



MEMO

TO: Sarah White, GM Financial Services

FROM: Cindy Paton, Manager of Community Services

DATE: October 31, 2024

SUBJECT: Internal Community Works Fund Application

Project Name: Nukko Lake Community Hall Water and Sewer Systems

Location: Prince George, BC

Introduction

The Nukko Lake Community Hall was built in 1947. In 1997 the community approached the Regional District with a request to establish a local area service so that the hall maintenance and capital expenses would be paid for by the property owners living within the service area. In keeping with legislative requirements for service establishment, ownership of the hall was turned over to the Regional District at that time. The hall continues to be managed and operated by the Nukko Lake Recreation Commission by way of a Property Use Agreement.

In the past 2 years the Community Hall has faced 3 major projects that were not budgeted for due to lack of funds and minimal reserves for this Service. The Regional District, the Nukko Lake Recreation Commission and the Service's CCC were aware that these projects would need to be addressed in the future and plans had begun to be implemented with a modest annual increase to requisition starting in 2022 intended to enhance reserves. Unfortunately, the projects had to proceed prior to having sufficient funding in place, or the future of the hall would be compromised.

1. In 2024 a new roof was put on the hall, completion of soffits, fascia, gutters & downspouts is planned for the fall of 2024 (delayed due to contractor availability in 2023 and 2024). The roof project was partially funded by a Northern Development Initiative Trust grant of approximately \$28,500 (final number will not be available until the project is completed). The total cost is projected at \$46,668. The difference between the final project cost and the amount funded by NDIT, estimated at \$23,938, will be funded by a Community Works grant approved in 2022.
2. In October 2023 the community hall water system failed a Northern Health Inspection and the hall was put on a Boil Water Advisory. The Regional District did not receive notice of this event until March 2024 so investigation of the situation began once we received notice. The water source for the Nukko Lake Community Hall is the lake by way of a Conditional Water Licence that authorizes the diversion and use of water from Nukko Lake. Currently, as the water is not potable without treatment, the Nukko Lake Recreation Commission brings in bottled water for all events and water from the lake is used for sanitation only. Northern Health has permitted a grace period for the hall to operate in this manner dependent upon the Regional District taking steps to resolve the water treatment issue.
3. There was an incident in the late summer of 2023 where sink holes were appearing near the drain field and the concern was that the sewage system was the cause. In November 2023 the Regional District began investigation of the sewage system and was able to make some upgrades by way of a Community Grant-In-Aid. The sewage system was constructed in the early 1990's and had not had any upgrades in the intervening years.

Project Description:Water and Sewage Utilities Upgrades

In 1998 the health department required a water filtration and treatment system be installed. The filtration and UV water treatment system were installed in 1999. The UV treatment system has failed and parts for the system are no longer available. The hall has continued to use the filtration system but it no longer meets current drinking water requirements and must also be replaced.

The Regional District engaged McElhanney Engineering under the 2024 As And When Engineering Services Contract to do an assessment of the water system to provide an estimate for a new water system that would meet with current Northern Health regulations for drinking water systems. The following three options would meet with Northern Health's approval.

1. Continue to use water from the lake and install a new filtration and treatment system:
 - Capital cost estimate \$145,500
 - This is basically the updated version of the current failed system
 - System requires operator maintenance by a designated operator with an Environmental Operators Certification Program (EOCP) Small Waters System certification.
 - New system would be automated to shut off the if there were a poor water quality event in the lake which overwhelmed the system.
2. Install a below ground cistern and haul in potable water as needed.
 - Capital cost estimate \$248,000
 - Ongoing cost to engage a certified water hauler is unknown
 - This option has the highest operator and maintenance costs
 - Automated level sensors installed to alert the hall manager when water level is low
 - A chlorination system would be required and a chlorine analyser would monitor chlorine levels in the cistern and dose as required. Proper chlorine handling and storage required. Outside kiosk required for storage of chlorine. Ongoing cost for chlorine and management of the system unknown at this time.
 - Uncertainty due to the small property size and proximity to the road and the lake, which limit the options for location of a buried cistern on this property.
3. Drill a well on site.
 - Capital cost estimate \$154,000
 - Due to property size constraints, proximity to the lake, the road, the sewage system and neighbours close by with sewage systems there is uncertainty if this if a drilled well would be possible and would require more assessment (and therefore more cost before we could proceed).
 - High degree of uncertainty of water quality and yield/flow
 - Nearby properties drilled to 375 and 382 ft. deep
 - If yield is low, may need to also install a cistern for storage (not included in the above cost)
 - If the water quality is poor, a filtration and treatment system would also be required (not included in the above cost)
 - Regulation would require well redevelopment every 5 years.

Of the three water treatment options that would be acceptable to Northern Health, Option 1 has the most certainty when it comes to costs at this time. Option 2 would be the most costly to operate and maintain. Option 3 - drilling a well - has the highest level of risk and therefore cost as the need for a cistern or filtration/treatment system is not reflected in the estimated cost and would not be known until the well is drilled and flow and quality are tested.

In addition to the capital costs, all water treatment options will require regular ongoing maintenance costs to comply with Northern Health regulations. Option 1 would have the lowest annual maintenance cost and is projected to be \$7,000 per year based on Regional District staff hourly costs of \$4,000 for 2025 and \$3,000 for ongoing water quality testing including shipping and lab costs. This is a new cost to the Nukko Lake Community Hall budget that will be included in the 2025 budget year and all years going forward. This is a significant increase to this budget and will require a substantial requisition increase.

In late fall 2023 the sewage system was scoped with a camera, the lines cleaned, and the distribution box replaced. Further work was identified as needing to be done but due to the lateness of the season the work was postponed to 2024. In the spring of 2024 the upgrades to each of the 2 septic tanks was done, a sewage line was repaired and parking lot barriers were installed to prevent vehicles from driving over the sewage system infrastructure. The last step needing to be done on the sewage system is to have the trees and brush that are growing in and compromising the sewage system drain field. This work will be done in the spring of 2025 due to lack of contractor availability in 2024. It must be noted that the sewage system is no longer compliant with today's regulations. As long as the system is maintained as is, it is "grandfathered", however, if the system fails it will need to be replaced. Replacement in today's terms would be very expensive due to the close proximity to the lake and the small property size which would make relocation of the system challenging and extremely costly. For all these reasons, this septic system must be maintained and protected to give the Nukko Lake Community Hall as many years of service as possible. The upgrades are projected to prolong the integrity of the system for another 10 years if properly maintained.

Asset Management

At the beginning of 2024 The Nukko Lake Community Hall Service currently had \$21,006, in Operating Reserve and \$38,041 in the Northern Capital Planning reserve. The requisition is currently at \$13,160 in 2024 and has a requisition limit of \$42,577 in 2024 (greater of \$2,950 or \$0.30 per \$1,000). Prior to the failure of the water system and the necessary upgrades to the sewage system, the five year plan included modest requisition increases in all years in order to minimize the impact to taxpayers. It is now evident that a greater requisition lift will be required in order to fund the ongoing operation and maintenance of a new water system as well as to be able to continue putting funds into reserve for asset management knowing that the existing sewer system is projected to need replacement in 10 years. If Community Works funding is not approved to cover the cost of the water and sewage system utilities, reserves will be insufficient to fund the upgrades and the operating and maintenance budget for 2025 will be impacted to fund an even larger requisition increase.

All options have the risk that future water regulations will change and the systems may require upgrades to keep in compliance, a consideration for asset management.

Funding request follows on schedule A.

SCHEDULE A**Water & Sewer System Utilities Upgrades:**

Engineering to research and evaluate the 3 options acceptable to Northern Health	\$15,307
Engineering support to go to go to competitive bid, including ITT preparation, detailed design drawings, submission evaluation, contract administration and construction support, preparation of operating permit and construction, commissioning and close out services	\$51,000
Estimated Construction Cost for water treatment Option 1 with 50% construction contingency	\$94,500
Replacement of two septic tank access lids, repair of sewer line, installation of cleanout, and installation of barriers to prevent vehicle traffic over the septic tanks and lines. Removal of trees and shrubs growing in the sewage system drain field.	\$11,595
Total Water & Sewer System Utilities Upgrades funding application	\$172,402