Town of Bedford
Climate Action Plan Update

2030

BEDFORD 2030

SEAL OF THE TOWN OF BEDFORD · N.Y · 1680 1700 · PROBITAS ·

LETTER FROM THE SUPERVISOR

To the Citizens of the Town of Bedford,

On June 16, 2020, the Bedford Town Board voted to adopt the Town of Bedford Climate Action Plan Update 2030 ("CAP2030"). By doing so, we are reconfirming our commitment to address and support action at the municipal and community level over the next ten years to ensure a more sustainable and healthier environment.

The Town of Bedford Climate Action Plan Update 2030 will be part of the Town's Comprehensive Plan.

I am pleased to announce that by adopting this new Climate Action Plan Update, the Town Board recognizes the need to move forward aggressively with high impact actions to achieve the goals set forth in the Plan: reducing greenhouse gas emissions 80% by 2030; and reaching net zero emissions by 2040.

We look forward to supporting the efforts of Bedford 2030, which is rebranding under this new name to signal the importance of this effort, together with our community as we work on these initiatives. Reaching our goals will take broad engagement from our citizens and the support of our Town departments and other partners working toward the same objectives.

Thank you for being part of these efforts to ensure a healthier and more sustainable environment for ourselves and future generations.

Chris Burdick
Supervisor, Town of Bedford

**TABLE OF CONTENTS** (click to navigate)

Purpose

This Town of Bedford Climate Action Plan Update 2030 ("CAP2030") is an update to the original 2010 Bedford Climate Action Plan. It sets new goals and addresses those actions that will be the most impactful in responding to the ever more urgent threats presented by climate change in 2020 and beyond.

Goals

The Climate Action Priorities outlined in this report will set the Town of Bedford on a path to carbon neutrality and 100% fossil free energy, with these specific goals:

▶ 80% greenhouse gas emission reductions by 2030;

▶ Net Zero emissios by 2040.

80% Greenhouse Gas Emissions Reductions by 2030

Net Zero Emissions by 2040

Bedford 2030 Goals

2010   2020   2030
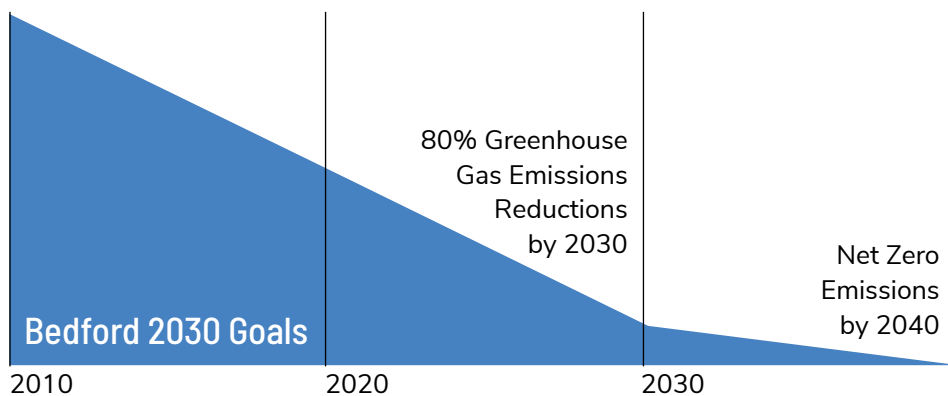
Background

This CAP2030 recognizes the threat of climate change and the urgent need to combat it:

Threat to American Way of Life

Climate change poses a massive threat to the American economy, our environment and climate stability, and underscores the need for immediate climate emergency action at all levels of government to reduce greenhouse gas emissions ("GHG"). (*The United States Fourth National Climate Assessment (NCA4),* released in November, 2018)

Warming Level Targets Set
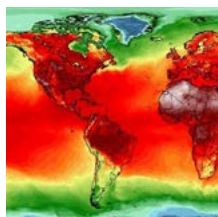
Limiting warming to the 1.5°C (2.7°F) target this century will require an unprecedented transformation of every sector of the global economy over the next 12 years. (*The United Nations' Intergovernmental Panel on Climate Change Report of 2018*)

Increasing Climate-Induced Catastrophes

The impacts already wrought by climate change are evidenced by increased and intensifying wild-fires, floods, rising seas, droughts and extreme weather.

Biodiversity in Peril

It is projected that one-half-to-one million species are threatened with extinction, many within the next few decades. (*The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystems*)

Health Impact

Health has already been and will continue to be impacted by climate change. "The life of every child born today will be profoundly affected by climate change. Without accelerated intervention, this new era will come to define the health of people at every stage of their lives." (*The Lancet,* November 2019)

Social Justice Meets Environmentalism

Environmental justice, the fair treatment and meaningful involvement of all people regardless of race, national origin, or income with respect to the development, implementation, and enforcement of environmental programs, regulations, and policies, is a CAP2030 imperative.

Surpassing New York State Goals

New York State has set climate action goals to limit statewide greenhouse gas emissions to 40% of 1990 levels by 2030 and 85% by 2050. Bedford has set more aggressive reduction goals based on the United Nations Report indicating the 12-year timeframe to limit global warming.

Economic Impact

In addition to the threats posed by climate change, there are strong economic reasons to take local action to mitigate climate change:

Energy Cost Savings

Energy efficiency, significantly declining costs to generate renewable energy, more affordable ways to access renewable energy and electrification will benefit both the Town of Bedford as well as community members through energy cost savings.

Job Creation

There is also the benefit of job creation that provides economic opportunity for residents when new businesses start or existing businesses grow in response to greater demand for climate mitigation services.

Fewer Emergency Expenditures

Additionally, actions that result in greenhouse gas emission reductions will reduce the need for the Town of Bedford to make unplanned, high-cost expenditures in response to major weather events and climate disasters. The National Climate Assessment released in late 2018 estimates that the effects on communities from extreme weather will only increase with continued high emissions. Economic damage from extreme temperatures are estimated to at least triple in the next 70 years unless emissions are reduced.

Community Engagement

All of these climate change factors threaten our health, well-being and way of life on a global and local level. Bedford can act as a leader in our community, region and across the state by creating and implementing high impact programs and policy changes that, combined with town local laws and policies as well as state and federal policies and incentives, will enable the Bedford community to achieve its goals.

In pursuit of the goals of this Climate Action Plan, the Town of Bedford and Bedford 2030 will work together to engage and mobilize the entire community—residents, businesses, schools, houses of worship and partners—in action. By doing so effectively, Bedford will also provide a replicable model for other communities.

This plan lays out recommended community actions to be taken on a personal, individual business or institutional level. In many cases community actions will be facilitated by Bedford 2030. The plan also lays out municipal actions to be implemented by the Town—including both actions to reduce emissions on municipal buildings/property as well as programs, policies, incentives, actions that will facilitate collective, community-wide reductions.

INDIVIDUAL action

COLLECTIVE action

MUNICIPAL action

COMMUNITY action

Success to Date

The Bedford community has already achieved substantial progress in reducing greenhouse gas emissions. Bedford surpassed its 20% by 2020 reduction goal 3 years ahead of schedule. A report of Bedford greenhouse gas emissions through 2017 showed a 44% reduction in greenhouse gas emission vs. the community's 2004 baseline inventory.

20%
Goal
for 2020

44%
Achieved
by 2017
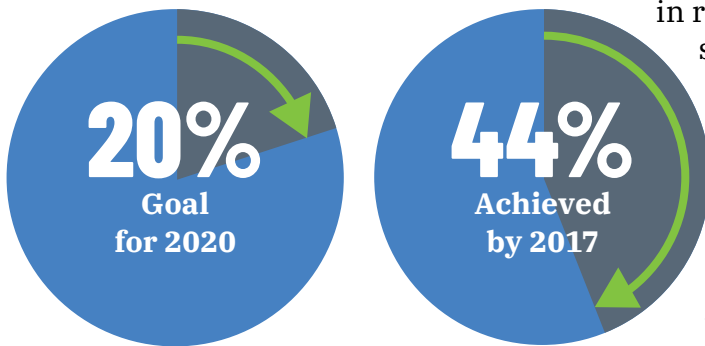
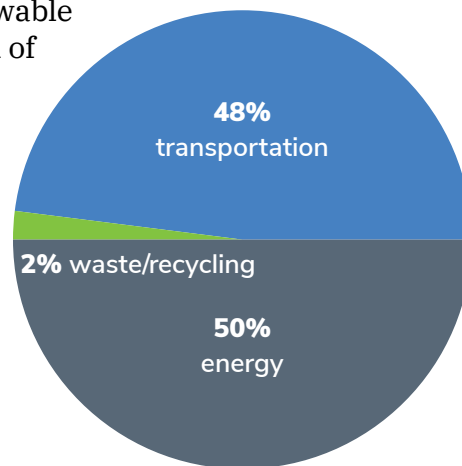**Greenhouse Gas Emission Reduction**

Achieving Aggressive Goals

To achieve an 80% reduction, our community needs to reduce emissions by 75737 metric tons by 2030. The majority of Bedford's reductions need to come from the energy and transportation sectors. This includes:

▶ replacing fossil fuels with renewable energy to power the production of electricity;

▶ replacement of fossil fuels with clean energy to power heating/cooling of buildings;

▶ reducing energy waste; and

▶ dramatically cutting vehicle emissions.

48%
transportation

2% waste/recycling

50%
energy

Bedford's Greenhouse Gas Emissions through 2017

Bedford 2030 and the Town will explore ways to obtain even more detailed community emissions data to better inform actions, programming and progress. These will include fossil fuel powered equipment (e.g. leaf blowers, mowers and generators) as well as refrigerants.

This plan asks that every member of the Bedford Community partner with the Town and Bedford 2030 to achieve these goals by assessing our individual impact, committing to reductions—small and large—over the next ten years, and embracing actionable solutions.
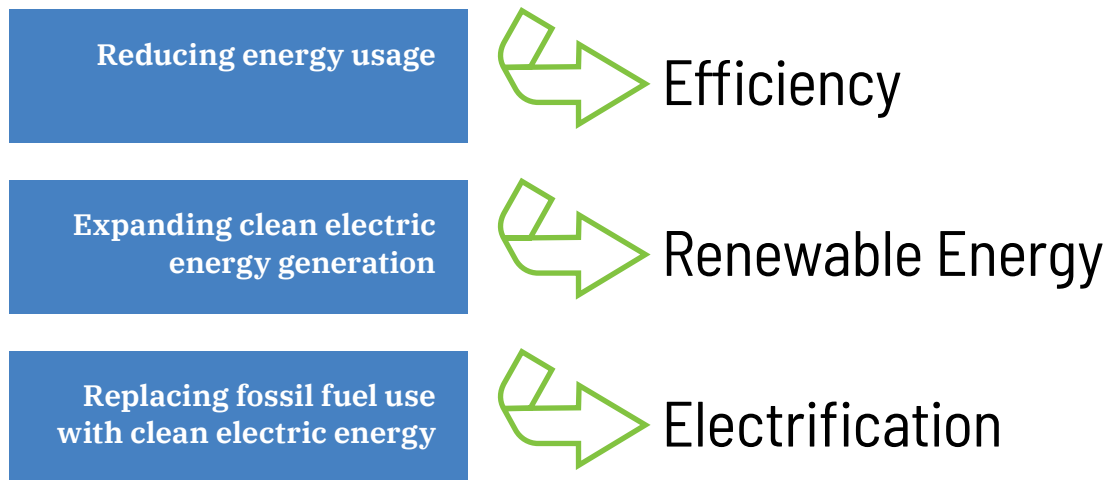
Climate Action Priorities

The following pages provide an outline of the Climate Action Priorities of CAP2030, that have been selected due to their potential for high impact and their probability of successful implementation.

It is contemplated that within the time period covered in this CAP2030, new areas of opportunity and even new challenges will develop that will necessitate modifications of these priorities. Such future modifications are assumed to be within the scope of this plan.

The primary path to achieve our goals will be to identify the largest sources of greenhouse gas emissions and eliminate those emissions by:

Reducing energy usage	➪ Efficiency
Expanding clean electric energy generation	➪ Renewable Energy
Replacing fossil fuel use with clean electric energy	➪ Electrification

Additionally, the Bedford community will benefit from reduced emissions provided by new technologies, higher efficiency products and changes in behavior across multiple sectors. The end benefit of these reductions will be cleaner, healthier air, water and land resources.
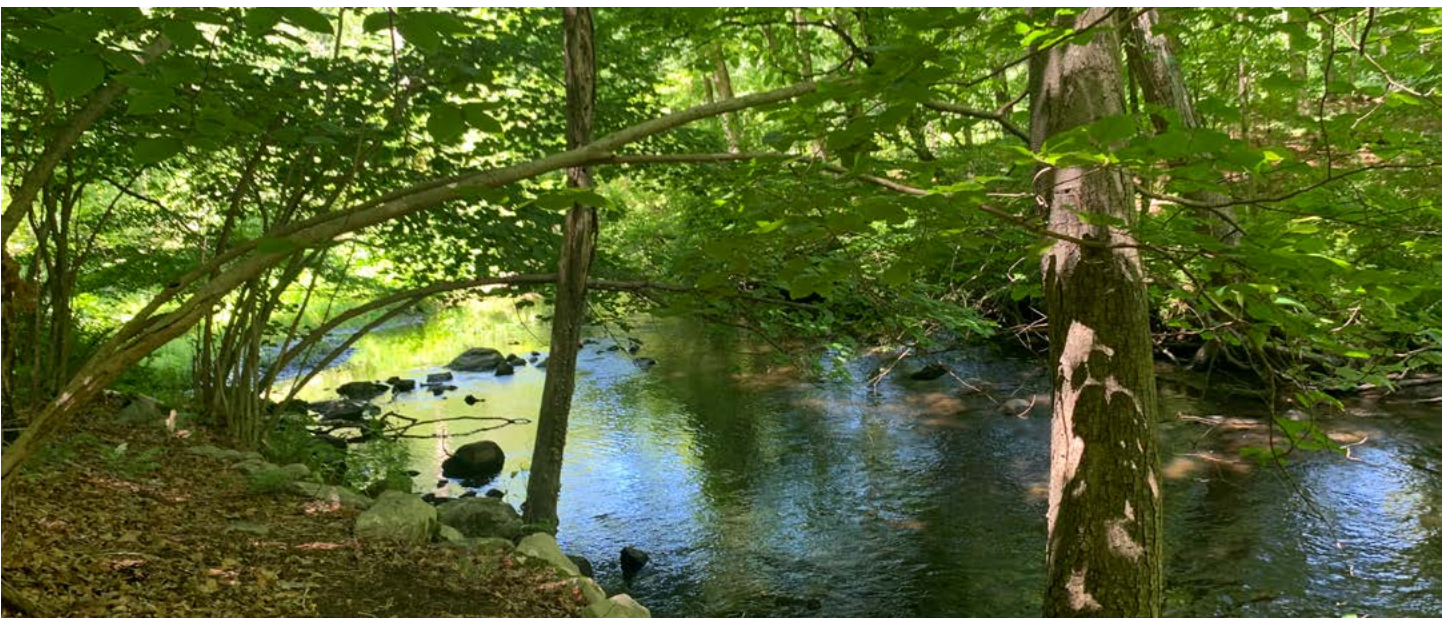
Action Areas (click to navigate)

Key Action Areas have been defined that will dominate our greenhouse gas reduction efforts to meet our goals as follows:

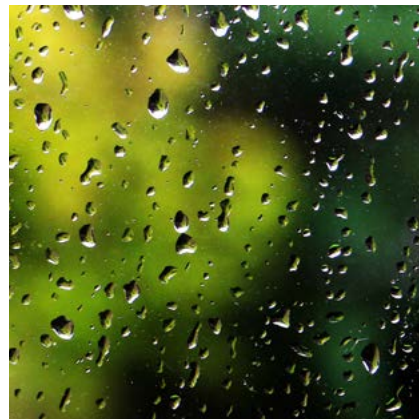Clean Electric Supply

High-Performance Buildings

Transportation

Waste/Recycling

Sustainable Food Practices

Water and Land

Clean Electric Supply

The way that electricity is generated and procured determines the amount of greenhouse gas emissions that is attributed to the electricity consumed here in Bedford. New York State's electricity is generated from several energy sources and, in order for Bedford to meet its greenhouse gas emission reduction goals, New York State's electricity must be generated by renewable sources; hydro, solar or wind power.

Clean electric energy is vital to achieving an 80% community-wide reduction in greenhouse gas emissions by 2030. CAP2030 will focus on increasing both the production of and the demand for locally generated renewable energy.

This transition will require strategies that focus on:

▶ Community-wide actions that drive collective renewable energy adoption (e.g. Community Solar, Community Choice Aggregation (CCA), policy changes). Collective action offers the greatest potential for greenhouse gas reductions;

▶ Municipal actions that model the importance of 100% renewable energy adoption to the community (e.g. usage of renewable energy in all municipal buildings and operations);

▶ Individual actions by residents, businesses and organizations to adopt renewable energy for homes/buildings and vehicles (e.g. solar installations, Community Solar, expanded use of electric vehicles).

Overall strategies to increase locally-sourced renewable energy will generate much-needed local supply resulting in savings due to less energy loss when transmitted over a shorter distance as well as greater resiliency for our community in the case of grid failure. Increased demand will help make projects more cost effective and viable due to economies of scale.
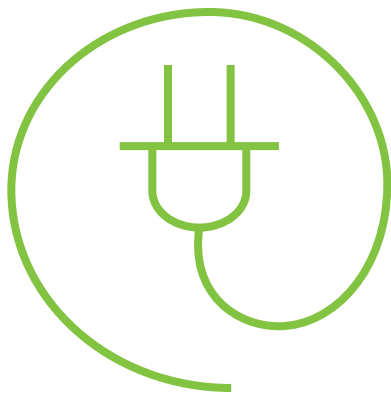
PROGRESS HIGHLIGHTS

Community

- Renewable energy supply for residents and small businesses through Westchester Power Community Choice Aggregation Program.
- 43% increase in solar installations via Solarize Bedford/Mt. Kisco
- Community scale renewable energy: since 2012,13 renewable energy sources have been purchased, built or leased producing 215,823 kWh annually

Municipal

- Solar installation on Water Filtration Plant (50kW system)
- Solar installation on Police Station Carport
- 25% municipal energy purchased from renewable sources (wind)
- Adopted New York Sun Unified solar permit which expedites permitting for small scale solar
- Two solar ready municipal buildings to be constructed in 2020
- Municipality purchasing Community Solar credits

NEW STRATEGIES

Community

- Promote and support locally generated renewable energy projects, especially Community Solar
- Identify and advocate for programs/policies that would increase locally generated renewable energy component of CCA
- Education/communication effort to increase participation in CCA and community solar programs
- Support adoption of model solar zoning code
- Work with schools, businesses and parking lot owners to create solar arrays

Municipal

- Convert municipal electric supply to 100 percent renewable energy
- Adopt a solar zoning code with solar garden component
- Increase solar/renewable energy on municipal buildings and land
- Offset fossil fuel-based municipal electricity consumption as the Town works towards 100% clean energy
- Pursue locally generated renewable energy projects
- Continue to fast track permitting for clean energy projects
- Reduce soft costs for renewable energy projects (permitting, financing, etc.)

Note: Electric Supply is not a separate part of the pie chart showing 2017 community emissions on page 8, because emissions from fossil fuel powered electric energy are included in total (all) energy emissions that come from buildings in the Town of Bedford, as explained in the next section.

High-Performance Buildings

As of 2017, residential and commercial buildings in Bedford generated 50% of greenhouse gas emissions. These emissions come from non-renewable electricity sources as well as fossil fuel use and energy inefficiency. If all buildings situated in Bedford were to become high performing, zero carbon structures, the community would be three-fourths of the way to reaching its 80% by 2030 GHG reduction goal.

The elimination of greenhouse gas emissions from buildings will come through:

▶ renewable energy supply;

▶ electrification of heating/cooling systems;

▶ electrification of hot water heating; and

▶ high performance energy efficiency upgrades.

Adoption of policies and mandates will likely be required to support these initiatives and achieve our goals.

2030 OBJECTIVE

- **Reduce Residential, Commercial and Municipal Building Greenhouse Gas Emissions by 80%**

PROGRESS HIGHLIGHTS

Community

- More than 1000 residences have completed home energy assessments of their energy performance
- More than 200 residences have completed Home Performance with Energy Star energy efficiency retrofits
- More than 30 residences have converted to electric air source heat/cooling pumps

Municipal

- Completed Energy Assessments for most larger Town buildings
- Implemented Municipal Energy Efficiency purchasing policy
- Implemented Energy Efficiency/Energy Star appliance replacement policy
- Adopted Bedford residential building energy code
- Enabled Energize NY PACE Financing for commercial and not-for-profit buildings

NEW STRATEGIES

Community

- Expand and promote adoption of electric air source and geothermal (ground source) heat pumps and cooling as well as battery storage for residential and commercial buildings
- Expand and promote energy efficiency improvements for all existing residential and commercial buildings
- Create, market and support programs to make energy/lighting retrofits and conversion to heat pumps affordable for Low to Moderate Income (LMI) homeowners, renters (new programs or access to existing NYS programs)
- Work with municipality to create programs, legislation and mandates (as appropriate) to:
  - measure GHG emissions and other pollutants and/or energy performance for all existing buildings
  - establish limits on greenhouse gas emissions and/or fuel use in all buildings
  - promote use of Energy Star appliances and LED lighting for commercial and residential buildings
  - modify and expand high-performance building standards for new construction and renovations
  - phase out fossil fuel based heating, cooling, water heating and cooking

- Create "Home Energy Solutions" program to help community members explore/adopt personal energy solutions (CCA, EE, Air Source Heat/cooling Pumps, Geothermal, Community Solar, Battery Storage, LED lighting, Energy Star Appliances)
- Support pilot programs for deep energy retrofits, Passive House standards and Net Zero for residential and commercial buildings
- Consider system to buy environmentally friendly building materials at negotiated, scale prices
- Collaborate with utilities and others to promote replacement of gas powered generators with electric, battery systems.
- Educate community members on proper disposal of refrigerants from air conditioning systems.

Municipal

- Complete energy audits for remaining municipal facilities
- Continue to improve the energy efficiency of municipal buildings
  - HVAC, insulation, air sealing, windows, fixtures
  - Complete implementation of lighting upgrades to LED lighting for municipal buildings
  - Implement lighting sensors, smart appliances and smart controls for municipal buildings
  - Improve air sealing and insulation of all buildings to improve energy efficiency
- Replace fossil fuel systems with electric air source and geothermal (ground source) heat pumps and cooling as well as battery storage for municipal buildings.
- Consider adopting policy to adhere to Net Zero and/or Passive House building standards for all new or substantially renovated municipal buildings.

- Create programs/policies to measure GHG emissions and/or energy performance for all existing homes and commercial buildings in Bedford, for example:
  - Annual energy use reporting
  - Energy scorecards
  - HERs or HES ratings
  - Time of sale requirements
  - Energy scorecard for renters
- Reduce emissions from water treatment facility by refining municipal water rate structure to encourage community water conservation
- Consider adopting residential and commercial building codes to improve energy efficiency and reduce GHG emissions and other pollutants from new and existing buildings. Consider municipal services and/or municipal, county or state incentives to support the same.

- Consider adoption of high performance new building codes (e.g.: Passive House, Net Zero, *NYSERDA Stretch Code)*
- Explore opportunities to simplify and expedite permitting and other services for new construction of Passive House and/or Net Zero buildings.
- Explore incentives (at municipal, county and/or state level) including low interest rates, property tax credits, offsets, special project financing for high-performance building improvements.
- Work with county and/or state to mandate and provide information/ resources for proper disposal of refrigerant systems.
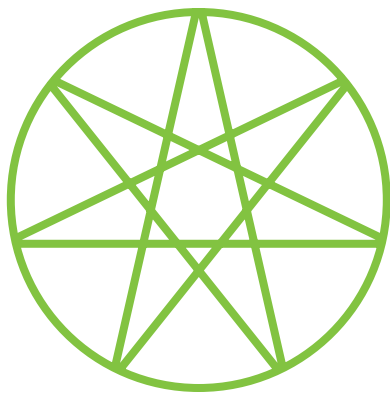
Transportation

Transportation accounts for 29% of greenhouse gas emissions in the US and 48% of Bedford's greenhouse gas emissions. Next to buildings, vehicles are the largest users of fossil fuels, nationally and in our community.

While a substantial increase in the sales of electric vehicles over the past seven years has resulted in some reduction in GHG emissions, large-scale reductions will only result from a dedicated effort to replace internal combustion engine vehicles with electric vehicles (EVs); reduce personal miles driven, increase use of public transportation; expand EV charging infrastructure; and dramatically reduce municipal vehicle fossil fuel use.

Bedford can play a major role in providing information and incentives to convince both community and municipal players to make changes to reduce transportation emissions.

2030 OBJECTIVE

- **50% Reduction in Community-wide Transportation GHG Emissions**

PROGRESS HIGHLIGHTS

Community

- Bedford 2020 Car Show: NYS First Fuel Efficient Car Show
- Anti-idling law education

Municipal

- Added 8 EV charging stations
- Municipal fleet in process of transitioning to EVs (4), hybrid and fuel efficient vehicles
- Electrical permitting simplified to expedite home and business charging stations.
- Municipal fleet inventory
- Implemented fuel tracking system that enables accurate municipal fuel-use data collection
- Police on bicycles
- Anti-idling law
- 6-miles of multi-use paths installed
- Commuter parking incentives for EV and hybrid vehicles

NEW STRATEGIES

Community

- Create baseline measurement of vehicle emissions
- Create program to track EV ownership in Bedford and retirement of fuel inefficient vehicles
- Engage in education campaign to inform residents about the climate change impact from personal vehicles

- Provide details on the emissions of different vehicles
- Promote incentives for changing to EV
- Streamline process for adoption of private EV charging stations (e.g. at KMA)
- Support expanded number of charging stations county-wide
- Advocate for and help facilitate EV conversion of high-profile municipal and commercial vehicles (school buses, vans, waste trucks, county buses)
- Explore utilities' EV programs
- Promote reducing vehicle travel miles through carpooling and public transportation
- Promote use of buses for students
- Create campaign to reduce vehicle miles
- Education and enforcement of anti-idling laws

Municipal

- Develop and implement local shared ride options to train stations, hamlet centers, cultural/civic destinations
- Develop a specific Complete Street infrastructure to limit car and expand lower carbon alternatives
- Continue to transition all municipal vehicles to EVs. Establish plan for next 10 years that takes into account alternatives that are available "now" (e.g. for municipal vehicles that can be switched to EVs) and focus on pilots/new technology to convert heavy duty vehicles (e.g. DPW trucks) and emergency vehicles (e.g. police cars and trucks) as developed and available

- Continue to Implement and publicize vehicle fleet inventory and fuel tracking system that enables accurate fuel data collection
- Minimize vehicle miles by examining use, eliminating unnecessary use and maximizing efficiency
  - Convert to a municipal fleet cost structure where the cost per mile to operate/power individual Town vehicles are applied to the specific budget of each Town department
- Continue to facilitate simplified permitting and inspections for home and business charging stations
- Consider installing solar panels and/or generators/batteries as charging station back-up in the event of power outages
- Leverage train station/hamlet parking lots
  - Provide free ride-share parking
  - Freebate incentives for low carbon alternatives
  - Improve and expand EV charging station speed (e.g.: Level III charging) access and pricing
- Consider requirement through building codes and/or incentives of provision for vehicle charging equipment in all new building construction and renovations to existing buildings
- Education and enforcement of anti-idling laws

Waste/Recycling

To date, strategies and initiatives to increase recycling have resulted in reduced waste which, in turn, has reduced greenhouse gas emissions (associated with waste management processes). Waste contributed 2% of total community greenhouse emissions cited in the 2017 Bedford Progress Report.

Going forward, strategies will focus on increasing community-wide waste reduction and decreasing greenhouse gas emissions through:

► eliminating food scraps from the waste stream;

► significantly more waste reduction in the commercial sector;

► driving community-wide awareness and behavior change around "reuse" and "less use" of materials; and

► more education, awareness building and enforcement of recycling rules for residences and businesses.

PROGRESS HIGHLIGHTS

Community

- Single Stream Recycling:
  - Worked with municipality to pass law requiring carters to submit quarterly reports to track recycling rates
  - Worked with municipality to pass law requiring single stream recycling for residential pick-up
  - Engaged in major education and awareness raising campaign to shift behavior to single stream recycling
  - Increased amount of residential waste recycled from 16% to 40%
- Implemented Zero Waste Community Compost program, for residents to take food/organic kitchen scraps to Town Recycling Center; with 300 HH's participating; diverted 60 tons of organic waste in first 2 years
- Created and manage Take It or Leave It Shed (reuse program) that promotes reuse of household items that otherwise would end up in the waste stream. It is estimated that 95% of what is dropped off is repurposed.
- Created and manage Recyclopedia, a Bedford 2030 resource for local alternatives for hard to recycle items
- Engaged community support for Reusable Bag Fee that went into effect as of April 2019

Municipal

- Required carters to submit quarterly reports to track recycling rates
- Passed Single Stream Recycling Law
- Implemented municipal green procurement and recycling policy
- Implemented municipal yard waste drop-off and compost/mulch pick-up program for Bedford residents
- Implemented policy for Reuse/recycling construction materials

NEW STRATEGIES

Community

- Update single stream recycling as necessary with focus on plastics and contamination
- Work with municipality and carters to obtain recommitment to work with municipality to support waste policies and goals
- Work with municipality and carters to reevaluate pay as you throw program for residential and commercial customers
- Work with municipality to establish community-wide residential curbside pick-up for household organic waste
- Establish composting/curbside pick-up for restaurants
- Increase waste reduction in the commercial/business sector
- Increase waste reduction (recycling and composting) for schools
- Evolve B2020 Recyclopedia to a Bedford Zero Waste app

- Zero Waste Challenge education and behavior change campaigns (single use plastic, food, upcycling)
- Initiate campaign to reduce packaging through the supply chain
- Education around impact of items with excessive packaging waste, including shipping and delivery waste
- Consider effort to prohibit sales of goods with excessive packaging waste, including shipping and delivery waste

Municipal

- Consider establishing a single carter under contract in the Town of Bedford
- Institute a Zero Waste policy for events (public or private) on public land (build on initial progress in this area at the 2019 Tri-Festa and the extend to all events)
- Consider banning single use plastic bags, straws and Styrofoam at all Town facilities, parks and affiliated events (e.g. Tri-Festa, carnivals)
- Implement and enforce recycling requirements for commercial and multi-family buildings
- Install composting bins at Town Parks
- Explore with county and state implementing taxes on items with excessive packaging waste, including shipping and delivery waste

Sustainable Food Practices

The carbon footprint of food results from the greenhouse gas emissions produced by growing, rearing, farming, processing, transporting, storing, cooking and disposing of the food we eat. On average, U.S. household food consumption emits 8.1 metric tons of CO_2 each year. Worldwide, new reports suggest that livestock agriculture produces approximately half of all man-made emissions.

We can lower our community's food-generated greenhouse gas emissions through:

▶ partnerships with local food purveyors (stores, restaurants, and farmers), schools and other food-serving institutions;

▶ education and behavior change efforts aimed at households.
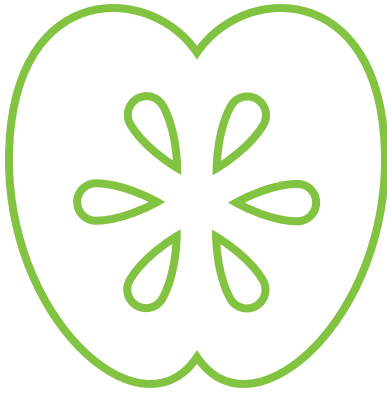
2030 OBJECTIVE

Increase awareness and drive behavior change:
- **Advocate for more sustainably sourced food;**
- **Encourage plant-based eating as a climate solution;**
- **Reduce "throw-out" food waste as a climate solution;**
- **Identify measurement tools to quantify and publicize progress.**

PROGRESS HIGHLIGHTS

Community

- Meatless Mondays with Bedford 2020 campaign, 320 households committed to 12-week campaign to lower carbon footprint
- Local Food procurement (of select items) at BCSD
- Bedford 2020 Food Forum—Educated 900 community members on local food issues
- Access to local food in season at John Jay Farm Market in Bedford

NEW STRATEGIES

Community

- Assess opportunities to leverage and expand Meatless Mondays:
  - Re-run campaign
  - Create a do-it-yourself web resource
  - Encourage local restaurants to agree not to serve meat on Monday's/serve sustainably raised meats
  - Incentivize participation in plant-based eating by providing discounts or other promotions with Meatless Mondays partners
- Explore other partnerships or opportunities around plant based eating as a climate solution
- Educate on sustainably raised meat options
- Create and run "Throw Away Less Food" education, workshops and campaigns.
- Persuade local restaurants and institutions to offer half portions
- Support local food rescue and food sharing initiatives
- Increase access to fresh, sustainably sourced food
- Work with local schools to shift procurement to sustainably sourced foods
- Adopt/support farmers using production practices that increase carbon capture
- Support home produce/gardener education that focuses on carbon capture production

Municipal

- Municipality to endorse/support community campaigns and climate solutions around food
- Adopt policy about food waste goals
- Promote "New York State Food Donation Act" so community can be reassured about ability to donate food
- Educate and support the NYS Food Donation and Food Scraps Recycling Law, which goes into effect January 2022

Water and Land

The roles of water and land efforts in the CAP2030 stem primarily from the repurposing and preservation of these resources. While land use changes have a modest impact on greenhouse gas emissions, the education and awareness building connected to land use issues has a disproportionate impact in gaining attention, movement building and adoption of other climate change actions Although permanent changes in land use reduces emissions by only a small percentage, they have a disproportionate benefit by gaining attention from residents which helps in movement building and adoption of other climate change actions.

The heat island effect stemming from pavement and other non-permeable surfaces can be mitigated by greater planting, reduction of existing impermeable surfaces and the use of newer non-asphalt alternatives.

Additionally, land can be used to provide carbon sequestration to absorb CO_2 released by other activities in the Town of Bedford. The number of trees to be planted must be high and the preservation of old trees is essential, as young trees absorb 13 pounds of carbon per year while trees more than 10 years old absorb 50 pounds. Oak trees are the highest carbon absorbing tree species, fitting seamlessly into our local landscapes.

The repurposing of lawns to meadows and forests and the related no-chemical treatment options will be essential to make inroads within this impact category.

Current efforts to restrict the use of pesticides and chemical fertilizers are vital to the protection of our water supplies. These efforts should be expanded.

2030 OBJECTIVE

- **Increase Carbon Sequestering Land Use**
- **Continue Protection of Water Quality**

PROGRESS HIGHLIGHTS

Community

- No-Pesticide Pledge: 4,400 Town of Bedford acres pledged to eliminate pesticides and chemicals
- Branch Out
- Leaf Blower Restrictions Law passed

Municipal

- Modified water billing system shows a 5% decrease in water consumption
- Town completed Tree inventory in 2018; resulted in adoption of a new Tree Management Plan that includes tree planting efforts across several Town properties.

NEW STRATEGIES

Community

- Campaign to encourage conversion of lawns to carbon capture plants/trees
- Education campaign about value of plants/trees for carbon capture
- Educate landscapers and homeowners on carbon capture friendly landscaping techniques
- Implement incentive programs for tree planting
- Education campaign about risk of herbicides, pesticides and fertilizers

to humans, pets, water supply and the ecosystem
- Work with schools to ensure enforcement of NYS no pesticide policy on school properties
- Work with Town to phase out gas-powered equipment:
  - Encourage low maintenance landscaping
  - Promote electric landscaping machinery and tools
  - Create program to offer leasing of electric landscaping machines
  - Encourage mulching/mowing leaves into lawns
- Educate on detrimental impact of invasive vines on trees and how to address
- Educate homeowners to shift from impermeable and barren surfaces to soil covered with plants
- Encourage use of perennial ground cover rather than mulch

Municipal

- Adopt water and land use policy on Town property, including:
  - Elimination of pesticides, fertilizers or herbicides;
  - Reduced mowing;
  - Limitation of gas powered equipment;
  - Increased tree planting;
  - Implementation of low maintenance landscaping (already part of wetlands law); increased use of native plants; and
  - Use of perennial ground cover/living mulches rather than mulch.

- Consider legislation restricting the use of fertilizers, herbicides and pesticides on residential and commercial properties
- Phase out gas powered land maintenance equipment and replace with electric
  - Enforce and extend leaf-blowing laws to the entire community
  - Consider regulation to replace gas mowers/blowers/equipment with electric for residential and commercial properties
- Increase tree canopy in Bedford
- Adopt tree-planting and land use policy for residences
- Cut down vines and other invasives
- Work with County Health Department to allow for two types of grey water systems
- Research new paving materials to use as non-asphalt alternatives for local surfaces
- Identify municipally owned paved areas that can be converted to planted areas
- Replace Town of Bedford lawn spaces with trees and other carbon absorbing plants
- Change town management practices to examine land function and restore hydrological cycle and carbon capture
- Explore green roof opportunities on Town buildings

Glossary of Terms

Annual Energy Use Reporting   comprehensive reporting of annual energy use and energy management activities.

Baseline Greenhouse Gas Inventory   a report detailing estimates of greenhouse gas emissions on both a municipal and community level; future estimates will be compared to the baseline inventory to calculate progress.

Carbon Capture   the long-term storage of carbon dioxide or other forms of carbon to either mitigate or defer global warming and avoid dangerous climate change

Carbon Sequestration   a natural process by which plants capture and store carbon via photosynthesis. In agriculture, modified tilling, planting, and harvesting methods can optimize natural carbon sequestration.

Carbon Offset   a reduction in emissions of carbon dioxide or other greenhouse gases made in order to compensate for emissions made elsewhere.

Community Action   efforts to reduce greenhouse gas emissions at a personal, business, or institutional level via voluntary or incentivized behavior changes.

Community Choice Aggregation (CCA)   programs that allow local governments to procure power on behalf of their residents, businesses, and municipal accounts from an alternative supplier while still receiving transmission and distribution service from their existing utility provider. CCA contracts can include a 100% renewable energy power supply stipulation or choice.

Community Solar   program that enables utility customers —homeowners, renters, nonprofits, houses of worship, and businesses—to subscribe to local, energy produced by a community solar farm located in their utility service territory.

Community Emissions   comprehensive data that tracks community-wide (i.e. residential, business/commercial and municipal) greenhouse gas emissions and the specific sources of those emissions.

Complete Streets   a transportation policy and design approach that enables safe access for all street users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities. Complete Streets emphasize the importance of safe access for all users, not just automobiles.

Composting   a natural or enhanced process that recycles various organic materials otherwise regarded as waste products through aerobic decomposition to produce a beneficial soil conditioning product known as compost.

Electrification   the process of replacing technologies that use fossil fuels (coal, oil, and natural gas) with technologies that use clean electricity (e.g. solar, wind, hydro) as a source of energy.

Electric Vehicles (EVs)   automobiles that are propelled by one or more electric motors, using energy stored in rechargeable batteries. EVs require no gasoline or diesel, and offset the most emissions when they are charged from a clean energy source.

Energy Efficiency   a method of reducing energy consumption by using less energy to perform the same task (eliminating energy waste).

Energy Scorecard   a visual representation displaying a building's energy performance or "score." Energy scorecards can also be virtual and actively monitor and display energy consumption and cost.

Energy Star   a program run by the U.S. Environmental Protection Agency and U.S. Department of Energy that promotes energy efficiency. The program provides information on the energy consumption of products and devices using different standardized methods.

Freebate   A feebate program is a self-financing system of fees and rebates that are used to shift the costs of externalities produced by the private expropriation, fraudulent abstraction, or outright destruction of public goods onto those market actors responsible.

Food Waste, "throw out"   produced when consumers buy or cook more food than they need and choose to throw out the extras, contributing to food loss. Restaurants, retailers, schools, farmers, long distance transporters and agricultural corporations also heavily contribute to food loss.

Fossil Fuels   high-carbon fuels formed from the fossilized, buried remains of plants and animals that lived millions of years ago. Fossil fuels are considered non-renewable resources because they take millions of years to form and are being depleted at much higher rates. They include coal, petroleum, natural gas, oil shales, bitumen, tar sands, and heavy oils. Fossil fuels release energy during combustion as well as CO_2, a greenhouse gas.

Electric Power   fossil fuel power stations have machinery to convert the heat energy of combustion into mechanical energy, which then operates an electric generator. This process can produce waste materials such as CO_2, nitrogen oxides, sulfur oxides, and trace metals that are dispelled into the air. Fossil fuels generate 63% of electricity in the United States.

Building Heating/Cooling   a building's heating and cooling mechanisms can be powered by fossils fuels (natural gas most commonly) or electricity. Furnaces and water boilers are often powered by natural gas, and are often less efficient than electric heat pumps.

Vehicles   the majority of vehicles are powered by gasoline, petroleum or diesel via internal combustion engines. Fossil fuel-powered vehicles are less efficient and produce more emissions than EVs.

Equipment   household equipment such as generators, leaf blowers, and lawnmowers, as well as agricultural and construction machinery, are most commonly powered by fossil fuels such as gasoline.

Global Warming   a gradual increase in the overall temperature of the earth's atmosphere generally attributed to the greenhouse effect caused by increased levels of carbon dioxide, chlorofluorocarbons, and other pollutants.

Greywater System   a system used to take water that has already been used in the laundry, shower and sink ("greywater") and divert it to use in another purpose like watering gardens or landscaping. Greywater systems reduce water usage and prevent usable wastewater from entering the sewer or septic system.

Green Roof   a roof of a building that is partially or completely covered with vegetation and a growing medium, planted over a waterproofing membrane. It may also include additional layers such as a root barrier and drainage and irrigation systems. Green roofs mitigate water runoff and sewer overflows, and can remove pollutants from air and rainwater.

Greenhouse Gas Emissions   gases that absorb infrared radiation (heat) emitted from Earth's surface and reradiate it back to Earth's surface, thus contributing to the greenhouse effect (atmospheric warming). Include water vapor, carbon dioxide, methane, nitrous oxide, and ozone. Greenhouse gases are emitted from the transportation, electricity generation, industry, agriculture, commercial, and residential sectors.

Home Energy Rating System (HERS)   An industry standard developed by the Residential Energy Services Network (RESNET) by which a home's energy efficiency is measured. A rated home is given a score based on its energy performance on a scale from 1 to 150.

Home Energy Score (HES)   a 1-to-10 scale developed in 2012 by the Department of Energy (DOE) to help predict single-family homes' energy performance. This score is similar to a vehicle's miles per gallon, but for a home's energy efficiency.

Heat Pumps, Ground Source (Geothermal)   renewable alternative to a furnace or boiler. Using underground pipes and an aboveground heat pump, the system pulls heat from the ground to heat the home in the winter, and it dumps heat from the home into the ground to cool it in the summer.

Heat Pumps, Air Source   a refrigerant system that transfers heat from outside to inside a building, or vice versa. Made of two coils (one inside and one outside) and a compressor, the heat pump extracts warm air outside and releases it inside; for cooling, the pump extracts warm air inside and releases it outside.

High Performance Building   a building that integrates and optimizes all major high performance attributes, including energy conservation, environment, safety, security, durability, accessibility, cost-benefit, productivity, sustainability, functionality, and operational considerations.

Home Energy Solutions   steps that can be taken by homeowners to reduce energy demand and save money and energy (ex. proper insulation, air sealing/weatherization, and other energy saving devices.) Home energy experts can assess homes and advise homeowners on the most feasible and impactful solutions for their households.

HVAC Systems   a heating, ventilation and/or air conditioning system that regulates a room's temperature, humidity, and air quality and is paired with a furnace or boiler when heating is necessary.

Hydrological Cycle   constitutes all processes in which water moves from the land and ocean surface to the atmosphere and back in form of precipitation. It is dependent on various factors and is equally affected by oceans and land surfaces. This cycle involves the physical processes of evaporation, condensation, precipitation, infiltration, surface runoff, and subsurface flow.

LED Lighting   a type of energy efficient lighting known as light emitting diode. LED products produce light approximately 90% more efficiently than incandescent light bulbs.

LMI   low-to-moderate income homeowner.

Meatless Mondays   a campaign, adopted by Bedford 2020, in which households and businesses pledge to give up eating meat for one day a week to help achieve climate action goals. Meat production contributes heavily to U.S. greenhouse gas emissions, and decreasing one's meat consumption is seen as a way for consumers to reduce their carbon footprint.

Metric Tons   a unit of weight equal to 1,000 kilograms, or approximately 2,204.6 pounds. Often used as a measurement of CO_2 emissions.

Municipal Action   efforts to reduce greenhouse gas emissions coordinated by the Town government. Includes actions to reduce emissions within Town property as well as programs and policies that will incentivize and facilitate community-wide emission reductions.

Municipal Emissions   comprehensive data that tracks greenhouse gas emissions produced within Town buildings and via Town operations.

Net Zero Emissions   also known as carbon neutrality. A goal of achieving net zero CO_2 emissions by balancing carbon emissions with carbon removal (often through carbon offsetting) or by simply eliminating carbon emissions altogether. Net zero technologies (ex. buildings) specifically must generate as much clean energy as they consume.

Passive House   a voluntary standard for energy efficiency in a building, which reduces the building's ecological footprint. Passive design optimizes "free" heat from the sun and in the building, resulting in ultra-low energy buildings that require little energy for space heating or cooling.

Regenerative Agriculture   a system of farming, landscaping and agricultural practices that enhances biodiversity, enriches soils, improves watersheds and aims to actively capture carbon in soils by carbon sequestration, thereby reversing trends towards atmospheric accumulation.

Renewable Energy   energy that is collected from renewable resources, which are naturally replenished on a human timescale. Examples include: solar, hydro, wind, tidal, geothermal, and biomass.

Single Carter Contract   a municipal approach to solid waste collection and management in which the Town contracts with a single carter for all residential and commercial accounts.

Soil Carbon Capture   includes methods for regenerating and enhancing long term carbon sequestration in soils by promoting native and organic growing practices through restorative gardening, planting and landscaping techniques.

Solarize Bedford/Mt. Kisco   a Solarize Westchester campaign run by Bedford 2020 in 2015/16 that provided homeowners and commercial property owners discounts off the cost of solar photovoltaic (PV) systems, in addition to incentives from the state and federal governments.

Sustainability   focuses on meeting the needs of the present without compromising the ability of future generations to meet their needs. Sustainable practices support ecological, human, and economic health and vitality. Sustainability presumes that resources are finite, and should be used conservatively and wisely with a view to long-term priorities and consequences of the ways in which resources are used.

Sustainably-Sourced Food   animal or plant products produced using techniques that protect the environment, public health, human communities, and animal welfare. Sustainable food production must also generate abundance while ensuring future generations can do the same.

Time of Sale Requirement   would include a policy for a property owner to provide data and/or assurances to a new buyer at the time of title change.

Waste District   Town or broader geographic areas that have a centralized waste management system.