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Regulatory Impact Statement

6 NYCRR Subpart 646-3: Wastewater Management

1. Statutory Authority

This regulatory impact statement (RIS) has been prepared for the proposed regulation, 6 NYCRR Subpart 646-3, promulgated by the Lake George Park Commission (Commission).

The Legislature established the Commission as an independent agency and delegated to it broad powers to protect, enhance and regulate the resources of the Lake George Park, and particularly the waters of Lake George. Environmental Conservation Law (ECL) § 43-0110(1) directs the Commission, in consultation with the department (DEC), the department of health (DOH) and each municipality located in whole or in part within the park, to adopt, after public hearing according to the provisions of the State Administrative Procedure Act, rules and regulations for the discharge of sewage or treated sewage effluent onto the land or into the groundwater of the park to ensure optimum protection of ground and surface waters of the park. Such rules and regulations may be more stringent than rules and regulations adopted by the department (DEC). ECL § 43-0107(8) provides that the Commission shall have the power to adopt, amend and repeal rules and regulations, consistent with ECL Article 43, as it deems necessary to administer Article 43, and “to do any and all things necessary or convenient to carry out the purpose and policies of this article and to exercise all powers granted by law.”

2. Legislative Objectives

The proposed regulations would be consistent with the legislative objectives and directives of ECL Article 43. As stated in Section 101, the legislative intent of Article 43 is to preserve, protect, conserve and enhance the unique natural scenic beauty of Lake George and to regulate the use of the lake and the area near and adjacent thereto. To protect the lake’s water quality, at ECL § 17-1709(1) the Legislature specifically prohibited all direct discharges of sewage or treated sewage effluent to the lake’s surface waters and those of its tributaries. At Section 110 of ECL Article 43, the Legislature directed the Commission to adopt rules and regulations for the discharge of sewage within the Lake George Park. And at ECL § 17-1709(3)(c) the Legislature directed DEC to prepare a technical manual describing basin-specific treatment standards for intermediate-sized

treatment systems (i.e., those that discharge over 1,000 gallons per day) that reflect the “best technologies available for sewage disposal.”

The proposed regulations are intended to protect the waters of Lake George from wastewater pollution by helping ensure that all onsite wastewater treatment systems in proximity to the lakeshore and streams within the Lake George basin are functional, through a recurrent septic inspection program for all properties within 500 feet of the Lake George shoreline and 100 feet of all DEC regulated streams. Additionally, the Commission’s enhanced standards for all new and replacement onsite wastewater treatment systems in the Lake George basin will further protect Lake George from impacts related to wastewater systems and associated nutrient pollution. DEC’s March 2015 technical manual reflecting best technologies and titled “Design Standards for Wastewater Treatment Works in the Lake George Basin” is incorporated by reference in the proposed regulations.

3. Needs and Benefits

The Lake George Park (Park) was established in 1961 and is essentially contiguous with the watershed boundary for Lake George. The Park is comprised of approximately 100 square miles of State-owned land, primarily “forever wild” Forest Preserve, 155 square miles of privately-owned land, and 45 square miles of water surface, of which about 44 square miles composes the surface of Lake George. The Park is comprised of portions of three counties, including Warren, Washington and Essex, and encompasses the following 12 municipalities: Bolton, Dresden, Fort Ann, Hague, Lake George, Putnam, Queensbury, Ticonderoga, Horicon, Luzerne, Warrensburg, and the Village of Lake George.¹ Nine of these municipalities border directly on Lake George.

Lake George provides a number of benefits to the surrounding communities and the people of the State of New York. The Lake is the primary supply of drinking water for the Village of Lake George and the Hamlet of Ticonderoga, and is the reserve supply for the Town of Bolton. Lake George is also a drinking water supply to hundreds of commercial resorts and lakefront properties.

The Lake is a world renowned scenic and natural resource. Enjoying the environs of the Lake contributes to the health and quality of life for hundreds of thousands of residents and visitors each year. The Lake supports a marine and tourism economy upon which many local residents and communities rely. For example, according to a recent survey of New York State boaters, these individuals spent an estimated \$22.5 million in the Lake George area, generating 450 jobs in the local community in 2003.² Additionally, a separate study estimated that beach users spend

¹ Morrison, C. C. The Plan for the Future of Lake George Park. The Task Force for the Future of Lake George Park, New York State Department of Environmental Conservation, Albany, New York, 1987.

² Connely, N.T., et. al., Recreational Boating Expenditures in 2003 in New York State and Their Economic Impacts. Cornell

between \$379,000 and \$1.1 million in the Lake George Basin.³ Finally, U.S. Census Bureau employment data for the Lake George Park and surrounding hamlets of Ticonderoga and Warrensburg suggest that tourism and recreation were the largest employment sectors in 2006, accounting for over 1,560 jobs, or approximately 21%, of the geographic area's total employment.⁴

Protecting Lake George's water quality from nutrient and bacterial pollution from improperly functioning septic systems is of paramount importance. The program and standards described in this Statement are designed to help ensure that septic systems in the lake's Critical Environmental Area (CEA, described below) are functioning properly, and that new systems meet standards designed to improve the removal of phosphorus and nitrogen.

Impacts From Onsite Wastewater Treatment Systems (Septic systems)

Septic systems, when not properly designed, constructed and maintained, can have negative impacts upon nearby waterbodies and groundwater. Nutrients in wastewater include phosphorus and nitrogen, both of which are key components of algae and plant growth in waterbodies. In properly functioning systems in good soils, these nutrients and pollutants are predominately retained in close proximity to the infiltration bed and don't significantly impact groundwater, lakes, or streams. However, when a system has not been maintained or has broken components or inadequate soils, these pollutants can migrate offsite and into waterbodies, causing algae blooms and significant aquatic plant increases. These failing systems also have concerns from a public health perspective, as pathogens and bacteria do not get treated properly and can enter drinking water supplies.

With guidance from regional subject matter experts and the Commission, the review of existing literature was focused on eleven (11) studies of particular relevance to Lake George and as identified through review of readily available resources. The literature reviewed covers nearly a 40-year span from 1981 to 2020, and includes research from academia, the public sector, and private sector. Findings from the literature suggest the efficacy of septic systems is highly variable depending on system maintenance, design, and local environmental factors such as soil type and proximity to groundwater or vadose zone depth.

The risk of groundwater contamination from septic systems is largely dependent on system size, soil composition, and vadose zone depth or a system's proximity to shallow groundwater. The siting of systems and understanding septic plume migration patterns in the context of local

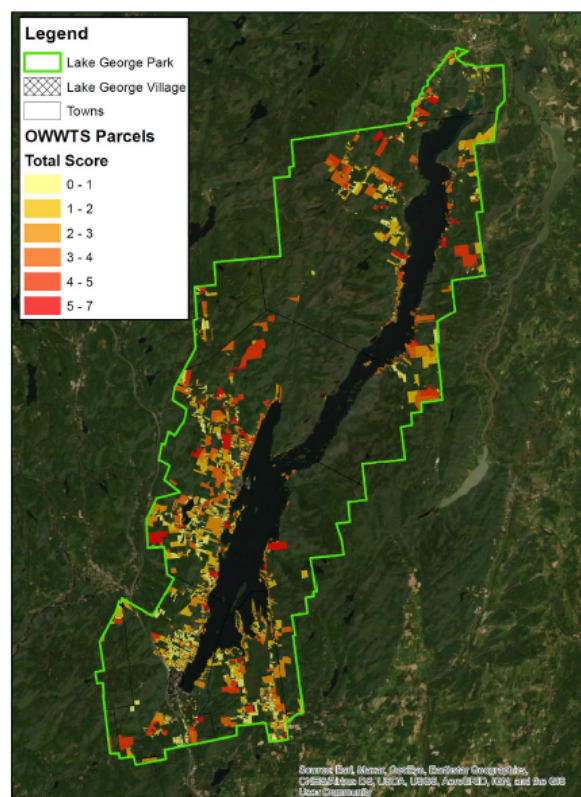
University Department of Natural Resources. Prepared for the New York State Sea Grant, 2004.

³ Holmes, T. e. al., Lake George Recreation Study Plan, 2005. Prepared for the Lake George Park Commission, 2006.

⁴ Lake George Park Commission staff analysis of Census LED data for NAICS categories (72: Accommodation and Food Services, and 71: Arts, Entertainment and Recreation) that are largely reflective of the tourism and recreation sectors.

Phosphorus from properly functioning septic systems may migrate to surface water. This condition was observed on a seasonal lake front community and coincide with increased algal blooms. Of note, septic systems can contribute 4 to 55% of total phosphorus to lakes (Lombardo, 2006). However, the main threat to phosphorus loading of surface waters from septic systems is from system failures where overloaded or saturated drainfields, or short circuiting via drainage ditches and pipes results in surface breakout of untreated wastewater (Robertson et al., 2019). Work conducted by the U.S. Geological Survey found that phosphorus plumes may migrate slowly within groundwater systems and rise steeply upward to discharge into surface waters at localized discharge points (U.S. Geological Survey, 2016). Finally, research on phosphorus loading finds that while phosphorus loading from septic systems is generally a small component of the total phosphorus load to waterbodies such as lakes, impacts can be substantial since the phosphorus is in a soluble form and readily available to algae (Green, 2002). Because near-lake systems are often seasonal, this phosphorus is added to lakes at the height of the algal growing season. Septic systems are not specifically designed to treat or remove trace organics which contribute to degradation of groundwater quality. Trace organic compounds, such as surfactant metabolites, metalchelating agents, antimicrobials, antibiotics, and stimulants, have been found in groundwater proximate to septic systems at concentrations that can be significantly higher than those reported in centralized treatment plant wastewaters (Conn et al., 2010).

Map 8 – OWWTS Parcel Environmental Resources Scoring



In addition to the detailed literature review, the Commission conducted a comprehensive Geographic Information Systems review of the population of septic systems within proximity to Lake George and its tributaries. Research revealed that the geology and topography of the near-shore lands surrounding the lake can have significant limitations on the effectiveness of septic systems. Limiting factors such as shallow depth to bedrock or water table, poorly drained and excessively drained soils and steep slopes affect the treatment efficiency of septic effluent prior to reaching groundwater or a surface water body. The purpose of this analysis was to obtain a count of the total number of privately owned onsite wastewater treatment systems in the Lake George Park, their proximity to critical environmental resources and limiting factors for effectiveness.

The geographic area proposed to be included in the septic inspection program is a 500' buffer around the Lake George shoreline and 100' buffer around DEC regulated streams flowing into Lake George. A scoring system was developed to estimate parcels' potential for septic system failure or underperformance based on any geographic/geologic limiting features. Parcels were scored if any part of it intersected with a limiting environmental characteristic (e.g. shallow groundwater) or if the parcel was within 500' of Lake George shoreline or 100' of streams. Scoring was cumulative with each parcel receiving point(s) for intersection with each factor. All parcels received a score ranging from 0 to 8.5 which were analyzed in total and across all towns in the Lake George Park. It is understood that a septic system may not be located on a portion of a parcel that shows limiting factors, so this analysis attempts to provide a general understanding of the geologic issues that may be affecting systems in the Lake George basin. Key Points:

- There are 5,957 parcels with septic systems in the Park.
- 84% of properties in the Park with septic systems intersect with limiting environmental characteristics or Resources of Concern.
- 45% (2,682) of septic systems are within a distance of 500' around Lake and 100' around Streams.
- 9% intersect with APA Wetlands
- 21% intersect with Shallow Water Table
- 25% intersect with Shallow Depth to Bedrock
- 34% intersect with Steep Slopes
- 20% intersect with Excessively Drained Soils
- 3% intersect with Very Poorly Drained Soils
- 94% of the septic systems in the Park are residential, 6% are commercial, community, etc.
- The median size of a residential parcel with a septic system is 0.9 acres. The median sizes of residential parcels w/ septic systems are 0.56 acres inside the CEA and 1.22 acres outside of the CEA.
- The overall density of wastewater treatment systems on private lands within 500' of Lake George is 2± acres per system. The density of wastewater treatment systems on private

lands outside of 500' from Lake George is 19± acres per system.

- Bolton, Lake George, and Queensbury have the most parcels with septic systems (>1,200).
- The most common score for a parcel was 2.0 points (intersects with 2 resources of concern or the lakefront and stream buffers), and the average score was 1.96 points.
- The towns with the highest average score were Dresden, Fort Ann, and Putnam.
- The average age of residential houses with septic systems in the Lake George Basin is approximately 50 years old, with the majority of houses constructed between 1950 and 1994. If their system has not been upgraded or replaced (an unknown at this time), the age of most septs would range from 25-70 years in age.

In summation, properly sited and maintained septic systems are an effective method of wastewater treatment for many rural communities and locations where public sewer is not viable. However, systems that are not sited and constructed appropriately or functioning properly may result in negative impacts to water quality and present significant risk to public health. The review of the cited literature suggests a clear link between improperly sited/designed or improperly functioning septs and water quality impacts. For example, poorly functioning/sited/designed systems can lead to excess phosphorus release. Phosphorus is a critical nutrient for life and is considered a limiting nutrient in aquatic ecosystems. Too much phosphorus can cause increased growth of algae and large aquatic plants, which can result in decreased levels of dissolved oxygen—a process called eutrophication. High levels of phosphorus can also lead to algae blooms that produce algal toxins which can be harmful to human and animal health. Regular maintenance and monitoring of systems can be highly effective for mitigating negative impacts on water quality. The studies and abstracts of these studies are available on the Commission website at www.lgpc.ny.gov.

Review of Septic Inspection Programs in New York State

To help inform background, need and concepts for a potential Lake George septic system inspection program, the Commission researched all identified lakes that maintain such programs. The majority of these programs are active in central New York (Finger Lakes region), with the majority of those waterbodies having a recurrent, five year inspection of all septic systems within proximity of the lake. The NYC Watershed Program manages a broad and extensive septic system inspection program in the southeast (Catskill area) of the state as part of their drinking water supply program. Locally, the Towns of Queensbury and Bolton have maintained septic system inspection programs on property transfers for the past few years, which have been instrumental in providing a general understanding of local conditions and potential expectations for a Lake.

The Commission spoke with the managers of those programs, to help discern the reasoning behind the programs, any specific driving factors, what founding documents they maintained, how they were funded, and what their findings are. Several of the programs have been in place for many years, with a few programs running for more than 20 years. The founding reason behind every program researched was to protect the lake and its water quality and clarity. Additional stated reasons included public health of the homeowners and neighbors, beach closures due to e-coli bacteria spikes, and prevention of Harmful Algae Blooms.

Existing Program Survey

• 13 Septic Inspection Systems Programs Researched

- Canandaigua Lake
- Western Finger Lakes
- Keuka Lake
- Cayuga County
- Otsego Lake
- Skaneateles Lake
- Chautauqua Lake
- NYC/Croton River Watershed
- Town of Queensbury
- Town of Bolton
- Erie County
- Maricopa County, AZ
- Algonquin Highlands, ON



The results of the researched programs were strikingly similar, particularly if the program has been in place for two five-year inspection cycles. The patterns revealed that the first five year cycle yields the most issues with many individuals not knowledgeable about their individual septic systems, and thusly have completed very little maintenance or management (e.g. pumpouts). The next cycles of inspections have been found to be important to help ensure functionality and identify any new issues, but generally require fewer major repairs than the original inspections.

Stakeholder Outreach

In June of 2021 the Commission created an Ad-Hoc Committee to discuss septic systems around Lake George and the idea of an inspection program and enhanced design standards within the Lake George watershed. This committee consists of five Commission Board Members plus 14 individuals from varying backgrounds representing engineering, building codes, business and planning professions. The Commission also tasked its retained engineer Chazen Companies LLC to provide considerable expertise and knowledge to the project, to help ensure a thorough understanding of all issues involved. Meetings are held monthly and are fully accessible to the public via Zoom teleconference due to the Covid 19 pandemic. All meetings, materials, agendas, minutes, videos and reports are posted on the Commission website at www.lgpc.ny.gov.

Tasks set forth for this initiative included a detailed literature review of relevant studies in the state and region, an analysis of the geologic and environmental factors that may impact septic system functioning around Lake George, and a review of all other recurrent lake-based septic

inspection programs throughout NY State. Over the period of several months, these analyses were conducted and presented to the Ad-Hoc Committee and the interested public. The results of these analyses indicates that Lake George is prone to impacts from failing systems, and that a recurrent (every five years) septic inspection program would help ensure that septic systems near Lake George and its tributaries are functioning properly.

Properties Included in This Program

Commission regulation 6 NYCRR 645-3.8 defines the lake's 'Critical Environmental Area' as the area within 500 feet of the shore of Lake George and adjacent wetlands to the lake. This zone around Lake George and its contiguous wetlands would be considered high priority for any septic inspection program given the proximity to the lake and the generally shallower depth to groundwater and bedrock in these areas. In addition, the Commission has determined that DEC regulated streams within the Lake George Park, as the primary conduits for water to the lake, are also concerning from a septic systems impact standpoint. However, given the larger general distance to the lake itself from these upland properties, the Commission has determined that a lesser zone of 100 feet around DEC regulated streams tributary to Lake George would be the priority in relation to septic system impacts.

The routine wastewater inspection program pertains to all wastewater systems located within 500' of Lake George or within 100' of DEC regulated streams. Recognizing that most wastewater systems are located in relatively close proximity to the structure/house they service, as a practical means to determine the majority of individual properties that would be included in the proposed septic system inspection program, the Commission has undertaken an analysis to determine which residential and commercial structures are within 500 feet of the lake and 100 feet of streams. The structure location as viewed from aerial imagery was used to determine which properties would most likely be included in an inspection program. This analysis resulted in approximately 2,700 properties being identified as being included in the new septic system inspection program in the Lake George Park. The Geographic Information Systems analysis to determine this outcome is available on the Commission's website.

Septic System Inspection Process

To get an effective understanding of the functioning of an onsite wastewater treatment system, an inspector needs to visually confirm as many components of that system as possible. In most cases, this includes the septic tank (inlet and outlet), distribution box, alarm systems and any other associated components that can be effectively exposed. In addition, it is important that the inspector confirms that all water generating fixtures (baths, sinks, toilets, showers) are connected to the septic system and are not discharging to another location.

To achieve these goals, proper septic system inspections typically follow this general process:

1. In advance of the inspection, the landowner or agent (septic hauler or similar) unearths the septic tank ports, distribution box, and any pump chambers.
2. For the inspection, the septic hauler needs to be present to ultimately pump out the septic tank as part of the inspection and program.
3. The inspector looks at the property to see if there is any evident surface discharge of untreated wastewater on the ground or surrounding area.
4. The inspector works with the owner or hauler to confirm that all water generating devices are discharging into the septic tank, by turning on and off each fixture and witnessing the water entering the tank.
5. The inspector looks to see the water level in the uncovered distribution box, to ensure that the infiltration bed is not backing up, to ensure proper leveling of outlet pipes and that the system has an even discharge into the leach lines.
6. If there is a pump tank, the inspector will check the alarms to ensure proper operation.
7. Following these items, the hauler will pump the septic tank, and the inspector will review the tank for integrity of baffles and water tightness.
8. The inspector will confirm that the septic system is sized properly for the number of bedrooms in the house, based on NYS Health Code 10 NYCRR Part 75-A or DEC's 2015 "Design Standards for Wastewater Treatment Works in the Lake George Basin", as applicable.
9. Once complete, the hauler will replace the system caps and restore the grounds to their original state.
10. The inspector will provide the owner with a report of the inspection, and notify the owner of any follow-up actions, such as system repairs, that may be required to facilitate compliance with long-standing design standards.

Inspection Interval

The vast majority of lake-based recurrent septic system inspection programs in New York state have an inspection interval of once every five years. Discussions regarding this timeframe with program managers revealed their reasoning, being that septic tanks should generally be pumped out once every five years to keep the system functional, and their inspection programs always involve a pumpout from a NYS licensed hauler. The system inspection at the time of pumpout is critical, as many of the system components require the removal of ports and covers which are often done by haulers. Also, an empty tank allows for the proper inspection of baffles and tank integrity. The Commission concurs that an inspection interval of all involved properties once every five years would be an appropriate timeframe for Lake George.

To accommodate a generally consistent number of inspections every year for the five year period, the 2,700+ properties in the inspection program area would be divided into five distinct populations, each representing approximately 540 properties (one fifth of the total number of

properties in the program). Each year, the Commission would mail letters to each of the property owners in one of the five sections, notifying them that they need to get their system inspected within a year's time. By the end of the five year interval, all 2,700 property owners in the program would have had their systems inspected. After the fifth year, the program would begin again in the same order of inspections.

Substandard and Failing Systems

If, upon inspection, a system was found to be failing, have broken components or be substantially below current standards, the owner of the system would be responsible to undertake those repairs or upgrades. Simple repairs would be overseen by the Commission, but any system upgrades requiring engineering would be overseen by the appropriate municipal or county entity. Costs of repairs and upgrades would be the responsibility of the property owner. If a system was found to be failing (e.g., no septic tank, metal septic tank, failed infiltration bed, or surface septage evident), the property owner would be afforded up to six months to make the requisite repairs. Extensions to this timeframe could be granted by the Commission for identified hardship or for good cause.

Many system improvements and/or replacements will require permits or other approvals from local, county, and/or state regulatory agencies. Although the proposed regulations at 6 NYCRR 646-3.6 would require the worst-performing systems to be upgraded within six months of an inspection, the Commission retains discretion on a case-by-case basis to consider special circumstances when granting good-cause extensions. Such circumstances could include permitting delays despite good faith efforts by the property owner to obtain regulatory approvals.

If, upon inspection, a system was found to be substandard (i.e. a septic tank less than 100% of required capacity, an infiltration bed less than 75% in size, infiltration bed less than 50 feet to Lake George or a DEC stream), the system would have to be upgraded by the property owner within five years (prior to the next inspection).

Based on the outcome of other programs in NYS, it is anticipated that a modest percentage of septic systems inspected will require upgrade. These upgrades and approvals would be processed through the existing framework of regulatory entities, generally local municipalities or the county. To help alleviate significantly increased workload in any particular town, the population of inspections to be conducted in each of the municipalities would be divided by five, and one fifth of those inspections planned each year. This would provide a more even anticipated workload for the approving bodies over the course of the inspection program.

Inspection Staffing

Septic system inspection programs utilize either agency/municipal inspectors or outside privately trained and certified inspectors. Costs and results vary depending upon the model utilized. The Commission has evaluated those costs and results and believes that the appropriate model to be utilized would be one conducted by Commission seasonal staff. Costs for such a program would be borne by the affected property owners, at an annual cost of \$50 per year for residential properties and \$100 for commercial properties.

Lakes that have septic system inspection programs generally administer the program in one of three ways:

1. Utilizing trained staff inspectors from the managing government agency (agency inspectors)
2. Operate with outside/private inspectors who are trained and certified to conduct inspections by that agency (private inspectors)
3. Hybrid program using private inspectors with agency oversight

Each of the three inspection staffing models discussed (Agency, Private, Hybrid) have different costs associated with them. The cost of any inspection program would include the cost of the inspector (agency or private) plus the cost of the septic tank pumpout at the time of inspection conducted by a licensed hauler.

Under all considered scenarios, the property owner would be responsible for the cost of the tank uncovering and pumpout, paid directly to the hauler. However, the cost of the inspection itself would vary depending upon who would be responsible for conducting the inspection.

If the Commission conducted all inspections, that staff cost would be offset by a fee from the agency to the property owner, likely annually. If a certified private inspector program model was utilized, that inspection fee would likely be set by the Commission to help ensure program consistency and clarity for the property owner. With this private inspector model, the cost of those inspections would be built into an annual fee from the Commission to the property owner. This would eliminate the need for multiple payments by the property owner; one to the inspector and one to the Commission for program management. The Commission would absorb that cost into the annual property owner fee to increase administrative efficiency and simplicity to the property owner.

A hybrid program model would involve the cost of a certified private inspector, plus the cost of compliance inspections and program oversight by the Commission. The following information summarizes how each of these programs could work, their likely costs and logistics. Estimated residential property owner costs are reflected in the analysis below. Given their complexity and size, commercial properties would likely be charged at the rate of two times the residential rate.

Approximately 95% of the properties in the proposed inspection area are residential in nature, only 5% are commercial.

Evaluation of Alternatives

Program Concept #1 - Commission Inspectors (Preferred Alternative)

This concept would rely on the Commission to hire seasonal technicians and train them on septic inspection protocols. The Commission would be responsible for administration of the entire program, including contacting property owners to schedule the inspection, coordinating with the owner on their schedule with a septic hauler, conducting the inspection and all follow-up activities resulting from the inspection. This model is similar to the current Town of Queensbury septic inspection program in its general administration. This program model would benefit from being able to utilize existing Commission field staff to absorb inspections during busy times, thus lowering the need for the number of dedicated inspection technicians hired specifically for this program.

Anticipated program operating period	4/1-12/1 each year (8 months)
# of systems in inspection program	2,700
# inspections/yr	540 ±
# inspections/week	20
# Commission program staff needed	2 inspectors
Cost: 2 seasonal inspectors + part time admin	\$100,000
Cost of outside/private inspection to owner	\$0
Estimated Total Cost to Property Owner	Residential = \$50 per year Commercial = \$100 per year

Pros and Cons of this model:

Pros: Higher consistency among inspections, likely leading to higher quality output and a more detailed and integrated program. No additional outside inspector cost to owner. Existing staff could conduct inspections during the shoulder seasons and during peaks, thus lowering the cost of staffing.

Cons: More difficult logistically to schedule inspections between all parties (owner, hauler/inspector, Commission).

Program Concept #2 – Private Inspectors

This concept would seek to train outside private septic system inspectors and certify them for the Lake George septic inspection program. Individuals could include septic system haulers, private engineers, builders, etc. Some level of experience in the building or codes trades would likely be a requirement for becoming a certified inspector. The owner would contact a certified inspector and schedule the inspection/pumpout without involvement from the Commission. Reporting back to the Commission from the inspectors would be required, and the Commission would primarily

just track and record progress on inspections. This model is similar to the current Town of Bolton septic inspection program in its general administration.

All of the lakes in NYS that administer recurrent septic inspection programs with annual inspections exceeding 200 per year utilize outside/private inspectors for their programs.

Anticipated program operating period	4/1-12/1 each year (8 months)
# of systems in inspection program area	2,700
# inspections/yr	540±
# inspections/week	5-30
# Commission inspectors needed	0
# Commission program staff needed	0
Commission staff cost: \$0, existing staff would absorb the program management	\$0
Cost of outside/private inspection to homeowner	\$150-200 per inspection
Estimated Total Cost to Property Owner	Residential = \$30-40 per year Commercial = \$60-80 per year

Pros and Cons of this model:

Pros: Less difficult logistically to schedule inspections without Commission staff involvement, as the inspection is solely between the hauler/inspector and homeowner.

Cons: Lesser consistency among inspections, likely leading to lower overall quality output and a less uniform and integrated program. Without any additional seasonal staff dedicated to this program, the Commission would be challenged to confirm program integrity, compliance and requisite follow-up.

Realizing the challenges inherent in both of these models, a hybrid combining these two concepts could help address some of these issues. Some NYS lakes that utilize outside inspectors have some level of inspection oversight, while others simply record the results. Speaking with the program managers on these lakes, the recurring theme is that high quality inspections can be achieved with outside inspectors, but that good program oversight is crucial to a successful and consistent program. Given these factors, a third alternative for a Lake George septic inspection program is discussed below.

Program Concept #3 – Hybrid Program (Private inspectors with Commission oversight)

This concept would utilize outside, trained private inspectors to conduct all of the inspections, while Commission staff would administer the program and provide daily compliance reviews on a percentage of the inspections. The homeowner would schedule the inspections with the hauler and the inspector (in many cases the hauler would be the inspector), eliminating a significant logistical step of coordinating inspections with the Commission. Once the inspections were

scheduled, the inspector/hauler would inform the Commission by entering data into the agency's new publicly facing database system. This database would be used by the Commission to conduct oversight reviews of the inspections as available. The Commission would hire one seasonal inspection technician to attend as many inspections as possible to help ensure consistency and quality.

Anticipated program operating period	4/1-12/1 each year (8 months)
# of systems in inspection program area	2,700
# inspections/yr	540±
# inspections/week	5-30
# inspections/day	0-10
# program staff needed	1 inspector/admin
Annual Estimated Agency Program Cost:	\$50,000/year
Cost of outside/private inspection to homeowner	\$150-200 per inspection
Estimated Total Cost to Property Owner	Residential = \$55-65 per year Commercial \$110-130 per year

Pros and Cons of this model:

Pros: Eliminates three-way inspection coordination, inspection oversight helps create consistency and quality among inspectors long-term.

Cons: Costs more than agency inspector model, with lower guarantee of consistency and oversight

Recommended Inspection Protocol

Based on the factors above and considerable discussion by the Ad-Hoc Committee, the preferred inspection program model would utilize Option 1: Commission inspectors. This option provides the best cost/benefit, primarily because it utilizes existing Commission staff to absorb some of the program administration and off-season inspections. It also provides the greatest consistency and programmatic integrity, as it is all managed internally. Under this program, the cost to property owners in the program would be \$50 annually for residential properties and \$100 for commercial properties.

Enhanced Septic System Design Standards

The Commission's research identified that the existing NYS wastewater treatment system design standards are primarily created to address treatment and removal of bacteria and pathogens, not specifically nutrient (phosphorus) reduction. Phosphorus is the 'limiting nutrient' that is the primary driver of enhanced aquatic growth, such as algae blooms in lakes (including Harmful Algae Blooms). As such, it is the most important individual component in protecting lake water

quality. In relation to septic systems, the two primary drivers of phosphorus removal are within the septic tank (deposition), and more importantly adsorption by the receiving soils.

To help improve phosphorus (and nitrogen) removal in newly constructed onsite treatment systems in the Lake George basin, the Commission proposes new standards as follows:

1. The soil absorption area for septic systems constructed in the Lake George basin shall be located a minimum of 36" above seasonal high groundwater and bedrock
2. The reduction in absorption area and trench length allowed by NYS DOH at 10 NYCRR 75-A or NYS DEC Design Standards for Enhanced Treatment Units (ETUs) and Gravelless Absorption Systems shall not apply to Wastewater Treatment Systems in the Lake George basin
3. Upon redevelopment (tear down/rebuild), the septic system servicing that structure shall be brought into compliance with all current applicable design standards
4. When an absorption area is decommissioned and/or replaced, the absorption area and underlying soils shall be removed to a minimum depth of 24" below the absorption area dispersal system (eg. pipe and stone, infiltrators, etc.) or down to existing groundwater elevation, whichever is shallower.

These standards would be administered by towns and counties in the Lake George basin that currently administer wastewater approvals. All new developments with onsite wastewater treatment systems would be required to meet these standards in addition to the existing NYS DOH and DEC design standards. Any individual project waivers from these standards would follow the existing processes through the approving authorities.

4. Costs

a. Costs and Impacts to Property Owners

Ninety-four percent of the properties in the wastewater inspection program area are residential, with the remaining six percent being commercial. The cost to a residential property owner annually for the program is \$50, and the cost to a commercial property owner is \$100. The increased cost for commercial properties is the inherent complexity of commercial systems that will likely require two inspectors present during the inspection instead of one.

In addition to the inspection program cost is the once-per every five years septic tank pumpout required for the inspection. Routine septic system pumpouts are a regular maintenance activity for property owners that own septic systems, and this cost should already be occurring among properties with septic systems to treat their wastewater (NYS DOH recommends pumping septic tanks every 2-3 years). As such, this is not seen as a new cost to the property owner.

The cost of this inspection program is not anticipated to be a significant financial burden on the property owners in this program. The average residential property taxes within the program inspection area exceed \$12,000 per year and average approximately \$15,000 within 100' of the Lake. The annual fee for the Commission's septic inspection program is \$50, or approximately less than one-half of one percent (0.42%) of the owner's current tax bill.

The Town of Queensbury in the Lake George Park operates a program to inspect septic systems upon property transfer, intended to help ensure that systems are fully functioning prior to new ownership. For reference, this program has revealed that upwards of 70% of the systems inspected required repairs that would ultimately increase the lifespan of the system. These low-cost repairs (sometimes less than \$50 for speed levelers, d-box baffles) help stave off system replacements that can cost upwards of tens of thousands of dollars. Thus, the inspection added value to the system and reduced the overall cost of ownership of the system.

The Town of Queensbury program has identified that approximately 15% of septic systems require more substantial repairs or replacement of system components. This result has been found to be similar in other lakes in New York State who conduct septic system inspection programs, averaging between 12% and 20% among the lakes contacted. In situations of system failure, there is a larger cost to the property owner for undertaking these upgrades/repairs to make the system functional again. The cost for construction of a conventional wastewater system is roughly \$5,000-\$10,000. A more sophisticated system such as an ETU, may cost anywhere from \$10,000 to \$30,000. If the Town of Queensbury's results are typical for the overall Lake George basin, it could be expected that a similar percentage of systems would need repairs or upgrades. Time is afforded in the regulations to allow property owners with system failures to obtain upgrades, and extensions can be granted for proven hardships. While these 'failing' systems would cost the owner to upgrade or repair, it is these exact systems that are the ones that are harmful to the environment and public health.

b. Costs and Impacts to Other NYS Agencies and Local Governments

This program is expected to have a modest impact upon the local municipalities around Lake George that administer wastewater jurisdiction. As septic system failures are identified, those property owners will be required to upgrade those systems. That process will involve approval from the local code enforcement department and sometimes the local consolidated Boards of Health.

The Commission contacted all wastewater approval authorities in the Lake George basin to discuss this potential impact to determine if it would be detrimental to their staffing and overall

program costs. Every municipality noted that they supported the Commission's proposed septic inspection program, and that they could absorb the potential additional workload that the program would generate. As such, it is not anticipated that the proposed program will have an undue burden on the wastewater approval authorities in the watershed.

Costs and Impacts to the Commission

The Commission is prepared to accept the administration, enforcement, and cost of this program as described. The anticipated user fee income generated annually will offset the cost of two seasonal inspection technicians, working under regular Commission program staff. The seasonal technicians will operate from May of each year until October, and regular program staff will conduct the early and late season inspections which are expected to be considerably less than the peak season when seasonal owners are present. During peak season, regular program staff will undertake inspections that exceed the capacity of the seasonal staff to administer. Currently, the Commission has six regular program staff that will be cross-trained in septic system inspections to handle this workload as required. Although not expected, if additional seasonal staffing is required, the Commission can seek out appropriate temporary staffing from a local staffing firm and provide internal training as needed.

Enforcement of the proposed regulations will be handled by the Commission's existing enforcement staff including the Commission's Enforcement Officer and the Commission's counsel. Enforcement may include actions to recover permit fees, to obtain access to properties, and to require necessary repairs.

This program will not impact the staff or Board of Commissioners related to review and approvals of new or upgraded septic systems, as those approvals remain the purview of the current approval authorities.

c. Data Supporting the Cost Analysis

As outlined above in section 3, the cost analyses are derived from known values of the number of septic systems in the basin, the known 5-year inspection interval, and associated staffing needs. Pump-out and construction costs associated with wastewater treatment systems are existing, known values.

5. Local government mandates

Local governments, including municipal and county governments, will retain responsibility for review and permitting of wastewater system design and construction. The inspection program, anticipated to result in a 15% failure rate as noted above, will result in a commensurate uptick in local review jurisdiction. So as not to overly burden any particular review authority, the inspections will be staggered throughout the Wastewater Inspection Program Area such that anticipated review jurisdiction will be evenly distributed among the review authorities. The Commission spoken with each of the review authorities, and they have indicated they are well equipped to handle the anticipated increase in workload. It should be noted that based on experience from western NY inspection programs, the failure rate observed during inspections should decrease following the first 5-year round of inspections.

6. Paperwork

The need for any reporting requirements, including forms and other paperwork that would be required as a result of the rule, largely exist at this time in the form of existing, routine pump-outs and inspections associated with regular maintenance of wastewater systems. What the rule requires is that records of pumpouts and system construction or maintenance be maintained by the landowner for the life of the system, and that such records be provided to the Commission upon request. For systems located inside the Wastewater Inspection Area (within 500' of Lake George and 100' of DEC regulated AA-S streams), the Commission will be conducting wastewater inspections as well as creating and retaining any needed records. For those systems in the Wastewater Treatment Inspection Area that are already routinely inspected by an outside Qualified Stormwater Inspector, such as in the case of ETUs, a copy of the Inspector's inspection record would need to be provided to the Commission on a routine basis, not less than every five years.

7. Duplication

The regulation is designed to limit duplication of jurisdiction by limiting Commission activity/oversight to wastewater inspections, inspection reporting, and enforcement, as applicable. No other agency currently provides routine wastewater inspections in the Lake George basin. The towns of Bolton and Queensbury have real property transfer laws that require wastewater inspection upon transfer. Per proposed 646-3.5(a)(3), systems that are subject to the transfer law inspection of these municipalities are exempt from inspection and fees of the Commission program for a period of 5 years from the date of transfer law inspection. With respect to design standards, though the regulation establishes design standards, these standards are to be implemented by the existing review authorities for wastewater treatment systems (i.e.,

Municipalities, Counties, and/or DOH). Rather than have the Commission act as an additional review authority for design and construction, these responsibilities will rest with the existing entities and will not be duplicated. The proposed regulation provides that, where two standards exist, such as the proposed 3' vertical separation from the bottom of an absorption area compared with the existing 2' standard of DOH, the more restrictive standard shall apply.

8. Alternatives

Several alternatives were evaluated with respect to the wastewater inspection program staffing. These alternatives included having Commission Inspectors, private inspectors, or a hybrid program with private inspectors and Commission oversight. The details of these alternatives are described in detail in section 3 above.

9. Federal Standards

The subject regulation does not conflict with or exceed any standards of the federal government.

10. Compliance Schedule

The Commission will contact landowners within the wastewater inspection program area to schedule individual inspections. If the system is found to be failing, the landowner will be granted six months to bring the system into compliance. Systems found to be substandard per the regulation (e.g. undersized septic tank), but which are not presently failing, will be afforded a period of 5 years to bring their septic system into compliance subject to case-by-case extensions granted in the Commission's discretion as described above. All landowners within the Lake George basin will need to immediately begin retaining records for any wastewater system construction or maintenance activity that occurs following adoption of the regulation.

*** END ***