

# RIVERHEAD

## Comprehensive Plan Update



## **Chapter 12: Sustainability and Resilience**

*Working Draft*

This document is presented in its current form as a preliminary draft for public review. We encourage all stakeholders to provide comments as your input will play a vital role in shaping the final version of the Comprehensive Plan. Please email comments to [compplan@townofriverheadny.gov](mailto:compplan@townofriverheadny.gov).

Please note that the document will be further refined once comments are received from the community. Since it is an interim document, it is in a raw formatted form. The revised draft will be arranged in a more graphic format with photos, figures, and other visual elements to enhance clarity and understanding. Thank you for your time and participation in this important planning process.

*Submitted by BFJ Planning*

*February 8, 2024*

## CHAPTER 12: SUSTAINABILITY AND RESILIENCE

### Introduction

The Town of Riverhead stands at a critical juncture, grappling with multifaceted challenges that necessitate a dedicated focus on sustainability and resilience. From environmental concerns to economic vulnerabilities, Riverhead faces a complex web of challenges that demand strategic planning and innovative solutions for renewable energy, sustainable waste management, flood management, sea level rise, and climate change.

One of the foremost issues is the escalating impact of climate change, manifested through rising sea levels, extreme weather events, and shifting ecological dynamics. These changes pose a direct threat to our natural environment, the integrity of our infrastructure, and the overall quality of life for residents. The urgency to adapt and mitigate the effects of climate change is paramount. Energy initiatives supported by this plan aim to reduce energy consumption, lower greenhouse gas emissions, and enhance the sustainability of the community.

Additionally, economic uncertainties and fluctuations have exposed vulnerabilities in the town's financial resilience. Climate change has the potential to significantly impact the agriculture and tourism industries. Striking a delicate balance between fostering economic growth and preserving the unique character of Riverhead requires thoughtful planning and community engagement. The challenge lies in promoting a robust local economy that withstands external shocks while enhancing social equity and inclusivity.

### Existing Conditions

This subsection discusses the current state of environmental issues related to sustainability and resilience. Examining these key factors helps to identify areas of vulnerability and strength, laying the groundwork for informed strategies that will fortify Riverhead against future challenges.

#### Flood Risk Management

Riverhead's location between the Long Island Sound and Peconic River and Bay makes it prone to coastal flooding. The Federal Emergency Management Agency (FEMA) designates areas with flood hazard risks, as shown in Figure 1. Approximately 3,000 acres, 7% of Riverhead's total land area, fall within a 1% annual chance, also called the 100-year floodplain (A, AE, AO, VE). Almost half of these areas are along the coast and at risk of storm-induced velocity wave action (VE). Nearly 700 additional acres are within the 500-year floodplain and have a 0.2% annual chance of flooding (X-shaded). A moderate estimate puts 600 residential units and 500 jobs within these areas at risk of flooding.<sup>1</sup>

The downtown and areas along the coast of the Peconic River and Bay are especially at risk of flood events. Figure 2 shows flood hazard areas mapped in Riverhead's downtown.

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<sup>1</sup> Urban Footprint Risk and Resilience Analysis, <https://help.urbanfootprint.com/methodology-documentation/risk-and-resilience-analysis#output-metrics>

The Army Corps of Engineers studied the current and future impacts of flooding on downtown Riverhead, which indicated that a 100-year flood could cause floodwaters to reach over 12 feet. The largest storm recorded in the report, a 500-year flood, could result in floodwaters rising to almost 16 feet. Both scenarios could flood the riverfront and sections of Main Street. The preliminary recommendations of the Army Corps of Engineers 2021 Riverhead Flood Plain Management Study have already begun to be implemented and are discussed further in the recommendations section of this chapter.

Figure 1. Flood Hazard Areas

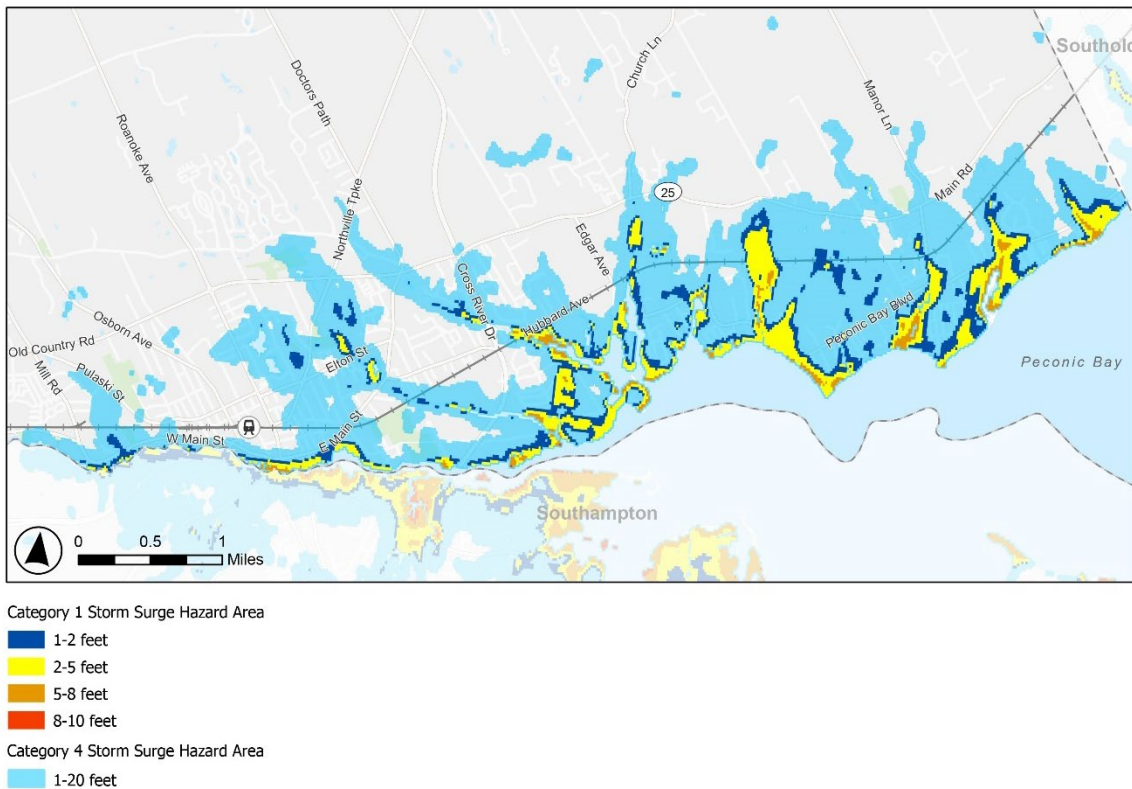


### Storm Surge Risk

As shown in Figure 2, Riverhead faces the risk of storm surges during hurricanes and extreme weather events. In the event of a Category 1 storm in Riverhead, the Town could see up to ten feet of storm surge in the wetland areas in the northwest corner of the Town on the Long Island Sound and up to nine feet in the downtown.<sup>2</sup> In the rare event of a Category 4 storm, the Town could see up to 20 feet of storm surges along the Long Island Sound and up to eighteen feet of storm surges along the Peconic River in downtown Riverhead. Areas along the Peconic River and Bay could see flooding reach inland past Route 25. The likelihood of a Category 4 storm in this region is increasing with climate change, and the severity of impacts is likely to increase when combined with rising sea levels. These significant impacts serve as a stark reminder that without adaptation or changes in approach to climate, such flooding events could become more frequent and devastating.

<sup>2</sup> NOAA, National Storm Surge Risk Maps, Version 3, <https://www.nhc.noaa.gov/nationalsurge/>

Figure 2. Storm Surge Risk



### Flood Damage Prevention

Chapter 233 of the Town code establishes specific guidelines for new developments in flood-prone areas to minimize potential flood damage and ensure structural resilience. For subdivision proposals, there are standards to minimize flood damage, position utilities to reduce damage, and provide adequate drainage to lessen exposure to flood damage. The guidelines outline elevation criteria based on different flood zones to ensure structures are built above specified flood levels. They provide detailed construction and structural design requirements for residential and nonresidential structures, manufactured homes, and recreational vehicles in these flood-prone areas.

### Emergency Management

The Riverhead Police Chief is head of the Town’s Emergency Management. The Town Government, Police Department, Fire Departments, and other agencies contribute to the functional response activities. Emergency Response activities follow Riverhead’s Hurricane/Severe Storm Response Plan, the Suffolk County Hazard Mitigation Plan Riverhead Annex, and the New York State Comprehensive Emergency Management Plan (CEMP). Riverhead coordinates emergency responses with the County and State through an Incident Command System. Resources for emergency preparedness are available to the public on the Town’s website. Additional information about emergency management is discussed in the Community Facilities chapter.

## Suffolk County All-Hazards Mitigation Plan

The Suffolk County All-Hazards Mitigation Plan (HMP) is a comprehensive strategy developed by the Disaster Mitigation Act of 2000 (DMA 2000). This plan, updated in 2020, ensures eligibility for pre-disaster mitigation grant funds following federally declared disasters. While immediate recovery assistance is available regardless of plan participation, the DMA 2000 enhances the disaster planning process by requiring hazard mitigation planning, documentation of the planning process, and identification of hazards, potential losses, and mitigation needs. The HMP's mission is to identify and reduce vulnerability to natural hazards, protecting Suffolk County's health, safety, quality of life, environment, and economy. The plan specifies eight overarching mitigation goals, including saving lives, minimizing property damage, reducing risk exposure, and maintaining economic viability after a hazard event. The 2020 update considers hazard events since 2014, hazard profiles, vulnerability assessments, and input from the County and jurisdictions. Amendments integrate the plan with other planning mechanisms and support mitigation by protecting and preserving natural systems.<sup>3</sup>

### Climate Change

The Town of Riverhead is already encountering significant climate change effects, which are projected to increase.<sup>4</sup> All data in this section come from DEC's report, *Observed and Projected Climate Change in New York State: An Overview*.<sup>5</sup> The average temperature will increase between 2 and 4 degrees Fahrenheit over the coming decade. By the 2050s, expected changes include:

- **Elevated Average Temperature:** an increase between 3 to 7 degrees by the 2050s.
- **Increased Hot Days:** a doubling of days surpassing 90 degrees Fahrenheit and more than a twofold increase in heat waves.
- **Decrease in Cold Days:** 14 fewer days below freezing.
- **Rise in Severe Storms:** An increase in extreme precipitation events.

The impacts of climate change in the Long Island region also include humidity, droughts, wildfires, heavier rainfall during storms leading to flash flooding, hail, tornadoes, and degraded water and air quality. The substantial release of greenhouse gases (GHGs), including carbon dioxide, methane, and nitrous oxide, into the atmosphere has accelerated planetary overheating. The severity of climate change impacts depends on society's ability to reduce GHG emissions.

### Increasing Water Temperatures

The Long Island Sound Study reported a 1% increase in water temperatures across Long Island Sound between 1960 and 2022.<sup>6</sup> Both long-term annual and winter temperatures consistently increased at all monitoring stations. During this period, Winter temperatures increased by 5.7%. The winter water temperature in the Sound is increasing at a rate of about 1°F per decade, exceeding the global

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<sup>3</sup> [https://www.southamptontownny.gov/DocumentCenter/View/24181/\\_Executive-Summary](https://www.southamptontownny.gov/DocumentCenter/View/24181/_Executive-Summary)

<sup>4</sup> Observed and Projected Climate Change in New York State: An Overview, Department of Environmental Conservation. [https://www.dec.ny.gov/docs/administration\\_pdf/ccnys2021.pdf](https://www.dec.ny.gov/docs/administration_pdf/ccnys2021.pdf)

<sup>5</sup> Ibid.

<sup>6</sup> Long Island Sound Study. <https://longislandsoundstudy.net/ecosystem-target-indicators/water-temperature/>

average of 0.32°F per decade.<sup>7</sup> Fluctuations in the Long Island Sound's water temperatures have caused observable changes in fish populations, favoring warm-adapted species over cold-adapted ones, such as a decline in cold-adapted fish like Atlantic cod and an increase in warm-adapted fish like striped bass. Such shifts also impact the benthic community, contributing to the decline of American lobsters, and are believed to affect the broader marine ecosystem, altering food web dynamics, and hindering the growth of various marine life stages.

### Ocean Acidification

Ocean acidification occurs when the ocean waters absorb carbon dioxide from the atmosphere. This absorption leads to a decrease in the pH levels of the ocean, making it more acidic over time. The Long Island Sound Study reported increased acidity in the Long Island Sound, which can harm marine life, particularly shell-forming creatures and coral reefs. The ocean's pH has dropped by approximately 0.1 units from its pre-industrial levels, signifying increased acidity.<sup>8</sup> While there has been an average oceanic pH decrease of 0.06 since 1985, Long Island Sound is experiencing more accelerated acidification, with a 0.04 decrease per decade, as reported by UConn Marine Sciences.<sup>9</sup> Researchers at Stony Brook University found a method to address ocean acidification by cultivating shellfish and seaweed kelp, offering potential benefits to local marine environments, shellfish farmers, and economies. Reducing the amount of fossil fuels burnt also helps to alleviate accelerating acidification.

### Sea Level Rise

The U.S. National Oceanic and Atmospheric Administration (NOAA) maintains coastal stations that continuously monitor daily tides and long-term average sea levels. The Montauk Station, established in 1947, has documented a rise of 9.5 inches since that time, while the New London, CT station has seen a rise of 8.6 inches since 1938.<sup>10</sup> Of more significant concern, the rate of sea level rise measured from 2005 to 2019 was double the rate during the 20th Century.

In 2014, Governor Cuomo signed the Community Risk and Resiliency Act into law to provide a shared basis for planning and regulation in New York State. The law intends to ensure that state permits and expenditures consider climate risk, including sea-level rise, and that projections are based on the best available science. The result is 6 NYCRR Part 490, Projected Sea-level Rise, which establishes projections for sea level rise for three geographic regions.<sup>11</sup>

In the Long Island Region, sea levels are predicted to rise by one to two more feet in the next century. Considering a low-medium projection, which is a likely scenario, the sea level could rise by

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<sup>7</sup> Annual 2022 Global Climate Report, National Centers for Environmental Information. <https://www.ncei.noaa.gov/access/monitoring/monthly-report/global/202213>

<sup>8</sup> Long Island Sound Study and School of Marine and Atmospheric Sciences at Stony Brook University. [https://longislandsoundstudy.net/wp-content/uploads/2014/11/Chris-Gobler\\_LISS-OA-talk-9.17.15.pdf](https://longislandsoundstudy.net/wp-content/uploads/2014/11/Chris-Gobler_LISS-OA-talk-9.17.15.pdf)

<sup>9</sup> Marine Sciences, University of Connecticut. <https://marinesciences.uconn.edu/2022/12/02/surveying-ocean-acidification-on-the-northwest-atlantic-shelf/>

<sup>10</sup> Coastal Sensitivity to Sea-Level Rise: A Focus on the Mid-Atlantic Region, Environmental Protection Agency. <https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockkey=P100483V.TXT>

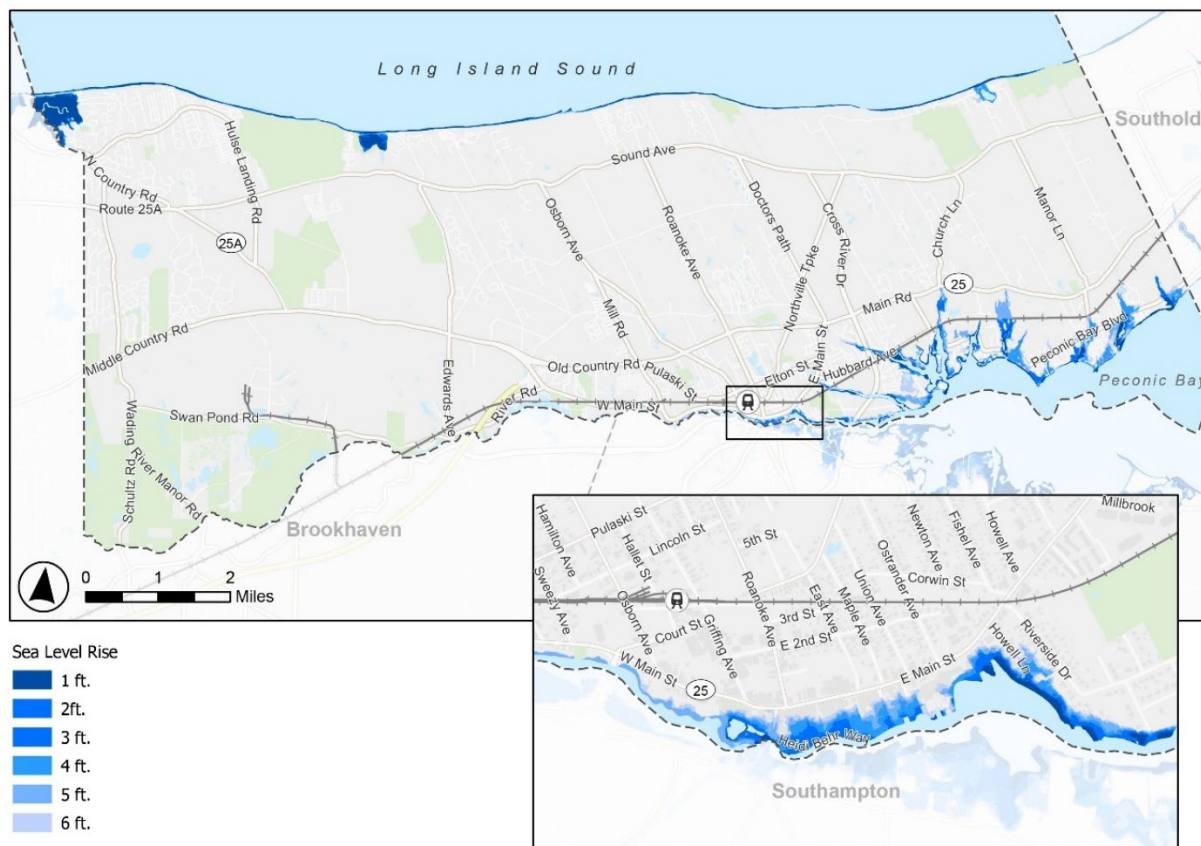
<sup>11</sup> New York State Department of Environmental Conservation, Regulations and Enforcement. Part 40: Projected Sea Level Rise – Express Terms of the Climate Change Regulatory Revisions. <https://www.dec.ny.gov/regulations/103877.html>

11 inches by the 2050s and 21 inches by 2100.<sup>12</sup> A medium projection scenario estimates a rise of 16 inches by the 2050s and 34 inches by 2100. A high projection scenario, which is “very unlikely,” would see six feet of sea level rise by 2100. Figure 3 shows areas at risk based on these various scenarios.

The rise in sea level will most impact low-lying areas in Riverhead that are already subject to flooding. Figure 4 shows how rising sea levels could inundate the riverfront downtown and harm docks, marinas, businesses, and residences along the Peconic Bay.

As sea levels rise, areas like beaches, marshes, and mud flats are affected because nearby developed areas prevent them from shifting and adjusting to sea levels as they would in natural shorelines. Marshes, for instance, usually move further inland as the sea rises, but if manmade structures or steep land prevent them from moving, they can get flooded permanently. This flooding can lead to the loss of plants and animals that rely on coastal habitats.

Figure 2. Sea level Rise



Sources: NOAA, Town of Riverhead, NYS GIS, USGS, BFI Planning

<sup>12</sup> New York State Department of Environmental Conservation, Regulations and Enforcement. Part 40: Projected Sea Level Rise – Express Terms of the Climate Change Regulatory Revisions. <https://www.dec.ny.gov/regulations/103877.html>

## Renewable Energy

New York State has positioned itself at the forefront of the fight against climate change through groundbreaking initiatives such as the Climate Leadership and Community Protection Act (CLCPA) and Reforming the Energy Vision (REV). Enacted in 2019, the CLCPA establishes aggressive targets for carbon neutrality by 2050 and 100% clean electricity by 2040, emphasizing environmental justice. CLCPA requires State agencies, authorities, and entities to direct 40% of the benefits of spending on clean energy and energy efficiency programs to disadvantaged communities. Simultaneously, the REV initiative, launched in 2014, has been driving the transformation of the state's energy sector towards decentralization, resilience, and sustainability. REV provides a renewable energy mandate of 70% by 2030 and 100% zero-emission electricity by 2040. Together, these initiatives showcase New York's commitment to promoting renewable energy and working collaboratively with municipalities, offering a comprehensive framework that integrates environmental responsibility, economic development, and technological innovation.

## Solar Energy

The Town promotes solar energy system installation on residential and commercial buildings. In 2019, the Town launched a Solarize Riverhead campaign, which provided residents with information and resources to help them install solar panels on their properties. The Town has also worked to streamline the permitting process for solar installations and reduce barriers to entry for homeowners and businesses.

Commercial solar facilities are currently limited to industrially zoned lands. In October 2021, the Town Board adopted a 12-month moratorium on commercial solar energy applications. The moratorium was extended by one year and expired in October 2023.

New York State's current agricultural policies allow solar on agricultural properties when it is considered on-farm equipment and when the total amount of energy generated by solar is limited to 110% of the anticipated annual electricity needs of the farm.

The Town Board authorized a 25-year lease agreement with Changing Visions of Energy North America (CVE) to establish a solar energy facility at the former Youngs Avenue landfill, which closed and was capped in 1993. This solar project reactivated an unused asset, generating lease and property tax revenue, cutting town operating expenses for electricity, and contributing to New York's goal of achieving ten gigawatts of distributed solar by 2030.<sup>13</sup> The agreement includes provisions for potential extensions and participation in PSEG Long Island's Community Solar program, offering credit on electric bills in exchange for hosting solar panels. Under the lease agreement, CVE will compensate the Town based on the project's phase for using its land.

## Electric Vehicles

In 2021, the Town partnered with the Long Island Power Authority to install six EV charging stations in downtown Riverhead.

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<sup>13</sup><https://riverheadny.municipalone.com/files/documents/RiverheadLandfill-TownbenefitsSummaagenda215111510042122-091650AMd.pdf>



### **Sustainable Waste Management**

Riverhead's Solid Waste Management Plan (SWMP) promotes sustainable waste management practices to reduce, reuse, and recycle waste and prevent hazardous materials from presenting danger to the natural environment and community. The SWMP and waste management are discussed further in the infrastructure chapter.

The Town's approach to recycling includes single-stream recycling, yard waste collection, e-waste recycling, household hazardous waste collection, and recycling education. The Town also provides educational resources and outreach to promote recycling and waste reduction. The Town's website includes information on what can and cannot be recycled, recycling tips, and educational materials for schools and community groups. As discussed under the initiatives of the CSC Task Force, Riverhead is working on attaining grants for a food scrap program and implementing additional actions for sustainable waste management.

With the foreseen closure of the Brookhaven Landfill (discussed in more detail in the Infrastructure chapter), the Town is exploring new waste management technologies, including biological programs that can produce renewable fuels and byproducts and reduce trucking costs and emissions.

### **Other Resources**

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#### **New York Climate Smart Communities Program (CSC)**

The State Department of Environmental Conservation's (DEC) Climate Smart Communities (CSC) program helps municipalities reduce greenhouse gas emissions and adapt to climate change. Municipalities who take the pledge can choose to complete a suite of actions, organized under "pledge elements," that help them adapt to climate change and earn points towards levels of certification (bronze, silver, gold). Certification opens grant opportunities. Riverhead adopted the State's CSC Pledge in 2020 and, as of 2024, has yet to achieve a certification level.

#### **Environmental Advisory Committee (EAC)**

The Environmental Advisory Committee (EAC) was established in 2018 to advise the Town Board on preserving, developing, and using the natural and constructed environment. They aim to protect and enhance the beauty, quality, biological integrity, and other environmental factors and mitigate threats posed to environmental quality. The mission of the EAC is to facilitate conservation and environmental stewardship by the Town and its residents through education, government policies, and incentives.

#### **Climate Smart Community (CSC) Task Force**

The Town's CSC Task Force is a subcommittee of the EAC. They aim to achieve bronze certification by 2025, followed by silver certification (300 points) in the long term. Bronze certification requires at least 120 points and completion of at least one action under four pledge elements, two mandatory actions, and three priority actions.

The CSC Task Force is actively involved in carrying out the pledge elements and actions of the CSC program. From 2020-2021, the CSC Task Force focused on attaining 80 points in the energy elements of the program, including consumption benchmarking, employee training, vehicle fleet

assessments, and more. From 2022 to 2023, the CSC Task Force focused on Pledge Element 5: Use Climate-Smart Materials Management. These actions address organic waste, recycling, reuse, construction and demolition refuse, and other waste management topics. For example, the CSC Task Force and EAC partnered with the Engineering Department, the Greater Calverton Civic Association, and the North Fork Environmental Council to design, plan, and implement a Food Scraps-to-Compost (on-farm) pilot program. The program yielded a metric ton of vegetative organic resources, which diverted 2,200 pounds of Carbon Dioxide Equivalent (CO<sub>2</sub>e) from the solid waste stream and was introduced back into on-farm soil as an organic content amendment. The CSC Task Force and EAC have partnered with PeconicGreenGrowth.org and the Riverhead High School to further this work.

## Goals and Recommendations

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### ***Goal 1. Reduce greenhouse gas emissions and proactively adapt to climate change.***

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The Town of Riverhead is already encountering significant climate change effects, which are projected to increase. Anticipated impacts include increased temperatures with more spikes and an increase in extreme weather events. In Long Island, climate change impacts will also include humidity, droughts, wildfires, flash flooding, hail, tornadoes, and degraded water and air quality. The severity of climate change impacts depends on society's ability to reduce GHG emissions. New York State set targets for reducing greenhouse gas emissions (GHGs) and uses the levels of GHGs emitted in the year 1990 as a baseline. The first target is to limit annual GHG emissions to 60% of 1990 levels by 2030. By 2050, the State aims to limit annual GHG emissions to 15% of 1990 emissions.

#### **1.1. Achieve Climate Smart Communities (CSC) certification and continue to act on the CSC pledge elements.**

The CSC program from NYS DEC provides a framework for municipalities to reduce greenhouse gas emissions and adapt to climate change by acting on pledge elements (see more information discussed under "Other Resources" above). Riverhead adopted the State's CSC Pledge in 2020 and is working towards achieving CSC Bronze status in 2025, followed by silver status in the longer term. Several recommendations that follow include actions that can help Riverhead accomplish this goal.

#### **1.2. Create a Greenhouse Gas Inventory**

Creating a GHG inventory is one of the first steps toward certification in the CSC Program. The CSC Program recommends that inventories adhere, where feasible, to Local Governments for Sustainability's (ICLEI) U.S. Community Protocol for Accounting and Reporting of GHG Emissions.<sup>14</sup>

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<sup>14</sup> [https://climatesmart.ny.gov/fileadmin/csc/documents/GHG\\_Inventories/ghgguide.pdf](https://climatesmart.ny.gov/fileadmin/csc/documents/GHG_Inventories/ghgguide.pdf)

**1.3. Establish a Climate Action Plan and partner with neighboring communities on a regional plan.**

A Climate Action Plan could be developed in cooperation with other East End towns and partner institutions, such as the Peconic Estuary Partnership. The Plan would evaluate current conditions, assess climate change vulnerability, identify grants, and create an actionable priorities matrix. These actions can include elements of the CSC Program, the Clean Energy Community Program, and other initiatives to set measurable targets.

**Goal 2. Embrace renewable energy sources to achieve the State's targets of 70% renewable sources by 2030 and 100% zero-emission electricity by 2040.**

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New York State has set ambitious targets in its Climate Leadership and Community Protection Act (CLCPA). The State has also mandated a significant increase in its electricity, which must come from renewable sources, as part of Reforming the Energy Vision (REV), requiring 100% zero-emission electricity by 2040. In Riverhead, these programs have helped to bring four solar farms. Battery Energy Storage Systems is another technology that can help to integrate renewable energy while enhancing grid stability. While these projects offer numerous environmental benefits, their implementation can sometimes be met with local apprehensions. Addressing these concerns involves transparent communication, community engagement, and a proactive approach by local authorities and property owners. Riverhead has been proactive in keeping abreast of sustainable technologies and should continue to do so. This plan is a living document, and the Town should continue to evaluate the appropriateness of technological advancements toward a sustainable future.

**2.1. Ensure that renewable energy programs are equitable and promote climate justice.**

The CLCPA (Climate Act) requires State agencies, authorities, and entities to direct funding in a manner designed to achieve a goal for disadvantaged communities to receive 40% of the overall benefits of spending on clean energy and energy efficiency programs. New York's Climate Justice Working Group has developed reports and recommendations to address disparities in the effects of climate change, transition, and mitigation measures on disadvantaged communities. This is one resource the Town can consult to understand how to ensure more equitable outcomes.

**2.2. Become a regional and or state leader by taking more actions in NYSERDA's Clean Energy Communities program.**

Riverhead is a NYSERDA Clean Energy Community (CEC). This program outlines actions communities can take to earn points. The program makes grants available for member communities.

**2.3. Transition Riverhead's utilities to clean energy sources.**

NYSERDA's Community Choice Aggregation (CCA) program allows local elected officials to choose clean energy sources for their community (e.g., wind, solar, etc.). Grants, like the U.S. Department of Energy's Energy Transitions Initiative Partnership Project, are available to help communities transition to cleaner energy.

#### **2.4. Revise solar regulations and incentives to ensure they are compatible with surroundings.**

Commercial solar operations, or solar farms, should continue to be limited to industrially zoned lands. Tightening special permit requirements for solar farms, including reducing allowed coverage and requiring additional buffers and landscaping, would mitigate some of the negative visual impacts of solar farms and subject them to the same zoning standards as other land uses and can provide a level of predictability and conformity with established development patterns.

The Town should encourage rooftop solar in all zones, whether on industrial, commercial, residential, or public buildings. A requirement that commercial or industrial developments of a certain size must consider available rooftop space for solar generation may be implemented. This could reduce demand for ground-based installations and help decentralize installations outside a single hamlet.

#### **2.5. Monitor battery storage safety and technology and revise the code as appropriate.**

Riverhead should continue to work to ensure that proposed battery storage facilities are compatible with surrounding land uses, do not have significant visual impacts or impacts on groundwater, and address emergency and fire safety issues. The Town should follow State guidelines regarding safety protocols and emergency procedures as they become available. The Town should continue to monitor this technology to assess its effectiveness in meeting renewable energy goals.

### **Goal 3. Promote sustainable building practices, landscaping, and design.**

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Buildings are the number one emitter of greenhouse gases through energy use, heating and cooling, and construction. Riverhead is a growing community with more opportunities for development in the future. The community would like to see buildings built today last into the future and reduce environmental impacts through sustainable construction and building practices.

#### **3.1. Strengthen the Town's Building Code with green building standards and improved energy requirements.**

This could include a green building permitting process and incentives to promote energy efficiency, waste reduction, and other sustainability practices. The code should establish a threshold for the size and type of project that triggers additional requirements. For example, for small commercial uses, the requirement could be to use energy-efficient materials, whereas a requirement for a significant industrial/commercial application could be to be U.S. Green Building Council LEED certified or equivalent. The Town should consult the U.S. Green Building Council and the National Association of Homebuilders Green Building Initiative.

The NYStretch-Energy model code provides readily adoptable enforceable language that helps municipalities jump-start energy improvements through more stringent requirements than the State currently requires. Adopting the NYStretch Code is one of the 13 high-impact actions of the Clean Energy Community program.

#### **3.2. Encourage nature-based solutions, eco-friendly landscaping, and green infrastructure.**

Nature-based solutions can help mitigate many of the impacts of climate change and are more sustainable in the long term. Requiring stormwater management, reducing impervious coverage

limits, and promoting green infrastructure and native landscaping can reduce flooding and heat island effects, ensure cleaner air and water, and conserve ecosystems. These ideas are discussed further in the Natural Resources chapter.

### **3.3. Reduce energy and water demand in publicly owned properties and facilities.**

The Town should explore sustainability measures on municipal properties, including installing solar panels, retrofitting municipal buildings with energy-efficient windows, natural heating and cooling features, LED lights, and water and energy-conserving fixtures. The Town should continue to monitor new technologies and state incentives for energy and water conservation measures. NYSERDA and NYSDEC provide funding opportunities to help municipalities reduce energy and water usage. An NYSERDA grant has already helped Riverhead install LED lighting downtown.

A feasibility study should be conducted to identify buildings that are a better fit for rooftop solar, as well as to identify potential sites for solar canopies in parking areas and ground-mount solar installation. Installation of solar would reduce electrical costs and showcase the technology to the public. NYSERDA's Community Solar program, partnered with PSE&G, provides incentives for municipalities and private property owners to identify properties in their community that are underutilized and could be good candidates for a local solar power resource. The Town should consider identifying potential underutilized properties for the NYSERDA and PSE&G Community Solar program. The closed Town landfill site is one example.

### **3.4. Cooperate with regional institutions and non-profits on sustainable practices.**

These institutions have a wealth of climate change and resiliency expertise. One recent initiative includes a pilot project by Cornell Cooperative Extension and Stony Brook University to engage high school students in addressing resiliency and erosion mitigation projects along the coastline between Iron Pier Beach and Meeting House Creek. Brookhaven National Lab has pilot programs to install heat pumps in residences.

### **3.5. Educate the public about sustainable practices and incentives for sustainability initiatives on private properties such as solar panels, electric vehicles, and green infrastructure.**

A public education campaign (pamphlets, website, and programming) can highlight opportunities and benefits of energy efficiency and clean energy measures. The campaign should include information about sustainability incentives and programs for property owners. NYSERDA, PSE&G, National Grid, and other grants are available to homeowners and private property owners interested in installing solar panels. Likewise, NYSERDA and the IRS provide financial incentives for purchasing an electric vehicle. Additional grants are available to homeowners to install green infrastructure, rain barrels, and I/A systems on their properties.

## ***Goal 4. Promote sustainable transportation to reduce greenhouse gas emissions.***

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Automobiles are a leading emitter of greenhouse gases (GHGs). The Climate Act sets targets to reduce GHGs. The MTA has completed the First Mile/Last Mile Pilot Study for Riverhead, which aims to encourage travelers to use alternative modes other than single-use automobiles to access the station. The study recognizes that a significant portion of households within the downtown area (including part of Riverside) have fewer than 1 vehicle on average. The Town is implementing

recommendations from the First Mile/Last Mile Pilot Study, including Complete Streets and Safer Routes for All, through grant funding.

#### **4.1. Promote alternative transportation.**

Public transportation, biking, and walking are excellent alternatives to cars as they reduce traffic congestion and emissions. Complete streets policies and emerging programs, such as the last mile pilot program, are examples of how Riverhead can promote alternatives. The Transportation and Mobility Chapter provides concrete recommendations to improve bike and pedestrian infrastructure and to advocate for improved public transportation in Riverhead.

#### **4.2. Promote infrastructure for Electric Vehicle (EVs).**

The Town could add requirements for EV charging stations at new developments of certain sizes or densities. The Town should continue to seek grants for EV charging stations and infrastructure, including NYS Charging Station Programs and National Electric Vehicle Infrastructure (NEVI) Program, and USDOT Charging and Fueling Infrastructure Program funding

#### **4.3. Adopt a green fleet plan for Town-owned vehicles and equipment.**

Following New York State and Suffolk County's example, Riverhead could transition its vehicle fleet to hybrid, electric, and other more sustainable alternatives through a phased plan. In the short term, the town could address easier targets like transitioning the vehicles used by code enforcement officers and building inspectors, other small cars, and electric maintenance and landscaping equipment (e.g., snow blowers, lawnmowers, hand-held tools). Heavier and more specialized equipment and vehicles, such as police cruisers and DPW trucks, can be replaced as technology improves. NYS REV2030 and NYSERDA programs provide generous grants for the greening of municipal fleets.

Other ways to reduce the impact of Town vehicles include ensuring that trips are efficient, car-sharing, using appropriately sized cars for the job, and educating staff about more eco-friendly habits (e.g., not idling).

### **Goal 5. Reduce waste and promote circular economy waste management practices**

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With the closure of the Brookhaven landfill and the environmental impacts of waste, Riverhead needs to explore alternative solutions to waste management. Solid waste disposal has impacts ranging from pollution to emissions to exhaustion of resources. For example, plastics break down slowly and release PFAS into the environment, organic waste trapped in landfills can release methane gas into the atmosphere, trucking waste to faraway landfills or processing facilities is costly, contributes to GHG emissions, and recycling often uses excessive water and energy.

#### **5.1. Implement recommendation of Riverhead's Solid Waste Management Plan (SWMP) for more sustainable practices.**

Sustainability measures are recommended in the SWMP, such as reducing the volume of glass in the solid waste stream through the promotion of bottle redemption and recycling and encouraging

practices that minimize the use of film plastic, which is difficult to recover. The Town's SWMP can maintain and exceed compliance levels and timeline targets of the CSC Program. The SWMP should be updated on a regular basis and should follow or exceed the NYS DEC's State Solid Waste Management Plan. Solid waste management is discussed in further detail in Chapter 11, Infrastructure and Utilities.

### **5.2. Reduce the use of single use plastics and other wasteful practices.**

Single-use plastics are an especially harmful consumer product that can be regulated. New York State has banned single-use plastic bags and foam take-out containers. However, other products, including plastic cups, cutlery, straws, and packaging, are still in use. The State is currently working on legislation to ban the use of single-use plastics by any entity that receives funding from the State. Riverhead should discontinue single-use plastics in Town facilities and enact regulations to reduce or eliminate their use and sale in the Town.

In addition, the Town and the Public should be mindful of their consumption habits and work to reduce waste volume. To meet this goal, an educational component teaching the public about impacts and sustainable choices is essential.

### **5.3. Continue to provide a recycling program and promote recycling.**

The Town's SWMP encourages the expansion of the recycling program. Recycling is a critical practice to keep resources in productive use and to keep tons of waste out of the solid waste stream. Reduction and reuse are still paramount, as recycling can be costly, require lots of water and energy, and can have byproducts.

### **5.4. Implement and expand a Town-wide composting program.**

Food Scrap Generators are bound since January 2022 to donate usable food and find a composting facility within 25 miles to dispose of remaining food waste. There is a phase-in of all food scrap generators, including K-12 schools and private residences, on a published timetable.

The CSC Task Force and Riverhead have implemented a food scraps program diverting waste from government offices and the senior center and are seeking grant funding to expand. The CSC Task Force partnered with the community on a successful pilot program to enrich farm soils with compost. Continued research should ensure that composting does not introduce outside elements that could harm farm production or contaminate well water.

**5.5. Explore alternative modes of waste disposal that generate renewable energy and useful byproducts.**

The region is exploring biological waste management solutions, including newer technologies such as anaerobic digesters<sup>15</sup> for biodegradable wastes and pyrolizers<sup>16</sup> for construction and demolition waste. Riverhead should continue to monitor evolving waste processing technologies and regional solutions.

**5.6. Promote the reuse of rainwater for irrigation and other purposes.**

Rainwater harvesting is another sustainable option to help reduce the use of freshwater resources. Gutters, rain barrels and catchments direct stormwater to storage tanks where water can be filtered and pumped for uses including gardening and lawn irrigation.

**5.7. Explore innovative methods to repurpose graywater.**

Graywater is lightly used water that is not suitable for consumption but can still be used for other needs. For example, water used for handwashing could be reused in toilet bowls. More research is needed to determine whether graywater is safe to use in irrigation.

**Goal 6. Promote a Green Economy and Green finance, technology, and jobs.**

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Riverhead should invest in training and skill development for green jobs. This can be achieved through strategic partnerships with educational institutions, businesses, and workforce development programs. This initiative not only addresses the pressing need for skilled professionals in renewable energy, environmental conservation, and sustainable practices but also bolsters our local economy by fostering job growth in emerging green industries.

**6.1. Promote EPCAL and industrial sites to green technology and finance companies.**

The IDA and town should be strategic about the development of EPCAL by promoting the site to green technology companies that could provide quality jobs and tax revenues, reduce climate impacts, and attract investment from related companies and into infrastructure.

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<sup>15</sup> Anaerobic digesters break down organic waste, including agricultural debris, food waste, sewage sludge, and manure. The system is sealed to create an oxygen-free environment where anaerobic microorganisms thrive and break down the organic waste into its component parts. Methane and carbon dioxide are released and can be captured as biogas, which is used primarily to fuel heat and electricity. The remaining solids can be used as a rich fertilizer.

<sup>16</sup> Pyrolizers, like anaerobic digesters, use an oxygen free environment to break down waste. However, pyrolizers incorporate heat and can process additional materials, such as plastics. High heat used in the pyrolysis process breaks down materials into their component parts. The output includes gases, liquid bio-oil, and solid bio-char. Each of these can be used as fuels or additives in various applications, including soil amendment, reduction of carbon dioxide released into the atmosphere, water filtration, and as an additive in construction materials. Pyrolysis technology is still being tested, including at a facility in Stoneybrook.



## **Goal 7. Mitigate the effects of flooding, sea level rise, and storm surge.**

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Floodplain maps indicate many areas along the Peconic River, including Downtown Riverhead, are flood-risk areas. Flooding and erosion from storm events are of great concern along the Long Island Sound, particularly near the bluffs. With anticipated sea level rise and increased storm intensity and frequency, responses to flooding and coastal erosion will only become more pressing. Residents have experienced roadway flooding during heavy rain. Some roads identified include Sound Ave, Mill Road, Fresh Pond Avenue at Route 25, and Creek Road in Wading River. This issue is especially problematic in the winter when freezing causes safety hazards.

### **7.1. Continue to implement infrastructure improvements to mitigate future flood impacts.**

The Army Corps of Engineers 2021 Riverhead Flood Plain Management Services provided recommendations for downtown that the Town has begun to implement, including elevating the river bulkhead, riverfront parks, and buildings and improving stormwater interventions. The study found that the bulkhead along the river should be brought up to an elevation of seven feet, the Riverfront parks should be elevated to nine feet, and the minimum finished floors elevation should be at 12.61 feet to ensure the longevity of structures Downtown.- Catch basins and other stormwater improvements should ensure flow out of the Peconic River. These measures should continue to be implemented west of the Town Square, including raising parking areas.

The Town should also Consider updated flood level projections for municipally owned sites. There are various sources the Town can use to estimate projected inundation levels, including flood elevation data illustrated in the NYSERDA's Sea Level Rise Viewer. The Town can use this information to be more proactive about mitigation measures on public property.

Numerous grants are available for resilience projects, including but not limited to FEMA (BRIC, Flood Mitigation Assistance Program, Hazard Mitigation Grant Program, etc.); NYS DHSES (Emergency Management Performance Grant Program); NOAA (Coastal & Marine Habitat Restoration Project Grants, Marine Debris Removal Project Grants), NYSDEC Grants for Climate Action, NYSDEC Grants for Water Protection.

### **7.2. Mitigate flood impacts and coastal erosion in flood prone areas on the Long Island Sound, Peconic River, and inland, through nature-based solutions.**

Nature-based features, such as floodplains, wetlands, and riparian buffers, can mitigate flooding, wave action, and erosion and should be encouraged. Preserving and restoring these natural barriers along the waterfront will help protect people, property, critical infrastructure, and the environment from damage caused by rising sea levels and storms.

Features built near the coast or waterbodies intended to prevent erosion or reduce storm surge or flooding, such as bulkheads, seawalls, breakwaters, and impoundments, are costly and often exacerbate damage to neighboring properties and should be used cautiously.

**7.3. Develop a resilience plan to assess vulnerability by location and identify context-specific solutions.**

Riverhead should assess flood risk and vulnerability of critical infrastructure and the shoreline, research tailored approaches and tools, identify coastal assets and resources that require special protection, and establish an implementation strategy to prepare and adapt to the impacts of climate change. One of the initial steps should be to establish the anticipated degree of sea level rise and the period to be considered for future planning (e.g., the 2050s). This plan can help the Town prioritize resilience measures, which can be costly.

The Town should involve the Peconic Estuary Partnership, Long Island Sound Study, and other regional partners who study climate change and sea level rise and work on mitigation initiatives in the planning process.

**Goal 8. Ensure the safety of Riverhead residents, employees, and visitors in the event of an emergency and strengthen the Town's emergency preparedness.**

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One of the key climate change issues facing the Town is the increased frequency and intensity of extreme weather events, such as hurricanes, tropical storms, and heavy rainfall events. These events can cause flooding, damage to infrastructure, and disruptions to businesses and residents. Riverhead has experienced several significant storms recently, including Superstorm Sandy in 2012, which caused widespread damage and flooding throughout the Town. In response to these events, the Town has been developing emergency response plans and investing in infrastructure improvements to enhance its resilience to future storms.

**8.1. Promote the Hazard Mitigation Plan.**

The Town should ensure that residents and businesses are aware of Suffolk County's Hazard Mitigation plan by providing a prominent link on the website and print copies in Town Hall, the Library, and other accessible locations.

**8.2. Update the Town of Riverhead Hurricane/Severe Storm Emergency Response Plan.**

The Town's Hurricane/Severe Storm Emergency Response Plan was last updated in 2006. An update can incorporate new information and ensure the Plan is sufficient to respond to increasingly severe storm events and projections.

**8.3. Enhance the Town's ability to provide important notifications and increase the public's awareness about emergency preparedness.**

In an emergency, the Town should notify the public by text or phone calls, announcements on local TV and radio, and the Town's website. Messages should include evacuation orders and routes, locations of emergency shelters, and where to find services such as medical care or food and water. The Town should improve the accessibility of emergency preparedness educational materials by including translations and graphics.