

**Village of Southampton, NY Lake Agawam 2020 Management Plan, with references to NY State, Department of Environmental Conservation, Lake Agawam 2020 Harmful Algal Bloom Action Plan.**

A joint public hearing on the New York State Department of Environmental Conservation, Lake Agawam April 2020 Harmful Algal Bloom (HAB) Action Plan, was held by Southampton Town Trustees & Southampton Mayor/Village Trustees on June 10, 2020. The HAB Action Plan was adopted by the Town Trustees in Resolution 2020-135 on June 15, 2020 and by the Mayor/Village Trustees by resolution on June 23, 2020. The Lake Agawam 2020 Management Plan was adopted by Mayor/Village Trustees on July 21, 2020. The Lake Agawam April 2020 Harmful Algal Bloom Action Plan is complementary to the Lake Agawam 2020 Management Plan. 12/31/2020 updates highlighted in green.

**Improve Lake Water Quality**

Lake Management Recommendations	Status/Actions	Responsible Entity	Nitrogen Load %	Phosphorous Load %	Addresses Cyanotoxins	Impact/Total Effect	Time to Implement	Duration Effect	Cost (Estimated)	Grant/Match	Target Date
Application of hydrogen peroxide and ultrasonic devices for HAB treatment of Lake Agawam to reduce algae growth and improve water quality. HAB Action Plan 12.3, Priority Projects 1, Short-term (0-3 years) #5. Town Trustees Resolution 2020-135 on 6/15/2020 endorses and authorizes the Village to request a permit pursuant to Articles 15 and 24 of the Environmental Conservation Law, as the Village will be procuring the services required for the hydrogen peroxide and ultrasonic treatments. Mayor/Village Trustees on 6/23/2020 authorized application for a permit from the New York Department of Environmental Conservation regarding the use of hydrogen peroxide and ultrasonic devices to treat harmful algal blooms. Award 9/10/2020 to Solitude Lake Management for \$79,709, \$5,000 per application.	Mayor/Village Trustees authorized the implementation of hydrogen peroxide as a Harmful Algal Bloom treatment for Lake Agawam by resolution 7/21/2020; resolution award for treatment on 9/10/2020.	Mayor/Village Trustees & Town Trustees	None	80%	Yes	Immediate/Large	8 months to implement one-time application	1 year	\$79,709 award on 9/10/2020		2020
Permeable Reactive Barrier along North end of Lake Agawam, underground woodchips barrier to intercept contaminated groundwater; requires groundwater study. HAB Action Plan 12.3, Priority Projects 1, Short-term (0-3 years) #2 & Mid-term (3-5 years) #1. Board of Trustees on 6/11/2020 ratified grant application submitted 6/8/2020 to NYS Empire State Development by the Village in partnership with the NYS Center for Clean Water Technology, requesting grant funds in the amount of \$346,300 to support: Groundwater remediation with sensor technology, remediating groundwater contamination around Lake Agawam via sanitary system upgrades, a permeable reactive barrier, and real-time sensors telemetry-enabled water improvement projects for Lake Agawam and providing Village matching funds of \$134,250 in fiscal year 2021/2022. Additional Lake Agawam monitoring buoy developed by Goble Lab at Stony Brook University and launched by Lake Agawam Conservancy 5/22/2020; water quality results are live streamed to LAC website.	Grant application submitted 6/8/2020; Ratified by Village Board of Trustees on 6/11/2020; Grant application approved 7/9/2020.	Mayor/Village Trustees, Village Department of Public Works	Up to 50%	0%	Yes	10 years/ Modest-Large	3 years	Decades	\$346,300	Grant \$212,050; CPF funds approved 12/2020 to cover Village cost of \$134,250	2021 - 2022
Dredging of Sediments: New York State Department of Environmental Conservation, Non-agricultural Nonpoint Source Planning Grant Program award of \$30,000 approved, Lake Agawam Dredging Feasibility Study, Nelson, Pope & Voorhis conducted survey of Lake Agawam sediment in Summer 2019. HAB Action Plan 12.3, Priority Projects 1, Short-term (0-3 years) #3 Sediment sampling & #8 Complete dredging feasibility study; Mid-Term (3-5 years) #3 Dredge priority areas; Long-term (5-10 years) #1 Dredge remaining lake bottom.	NYS DEC request 7/26/19, NPG Award approved 12/19/2019; Overview presented to Trustees 9/24/2019.	Town Trustees & Mayor/Village Trustees	15-30%	80%	Yes	Immediate/Large	3 years to complete dredging	Decades	Dredging Sediment Survey: \$33,000 Complete Dredging study: \$68,000	Suffolk County WQPRP Survey: \$30,000/\$3,000 Total Cost: \$33,000. NYS DEC Dredging Study Grant: \$30,000, Total Cost: \$38,000	2020-2030 Survey: 10/30/2020
Lake water extraction and treatment through a constructed natural wetland. New York State Department of Environmental Conservation, Water Quality Improvement Program grant request. HAB Action Plan 12.3, Priority Projects 1, Short-term (0-3 years) #6 and Mid-Term (3-5 years) #7.	Not implemented; conceptual stage; WQIP request 7/26/19, consider supplemental request.	Town Trustees CPF & Mayor/Village Trustees, Village Zoning Board of Appeals Wetland Special Permit & Town of Southampton Permit.	Up to 50%	Up to 50%	Yes	Immediate/Large	8 months to complete	Annual	\$2M		2020 - 2023
Algae Harvester, DEC pilot program to combat Harmful Algal Blooms. HAB Action Plan 11.4, Research Activities. Review and evaluate algae harvester results to determine next steps.	2019 Pilot program completed October 2019.	DEC, Mayor/Village Trustees	Up to 90%	Up to 50%	Yes	Immediate/Large	8 months to complete	Annual	\$1M		2020
Floating islands with native plants for nutrient removal. HAB Action Plan 12.3, Priority Projects 1, Short-term (0-3 years) #6.	Not implemented; Conceptual stage.	Lake Agawam Conservancy, Mayor/Village Trustees & Town Trustees	Up to 50%	Up to 50%	Yes	Immediate/ Modest-Large	8 months to implement	Annual	\$500K		2020 - 2023
Maintain and expand air bubblers equipment to improve oxygen levels in the lake. HAB Action Plan 12.3, Priority Projects 1, Short-term (0-3 years) #13.	Air stations installed	Mayor/Village Trustees & Town Trustees, Village Department of Public Works, Lake Agawam Conservancy	0%	0%	No	Immediate/Small	0	Annual	\$10K/YR		2020-2025
Educational pamphlets, Village newsletter and public information media. HAB Action Plan 12.3, Priority Projects 1, Mid-term (3-5 years) #5. Educate land owners on landscape/buffer options.	Partially implemented	Village Clean Water Committee, Lake Agawam Conservancy	0%	0%	Yes	Immediate/Small	0	Annual	(Request Village budget for design, printing, mailing, IT)		Ongoing
Water circulation equipment. HAB Action Plan 12.3, Priority Projects 1, Short-term (0-3 years) #13 & Priority Projects 2, Short-term (0-3 years) #1.	Not implemented; conceptual stage	Mayor/Village Trustees & Town Trustees, Village Department of Public Works, Lake Agawam Conservancy	0%	0%	Yes	Immediate/ Small-Modest	8 months to implement	Annual	\$50K/YR		2020
Improve fish populations in the lake favoring native fish. HAB Action Plan 12.3, Priority Projects 3, Short-term (0-3 years) #2 & Long-term (5-10 years) #2.	Not implemented; Conceptual stage/DEC Fish Stocking Permit.	Mayor/Village Trustees	<1%	<1%	No	Immediate/None	8 months to implement	Permanent	\$25K/YR		2025

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**Increase Stormwater Management and Reduce Nutrient Pollution to the Watershed**

Lake Management Recommendations	Status/Actions	Responsible Entity	Nitrogen Load %	Phosphorous Load %	Address Cyanotoxins	Impact/Total Effect	Time to Implement	Duration effect	Cost (Actual/Estimated)	Grant/Match	Target Date
Gin Lane Stormwater Drainage Improvements: Suffolk County Water Quality Protection and Restoration Program grant award & New York State Department of Environmental Conservation, Water Quality Improvement Program grant award. The Board of Trustees had previously approved and accepted Grant Funding from Suffolk County Water Quality Protection and Improvement in the amount of \$116,696 and NYS DEC WQIP 2019 Round 16 in the amount of \$186,714 for the Gin Lane Drainage Improvement Project, which require the funds be expended and then submitted for reimbursement. Project utilizes buffers & installation of 13 leaching basins at the south end of Lake Agawam. Outflow is eliminated at Lake Agawam playground pipe; outflow is reduced 50% at the culvert on Pond Lane. The pending Gin Lane stormwater drainage improvement project at the south end of Lake Agawam will eliminate outflow at Gin Lane pipe. HAB Action Plan 12.3, Priority Projects 1, Short-term (0-3 years) #6.	WQPRP Award approved 7/11/19; WQIP request 7/26/19, WQIP Award approved 12/19/2019; design complete; awaiting construction.	Suffolk County WQPRP, NYS DEC, Village Department of Public Works	Up to 10%	Up to 5%	Yes	Immediate/Large	12 months	Permanent	\$233,392 Actual	\$233,394 Board of Trustees authorized 12/10/2020 the expenditure of \$233,392 from the A 1010.47 Trustee Special Projects Account, to be reimbursed with grant proceeds.	8/31/2021
Establish bioswale at Nugent Street/Linden Lane, Lake Agawam bioswale projects. HAB Action Plan 12.3, Priority Projects 1, Short-term (0-3 years) #6.	WQPRP grant applied for 12/2019, award not approved 2/25/2020/Village Permit.	Village Zoning Board of Appeals, Village Department of Public Works	Up to 10%	up to 5%	Yes	Immediate/ Modest	6 months	Permanent	\$187,840	Grant request is 50% of project cost: \$93,920; Village has committed to other 50%, or \$93,920.	2020 - 2023
Establish bioswale at Bowden Square.	Not implemented, Conceptual stage/Village Permit.	Village Zoning Board of Appeals, Village Department of Public Works	Up to 10%	up to 5%	Yes	Immediate/ Modest	6 months	Permanent	\$200K		2020 - 2023
Lombardo Associates proposal for a Village business district cluster wastewater system in parking lots/back of business buildings. Business owners would contribute to cost based on use. Sewer district for some/all of Southampton Village business district; connect with Suffolk County Reclaim Our Water, Subwatersheds Wastewater Plan initiative. Village generates about 150,000 gallons of wastewater per day; cluster wastewater system has a 1M gallons a day capacity. Suffolk County targets 65% nitrogen removal for septic systems; a cluster wastewater system targets 95% nitrogen removal. HAB Action Plan 12.3, Priority Projects 1, Long-term (5-10 years) #4. Village Board of Trustees on 4/9/2020 authorized the Mayor to enter into a professional services agreement with H2M Architects and Engineers, not to exceed \$40,000.00 from Trustees Special Projects. H2M presentation on 8/27/2020 to Planning Commission on Wastewater Management and Sewer District study.	Considering sewer district proposal, connecting to Southampton Hospital Sewage Treatment Plant.	Mayor & Village Trustees, Village Planning Commission, Suffolk County Department of Health Services	20%	1%	Yes	10 years/Large	3 years	Permanent	\$9M to improve SH Hospital sewage treatment plant; \$18M sewage treatment plant cost estimated		2020 - 2023
Encourage residents to upgrade to Innovative/Alternative septic systems in the Lake Agawam High Priority Area. HAB Action Plan 12.3, Priority Projects 1, Short-term (0-3 years) #7	Promote I/A septic system upgrades & rebate/grant programs already available.	Village Clean Water Committee, Lake Agawam Conservancy	49%	2%	Yes	10 years/Large	Ongoing	Permanent	\$40M Estimated	Available to Homeowners: Town CPF & Suffolk County Department of Health services rebates, Town Code Chapter 123.	2020 - 2025
Reduce use of fertilizers; promote use of nitrogen & phosphorous-free fertilizers. HAB Action Plan 12.3, Priority Projects 1, Short-term (0-3 years) #10.	Small workshops underway; more workshops & forums to be scheduled.	Village Clean Water Committee, Lake Agawam Conservancy	10%	10%	Yes	Immediate / Modest	8 months	Permanent	(Request budget for experts, programs, advertising & promotion)	None	Ongoing
Legislation regulating Southampton Village landscaper contractors, including informing homeowners of fertilizers and pesticides used. Ord. No.4-2019, adopted 2019-04-11.	Proposed legislation under consideration.	Mayor & Village Trustees, Village Clean Water Committee, Lake Agawam Conservancy			Yes	Immediate/ Modest-Large	6 months	Permanent	None	None	Adopted 2019.04.11

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**Accelerate Enhancements to Shoreline & Natural Buffer Areas**

Lake Management Recommendations	Status/Actions	Responsible Entity	Nitrogen Load %	Phosphorous Load %	Address Cyanotoxins	Impact/Total Effect	Time to Implement	Duration effect	Cost (Estimated)	Grant/Match	Target Date
Establish waterfront natural buffer areas among residents. HAB Action Plan 12.3, Priority Projects 1, Mid-term (3-5 years) #5, Educate land owners on natural landscape/buffer options.	Village Permits	Village Zoning Board of Appeals, Village Clean Water Committee, Lake Agawam Conservancy	Up to 10%	Up to 5%	Yes	Immediate/ Modest	8 months	Permanent	None	None	2020 - 2023
Establish natural buffer area on Gin Lane South. HAB Action Plan 12.3, Priority Projects 1, Short-term (0-3 years) #6. On 5/18/2020, Town Trustees Resolution 2020-104 authorizes the Lake Agawam Conservancy to renovate and replant the rain garden at the South end of Lake Agawam; bioswale planted along the south end of Lake Agawam on June 26, 2020.	Village Permit.	Village Zoning Board of Appeals, Village Clean Water Committee, Lake Agawam Conservancy	Up to 10%	Up to 5%	Yes	Immediate/ Modest	2 years	Permanent	\$300K	None	2020 - 2023
Establish natural buffer area on Gin Lane East. HAB Action Plan 12.3, Priority Projects 1, Short-term (0-3 years) #6.	Not Implemented, Design stage/Village Permit.	Village Zoning Board of Appeals, Village Clean Water Committee, Lake Agawam Conservancy	Up to 10%	Up to 5%	Yes	Immediate/ Modest	6 months	Permanent	\$300K		2020 - 2021
Establish natural buffer area on Pond Lane. HAB Action Plan 12.3, Priority Projects 1, Short-term (0-3 years) #6.	Not Implemented, Conceptual stage/Village Permit.	Village Zoning Board of Appeals, Village Clean Water Committee, Lake Agawam Conservancy	Up to 10%	Up to 5%	Yes	Immediate/ Modest	2 years	Permanent	\$300K		2020 - 2023
Establish weir drainage system at South end of Lake Agawam to filter harmful algae bloom before lake water travels via groundwater to ocean.	Not implemented, Conceptual stage/Village Permit.	Mayor/Village Trustees, Village Clean Water Committee, Lake Agawam Conservancy, Village Zoning Board of Appeals	Up to 10%	Up to 5%	Yes	Immediate/Large	8 months	Permanent	>\$1M		2020 -2023
Remove invasive vegetation in favor of natural habitat areas. HAB Action Plan 12.3, Priority Projects 3, Mid-term (3-5 years) #2.	Not Implemented, Conceptual stage/Village Permit.	Village Zoning Board of Appeals, Village Clean Water Committee, Lake Agawam Conservancy	Up to 10%	Up to 5%	Yes	Immediate/ Modest	3 years	Permanent	>\$1M		2020 - 2023
Thin aquatic vegetation on West side of lake to enhance flow. HAB Action Plan 12.3, Priority Projects 1, Short-term (0-3 years) #9. The Lake Agawam Conservancy in July 2020 deployed an aquatic harvester to thin and remove widespread waterlilies.	Not Implemented, Conceptual stage/Village Permit.	Village Zoning Board of Appeals, Lake Agawam Conservancy	0%	0%	Yes	Immediate/ Small	8 months	Permanent	\$30K/YR		2020 - 2023
Control waterfowl populations through management practices. HAB Action Plan 12.3, Priority Projects 3, Long-term (5-10 years) #1.	Signage posted not to feed waterfowl; other in conceptual stage	Lake Agawam Conservancy	<1%	<1%	No	Immediate/None	8 months	Permanent	\$10K/YR		2023-2025