



Subject: *Lantz Lagoon Upgrade Planning*
To: Executive Committee
Date Prepared: October 2026
Related Motions: C24(344)
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Approved by: Adam Clarkson, Acting Chief Administrative Officer

Summary

The Lantz Lagoon received updated Approval to Operate conditions from the department of Nova Scotia Environment & Climate Change (NSECC) in July 2026. As a result, and combined with Staff's focus on sludge analysis and management over the last 2 years, it is time to begin planning upgrades for the Lantz Lagoon. The Lagoon serves the communities of Enfield, Elmsdale, and Lantz, and these upgrades are essential to set up for the next generation of wastewater customers.

Staff have identified the desludging requirements for the next two phases of the existing Lagoon Cells 2 & 3, which are also part of the setup for the capital upgrade plan. This is being recommended to take place in three stages, based on the magnitude of the project and will consist of; a pre-design assessment that solidifies technical scope requirements, a detailed engineering design, and finally the construction of an upgrade project.

Financial Impact Statement

Pre-Design - **\$340,000** (10% of detailed design, rounding up) **Fiscal 2027-28**
Design - projected at 15% of current construction forecast **\$3,375,000 Fiscal 2028-29**
Construction **\$22,500,000** (did not subtract design cost from total, as inflation and market impacts need to be updated) **Fiscal 2029-30 to 2030-31**

Cell 2 Desludging - \$600,000 **Fiscal 2027-28**
Cell 3 Desludging - \$3,000,000 **Fiscal 2028-29**

Recommendation

To have Staff bring forward budgeted projects for fiscal 2027/28 as it relates to preparing for the upgrade of the Lantz Lagoon in its current setup.

Recommended Motion

Move that the Infrastructure & Operations Committee recommend that Council request staff include in the 2027/28 fiscal year budget planning process, projects required to complete a phased approach to a capital upgrade of the Lantz Lagoon, as per the scoping detailed within the October 2026 report entitled "Lantz Lagoon Upgrade Planning".

Background

Approval to Operate

The Lantz Lagoon received an updated Approval to Operate from the Nova Scotia Department of Environment & Climate Change on July 29, 2026. This approval term expires March 25, 2036. The most noteworthy update in the current approval is the requirement to submit a sludge management plan for the Lagoon by March 31, 2027.

The renewal application was submitted in December 2025, but the delay in receiving an updated approval has further delayed planning for the Lagoon, as there was uncertainty regarding the details of the updated terms and conditions of the approval.

Lantz Lagoon Optimization Study

In September 2024, Staff presented a report on Servicing Capacity upon the completion of the East Hants Servicing Study (RV Anderson Feb. 2024), the expansion of the Enfield Water Treatment Plant (Dillon 2023), and the Lantz Lagoon Optimization Study (Dillon Apr. 2022).

Within that report, it was identified that the realistic capital upgrade of the Lantz Lagoon would be between 2030 and 2035, with a high-level estimate of \$22,500,000. Since that report, the summer of 2025 had extreme drought conditions which put additional strain on wastewater treatment, and ultimately led to a written warning from the Department of Fisheries & Oceans for a chlorine exceedance event that took place on July 15, 2025. That event highlighted the challenges of operating with outdated technology such as chlorine disinfection, when the industry is moving towards UV treatment as best practice.

Discussion

Sludge Management

Over the last 2 years, Staff have completed the desludging of Cell 1, over 2 phases. This was the first desludging event for the Lantz Lagoon since first being commissioned in 1989, and learnings from Cell 1 have been a part of discussions on how to monitor sludge on-going, manage the timelines of sludge and establish next steps.

Staff have developed a Lagoon Capacity tracker based on a combination of, initial design, 2 past studies, past sludge measurements, and new sampling data that has been collected since the Lantz Optimization study was completed in 2021; which flagged gaps in information. The tracker's current numbers are an attachment with this report, and need to be combined with operator observations to help support planning. Most notably in the tracker, Cell 2 has a theoretical 6+ years before needing action on sludge, however the latest detailed measurement of sludge completed in September 2026 shows that the accumulation is heavily stacked along the perimeter. This means that parts of that cell are performing differently than thought, which has also been validated in field observations from operators.

The resulting recommendation for Cell 2 is to be deslugged in 2027. The initial price forecast is in the range of \$530,000, but that isn't factoring in price escalations from current global events. Therefore, Staff suggest a budget of \$600,000 is a more realistic for Cell 2, if completed in 2027.

The Cell 3 forecast from the tracking tool currently lists theoretical desludging due in 2032, however there is lower confidence in current data as the process of collecting data in 2024 has accuracy issues, as was demonstrated in the actual volume and cost results from Cell 1 desludging. There is an updated measurement planned in 2026 which should refine planning. Staff are currently projecting costs to be in the range of

\$3,000,000 to be completed in 2028. That should be flagged as “for further study” until more information can be collected.

With the new tracker setup and the ability to forecast in the impacts of population growth, Cell 1 is projected to be desludged again 2032. This would be if the plant remained operational with its current setup, with no major capital upgrades. More variables will need to become fixed/confirmed prior to defining budget or confirming the need with respect to timing. Current confidence level with Cell 1 data is high.

Outdated Technology - Age of Equipment

The Lantz Lagoon is one of the last lagoons in Nova Scotia to use chlorine disinfection. This also requires the removal of chlorine prior to the effluent being released into the environment at the end of the process. The injection of chlorine uses continuous water vacuum that is an additional cost and that water is comes from the East Hants Water Utility. The modern approach is to use UV for disinfection which reduces the complexity of treatment and is best practice for Lagoons.

In a July 2019 report to Executive Committee, there was a request for capital approval for blower repairs. It was flagged at that time that the equipment used in the Lagoon is no longer available for a like for like capital replacement.

The aeration system within the cells is at end of life and also needs full replacement. Air lines have been leaking at an increasing rate in recent years, incurring repair costs and lowering the effectiveness of the process. A modern aeration setup with more operator adjustment control, providing the increased ability to adapt to environmental conditions would be ideal for higher plant performance.

Land Need Potential

Something that is unknown until design, is the potential land need. The Lagoon is currently accessed across an easement, with limited additional space to change operational setups. It would be in the best interest for the municipality to look to expand land holdings around the Lagoon as it would enable more options through the design process.

Sewage Handling from Rural Communities

In 2024, the private septic receiving site at Cogmagun Landfill, West Hants closed for several weeks of maintenance, without advance notice to the public. This impacted private septic services, causing backlogs due to increased travel times to alternative facilities and short-term price increases due to additional travel and fuel requirements.

East Hants Council responded with the following;

C24(214) “Passed that staff to prepare a report in regards to handling sewage from rural areas of the municipality and what options could be in the future.”

The ability to completely consider the motion is tied to the updated Lantz Lagoon approval to operate which was just received last month. Also, the draught conditions during the summer of 2025 required a focus on maintaining quality effluent versus additional variables that would have compromised treatment.

The Lantz Lagoon outflow goes into a fresh water area of the Shubenacadie River. That requires higher treatment and quality control versus a treatment plant with outflows into less environmentally sensitive bodies of water such as the salt water Minas Basin. As staff continually build understanding of the performance capability of the existing Lagoon, the Sewer Bylaw was updated in July 2026 to lower biochemical oxygen demand (BOD) allowances to be in line with the original design of the Lagoon. With the current rapid growth of the serviced area of the regional system (Enfield, Elmsdale, Lantz), it is critical to continually refine treatment settings to manage the growth responsibly.

With respect to the Lagoon becoming a receiving location for private septic haulers, it doesn't have a setup for payment, nor is it staffed continuously; therefore, it is incompatible for this type of service.

In August 2024, Staff reached out to 21 other municipalities to see what units had or managed septic receiving. There were only 6; Shelburne, Cumberland County (Private Partnership), Chester County, Colchester County, Municipality of the District of Lunenburg, and Kings County. Of those 6; 3 received at landfills and 3 received at a wastewater treatment facility. 3 only will receive from septage generated from their municipality and 3 charge higher fees for septage coming from outside its boundaries.

If East Hants were to pursue receiving private septage, Staff would recommend exploring a neutral site that has a receiving water body with lower environmental sensitivity than the Shubenacadie River. The benchmarked locations of other municipalities all appear to have outfall locations that would be more suitable compared to the Lantz Lagoon (i.e. Atlantic Ocean, Minas Basin).

Spacing out Large Capital Projects

Based on the pace of growth the Municipality continues to experience, there is a need to pull forward large projects to build in capacity and the timing of each one impacts the timing of the others. There will be a need to further expand water treatment beyond what the current Enfield Water Treatment Plant can produce. That expansion is currently forecasted to be needed between 2035-2040, and the design work and any required studies identified by the Department of Nova Scotia Environment & Climate Change would need to be completed in advance of that timeline.

To have an expansion of both the Lantz Lagoon and a major Water Treatment project at the same time is not recommended. It would put a peak stress on staffing and also would magnify risks associated with major capital. The Lantz Lagoon is therefore recommended to start first and pulled ahead in timeline to accommodate the larger picture of capital planning.

Financial Consideration

This is a large capital spend that is anticipated to require debt servicing as part of the funding model for the project. To minimize debt servicing requirements, council should consider adding funds to reserves where possible leading up to the project along with support funding applications to both Provincial and Federal levels of government.

Alternatives

Seek 3rd Party Assessment for next steps

Instead of going to pre-design in 2027, East Hants could choose to seek another professional opening on next steps. It may identify an alternative to starting with a Pre-Design work item in 2027.

Delay until 2030

The Lagoon may hold up until 2030 as per a previous staff forecast. This could impact timing and resource availability with other large capital projects. Also, the longer the wait, the higher the risk for unplanned repairs to an aging asset.

Attachments

Lantz Lagoon Desludging Plan (Executive Committee report, Dec 2024)
Servicing Capacity - Staff recommendations post reviews (Executive Committee report, Sept 2024)
Capital Funding Request for Lantz Lagoon Blower Replacement (Executive Committee report, July 2019)
Bylaw IO-300-2, an Amendment to Bylaw IO-300, A Bylaw Respecting the Regulation of Connections and Discharges to Public Sewer Systems (Executive Committee report, July 2026)
Regional Wastewater Treatment Plant - Optimization Report (Dillon Consulting, 2022)
Lagoon Review_2026-10-01 (internal staff document, Oct 2026)