



CHAPTER 10: UTILITIES, SUSTAINABILITY, AND RESILIENCE

WORKING DRAFT (9/8/23)

This document is presented in its current form as a preliminary draft for informational purposes only. It is intended to provide an overview of the proposed content and the direction of the Comprehensive Plan. Please note that this draft is subject to further editing, revisions, and updates.

A public meeting is scheduled for September 23rd, during which community feedback will be solicited and considered. Following this meeting, the document will undergo additional refinement based on the input received. This refinement process may include the incorporation of photos, graphics, and other visual elements to enhance clarity and understanding.

As a result, the information contained in this draft may evolve, and new content may be added or modified to accurately reflect the goals, aspirations, and needs of the community. We encourage all stakeholders to provide comments, either in written form or at the Public Workshop, as your input will play a vital role in shaping the final version of the Comprehensive Plan.

We appreciate your understanding of the dynamic nature of this planning process and your active participation in creating a comprehensive plan that best serves the interests of our community.

10 UTILITIES, SUSTAINABILITY, AND RESILIENCE

In an increasingly interconnected world, the seamless availability of utilities is an essential component of a well-functioning municipality. Utilities play a pivotal role in shaping the fabric of our daily lives by providing essential services like water, energy, and communication networks that are crucial in supporting public health, education, and economic growth. However, with the mounting challenges posed by climate change, population growth, and resource constraints, ensuring the sustainability and resilience of these crucial systems has emerged as a pressing priority both locally and on a global scale.

This chapter addresses the physical infrastructure and services that provide basic needs such as electricity and communications, supply networks for fuel, and solid waste collection and recycling. While water supply and wastewater systems are also essential components of the Town's infrastructure, those topics are discussed in Chapter 7, as these systems rely on and interact with various natural elements.

This chapter delves into the dynamic interplay between utilities, sustainability, and resilience, exploring the intricate relationships that govern the perseverance of our infrastructure in the face of evolving environmental realities. The primary goal to be achieved is the assurance of robust, renewable, and reliable services to the population and businesses, done with fiscal efficiency and environmental responsibility.



SUMMARY OF KEY FINDINGS

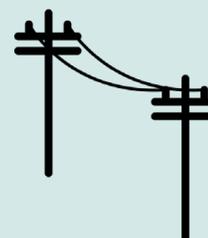
The Island's sole-source aquifer has the capacity to meet the population's water needs for the foreseeable future – but only if it is protected.

Shelter Island has an adequate drinking water supply system, provided for the most part by individual private wells, but water quality is an issue in some parts of the Island, most notably elevated nitrates in the center, saltwater intrusion along the coast, and spot chemical contamination from old gas stations and other sources. Sea level rise will exacerbate saltwater intrusion into the aquifer in low-lying coastal areas of the Island. Securing reliable drinking water for the future will require careful management of a system made up of over a thousand private wells and a thousand private wastewater systems. The distributed nature of both water supply and wastewater treatment makes comprehensive solutions difficult – protecting the town's water supply will require continual, diligent action at all levels. Water supply issues and recommendations are largely discussed in Chapter 7.



Shelter Island's electric and communication infrastructure is vulnerable.

As Shelter Island is an island community, it may be more vulnerable to disruptions in power supply from the mainland, especially during extreme weather conditions. Communications and water availability via pumping are dependent on the availability of electric power. Older infrastructure is more susceptible to breakdowns and may require more frequent maintenance and upgrades to ensure reliability.



SUMMARY OF KEY FINDINGS

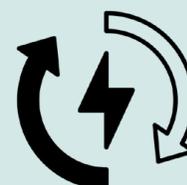
Investment is needed in infrastructure for communications:

The Island has only one internet provider leading to higher monthly costs for residents and inconsistent service.



There are a limited number of green energy installations.

Transitioning to more renewable energy will require participation by individuals, institutions, and the town.



Climate change will see rising temperatures and more frequent droughts, and an increase in the number and severity of storms and flooding.

Sea level rise will increase coastal flooding that will impact waterfront facilities and properties including private homes, coastal roads, harbors and the ferry terminals. It will also change the ecological function and visual character of coastal marshes and mudflats.



EXISTING INFRASTRUCTURE AND PUBLIC FACILITIES

PUBLIC WORKS

Highway & Public Works Department

The Shelter Island DPW is responsible for buildings operations and maintenance; grounds maintenance; solid waste management including recycling, composting/mulching, and household solid waste management; and maintenance of Town-owned parks, beaches, docks and other recreational assets within the Town.

The Highway Department is responsible for fleet services; road and right-of-way maintenance, including repairs, repaving, snow removal, and mowing. The Village of Dering Harbor and the Shelter Island Heights Property Owners Corporation (SIHPOC) manage their own roadways and other assets, sometimes contracting for services with the Town.

Solid Waste Management

The Town of Shelter Island does not provide curbside collection of trash and recyclables but is responsible for solid waste management on the Island. Solid waste, including recyclables, is handled at the transfer station and recycling center on Menantic Road, which is open seven days a week. Town residents can also contract with private haulers for refuse management. The Town is required to update its Municipal Solid Waste Plan every 10 years; the most current plan (2019-2028) is in the appendix to this Plan.

The Town has competitively bid hauling services since 1991 to transfer waste. The Town markets materials from separated recyclables to offset operational costs and is increasing its in-house capacity to bale and haul these materials. All waste and recyclables, except yard waste, are transported off-island via ferry and taken to the Brookhaven Town Landfill—which is scheduled to be closed and capped in 2024. Like other Long Island communities, Shelter Island will have to find another waste facility for its non-recycled waste stream. Household hazardous waste is accepted one Saturday morning a month in the Stop Throwing Out Pollutants (STOP) program. Commercial hazardous waste is not

accepted. The Town is in the process of developing a Local Solid Waste Management Plan (LSWMP), which will include strategies to address issues discussed above.

Since 1992, in order to incentivize recycling, the Town has used a pay-per-bag system for waste and does not charge for recycling. This system is also intended to fund both the cost of waste disposal and the cost to process the recyclables; fees have been periodically adjusted to reflect these expenses. The Town website has information and recycling rules, including for use of the “Goody Pile” area where items that are “too good to throw away” are exchanged.

The Town currently accepts the following recyclables which must be separated: newspaper and mixed paper, cardboard, glass, tin and aluminum cans, and #1, #2, and #5 plastics. Many municipalities have stopped accepting recyclables due to the increasing costs associated with recycling programs and the lack of profitability in the recycling industry. Additionally, the contamination of recyclable materials and the limited market demand for certain types of recyclables have contributed to the decision of many municipalities to discontinue accepting them.

The Town’s Highway Department is responsible for the operation and maintenance of the recycling center and transfer station. Six employees maintain and operate the facilities. The Town also has an extensive yard waste management program, including a yard waste composting operation and a chipping operation for woody materials. Although the Solid Waste Management Plan states that yard waste inflow matches outflow, there is some concern that as the Island approaches build-out, the recycling center will run out of room.

Other materials, which are also source-separated for management, include construction and demolition (C&D) debris, metal, and bulky wastes. Bulky wastes and residual C&D are managed by having them hauled after removal of asphalt and concrete, which is recycled by the Town. C&D glass is ground and used in road repair. The Town also accepts e-waste (electronics). In addition, subject to compliance with “picker” procedures,

residents can pick through the C & D, metal, and furniture recycling piles as well as aluminum cans and glass bottles for redeemables.

Shelter Island's solid waste management program has been very effective over the last 20 years, with the daily average of municipal solid waste reduced from 3.3 tons per day in 2002 to 1.80 tons per day in 2019. Of course, because of the seasonality of the Town's population, the amount of waste produced varies according to the season. The recycling rate for the Shelter Island recycling center is about 88%, compared with the 2013 U.S. EPA national average of 34%. The Town's high proportion of residents over 50 (who typically generate less waste), its acceptance of yard waste throughout the year, and an emphasis on waste reduction practices all influence its positive waste generation rates.

PUBLIC SAFETY AND EMERGENCY MANAGEMENT

Public Safety

The Shelter Island Police Department (SIPD) has a full-time staff of 10 police officers and one full time and one part time police clerk. Chapter X provides additional details on SIPD including police call data and general demands on the department. The Police Headquarters in the Town Center also operates as Shelter Island's Emergency Operations Center. Key operations at SIPD, Town Hall, Justice Court, the American Legion, and the school have emergency power generators.

Fire protection in the Town is provided the volunteer Shelter Island Fire Department (SIFD), operating under and governed by an area fire district. The Fire District is run by five publicly elected, unpaid commissioners who have the power to provide fire protection services within their boundaries, levy taxes, and incur debt. The Fire Department typically responds to 125–150 calls per year. There are about 64 volunteer firefighters on Shelter Island that operate a combined 14 pieces of firefighting equipment. The marine unit also participates in joint training exercises with the Coast Guard and the Shelter Island Police Department.

Emergency medical services are provided by the EMS Ambulance Company, a Town department, which took over responsibility for ambulance services from the Red Cross in 2012. There are 36 volunteers and

three ambulance vehicles available within the Town to respond to emergency situations as needed. In addition to 15 drivers, there are 16 volunteers with Basic Life Support certification, three with Advanced Life Support certification (including one paramedic), and two critical care technicians. Recruiting efforts among young people have been successful, with 10 volunteers aged 22 or younger as of early 2021. As of the 2022 Town budget, EMS Ambulance Company is in the process of hiring its first paid Advanced EMT to cover 12 hours/day, every day.

Emergency Management

The 2020 Comprehensive Emergency Management Plan (CEMP), prepared in accordance with standards of the Federal Emergency Management Agency (FEMA), guides emergency response in Shelter Island. The CEMP describes the management of emergencies within the National Incident Management System (NIMS) and details emergency management programmatic efforts to accommodate present standards. Located in the Police Department, the Shelter Island Town Emergency Operations Center (EOC) is maintained by the Police Department under the Police Chief (as the Town's Emergency Manager) and staffed by Town personnel and partners. The Shelter Island Town Police (all of whom are either EMTs or Certified First Responders) work hand in hand with the Emergency Response Teams from the Shelter Island EMS and Shelter Island Fire Department.

The American Red Cross works with Shelter Island EOC to shelter and care for the population during a disaster situation. The primary shelter is the Shelter Island School, with the Shelter Island Senior Center and the American Legion used as secondary shelters. The Senior Center also functions as a special needs shelter. Residents are encouraged to subscribe to the local Code Red system allowing email, text, and telephone information to residents, as well as reverse "all call" messaging through the 911 database.

ELECTRICAL AND COMMUNICATIONS INFRASTRUCTURE

Power Feeds and Distribution System

Shelter Island's electric power is supplied from the Long Island Power Authority grid by underwater cables that run from Greenport to Shelter Island on the north side and from North Haven to Shelter Island on the south side. Long Island Power Authority utilizes a public-private partnership model and contracts with PSEG to operate the electrical grid.

Prior to Superstorm Sandy, Shelter Island was served by three distribution feeder lines, two from the North Fork and one from the South Fork. During the storm, one of the North Fork feeders was damaged and failed.

A replacement cable was laid from Greenport in 2018 in one of three new underground conduits, leaving two for future backup.

The engineering department completed the engineering specifications for standby generators at the Town Hall complex and Medical Center under a FEMA grant. All town buildings now have emergency generators. To help deal with compromised power during the cable project, an island-wide emergency generator hook-up was installed at the old highway department facility at 12 South Ferry Road. The generators have since been removed but the wiring remains, so we have the option of installing new generators and switches - providing another potential option for emergency back-up power.

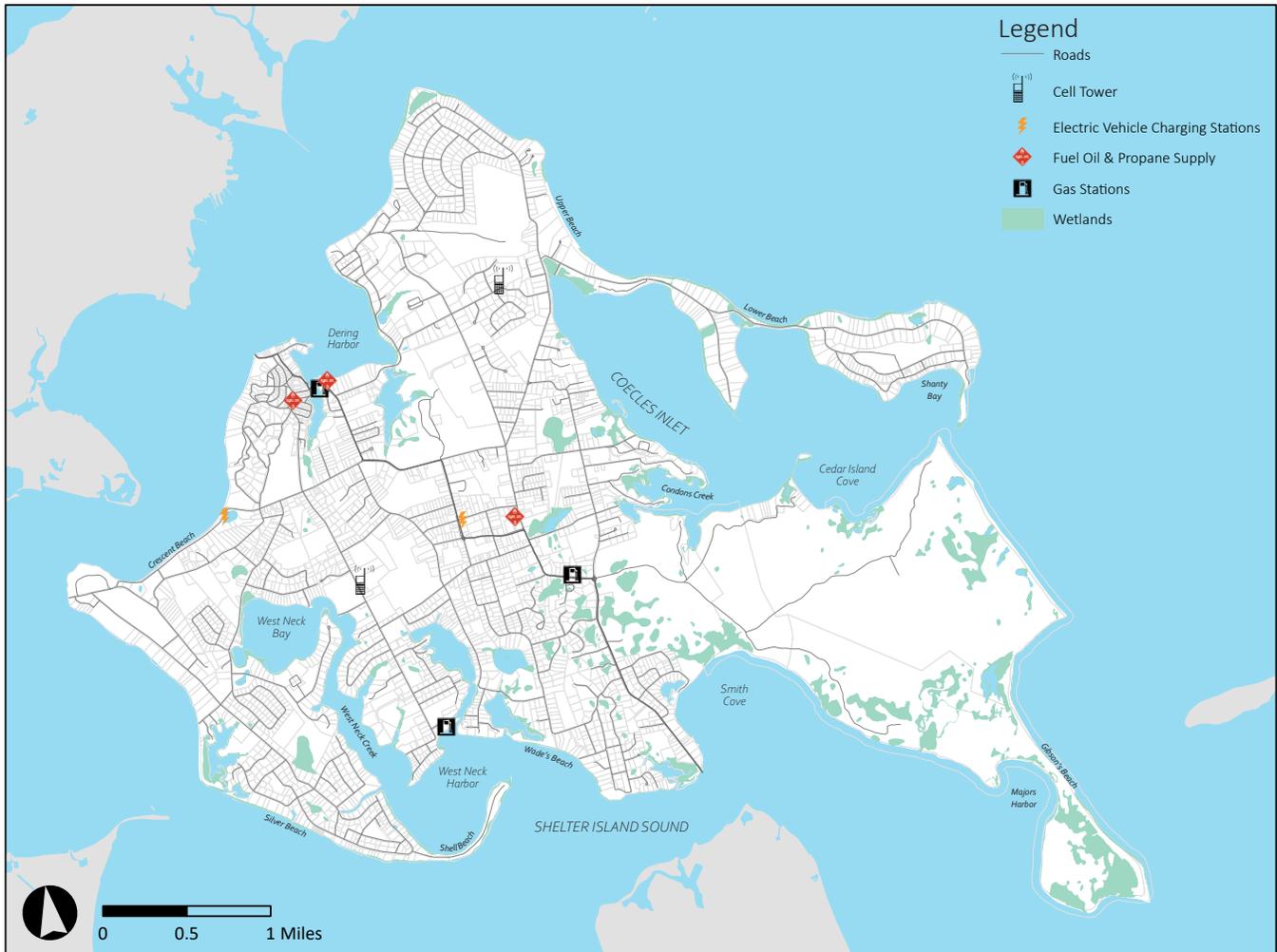


FIGURE 17: POWER AND COMMUNICATION INFRASTRUCTURE

Source: MainStreetGIS, LLC., Suffolk County GIS, and Microsoft

Map prepared by Dodson and Flinker, Inc. and Larissa Brown + Associates, LLC



Shelter Island, through the work of the Green Options Committee, was recently awarded the U.S. Department of Energy's, Energy Transitions Initiative Partnership Project (ETIPP) Grant. The ETIPP grant provides technical assistance opportunities for remote and island communities to evaluate the communities needs and help to develop a plan for access to resilient, affordable, sustainable, and clean energy resources. Shelter Island will receive support for a project scoping phase (approximately one to six months), followed by 12- to 18-month-long energy planning and analysis projects that will respond to the community's own energy priorities, goals, challenges, and opportunities, advance the community's ability to implement strategic, whole-systems solutions, and develop replicable community energy transition approaches that can add value in neighboring communities, or those that share similar characteristics. By participating in ETIPP, Shelter Island will receive substantial support from the partnering national labs in the form of energy analysis and planning and, where appropriate, support for leading-edge technology solutions. ETIPP regional partners also provide general program guidance and education. Shelter Island will not receive direct funding as part of the ETIPP program, but will be connected with experts in the field.

Communications

Shelter Island has traditional phone service supplied by Verizon. Optimum provides cable, internet, and internet-based phone service. Underwater cables from both forks of Long Island bring these utilities to the Island to be distributed via a cable network. In addition to traditional land-line telephone service, Verizon offers DSL internet service over the same lines. The Town negotiates a franchise fee for Optimum's cable and internet service which is without any competition, and some residents have found the service to be lackluster. To characterize Optimum as being without competition is, however, slightly misleading as the streaming services continue to eat into cable TV subscriptions and cell companies such as T-Mobile add internet capability to their networks.

There are two cell towers utilized by various carriers to provide service to the Island, one at the recycling center and a second, installed in 2018, at the Potato Barn Fire Station on Cobbetts Lane. Both cellphone and internet

service are said to be slow and uneven on parts of the Island especially during the summer months, and expensive.

Green Energy and Initiatives

Green energy is a priority for Shelter Island. Research and planning recommendations are carried out by the Town's Green Options Committee. Construction on the Island is governed by the New York State Energy Conservation Code. To date, a small percentage of homeowners have installed residential solar. There has been no development of central station solar or wind energy generating plants on the Island. Many residents have purchased electric or hybrid vehicles. There are two charging stations for electric vehicles adjacent to Police Headquarters, two at the Nature Conservancy's Mashomack Preserve Visitor Center and a destination charger at Sunset Beach Hotel. The library is currently pursuing a grant that will allow them to install a charging station on their property. When at all feasible the Town is opting to purchase electric vehicles for town use.

Shelter Island should support the New York State goals of 70% of electricity from renewable energy by 2030 and 100% renewable electricity by 2040 through the promotion, installation, and use of renewable technologies. We should also support the Federal goal of net zero emissions by 2050. Long Island Power Authority/ PSEG LI has installed an off-shore wind farm, built New York's three largest utility-scale solar farms, and developed the state's first utility-scale battery project. Concurrently with the emissions goals, we want to ensure we maintain or enhance electric system reliability on both an individual customer and Island wide basis while maintaining downward pressure on resident and business energy costs.

The town was hoping to construct a solar power project at the capped landfill, but necessary modifications to the cap were rejected by NYDEC. However, all is not lost as the town is currently planning to install solar panels on the new roof at the Recycling Center to power the recycling equipment.



FUEL SUPPLY

Household Fuel Supply

Fuel oil and propane, the primary household fuels, are delivered in bulk to Shelter Island homes and businesses by two Shelter Island vendors: J.W. Piccozzi's Fuel Oil and Propane and John's Gas Service. Their storage facilities are located on Bridge Street and St. Mary's Road, respectively. Some households utilize off-Island vendors. Small propane tanks (for example, for BBQ grills) are refilled at the Bridge Street gas station, Shelter Island (ACE) Hardware and John's Gas Service.

Vehicular Fuel Supply

There is one active gas station for road vehicles on the Island and that is Piccozzi's Mobil Station on Bridge Street. Boaters can get gas and diesel at the Island Boatyard on the south side of the Island and at Piccozzi's on the north side. Coecles Harbor Marina only sells diesel.

WATER SUPPLY AND WATER QUALITY

A summary of the Town's water supply is provided in Chapter X: Natural Resources and Water Quality. The discussion includes information provided in the 2020 Ground and Surface Water Management Plan prepared by the Town of Shelter Island Water Advisory Committee. The Ground and Surface Water Management Plan is intended to be the Island's strategic plan for ground and surface water management, and it is the primary resource for such issues. The document is officially part of the Comprehensive Plan and has been incorporated as an appendix to the main document. Chapter X also includes information from two guiding documents for water resource management in Suffolk County: the Suffolk County Comprehensive Water Resources Management Plan (2015) and the Suffolk County Sub watersheds Wastewater Management Plan (SWP)(2020).

In general, four water supply systems on Shelter Island provide approximately 10% of the estimated total water demand. The remaining water demand is sourced from approximately 2,300 private wells. These small-capacity well pumps are typically located on private property and draw supplies from the Upper Glacial aquifer. An increasing inability to source potable water on private

property in some locations has led the Town, in special cases, to permit a homeowner to move his/her well onto adjacent Town property. Many residents have found the need to install water treatment systems to attain acceptable water quality. A full discussion of issues related to water quantity and quality can be found in Chapter X.

Sanitary Wastewater Disposal

A summary of sanitary wastewater systems is provided in Chapter X: Natural Resources and Water Quality. This discussion is inherently linked to water quality as the Island's water quality is threatened by nitrate contamination from septic systems, saltwater intrusion, and other pollutants. As is the case on much of Long Island, the majority residential and commercial sanitary wastewater disposal is through the use of privately owned, on-site septic or disposal systems. There are approximately 2,400 on-site disposal systems on Shelter Island, including cesspools, septic systems (septic tank with leaching pools), or I/A OWTS. Shelter Island Heights is the only area of the Island that has a sewer system and sewage treatment plant. The Town's engineering department has studied the possibility of consolidating wastewater treatment for municipal buildings in the Center, that study is ongoing.

SUSTAINABILITY AND RESILIENCE

STORM WATER MANAGEMENT

Much of the stormwater that falls on Shelter Island is absorbed into the ground. However, stormwater that falls on impervious surfaces like roads and parking lots can run off into sensitive areas and needs to be managed. Climate change will likely increase both yearly rainfall and the intensity of individual storms, necessitating further changes to stormwater management systems. A Municipal Separate Stormwater System (MS₄) is “a publicly owned conveyance or system of conveyances (including but not limited to streets, ditches, catch basins, curbs, gutters, and storm drains) that is designed or used for collecting or conveying stormwater that discharges to surface waters of the state” (NYDEC). A 1990 federal law established the National Pollutant Discharge Elimination System (NPDES) which requires every community to maintain an MS₄ permit showing how it will protect water bodies from polluted stormwater runoff. Under Phase II of the regulations, adopted in 1999, smaller communities like Shelter Island were brought into the system.

On Shelter Island, the MS₄ consists of approximately 400 catch basins designed to capture runoff and guide it away from roadways and parking areas (see map showing structures that have been digitized to date). Many of these are fed into leaching catch basins that prevent the water from running off into the bays and creeks, but many others still connect to outfalls. Maintenance of catch basins can be a challenge. Runoff that previously collected in low points along 114 is diverted to the street due to curbing.

The loss of natural low points to development and site improvements has reduced the amount of natural filtration and recharge that is occurring. As part of its Municipal MS₄ compliance program, the Town is working to eliminate all outfalls into the Peconic Estuary, which would allow the Town to qualify for an exemption to MS₄. This could include installation of bioretention systems that use biological mitigation to reduce runoff pollution.

In addition to piped outfalls, stormwater controls need to be installed at the foot of roads that terminate at the water’s edge, at boat ramps and town landings. The

engineering department has completed a conceptual design for control of runoff from the Town golf course onto West Neck Road, but much more engineering is needed. The department also assisted with assessment of the Town’s salt storage barn, and improvements have been made that will ensure that stormwater will not wash salt contamination into the aquifer from the storage area.

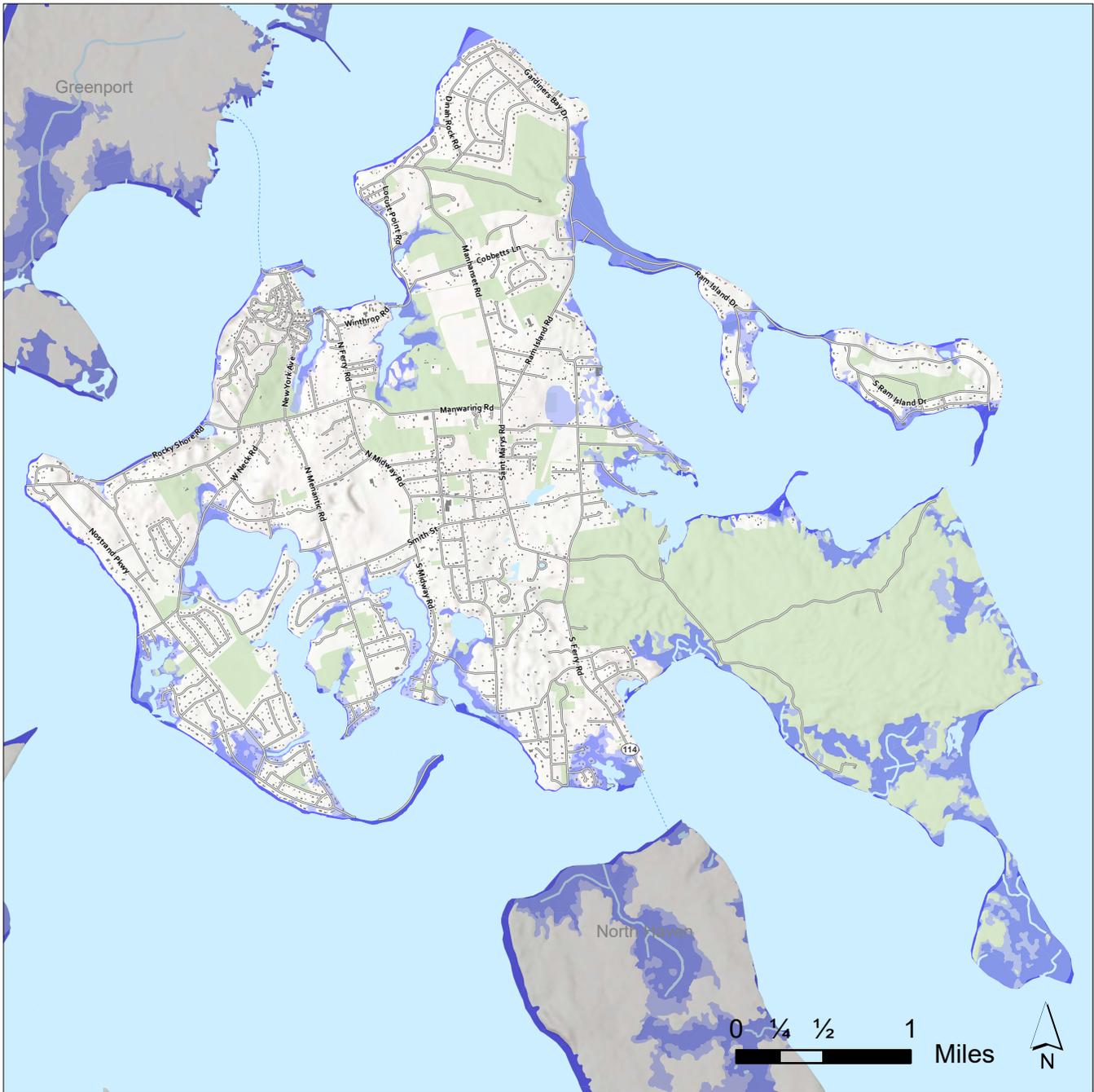
CLIMATE CHANGE AND SEA LEVEL RISE

New York State has prepared projections by region of climate change and sea level rise in three different scenarios (low, medium, high) for use in community resilience planning. In Region 4, which includes Shelter Island along with the rest of Long Island and New York City, the middle range climate change scenario suggests an increase in average annual temperature of 4.1 to 5.7 degrees Fahrenheit by 2050. This has important implications for Shelter Island. Under this scenario, the Island can expect the following changes:

- Higher Average Temperature: over the next decade, the average temperature is likely to rise anywhere from 2 to 3 degrees Fahrenheit.
- More Hot Days: twice as many days over 90 degrees F, and more than twice the number of heat waves by the 2050s.
- Fewer Cold Days: 14 fewer days below freezing by the 2050s.
- More Severe Storms: an increase in extreme precipitation events.

Rising Sea Levels

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. Of perhaps greater concern, the rate of sea level rise measured from 2005 to 2019 was double the



- 500-Year Floodplain (X-Shaded)
- 100-Year Floodplain (AE, AO)
- 100-Year Floodplain with Velocity Wave Action (VE)

FIGURE 18: HIGH FLOOD RISK AREAS

Source: FEMA

rate during the 20th Century. Sea level rise is caused by the melting of glaciers and ice sheets, combined with thermal expansion of ocean water as it warms.

NOAA, along with a host of scientists at universities and nonprofit groups, has been modeling the potential for future sea level rise for many years. To provide a shared basis for planning and regulation in New York State, in 2014 Governor Cuomo signed into law the Community Risk and Resiliency Act. The intent of the law is to ensure that state permits and expenditures consider climate risk, including sea-level rise, and that projections be 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. The resulting table of probabilities for sea level rise on Long Island is shown in the following table.

Sea Level Rise Impact on Shelter Island

Low-lying areas on Shelter Island are already subject to flooding, as shown by the map of existing floodplains, which is based on data from the Federal Emergency Management Agency (FEMA). The map displays data from FEMA's National Flood Hazard Layer dataset, organized by recurrence interval. The "100 Year Floodplain," an area with a 1% annual chance of flooding, is shown in blue. The FEMA Velocity Zone, or Coastal High Hazard Area, is shown in purple, an area with a 1% annual chance of flooding with damaging waves of 3 feet or greater. The "500 Year Floodplain, an area with a 0.2% annual chance of flooding, is shown in orange. The impact of sea-level rise will be most pronounced in areas that are already subject to flooding, as defined by FEMA. The greatest potential impact of flooding is around the bays and harbors, and along the low-lying coast of the Mashomack Preserve and the Ram Island Causeway. The high ground on the northwest side of the Island is not as vulnerable.

Sea level has already risen a foot in the last century and could rise another 1-2 feet in just the next 20 years. The projected floodplain maps shown on the following pages show how existing floodplains will change as sea-level rises over coming decades (additional scenarios using the same data may be explored at: <https://services.nysed.gov/SLRViewer/default>). The map of floodplains with 18 inches of sea level rise illustrates how areas already subject to flooding will be inundated more frequently, while the potential for flooding expands into adjacent

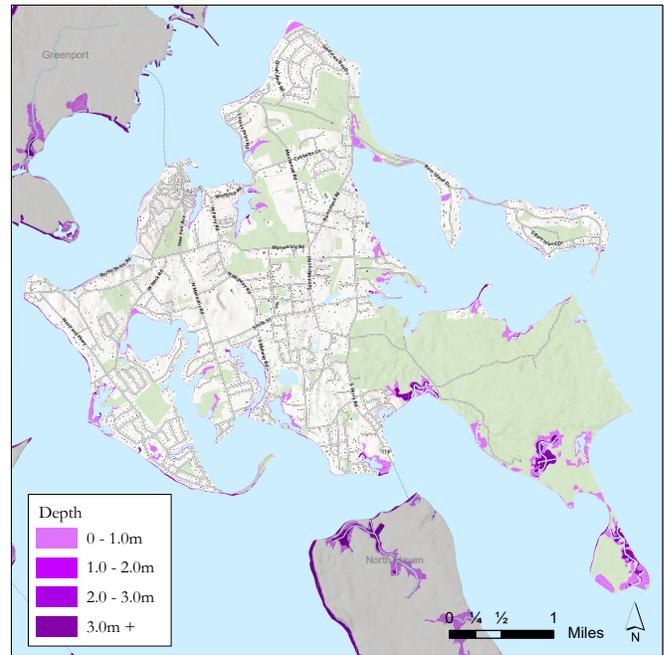


FIGURE 19: SEA LEVEL RISE (1 FOOT)

Source: NOAA

areas. With 36 inches of flooding, possible sometime between 2060 and 2100, floodplains expand further inland. This will likely be felt most severely in areas where roads, docks, and marinas are close to the water. Impacts on existing homes and businesses will be concentrated in Dering Harbor, Coecles Harbor, and West Neck Harbor, while most existing homes will remain safely above flood level. Ram Island will become a true island more frequently as flooding of the causeway becomes more common.

The particular impact on beaches, marshes, and mud flats as sea level rises is expected because development of the adjacent upland areas leaves no room for them to shift inland. In an undeveloped shoreline environment, the beaches and dunes are in constant motion, reacting to wind, tide and changing sea levels. Marshes form in the intertidal zone and normally shift inland gradually as sea level rises as they have for centuries. If the inland edge of the marsh is too steep, or has been hardened or otherwise bulkheaded, the marsh has no place to go and is permanently flooded – and the plant and animal communities that once thrived there will disappear.

GOALS & RECOMMENDATIONS:

Goal 10-1: Ensure that all Shelter Island residents have ready access to drinking water that meets all applicable local state and federal standards.

Continue to implement the Ground and Surface Water Management Plan.

Shelter Island's Ground and Surface Water Management Plan is intended to be the Island's strategic plan for ground and surface water management, and it is the primary resource for such issues. The Ground and Surface Water Management Plan is officially part of the Comprehensive Plan and has been incorporated as an appendix to the main document. The Plan identifies a series of recommended implementation actions to be taken over period of 0-5 years, 6-10 years, and 11 years and beyond. While several of the recommendations can and should be acted on immediately, others need to be further developed through a robust stakeholder engagement process.

Recommendations in this Comprehensive Plan that address water supply and quality can be found in Chapter X in Goals 1-7. The recommendations are listed below:

- Continue to implement the Ground and Surface Water Management Plan.
- Consider establishing an Island-Wide Wastewater Management District, or local community districts.
- Continue to plan for a centralized wastewater treatment plant to serve effluents from municipal buildings in Town Center.
- Partner with the Shelter Island Heights Property Owners Corporation to upgrade the existing sewer plant in the Heights, provide service to other areas, and explore alternative methods of disposing of the treated effluent.
- Create a phased Master Plan for public water utility service on Shelter Island.
- Educate the public on the water quality in their area and encourage testing of private wells
- Develop an incentive program for residents to test their well water and share the data with the Town for the purpose of establishing groundwater quality mapping.
- Continue the grant program for I/A System installation.
- Develop wellhead protection zoning for the area of recharge for the wells of each of the public water systems.
- Implement source water protection programs that identify vulnerable areas around wells and other groundwater sources.
- Revisit the Town's I/A OWTS code.
- Address issues and risks of underground fuel oil storage
- Implement water use restrictions as indicated in the drought monitoring criteria established by the Water Advisory Committee (WAC)
- Evaluate policies which address use of irrigation
- Begin development of a groundwater model
- Improve education about water conservation and landscaping best practices
- Reduce the discharge of volatile organic compounds and other contaminants to groundwater through education and Town Code modification.
- Provide upland storm water catchment detention and recharge infrastructure to better control stormwater runoff and to reduce contamination of ground and surface waters.
- Continue to monitor health of surface waters

Goal 10-2: Promote renewable and environmentally responsible utilities

Establish a small group to investigate means of creating greater energy independence and resiliency for the Island.

Shelter Island, through the work of the Green Options Committee, was recently awarded the U.S. Department of Energy's, Energy Transitions Initiative Partnership Project (ETIPP) Grant. This grant connects the Town with professionals in the energy field to evaluate the community's needs and to help develop a plan for access to resilient, affordable, sustainable, and clean energy resources. Membership in this group should include representatives from the Green Options Committee, the Public Works Department, the Town Engineer, and one or 2 Town Council members. This group should be in contact with PESG/LIPA and should also participate in regional energy planning initiatives and programs. Energy resiliency questions that need to be addressed are:

- What are the contingency plans for a failure of the transmission line(S)?
- For demand side planning purposes, what is the peak summer demand and how has it changed/ increased?
- For reliability enhancement, determine the outage profile (number and duration) over the recent past (10 years).
- Identify areas where electricity transmission is less reliable and more vulnerable.
- While the Town buildings have emergency power, most homes and businesses at this point don't. What is best use of resources to assist during power outages?

Once these questions are addressed, the group should direct the Green Options Committee to draft and present to the Town Board a plan for Stage 2 which will include tactics to support the above objectives Island wide within the time frame specified. The Town should then meet with LIPA/PSEG to identify relevant data to aid in the

development of the Stage 2 plan so that it is consistent with above objectives while maximizing the value to Town residents.

Encourage the use of renewable energy sources

Electricity demand will increase as people move from gas-powered to electric vehicles, gas stoves to electric stoves, and oil to electric heating systems. The Town should continue to embrace sustainable energy sources such as solar, wind, and other renewable sources. Community Choice Aggregation (CCA) for renewable energy purchase is being evaluated by the Green Options Committee. Approved by the NYS Public Service Commission in 2016, CCA allows individual communities to aggregate their demand and negotiate a fixed-rate energy supply with multiple energy providers. CCAs can lower costs and allow communities to channel their energy dollars towards renewable sources. There have been recent updates to the program and the Green Options Committee is following them closely and will present recommendations to the Town Board as appropriate.

Evaluate use of geothermal energy

While geothermal is generally considered to be an environmentally friendly and sustainable energy option, it can present a risk to the aquifer. The Town should work with property owners to get well construction data on existing geothermal systems, including total depth and estimated range of thickness, yield, drawdown, soil strata, saltwater interface. Depending on the analysis of data collected on existing systems, a sunset provision should be considered to phase out some or all of the open loop systems over a period of time and upgrade closed loop systems with current technologies.

Goal 10-3: Take action against climate change by reducing energy consumption and promoting sustainable patterns of development

Promote sustainable construction and design standards

Sustainable development means protecting the resources and systems that support us today so that they will be accessible to future generations. In order to do this, the Town should adopt and enforce land use policies that reduce energy consumption, generation of waste, and promote sustainable construction methods (i.e. for new construction and remodeling projects). This could include provision in the zoning code to promote sustainable construction methods, including consideration for adding green building standards and providing incentives for sustainable construction processes. The Town can consult green building standards, including the U.S. Green Building Council LEED Standards and the National Association of Homebuilders Green Building Initiative. Examples of standards are consideration of site orientation and design to reduce energy consumption; use of low-energy fixtures, water-saving fixtures, and other appliances; use of natural light through building design; and use of LED lights instead of incandescent ones. The Town should revisit the prohibition of ground mount solar panel arrays to encourage more solar installations.

Continue to improve the energy efficiency of Town facilities and fleets.

The Town should also encourage sustainable development policies on its own facilities and assets that minimize waste and energy use. This could include the following:

- Conducting energy audits of all Town owned buildings, reviewing those audits and, where appropriate, implementing their recommendations.

- Obtain cost estimates in order to evaluate the installation of solar on Town buildings as well as a heat pump system for district heating and cooling of Town buildings.
- Develop infrastructure for charging electric vehicles

Goal 10-4: Promote sustainable transportation alternatives

Explore the possibility of an electric vehicle charging station at the Town recycling center or other locations.

Shelter Island should embrace opportunities to reduce greenhouse gases (GHGs) by encouraging alternative modes of transportation and energy. The Town can support the transition from gas-powered to electric vehicles by providing electric vehicle (EV) chargers in public spaces such as schools, libraries, community centers and public parking lots. Another opportunity would be to install an EV station at the Town recycling center.

Goal 10-5: Prepare for and adapt to the effects of climate change and rising sea levels

Develop a Coastal Resilience Plan.

Developing a coastal resilience plan would require a comprehensive and collaborative approach. The plan should assess the unique challenges and vulnerabilities on Shelter Island while aiming to enhance the community's ability to adapt to and recover from various environmental and climate-related hazards. Here are some key strategies to consider when developing a coastal resilience plan for Shelter Island:

- **Vulnerability Assessment:** Asses the Island’s coastal vulnerabilities, including from sea-level rise projections, storm surge risks, erosion, and risks to critical infrastructure and natural habitats.
- **Community Engagement:** Involve residents, businesses, local organizations, and government agencies in the planning process to gather input, build awareness, and ensure that the plan reflects the needs and concerns of the Island’s diverse stakeholders.
- **Integrated Land Use Planning:** Implement land use planning strategies that reduce exposure to coastal risks.
- **Natural Infrastructure and Ecosystem-Based Solutions:** Promote the preservation and restoration of natural coastal ecosystems, such as wetlands, dunes, and coastal forests, which provide vital protection against storm surges and erosion while supporting biodiversity and ecosystem health.
- **Infrastructure Resilience:** Assess and enhance the resilience of critical infrastructure, including roads, bridges, water and wastewater systems, and emergency services.
- **Green and Gray Infrastructure:** Employ a mix of green infrastructure (natural elements) and gray infrastructure (engineered solutions) to manage stormwater, reduce runoff, and improve coastal resilience.
- **Emergency Response and Preparedness:** Develop and communicate clear emergency response and evacuation plans for coastal hazards such as hurricanes, storm surges, and flooding.
- **Coastal Monitoring and Data Collection:** Establish a robust system for monitoring coastal changes, sea-level rise, and weather patterns.
- **Long-Term Financing and Funding:** Explore opportunities for funding through grants, partnerships, and potential cost-sharing mechanisms to support the implementation of resilience measures.
- **Climate Education and Outreach:** Promote educational programs that encourage sustainable behaviors and community involvement in resilience efforts.

Goal 10-6: Assure that community facilities provide adequate service to the population and businesses over time, in a fiscally efficient way that positively contributes to the Island’s character.

Develop homeowner manual

Developing a homeowner manual to provide education on property waste removal, septic maintenance, water/well maintenance, irrigation, and related topics can be highly beneficial for homeowners. It equips homeowners with the necessary information to promote sustainable practices, protect their property, ensure safety, and enhance the overall quality of life in their homes. It also helps homeowners to take an active role in property maintenance, make informed decisions, troubleshoot minor issues, and engage with professionals more effectively when needed.

The manual could provide information on the following:

- **Proper Waste Removal:** This would address regular waste removal as well as recycling, composting, and hazardous waste. This knowledge helps homeowners minimize their environmental impact and comply with local waste management regulations.
- **Septic Maintenance:** Regular maintenance is crucial to prevent issues such as backups, odors, and groundwater contamination. The manual would provide guidance on septic tank maintenance schedules, proper usage of the system, and signs of potential problems.
- **Water/Well Maintenance:** Homeowners with wells need to understand how to maintain and monitor their water supply. This would include information

on well maintenance, including testing water quality, well pump care, and preventive measures against contamination. Consider partnering with the real estate industry to assist in distributing homeowners manuals and educational materials to new homeowners.

- Irrigation: Efficient irrigation practices are essential for water conservation and maintaining healthy landscapes. This would educate residents about current regulations and proper use of irrigation systems, including scheduling, water-saving techniques, and regular maintenance.

Harden and Improve Communications Systems

Establishing municipal internet service that is cellular-based can provide reliable and accessible internet connectivity to residents and businesses. By leveraging cellular technology, the Town can offer broadband internet coverage without relying on traditional wired infrastructure. While the upfront costs may be daunting, the service may be a way to lower costs for residents over time.

The first step would be to conduct a feasibility study to assess the technical, financial, and regulatory aspects of implementing a cellular-based municipal internet service. The study should analyze the coverage area, estimated demand, potential revenue streams, and the costs of infrastructure deployment and maintenance. The Town should also collaborate with existing cellular network carriers to explore the possibility of sharing infrastructure or leasing network capacity. Such public-private partnerships can reduce initial investment costs and accelerate the deployment of the service. The Town can also leverage their expertise and resources in building and managing the cellular network.

Continue to improve recycling center and waste management systems

The anticipated closure of the Brookhaven landfill poses significant waste management challenges for Shelter Island as well as other easterly towns on Long Island. The closure creates a need to find alternative solutions for waste disposal, which may involve increased transportation costs and logistical challenges associated with transporting waste to other facilities outside the

area. These costs can potentially impact local budgets and may result in increased taxes or fees for residents. The following are key issues for the Town to address in the short- and long-term:

- Recycling and waste reduction: The closure of the landfill underscores the need for effective recycling and waste reduction programs. By reducing the amount of waste generated and increasing recycling rates, the Town can alleviate the burden on traditional waste disposal options. Implementing comprehensive recycling programs and promoting waste reduction initiatives can help mitigate the impact of the landfill closure and move towards a more sustainable waste management system.
- Integration of renewable energy and other new technologies: The Town should identify ways to offset energy consumption and reduce reliance on fossil fuels, contributing to long-term energy savings. One method would be to install renewable energy systems, such as solar panels or wind turbines, to generate clean energy onsite. The Town can also implement waste heat recovery systems to capture and reuse heat generated during various processes. This captured heat or methane gas can be utilized for space heating, water heating, or to power other processes, reducing the need for additional energy inputs. The Town should also consider use of new technologies such as those using compaction and controlled high temperature burning of vegetative (stumps, brush, wood chips) and animal waste.
- Collaborative solutions: The closure of the landfill necessitates collaborative efforts between the affected towns, local government authorities, waste management companies, and community stakeholders. Working together, they can explore innovative waste management strategies, such as waste-to-energy facilities, composting, or regional partnerships for waste disposal. This could include participation in regional workshops which cover material disposal. Collaborative approaches can leverage collective resources, expertise, and shared infrastructure to address waste management challenges more effectively.

- Public education and awareness: It is crucial to educate the public about the closure of the landfill and the importance of responsible waste management practices. Increasing public awareness about recycling, proper waste sorting, and waste reduction strategies can help reduce the overall waste stream and enhance recycling participation. Public education campaigns can also inform residents about alternative disposal options and the potential impacts of improper waste disposal.
- Long-term planning: Long-term planning helps ensure that the Town can adapt to evolving waste management needs. A comprehensive waste management plan should consider the landfill closure with strategies for sustainable waste disposal, recycling, and waste reduction. The plan would assess the added expense of wet garbage disposal when the landfill closes.
- Resource Coordination: The recycling coordinator collaborates with local waste management companies, recycling facilities, and recycling vendors to facilitate the proper disposal and recycling of collected materials.

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Consider appointing a Town Recycling Coordinator to further increase recycling opportunities in Town.

This role would help to promote recycling efforts, waste reduction, and overall sustainability within the town. The specific tasks and responsibilities would depend on the resources available, but could include:

- Program Development: Develop and implement recycling programs tailored to the town's needs and resources.
- Public Education and Outreach: Educate and engage the community on recycling practices.
- Collection and Logistics: Oversee logistics of recycling collection including coordination with waste management companies or municipal crews to ensure regular and efficient recycling pick-up. It would also include coordination with these groups to facilitate the proper disposal and recycling of collected materials.
- Waste Management and Analysis: Track and analyze data to identify areas for improvement and to measure the success of recycling programs.
- Grant Writing and Fundraising: Work with government agencies and stakeholders to advocate for improved recycling policies and incentives and to secure resources for expanding programs