PEACE RIVER REGIONAL DISTRICT

# 2025 SERVICE PLAN

## Function 601 – Charlie Lake Sewer

### PURPOSE:

The Charlie Lake Sewer function is broken into two separate pieces and is regulated under the BC Ministry of Environment Municipal Wastewater Regulation (MWR) #108540 which is currently under re-registration due to the change in the outfall conditions. This system is also registered under the Environmental Operators Certification Program (EOCP) as a level II wastewater collection, and level II wastewater treatment facility. The first stage of this system is the collection system which is a septic tank effluent pumping (STEP) system that services the community of Charlie Lake. The second is the Trucked Waste Receiving facility. Both services process their effluent through a treatment facility and discharge through the outfall into the Peace River, soon to be the Peace reservoir due to Site C dam. The Charlie Lake sewer function is managed through a contract with Aquatech Canadian Water Services with the term of the agreement to expire in 2026 with an option to extend for one year for 2026/2027.

**Collection System:** The Charlie Lake Collection System was initiated in 1988 with initial connections to have been in place by June 30, 1992. The system consists of a network of pumps and piping that collect sewer from just over 400 houses and businesses. The System was originally established to service an existing developed area with the main focus being to address serious sewage and environmental issues in the area and along the lake.

The existing collection system is a STEP collection system in which small individually owned pumps from individual services pump septic tank effluent into the collection force mains which operate under pressure. The individual pumps and septic tanks are located on private land and are the responsibility of each property owner. The sanitary collection system is comprised of approximately 30 km of collection force mains that collect flow from the service connections and direct it to a central PRRD-owned lift station.

Based on the record drawings, each serviced lot contains a two-compartment septic tank: one side to settle out the solids and retain floatable and the other, the pump chamber, to house a pump. Sewer drains from the house by gravity to the first compartment with the effluent overflowing to the second compartment. A pump in the second compartment pumps the effluent to the collection force main. The pressure applied by the individual pumps transports the effluent to the PRRD-operated main lift station, located adjacent to the Charlie Lake Elementary School, which pumps the effluent to the sewage treatment plant for final treatment and discharge to the Peace River. As a result of the STEP system, the wastewater entering the community collection and treatment system is generally weaker than typical sanitary sewage, with fewer solids. Most commercial connections are like the residential connections noted above, although perhaps with larger septic tanks and effluent pumps. The one exception is the

Shady Acres Mobile Home Park where the sewer is directed to a small lagoon, with the effluent from the lagoon pumped by a private pump into the Charlie Lake Collection System.

During the past decade, Charlie Lake has seen considerable development and pressure to expand the service area of the wastewater system. This has come from individual lots within the existing service area and from development proposals for land adjacent to the existing serviced area. All these development proposals ultimately want to tie into the sewer system and due to this pressure, the PRRD completed a flow monitoring study to get a better understanding of the areas of the system where upgrades would be required to accommodate future development. In 2014 the PRRD completed significant upgrades to the collection system and lift station. These upgrades provide considerable capacity within the collection system to permit development and system expansion. The collection system was reclassified as a Level II system in 2020 under the EOCP.

Currently, there are approximately 475 equivalent properties within the service function area that pay parcel tax. As of June 2022, the overall capacity of the system is as such: 404 existing connections, 166 within the service area that are not connected, and future connections are still available. All properties that are connected also pay a user fee for the system. The collection system all funnels through a lift station. Upgrades are necessary to increase capacity at the lift station for future expansion. This work is scheduled to be completed in 2025.

In 2023, the PRRD hired an engineering firm to assist with the capital planning for the Charlie Lake Sewer Collection. It included a deep dive into the engineered drawings, current and currently available connections, and planning to develop a 10-year capital plan to allow 100% of properties within the service function area to connect. In addition, as the North Peace Official Community Plan Bylaw addresses the desire to allow for the subdivision of 0.5 ha lots, the planning must include a plan to allow for additional capacity within the system to support this bylaw.

**Lift Station and Forcemain:** The main lift station is adjacent to the Charlie Lake School and receives effluent from the collection system force mains and pumps the effluent through a 2.4 km force main and conveys flow to the lagoons for treatment. The current lift station has two pumps that were upgraded in 2014. A backup diesel generator operates the station during a power outage. Current flows from the collection system average over 300 m3/day. Max month flows are nearly 700 m3/day and peak daily flows can exceed 1250 m3/day during spring melts and heavy rainfalls.

**Collection System Monitoring Stations:** In 2008, the PRRD began investigating the capacity of the collection system and excessive flows during spring freshet or large rainfall events. Eight monitoring stations were installed throughout the collection system. Each monitoring station consists of a Siemens Ultrasonic Flowmeters - SITRANS FUS1010 clamp-on flow meter installed in a manhole. Radio communication equipment sends the flow data to a computer at the main lift station. These flow meters utilize ultrasonic waves for flow measurement and need to be recalibrated regularly. One additional

flow meter is at the main lift station. Flow meter stations require upgrading as they are not functional. This work is scheduled to be tendered in 2025.

**Treatment System:** A study completed by the PRRD also identified the need to upgrade the treatment plant serving the Charlie Lake sewer system. In the summer of 2015, the PRRD began upgrading the treatment system. Before the upgrade, the treatment system consisted of three lagoons. These facultative lagoons treated the effluent by natural aeration. The upgrades resulted in the construction of two aerated complete mix tanks, two aerated lagoons, and a trucked waste facility complete with a centrifuge system for solids dewatering. The upgrades are expected to accommodate 20 years of growth within the existing Charlie Lake Collection System. Combined flows from both the trucked waste facility and Charlie Lake Collection System are projected to increase over time from the current average of 500 m3 /day to over 900 m3 /day. The wastewater treatment system was reclassified as a Level II system in 2020 under the EOCP.

**Trucked Waste Receiving Facility:** This facility receives trucked waste from the Charlie Lake community and the surrounding area, including work camps. Therefore, the incoming trucked waste will consist of both septage from septic tanks and domestic liquid waste from holding tanks. All incoming trucked waste must be of domestic origin. No industrial trucked waste will be accepted other than work camp sewage. The trucked waste facility consists of an anaerobic lagoon, a facultative lagoon, and a centrifuge for solids removal and dewatering. The incoming trucked waste is screened and diverted to the anaerobic lagoon, with a periodic decant to the facultative lagoon. The liquid from the facultative lagoon is blended with incoming sewage from the collection system for further treatment in the complete mix cells and aerated lagoons. The solids accumulate in the anaerobic lagoon will periodically be mixed and pumped into the centrifuge for dewatering. The centrate is returned to the lagoons for treatment and the dewatered solids are hauled off-site for management elsewhere. As this facility is intended only to receive and treat domestic trucked waste, operational checks must be in place to ensure that no industrial trucked waste is received. Unlike the centralized sewer customers, the trucked waste facility users are billed based on usage. Tracking of usage will need to be documented for the PRRD to prepare and issue the invoices accordingly. Current trucked waste flows received an average of approximately 200 m3/day with max day flows of over 400 or 3.77m3/day.

**Disposal System:** The Charlie Lake sewer system currently discharges year-round to the Peace River located approximately 3.2 km south of the treatment system under MWR Registration #108540. The discharge area is located upstream of the construction of the “Site C” reservoir and will be impacted upon completion. Currently, the PRRD is working with BC Hydro to determine the changes required to the outfall following the completion and flooding of the Site C reservoir area. Flooding of the reservoir was initiated on August 25, 2024. Impacts to the outfall will be monitored closely in 2024/2025.

## OVERALL FINANCIAL IMPACT:

The operating budget decreased to $1,019,918 in 2025, compared to $1,059,821 in 2024, which is a decrease of $39,903 or 3.77% due to a reduction in Contract for Services.

The capital budget increased to $3,301,489 in 2025, compared to $2,958,655 in 2024, which is an increase of $342,834 or 11.59%. A planned capital project was not completed and is being carried forward for design and construction in 2025.

The total budget increased from $4,321,407 in 2025, compared to $4,018,476 in 2024, which is an increase of $302,931 or 7.54%.

Total parcel tax increased to $230,910 in 2025, compared to $178,125 in 2024, which is an increase of $52,785 or 29.63%.

The estimated parcel tax per parcel increased to $482.07 in 2025, compared to $371.87 in 2024, which is an increase of $110.20 per parcel from or 29.63%.

## SUPPLEMENTAL REQUESTS & CARRY FORWARD PROJECT(S):

Capital Projects

| Project Description | Prior Budget | Prior Spent | 2025 Budget |
|---|---|---|---|
| *2025 Valve Replacements | | | $79,000 |
| *Sewer System Infrastructure Monitoring and SCADA Upgrades | | | $40,000 |
| *Lift Station Upgrades (Carry Forward) | $938,000 | $0 | $938,000 |
| *Flow Monitoring Stations | | | $600,000 |
| *Redundancy Piping Highlevel Crescent | | | $629,000 |
| *East Side 10-year Capital Plan | | | $150,000 |
| 2025 Contingency | | | $209,000 |
| 2024 Carry Forward | $2,187,629 | $1,531,140 | $656,489 |
| **TOTAL CAPITAL BUDGET** | | | **$3,301,489** |

**That the Regional Board provide capital pre-budget approval for the 2025 supplemental requests/business cases:*

1. *Sewer System Infrastructure Monitoring and SCADA Upgrades $40,000*
2. *Valve Replacements $79,000*
3. *Redundancy Piping - Jackfish Crescent Project $359,000*
4. *Redundancy Piping - Highlevel Crescent Project $629,000*
5. *Flow Monitoring Stations Replacement Project $600,000*

*and authorize the inclusion of the expenses in Function 601 – Charlie Lake Sewer draft 2025-2029 PRRD Financial Plan.*

**That the Rural Budgets Administration Committee amend the previous capital pre-budget approval for the 2025 supplemental requests/business cases provided on December 6, 2024 to cancel the authorization to complete the redundancy piping for Jackfish Lake Road for $359,000 and include an authorization for a 10-year Capital Improvement Plan to be developed for the east side of the Charlie Lake Collection System for $150,000 using previously allocated Peace River Agreement Funds, spending item #9, and authorize the inclusion of the expense in Function 601 – Charlie Lake Sewer draft 2025-2029 PRRD Financial Plan.*

## SIGNIFICANT ISSUES & TRENDS:

No issues or trends were identified for 2025.

## RESERVE SUMMARY:

**Operating Maintenance Reserve:** Balance on November 30, 2024, $199,619.

**Capital Reserve:** Balance on November 30, 2024, $821,631.

**Waste Water Truck Facility Capital Reserve:** Balance on November 30, 2024, $559,694.

**Charlie Lake Development Cost Charge Reserve:** Balance on November 30, 2024, $354,849.

**Capital Treatment/Disposal Capital Reserve** Balance on November 30, 2024, $414,317.

Capital Reserves Purpose: To build a reserve for asset management purposes to provide capital maintenance, repairs, and replacement.

**General Operating Fund**

## 601 Charlie Lake Sewer

| | 2024 Actuals | 2024 Approved Budget | 2025 1. Provisional Budget Budget | 2024 to 2025 Budget Change | 2024 to 2025 Budget Change % |
|---|---|---|---|---|---|
| REVENUES | | | | | |
| 1-0010 Requisition | | | | | |
| 02-1-0010-0012 Parcel Tax | (178,125.00) | (178,125.00) | (230,910.00) | (52,785) | 29.63% |
| **Total 1-0010 Requisition** | (178,125.00) | (178,125.00) | (230,910.00) | (52,785) | 29.63% |
| 1-0020 Surplus/Deficit | | | | | |
| 02-1-0020-0020 Surplus/Deficit | (92,756.00) | (92,756.00) | | 92,756 | (100.00%) |
| **Total 1-0020 Surplus/Deficit** | (92,756.00) | (92,756.00) | | 92,756 | (100.00%) |
| 1-0040 Recovery of Costs | | | | | |
| 01-1-0040-0000 General - Recovery of Costs | | | | | |
| 02-1-0040-0000 Recovery of Costs | (29,650.16) | (15,875.00) | | 15,875 | (100.00%) |
| **Total 1-0040 Recovery of Costs** | (29,650.16) | (15,875.00) | | 15,875 | (100.00%) |
| 1-0060 User Fees | | | | | |
| 02-1-0060-0060 User Fees | (195,978.05) | (177,000.00) | (195,000.00) | (18,000) | 10.17% |
| **Total 1-0060 User Fees** | (195,978.05) | (177,000.00) | (195,000.00) | (18,000) | 10.17% |
| 1-0070 Investment Income | | | | | |
| 02-1-0070-0071 Interest on Reserves | (26,789.36) | | | | |
| **Total 1-0070 Investment Income** | (26,789.36) | | | | |
| 1-0140 Transfer from Reserves | | | | | |
| 02-1-0120-8120 Operating Reserve | | (6,265.00) | | 6,265 | (100.00%) |
| 02-1-0140-0139 Operating Maintenance Reserve | | | (109,425.00) | (109,425) | |
| 02-1-0140-0145 PRA Reserve | (112,243.92) | (154,800.00) | (49,583.00) | 105,217 | (67.97%) |
| **Total 1-0140 Transfer from Reserves** | (112,243.92) | (161,065.00) | (159,008.00) | 2,057 | (1.28%) |
| 1-7100 Sewage Truck Receiving Facility | | | | | |
| 02-1-7100-0061 Sewage Facility - Residential | (60,437.88) | (60,000.00) | (60,000.00) | | |
| 02-1-7100-0062 Sewage Facility - Commercial | (418,232.08) | (375,000.00) | (375,000.00) | | |
| **Total 1-7100 Sewage Truck Receiving Facility** | (478,669.96) | (435,000.00) | (435,000.00) | | |
| TOTAL REVENUES | (1,114,212.45) | (1,059,821.00) | (1,019,918.00) | 39,903 | (3.77%) |
| EXPENDITURES | | | | | |
| 2-1000 General Expenditures | | | | | |
| 01-2-1000-1010 Wages - Full Time | | | | | |
| 01-2-1000-1030 Benefits | | | | | |
| 01-2-1000-1040 WCB | | | | | |
| 01-2-1000-3100 Contract for Services | | | | | |
| 01-2-1000-4225 Fees and Service Charges | | | | | |
| 02-2-1000-1010 Wages - Full Time | 53,799.57 | 56,182.00 | 82,938.00 | 26,756 | 47.62% |
| 02-2-1000-1030 Benefits | 10,242.28 | 13,588.00 | 20,892.00 | 7,304 | 53.75% |
| 02-2-1000-1040 WCB | 1,026.82 | 1,068.00 | 1,576.00 | 508 | 47.57% |
| 02-2-1000-2030 Phone/Internet | 2,283.84 | 4,651.00 | 2,500.00 | (2,151) | (46.25%) |
| 02-2-1000-2065 Insurance - Property | 29,219.00 | 29,300.00 | 35,100.00 | 5,800 | 19.80% |
| 02-2-1000-2070 Insurance - Liability | 3,555.78 | 3,600.00 | 4,000.00 | 400 | 11.11% |
| 02-2-1000-2130 R&M - Machinery | 12,577.89 | 9,300.00 | 13,000.00 | 3,700 | 39.78% |
| 02-2-1000-2150 Electricity | 66,228.69 | 68,000.00 | 65,000.00 | (3,000) | (4.41%) |
| 02-2-1000-2160 NATURAL GAS | 82.87 | | | | |

**General Operating Fund**

## 601 Charlie Lake Sewer

| | 2024 Actuals | 2024 Approved Budget | 2025 1. Provisional Budget | 2024 to 2025 Budget Change | 2024 to 2025 Budget Change % |
|---|---|---|---|---|---|
| 02-2-1000-3010 Travel | | 419.00 | 835.00 | 416 | 99.28% |
| 02-2-1000-3016 Mileage | | | | | |
| 02-2-1000-3020 Meals | 1,047.64 | 455.00 | 508.00 | 53 | 11.65% |
| 02-2-1000-3030 Training & Development | 1,028.93 | 1,080.00 | 1,156.00 | 76 | 7.04% |
| 02-2-1000-3040 Conferences & Seminars | | 495.00 | 987.00 | 492 | 99.39% |
| 02-2-1000-3050 Memberships - Sewer | 49.86 | 50.00 | 30.00 | (20) | (40.00%) |
| 02-2-1000-3100 Contract for Services | 46,974.27 | 34,000.00 | 5,000.00 | (29,000) | (85.29%) |
| 02-2-1000-4250 Charges/Permits | 3,568.00 | 5,700.00 | 4,000.00 | (1,700) | (29.82%) |
| 02-2-1000-4425 Software and Software Licensing | 943.44 | 3,200.00 | 1,500.00 | (1,700) | (53.13%) |
| 02-2-1000-5010 Advertising Services | | 500.00 | 500.00 | | |
| 02-2-1000-5020 Consulting Services | 36,413.60 | 55,875.00 | 45,000.00 | (10,875) | (19.46%) |
| 02-2-1000-5030 Legal Services | 3,800.64 | 10,000.00 | 5,000.00 | (5,000) | (50.00%) |
| 02-2-1000-5060 Studies, Plans and Assessments | | | | | |
| 02-2-1000-5120 Supplies - Office | 124.62 | 500.00 | 500.00 | | |
| **Total 2-1000 General Expenditures** | 272,967.74 | 297,963.00 | 290,022.00 | (7,941) | (2.67%) |
| 2-1150 Allocations | | | | | |
| 02-2-1150-1160 Indirect Cost Allocation | 24,345.00 | 24,345.00 | 32,337.00 | 7,992 | 32.83% |
| 02-2-1150-1190 PRRD Vehicles | 422.00 | 422.00 | 879.00 | 457 | 108.29% |
| **Total 2-1150 Allocations** | 24,767.00 | 24,767.00 | 33,216.00 | 8,449 | 34.11% |
| 2-7000 Sewer Operations | | | | | |
| 02-2-7000-6010 Operations | 21,936.79 | 32,152.00 | 22,200.00 | (9,952) | (30.95%) |
| 02-2-7000-7110 Sewer Monitoring | 2,311.20 | 2,400.00 | 2,400.00 | | |
| 02-2-7000-7120 Collection Systems | 123,417.80 | 128,739.00 | 130,515.00 | 1,776 | 1.38% |
| **Total 2-7000 Sewer Operations** | 147,665.79 | 163,291.00 | 155,115.00 | (8,176) | (5.01%) |
| 2-7100 Sewage Truck Receiving Facility | | | | | |
| 02-2-7100-1110 Banking Fees - CLWWTF | 3,492.31 | 3,000.00 | 3,300.00 | 300 | 10.00% |
| 02-2-7100-7101 Treatment & Disposal | 236,060.50 | 234,820.00 | 239,500.00 | 4,680 | 1.99% |
| 02-2-7100-7102 Trucked Waste Receiving Facility | 299,683.90 | 290,082.00 | 298,265.00 | 8,183 | 2.82% |
| 02-2-7100-7103 Storage Pond - Operating Costs | | 500.00 | 500.00 | | |
| **Total 2-7100 Sewage Truck Receiving Facility** | 539,236.71 | 528,402.00 | 541,565.00 | 13,163 | 2.49% |
| 2-8100 Transfers to Reserve | | | | | |
| 02-2-8100-8110 Capital Reserve | 22,699.00 | 22,699.00 | | (22,699) | (100.00%) |
| 02-2-8100-8115 Operating Maintenance Reserve | | | | | |
| 02-2-8100-8120 Operating Reserve | 22,699.00 | 22,699.00 | | (22,699) | (100.00%) |
| 02-2-8100-8150 Interest on Reserves | 26,789.36 | | | | |
| **Total 2-8100 Transfers to Reserve** | 72,187.36 | 45,398.00 | | (45,398) | (100.00%) |
| TOTAL EXPENDITURES | 1,056,824.60 | 1,059,821.00 | 1,019,918.00 | (39,903) | (3.77%) |
| OPERATING SURPLUS/DEFICIT | (57,387.85) | | | | |
| CAPITAL REVENUES | | | | | |
| 7-0120 Transfer from Reserves | | | | | |
| 02-7-0120-8110 Capital Reserve | | | | | |
| 02-7-0120-8160 PRA Reserve | | | | | |
| 02-7-0120-8220 Gas Tax Reserve | | | | | |

**General Operating Fund**

## 601 Charlie Lake Sewer

| | 2024 Actuals | 2024 Approved Budget | 2025 1. Provisional Budget Budget | 2024 to 2025 Budget Change | 2024 to 2025 Budget Change % |
|---|---|---|---|---|---|
| **Total 7-0120 Transfer from Reserves** | | | | | |
| 7-0140 Transfers from Reserve | | | | | |
| 02-7-0140-0144 Gas Tax Reserve | (806,655.49) | (1,666,185.00) | (1,240,530.00) | 425,655 | (25.55%) |
| 02-7-0140-0145 PRA Reserve | (724,484.36) | (1,292,470.00) | (2,060,959.00) | (768,489) | 59.46% |
| **Total 7-0140 Transfers from Reserve** | (1,531,139.85) | (2,958,655.00) | (3,301,489.00) | (342,834) | 11.59% |
| TOTAL CAPITAL REVENUES | (1,531,139.85) | (2,958,655.00) | (3,301,489.00) | (342,834) | 11.59% |
| CAPITAL EXPENDITURES | | | | | |
| 8-8500 Capital Expenditures | | | | | |
| 02-8-8500-8503 Engineering Structures | 1,531,139.85 | 2,958,655.00 | 3,301,489.00 | 342,834 | 11.59% |
| 02-8-8500-8506 Land | | | | | |
| **Total 8-8500 Capital Expenditures** | 1,531,139.85 | 2,958,655.00 | 3,301,489.00 | 342,834 | 11.59% |
| TOTAL CAPITAL EXPENDITURES | 1,531,139.85 | 2,958,655.00 | 3,301,489.00 | 342,834 | 11.59% |
| CAPITAL SURPLUS/DEFICIT | | | | | |
| SUMMARY | | | | | |
| OPERATING AND CAPITAL REQUISITION | | | | | |
| 02-1-0010-0012 Parcel Tax | (178,125.00) | (178,125.00) | (230,910.00) | (52,785) | 29.63% |
| **Total OPERATING AND CAPITAL REQUISITION** | (178,125.00) | (178,125.00) | (230,910.00) | (52,785) | 29.63% |
| TOTAL BUDGET | 2,587,964.45 | 4,018,476.00 | 4,321,407.00 | 302,931 | 7.54% |

**Peace River Regional District - 2025 Tax Rate Sheet**
**EXHIBIT 601**
**Charlie Lake Sewer**

**Basis of Apportionment:** Parcel Tax

**Defined Area of Electoral Area C**

| | | | | |
|---|---|---|---|---|
| **Tax Rate or Other Limitations:** | Greater of | $ | 173,000 | |
| | Or, the product of | $ | 12.357 | per $1,000 taxable value (L&I) |
| *Service Establishment Bylaw No. 691, 1990* | | | | *Max. Product $ 3,826,805* |
| *Parcel Tax Bylaw No. 2493, 2022* | | | | |

| | Requisition Amount | Tax Rate Per 1000 | Figures for Apportionment | Percent |
|---|---|---|---|---|
| Area C - Defined Area | 230,910 | | Parcel Tax | |
| **Total** | **230,910** | | | |

| | | 2025 | | 2024 | | Change $ | Change % |
|---|---|---|---|---|---|---|---|
| Total Operating Budget | $ | 1,019,918 | $ | 1,059,821 | $ | (39,903) | -3.77% |
| Total Capital Budget | $ | 3,301,489 | $ | 2,958,655 | $ | 342,834 | 11.59% |
| Total Budget | $ | 4,321,407 | $ | 4,018,476 | $ | 302,931 | 7.54% |
| Tax Per Parcel | | 482.07 | | 371.87 | $ | 110.20 | 29.63% |
| Total # of Parcels | | 479 | | 479 | $ | - | |
| Total Parcel Tax | $ | 230,910 | $ | 178,125 | $ | 52,785 | 29.63% |
| Operating Maint Reserve at Nov 30 | $ | - | $ | 201,262 | | | |
| Capital Reserve at Nov 30 | $ | - | $ | 828,394 | | | |
| Waste Water Truck Facility at Nov 30 | $ | - | $ | 564,300 | | | |
| Charlie Lake DCC Reserve at Nov 30 | $ | - | $ | 357,770 | | | |
| Capital Treatment/Disposal at Nov 30 | $ | - | $ | 417,727 | | | |

PEACE RIVER REGIONAL DISTRICT

# *Business Case*

*2025 Charlie Lake Capital Improvements*

## Executive Summary

**Business Need**

To support long-term service continuity and financial planning by prioritizing preventative maintenance, extending asset life, and minimizing infrastructure failures of the Charlie Lake Sewer infrastructure.

**Expected Outcome**

The Charlie Lake 2025 Capital Improvements Project encompasses the next scheduled improvements outlined and adopted with the 10-Year 'Charlie Lake Capital Improvement Plan' to reduce financial and liability risks. This project supports long-term service continuity and financial planning by prioritizing preventative maintenance, extending asset life, and minimizing infrastructure failures. The 2025 Improvements will include the replacement of 5 Flow Monitoring Stations, Redundancy Piping at Highlevel Crescent and Jackfish Crescent and replacement of the next scheduled valve replacements in the collection system.

**Recommendation**

It is recommended to proceed with the 2025 Capital Improvements Project for the Charlie Lake Sewer infrastructure, as outlined in the 10-Year Charlie Lake Capital Improvement Plan. This project addresses critical infrastructure needs by prioritizing preventative maintenance and system upgrades that will reduce long-term financial and liability risks.

The 2025 Improvements will include the replacement of five Flow Monitoring Stations, the installation of redundancy piping at Highlevel Crescent and Jackfish Crescent, and the replacement of the next scheduled valves in the collection system. These improvements are essential for ensuring the reliability, efficiency, and safety of the sewer infrastructure while supporting long-term financial planning and operational sustainability

By undertaking these upgrades, the project will help extend the life of the infrastructure, minimize the risk of costly failures, and maintain service continuity for the community. Additionally, the planned improvements align with best practices in asset management, positioning the system for enhanced resilience and cost-effectiveness. The benefits of these upgrades far outweigh the initial investment, providing substantial value in terms of reduced emergency repair costs, improved system performance, and increased regulatory compliance.

In conclusion, the Charlie Lake 2025 Capital Improvements Project is a vital step toward securing the long-term health and reliability of the sewer infrastructure, making it a sound investment in both operational efficiency and financial sustainability.

**Justification**

On November 16, 2023, the Regional Board passed the following resolution:

*MOVED, SECONDED, CARRIED*

*That the Regional Board approve the 'Charlie Lake Sewer - Capital Improvement Plan' completed by McElhanney Ltd (October 10, 2023) for use in operational and capital 2024-2034 financial planning for Function 601 - Charlie Lake Sewer.*

The Charlie Lake Sewer infrastructure requires critical upgrades as part of the 2025 Capital Improvements Project to ensure continued reliability, reduce financial risks, and extend the life of essential infrastructure. As outlined in the 10-Year Charlie Lake Capital Improvement Plan, the aging infrastructure is increasingly prone to failure, which could result in costly emergency repairs, service disruptions, and potential environmental or regulatory liabilities.

The planned improvements—replacing five Flow Monitoring Stations, installing redundancy piping at Highlevel Crescent and Jackfish Crescent, and replacing scheduled valves in the collection system—are necessary to maintain efficient wastewater management and prevent potential failures. By addressing these needs proactively, the project supports long-term service continuity, minimizes operational risks, and reduces future repair costs.

This project also aligns with best practices in asset management by prioritizing preventative maintenance, which helps avoid more significant, unplanned expenditures in the future. By investing in these improvements now, the community will benefit from increased system resilience, improved operational efficiency, and a more predictable financial outlook.

In summary, the 2025 Capital Improvements Project is a critical and cost-effective step to mitigate risks, improve system performance*, and ensure the continued reliability of the Charlie Lake Sewer infrastructure. The long-term benefits, including cost savings and reduced liability, far outweigh the investment required to complete these upgrades.*

## The Team

| Team Member | Role |
|---|---|
| **General Manager of Environmental Services** | To provide overall program oversight to provide direction and support for implementation, procurement policies, and budgetary considerations. |
| **Environmental Services Manager** | To provide a program outline, work with regulatory bodies to ensure compliance, and oversee the planning, implementation and execution and close out of the project work packages through contract management and operational oversight as well as prepare the budget for 2025. |
| **Environmental Services Foreman** | To support the Environmental Services Manager with the project deliverables. |
| **Environmental Services Coordinator** | To support McElhanney with required data. |
| **Communications** | To support project communications. |
| **Procurement Officer** | Assist with tendering processes and contract development. |

PEACE RIVER REGIONAL DISTRICT

## Business Need Definition

**Problem Statement**

The Peace River Regional District (PRRD) established the Charlie Lake sewer function in 1988 to provide a wastewater collection, treatment, and disposal system service to the residents of Charlie Lake. The management of the Charlie Lake Sewer system was driven by the Charlie Lake Local Community Commission. The system was constructed in segments and phases over several years. The existing condition and understanding of the system are limited.

With the approval of the North Peace Fringe Official Community Plan, there is an anticipation of ongoing development within the Charlie Lake Sewer service area. As there is no current condition assessment for the Charlie Lake Sewer System, the current condition of the assets within the system is unknown, and the need for capital upgrades to the system, including further expansion, needs to be assessed and carefully planned for.

To meet future demands on the system, there are going to be future requirements to expand the collection system, increase the available capacity within the collection system, upgrade the existing collection system infrastructure, and eventually, increase treatment requirements prior to wastewater discharge as outlined in the Municipal Wastewater Regulations.

To address these needs, McElhanney Ltd. drafted the Charlie Lake Sewer Capital Improvement Plan for the PRRD. The recommended upgrades need to be implemented to support asset management endeavors for Charlie Lake Sewer and address the identified problems.

**Impacts**

Insufficient engineering plans and knowledge create risk for the PRRD including:

1. Liability Risk from potential breakdown of service or environmental degradation.
2. Financial risk - without adequate understanding of the infrastructure condition or needs there is significant exposure to financial risk that could be incurred by a breakdown or failure of the infrastructure.

## Project Overview

**Project**

*2025 Charlie Lake Capital Improvements*

**Project Description**

This project will implement recommended capital improvements scheduled for 2025-2026 in the Charlie Lake Sewer Capital Improvement Plan to increase system functionality, mitigate risk exposure, implement proper asset management, and support planning and development initiatives.

**Project Budget**

Department: Environmental Services
Division: Environmental Services
Function: 601 – Charlie Lake Sewer

| Capital Expenses (Engineering Costs) | 2025 | 2026 | 2027 | 2028 | 2029 | Summary |
|---|---|---|---|---|---|---|
| **5 Flow Monitoring Stations (Engineering = $60,000)** | $600,000.00 | | | | | $600,000.00 |
| **C.8.3 Redundancy Piping - Highlevel Crescent ($80,000)** | $629,000.00 | | | | | $629,000.00 |
| **C.8.6 Redundancy Piping - Jackfish Crescent ($65,000)** | $359,000.00 | | | | | $359,000.00 |
| **Valve Replacements** | $79,000.00 | | | | | $79,000.00 |
| **SCADA Assessment** | $40,000.00 | | | | | $40,000.00 |
| **TOTAL** | **$1,707,000.00** | - | - | - | - | **$1,707,000.00** |

| Capital Funding Sources | 2025 | 2026 | 2027 | 2028 | 2029 | Summary |
|---|---|---|---|---|---|---|
| **Area C Community Gas Tax** | $1,707,000.00 | | | | | $1,707,000.00 |
| **TOTAL** | $1,707,000.00 | | | | | $1,707,000.00 |

**Project Goals and Objectives**

1. Optimize and increase treatment efficiency and efficacy.
2. Reduce risk of mechanical breakdown.
3. Increase system operational redundancy.
4. Gain better data and information about the system and operation.

**Project Performance Indicators**

1. Work packages are completed within budget.
2. Work packages are completed on time.
3. Work packages are completed to appropriate engineering standards.

**Assumptions**

1. Sufficient data is available to support the project timelines.
2. McElhanney can supply the deliverables within the project timelines.
3. PRRD staff have the capacity to respond and deliver within expected timelines.
4. Permitting is issued within project timelines.

**Constraints**

1. Availability of contractors and professionals to complete work packages.
2. Weather conditions and field delays.

PEACE RIVER REGIONAL DISTRICT

**Project Milestones**

1. January 2025 -Issue Valve Replacement Tender
2. February 2025 – Issue Redundancy Piping, Flow Monitoring Tenders & Award Contract for Valve Replacements
3. March 2025 – Award Contract for Redundancy Piping, Flow Monitoring Tenders & Start Lift Station Upgrades
4. April 2025 – Start Construction on Valve Replacement project
5. May 2025 – Start Construction on Redundancy Piping & Flow Monitoring projects
6. September 2025 – Complete Project Close Out for Valve Replacement, System Redundancy and Flow Monitoring

## Strategic Fit

Organizational Effectiveness

## Cost Benefits Analysis

This project will reduce financial and liability risk exposure by creating a sustainable service function through a long-term capital repairs plan for long-term continuity and financial planning. Preventative maintenance programming will likely extend the age of the asset and reduce the likelihood of infrastructure failures.

Long-term benefits provided by this project include proper assessment and evaluation of proposed development in the Charlie Lake area.

## Alternatives Reviewed

Business as Usual is an alternative option. Given the risk and lack of operations and maintenance program, this alternative was rejected.

## Approvals

Regional Board Approval Resolution.

PEACE RIVER REGIONAL DISTRICT

# Business Case

*Charlie Lake Sewer East Side 10-Year Capital Improvement Plan*

## Executive Summary

**Business Need**

The east side sewer system in Charlie Lake, BC, is aging and struggling to meet current and future demands, leading to the risk of frequent failures, environmental risks, and regulatory non-compliance. Without investment, these issues will worsen, increasing costs and limiting community growth. A 10-year capital improvement plan is critical to modernize infrastructure, ensure reliable service, and support sustainable development.

**Expected Outcome**

Implement scheduled recommendations from 2026-2036 in the Charlie Lake Sewer East Side 10-Year Capital Improvement Plan.

**Recommendation**

That the 2024 -

**Justification**

In the 2023-2026 PRRD Strategic Plan, the Regional Board has a strategic focus on Asset and Infrastructure Management to effectively plan for and manage the PRRD's assets and infrastructure to ensure they provide the desired levels of service to residents, now, and in the future. The PRRD has a significant investment in infrastructure that serves PRRD citizens and communities. The PRRD must have appropriate policies, systems, and strategies in place to effectively maintain, replace, and develop new infrastructure capable of meeting current and future demands including condition assessments for all PRRD-owned assets, and identification of funding and investment strategies.

Investing in a 10-year capital improvement plan for the east side sewer system in Charlie Lake is essential to address aging infrastructure, prevent service failures, meet regulatory requirements, and support future growth. This proactive approach ensures environmental protection, public health, and sustainable economic development while avoiding escalating costs and risks associated with inaction.

## The Team

| Team Member | Role |
|---|---|
| **General Manager of Environmental Services** | To provide overall program oversight to provide direction and support for implementation, procurement policies, and budgetary considerations. |
| **Environmental Services Manager** | To provide a program outline, work with regulatory bodies to ensure compliance, and oversee the implementation of the project through contract management and operational oversight as well as prepare the budget for 2026. |
| **Environmental Services Foreman** | To shadow the Environmental Services Manager with the project deliverables. |
| **Environmental Services Coordinator** | To support the QP with required data. |

| | |
|---|---|
| **Communications** | To support the communications plan |
| **Procurement Officer** | Assist with contracts and RFP process. |

PEACE RIVER REGIONAL DISTRICT

## Business Need Definition

**Problem Statement**

The east side of the sewer system in Charlie Lake, BC, is experiencing significant challenges that hinder its ability to meet current and future community needs. The existing infrastructure constructed several decades ago, has reached or is nearing the end of its operational lifespan. Aging pipelines, outdated technology, and limited capacity have resulted in frequent maintenance issues, increased operational costs, and heightened risks of environmental contamination.

Population growth and land development in the area are exacerbating these challenges, leading to capacity constraints and an inability to accommodate new connections without jeopardizing system performance. Additionally, the lack of modernized infrastructure increases the likelihood of regulatory non-compliance, which could result in financial penalties, legal liabilities, and damage to public trust.

Without a strategic and comprehensive 10-year capital improvement plan, the east side sewer system will continue to deteriorate, posing significant risks to public health, environmental quality, and the region's economic growth. This business case aims to address these issues by identifying critical infrastructure investments, ensuring sustainable service delivery, and aligning with provincial and federal regulations for wastewater management.

By investing in a proactive, long-term plan, the community can secure reliable and efficient wastewater services, support sustainable development, and safeguard the environment for future generations.

**Impacts**

**Positive Impacts**

1. Improved Reliability – Upgraded infrastructure reduces failures and service disruptions.
2. Environmental Protection – Reduces risks of contamination and safeguards ecosystems.
3. Capacity for Growth – Supports population and economic development.
4. Regulatory Compliance – Avoids fines and ensures adherence to standards.
5. Cost Savings – Proactive upgrades lower long-term maintenance expenses.
6. Public Health and Safety – Mitigates overflow risks and protects community health.
7. Community Confidence – Demonstrates commitment to sustainable planning.

**Negative Impacts**

1. Construction Disruptions – Temporary inconveniences like road closures and noise.
2. Financial Costs – Upfront investment may impact budgets or taxes.
3. Project Risks – Delays or cost overruns due to unforeseen challenges.
4. Stakeholder Concerns – Resistance from some residents over disruptions or costs.

**Summary**

The long-term benefits of improved infrastructure, environmental sustainability, and economic growth outweigh the short-term challenges of construction and costs. Effective planning and community engagement will ensure project success.

PEACE RIVER REGIONAL DISTRICT

## Project Overview

**Project**

*Charlie Lake Sewer East Side 10-Year Capital Improvement Plan.*

**Project Description**

This project is intended to implement critical engineering processes and planning for the Charlie Lake Sewer system to mitigate risk exposure, implement proper asset management, and support planning and development initiatives.

**Project Budget**

Department: Environmental Services
Division: Environmental Services
Function: 601 – Charlie Lake Sewer

**Project Goals and Objectives**

Goals and Objectives of the 10-Year Capital Improvement Plan

**Goals**

1. Upgrade infrastructure for reliable service.
2. Expand capacity to support growth.
3. Protect public health and the environment.
4. Ensure regulatory compliance.
5. Reduce long-term costs through proactive investment.

**Objectives**

1. Assess system deficiencies and prioritize upgrades.
2. Implement a phased improvement plan.
3. Secure funding to minimize taxpayer impact.
4. Engage stakeholders for transparency and support.
5. Monitor progress to meet timelines and budgets.

**Project Performance Indicators**

1. Infrastructure Reliability
    - Percentage reduction in system failures and service disruptions.
    - Frequency of maintenance requests or emergency repairs.
2. Capacity Expansion
    - Increase in system capacity to accommodate population growth.
    - Number of new connections successfully integrated into the system.
3. Environmental Impact
    - Reduction in sewage overflows or environmental contamination incidents.
    - Compliance with environmental regulations and standards.
4. Regulatory Compliance
    - Timely compliance with provincial and federal wastewater management regulations.
    - Successful completion of inspections and audits.

5. Budget and Timeline Adherence
    - Percentage of the project completed on time and within budget.
    - Number of delays or cost overruns.
6. Community and Stakeholder Engagement
    - Stakeholder satisfaction through surveys or feedback.
    - Number of community consultations or meetings held.
7. Operational Efficiency
    - Reduction in long-term maintenance and repair costs.
    - Increase in system operational efficiency and energy savings.

**Assumptions**

1. Availability of Funding
    - Sufficient budget and financial resources will be secured through grants, loans, or local government allocations.
2. Regulatory Approval
    - All required permits, approvals, and compliance with environmental and zoning regulations will be obtained on schedule.
3. Stakeholder Support
    - Residents, businesses, and other stakeholders will be supportive of the project, with minimal resistance.
4. No Major Environmental or External Factors
    - The project will not face unforeseen environmental issues or disruptions, such as extreme weather events, that could delay construction.
5. Technology and Materials Availability
    - Necessary materials, technology, and skilled labor will be readily available to meet project requirements.
6. Stable Growth Projections
    - Population and development growth in the area will align with current forecasts, ensuring the system's capacity upgrades meet future needs.
7. Project Team Expertise
    - The project team will possess the required expertise and resources to manage all aspects of the plan, from design to implementation.

**Constraints**

1. Budget Limitations: Available funding may limit the scope of upgrades or delay certain phases.
2. Regulatory Approvals: Timely receipt of permits and compliance with environmental and safety regulations may affect project timelines.
3. Construction Disruptions: Ongoing operations and community access could be impacted by construction activities, leading to potential delays.
4. Resource Availability: Limited availability of materials, equipment, or skilled labor could affect project progress.
5. Timeline: The project must be completed within a 10-year period, requiring efficient planning and execution.
6. External Factors: Unpredictable events like extreme weather or unforeseen environmental challenges could delay progress

**Project Milestones**

Task 1- Completion of System Assessment and Planning

Deliverable: Finalized comprehensive assessment report, including identified infrastructure deficiencies and growth projections - Due Date: September 2025

Task 2 - Securing Funding and Financial Approvals

Deliverable: Secured funding agreements or grants and financial plan approval - Due Date: September 2025

### Strategic Fit

This project aligns with multiple strategies identified in the PRRD 2023 – 2026 Strategic Plan, including asset management.

### Cost Benefits Analysis

The long-term benefits, including enhanced system reliability, regulatory compliance, and public health protection, significantly outweigh the initial investment and operational costs, making the capital improvement plan a sound financial decision.

### Alternatives Reviewed

An alternative to the proposed 10-year capital improvement plan is to continue with reactive maintenance and minor upgrades to the existing sewer system. However, this option would likely result in higher long-term costs due to potential system failures, increased repair needs, and regulatory non-compliance penalties. Additionally, the existing infrastructure would not be able to support the projected growth of the community. Thus, while the alternative may appear less costly in the short term, it would ultimately lead to higher operational risks, environmental impact, and missed economic opportunities. Therefore, the proposed capital improvement plan is the more effective and sustainable solution.

### Approvals

Regional Board Approval Resolution.

PEACE RIVER REGIONAL DISTRICT

# Business Case

Sewer System Infrastructure Monitoring and SCADA Upgrades

## Executive Summary

**Business Need**

Ensuring that the sewer system infrastructure is properly monitored is critical for maintaining the continuity of service, ensuring its reliability, maximizing its effectiveness in managing wastewater, and preventing disruptions.

**Expected Outcome**

The project will produce a comprehensive report detailing the necessary next steps for overhauling the sewer systems, including a preliminary cost estimate, scope of work, and implementation schedule. This report will serve as the foundation for developing a tender package to solicit bids for the proposed upgrades.

**Recommendation**

Staff recommends procuring a consulting firm with expertise in wastewater infrastructure and SCADA systems. The consulting firm will conduct a thorough assessment, identify required improvements, and provide the PRRD with detailed information to support an informed decision regarding SCADA upgrades and system enhancements.

**Justification**

A comprehensive approach to upgrading the sewer infrastructure is critical. This approach minimizes the risk of cost overruns, ensures the inclusion of the latest technology, and leverages opportunities for enhanced system efficiency, ultimately providing greater value to customers and stakeholders by avoiding potential service interruptions and costly retrofitting.

## The Team

| Team Member | Role |
|---|---|
| **General Manager of Environmental Services** | To provide overall program oversight and provide direction and support for implementation, policy and procedure, procurement policies, and budgetary considerations. |
| **Environmental Services Manager** | To provide a program outline, work with regulatory bodies to ensure compliance, and oversee the implementation of the project through contract management and operational oversight. |
| **Field Services Foreman** | To manage any Field Services support during dyke deconstruction. |
| **Environmental Services Coordinator** | To update/create site operation plans to reflect the addition of the equipment. |

| | |
|---|---|
| **Procurement Officer** | Assist with contracts and purchases. |
| **IT Manager** | Assist in the coordination and implementation of assessment and recommended technological improvements. |
| **City of Dawson Creek** | Coordinating access and providing historical data on the systems. |

## Business Need Definition

**Problem Statement**

Currently, the SCADA systems for the Charlie Lake, Kelly Lake, Rolla, Harper and Chilton Sewer systems are disjointed, lack reliable communication alerts, and are challenging to manage. Some of the systems rely on old Information technologies.

**Impacts**

- Reduction In service response times during equipment failures and emergency events.
- Unnecessary overtime to physically check alarms and system alerts.
- When communications fail, staff must be dispatched, leading to Increased time and costs, and If not addressed promptly It can also result In equipment failure or overflow events.
- Equipment loss - $25,000 minimum for a pump plus labour.
- Fines for spills and unsanctioned discharges.

## Project Overview

**Project**

Sewer System Infrastructure Monitoring and SCADA Upgrades

**Project Description**

Proper monitoring of the sewer system infrastructure is essential to ensure uninterrupted service, reliability, and efficiency in wastewater management, preventing costly disruptions. This project aims to assess the existing sewer infrastructure and recommend an overhaul. This will enable the PRRD (Peace River Regional District) to implement necessary SCADA (Supervisory Control and Data Acquisition) system upgrades for improved monitoring and control, enhancing overall service reliability.

**Project Budget**

Department: Environmental Services

Division: Environmental Services

PEACE RIVER REGIONAL DISTRICT

Function: 601 – Charlie Lake Sewer, 602 – Chilton Sewer, 605 Harper-Imperial Sewer, 606 – Kelly Lake Sewer, 607 – Rolla Sewer

| Capital Expenses | 2025 | 2026 | 2027 | 2028 | 2029 | Summary |
|---|---|---|---|---|---|---|
| **Function 601 – Charlie Lake Sewer** | $40,000 | | | | | |
| **Function 602 – Chilton Sewer** | $40,000 | | | | | |
| **Function 605 – Harper Imperial Sewer** | $40,000 | | | | | |
| **Function 606 – Kelly Lake Sewer** | $40,000 | | | | | |
| **Function 607 – Rolla Sewer** | $40,000 | | | | | |
| **TOTAL** | **$200,000** | - | - | - | - | **$200,000** |

| Capital Funding Sources | 2025 | 2026 | 2027 | 2028 | 2029 | Summary |
|---|---|---|---|---|---|---|
| **Function 601 – Charlie Lake Sewer –**<br>**Area C Community Gas Tax** | $40,000 | | | | | |
| **Function 602 – Chilton Sewer**<br>**Area B Peace River Agreement Funds** | $40,000 | | | | | |
| **Function 605 – Harper Imperial Sewer**<br>**Area B Peace River Agreement Funds** | $40,000 | | | | | |
| **Function 606 – Kelly Lake Sewer**<br>**Area B Peace River Agreement Funds** | $40,000 | | | | | |
| **Function 607 – Rolla Sewer**<br>**Area B Peace River Agreement Funds** | $40,000 | | | | | |
| **TOTAL** | $200,000 | - | - | - | - | **$200,000** |

**Project Goals and Objectives**

- Increase communication efficiency
- Modernize infrastructure monitoring Infrastructure and software
- Reduce response costs
- Reduce infrastructure breakdown response costs

**Project Performance Indicators**

Report deliverables by September 2025 within the allocated budget.

**Assumptions**

- Information is readily available.
- Adequate tender responses.
- The allocated budget Is sufficient to cover the project costs.
- Project team capacity Is sufficient to support the project.

**Constraints**

- Systems are spaced geographically sparse.
- Availability of necessary resources (e.g., skilled personnel, equipment, materials) can limit the pace and scale of the project.
- Stakeholder Expectations – Managing the needs, concerns, and input of stakeholders, which may impact decision-making and the project's direction.
- Compliance and Regulations – Adhering to legal, environmental, and safety regulations that might impose additional requirements and influence project plans.
- Technology – Access to or limitations in technology can affect project choices, timelines, and methods, especially when specific technical solutions are required.
- Location – Geographic and environmental factors, such as accessibility and climate, which can pose logistical challenges or constraints in project execution.

**Project Milestones**

| | |
|---|---|
| March 2025- | Procurement Opens |
| April 2025 | Contract Award |
| May 2025 | Contract Kick-Off |
| May - September | Execution of Scope of Work |
| September 2025 | Presentation of Recommendations to Board |

## Strategic Fit

Organizational Effectiveness

## Cost Benefits Analysis

The cost of these items are to support reduce liability and increase operational efficiency.

## Alternatives Reviewed

1. Maintain Business as Usual for the SCADA Assessments.

## Approvals

Regional Board Approval Resolution