

Town of Shelter Island

# Ground and Surface Water Management Plan

*One Island - One Water*



Prepared By:

Town of Shelter Island Water Advisory Committee

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*The members of the WAC wish to acknowledge:*

*The vision and leadership of the current and previous Town Boards and our Town Engineer, who have worked hard to protect our ground and surface water resources.*

*The USGS, New York State and Suffolk County agencies, Stony Brook University, and the Suffolk County Water Authority for their ongoing technical support.*

*The Nature Conservancy for their continued assistance and support of water resources protection, and those who participated in the Nature Conservancy's 2019 Water Leaders Training. Several of the recommendations in this report resulted from that training event.*

*The many people of Shelter Island who have volunteered their time and expertise over the years to protect our ground and surface water.*

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## 1.0 Purpose and Scope

This Plan presents the current status of Shelter Island’s aquifer, the threats to it as a drinking water source for the Island in the short and long-term, and its impacts on surface waters contained within and adjacent to the Island. A vision for the future is embodied in four, strategic, “Key Outcomes” that describe desired future states. A series of recommendations for actions to be taken over period of 0-5 years, 6-10 years, and 11 years and beyond, to ultimately achieve each of the Key Outcomes is also included in this Plan.

While several of the recommendations can and should be acted on immediately, others need to be further developed through a robust stakeholder engagement process. This Plan is intended to be the primary resource document to support that process. Once modified by stakeholder input, this Plan is expected to serve as the Island’s Strategic Plan for Ground and Surface Water Management and to be incorporated into the Town’s Comprehensive Plan update.

An ongoing planning process is envisioned that will include an annual review of this Plan and the Key Outcomes and recommendations, and creation of an Annual Plan describing those specific actions that need to be taken in the given year to move toward the Key Outcomes. There are many external entities working on groundwater and surface water challenges and opportunities and it will be important to integrate their work into future revisions of this Plan. The Annual Plan will assist the Town Board in the planning, prioritizing, and budgeting processes and in assigning responsibilities for completion of the actions.

## 2.0 Background

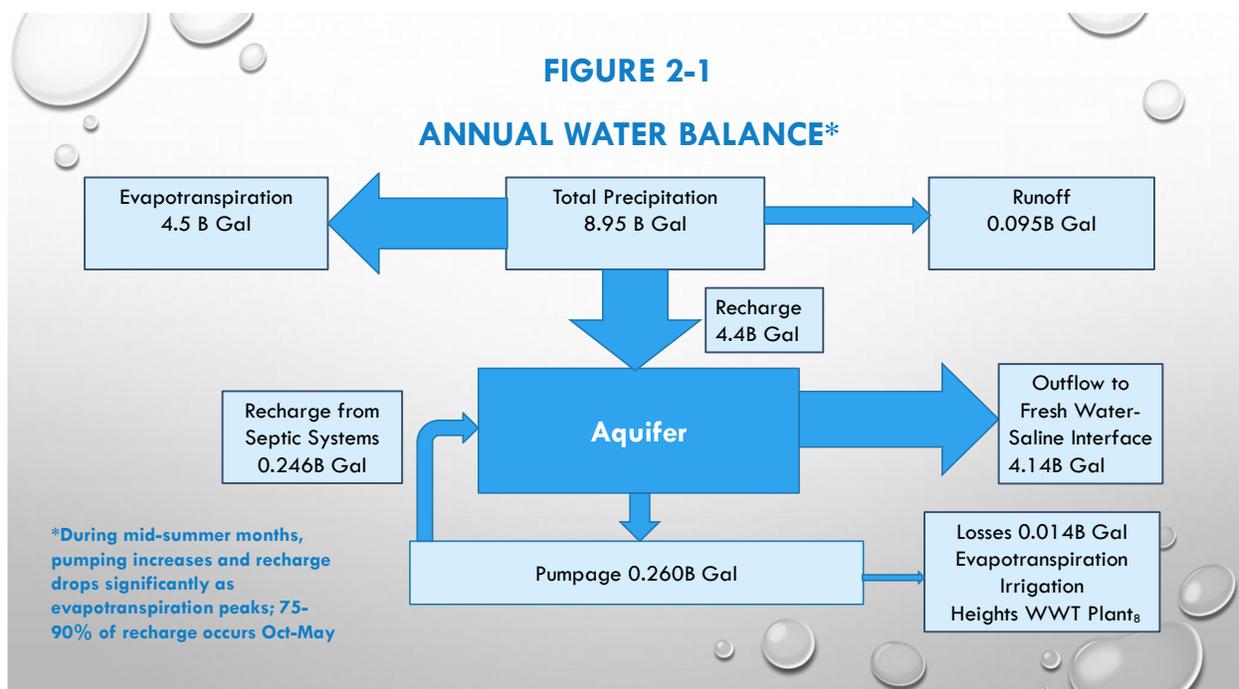
Shelter Island’s groundwater resource consists of a single aquifer, isolated from groundwater aquifers on the mainland of Long Island’s north and south forks. Unlike the typical hydrogeology of central and eastern Long Island where there are typically three relatively distinct aquifers – Upper Glacial, Magothy, and Lloyd - on Shelter Island only the Upper Glacial aquifer is potable<sup>(1)</sup>; the Magothy has been found through sampling to be saline and studies suggest the Lloyd is also saline. <sup>(1)</sup> There is no potable water supplied to Shelter Island through pipelines from either the north or south fork, though some water is trucked in to comply with Town laws. There are four potable water supply systems on Shelter Island, but together they supply only 13% of the potable water need. The remaining 87% is supplied by private groundwater wells. [See Appendix A].

(1) Geohydrology and Ground-Water Quality on Shelter Island, Suffolk County, New York, 1983-1984, Simmons; USGS Water Resources Investigations Report 85-4165, 1986)

The Shelter Island aquifer is supplied from recharged precipitation that exceeds the estimated volume pumped for potable use *by over a factor of 16 on an annual basis* (4.4 billion gallons recharged vs 260 Million gallons pumped). Of the 260 million gallons pumped, 95% is returned to the aquifer through wastewater treatment systems.

The excess recharge flows outward to the salt-water bodies surrounding the Island and to inland surface waters <sup>(1)</sup>. The annual water balance (by volume) is shown in Figure 2-1 below.

The majority of waste water generated on Shelter Island is treated and recharged to the aquifer through residential wastewater treatment systems – a mix of cesspools, septic tank/leaching field systems, and most recently several Innovative /Advanced Onsite Wastewater Treatment Systems (I/A Systems) that produce reduced nitrogen level effluent (10-19 mg/L). A small municipal sewer system serves Shelter Island Heights. This secondary treatment plant discharges to the Shelter Island Sound.



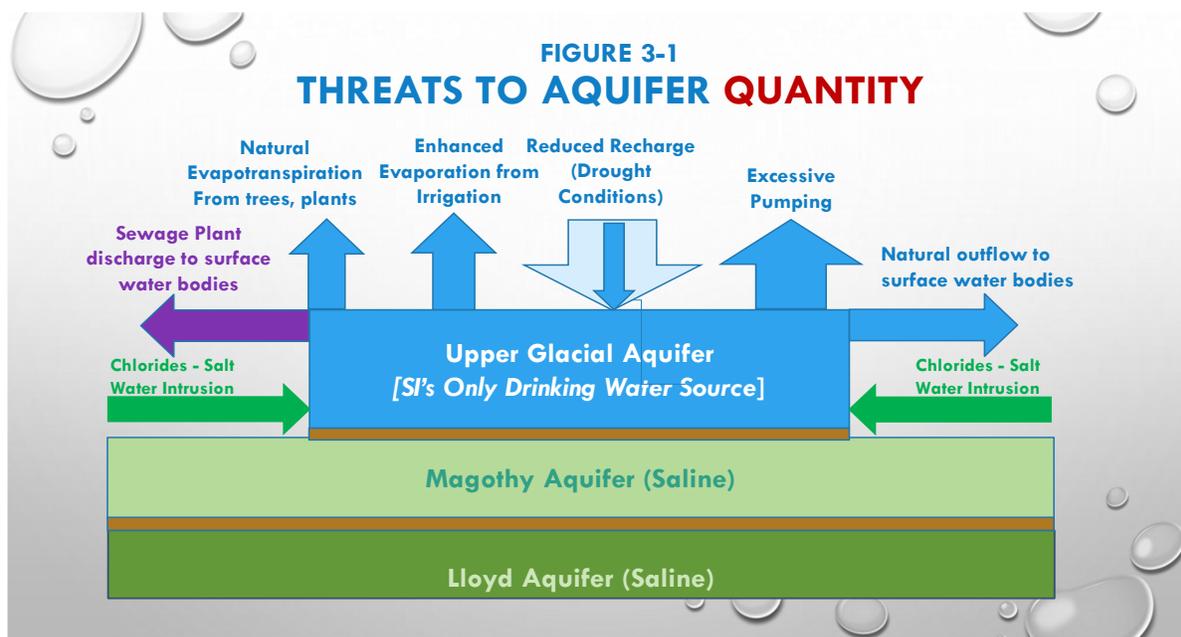
### 3.0 Groundwater Supply/Quantity

While the above annual mass balance suggests an abundant supply of ground water, there are both regional and seasonal variations that have raised concerns.

Regional variations in aquifer volume and contamination occur in the peninsular areas, where the topography is low, the aquifer thickness is minimal (estimated in some locations to be 20 ft

or less) and salt-water intrusion is caused by periodic storms and spot over-pumping. Similar issues with salt-water intrusion exist at other shoreline locations such as the Ram islands. Projections of continued sea level rise of between 8" and 30" by the 2050s<sup>(2)</sup> will exacerbate the issue in these areas.

There are also seasonal variations. Maximum pumping occurs during the summer months when recharge is at its minimum and evapo-transpiration, irrigation, and pumping are peaking. About 90% of aquifer recharge occurs between October and March. This pattern, coupled with sporadic drought conditions, has led to continuous monitoring of groundwater levels and implementation of temporary water conservation measures when needed. Threats to aquifer quantity are shown in Figure 3-1 below.

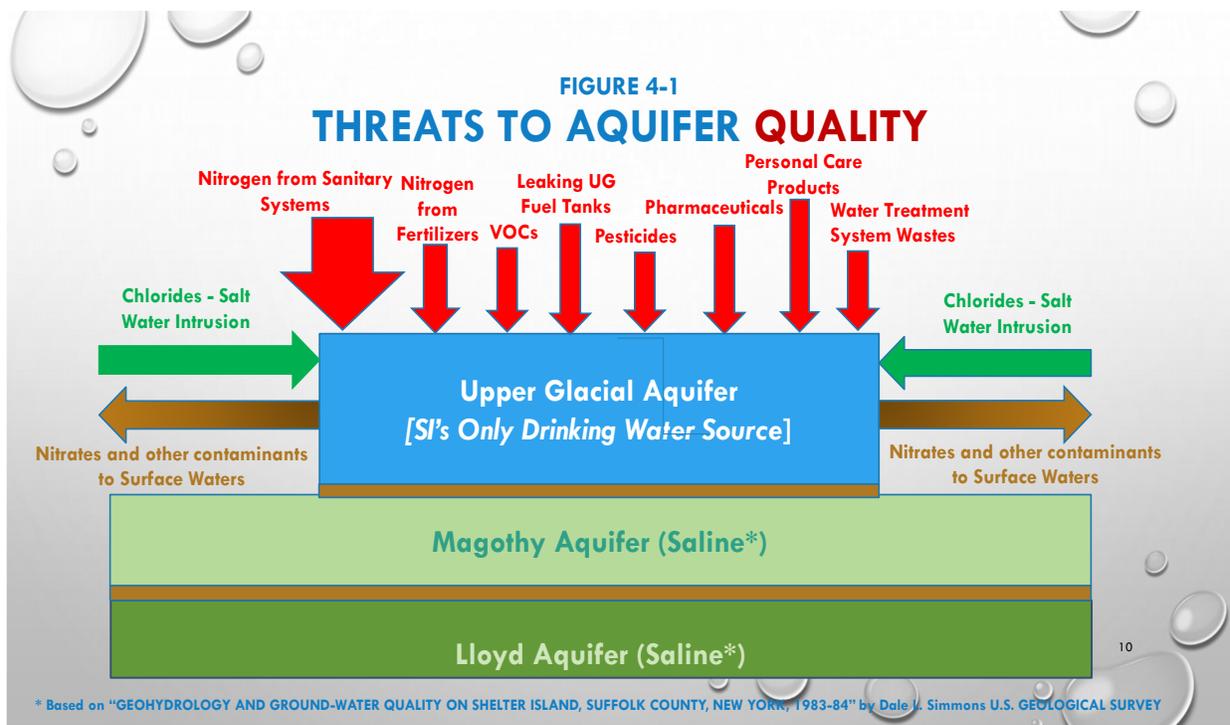


#### 4.0 Ground Water and Surface Water Quality

As noted above, the Island's sole source of drinking water is the underlying Upper Glacial aquifer. Over the years aquifer quality has deteriorated as a result of wastewater discharge from residential treatment systems, fertilizer and pesticide applications, and introduction of other contaminants from various sources.

(2) 6NYCRR, Part 490, Projected Sea-level Rise – Express Terms, Chapter IV Quality Services, Subchapter 1 Climate Change

Nitrate levels have slowly but steadily increased, and in some areas of the Island are approaching or exceed the EPA and NYS Maximum Contaminant Level (MCL) of 10mg/L (expressed as N-NO<sub>3</sub>), suggesting that the continued nitrogen level of effluents being recharged *is not in balance* with the cyclical flushing and dilution from precipitation recharge. Recent groundwater monitoring has also detected volatile organic compounds, PFAS, pesticides, and pharmaceuticals in groundwater. <sup>(3)</sup> As groundwater quality drops below potable limits, homeowners install residential water treatment systems, many of which recharge their concentrated waste streams back to the aquifer. Threats to aquifer quality are illustrated in Figure 4.1 below. With the outflow of excess recharge to surface water bodies, contaminants in the aquifer enter surface waters. High nitrogen levels in the outflow have been linked to toxic algal blooms.



## 5.0 Health Effects of Nitrates in Drinking Water

Much of the focus on groundwater quality on Shelter island has been on nitrate concentrations and, in particular, on areas where nitrate concentrations exceed or are approaching the MCL of 10 mg/L. However, recent studies suggest that drinking water below 10 mg/L *may not be as safe as widely perceived*.

(3) USGS Presentation June 25, 2019; Shallow Groundwater Quality of Shelter Island, 2016-2018; Irene Fischer and Shirley Chen, USGS NY Water Science center, June 25, 2019

The EPA and NYS MCLs are approximately the same as the World Health Organization's guidance (11.3 mg/L as nitrate-nitrogen; 50mg/L as nitrate).<sup>(5)</sup> Both were originally designed to protect infants from methemoglobinemia, or "Blue Baby Syndrome", a condition that is caused by the conversion of hemoglobin to methemoglobin (which cannot carry oxygen) by consumption of nitrates in drinking water. The MCL was set to protect against infant methemoglobinemia however other health effects including cancer and adverse reproductive outcomes were not considered.

The conservatism of the EPA MCL and WHO guidance has come under question over the years. A 1977 report by the National Academy of Sciences<sup>(6)</sup> concluded that *"...available evidence on the occurrence of methemoglobinemia in infants tends to confirm a value near 10mg/l nitrate as nitrogen as a maximum no-observed adverse-health-effect level, but there is little margin of safety in this value"*. Studies of infants in Europe have found that three to four percent of methemoglobinemia cases in infants occurred at doses *lower* than 10 ppm.<sup>(7)</sup>

While many studies have linked nitrates in drinking water **above** the MCL to cancer in humans, and others have been inconclusive, several studies have found a link between prolonged exposure to nitrates in drinking water **below** the MCL and cancer in adults. A 2010 study<sup>(8)</sup> found a 260% increase in the risk of thyroid cancer in post-menopausal women consuming water with nitrates above 5mg/L vs under 5mg/L. This same study identified a 160% increase in the risk of bladder cancer when consuming water above 5mg/L for four years. A link to colorectal cancer was reported in a 2018 study.<sup>(9)</sup>

These adverse health effects are believed to be attributable to *N*-nitroso compounds (NOCs). NOCs are formed when nitrate is converted to nitrite after ingestion, and this nitrite reacts with both natural and synthetic organic compounds in the human stomach to produce N-Nitroso compounds. Many of these N-Nitroso compounds are carcinogenic in humans.<sup>(10)</sup>

## 6.0 Guiding Principles

The WAC used the following principles to guide development of the strategies and recommendations included in this Plan.

(6) National Academy of Sciences

(7) Sattelmacher 1964; Simon, 1962

(8) Ward M.H., Kilfoy B.A., Weyer P.J., Anderson K.E., Folsom A.R., Cerhan J.R. Nitrate intake and the risk of thyroid cancer and thyroid disease. *Epidemiology*. 2010;21:389–395.)

(9) Aarhus University. "Nitrate in drinking water increases the risk of colorectal cancer, study finds." *ScienceDaily*, 20 February 2018(10)

(10) International Agency for Research on Cancer (IARC) IARC Monographs on the Evaluation of Carcinogenic Risks to Humans: Ingested Nitrate and Nitrite and Cyanobacterial Peptide Toxins. IARC; Lyon, France: 2010.)

- Shelter Island should be a leader in water quantity and quality management on Long Island.
- Shelter Island should control and optimize the use of its own groundwater resources.
  - Since the volume of available groundwater substantially exceeds annual demand, importing water from off-island is not necessary at the current time and should be considered a “last resort” option.
- Protection of public health, safety, and the environment are key governmental responsibilities. Applicable actions, investments and initiatives include:
  - Facilitating access to safe drinking water
  - Protecting the quality of the aquifer
  - Protecting surface water bodies within and adjacent to the Island’s shoreline

*Note: Above principles assume compliance with all applicable local, state, and federal laws and regulations as a baseline.*

## 7.0 Integrated Water Management Strategy

An integrated water management strategy is recommended based on a set of strategic “Key Outcomes” that will take many years to achieve. Achievement of each of these outcomes is likely to be on a decadal scale, similar to related water quality initiatives currently under discussion at the state and county <sup>(11)</sup> level. Like the state and county initiatives, they will need to be approached with a carefully planned and continually evolving set of priorities since a significant investment of public and private funds will be needed.

### 7.1 Four Key Outcomes

*1. All Shelter Island residents have ready access to drinking water that meets all applicable local, state and federal standards.*

*2. All wastewater effluent on Shelter Island discharged into the aquifer or surface waters will be at a maximum of 19mg/L.*

*3. As Shelter Island’s sole groundwater aquifer, the Upper Glacial aquifer’s quality and quantity will continue to support the drinking water needs of residents without the need for “off-island” water.*

*4. Surface waters surrounding Shelter Island will not be negatively impacted by human activity on Shelter Island.*

(11) Suffolk County Sub-watersheds Wastewater Plan, July 30, 2019

Each of these Key Outcomes suggests policy, planning, and infrastructure development actions in the near and longer term. These actions should be captured in an Annual Planning process that identifies those that will need to be taken each year to move toward the Key Outcomes. This Plan and the Key Outcomes should be revisited annually to update as appropriate based on progress, evolving technology, and effectiveness of actions previously completed.

Recommendations for actions related to each of the Key Outcomes are presented below. The actions recommended are likely to change frequently as additional information becomes available, as state and county programs evolve, as climate change effects manifest faster or slower than projected, and as the impacts of early actions are realized.

***Key Outcome 1: All Shelter Island residents have ready access to drinking water that meets all applicable local, state and federal standards.***

**Current Status:** The Upper Glacial aquifer has not been characterized to a level adequate for detailed decision-making, and groundwater flow modeling capability and results are even more limited. However, there are known (and in some cases historical) issues with nitrogen levels exceeding or approaching the MCL at several areas on the Island and salt-water intrusion is an issue in several areas. Other contaminants of emerging concern (CECs) (e.g. VOCs, pharmaceuticals and PFAS) have also been identified. <sup>(3)</sup> Residential potable water point of use treatment systems have been installed to address these and other traditional contaminants such as iron and manganese.

**Recommendations:**

**0-5 years**

- Begin discussion with public water suppliers to understand the engineering and financial aspects of developing limited scope public water supply and distribution system(s) to provide drinking water to areas currently unable to reliably source potable water from residential wells (“currently challenged areas”).
- Develop a financial model and identify funding sources.
- Consider establishing Water Quality Districts or an Island-Wide Water Management District.
- Install public water supply and distribution system(s) to supply currently challenged areas and establish associated management and operating capability.
- Review Town Board oversight of the West Neck Water District and revise as appropriate.

## 6-10 years

- Characterize (through sampling and analysis) and model the aquifer to identify and prioritize the need for remediation of contaminants and development of additional water districts Island-wide.
- Create a time-phased Master Plan for public water utility service to the remainder of Shelter Island.

## 11+ years

- Complete the build-out of an Island-wide water supply utility system as required.
- Consider Integrating the Heights, Bridge Street Water Company, West Neck Water, and Dering Harbor water systems, as appropriate.

**Key Outcome 2: *All wastewater effluent on Shelter Island discharged into the aquifer will be at a maximum of 19mg/L.***

**Current Status:** As noted above, there is one sewage treatment plant serving the Heights. The effluent from the Heights plant meets its State Pollution Discharge Elimination System (SPDES) permit levels and is being discharged to Shelter Island Sound. A project is being designed to recover the effluent for irrigation at the Goat Hill Golf Course. The Town is studying a small wastewater treatment system to service several municipal buildings located in the Town Center. All other wastewater is discharged to cesspools, septic/leaching pool systems (with system effluents approximately 65-70 mg/L nitrates) and a small (approx. 40) but growing number of I/A systems. The I/A systems that have been and are being installed typically reduce nitrate concentration in the effluent to 19 mg/L and have been approved by Suffolk County. Suffolk County is currently evaluating systems capable of reducing effluent to 10mg/L. Suffolk County has also developed a multi-decadal Sub-Watersheds Wastewater Treatment Plan <sup>(11)</sup>. New York State, Suffolk County, and Shelter Island Town offer grants to support the installation of I/A systems. Several other east end towns have instituted programs including I/A grants, rebates, and other water protection programs. [Appendix B]. Recently, the IRS has issued a ruling that the I/A grants are taxable. Also, the continuity of grant funding at the County and State level has become uncertain.

## Recommendations:

### 0-5 Years

- Continue to monitor developments affecting the I/A grant programs and adjust planning as appropriate.
- Consider establishing an Island-Wide Wastewater Management District, or local community districts. (This would facilitate single treatment systems serving multiple effluents).
- Continue the plan to develop a centralized wastewater treatment plant to serve effluents from municipal buildings in Town Center. Design the treatment process (and purchase required land) based on a modular approach that will enable expansion to service residences and other structures in the Center in the future.
- Continue to closely monitor the Suffolk County Sub-watersheds Wastewater Plan implementation, particularly the intent to identify a “reliable recurring funding source” for the implementation of the Plan.
- Adopt a set of criteria to prioritize allocation of Town grant funds for innovative/advanced wastewater treatment systems (I/A systems). *[Note: The Water Quality Improvement Advisory Board is currently developing such a set of criteria].*
- Continue the Town grant program for I/A System installation using the prioritized criteria.
- Develop a low/no interest loan program for I/A system installation.
- Designate “Water Protection Zones” (WPZs) where estimated effluent travel to surface water (fresh or salt) is less than 2 years (Based on 1 ft/day movement) and areas that are currently experiencing groundwater at or above 7mg/L of nitrates.
- Promulgate a regulation that requires upgrading cesspool-only waste systems to add an I/A system upon property transfer (unless determined not to be feasible by a Professional Engineer). Suggest a “Voluntary Compliance Period” of 3 years for properties in WPZs (based on the permitting and grant application process duration) and 5 years for all other areas, prior to the requirement taking effect. [See Appendix C]
- Eliminate the exemption for mandatory I/A system installation for new construction under 1,500sf; Create an exemption so that new construction < 1,500sf can qualify for a Town I/A grant.
- Complete construction and begin operations of Phase I of the Center Wastewater Treatment Facility.

### 6-10 Years

- Expand the Center wastewater treatment system (Phase II) to serve additional structures in the Center.

## 11+ Years

- Upgrade the property transfer regulations to require an I/A system upon transfer of *all* properties, including those with septic systems

**Key Outcome 3: *As Shelter Island's sole groundwater aquifer, the Upper Glacial aquifer's quality and quantity will continue to support the drinking water needs of residents without the need for "off-island" water.***

**Current Status:** The Town has a process in place to monitor water table fluctuations and to invoke temporary water use restrictions. At the present time, water table measurements indicate levels above historical averages. The Town does not have requirements for applicants proposing to construct structures in locations where the aquifer quality and/or quantity is challenged to provide engineering analyses of projected aquifer impacts including impacts on wells of surrounding residents. Application of fertilizers is regulated by Suffolk County <sup>(12)</sup>, but there appears to be little enforcement of these regulations on Shelter Island. The Town Code specifically exempts Landscaping from the requirement to obtain a Home Improvement Contractor license <sup>(13)</sup>. The Heights Sewage Treatment Plant discharges its effluent to Shelter Island Sound. There is little to no Town regulation affecting water use other than when temporary water use restrictions are invoked. Town regulations on underground fuel oil storage tanks are minimal.

## Recommendations:

### 0-5 Years

- Continue to monitor water table levels and implement water use restrictions as indicated.
- Begin development of a groundwater model [Note: Grant request pending].
- Conduct a Historical Survey to identify areas of concern for further characterization.
- Complete the project to recycle Heights Wastewater Treatment Plant effluent through irrigation of Goat Hill while ensuring that Heights and West Neck Water wells are not negatively impacted.
- Identify high-volume water users to target future education, funding and support.

(12) Suffolk County Local Law No. 41-2007 "A Local Law to reduce Nitrogen pollution by Reducing Use of Fertilizer in Suffolk County"

(13) SI Town Code, Chapter 79 "Home Improvement Contractors", Section 79-1

- Promulgate regulations requiring Hunter Curve demand analysis for any proposed new construction, reconstruction or renovation. and aquifer impact analyses for development in sensitive areas or large homes/buildings (over 5,000sf) and well relocation onto public property. Incorporate into Town Code [*Chapter 43 §43-6*] and Building Permit process.
- Provide Town oversight/enforcement of Suffolk County ban on application of fertilizer between November 1 and April 1.
- Require businesses selling fertilizer to post fertilizer areas with the notice required by Suffolk County. Provide periodic Town oversight of compliance.
- Require the use of 50% slow release fertilizers on Shelter Island.
- Develop a rebate program and low/no-interest financing options for replacement of residential underground fuel oil storage tanks.
- Issue regulations requiring abandonment or removal of underground fuel oil storage tanks upon property transfer, with a Voluntary Compliance period of 2 years for tanks in WPZs and 5 years for all other areas from the date the requirement takes effect. [*Ref: Town Code Chapter 43 §10.3*]
- Require Landscapers to obtain a Shelter Island license (eliminate current exemption for landscaping [*Ref: Town Code Chapter 79, §79-1*] and to provide proof of Suffolk County License and staff training in Turf Management as required by Suffolk County.

## 6-10 Years

- Repeat the Baseline Study of Groundwater to identify trends and effectiveness of actions taken.
- Require a standard, remote-reading-capable water meter to be installed on all new construction.
- Require owners to connect to public water supply where available.
- Require enhanced rainfall capture systems.

## 11+ Years

- Complete full implementation of a groundwater model and integrate its use into Town decision-making and approval processes. (e.g. Building permits, Planning and Zoning Board review and approval processes).

**Key Outcome #4: *Surface waters surrounding Shelter Island will not be negatively impacted by human activity on Shelter island.***

**Current Status:** Surface waters (adjacent salt-water bodies and contained fresh-water bodies) are being impacted by contaminants in addition to nitrates, introduced through the outflow of groundwater and storm-water runoff. Outflow of contaminated groundwater is also impacting surface waters. Insufficient surface water monitoring exists for most water bodies to assess impacts. The shell-fishing industry, particularly harvesting of scallops is important to the local economy and has been negatively impacted due to a parasite in the recent season and algal blooms in previous years. The Town has been proactive in improving infrastructure to control storm water runoff and has developed a Watershed Management Plan <sup>(14)</sup>.

## **Recommendations:**

### **0-5 Years**

- Develop a monitoring program for surface waters contained within and surrounding Shelter Island in conjunction with The Nature Conservancy and the Peconic Estuary Partnership. The purpose is to develop a database of local surface water quality information that can be used to trend pollutant levels, assist in the groundwater modeling and management efforts, and assist with shellfish management and aquaculture activities.
- Participate in local actions to address the parasite-induced 2019 scallop die-off and implement appropriate preventive measures.
- Revisit the requirement for permeable driveways since it is common practice to apply pesticides to gravel and other permeable driveway materials. The pesticides enter runoff during storms.
- Continue to improve control of storm water runoff to reduce contamination of ground and surface waters.
- Continue to implement the Shelter Island Watershed Management Plan.

### **6-10 Years**

- Achieve full compliance with the objectives of the Watershed Management Plan.

## **7.2 A Continuous Planning Process**

Notwithstanding the analyses and recommendations above, the management of our ground and surface waters and implementation of protective measures must be an ongoing process. As we learn more from future studies, water sampling and analysis, and results from groundwater modeling, the outyear recommendations in this Plan are certain to change.

(14) Town of Shelter Island Watershed Management Plan; Nelson, Pope & Voorhis, June 2014

The Water Advisory Committee will continue to evaluate the results of water testing for both quantity and quality and provide periodic updates to this Plan. For example, additional assessment and evaluation is needed for contaminants of emerging concern (CECs) such as pharmaceuticals, PFAS/PFOS, 1,4-Dioxane, and others, as information on these pollutants evolves. We also believe an approach needs to be developed for the widespread practice of discharging wastes from residential Point-of-Use potable drinking water treatment systems to the groundwater.

### **7.3 Engagement and Outreach**

While several of the above recommendations can be initiated rapidly, this Plan and many of the recommendations should be viewed as a source document for full community engagement on addressing the water issues facing Shelter Island. The community outreach ideas developed at the Nature Conservancy's November Water Leader's Training <sup>(15)</sup> are an excellent starting point for the development of such an engagement process. An organization outside the Town organization and committee structure should be engaged to assist the Town with its planning and implementation. The Nature Conservancy should be considered as a potential resource along with consultants experienced in this area.

Where advantageous, the stakeholder engagement for this Plan should be integrated with engagement activities associated with processes being planned for updating the Comprehensive Plan.

(15) Shelter Island Water Leaders Training Action Plan Notes (November 14-15, 2019)

(16) Shelter Island Town Comprehensive Plan. June 3, 1994

## APPENDIX A CURRENT WATER SUPPLY MODEL

Water supply Systems	Annual Pumpage (Million Gallons)	Comments
Private wells	226	87% of Island's total pumpage
Shelter Island Heights	27	
Bridge Street	<1	
Dering Harbor/SCWA	3	
West Neck Water District	4	
<b>Total</b>	<b>260</b>	

- CURRENT WATER UTILITIES SUPPLY ONLY **13%** OF ISLAND'S NEEDS
- SOME PRIVATE WELLS ALREADY REQUIRE TREATMENT SYSTEMS TO ACHIEVE DRINKING WATER STANDARDS

# APPENDIX B I/A OWTS: WHAT OTHERS HAVE DONE

Actions	Suffolk County	Brookhaven Town	Easthampton	Southampton
Sensitive Area Designated	Yes	500ft from body of water Nitrogen Protection Zones (NPZs)	Water Protection District	<b>High Priority</b> – 0-2yrs to surface water+ other factors <b>Med priority</b> – 0-10yrs [Areas designated in WQIPP]
I/A OWTS Required	New construction in environmentally sensitive areas Failed cesspools cannot be replaced like in kind; must install septic; for certain commercial situations, SCDHS may require I/A OWTS	New residences or replacement construction in NPZs Residences built on or before 12/31/86: add BRs or increase floor area > 10% Residences built on or after 1/1/87: add BRs or incr floor area > 50% [Replacement construction due to natural disaster can apply for financial hardship waiver]	All properties in Town New buildings and structures Voluntary repl of existing sanitary system All substantial expansion of existing structures All EPA-required upgrades of large capacity cesspools All non-residential properties that require site plan reviews	All new residential construction in <b>high priority</b> area Any substantial septic upgrades required by SCDHS Increase > 25% of floor area New septic system or substantial Septic upgrade required by the <b>Wetlands</b> section of the Town Code SCDHS approval of I/A OWTS required
Rebate Program	Yes	No; rely on SC program	Properties in Water Protection District eligible Must qualify for Basic STAR or own non-residential property 100% of cost reimbursed	<b>High and Medium Priority</b> areas only Max \$20K Income <\$300K 100% of cost \$301-500K 50% \$5000K - \$1M 25% >\$1M 0%
Treatment Level	19mg/l residential	19 mg/L	19mg/L until SCDHS 10mg/L approved	19 mg/L

## APPENDIX C NITROGEN LOADING FROM ONSITE WASTEWATER TREATMENT SYSTEMS

Actions/ Requirements	Shelter Island Currently	Recommendations
Sensitive Area Designations	None	Designate <b>Water Protection Zones WPZs</b> (e.g. Center; 500ft from bodies of water; watershed areas for water district supply wells)
I/A OWTS Required	All <b>new and re-</b> construction (regardless of location) 1,500sf and under exempt	Eliminate 1,500sf new construction exemption; allow 1/A grant/rebate program eligibility for homes under 1,500SF  Require 1/A system installation for existing homes with cesspools (only) <b>upon property transfer</b> : Voluntary Compliance Period of 3 years in WPZs; 5 years for all other areas
Rebate Program	Maximum grant amount Supporting all applications equally No income limits	Apply approved prioritization criteria [currently under development by WQI]
Loan Program	None	Develop a need-based low/no interest loan program to cover 1/A OWTS installations to supplement Suffolk County's program as needed

## APPENDIX D NITROGEN LOADING FROM FERTILIZERS

CURRENT STATUS	RECOMMENDATIONS
<p>Suffolk County requires:</p> <ul style="list-style-type: none"> <li>• Establishments selling fertilizers to post signage and make brochures available near fertilizer locations</li> <li>• Contractors applying fertilizers to be licensed and attend a SC approved Turf Management course</li> </ul> <p>Shelter Island Town</p> <ul style="list-style-type: none"> <li>• Excludes Landscaping from the requirement to obtain a Home Improvement Contractor's License</li> </ul>	<p>Shelter Island should conduct periodic checks of establishments on the island to verify compliance</p> <ul style="list-style-type: none"> <li>• Shelter Island should require Landscaping contractors working on the island to obtain a license and require evidence of SC license as a prerequisite</li> <li>• All contractor staff applying fertilizer must take approved SC Turf Management course</li> <li>• Develop local course for landscapers covering Water Protection Zone requirements</li> </ul>

# APPENDIX E UNDERGROUND FUEL TANKS

Current Status	Recommendations
<p>Shelter Island Requires:</p> <ul style="list-style-type: none"> <li>Removal or Abandonment of UG oil tank and replacement with AG tank for a building permit for reconstruction (as defined in Chapter 129)</li> </ul>	<ul style="list-style-type: none"> <li>Require removal or abandonment of UG oil tanks and replacement with compliant AG tank in all <b>Water Protection Zones (WPZs)</b></li> <li>In <b>WPZs</b>, require tank removal or abandonment Certificate from a contractor licensed in Suffolk County <b>upon property transfer</b> – after 2 year voluntary compliance period</li> <li>Voluntary compliance period to be 5 years for all UG oil tanks in <b>non</b> WPZ areas</li> </ul>
<p>No incentives offered to motivate removal/abandonment of UG oil tanks</p>	<p>Establish an rebate program for removal and abandonment of UG oil tanks with similar provisions and priorities to the rebate program for 1/A OWTS installations</p>