CAPITAL FUND – 2025 Capital Projects

Capital Projects By Funding	2025 Budget ($000's)	Formula Funding ($000's)	Canada Community-Building Fund ($000's)	Other Grants ($000's)	Community Public Infrastructure Funding ($000's)	Downtown Development Reserve ($000's)	IT Reserve ($000's)	Mobile Equipment Replacement Reserve ($000's)	User Fees ($000's)	Land Fund ($000's)
City Hall Retrofit	300	(300)	-	-	-	-	-	-	-	-
Cooler Replacement Multiplex	675	-	-	-	(675)	-	-	-	-	-
Fire Hall Equipment	77	-	-	-	(77)	-	-	-	-	-
Firehall Renovations/ Expansion	2,309	(176)	-	-	(2,134)	-	-	-	-	-
Fleet Management	2,314	-	-	-	-	-	-	(2,314)	-	-
Fuel Tank Replacement Study Community Arena and City Hall	100	(100)	-	-	-	-	-	-	-	-
Housing Accelerator Fund (HAF)	1,740	-	-	(1,740)	-	-	-	-	-	-
Information Technology Infrastructure Renewal	295	-	-	-	-	-	(295)	-	-	-
Lift Station #1 Replacement	15,900	(3,495)	(2,668)	(5,554)	-	-	-	-	(4,184)	-
New Landfill/ Landfill Expansion	4,500	-	(903)	(2,018)	(1,580)	-	-	-	-	-
Park Equipment Replacement	170	(90)	-	(80)	-	-	-	-	-	-
Patching Program	349	(349)	-	-	-	-	-	-	-	-
Paving Program	200	-	(200)	-	-	-	-	-	-	-
Stormwater Receiving Environment Study	50	(50)	-	-	-	-	-	-	-	-
Traffic Light Upgrades	80	-	-	-	(80)	-	-	-	-	-
Transportation Master Plan	300	(300)	-	-	-	-	-	-	-	-
Water Treatment Plant Flocculant Study and Implementation	50	-	-	-	-	-	-	-	(50)	-
Water & Sewer Infrastructure Failure and Business Continuity Planning	250	-	-	-	-	-	-	-	(250)	-
Water & Sewer Infrastructure Replacement	6,800	-	(6,800)	-	-	-	-	-	-	-
Water & Sewer Replacement - Paving	600	-	(600)	-	-	-	-	-	-	-
Water Licence Projects - Solid Waste Management	225	-	-	-	-	-	-	-	(225)	-
Wetland Delineation & Great Slave Lake (GSL) Monitoring	250	-	(50)	-	-	-	-	-	(200)	-
Total Capital Projects	**37,534**	**(4,860)**	**(11,221)**	**(9,392)**	**(4,546)**	**-**	**(295)**	**(2,314)**	**(4,909)**	**-**

CAPITAL FUND – 2025 Capital Projects

Capital Projects	2023 Budget ($000's)	2023 Actuals ($000's)	2023 CarryForward ($000's)	2024 Budget ($000's)	2024 Forecast ($000's)	2025 Budget ($000's)	2026 Budget ($000's)	2027 Budget ($000's)	Note
Accessibility Audit and Implementation	595	935	1,342	-	445	-	400	300	
Aquatic Centre	43,057	26,499	30,830	3,588	34,418	-	-	-	
Arbour Development Study	-	2	43	25	-	-	750	-	
Asset Management System Development and Implementation	340	74	700	430	430	-	62	-	
Budget Management	-	-	25	-	25	-	-	-	
Community Emergency Plan (CEP) Community Outreach	-	-	32	-	-	-	-	-	
CEP Energy Efficiency Fund	-	-	-	100	-	-	200	-	
CEP Interior LED Lighting	-	29	147	-	-	-	-	-	
City Hall Retrofit	-	15	159	300	31	300	-	-	
Cooler Replacement Multiplex	-	-	-	-	-	675	-	-	
CS Land Fund Capital Projects	-	234	1,666	-	-	-	-	-	
Curling Club Upgrades	615	151	614	-	704	-	-	-	
Development and Building Permit Automation	-	17	56	-	56	-	-	-	
Emergency Radio Infrastructure Renewal	-	-	-	450	450	-	-	-	
Fiddler's Lake Treatment System (FLTS) Projects	400	15	282	-	56	-	-	-	
Fieldhouse Floor Cover	405	76	329	-	329	-	-	-	
Fire Hall Equipment	95	27	68	58	126	77	58	58	
Fire Hall Expansion/ Renovation	4,449	887	4,094	4,449	1,866	2,309	5,000	5,000	
Fleet Management	1,882	1,137	3,563	2,097	2,267	2,314	1,524	1,483	
FLTS Flow Calculation/Meter Installation	-	-	-	150	-	-	-	-	
Fuel Tank Replacement Study Community Arena and City Hall	-	-	-	-	-	100	545	-	
Fuel Tank Replacement Community Arena	-	-	-	-	-	-	325	-	
Fuel Tank Replacement City Hall	-	-	-	-	-	-	325	-	
Information Technology Infrastructure Renewal	327	358	-	440	440	295	304	440	
Lagoon Control Structure Replacement	-	4	-	-	-	-	-	-	
Lagoon Sludge Removal	2,800	20	5,008	2,800	100	-	2,800	-	
Land Fund Capital Projects	900	1,756	2,700	2,200	2,400	-	2,000	-	
Land Surveying (Commissioners)	-	-	600	-	50	-	100	-	
Landfill Leachate Retention & Treatment	430	-	250	-	-	-	-	-	
Lift Station #1 Replacement	3,260	321	3,389	500	500	15,900	23,500	2,600	
New Landfill/ Landfill Expansion	-	21	302	2,160	85	4,500	100	-	

CAPITAL FUND – 2025 Capital Projects

Capital Projects	2023 Budget ($000's)	2023 Actuals ($000's)	2023 CarryForward ($000's)	2024 Budget ($000's)	2024 Forecast ($000's)	2025 Budget ($000's)	2026 Budget ($000's)	2027 Budget ($000's)	Note
Niven Lake Ravine Trail Sludge	-	-	-	300	-	-	-	-	
Outdoor Recreation	-	-	-	305	300	-	200	-	
Park Development	165	43	42	-	80	-	-	-	
Park Equipment Replacement	250	341	3	490	337	170	550	320	
Patching Program	330	177	153	338	325	349	359	370	
Paving Program	6,465	109	2,845	-	390	200	5,250	150	
Paving Program - ICIP	-	4,304	365	-	310	-	-	-	
PH#4 Water Truckfill Safety Project	-	7	-	-	-	-	-	-	
PHs- New Piping	-	14	-	-	-	-	-	-	
Planning & Dev. HAF Capital Expenses	-	-	-	-	84	1,740	1,657	1,634	
RIMP Building Structural Assessment	-	20	55	-	50	-	-	-	
RIMP Repurposing Phase One	-	-	-	-	-	-	200	-	
Site Restoration/Landfill Closure	-	-	-	75	75	-	-	-	
Solid Waster Management Plan Implementation	-	-	-	50	50	-	-	-	
Submarine Line Contracted Costs	1,000	1,250	2,508	-	150	-	-	-	
Traffic Lights Video Detection Equipment	70	77	22	70	92	80	675	80	
Transfer Station & Cell Access Improvement	-	-	99	-	99	-	75	-	
Transportation Master Plan	-	-	-	-	-	300	-	-	
W&S Federal Funded - PAVING - ICIP	-	-	126	-	126	-	-	-	
Water & Sewer Infrastructure Replacement	-	174	-	100	100	6,800	150	3,500	
Water & Sewer Replacement - PAVING	-	480	-	-	-	600	2,050	100	
Water Licence - Solid Waste Management	50	-	50	150	203	225	150	175	
Water Treatment Plant Pellet Boiler	-	101	-	-	-	-	-	-	
Webcasting	-	108	-	-	-	-	-	-	
Weigh Out Station At SWF	-	10	-	1,650	60	-	-	-	
Wetland and GSL Monitoring	-	102	-	-	245	-	-	-	
Wetland Delineation & Great Slave Lake (GSL) Monitoring	-	-	-	80		250	300	315	
Wildland Fire Mitigation Emergency Measures	-	458	-	-	-	-	-	-	
Wireless Infrastructure	-	19	-	-	-	-	-	-	
Water Treatment Plant Flocculant Study and Implementation	-	-	-	-	-	50	-	-	
Stormwater Receiving Environment Study	-	-	-	-	-	50	200	150	
Water Treatment Plant Flocculant Study and Implementation	-	-	-	111	-	250	-	-	
Total Capital Projects	**67,885**	**40,372**	**62,467**	**23,466**	**47,854**	**37,534**	**49,809**	**16,675**	

CAPITAL FUND – 2025 Capital Projects

Department CS Community Services **Division** City Hall
Project 56016570 City Hall Retrofit

Budget

	2025	2026	2027
	$	$	$
Expenditures	**300,000**		
Funding			
Formula Funding	300,000		
Total Funding	**300,000**		

Description

Purpose

To address the required maintenance on the asset that is reaching 50 years of useful life, while also addressing other limitations such as space optimization, hazardous materials abatement and business continuity planning.

Project Details

City Hall was constructed in 1976 and is comprised of three (3) floors. Two floors are active working spaces for staff, while the third (top) floor is dedicated to mechanical systems for the building.

Over time, there has been significant growth in workloads, priorities and expectations of the municipal government since the original construction of City Hall. These workload indicators have required additional staff resources thus expanding the need for additional workspace. Each floor of the building has undergone various retrofits and upgrades to create office space for the various work units of the corporation. These changes to the building have affected heating and air handling systems that make the working environment difficult to balance. For example, one office equipped with a thermostat may be very warm, while the office next door is very cold. This results in staff using electric space heaters and other makeshift solutions that present other problems and safety concerns. There are also asbestos containing materials throughout the building that significantly complicate smaller interior upgrades.

The project also considers business continuity of city operations should an emergency occur. This means the replication of offsite information technology data servers as well as emergency operations center (EOC) considerations such as adequate space and storage for an EOC to function. A functional assessment and space optimization study will be completed in 2024 and was based on a building condition assessment as well as modern office space standards adopted by the Government of the Northwest Territories and other levels of government.

Department CS Community Services **Division** City Hall
Project 56016570 City Hall Retrofit

Tentative Project Schedule (subject to change)

- 2025 Complete planning, detailed design and tender phases.
- 2026 Complete replication of IT infrastructure, staff relocation and begin construction.
- 2027 Construction
- 2028 Construction (if necessary)

Operational Impact

Modernization to more efficient mechanical and electrical systems should lower annual operating costs.

CAPITAL FUND – 2025 Capital Projects

Department CS Community Services **Division** Multiplex
Project FC0036 Cooler Replacement Multiplex

Budget

	2025	2026	2027
	$	$	$
Expenditures	**675,000**		
Funding			
Community Public Infrastructure Funding	675,000		
Total Funding	**675,000**		

Description

Purpose

The purpose of this project is to replace the aging evaporative cooler at the Multiplex with Adiabatic Cooler for Asset Management purposes.

Project Details

The aging evaporative cooler is the from the original ice plant installed when the facility was opened to the public in 2003. Although the ice plant has undergone a replacement, this particular component did not. As the cooler has aged there have been ongoing issues with failure which results in the system freezing up causing downtime for the ice plant, staff time and additional costs for contractors to address the issue. Extended down time during the ice season will result in the loss of ice on both the Shorty Brown and Ed Jeske arenas.

It is proposed that the current evaporative cooler, which has reached its life expectancy of 20 years, be replaced with a new modern adiabatic cooler to eliminate the threat of failure thus reducing additional staff and contractor hours. In addition to reducing these costs, the new cooler will operate at a much higher level of efficiency, reducing the amount of water required for cooling and increasing thermal efficiency by reclaiming more heat for the Eco-Chill system. The Eco-Chill system reclaims excess heat from the ice plant and generates low grade heat for the Multiplex and the Fieldhouse.

When considering the replacement of the evaporative cooler with a more modern unit there were many factors that were considered, however the most prevalent is efficiency. There are fewer moving parts which will eliminate items such as electric motor, fan belts, bearing, spray nozzles, water treatment chemicals and water pump thus reducing maintenance issues. Water will not be required below 20 degrees celsius therefore no chance of freeze up and other water related issues around leaks.

Operational Impact

The new adiabatic cooler will eliminate the chance of emergency freeze ups in the aging evaporative cooler. The new cooler will require less maintenance and eliminate the risk of failures during ice operations which could drastically impact the ice season.

Department PS Public Safety **Division** Fire & Ambulance
Project 63007615 Fire Hall Equipment

Budget

	2025	2026	2027
	$	$	$
Expenditures	**77,000**	58,000	58,000
Funding			
Community Public Infrastructure Funding	77,000	58,000	58,000
Total Funding	**77,000**	**58,000**	**58,000**

Description

Purpose

To maintain the preparedness and response capacity for an all hazards approach to meet the Council approved Level of Service, key functional and reliable equipment is required to protect the safety of our residents and staff. Stewardship of physical resources is a core principle of Public Safety.

Project Details

Equipment for emergency services is maintained and replaced based on best practices for ownership and recommended manufacturer replacement time frames. In 2025, the Fire Division equipment asset and equipment replacement schedule would comprise the replacement of the rescue air bag system, and the addition of mechanical cardiopulmonary resuscitation (mCPR) devices.

Air lifting bags are extensively employed for use in vehicles, heavy equipment, heavy machinery, and confined space rescue incidents where traditional lifting methods are impractical. Situations when dealing with delicate or unstable structures are additional uses of the equipment.

Mechanical cardiopulmonary resuscitation (mCPR) devices provide automated chest compressions to sudden cardiac arrest victims. These devices are designed to provide high quality CPR to achieve the return of spontaneous circulation. High-quality CPR refers to delivering chest compressions to an unresponsive individual in order to provide perfusion to critical organs at a specific fraction, rate, compression depth. Continuously compressing a patient's chest can become physically exhausting for staff, and properly timing compressions can become mentally exhausting. Consequently, most rescuers can only deliver high-quality CPR for a few minutes at a time. mCPR devices offer compressions at a consistent fraction, rate, and depth increasing the viability of patients.

Department	PS Public Safety	**Division**	Fire & Ambulance
Project	63007615 Fire Hall Equipment		

Operational Impact

O&M cost on the first to second year ownership is negligible as new equipment carries warranty. Minor annual testing and certification costs is associated with the cost of ownership regardless of current or replacement equipment.

Department PS Public Safety **Division** Fire & Ambulance
Project 63046570 Fire Hall Renovations/Expansion

Budget

	2025	2026	2027
	$	$	$
Expenditures	**2,309,399**	**5,000,000**	**5,000,000**
Funding			
Formula Funding	175,899	1,897,000	5,000,000
Community Public Infrastructure Funding	2,133,500	3,103,000	
Total Funding	**2,309,399**	**5,000,000,**	**5,000,000**

Description

Purpose

In 2021, Council approved the renovation of and addition to the existing Fire Hall as the asset had reached the end of its life expectancy. As a result, it was in need of extensive renewal. This included additional square footage to accommodate existing and future operational and training requirements. The expansion and renovation was the most feasible and fiscally responsible approach for addressing requirements to improve the facility's condition and its functionality. The expansion and renovation will allow the Fire Hall to accommodate current and future staffing levels, equipment required to meet the needs of the programs, and occupational health and safety that support the Council approved Fire Division Level of Service.

Project Details

In 2022, the City conducted a competitive bid process through procurement services to secure consulting services. The successful proponent awarded the contract provides project management and consultant scope with the delivery of a detailed design for the expansion and renovation of the Fire hall. The first phase of the project in 2022 and 2023 was to complete a detailed facility and site design, and review/refine the construction requirements, timeline, and projected cost for the construction phase of the project. The project was delayed in 2023 due to the impact of the wildfire event and evacuation. The consultant did undertake a review to determine potential cost savings within the scope of the project. The final design, specifications and tender documents have been received by the City.

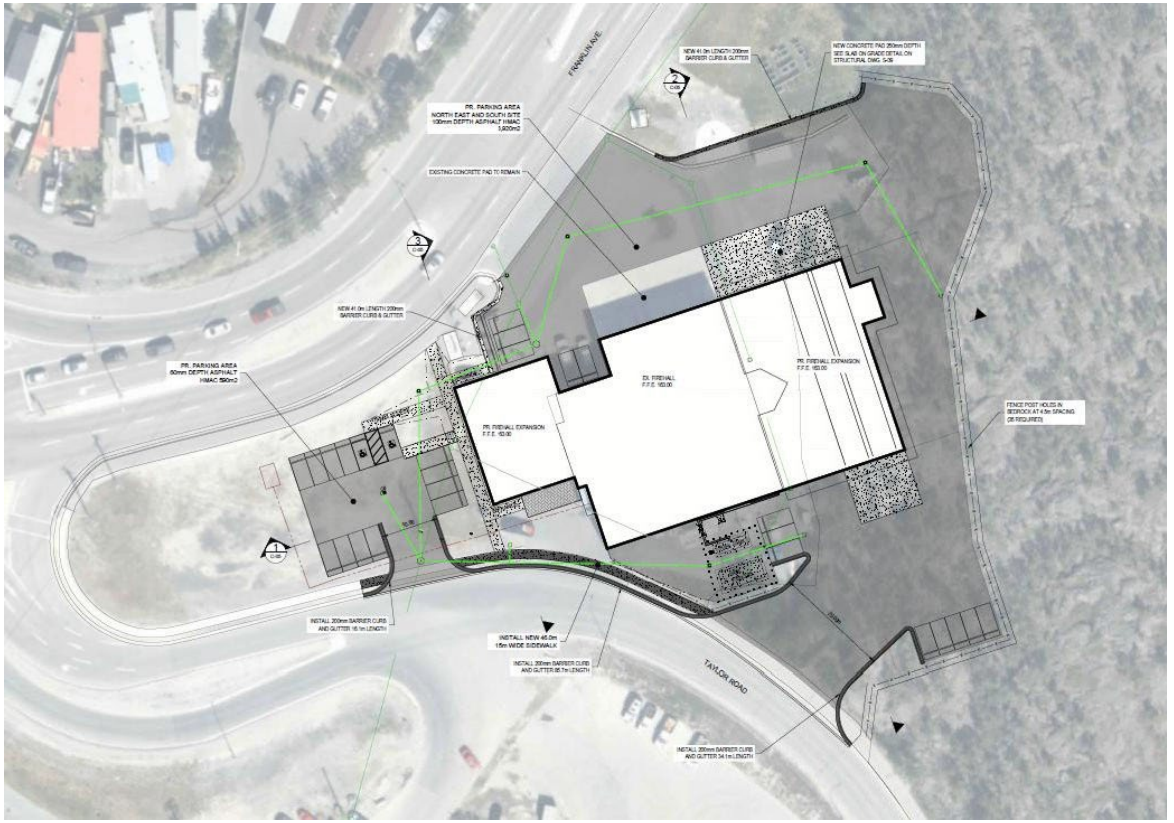
From the presentation to Council on January 22, 2024, on Long Term Capital Planning, the cost of this project has exceeded the initial projected estimate based on changes in the economic landscape since the original estimate. On April 4, 2024, the consultant provided a Class 1 Estimate of probable cost, and the project is now expected to cost approximately $21.2 million. The actual cost of the renovation and expansion will be realized through the competitive bid process.

Department	PS Public Safety	**Division**	Fire & Ambulance
Project	63046570 Fire Hall Renovations/Expansion		

Operational Impact

The increase in size of the facility from existing contemplates an operational impact on heating and electrical costs. The exact impact of these costs are unknown as improvements and modernization in building envelopment and insulation, windows and doors, lighting systems, and heating/cooling systems may create negligible cost impacts of expansion to facility.

Department PS Public Safety **Division** Fire & Ambulance
Project 63046570 Fire Hall Renovations/Expansion



CAPITAL FUND – 2025 Capital Projects

Department PW Public Works & Engineering **Division** Fleet Management
Project 71507801 Fleet Management

Budget	2025	2026	2027
	$	$	$
Expenditures	**2,314,477**	**1,523,906**	**1,482,715**
Funding			
Reserves	2,314,477	1,523,906	1,482,712
Total Funding	**2,314,477**	**1,523,906**	**1,482,712**

Description

Purpose

To continue replacing and redeploying fleet units according to the City of Yellowknife's Fleet Management practices.

Project Details

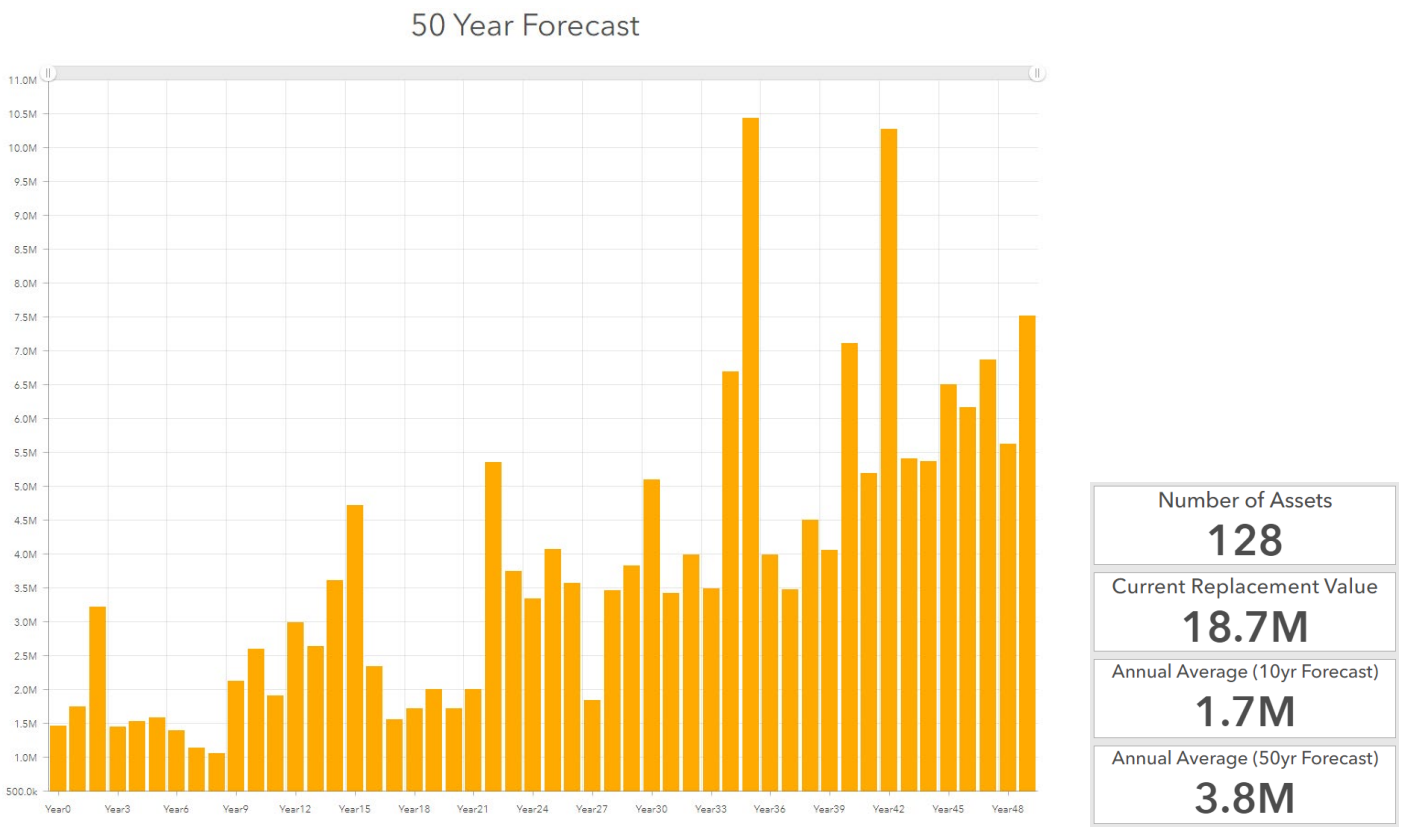
The reliability of the City's Fleet Equipment must be maintained to meet the service levels required. The City has a fleet of 128 pieces of heavy-duty and mobile equipment that support Fire and Ambulance, Road Maintenance, Water and Sewer Maintenance, Solid Waste, Parks, Arenas and Administrative functions, as well as 26 stationary engines for emergency power generation and fire pumping capacity. The current replacement value of the City's fleet is $25.8 Million.

Fleet management practices allow the City to maximize life cycle and properly budget and plan the replacement of all fleet vehicles on a regular basis. These policies and practices help to mitigate risk and repair costs associated with aged vehicles. As vehicles and equipment get older, the operation and maintenance costs of those vehicles increase, with limited resources available for maintenance and repairs. These vehicles should be replaced on a scheduled basis to reduce downtime due to repairs or failures, which could negatively affect the delivery of City services such as snow removal or water/sewer repairs.

Fleet Management practices allow the City to properly budget and plan the replacement of all fleet vehicles on a regular basis. These policies and practices help to mitigate risk and repair costs associated with aged vehicles. As vehicles and equipment get older, the operation and maintenance costs of those vehicles increase, with limited resources available for maintenance and repairs. These vehicles should be replaced on a scheduled basis to reduce downtime due to repairs or failures, which could negatively affect the delivery of City services such as snow removal or water/sewer repairs.

Department PW Public Works & Engineering **Division** Fleet Management
Project 71507801 Fleet Management

Gallery



Gallery 1 - 50 Year Forecast

Department CS Community Services
Division Yellowknife Community Arena
Project FC0038 Fuel Tank Replacement Study YKCA/City Hall

Budget

	2025	2026	2027
	$	$	$
Expenditures	**100,000**	**545,000**	
Funding			
Formula Funding	100,000	545,000	
Total Funding	**100,000**	**545,000**	

Description

Purpose

The proposed project would include an engineering and an environmental assessment of the underground fuel tanks at the Community Arena and at City Hall. The study would be used to inform City Staff regarding the timing and methodology of replacing the tanks.

Project Details

In 2025 it is proposed to contract a qualified engineering firm to carry out an environment and engineering assessment on the current underground fuel tanks at the Community Arena and City Hall. There is no corporate knowledge on when the tanks were last replaced so in undertaking the view of asset management and due diligence it is necessary to address these two fuel tanks.

The assessment will evaluate the expected lifespan of the current fuel tanks and provide an engineering plan for their replacement including parameters for the timing of construction, determining the design, technical requirements and options for construction. It is essential that these assets be evaluated in a timely manner to ensure public and environmental safety are not compromised.

It is assumed that due to the age of the fuel tanks there will be the requirement for replacement in a timely manner. Funds have been identified in 2026 to carry out the work. However, if the assessment proves otherwise, the 2026 project will not proceed.

Department PD Planning & Development **Division** Housing Accelerator Fund
Project 6506561 Housing Accelerator Fund (HAF)

Budget

	2025	2026	2027
	$	$	$
Expenditures			
Infill	291,680	277,355	273,473
Density	149,201	142,122	140,204
Disposal	354,691	337,841	333,274
Development Process	570,156	543,069	535,728
Development Incentives & Disincentives	182,333	173,675	171,329
Parking Revision	99,467	94,748	93,469
Affordable Housing	92,586	88,190	87,000
Total Expenditures	**1,740,114**	**1,657,000**	**1,634,477**
Funding			
Other Grants	1,740,114	1,657,000	1,634,477
Total Funding	**1,740,114**	**1,657,000**	**1,634,477**

Description

Purpose

The City of Yellowknife was successful in securing Federal funding through Canadian Housing and Mortgage Corporation (CMHC) to fund the development of affordable, inclusive, equitable and climate-resilient housing. The HAF includes incentive funding, provided to assist the City in removing barriers and to encourage local initiatives to build more homes faster.

Incentive funding is to be used for prescribed uses, which fall under four categories:

1. Investments in Housing Accelerator Fund Action Plans
2. Investments in Affordable Housing
3. Investments in Housing-Related Infrastructure
4. Investments in Community-Related Infrastructure that Supports Housing

Department	PD Planning & Development	**Division**	Housing Accelerator Fund
Project	6506561 Housing Accelerator Fund (HAF)		

Project Details

An Action Plan was submitted by the City of Yellowknife and forms the basis of the programs to be completed from December 2023 to December 2027.

- The programs include the following and are required as outlined in the Federal Funding Agreement:
  Housing Needs Assessment
- Infill (Infill Development Promotion and Engagement)
- Density (Allowing increased housing density – units, height)
- Disposal (of City Owned Land Assets)
- Development Process (Implementing a streamlined development process)
- Development Incentives and Disincentives
- Revised Parking Requirements (Items below are approved but not specifically funded through HAF)
- Infrastructure Planning
- Climate Mitigation and Adaptation

The Planning and Development Department will dedicate priority to these items over the next four years. The funding allocated for the specific projects above amounts to $2,107,400.17 in each year.

The City of Yellowknife Land Developments that fall within the HAF scope include Infill and Density:

- Burwash Drive Con Road;
- School Dra;
- Niven Drive;
- Taylor Road;
- Gitzel Lots; and
- Niven Phase 8

The agreement was signed December 2023 for funding to 2027.

Department	GG General Government	**Division**	Information Technology
Project	44007600 Information Technology Infrastructure Renewal		

Budget

	2025	2026	2027
	$	$	$
Expenditures	**295,000**	**304,000**	**440,000**
Funding			
Reserves	295,000	304,000	440,000
Total Funding	**295,000**	**304,000**	**440,000**

Description

Purpose

To continue the City of Yellowknife's planned and incremental investment in its Information Technology Infrastructure to provide reliable services while maximizing the service life of each component.

Project Details

The City's Information Technology infrastructure is essential for effective service delivery. This project will ensure consistent and reasonable investments in each of the four main categories of infrastructure in place at the City: servers and storage, network devices, printers and multifunction devices, and client hardware.

Servers and Storage

The City maintains physical and virtual servers to support a wide range of services to staff, citizens, and stakeholders. It also maintains a redundant file storage system to house and protect the City's burgeoning collection of data and documents that are essential to its day-to-day operations. This project will continue the City's planned and incremental investment in its server fleet and file storage infrastructure to help meet the growing requirements being placed on it.

The City's dependence on its server fleet intensifies with each activity that is automated. In addition to traditional financial applications, staff and stakeholders are adopting increasingly sophisticated solutions to meet diverse needs including emergency services dispatch, mapping, work management, elections, transit, permit processing, problem reporting, security cameras, building access, pellet boilers, solar panels, voice radio control, bulk water billing, and black/green cart management. To keep pace with these demands, the servers need to remain current and reliable.

Since the early 2000's, the Information Technology Division has adopted a virtualization strategy as a way to meet accelerating demands and provide the flexibility to quickly deploy additional servers as needs arise. Virtualization eliminates the cost of physical server hardware while maximizing the use of one physical device to host multiple virtual servers. However, there are limits to what can be accommodated using virtual

Department	GG General Government	**Division**	Information Technology
Project	44007600 Information Technology Infrastructure Renewal		

servers so while reduced, there is still a requirement to maintain physical servers for some applications and services. Continual replacement of physical servers to ensure the increased demands on memory and storage is critical. During the term of this budget, the Information Technology Division will use the allocated funds to grow the capacity of this environment, redeploy server equipment that is nearing the end of its life expectancy, and sustain a reasonable inventory of spare parts to ensure replacements are readily available when failures occur.

Network

The network that provides connectivity among the City's computers, laptops, servers, printers, cameras, mobile devices, telephones, traffic lights, SCADA monitors, and emergency voice radios is vital to the City's operations. Planned and incremental investment in this network is required so that it can continue to meet the increasing demands placed on it as functions throughout the organization turn to technology to streamline workloads and improve services.

The City's network employs Ethernet, leased and City-owned fiber, wireless, and microwave technologies to create connections among 15 sites. Within each site the network connects numerous devices, ensuring that staff, citizens, and stakeholders have consistent and reliable access to applications, data, printers, and the internet.

The network also provides connectivity to every traffic light in order to streamline traffic control management within the Public Works department; this initiative alone added 63 network devices to the City's infrastructure. With additional traffic lights and cameras on the horizon, this complement will continue to grow.

The City's SCADA network connects 23 network devices at lift stations and pumphouses to the City's infrastructure (Gallery 1).

Ongoing replacement of key network equipment assists in the reduction of unplanned outages and prepares for future technologies and growth. City-owned and operated connections have been established between several sites which has reduced reliance on third-party fiber services and resulted in annual operational savings of approximately $85,000.

In addition to connectivity, the network also plays a key role in protecting the City's Information Technology infrastructure and the corporate data assets stored within it (Gallery 2). The network's firewall and other protective mechanisms prevent unauthorized access attempts, and its spam filter rejects infected email and spam directed at the organization.

There is a continual focus on security as threats – both internal and external – are becoming increasingly sophisticated and pervasive. Initiatives such as ongoing cyber-threat awareness campaigns to help staff become more knowledgeable and mindful users, implementation of next generation virus protection and firewalls, continual refinement of security configurations to mitigate risks from all sources, vulnerability assessments and health checks, and enhanced and more granular monitoring of network activity ensure a proactive approach to protecting City information and assets.

Department	GG General Government	**Division**	Information Technology
Project	44007600 Information Technology Infrastructure Renewal		

Printer and Multifunction Devices

The City maintains a fleet of printers and multifunction devices to meet the printing, scanning, and copying requirements of stakeholders. This project will continue the organization's incremental approach to implementing and maintaining multifunction devices throughout the organization so that these requirements can be met in the most cost-effective manner possible.

The City fleet consists of tiers of devices and all acquisitions are selected from one of these tiers to minimize the variety of devices installed throughout the organization, streamline consumables management, and reduce costs. Where appropriate, devices are reallocated throughout their lifespan in order to maximize their utility. Also, the organization is continually looking for ways to reduce the amount of printing.

Client (Staff) Hardware

This allocation will be used to renew and augment all client facing hardware components that require regular replacement in accordance with the City's Information Technology Evergreen strategy. This includes widely deployed elements like workstations, laptops, tablets, cell phones, desk phones, monitors, and portable radios. As new staff are brought on board, new hardware adds to the growing inventory of computer equipment that must be supported. New operating systems (Windows 11) and office productivity software (M365) increase the need for more robust hardware to meet the requirement for more memory and processing power.

Operational Impact

City service delivery relies on its Information Technology infrastructure. When any component is out of service, or not operating to specification, it will interrupt service delivery and reduce productivity.

Servers and Storage

When servers are appropriately matched to the work that needs to be done and sufficient disk space is available, services can be delivered more reliably and at a lower cost than when resources must be constantly manipulated and reallocated, often in response to failures. Without adequate investment, the organization will not be able to meet escalating server requirements or acquire much-needed additional storage, memory and processing capacity. In the short-term, this will negatively impact overall infrastructure performance and thus degrade service delivery to both internal and external clients, and over time it will lead to more frequent system outages and necessitate increased support efforts and costs. Data storage devices (SAN) are crucial for the storage of data and backups to enable quick recovery of services and information in the event of a catastrophic event.

Department	GG General Government	**Division**	Information Technology
Project	44007600 Information Technology Infrastructure Renewal		

Network

The City's network is vital to its operations and even short service interruptions have significant impacts on service delivery and employee productivity. It will be more cost effective – and present a lower risk to the City – to replace and enhance this equipment in a planned and orderly fashion rather than to experience problems that require excessive troubleshooting and repair or failures that create service outages. Lack of appropriately scaled and timed investment will negatively impact on the City's ability to sustain its network and will put the organization at risk of a long term outage while replacement equipment is sourced. Over time, there may be increasingly frequent service disruptions when equipment fails. These failures will interrupt many aspects of City operations, and potentially jeopardize the health and safety of staff, citizens, and visitors.

Printers and Multifunction Devices

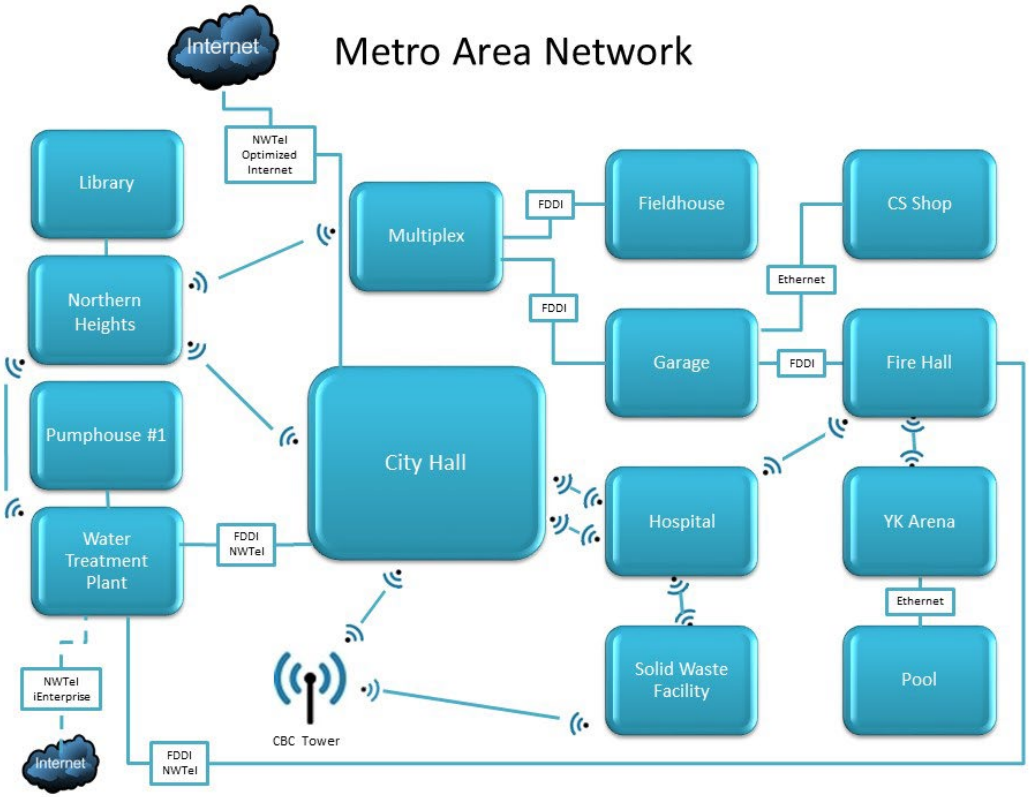
Many printing and copying tasks are time sensitive and must be done within legislated timeframes. If the printer and multifunction device fleet is not properly maintained, outages will affect the organization's ability to deliver services.

Client Hardware

Staff all across the organization rely on technology to complete their work and deliver programs and services. Appropriately maintaining client facing hardware components minimizes downtime and enables effective services for both staff and stakeholders. This will reduce troubleshooting and support efforts as replacements are completed in a planned and scheduled manner to minimize operational impact.

Department	GG General Government	**Division**	Information Technology
Project	44007600 Information Technology Infrastructure Renewal		

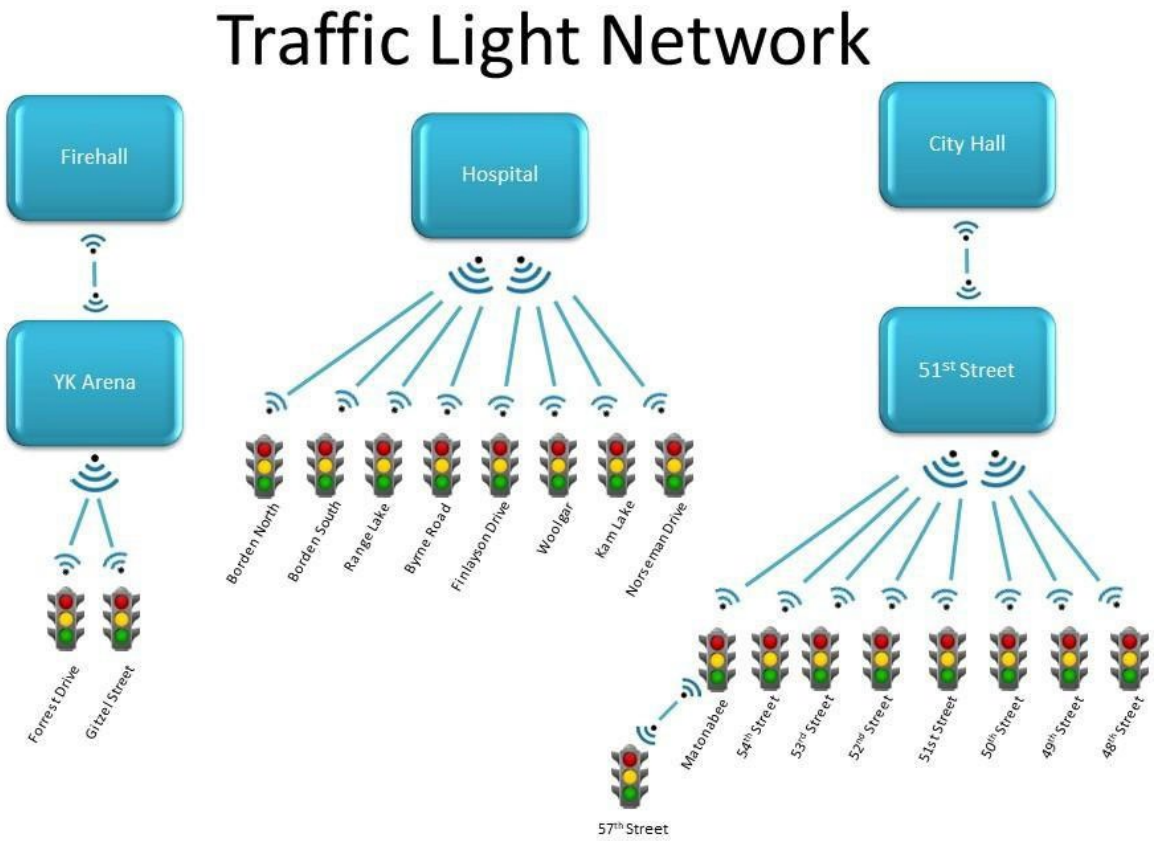
Gallery



Gallery 1: Metro Area Network

Department	GG General Government	**Division**	Information Technology
Project	44007600 Information Technology Infrastructure Renewal		

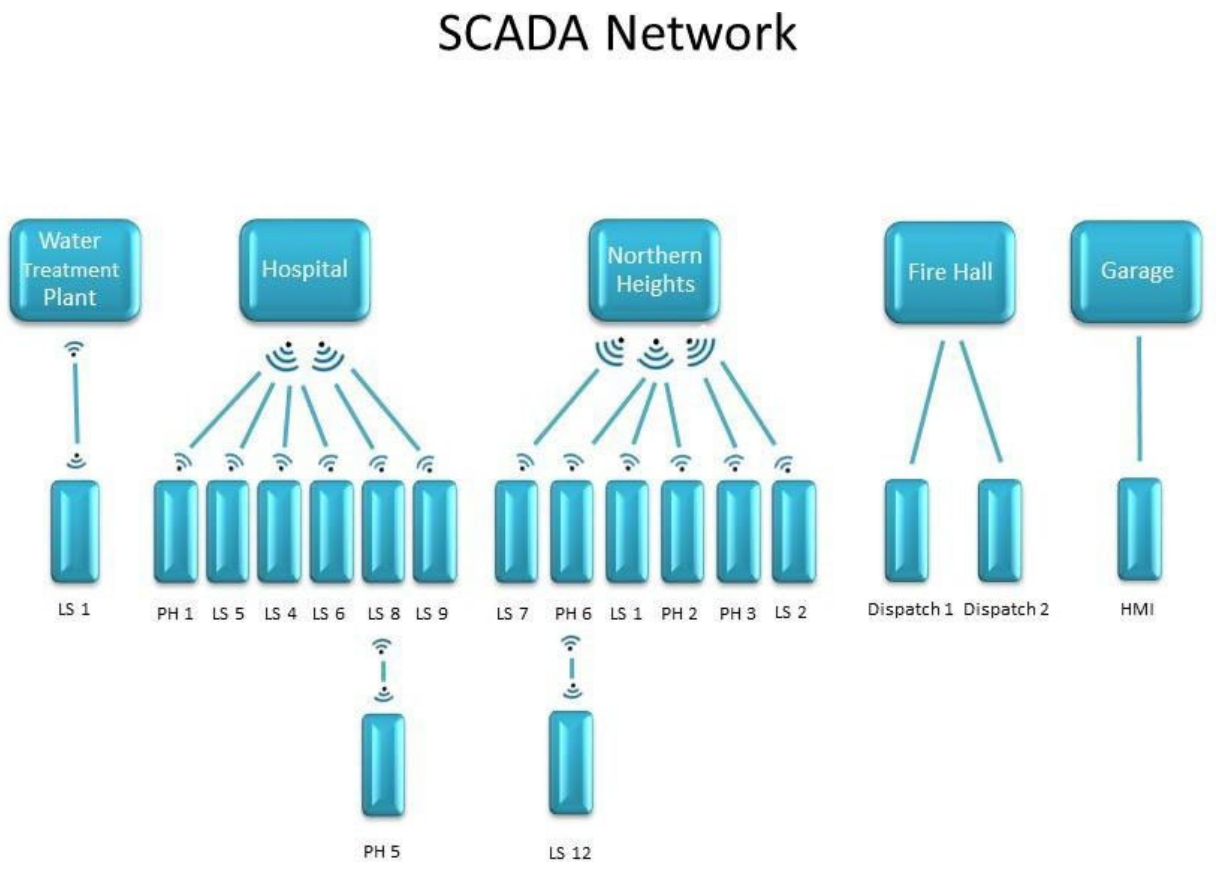
Gallery



Gallery 2: Traffic Light Network

Department	GG General Government	**Division**	Information Technology
Project	44007600 Information Technology Infrastructure Renewal		

Gallery



Gallery 3: SCADA Network

Department	PW Public Works & Engineering	**Division**	Water & Sewer
Project	93106270 Lift Station #1 Replacement		

Budget

	2025	2026	2027
	$	$	$
Expenditures	**15,900,000**	**23,500,000**	**2,600,000**
Funding			
Formula Funding	3,494,759	21,122,388	
Canada Community-Building Fund	3,667,871		39,750
Other Grants	5,553,807		
User Fees	4,183,563	2,377,612	2,560,250
Total Funding	**15,900,000**	**23,500,000**	**200,000**

Description

Purpose

To design and construct a new lift station on the corner of Franklin Avenue and School Draw Avenue to replace existing Lift Station #1.

Project Details

Lift Station #1 (LS1), constructed in 1967, is the oldest of 14 lift stations in the City of Yellowknife (City). The lift station is located near the intersection of School Draw Avenue and Franklin Avenue. The station's catchment area in 1967 consisted of the downtown area and areas east of downtown. Lift Station #7 (LS7) was constructed in 1984 to serve the downtown area, thereby reducing the catchment area for LS1 to the areas east of downtown. LS1 also receives septage hauling from Old Town, Latham Island, and N'Dilo. The station originally pumped to a lagoon at Niven Lake but was redirected in 1981 to discharge into the gravity collection system for Lift Station 5 (LS5) through a common forcemain with LS7. LS5 pumps to the Yellowknife Lagoon.

A condition assessment completed in 2019 recommended a complete replacement of the asset that is over 50 years old. This approach will allow the existing lift station to continue to operate while the new construction occurs, with the existing LS1 being decommissioned once the new lift station is operational. In addition, this approach also allows the City to redesign the entire area for functionality given the multiple uses that occur on site.

It was also determined that the recent addition of several multi-family developments in the LS1 catchment area have increased the demand on LS1, making the project an essential asset replacement.

Department	PW Public Works & Engineering	**Division**	Water & Sewer
Project	93106270 Lift Station #1 Replacement		

The design of LS1 was completed in 2024 and subsequently tendered. Bids for this project came in significantly higher than the estimate provided by the Consultant. The estimate for the project was $15M, and bids came in over $40M. Discussions with the consultant indicated similar projects in other areas were also coming in significantly higher than expected.

The City is currently looking into federal funding that can be used for this project in order to minimize the overall impact on the capital budget.

Operational Impact

The anticipated impact to O&M budgets is expected to be minimal as it is a replacement project. However, energy savings and efficiencies are anticipated with modernized infrastructure.

CAPITAL FUND – 2025 Capital Projects

Department	PW Public Works & Engineering	**Division**	Solid Waste
Project	80036570 New Landfill / Landfill Expansion		

Budget

	2025	2026	2027
	$	$	$
Expenditures	**4,500,000**	**100,000**	
Funding			
Canada Community-Building Fund	902,500		
Other Grants	2,017,500		
Community Public Infrastructure Funding	1,580,000	100,000	
Total Funding	**4,500,000**	**100,000**	

Description

Purpose

To design and construct a second-generation landfill cell (cell 3) at the Solid Waste Facility to accommodate for the city's future waste.

Project Details

In 2011, the first second-generation landfill cell was built in the quarry adjacent to the old landfill site at the Solid Waste Facility (SWF). The cell includes a leachate collection system which consists of a liner system overlaid with collection pipes which direct liquids to a sump pit located in a maintenance hole. It was anticipated that the cell would hold approximately five years' worth of baled waste. The design and construction of the cell took close to two years to complete due to the unique circumstances around building a landfill in an active quarry. A second cell was built in 2016 adjacent to the first with an anticipated lifespan of seven years.

The third cell (cell 3) is now needed to ensure that the City of Yellowknife has sufficient space to accommodate future waste. Recent analysis of airspace and elevation anticipates that the existing Municipal Solid Waste (MSW) cells will be fully depleted in early 2027. Lateral expansion into cell C will need to occur before this deadline in order to optimize operations.

The City has been working on a sequencing plan that will guide planning and operations until the closure of the MSW cells. This work included the design for cell 3, including preparation of the site where the cell will be constructed. The 2025 Budget allocation is for the construction of cell 3 and includes, but is not limited to, rock blasting and removal, drainage and road work, liner installation, and leachate collection system installation.

Department PW Public Works & Engineering **Division** Solid Waste
Project 80036570 New Landfill / Landfill Expansion

Water Licence Requirements

There are two (2) areas of the City's Water Licence that this project falls under:

- Revision of SWF Management and Operation & Maintenance Plan; and
- Construction of a new facility to hold waste.

The requirement to update SWF Management and Operation and Maintenance Plans ensures that any operational changes due to the construction of cell 3 are captured in the appropriate documents. The revised Plans are then submitted, reviewed and approved, a process which can take up to six (6) months.

The Construction section, Schedule 2, item 1 of the Water Licence, that the construction of a new landfill cell falls under, requires the submission of a Design and Construction Plan, as well as Design Drawings a minimum of 90 days prior to the commencement of construction. It is anticipated that the submission of this plan will occur in December 2024, prior to tendering of the construction contract.

Operational Impact

The design and construction of cell 3 works toward proactive planning of how airspace for MSW is to be managed on site. The design and ultimate construction allow for better strategy as to how material is handled and processed resulting in a more effective use of operational budgets.

Department	CS Community Services	**Division**	Parks & Trails
Project	53116570 Park Equipment Replacement		

Budget

	2025	2026	2027
	$	$	$
Expenditures	**170,000**	**550,000**	**320,000**
Funding			
Formula Funding	90,000	550,000	240,000
Other Grants	80,000		80,000
Total Funding	**170,000**	**550A,000**	**320,000**

Description

Purpose

The purpose of this project is to continue to refurbish and replace amenities in playgrounds and parks. Playground equipment is replaced on a rotational basis and amenities such as asphalt pads and surfaces are replaced as they deteriorate over time and use. This approach ensures that the City's assets are managed in a way to ensure safety and public trust is maintained.

Project Details

The City of Yellowknife has a plan to replace older playgrounds on a rotational basis to ensure that playground apparatus continues to meet the safety standard and are enjoyable for the community to use. Playgrounds are replaced on a life cycle basis of approximately 20-years with new apparatus that are modern and safe. The process of replacement also includes consultation with the neighborhood in close proximity to the project to ensure that the new apparatus reflects the needs of the area that they are servicing. In 2025 it is proposed that the Josephine Walcer playground be replaced, and the site undergo repairs. The apparatus has reached its life expectancy and is in poor repair due to high usage and the ground conditions which are wet and subject to seasonal heaving has added to the deterioration of the site. It is an area with a high number of young families and receives a lot of use.

Additionally in 2025 it is proposed to resurface the three tennis/pickle ball facilities including Somba K'e, Reservoir and Niven Lake. Each of these facilities have issues with surface peeling and uneven surfaces which is leading to safety issues and the overall aesthetics of the area. Each court has reached or exceeded their life expectancy in the harsh climate. To address the issues and to ensure the courts remain in a usable condition new tennis court coatings and lines will be applied. Additional courts will include Pickle Ball to alleviate the pressure of this high demand sport. This project will provide for a broader range of users and improve safety and useability and provide community members with opportunities for an active a healthy lifestyle.

These projects will allow the City to manage its assets wisely by strategically investing in infrastructure to optimize function, service and safety.

Department	CS Community Services	**Division**	Parks & Trails
Project	53116570 Park Equipment Replacement		

Operational Impact

There will be little O&M impact as this is a refurbishment and replacement project for existing equipment.

CAPITAL FUND – 2025 Capital Projects

Department	PW Public Works & Engineering	**Division**	Roads & Sidewalks
Project	RS0003 Patching Program		

Budget

	2025	2026	2027
	$	$	$
Expenditures	**348,649**	**359,108**	**369,882**
Funding			
Formula Funding	348,649	359,108	369,882
Total Funding	**348,649**	**359,108**	**369,882**

Description

Purpose

To maintain serviceability standards of city streets and sidewalks.

Project Details

The annual patching program identifies and repairs sections of road and sidewalks to extend the life expectancy of the street and ensure it maintains adequate serviceability standards.

Often the serviceability and life expectancy of a street can be greatly improved by fixing small, localized issues as they arise and before they become too problematic.

Work completed under the annual patching program includes:

- Pavement Patches,
- Curb and Sidewalk replacement,
- Asphalt Overlays, and
- Catch Basin and Manhole Adjustments.

Operational Impact

Repairing sections of road and sidewalks reduces ongoing operational maintenance costs.

Department PW Public Works & Engineering **Division** Roads & Sidewalks
Project 76156570 Paving Program

Budget

	2025	2026	2027
	$	$	$
Expenditures	**200,000**	**5,250,000**	**150,000**
Funding			
Canada Community-Building Fund	200,000	5,250,000	150,000
Total Funding	**200,000**	**5,250,000**	**150,000**

Description

Purpose

To repair or replace asphalt, concrete and other appurtenances on city streets as required, including storm water infrastructure. This project also installs concrete, asphalt and landscaping (if specified) on newly developed streets in the city.

Project Details

The typical design life of pavement is generally between 20 and 25 years, but it will vary significantly due to factors such as traffic volumes, vehicle types, geotechnical conditions, construction practices, and adequate maintenance.

The construction of new roads generally coincides with the development of new subdivisions. Otherwise, a road is scheduled for reconstruction when it is in poor condition and may be a danger to the public, or when maintenance and repairs are no longer cost-effective.

As streets are reconstructed, the City of Yellowknife works with Northland Utilities Ltd. (Northland) to ensure that street lighting levels are evaluated. Also included in the paving program is coordination with Northland, NorthwesTel Inc. and NorthwesTel Cable Inc. to determine if replacement or addition of underground duct work for power and communication infrastructure is required.

Considerations when determining areas of reconstruction include:

- Condition and age of asset,
- Recurring maintenance costs,
- Priority level of roadway,
- Number of impacted residents, and
- Underground infrastructure requirements.

Department	PW Public Works & Engineering	**Division**	Roads & Sidewalks
Project	76156570 Paving Program		

Tentative Paving Plan is moving to an alternating schedule with water and sewer infrastructure replacement occurring one year and paving activities the next. 2025 and 2027 will focus on design work, with 2026 currently planning for the reconstruction of Franklin Avenue between 44 Street and 41 Street (Franklin Hill).

Operational Impact

Aging infrastructure has an operational cost of between two and four percent of replacement costs. Replacing this infrastructure will allow the department to focus operational and maintenance activities on other roads, sidewalks and storm water appurtenances in the city.

Department PW Public Works & Engineering **Division** Water & Sewer
Project WS0022 Stormwater Receiving Environment Study

Budget

	2025	2026	2027
	$	$	$
Expenditures	**50,000**	**200,000**	**150,000**
Funding			
Formula Funding	50,000	200,000	
User Fees			150,000
Total Funding	**50,000**	**200,000**	**150,000**

Description

Purpose

To investigate the receiving water bodies of the City's stormwater, as recommended by the Stormwater Trend Analysis, which forms part of the City's Water Licence requirements.

Project Details

The Stormwater Trend Analysis was completed in 2024 and includes a recommendation to investigate the water bodies receiving stormwater in order to determine the effect of stormwater on the receiving environments.

This project will entail a multi-year investigation of the impact of stormwater on the receiving water bodies. This includes sampling of multiple lakes including, but not limited to Great Slave Lake (Yellowknife Bay and Back Bay), Grace Lake, and Kam Lake. Multiple sampling locations may be required in each body of water, and they will need to be sampled multiple times each year. The resulting information will then be analyzed in relation to the data from the Stormwater Trend Analysis to determine the impacts of stormwater on the receiving environment. A final report on the data and analysis would then be completed.

Operational Impact

The outcome of the study may result in additional stormwater sampling locations, which will have an impact on staff time and resources.

CAPITAL FUND – 2025 Capital Projects

Department	PW Public Works & Engineering	**Division**	Roads & Sidewalks
Project	73807611 Traffic Light Upgrades		

Budget

	2025	2026	2027
	$	$	$
Expenditures			
	70,000		
Balancing Difference	10,000	675,000	80,000
Total Expenditures	**80,000**	**675,000**	**80,000**
Funding			
Community Public Infrastructure Funding	80,000	675,000	80,000
Total Funding	**80,000**	**675,000**	**80,000**

Description

Purpose

To improve traffic lights at signalized intersections by introducing technology that makes the intersections safer for vehicular and pedestrian traffic.

Project Details

There are 19 intersections that rely on traffic lights for reliable vehicular flow, and 10 signalized crosswalks that provide safer pedestrian crossings. With the completion of the installation of traffic cameras at all signalized intersections in 2024, this project will look at additional upgrades to traffic lights and signalized crosswalks to ensure acceptable performance levels.

The project schedule for this project is as follows:

2025	Replacement of traffic light poles at 52 Street and Franklin Avenue
	Replacement of signalized crosswalks near Ecole St. Joseph School and NJ MacPherson School on range Lake Road
2026	Implementation of AI Systems for traffic light coordination (including upgrades to traffic light components, such as cameras, at multiple intersections)
2027	Annual replacement of traffic light components in alignment with asset management principles

Operational Impact

Completing upgrades to traffic lights and signalized pedestrian crosswalks on a schedule that aligns with asset management principles will ensure that repairs are being done in a proactive manner.

Department PW Public Works & Engineering **Division** Directorate & Engineering
Project PW0002 Transportation Master Plan

Budget

	2025	2026	2027
	$	$	$
Expenditures	**300,000**		
Funding			
Formula Funding	300,000		
Total Funding	**300,000**		

Description

Purpose

To develop a comprehensive transportation planning document that incorporates or ties into other municipal strategies such as the Community Plan.

Project Details

Many municipalities in Canada have developed Transportation Master Plans (TMP) that incorporate several planning initiatives that help inform future development within the municipality and where to focus strategic capital investments.

The City of Yellowknife is seeking to develop a TMP that includes but is not limited to the following:

- Active transportation improvements and future planning of Active Transportation (AT) infrastructure.
- On-going research into public transit improvements.
- Traffic light modernization and optimization.
- Traffic calming methods for various areas of the City.
- Revision of City Standards to incorporate improvements to existing standards.

The City is also conducting a review of the Community Plan concurrently with the TMP. These two plans will be intricately linked and complimentary documents that are essential when planning future growth of Yellowknife.

Operational Impact

The Transportation Master Plan itself will have no direct operational impact. However, any accompanying implementation plans may have both operational and capital cost impacts that will need to be assessed on an individual basis.

Department	PW Public Works & Engineering	**Division**	Water & Sewer
Project	WS0021 Water & sewer Infrastructure Failure and Business Continuity Planning		

Budget

	2025	2026	2027
	$	$	$
Expenditures	**250,000**		
Funding			
User Fees	250,000		
Total Funding	**250,000**		

Description

Purpose

To develop a Business Continuity Plan to ensure essential water and sewer service is available during emergencies.

Project Details

This study will look at the City's water and sewer system to determine points in the system where redundancies, upgrades, and or focused maintenance are required in order to maintain water and sewer service during emergencies.

Over the last few years, the City's water and sewer infrastructure has been taxed when required to provide service during emergencies. This was particularly noticeable during the 2023 wildfires when the draw from sprinkler systems used on the fuel breaks caused pressure and flow issues throughout the city. In order to ensure the City is able to provide adequate water and sewer service during emergencies, the system needs to be reviewed and areas where improvement is required identified.

Operational Impact

Potential operational impacts for this project are unknown. Additional maintenance on some areas of the system may be required.

Department	PW Public Works & Engineering	**Division**	Water & Sewer
Project	96156570 Water & Sewer Infrastructure Replacement		

Budget

	2025	2026	2027
	$	$	$
Expenditures			
Water and Sewer Upgrades	2,000,000		
Balancing Difference	4,800,000	150,000	3,500,000
Total Expenditures	**6,800,000**	**150,000**	**3,500,000**
Funding			
Canada Community-Building Fund	6,800,000		3,500,000
User Fees		150,000	
Total Funding	**6,800,000**	**150,000**	**3,500,000**

Description

Purpose

To replace failing underground water and/or sewer infrastructure on a planned and prioritized basis to reduce reactive maintenance costs.

Project Details

The City's water and sewer infrastructure requires monitoring and maintenance to ensure the system functions as expected. When maintenance on a section of the infrastructure becomes prohibitive due to numerous failures, it becomes time to upgrade/replace this section.

The materials in use for the water and sewer underground infrastructure can have a lift expectancy of up to 50 years. However, prevailing ground conditions and permafrost presence can impact the life span of any pipe installation.

Considerations when determining areas of reconstruction include:

- Condition and age of asset
- Recurring maintenance costs
- Priority level of roadway
- Number of impacted residents and services

The following are currently included in the annual Water & Sewer Infrastructure Replacement plans:

- Replacement of ductile iron sewer mains in poor condition, with ductile iron pipe
- Replacement of concrete sewer manholes

Department	PW Public Works & Engineering	**Division**	Water & Sewer
Project	96156570 Water & Sewer Infrastructure Replacement		

- Replacement of existing cast iron water mains, and/or insulated ductile iron water mains in poor condition, with appropriately sized insulated ductile iron pipe
- Replacement of in-line hydrants, valves with hydrants, and valves located in insulated concrete vaults with manhole access
- Replacement of individual lot water and sewer services were deemed necessary
- Road stabilization and reconstruction with appropriate methods
- Completion of the project with concrete sidewalks and a paved roadway

The Water and Sewer Infrastructure Replacement Program is moving to an alternating annual schedule with the Paving Program, with water and sewer infrastructure replacement occurring one year and paving activities the next. The 2025 Water and Sewer Infrastructure Replacement Program includes reconstruction of Mandeville Drive and the area near the Racquet Club bordered by 49A Ave, 41 St., 49 Ave, 42 Street and Franklin Avenue.

Operational Impact

Aging infrastructure has an operational cost of between 2% and 4% of replacement costs. Replacing this infrastructure will allow the department to focus operational and maintenance activities in other areas of the water and sewer systems.

This project is consistent with good Asset Management principles.

Department PW Public Works & Engineering **Division** Water & Sewer
Project 96156572 Water & Sewer Replacement – Paving

Budget

	2025	2026	2027
	$	$	$
Expenditures	**600,000**	**2,050,000**	**100,000**
Funding			
Formula Funding		2,050,000	2,000
Canada Community-Building Fund	600,000		
Community Public Infrastructure Funding			98,000
Total Funding	**600,000**	**2,050,000**	**100,000**

Description

Purpose

To replace asphalt, concrete and other appurtenances on city streets following upgrades to underground water, sewer and storm infrastructure.

Project Details

This project restores streets following water and sewer infrastructure upgrades. As part of this work, an evaluation of the street is done against current City Standards to determine if upgrades, such as addition of curb and gutter, sidewalk, or multi-use trail, are appropriate.

This work coincides with work completed under the Annual Paving Program to best utilize consultants and contractors.

Operational Impact

Restoration of roadways following water and sewer upgrades provides improved roadways and allows the department to focus operational and maintenance activities on other roadways.

Department PW Public Works & Engineering **Division** Solid Waste
Project 80126571 Water Licence Projects – Solid Waste Management

Budget

	2025	2026	2027
	$	$	$
Expenditures			
Hydrogeological Study & Groundwater Trend Analysis	150,000	100,000	150,000
Landfill Gas Assessment	75,000	50,000	25,000
Total Expenditures	**225,000**	**150,000**	**175,000**
Funding			
User Fees	225,000	150,000	175,000
Total Funding	**225,000**	**150,000**	**175,000**

Description

Purpose

To meet the requirements for studies and management plans for the Solid Waste Facility as prescribed in the City's new water licence issued May 31, 2022.

Background

The City's new water licence requires numerous studies and management plans to be completed. Two items that relate to the Solid Waste Facility (SWF) are the Hydrogeological Study and Groundwater Trend Analysis and the Landfill Gas Assessment.

Each of these items are multi-year projects due to the data that must be gathered and analyzed.

Hydrogeological Study and Groundwater Trend Analysis

Schedule 3 Item 10 of the new water licence itemizes the requirements of the Groundwater Monitoring Plan for the SWF, which is to be submitted to the Water Board by March 31, 2027. Item 10e) refers to the completion of a hydrogeological study, and item 10f) refers to the Groundwater Trendline Analysis Report.

e) Completion of a Hydrogeological Study of the existing and planned extent of the SWDF (Solid Waste Disposal Facility):
   i. Supporting information for items a) and c) I, ii, iii, iv above; [Item a refers to groundwater conditions, and item c refers to the groundwater monitoring program]
   ii. Response to recommendations included in the Study, including timelines for actions and rationale;
   iii. Based on the outcomes of the SWDF Drainage Study, an evaluation of any resulting impacts to the Hydrogeological Study design; and

Department PW Public Works & Engineering **Division** Solid Waste
Project 80126571 Water Licence Projects – Solid Waste Management

iv. A description of how the recommendations from the Study have been implemented and how they influence the Design, Operations and Closure Plan for the SWDF and the Groundwater Monitoring Plan.

f) Completion of a **Groundwater Trendline Analysis Report:**

i. Supporting information for item b) (I, ii, iii) and d)(i) above;

ii. Site specific groundwater criteria and Action Levels with rationale;

iii. Establish where the site-specific groundwater criteria will be met;

iv. Explain how background conditions will be considered;

v. Plans for obtaining and using nearby regional data from other sources;

vi. Tabular summaries (including Excel format) of all data and information generated under the Groundwater Monitoring Plan;

vii. Identification of POPC, with rationale;

viii. Temporal plots for POPC and a summary of findings and trends;

ix. Determine, provide rationale for, and use a conversion factor for total and dissolved metals; and

x. A description of how the recommendations from the Study have been implemented, and how they influence the Design, Operations and Closure Plan for the SWDF and the Groundwater Monitoring Plan.

As each of the items listed above will require extensive annual sampling and analysis of sampling results, the project is expected to span three years. At the end of the project, the annual sampling program for groundwater will be updated, which may require an increase in the annual operational budget for sampling.

Landfill Gas Assessment
Schedule 3 Item 12 of the new water licence requires the completion of a Landfill Gas Assessment, which is to be submitted by March 31, 2027. Specifically, the Licence requires:

12. The **Landfill Gas Assessment** referred to in Part F, Condition LANDFILL GAS ASSESSMENT shall include but not be limited to:

i. A Report on the methodology and findings of the Landfill Gas Assessment;

ii. A summary of how the recommendations from the Landfill Gas Assessment will be incorporated into the SWDF Design, Operations and Closure Plan, including relevant timelines, and if not, rationale for not incorporating recommendations.

It is anticipated that the Landfill Gas Assessment will be completed over multiple years in order to follow industry standards for Landfill Gas Assessments and meet the requirements of the water licence.
The results of the Landfill Gas Assessment are likely to cause an increase in operational budget and monitoring requirements during and post closure of areas of the landfill.

Department	PW Public Works & Engineering	**Division**	Solid Waste
Project	80126571 Water Licence Projects – Solid Waste Management		

Operational Impact

These projects will require City Staff to follow up with and implement the recommendations from the various studies. These recommendations may result in further regulatory requirements that require additional resources such as staff, equipment, and funding.

Department	PW Public Works & Engineering	**Division**	Water & Sewer
Project	WS0018 Wetland Delineation & Great Slave Lake (GSL) Monitoring		

Budget

	2025	2026	2027
	$	$	$
Expenditures	**250,000**	**300,000**	**315,000**
Funding			
Canada Community-Building Fund	50,000		236,250
User Fees	200,000	300,000	78,750
Total Funding	**250,000**	**300,000**	**315,000**

Description

Purpose

To meet the requirements for studies and management plans as set out in the City's new Water Licence that was issued on May 31, 2022.

Background

The City's new Water Licence requires numerous studies and plans to be completed prior to the expiry of the licence on May 30, 2037. The Wetland Delineation Study Report and Great Slave Lake Monitoring Program are two projects that are interconnected. The Wetland Delineation was completed between 2022 and 2024 to determine whether there were any additional flow paths between the wetlands the City's sewage effluent travels through and Great Slave Lake. The results of this study are then fed into the Great Slave Lake Monitoring Program.

The Great Slave Lake Monitoring Program consists of three main activities:

1. Investigation of the effluent plume extents in Great Slave Lake,

2. Design of the Monitoring Plan, and

3. Implementation of the Monitoring Plan and Reporting.

The City is current completing the first activity, investigation of the effluent plume, in order to determine how best to meet the requirements of the Great Slave Lake Monitoring Program Design Plan, the requirements of which are outlined in Schedule 3, Part F, Item 3, of the Water Licence and are shown below.

Department	PW Public Works & Engineering	**Division**	Water & Sewer
Project	WS0018 Wetland Delineation & Great Slave Lake (GSL) Monitoring		

Great Slave Monitoring Program Design Plan:

a) Objectives and purpose of the Great Slave Lake Monitoring Program;
   i. A summary of previous monitoring and how it informed the revised design plan;
   ii. Details of the sampling design, including a description of the areas to be monitored:
   iii. Maps showing all proposed sampling locations; and
b) Rationale for locations, including:
   i. how reference locations were selected;
   ii. information from the Wetland Delineation Study such as outflow location(s) to Great Slave Lake; and
   iii. spatial extent compared to zone of influence from Fiddler's Lake Treatment System (FLTS) effluent.
c) A summary of how the proposed study addresses the recommendations from past monitoring program(s);
d) A description of the sampling and analysis to be conducted:
   i. Field measurements;
   ii. Analytical parameters;
   iii. Sample media;
   iv. Sampling methods; and
   v. Quality assurance and quality control procedures.
e) A description of procedures to analyze and interpret data collected; and
f) A description of how the Great Slave Lake Monitoring Program will be incorporated into the Surveillance Network Program annexed to this Licence.
g) Once the Monitoring Program Design is approved, it will then be implemented in order to meet the requirements of Schedule 3, Part F, Item 6i), Great Slave Lake Monitoring Program Report, which is part of the Fiddler's Lake Adaptive Management Plan.
h) The Great Slave Lake Monitoring Plan Report as outlined in the Water Licence, requires the following:
   i. Great Slave Lake Monitoring Program Report
   ii. A summary of activities conducted under the Great Slave Lake Monitoring Prom from the preceding three years of monitoring;
   iii. A plain language summary and interpretation of major results;
   iv. An accurate description of the monitoring locations and any SNP station used for evaluation of data;
   v. Tabular summaries of all data (including Excel format) and information generated under the Great Slave Lake Monitoring Program;
   vi. An interpretation of the results, including an evaluation of spatial effects in Great Slave Lake from the Fiddler's Lake Treatment System;
   vii. Data for reference area(s) in Great Slave Lake that are not influenced by effluent from the Fiddler's Lake Treatment System, with rationale for their locations;
   viii. A comparison of results to action levels as defined in the Fiddler's Lake Treatment System Adaptive Management Plan;
   ix. Recommendations, with rationale, for changes to the Great Slave Lake Monitoring Program; and
   x. Any other information specified in the approved Great Slave Lake Monitoring Program Design Plan.

Department	PW Public Works & Engineering	**Division**	Water & Sewer
Project	WS0018 Wetland Delineation & Great Slave Lake (GSL) Monitoring		

This is a multi-year project requiring a significant amount of work to collect the necessary data to meet the requirements of the City's Water Licence.

Operational Impact

The operational impact is currently unknown and will depend heavily on the recommendations outlined in the two studies. These recommendations may include additional equipment, additional sampling requirements, and increased in annual operating costs.

CAPITAL FUND – 2025 Capital Projects

Department	PW Public Works & Engineering	**Division**	Water & Sewer
Project	WS0019 WTP Flocculant Study & Work		

Budget

	2025	2026	2027
	$	$	$
Expenditures	**50,000**		
Funding			
User Fees	**50,000**		
Total Funding	**50,000**		

Description

Purpose

To meet the requirements for studies and management plans as set out in the City's new water licence that was issued on May 31, 2022.

Project Details

The City's new water licence requires numerous studies and plans to be completed prior to the expiry of the licence on May 30, 2037. The Flocculant Optimization Study is due to be submitted to the Land and Water Board on October 1, 2025.

Schedule 3 condition 13(j) of the new water licence outlines the requirements of the Flocculant Optimization Study.

j) Results and recommendations of a Flocculant Optimization Study, including but not limited to:

i. Clarification of current treatment products, frequency of dosing, and waste residuals;
ii. Strategies to reduce need for aluminum-based coagulant based on the results of the Flocculant Optimization Study;
iii. Information on alternate flocculants to generate a better-quality sludge;
iv. Current and planned use of aluminum-based or other coagulants at the Water Treatment Plant; v. Recommendations for Water Treatment Plant residual management, including optimizing solids content in thickened sludge, and waste minimization methods in accordance with the Board's Water and Effluent Quality Management Policy (2011); and
v. Responses to recommendations made and timelines for implementation.

Operational Impact

The operational impact is currently unknown and will depend heavily on the recommendations outlined in the study.