Lakes Region, and Monroe County. This includes changes in temperature, precipitation, and extreme weather and implications for communities, ecosystems, and natural resources.

Temperature

Below, Table 2: Projected Changes in Average Annual Temperature by ClimAID Region, 90th Percentile, shows the projected annual temperature change in NYS by region.

According to the Climate Explorer, a tool managed by the National Oceanic and Atmospheric Administration (NOAA), the average annual temperature is projected to increase from baseline conditions (1971 to 2000). As shown in Table 2, future temperatures are expected to increase across all regions. The most drastic increases are projected to occur in the Western New York and Great Lakes Region, the Southern Tier, the Tug Hill Plateau, and the Adirondack Mountains, with temperatures in the 2100s projected to be 13.8 to 13.9° F higher than the baseline. In Monroe County, this increase is 2-3°F by the 2020's, 4.1-6.8°F by the 2050s, and 5.3-10.1°F by the 2080s.

According to the EPA and the United Nations (UN), increased annual temperatures over time can lead to an increase in flood damage and the heat island effect, which can affect human health, crop health, and the overall functioning of an area's ecosystem.

Table 2: Projected Changes in Average Annual Temperature by ClimAID Region, 90th Percentile

Region	Mean Temperature				
	Baseline	2020s	2050s	2080s	2100s
1 - Western New York, Great Lakes Region	**47.7°F**	**+ 4.0°F**	**+ 7.3°F**	**+ 12.0°F**	**+ 13.8°F**
2 - Catskill Mountain and West Hudson River Valley	50.0°F	+ 3.5°F	+ 6.9°F	+ 10.7°F	+ 12.6°F
3 - Southern Tier	47.5°F	+ 3.8°F	+ 7.1°F	+ 11.6°F	+ 13.8°F
4 - New York City and Long Island	54.6°F	+ 3.2°F	+ 6.6°F	+ 10.3°F	+ 12.1°F
5 - East Hudson and Mohawk River Valleys	47.6°F	+ 3.7°F	+ 7.1°F	+ 11.4°F	+ 13.6°F
6 - Tug Hill Plateau	45.4°F	+ 3.9°F	+ 7.2°F	+ 11.8°F	+ 13.9°F
7 - Adirondack Mountains	39.9°F	+ 3.8°F	+ 7.4°F	+ 11.8°F	+ 13.9°F
Source: Adapted from Horton et al., 2014					

Precipitation

Extreme precipitation means that in frequent flood locations, there will be a larger flooding volume that will occur more often. It is predicted that there will be more precipitation during winter months and less precipitation in summer and fall months. Below, Table 3: Extreme Precipitation Event Projections in the Rochester Region, shows the projected extreme precipitation events change in the Rochester Region.

According to the 2014 ClimAID report, precipitation in the Rochester Region is projected to increase 1-8% by the 2020s, 4-12% by the 2050s, and 4-17% by the 2080s. Although the total annual precipitation is projected to increase marginally, extreme precipitation events are projected to increase in frequency, intensity, and duration.

Table 3: Extreme Precipitation Event Projections in the Rochester Region

2020s			
	Low Estimate	**Middle Range**	**High Estimate**
Days over 1" Rainfall (5 days)	4	5 to 5	6
Days over 2" Rainfall (.6 days)	.6	.6 to .7	.8
2050s			
Days over 1" Rainfall (5 days)	4	5 to 5	6
Days over 2" Rainfall (.6 days)	.5	.6 to .8	.9
2080s			
Days over 1" Rainfall (5 days)	4	5 to 6	7
Days over 2" Rainfall (.6 days)	.5	.6 to .9	1
Source: Climate Explorer (2023)			

Place Narrative: Town of Pittsford

This section provides an overview of the general characteristics and history of the Town of Pittsford. It describes community dynamics and the surrounding watershed ecosystem and includes a history of extreme weather events and threats.

Socioeconomic Status

A breakdown of socioeconomic status can be used to analyze the well-being and financial situation of individuals in the community and make sound decisions regarding resource allocation, policy development, and public services. In a climate action plan, this information can be used to identify those who may be most vulnerable to the adverse effects of climate change. According to the 2020 Census, 75.7% of Town of Pittsford residents aged 25 or older have earned a bachelor's degree or higher. Of those, 51.7% earned a bachelor's degree in science, engineering, or a related field. According to the 2020 Census, the Town also has a high median household income of over $139,000 a year—more than twice the average income of the Rochester Metropolitan Statistical Area (MSA) of around $53,000. According to the EPA's Environmental Justice Screener and the Town's 2019 Comprehensive Plan, the Town has a large population of people aged over 65. People over the age of 65 are more vulnerable to climate events. According to the EPA, older adults are more likely to have health conditions that can make them more sensitive to their climate, which can worsen existing illnesses. A detailed breakdown of the Town's socioeconomic status can be found in the 2019 Comprehensive Plan.

Ecosystem

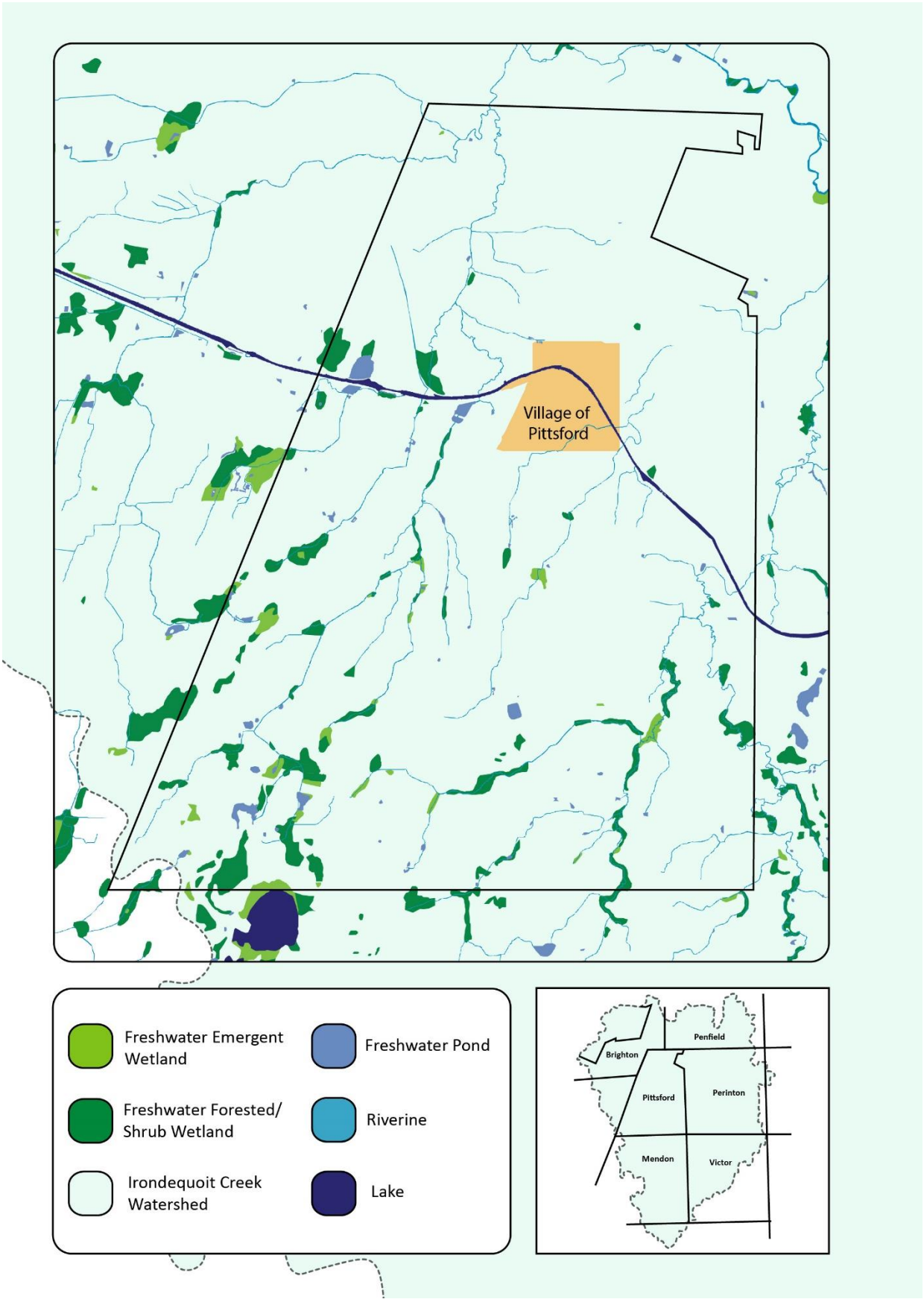
To better assess climate vulnerability and build consensus for climate adaptation and resilience strategies, we must consider the larger ecosystem that encompasses Pittsford. As part of the Irondequoit Creek watershed, environmental actions (or the lack thereof) throughout the watershed impact the risks and challenges Pittsford faces. Similarly, what the Town of Pittsford does can affect other communities in the watershed, especially those downstream. Therefore, the following description includes maps of the entire watershed area while the text focuses on how Pittsford is affected by, and how itself impacts, the watershed ecosystem.

Wetlands

According to the Environmental Resource Mapper, there are approximately 84 state-regulated wetlands in the Irondequoit Creek Flood Initiative project area. The entire area, shown in gray in the map in Figure 1, includes approximately 1,375 wetlands. The specific wetlands within the Town of Pittsford are color-coded within the black boundary that shows the Town borders. Within Pittsford, there are four types of wetlands: rivers/creeks, ponds, freshwater emergent wetlands, and freshwater forested/shrub wetlands.

As shown on the map, the largest concentration of wetlands in Pittsford is in the southwest area of the Town, where there is the greatest area of undeveloped land and the lowest building density. This area is near key natural resources including Mendon Ponds Park and the Town's Isaac Gordon Nature Preserve. The central western area of the Town also encompasses notable wetlands abutting the Erie Canal. That area, along with the southeast portion of the Town, where there are smaller wetlands, is of concern because there has been more development of higher density neighborhoods. This density can both impact the preservation of wetlands and pose risks to property should rainfall exceed the wetlands' capacity. There are few wetlands in the northeast area of Pittsford.

Figure 1: Town of Pittsford Wetland Ecology Map



Source: DEC Environmental Resource Mapper

Sensitive Natural Resources

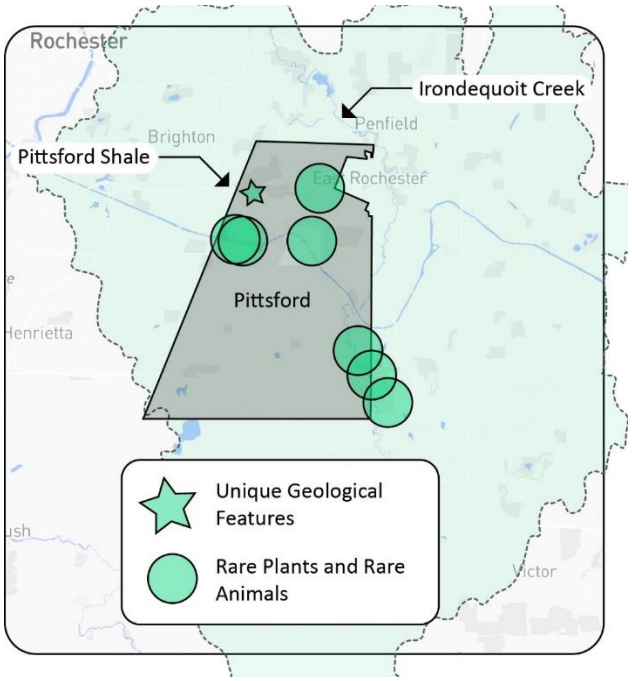
The presence of Pittsford Shale, a sensitive natural resource, has been identified in the northeast part of the Town as indicated in Figure 2. Pittsford Shale deposits date from the Silurian period (443-416 million years ago) and contain fossils of eurypterids, an extinct group of aquatic arthropods that to date have only been found in Pittsford. This natural resource is currently protected by its inclusion in the Town of Pittsford Erie Canal Trail - Lock 62 behind Pittsford Plaza.

The Irondequoit Creek Watershed includes several significant natural communities as identified by NYS DEC. Outside of Pittsford, these include oak openings at Powder Mills Kettle and Kame protected by inclusion in Powder Mills Park and rich fern shrub and a rich graminoid fen called Quaker Pond Fen protected by their inclusion in Mendon Ponds Park. Although these are located outside of Pittsford, it is important to be aware of their presence so that any activity or development within Pittsford does not adversely impact them.

Endangered or Threatened Species

The Environmental Resource Mapper shows that the Irondequoit Creek Watershed is home to several rare or threatened species, including the potential presence of the Monarch butterfly (Danaus plexipuss), a candidate for protection under the Endangered Species Act. Although no threatened species have been identified in the Town of Pittsford, seven locations that are wholly or partially in the Town have been identified as containing rare plants and animals. As shown in Figure 2, these areas are in the southeast and northern parts of the Town. Three of the areas overlap with Powder Mills Park around Thornell Road, Park Road, and Railroad Mills Road. These areas contain plants listed as endangered, threatened, or rare by NYS.

Figure 2: Town of Pittsford Ecological Map



Source: DEC Info Locator

History of Extreme Weather Events

Most of the information in this section is found in the 2022 Flood Mitigation Initiative for Irondequoit Creek and the 2023 Monroe County Hazard Mitigation Plan.

Flooding History

Floods in the Irondequoit Creek watershed may occur at any time, but spring rainfall and snowmelt, and summer thunderstorms are the primary causes. Areas that see frequent flooding from Irondequoit Creek in the watershed area outside of the Town of Pittsford include Ellison Park; residences and business in the vicinity of Panorama Plaza and Panorama Trail; Linear Park; Spring Lake Park; the Island Valley Golf Course; as well as residences and businesses near the intersection of NY 251 and NY 64.

There are also tributaries of concern that cross municipal lines into Pittsford. Flooding outside of Pittsford can have downstream effects within Pittsford. This is particularly true for Irondequoit Creek, which runs south to north through the east side of the Town and Allen's Creek, which runs across the northwestern most corner of the Town.

Threats, Risks, Barriers, and Challenges

According to the results from the Scenario-Building Workshop, some of the threats, risks, barriers, and challenges to having a high adaptive capacity for hazard events are:

- Vulnerability to wind events tied to electrical outages.
- Lack of education and awareness around emergency response preparedness.
- Homes in the floodplain.
- Changing the Town's Zoning Code takes time.
- Funding.

Data Gaps, Unknowns and Uncertainties

Some of the data gaps, unknowns, and uncertainties identified during the Scenario-Building Workshop are:

- The FEMA Floodplain Map is not completely accurate or up to date (revisions anticipated in 2024).
- There is a lack of clarity about who is responsible for building adaptive capacity to climate hazards (Town/County/State).
- Cost of improvements.

Vulnerability Assessment

Overview

One of the first steps to combatting climate change and building resilience is to understand the relevant hazards and vulnerabilities. A comprehensive assessment can reduce a community's risk to climate hazards by building an understanding that climate change does not affect all sections of society equally. This assessment identifies, analyzes, and prioritizes the effects of climate hazards. Climate hazards can affect neighborhoods and a community's local economy and industries.

Current Conditions

In 2022, the Town of Pittsford participated in updating Monroe County's Hazard Mitigation Plan. During this process, the Town identified its planning points of contact, evaluated its risk from the list of hazards, identified its capabilities to effect mitigation in the community, and identified and prioritized mitigation initiatives, actions, and projects. The self-identified risks are listed below in Table 4: The Town of Pittsford Hazard Ranking and Self-Identified Adaptive Capacity.

The Town listed flooding, severe storms, and severe winter storms as having a high hazard ranking, and drought and extreme temperatures having a medium hazard ranking.

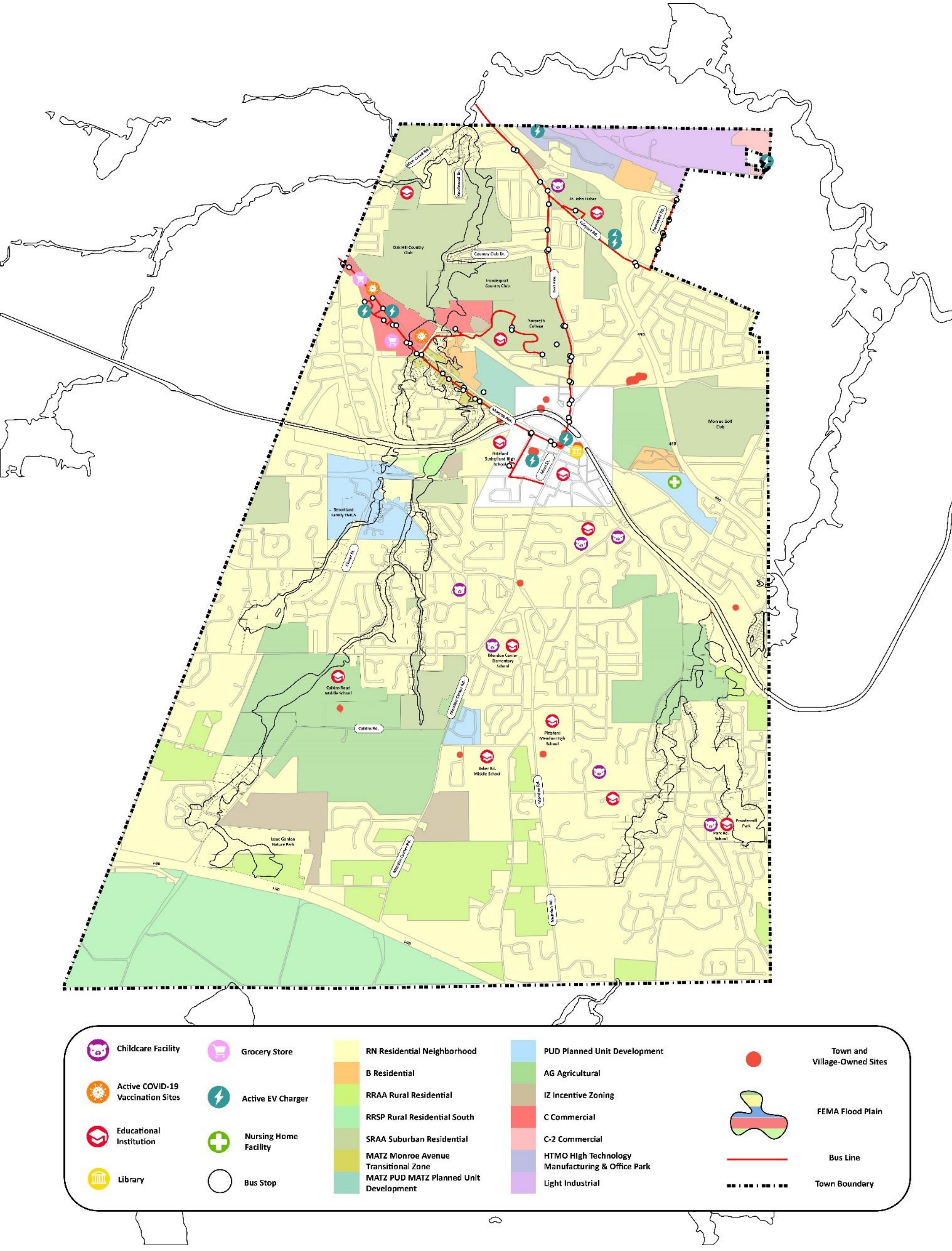
Flooding

Portions of three Pittsford School District properties, the Nazareth University property, a large section of Monroe Avenue, which is a major transportation corridor for the Town and contains a public transit line; neighborhoods, and commercial properties, all lie within FEMA-designated flood areas. These areas are shown in Figure 3: Town of Pittsford Map of Community Assets in the Floodplain.

Flooding and severe storms can damage infrastructure, interfere with the ability of emergency services to respond to medical and public safety needs, disrupt agricultural production, and prevent business owners from conducting business and community members from going to work or school.

Table 4: Town of Pittsford Hazard Ranking and Self-Identified Adaptive Capacity		
Hazard	**Hazard Ranking (Low | Medium | High)**	**Adaptive Capacity (Strong | Moderate | Weak)**
Disease Outbreak	Low	Weak
Drought	**Medium**	Moderate
Earthquake	Low	Weak
Extreme Temperatures	**Medium**	Moderate
Flood	**High**	Strong
Hazardous Materials	Low	Weak
Infestation and Invasive Species	Low	Weak
Landslide	Low	Weak
Severe Storm	**High**	Strong
Severe Winter Storm	**High**	Strong
Wildfire	Low	Weak
Source: Monroe County Hazard Mitigation Plan		

Figure 3: Town of Pittsford Map of Community Assets in the Floodplain



Adaptation & Resilience

Scenario-Building Workshop

Developing community future scenarios can help planners, policymakers, and the public identify and consider key uncertainties and potential risks associated with plausible future events. Exploring these scenarios enables communities to better anticipate potential outcomes and develop more robust actions for climate adaptation and resilience. Using participatory processes to develop future scenarios, conduct simulations, and develop a community vision can also help to generate a consensus regarding community risks and adaptation approaches and strategies. Simulation activities help community members understand scenarios and help them take responsibility for their possible futures. Developing future scenarios can inform planning and decision-making staff regarding adaptation.

Steps of the Exploratory Scenario Planning Process

1. Conduct participatory simulations.
2. Develop a shared community vision.
3. Develop recommendations for action.
4. Explore best practices and promising practices.
5. Select nature-based solutions for ecosystem-based adaptation actions.

The Scenario-Building Workshop started with a short presentation that defined the difference between climate adaptation and mitigation and gave a short overview of some of the hazard statistics for the Town and a description of the scenario-building process. Participants then split into groups and discussed different hazard scenarios.

Each group had a map of the flood areas in the Town, and a facilitator took notes and guided groups through the different scenarios and hazard events. Each group created a list of potential projects and actions to help the community adapt to climate hazards. Individual groups presented their lists to the whole assembly, who then cast three votes to prioritize the presented projects and actions. Results of voting are reflected in the prioritization of the Adaptation and Resilience Actions.

Current Climate Protection Initiatives

Climate change directly impacts challenges faced by the Town of Pittsford, such as budget constraints, water quality, infrastructure maintenance, and community health. Climate change results from land use, transportation, and energy use decisions that require coordinated solutions. The Town of Pittsford has already begun to reduce GHG emissions and build adaptation and resilience through a variety of plans, programs, and policies. With these milestones completed and a CAP to guide the way, the Town of Pittsford is better positioned to implement initiatives and reduce GHG emissions for local government operations and implement community wide adaptation and resilience strategies.

The following is a list of initiatives the Town is currently undertaking to address climate change:

Planning Documents
Greenprint • Open Space Conservation – Purchase of Development Rights (PDR) Easements, Town-Owned Land, etc. • Agricultural Viewshed Identification
Stormwater Management Plan
Multi-Hazard Mitigation Plan – Monroe County Hazard Mitigation Plan (2023)
2019 Comprehensive Plan
Active Transportation Plan
Comprehensive Drainage Plan
Town of Pittsford Green Infrastructure - Municipal Code and Ordinance Review Project Executive Summary and Recommendations Report
Codes, Ordinances, and Regulations
Building Code – New York State Uniform Fire Prevention and Building Code
Zoning/Land Use Code • Subdivision Ordinance • Site Plan Ordinance • Stormwater Management Ordinance • Flood Damage Prevention Ordinance
Programs and Partnerships
Participation in NYS Climate Smart Communities Program – Bronze Certification: • Government Building Energy Audits • Solar Energy Installation • Organic Waste Program for Government Buildings • Residential Organic Waste Program • Smart Growth Policies • Policies for Local Food Systems

- Infrastructure for Biking and Walking
- Alternative-fuel Infrastructure
- Farmers' Markets

Participation in NYS Clean Energy Communities Program:

- Benchmarking – Advanced Reporting
- Benchmarking – Municipal Buildings
- Clean Fleets
- Climate Smart Communities Certification – Bronze
- Energy Code Enforcement Training
- LED Street Lights – Cobra Head Fixtures
- Unified Solar Permit

GHG Inventory Assessment

A local government operations GHG inventory was conducted for the Town of Pittsford, establishing 2021 emissions as a baseline. The inventory accounts for emissions associated with facilities, vehicles, and other processes that are owned and operated by the Town of Pittsford, as seen in Table 5: Town Operations Emissions by Source (MT CO2e).

Table 5:
Town Operations Emissions by Source (MT CO2e)

Source	CO2	CH4	N2O	Total	% of Total
Stationary Combustion (Heating and Cooling)	280.99	1.51	0.1	282.6	21%
Mobile Combustion	753.02	2.59	2.22	757.83	57%
Electricity - Location Based	273.23	1.7	0.62	275.55	21%
Water	2.08	0.01	0	2.1	0%
Ag & Land Management			10.73	10.73	1%
Total (Gross Emissions)	**1,309.32**	**5.81**	**13.67**	**1,328.81**	**100%**

Figure 5: Diagram of Emission Breakdown by Source

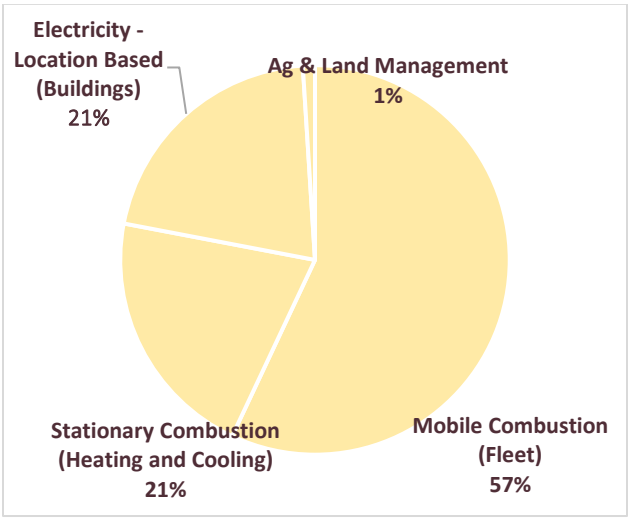


Figure 5 shows GHG emissions resulting from the day-to-day operations of the local government. The municipal fleet is the largest source, contributing approximately 57% of the Town of Pittsford emissions. These emissions are created by burning gasoline and diesel fuel in the Town-operated fleet. The Town's buildings accounted for the remainder of emissions, with roughly equal parts (21%) resultant from natural gas combustion and electricity use.

Existing Renewable Energy Targets and Emissions Savings as a Result of Implementation

Existing renewable energy projects within the municipality include new heat pumps in government buildings, a solar installation at King's Bend Park, and a power purchase agreement with Power Management and Direct Energy.

Climate Actions & Initiative Prioritization

Action Selection

The Town of Pittsford's staff, Environmental Board, and GFLRPC staff reviewed existing state, regional, and local goals in the Town's 2019 Active Transportation Plan, Comprehensive Plan, Zoning Code, the Monroe County Climate Action Plan for Municipal Operations, the Genesee Transportation Council's Long Range Transportation Plan, the NY Scoping Doc, and the CEC and CSC Actions to create a list of recommendations that are fit for the Town to take on.

Working in subgroups, the Town of Pittsford Environmental Board members and members of Town staff met over the course of a several months to discuss each priority sector. During these discussions, the Town considered comprehensive lists of potential municipal climate actions compiled from actions in the CSC Program, CEC Program, The Monroe County Climate Action Plan for Municipal Operations, and other climate action precedents.

Evaluation Criteria

Once climate actions were identified, one challenge was deciding where to start. Which actions are the most important? To address this challenge, the Town of Pittsford and its stakeholders established criteria to evaluate and initiatives for implementation based on local goals and priorities.

Ranking Methodology

The committees ranked initiatives within each focus area based upon:

a. Feasibility
b. GHG Reduction Impact and Cost Savings
c. Funding Opportunities

Building and Transportation Sector Emission Reduction Target Scenarios

The target scenarios in Tables 6 and 7 demonstrate measures the Town could take to reduce emissions in the facilities and transportation sectors. For this scenario, the building and transportation sectors are targeted, as they are the highest emitters for municipal operations.

These scenarios are purely illustrative, and implementation will depend on the results of further analysis by way of energy audits and fleet and renewable energy feasibility studies. Implementation of a GHG reduction is also dependent on federal and state level policy and funding support.

By 2030

Table 6 summarizes two scenarios that show how different climate action measures outlined in the plan would affect overall GHG emissions in the Town. Scenario 1 projects a 19% reduction over the next six years through significant building and fleet improvements, like utilizing zero-emission vehicles, analyzing and endorsing a fleet efficiency policy, and making buildings more energy efficient. Scenario 2 projects a 25% reduction over the next six years and relies more on expanding ground or roof-mounted solar to offset energy costs.

By 2050

Table 7 summarizes two scenarios that show how different climate action measures outlined in the plan would affect overall GHG emissions in the Town. Scenario 1 projects a 19% reduction over the next six years through significant building and fleet improvements, like utilizing zero-emission vehicles, analyzing and endorsing a fleet efficiency policy, and making buildings more energy efficient. Scenario 2 projects a 25% reduction over the next six years and relies more on expanding ground or roof mounted solar to offset energy costs.

Table 6: GHG Reduction Scenarios for 2030				
2021 Baseline GHG Emissions				**1310.74**
	2030 Scenario 1 (19%)		**2030 Scenario 2** (25%)	
	Scenario 1	**Scenario 1** GHG Savings (MTCDE*/year)	**Scenario 2**	**Scenario 2** GHG Savings (MTCDE/year)
Facilities Measures				
1. Install Air Source Heat Pumps (ASHP)	Install heat pumps in **4/6** buildings	133 MTCDE/year	Install heat pumps in **5/6** buildings	126.42 MTCDE/year
2. Energy Efficient Building Envelope	Improve building envelope for **3/6** buildings.	38 MTCDE/year	Improve building envelope for **4/6** buildings.	44.16 MTCDE/year
3. Installing Solar and Renewables	Continue with existing solar energy installation at Kings Bend Park	2 MTCDE/year	Install an additional ground/roof mounted solar that makes **120KW** of energy.	8.28 MTCDE/year

4. LED Lighting Conversion	Convert **50%** of all lights in Town-owned buildings to LED	35 MTCDE/year	Convert **80%** of all lights in Town-owned buildings to LED	44 MTCDE/year
Transportation Measures				
1. Vehicle Electrification	Convert **6** Town-owned vehicles to battery electric	19 MTCDE/year	Convert **10** Town-owned vehicles to battery electric	35.22 MTCDE/year
2. Alternative Fuel - Green Hydrogen	Convert **0** Town-owned vehicle to green hydrogen	0 MTCDE/year	Convert **0** Town-owned vehicle to green hydrogen	0 MTCDE/year
3. Fleet Fuel Efficiency Policy	Through fleet efficiency, the Town-owned fleet becomes **15%** more fuel-efficient	36 MTCDE/year	Through fleet efficiency, the Town-owned fleet becomes **25%** more fuel-efficient	54 MTCDE/year
Total Emissions Savings		255		331
2021 Emissions		1311		1311
Emissions after Measures		1056		981
Emission Reduction Percent		**19%**		**25%**
MTCDE = Metric Tons of Carbon Dioxide Equivalents				

Table 7: GHG Reduction Scenarios for 2050				
2021 Baseline GHG Emissions				**1310.74**
	2050 Scenario 1 (80%)		**2050 Scenario 2** (100%)	
	Scenario 1	**Scenario 1** GHG Savings (MTCDE/year)	**Scenario 2**	**Scenario 2** GHG Savings (MTCDE/year)
Facilities Measures				
1. Air Source Heat Pumps	Install heat pumps in **6/6** buildings	133 MTCDE/year	Install heat pumps in **6/6** buildings	133 MTCDE/year
2. Energy Efficient Building Envelope	Improve building envelope for all buildings by **5/6**	51 MTCDE/year	Improve building envelope for all buildings by **6/6**	56 MTCDE/year
3. Installing Solar and Renewables	Install an additional ground/roof mounted solar	35 MTCDE/year	Install an additional ground/roof mounted solar	207 MTCDE/year

	that makes **500KW** of energy.		that makes **3000KW** of energy.	
4. LED Lighting Conversion	Convert **100%** of all lights in Town-owned buildings to LED	55 MTCDE/year	Convert **100%** of all lights in Town-owned buildings to LED	55 MTCDE/year
Transportation Measures				
1. Vehicle Electrification	Convert **77%** Town-owned vehicles to battery electric	295 MTCDE/year	Convert **90%** Town-owned vehicles to battery electric	314 MTCDE/year
2. Alternative Fuel - Green Hydrogen	Convert **5** Town-owned vehicle to green hydrogen	46 MTCDE/year	Convert **5** Town-owned vehicle to green hydrogen	46 MTCDE/year
3. Fleet Fuel Efficiency Policy	Through fleet efficiency, the Town-owned fleet becomes **75%** more fuel-efficient	430 MTCDE/year	Through fleet efficiency, the Town-owned fleet becomes **90%** more fuel-efficient	494 MTCDE/year
Total Emissions Savings		1044.14		1305.14
2021 Emissions		1310.74		1310.74
Emissions after Measures		266.60		5.6
Emission Reduction Percent		**80%**		**100%**

Focus Area: Transportation

Besides emitting GHGs, transportation fossil fuels can cause air pollution which can affect our health. The municipal fleet accounts for 57% of Town of Pittsford's municipal GHG emissions. The Town plans are to assess the current municipal fleet to maximize efficiency and examine the possibility of moving to zero emission vehicles. The implementation of the actions listed in the CAP will position the Town of Pittsford to make substantial progress toward the overall emissions reduction target for transportation.

Measure Description Overview

According to the EPA, GHG emissions in the transportation sector can be reduced by driving less, driving efficiently, choosing fuel-efficient vehicles, reducing idling, and using efficient lawn and garden equipment. GHG reductions can be achieved in these ways:

1. Drive Less and Drive Efficiently

Inventory and assess the existing municipal fleet and enact a fleet efficiency policy. A fleet assessment can prioritize vehicle replacement schedules and prioritize the movement from traditional fuels to zero-emission technology.

According to the Climate Smart Community's PE3 Action: Fleet Efficiency Policy, "A vehicle fleet efficiency policy sets a fuel-efficiency standard for municipal vehicle acquisitions whenever they are commercially available and practicable. The policy provides vehicle fleet managers with the guidelines and requirements to improve the fuel efficiency of government fleets, thereby reducing fuel costs and greenhouse gas (GHG) emissions."

2. Choose Fuel-Efficient Vehicles

Hybrid and zero-emission vehicles emit less GHG than traditional vehicles. Examples of this technology include plug-in hybrid, battery-electric, compressed natural gas (CNG), and hydrogen fuel cell vehicles. In addition to reducing GHG emissions for municipal operations, purchase and use of these vehicles can help raise awareness of the Town's commitment to clean air and fuel efficiency as the vehicles are used around the community. NYS DEC's Zero Emissions Vehicle (ZEV) Program offers funding to offset the cost of the purchase of new vehicles.

3. Reduce Idling

An anti-idling policy puts a time limit on how long a town-owned vehicle can remain on without moving. A Town policy can extend the constraints already put forward by NYS.

4. Use Efficient Lawn and Gardening Equipment

Ensuring proper maintenance of existing machines increases their efficiency. Replacement of gas-powered lawn equipment with battery or electric powered equipment will further reduce emissions. The Town can also reduce the use of this equipment by designating some areas as "no mow."

In addition to these strategies, the Town should also consider prioritizing a reduction in GHG emissions in the goals and policies of the Comprehensive Plan and in any other future planning efforts.

EXAMPLE: ADOPT A FLEET EFFICIENCY POLICY

Precedent: Village of Montour Falls

In 2022, the Village of Montour Falls passed a fleet efficiency policy. The policy states that 10% of the fleet whose vehicle types have electric options will be electrified within two years and that 30% of the entire fleet will have a minimum fuel efficiency within 5 years.

Recommended Measures and Priorities

Municipal Transportation Priorities			
Priority	**Description**	**Partnership**	**Funding/ Programs**
High	Continue to inventory municipal fleet to maximize fleet efficiency.	Town Staff	CEC Action, CSC Action
High	Find creative ways to install/lease space for electric vehicle infrastructure to support fleet operations.	GFLRPC, NYSERDA	CEC/CSC Action DEC's Zero Emission Vehicle (ZEV) Program, Federal Office of Energy and Transportation
High	Adopt a vehicle fleet efficiency policy.	GFLRPC	CSC Action
High-Med	Conduct a fleet assessment to identify ways to adjust vehicle types, share vehicles, or electrify vehicles to improve efficiency while maintaining the current level of service.	NYSERDA. GFLRPC	NYSERDA Make Ready, DEC's Zero Emission Vehicle (ZEV) Program
Med	Adopt a more rigorous anti-idling policy for Town-owned vehicles than is already in place for NYS.	GFLRPC	CSC Action
Med	Adopt green parking lot standards for municipally owned lots when they are rebuilt.	Stormwater Coalition of Monroe County, Monroe County Soil and Water	CSC Action
Med	Continue and expand use of lower-emission road pavements, asphalt, and concrete for public works projects.	New York State Department of Transportation (NYSDOT)	
Med	Ask for fuel use reports from Town contracts, when available, to facilitate measurement of GHG emissions resultant from contracted services.	Town Staff	CSC Action
Med	Set and manage fuel use reduction targets at the department level.	Town Staff	
Low-Med	Evaluate and expand use of electric or low-emission landscaping equipment.	NYSERDA, GFLRPC	CEC Action, CEC Funding
Low	Start an education campaign to carpool, bike, or walk to work.	Reconnect Rochester	CSC Action

Focus Area: Municipal Facilities

The Municipal Facilities sector includes all electricity and natural gas used in government buildings and facilities. This sector accounts for 42% of the Town of Pittsford's total GHG emissions. The Town aims to evaluate and increase energy efficiency in government-owned buildings. The implementation of the listed actions will make substantial progress toward the overall emissions reduction target.

Current Measures

The Town is continuously working to increase the energy efficiency of its buildings. Measures to date have included:

- Benchmarking
- Building energy audits
- Continuous interior and exterior lighting upgrades
- Heat pump installations at the Spiegel Community Center and Town Hall
- Shifts to water-efficient fixtures

Measure Description Overview

Energy Audits

Energy use in buildings is normally the greatest source of GHG emissions within government operations. Buildings contain heating, ventilation and air conditioning equipment, lighting, and appliances. All of these provide many opportunities for improved energy efficiency and cost savings. Especially for municipalities that own older buildings, energy audits are an important step to identify inefficiencies and develop plans for improvement.

Financing Mechanism for Energy Projects

A revolving energy fund or other type of financing mechanism can provide the initial capital and use the energy savings to replenish the fund, thus allowing for continuous energy improvements over time. Whether the financing mechanism bolsters energy improvements for municipal buildings and facilities or for the benefit of community members, setting aside funds can bolster energy savings, saving taxpayer dollars and reducing GHG emissions.

EXAMPLE: EXPLORE ESTABLISHING A FINANCING MECHANISM

Precedent and Tools: Town of Hyde Park

The Town of Hyde Park created an environmental fund in 2021 after receiving a Clean Energy Communities grant. The funds have been used for projects like the purchase of LED light bulbs that are handed out to Town residents free of charge at local community events.

LED Street Light Conversion

Light-emitting diodes (LEDs) can reduce street light energy use up to 70 percent. Efficient street lights will save money and energy, also reducing the GHG emissions associated with electricity consumption.

Energy Management System

Energy efficiency can be improved when systems are orchestrated and controlled through the utilization of a centralized energy management system. Building Energy Management Systems (BEMS) are used to monitor, measure, and control energy use in buildings.

Green Building Standard

The construction of a new building or improvements to a current building presents an opportunity to design with energy efficiency in mind. Adopting a green building standard will reduce the local government's environmental impact and demonstrate leadership by example to the rest of the community.

Recommended Measures and Priorities

Municipal Facility Priorities			
Priority	**Description**	**Partnership**	**Funding/ Programs**
High	Conduct additional energy audits and feasibility studies of Town buildings to assess the impact of improvements made since the 2020 building audits and identify further efficiency improvements that can be made through future capital improvement projects.	GFLRPC	CEC Action and grant, CSC Action
High	Explore establishing a financing mechanism for energy efficiency and renewable energy projects in Town-owned buildings.	Neighboring Towns and Villages Monroe County Department of Environmental Services, GFLRPC	US EPA Clean Energy Financing Toolkit, US DOE Solution Center, State and Municipal Revolving Loan Funds, Better Buildings Resource Hub, CSC Action
High	Continue to update Town-owned buildings: • Continue to upgrade interior lighting. • Continue to upgrade HVAC equipment using higher-efficiency equipment. • Continue to install water-efficient fixtures. • Continue to upgrade building envelopes when economically feasible. • Continue to upgrade outdoor lighting (non-streetlight/traffic signal) to more efficient technology and/or solar. • Continue benchmarking government owned buildings.	GFLRPC	CSC Action, CEC Action and Grant
Med	Continue to convert streetlights to LED. Inventory existing streetlights that can be converted to LED. Require that all new streetlights be LED. Work with neighboring towns to maintain streetlights and convert all lights to LED.	GFLRPC	CSC Action, CEC Action and Grant
Med	Institute procedures and/or training to encourage facility managers and municipal employees to improve heating, cooling, and lighting use efficiency.		
Low/Med	Install an Energy Management System (EMS) in Town-owned buildings.	GFLRPC	CSC Action
Low/Med	Incorporate energy efficiency and waste handling provisions in standard specifications and government contracts in a scoring matrix.	GFLRPC	CSC Action
Low	Adopt a green building standard for new government buildings/facilities.	GFLRPC	CSC Action

Focus Area: Materials Management

The Town of Pittsford does not operate a landfill or a wastewater treatment plant and therefore cannot calculate the percentage of emissions generated by material management. The Town's goal is to reduce the amount of solid waste sent to landfills by composting, recycling, and practicing environmentally-conscious consumption. The implementation of the actions listed in the CAP will position the Town of Pittsford to make substantial progress toward the overall emissions reduction target by reducing waste.

Current Measures

The Town is committed to reducing waste. Measures to date include:

- A food scraps compost pilot project, which includes two compost buckets at Town Hall.
- Partnership with Impact Earth to collect food scraps from the Spiegel Community Center from Senior Luncheons and Town festivals.
- Recycling at all municipal facilities.
- Partnership with Monroe County EcoPark and SunKing to provide e-waste collection at an annual event.

EXISTING MEASURES: ORGANIC WASTE COLLECTION GOVERNMENT BUILDINGS

SPIEGEL COMMUNITY CENTER FOOD SCRAP COLLECTION

In 2019 the Town started recycling food scraps from the Spiegel Pittsford Community Center in partnership with Impact Earth. With at least three Senior Center lunches every week. Impact Earth picks up the material and turns it into nutrient rich soil for use in agriculture. Some of the compost gets returned to Pittsford, for use in our Community Garden at Thornell Farm Park.

Measure Description Overview

Recycling Strategy for Public Places and Events

Having a program to guide recycling opportunities in public spaces and at public events reduces waste and disposal costs. Even if recycling bins are provisionally placed at large events, the environmental and economic benefits can still be achieved.

Organic Waste Collection in all Government Buildings

Organic waste, such as food waste, breaks down and releases methane when disposed of in landfills. Methane is a hazardous air pollutant and GHG, so it is important to compost organic waste or process the waste with an anaerobic digester. Diverting organic waste cuts back on tipping fees for municipalities and reduces their contribution to GHG emissions generated from waste.

Environmentally Preferable Purchasing Policy

One important way to approach climate action is through the purchase of outside materials. Establishing an environmentally preferable purchasing policy institutionalizes decisions on appliances, products, and materials. Elements of the policy can address energy efficiency, recycled materials, locally produced/organic goods, and/or forest stewardship standards.

Waste & Energy Provisions in Government Contracts

Often products and procedures that affect a local government's energy use and waste stream are not the responsibility of the municipal staff but are procured or handled by external entities through government contracts. For this reason, it is important that energy efficiency and waste handling provisions are incorporated into the standard specifications of those contracts.

Recommended Measures and Priorities

Waste & Recycling Priorities			
Priority	**Description**	**Partnership**	**Funding/ Programs**
High	Continue to pursue waste reduction, reuse, and recycling. Adopt a Zero Waste Initiative Policy oriented towards reusing as much as possible, viewing all materials as potential resources.	P2I	
High	Document and promote recycling and organics strategy for public places and events.	GFLRPC	CSC Action
High	Continue to partner with EcoPark and SunKing to provide e-waste collection at an annual event. Partner with Monroe County to improve municipal recycling.	EcopPark, SunKing, Monroe County, Town Staff	
Med	Provide organic waste collection and composting in all government buildings.	Town Staff, Impact Earth, GFLRPC, Pollution Prevention Institute (P2I)	CSC Action, CSC Grant
Low	Adopt an Environmentally Preferable Purchasing Policy.	GFLRPC	CSC Action
Low	Incorporate waste handling provisions and life cycle costing into scoring for reuse and deconstruction in standard specification and government contracts.		CSC Action

Focus Area: Renewable Energy

Renewable energy includes solar, wind, hydro, geothermal, biomass, and other sources. Renewable energy can help the Town reduce or eliminate its reliance on fossil fuels and reduce GHG emissions for municipal operations. The Town plans to analyze the expanded use of renewable energy in Town operations.

Current Measures

- The Town of Pittsford has 43 solar modules at King's Bend Park
- The Town purchases renewable energy credits (RECs)
- The Town has a Power Purchase Agreement for renewable energy

EXISTING MEASURES: RENEWABLE ENERGY INSTALLATION

KINGS BEND PARK SOLAR INSTALLATION

The Town of Pittsford installed a total of 43 solar modules atop buildings located at King's Bend Park, 170 W Jefferson Rd, for a peak wattage of 15.48kW. These modules were installed by Solar Liberty Energy Systems Inc. in December of 2020.

Measure Description Overview

Renewable Energy Feasibility Study

Prior to executing any renewable energy technologies, municipalities must understand which renewable energy options are most applicable to their local limitations. A feasibility study evaluates the geographical, technological, financial, and regulatory considerations around implementing renewable energy for government operations.

Solar Energy Installation

By replacing energy from fossil fuel sources, the use of solar energy reduces air pollution and GHG emissions. Solar photovoltaic panels are applicable for many types of public facilities. Solar hot water systems (also known as solar thermal systems) use roof-mounted solar collectors that rely on the sun's energy to produce hot water in buildings. When local governments install solar technologies, they increase the demand for renewable energy and set a positive example for residents and businesses in the community.

Renewable Energy Certificates

Renewable energy certificates (RECs) help renewable energy facilities grow by making them more financially viable, thereby incentivizing development and retention of renewable energy sources. Renewable energy facilities generate RECs when they produce electricity. Purchasing these certificates is the widely accepted way to reduce the environmental footprint of electricity consumption and help fund renewable energy development. Purchasing RECs allows local governments to offset the environmental impacts of their energy consumption by supporting the production of more renewable energy in NYS.

Power Purchase Agreement for Renewables

Becoming a host site and entering into a long-term power purchase agreement (PPA) offers a way to invest in renewable energy without dealing with the financing, ownership, operation, and maintenance of a solar, PV, wind or other type of renewable energy system. Under a PPA, a third party, or the local utility, becomes the provider and the local government agrees to purchase electricity from the provider. A PPA can expedite the installation process and reduce the risks and costs for the government around the implementation, operation, and maintenance of the system. Using renewable energy through a PPA also helps to increase the demand for renewable energy and supports the growth of local green jobs.

Recommended Measures and Priorities

Renewable Energy Priorities			
Priority	**Description**	**Partnership**	**Funding/ Programs**
High	Conduct feasibility studies for renewable energy installations on and off Town-owned properties.	GFLRPC	CEC
High	Create a list of sites for renewable energy projects.	GFLRPC	CEC
Med	Install additional photovoltaic systems on public property when feasible.	GFLRPC	DOE-Funded SolSmart Program, Energy Storage Program, Solar Program (NY-Sun), CEC
Med	Continue to purchase RECs.	GFLRPC	CEC
Med	Continue to serve as a host site for appropriately scaled renewable energy installations, power purchase agreement (PPA), and community solar projects, consider expansion of these efforts based on feasibility study.	GFLRPC	CEC

Focus Area: Adaptation & Resilience

According to the EPA, climate adaptation and resilience actions help communities to prepare and adjust to current and future impacts of climate change. While they may not contribute directly to reducing GHG emissions, adaptation and resilience strategies can help to reduce the risks of loss and damage associated with climate change.

Current Measures

The Town has continuously addressed hazard issues through a variety of adaptation measures. In 1982 Town administrators developed the Town's "Comprehensive Drainage Plan." This provided general guidance for stormwater management as more land was developed in the community. This plan was used for both private development and state, county, and municipal projects. The Town of Pittsford also worked through the 1980s and 1990s to refine Town Code and development regulations that required stormwater mitigation measures as part of any new development within the community.

Additional specific adaptation measures include:

- **1990 & 2010** Knowlton Creek Channel Maintenance – Preservation of channel geometry to accommodate stormwater runoff.
- **1995** Regional Stormwater Management Facility at King's Bend Park – This facility was designed and built by the Town in cooperation with two downstream private golf courses to address downstream flooding within the existing residential communities that adjoin the East Branch of Allen Creek.
- **1997** Regional Stormwater Management Facility at intersection of Clover St. and Tobey Rd. – This facility was constructed to control unmitigated waters from developed areas within the vicinity of the intersection and the associated upland watershed.
- **2021** Regional Upland Stormwater Management Facility at Bridleridge Farms Subdivision – This facility was designed and implemented to reduce flooding events within the vicinity of Reeves Road south of the NYS Thruway.
- **2024** U.S. Army Corps of Engineers (USACE) Flood Plain Study of East Branch of Allen Creek – This study is currently underway to review the benefits associated with the various regional stormwater management facilities indicated above as well as the numerous ponds located in the various residential developments scattered throughout the upland watershed.

Measure Description Overview

Town Code and Design Specifications

In addition to the work that is already being done by the Town Board, the Town Code and design specifications should be updated to require open space areas in residential cluster developments to be conserved in a natural condition and consolidated into larger units, which will allow them to be more easily managed. This type of management practice is called an Environmental Protection Overlay District (EPOD) ordinance. EPOD ordinances are widely used throughout Monroe County and can be a valuable tool for conserving natural areas that contribute to stormwater management.

Design specifications could include various green infrastructure practices such as bioretention areas, cul-de-sac bioretention islands, rain gardens, water quality swales, permeable pavement for driveways, porous concrete for sidewalks, two-track design driveways, and roof drainage downspout disconnections.

Green Infrastructure

Policy around green infrastructure can prevent large areas of impermeable surfaces that cause erosion, flooding, and water-quality deterioration. This is done through reducing minimum parking requirements, adopting parking maximums, reducing stall dimensions, in-lieu parking fees for developers, stormwater management on site, establishing green loading zones, use of alternative parking surface materials, minimizing land cleared for construction promoting shared parking, agreements between adjacent properties, and increasing the number of tree plantings in parking areas.

EXAMPLE: TOWN CODE AND DESIGN SPECIFICATIONS

Precedent: City of Buffalo

The City of Buffalo is implementing green infrastructure throughout Buffalo to tackle stormwater. In addition, the city provides grant opportunities for developers to build green infrastructure. The City also uses a comprehensive greencode to approach development in a more resilient way.

Water-Smart Landscaping

Communities can conserve water through water-smart landscaping. Reducing lawn and garden irrigation needs could lessen water shortages in summer months. Water-smart landscaping practices starts with good planning and site design and emphasizes native plants that are suitable for local soils and climate. Native plants tend to benefit local wildlife more than non-native species, thereby improving wildlife habitat in the community. Once established, these plants require less watering, mowing, and general maintenance than traditional lawns and landscapes. Benefits to the community include cost-savings and reduced water demand.

According to CSC PE7 Action: Water-Smart Landscaping, key principles to water-smart landscaping, include the following:

- Develop a landscape plan and design.
- Choose native plants or plants that need less water.
- Group plants with similar water needs (hydrozoning).
- Limit turf grass to practical areas and substitute with native grasses, as feasible
- If needed, use efficient irrigation systems including proper timing of watering (e.g., avoid heat of the day).
- Use organic soil amendments as needed (for nutrients).
- Use mulches to reduce evaporation and weeds
- Maintain the landscape through practices like mulching, weeding, and thatching.

Recommended Measures and Priorities

Adaptation and Resilience Priorities			
Priority Level	**Description**	**Partnership**	**Funding/ Programs**
High	Continue to revise Town Code and design specifications to include more green infrastructure and watershed management. • Encourage and incentivize (First) • Require (Second)	Stormwater Coalition of Monroe County, Monroe County Soil and Water Conservation District	DEC Construction Stormwater Toolkit, EPA Land Use and Green Infrastructure Scorecard
High	Promote the use of the existing Monroe County and New York State emergency communication through the Hyper-Reach system.	Monroe County, New York State	
High	Pursue purchasing the development rights to the land in the Greenprint that has not yet been acquired, acquire more Town-owned land, and adopt policies and/or zoning codes that explicitly restrict building on, or the sale of, Town-owned land for residential or commercial development.	Town Board, Town Staff	
Med	Pilot a flood adaptation program/project on a neighborhood level.	Stormwater Coalition of Monroe County	
Med	Conduct education and outreach about water-smart landscaping.	Stormwater Coalition of Monroe County, Monroe County Soil and Water Conservation District	
Med	Continue to improve stormwater infrastructure in flood zones.	Stormwater Coalition of Monroe County, Monroe County Soil and Water Conservation District	
Med	Encourage water-smart landscaping in floodplains for developers and existing residents.	Stormwater Coalition of Monroe County, Monroe County Soil	

		and Water Conservation District	
Med	Map hazard risks associated with stormwater infrastructure.	Stormwater Coalition of Monroe County	
Low	Consider setting aside dedicated adaptation funds.		
Low	Train the appropriate staff on climate action, adaptation, and mitigation specialist.		
Low	Work with Monroe County Soil and Water Conservation District to push forward best practices for agriculture.	Monroe County Soil and Water Conservation District	
Low	Continue to enforce the flood-proofing and other building upgrades for all buildings within the floodplain.	Stormwater Coalition of Monroe County	
Low	Increase awareness of green infrastructure projects through signage.	CSC Taskforce	

Moving Forward

Climate change action is challenging, but it is also an opportunity to make the Town of Pittsford more stable and resilient for the future. This CAP offers the framework and resources needed to implement actions to achieve the municipality's goals.

The Town of Pittsford can take effective action for climate change mitigation and adaptation and resilience through the implementation of the ranked municipal programs, projects, and policies recommended in this CAP.

Key Terms

Adaptation (Climate Change):

Actions that reduce the level of physical, social, or economic impact of climate change and variability, or take advantage of new opportunities emerging from climate change (Rosenzweig et al., 2011). It includes reducing the vulnerability of people, places, and ecosystems to the impacts of climate change.

Adaptive Capacity:

The ability of systems, institutions, humans, and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences (IPCC, 2014).

Climate Change:

A statistically significant variation in either the mean state of the climate, most often surface variables such as temperature, precipitation, and wind, or in its variability, persisting for an extended period (typically decades or longer) (Wuebbles et al., 2017).

Climate Change Impacts:

The effects experienced by a human, natural system, or man-made system as a result of climate variation including changes in average conditions or extreme weather. Example climate impacts include flooding or ecological changes (Vogel et al., 2016).

Drought:

A period of unusually persistent dry weather that persists long enough to cause a water supply shortage (NOAA, 2015).

Ecosystem-based Adaptation (EbA):

The use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change (IPCC, 2014).

Ecosystem Services:

Ecological processes or functions having monetary or non-monetary value to individuals or society at large. These are frequently classified as (1) supporting services such as productivity or biodiversity maintenance, (2) provisioning services such as food or fiber, (3) regulating services such as climate regulation or carbon sequestration, and (4) cultural services such as tourism or spiritual and aesthetic appreciation (IPCC, 2014).

Exposure:

The degree to which elements of a system are in direct contact with climate variables, may be affected by long-term changes in climate conditions or by changes in climate variability, including the frequency and magnitude of extreme weather (Rosenzweig et al., 2011).

Extreme Heat:

Individual days with a maximum temperature at or above 90°F or above 95°F; threshold used depends on the region within the state (Rosenzweig et al., 2011).

Extreme Cold:

Individual days with a maximum temperature at or below 32°F or below 0°F; threshold used depends on the region within the state (Rosenzweig et al., 2011).

Extreme Precipitation:
Event with more than 1, 2, or 4 inches of precipitation over a 24-hour period; threshold used depends on the region within the state (Rosenzweig et al., 2011).

Extreme Weather:
A period of abnormal weather conditions that can negatively affect humans, natural and man-made resources. Extreme weather is used in this report as an umbrella term referring to a combination of extreme heat, extreme cold, extreme precipitation, and extreme wind.

Extreme Wind:
Period with sustained or gusting wind speeds high enough to cause damage to trees, power lines, and other types of natural or man-made resources (NOAA, n.d.).

Flood or Flooding:
A temporary inundation of normally dry land area caused by an increase in water levels in nearby water bodies including lakes, rivers, estuaries, and oceans or by localized accumulation of precipitation (FEMA, 2017).

Greenhouse Gas (GHG):
Any gas that absorbs infrared radiation in the atmosphere; examples include carbon dioxide, methane, nitrous oxide, ozone, and water vapor.

Heat Wave:
Three consecutive days with maximum temperatures above 90°F (Rosenzweig et al., 2011).

Maladaptation:
Adaptive actions that may lead to increased risk of adverse climate-related outcomes, increased vulnerability to climate change, or diminished welfare, now or in the future (IPCC 2014).

Mitigation (Climate Change):
Actions that reduce the levels of GHGs in the atmosphere; includes reducing emissions of GHGs and enhancing sinks (things that absorb more GHGs than they emit). Examples include switching to renewable energy sources and implementing energy efficiency measures.

Nature-based Solutions (NbS):
Actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits (IUCN, 2016)

Resilience:
The capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure, while also maintaining the capacity for adaptation, learning and transformation (IPCC, 2014).

Sensitivity:

How much a system is directly or indirectly affected by changes in climate conditions (e.g., temperature and precipitation) or specific climate change impacts (e.g., sea level rise and increased water temperature). If a system is likely to be affected as a result of projected climate change, it should be considered sensitive to climate change.

Vulnerability:

The degree to which systems are susceptible to, and unable to cope with, adverse impacts of climate change (Rosenzweig et al., 2011). Generally, systems that are sensitive to climate and less able to adapt to changes are considered to be vulnerable to climate change impacts.

Winter Warming:

The average temperature increase over December, January, and February (Rosenzweig et al., 2011).

Resources:

1. Climate Smart Communities PE7 Action: Climate Vulnerability Assessment
2. Climate Smart Communities PE7 Action: Evaluate Policies for Climate Resilience
3. New York Climate Change Science Clearinghouse
4. The Routledge Handbook of Research Methods for Social-Ecological Systems, Taylor & Francis Group
5. Wayfinder: a resilience guide for navigating towards sustainable futures.`1
6. Mid-Atlantic Regional Integrated Sciences and Assessments (MARISA) - Data Tools https://www.midatlanticrisa.org/data-tools.html
7. Consortium for Scenario Planning (Lincoln Institute of Land Policy) https://www.lincolninst.edu/research-data/data-toolkits/consortium-scenario-planning
8. The University at Arizona's Scenario Planning for Climate Adaptation at https://www.adaptationscenarios.org/
9. National Park Service Climate Change Scenario Planning Showcase https://www.nps.gov/subjects/climatechange/scenarioplanning.htm#Publications
10. Transformative Scenario Planning: Working Together to Change the Future by Adam Kahane (Berrett-Koehler, 2012) ISBN 9781609944902 https://www.bkconnection.com/books/title/transformative-scenario-planning?
11. Decision-Making Under Uncertainty: An Assessment of Adaptation Strategies and Scenario Development for Resource Managers. California Energy Commission. https://escholarship.org/uc/item/1n1380vn
12. Divergent, plausible, and relevant climate futures for near- and long-term resource planning. Climatic Change 167, 38 (2021). https://link.springer.com/article/10.1007/s10584-021-03169-y
13. Long-Term Community Resilience Exercise Resource Guide (FEMA) https://preptoolkit.fema.gov/documents/1269813/0/LTCR+ERG+FINAL_20211102.pdf/
14. Centre for Systems Solutions https://systemssolutions.org/

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