

CAPITAL FUND - 2016 Capital Projects

		2016			
		Budget	Formula	IT	
		Recommended	Funding	Grants	Reserve
		(\$000s)	(\$000s)	(\$000s)	(\$000s)
General Government	Page #				
Administration					
Tourism Kiosk	316	50	25	25	
		50	25	25	-
Community Energy Plan (CEP) Initiatives					
Energy Coordinator	212	95	95		
Centralized Boiler System	318	405	405		
		500	500	-	-
Information Technology					
Network Upgrades	222	25			25
GIS Enhancements	222	50			50
Server and Storage Replacements	223	40			40
Communication Infrastructure Renewal	224	25			25
Security Cameras	224	20			20
Secondary Site & Data Replication	224	20			20
Library Public Access	320	20			20
MED In-Car Cameras	321	30			30
Website Enhancements	225	15			15
Server Room Upgrades	229	25			25
Virtualization	233	100			100
Door Access Controls	225	20			20
Multi-function Devices and Printers	226	50			50
Client Access Management	322	25			25
Wireless Controllers	323	55			55
		520	-	-	520
Subtotal		1,070	525	25	520

Department Communications and Economic Development
Division n/a
Project Tourism Kiosk

Project Description

The creation of a tourism kiosk in Old Town is linked to the Tourism Strategy as well as Council’s Goals and Objectives. This project is envisioned to be completed in three parts:

- 1) Feasibility/location/costing/operations (envisioned to take place in 2016)
- 2) Design (2017)
- 3) Tender

Justification

The City’s Tourism Strategy supports this project and provides recommendations to enhance it. The Strategy recommends that, if the City proceeds with plans for a summer tourism information kiosk, a mobile unit be used so that its location can be optimized depending on tourist traffic (e.g., festival sites, Old Town, etc.). The mobile kiosk could be staffed on a rotating basis by NFVA staff or a summer student and should reflect the city’s tourism character. This unit could contribute to an additional cost in future years. In the first year, however, this project will only review feasibility, location, cost and operations for both the Old Town kiosk and the mobile unit.

Operating Cost Impact

There is no O&M impact in 2016, as this project can be undertaken with existing resources. Recommendations from Part 1 will impact future Capital and O&M deliberations.

Project’s Impact on Other Departments

Other departments will be consulted in the development of the project but there will be no budget implications in 2015 for their involvement.

Project’s Return on Investment

The Tourism Strategy has helped the City understand the financial benefits of tourism marketing. Yellowknife visitor spending on accommodation in 2013 (not including campgrounds) is estimated at \$38 million. This spending estimate reflects the assumptions presented in the table below. If it is assumed that visitor spending on accommodation represents even half of total visitor spending, then total direct visitor spending would be at least \$75 million.

Estimated Direct Economic Impact of Yellowknife Visitor Spending on Accommodation (2013) (not including camping)		
Total Rooms available (w. B&Bs)	970	est.
Total room nights available	354,050	(365 days x 970 rooms)
2013 occupancy	69.7%	
Room nights sold	246,631	(354,050 x 69.66%)
Average room rate	\$154.15	
Total visitor spending on rooms	\$38 million	(246,631 x \$154.15)

Other financial considerations include the following:

- Tourism activity in the NWT has started to rebound and Canadians will continue to be the territory’s primary visitor market. In 2012/13, approximately 76,400 leisure and business travellers visited the NWT and spent about \$107 million. Visitation to the NWT declined between 2007/08 and 2010/11 but has increased somewhat over the last couple of years. Approximately three-quarters of NWT visitors are Canadian. Most other visitors are from Japan and the U.S.
- Late winter and summer are Yellowknife’s busiest tourism months. Hotel occupancy peaks in February and March, and June through September. In 2013, overall annual occupancy was almost 70% which was up significantly from 2012 (63.2%) and was much higher than the 2013 national average of 62%.
- Tourism is a growing industry in our city. By providing additional tourism services in strategic locations we can help enhance the visitor experience and also promote our waterfront area investments. Many of the multi-day festivals currently financially supported by the City take place in the Old Town Area. With the addition of a mobile unit, the City can provide a versatile method of delivering visitor services in partnership with our partner agencies.

City Council’s Goals/Objectives/Actions

Objective #1(a): Realize opportunities to encourage economic growth and diversity



CAPITAL FUND - 2016 Capital Projects

Expenditures	Total Estimated Cost \$	Prior Year Funding \$	2015 \$	2016 \$	2017 \$
Capital Cost	130,000			50,000	80,000
Design					
Development					
Construction Engineering					
Construction					
Equipment					
Materials					
Total:	130,000			50,000	80,000

Funding Sources	Total Estimated Cost \$	Prior Year Funding \$	2015 \$	2016 \$	2017 \$
Formula Funding	80,000			25,000	55,000
Grant	50,000			25,000	25,000
Total:	130,000			50,000	80,000

CAPITAL FUND - 2016 Capital Projects

Department Corporate Services
Division Corporate Services and Risk Management
Project Centralized Boiler System – Phase 1 and 2

Project Description

Following the design of a Centralized Boiler System for seven City facilities in 2014, this project proposes to gradually implement the installation over three phases to reduce the budgetary impact. The first phase would see the Multiplex and Fieldhouse connected to a wood pellet boiler. Phase 2 would include the connection of the Fire Hall, Public Works Garage and a warehouse. The third phase would then connect Liftstation #5 and another garage.

Justification

Using a centralized wood pellet boiler will reduce operation and maintenance costs of the facilities connected, wood pellets being approximately 30% the cost of oil. Wood pellets are also renewable and produce low fossil CO₂ emissions, potentially reducing the City's greenhouse gas emissions by more than 10%.

Operating Cost Impacts

Phase 1 - Net savings of \$164,980 at current fuel and labor prices in 2017

Phase 2 - Net savings of \$120,075 in 2018

Project's Impact on Other Departments

Community Services would maintain the boiler and benefit from the savings

Project's Return on Investment

18% on Phase 1

15% on Phase 2

City Council's Goals/Objectives/Actions

Goal #2: Stewards of our natural and built environment

Objective #2(c): Develop smart and sustainable approaches to energy, water and sewer, waste management and building systems.



CAPITAL FUND - 2016 Capital Projects

Expenditures	Total Estimated Cost \$	Prior Year Funding \$	2015 \$	2016 \$	2017 \$
Capital Cost					
Design					
Development					
Construction Engineering	200,000			100,000	100,000
Construction	650,000			350,000	300,000
Equipment	705,000			400,000	305,000
Materials	200,000			100,000	100,000
Total:	1,755,000			950,000	805,000

Funding Sources	Total Estimated Cost \$	Prior Year Funding \$	2015 \$	2016 \$	2017 \$
Formula Funding	660,000			405,000	255,000
TBD	1,095,000			545,000	550,000
Total:	1,755,000			950,000	805,000

CAPITAL FUND - 2016 Capital Projects

Department Community Services
Division Library
Project Library Public Access

Project Description

This project will replace the existing public access equipment at the Library.

Justification

The City provides eight workstations for public use at the Library. These units were acquired in 2012 and are heavily utilized. In 2013 these stations provided 33,024 Internet sessions. They deliver a valuable public service supporting a variety of literacy goals; however, they have a limited lifespan and should be replaced in 2016. This schedule aligns with the four-year rotation for City workstations which has been mandated by Council.

Operating Cost Impact

This project should not directly impact O&M expenditures; however, if regular refreshes are not sustained, increasing equipment failure rates will negatively impact service levels and require additional IT troubleshooting and repair resources.

Project's Impact on Other Departments

n/a

Project's Return on Investment

n/a

City Council's Goals/Objectives/Actions

Goal #1: Building a sustainable future

2016 Capital Cost: \$20,000

Funding Sources	Total Estimated Cost \$	Prior Year Funding \$	2015	2016	2017
			\$	\$	\$
IT Reserve	20,000			20,000	
Total:	20,000			20,000	



CAPITAL FUND - 2016 Capital Projects

Department **Public Safety**
Division **Municipal Enforcement**
Project **In-Car Camera Replacement**

Project Description

The Municipal Enforcement Division operates four patrol vehicles which have been equipped with in-car camera systems since 2007. They are used to record traffic stops and other investigations.

Justification

The cameras are an integral piece of equipment used by all officers in their daily duties. The cameras record both audio and video of all traffic stops and other important incidents. They record audiovisual of infractions and are extensively used to investigate complaints about an officer's conduct. The current camera system was installed in 2011. Under the City's Evergreen Policy, computer equipment is scheduled to be replaced every four years. As the system has been working fairly well for the past four years, the decision was made to extend the schedule for replacement to five years.

Operating Cost Impact

The Information Technology Division is required to support these four in-car camera systems.

Project's Impact on Other Departments

The Information Technology (IT) Division provides service and support for the in-car cameras. By purchasing new cameras, the Division will experience fewer calls for service.

Project's Return on Investment

In-car cameras have been used extensively in court as evidence to gain convictions. They have also been instrumental in resolving complaints against officers that might otherwise have led to court challenges.

City Council's Goals/Objectives/Actions

- Goal #4: Creating and sustaining meaningful relationships
- Objective #4(c): Be accountable to residents by enduring open and accessible information flow and accessible decision-making
- Action #4.13: Create a safer, cleaner, and vibrant city

2016 Capital Cost: \$30,000

Funding Sources	Total Estimated Cost \$	Prior Year Funding \$	2015 \$	2016 \$	2017 \$
IT Reserve	30,000			30,000	
Total:	30,000			30,000	

CAPITAL FUND - 2016 Capital Projects

Department Corporate Services
Division Information Technology
Project Client Access Management

Project Description

This project will implement a centralized network access management tool to ensure that appropriate security measures are enforced without placing onerous log-in requirements on clients.

Justification

Providing network access for employees and the public is a critical service that requires balancing transparency for the client (effortless log-in) with adequate administrative controls for authentication, authorization and accounting. Managing this access becomes increasingly complex as the variety of devices used within the organization increases, the ownership and control of the devices becomes more flexible, and the type of client access broadens. Therefore, to achieve satisfactory network access management, the City requires a centralized tool.

The Information Technology Division has determined that Cisco's Identity Services Engine (ISE) provides the best solution for the organization. It is a highly functional and flexible access/authentication/accounting appliance that provides intelligent centralized access management. It is capable of recognizing which type of device (tablet, smartphone, laptop, etc.) is accessing the network, determining the ownership (City, vendor, public, etc.) of the device, and then establishing which policies should

automatically be applied. It also provides capabilities for authentication (challenging and verifying who the client is), authorization (determining what the authenticated client is permitted to do) and accounting (tracking the actions done by the client). These functions meet access requirements for clients, security and management requirements for the organization, and accounting requirements for forensic or legal considerations.

Operating Cost Impact

This implementation will require an annual expenditure of \$2,500 for software maintenance.

Project's Impact on Other Departments

This project will not directly impact other departments.

Project's Return on Investment

n/a

City Council's Goals/Objectives/Actions

This project helps ensure that the appropriate information technology infrastructure is in place to support the organization as it works toward all City Council Goals, Objectives, and Actions.

2016 Capital Cost: \$25,000

Funding Sources	Total Estimated Cost \$	Prior Year Funding \$	2015 \$	2016 \$	2017 \$
IT Reserve	25,000			25,000	
Total:	25,000			25,000	



CAPITAL FUND - 2016 Capital Projects

Department Corporate Services
Division Information Technology
Project Wireless Controllers

Project Description

This project will upgrade wireless controller hardware and software to provide the increased functionality, scalability, redundancy, and capacity required to meet current and foreseeable needs.

Justification

The Information Technology Division provides wireless network services for City employees at six locations: City Hall, the Multiplex, the Fieldhouse, the Public Works garage, the Fire Hall, and the Library. As well, wireless Internet access is provided for citizens at City Hall, the Multiplex, the Fieldhouse, the Library, and the Somba K'e Plaza.

Utilization of these services has increased significantly in recent years, and it is anticipated that there will be continued future growth in both utilization and the number of sites where service is required.

Existing wireless services are currently managed by a single high-capacity wireless controller at City Hall that governs wireless services at all facilities other than the Library, and two lower-capacity controllers at the Library. These are in turn managed by a Wireless Control System, which provides for security, accounting, monitoring, and reporting.

There is no redundancy for the City Hall device so, if there are problems with it, wireless services at all City facilities (except the Library) are disrupted. All of the controllers are at, or approaching, their licence limits

for the number of registered access points, so it is not possible to add new access points at current or new locations. As well, the current hardware and software are approaching the end of their life expectancy and cannot interface with the new wireless protocols that are on the horizon.

This project will acquire and deploy dual controllers with automatic failover at City Hall and upgrade the Library controllers and the Wireless Control System. This will establish redundancy for the City-wide wireless functions, allow for additional access points to expand services, and ensure compatibility with future protocols.

Operating Cost Impact

There will be no impact on operating costs.

Project's Impact on Other Departments

All departments and many citizens rely on the existing wireless services. If this project does not proceed, it will preclude any expansion of the current services and, in the event of equipment failures, impede staff and public access to them.

Project's Return on Investment

n/a

City Council 's Goals/Objectives/Actions

This project helps ensure that the appropriate information technology infrastructure is in place to support the organization as it works towards all City Council Goals, Objectives, and Actions.

2016 Capital Cost: \$55,000

Funding Sources	Total Estimated Cost \$	Prior Year Funding \$	2015 \$	2016 \$	2017 \$
IT Reserve	55,000			55,000	
Total:	55,000			55,000	

CAPITAL FUND - 2016 Capital Projects

		2016		
		Budget	Formula	
		Recommended	Funding	Grants
		(\$000s)	(\$000s)	(\$000s)
Community Services	Page			
Arenas				
Fieldhouse Multi-Use Flooring	325	200	200	
Parks/Trails				
Re-surfacing of McMahon Frame Lake Trail	326	180	180	
Lakeview Cemetery Expansion	327	495	495	
Ball Diamonds Upgrade	328	45	45	
Yellowknife Rotary Park -Trail Extension	244	20	20	
Pool				
Re-siding of Exterior Walls	329	250	170	80
Subtotal		1,190	1,110	80



CAPITAL FUND - 2016 Capital Projects

Department **Community Services**
Division **Facilities**
Project **Fieldhouse – Multi-Use Flooring**

Project Description

The Fieldhouse playing surfaces are in use approximately 9,337 hours annually, of which time 34% (3,175 hours) falls between May and August, and 66% (6,162 hrs.) falls between September and April.

The carpet flooring currently installed does not permit other court sports, such as volleyball and basketball, to take place in the facility, nor can we host non-sporting activities such as trade shows and exhibitions. In order to accommodate the needs of the community, it is proposed to place multi-purpose Pulastic flooring under one of the field carpets.

Pulastic flooring (the same material as the City uses for the track) is a durable, resilient, seamless and sustainable flooring that accommodates all types of recreational activities.

Justification

Pulastic flooring is multi-functional, cost-effective, and suitable for all types of activities, including exhibitions, concerts and other community events. This flooring would give the Fieldhouse greater flexibility to host a wide range of activities.

Operating Cost Impact

There will be little or no O&M impact.

Project's Impact on Other Departments

n/a

Project's Return on Investment

This flooring will allow for a more flexible facility that will be able to expand to new sports and events that could not otherwise have been accommodated.

City Council's Goals/Objectives/Actions

Goal #2: Stewards of our natural and built environment

Objective #2(a): Maintain, respect, preserve and enhance the natural environment, natural heritage and green space

Objective #2(b): Improve transit, roads, sidewalks, recreation facilities and trails with an emphasis on active and healthy living choices

Objective #2(e): Maintain and enhance core services and adapt to changing needs

2016 Capital Cost: \$200,000

Funding Sources	Total Estimated Cost \$	Prior Year Funding \$	2015	2016	2017
			\$	\$	\$
Formula Funding	200,000			200,000	
Total:	200,000			200,000	

CAPITAL FUND - 2016 Capital Projects

Department Community Services
Division Facilities
Project Resurfacing of McMahon Frame Lake Trail

Project Description

The McMahon Frame Lake Trail is 7.2 km in length, 2 km of which is paved.

It is proposed to widen this trail from two to three metres and asphalt it, thus making the trail more adaptable and safer as a multi-use trail. Widening the trail to three metres would allow for the option of bicycle lanes.

The cost to widen and pave the trail is \$180,000 (\$90 per square meter x 2,000 metres). This covers the cost of preparing the trail for paving.

Justification

This trail serves as the main commuter trail for the residents of Yellowknife. Widening and resurfacing the trail would enhance it as a multi-use trail.

Operating Cost Impact

There will be no additional costs for maintenance, as this will be covered under Facilities Division's normal operations budget.

Project's Impact on Other Departments

n/a

Project's Return on Investment

This project would lead to an enhanced multi-purpose trail.

City Council's Goals/Objectives/Actions

Goal #2: Stewards of our natural and built environment

Objective #2(a): Maintain, respect, preserve and enhance the natural environment, natural heritage and green space

Objective #2(b): Improve transit, roads, sidewalks, recreation facilities and trails with an emphasis on active and healthy living choices

Objective #2(e): Maintain and enhance core services and adapt to changing needs

2016 Capital Cost: \$180,000

Funding Sources	Total Estimated Cost \$	Prior Year Funding \$	2015 \$	2016 \$	2017 \$
Formula Funding	180,000			180,000	
Total:	180,000			180,000	



CAPITAL FUND - 2016 Capital Projects

Department **Community Services**
Division **Facilities**
Project **Lakeview Cemetery Expansion**

Project Description

Lakeview Cemetery has been in existence since the late 1940s. There are approximately 15 to 20 interments there annually, a number which has been steadily increasing over the past few years.

The active area of the cemetery covers approximately 17,500 square metres which, until recently, has been adequate for interments, including cremations and regular casket burials. In 2009, the area was expanded to the west which entailed the removal of trees and the addition of topsoil. This expanded area used up the last of the easily accessible land, and it is now necessary to undertake the development of the area to ensure it continues to meet the needs of the community well into the future.

It is proposed to expand the cemetery in an efficient, aesthetically pleasing layout to meet the expectations of the public.

Justification

Currently, with the number of interments we have annually, we have approximately two years left of land use at the cemetery.

Operating Cost Impact

There will be an impact on O&M as the area will need to be maintained as a Class 'A' park after its completion. The anticipated expansion is 12,000 m², with an annual O&M budget of approximately \$6,000.

Project's Impact on Other Departments

n/a

Project's Return on Investment

This project will ensure an orderly expansion in appropriate phases that will take into account topography and landscaping of the site, thus increasing the lifespan of the cemetery by another 50 years.

City Council's Goals/Objectives/Actions

- Goal #2: Stewards of our natural and built environment
- Objective #2(a): Maintain, respect, preserve and enhance the natural environment, natural heritage and green space
- Objective #2(b): Improve transit, roads, sidewalks, recreation facilities and trails with an emphasis on active and healthy living choices
- Objective #2(e): Maintain and enhance core services and adapt to changing needs

2016 Capital Cost: \$495,000

Funding Sources	Total Estimated Cost \$	Prior Year Funding \$	2015 \$	2016 \$	2017 \$
Formula Funding	495,000			495,000	
Total:	495,000			495,000	

CAPITAL FUND - 2016 Capital Projects

Department Community Services
Division Facilities
Project Ball Diamonds Upgrade

Project Description

The City directly administers five ball diamonds: two at Fritz Theil Park, two at Parker Field, and one at William McDonald School. All of the diamonds use shale which requires periodic replacement and conditioning. This project will allow for the purchase of shale to address this need.

Justification

This project would allow the Department to replace the shale on the ball fields, thus improving the playing experience there.

Operating Cost Impact

There will be no additional cost for maintenance as this will be covered under Facilities Division's current budget.

Project's Impact on Other Departments

n/a

Project's Return on Investment

Upgrading the ball diamonds will allow for a more enjoyable and safer playing experience.

City Council's Goals/Objectives/Actions

Goal #2: Stewards of our natural and built environment

Objective #2(a): Maintain, respect, preserve and enhance the natural environment, natural heritage and green space

Objective #2(b): Improve transit, roads, sidewalks, recreation facilities and trails with an emphasis on active and healthy living choices

Objective #2(e): Maintain and enhance core services and adapt to changing needs

2016 Capital Cost: \$45,000

Funding Sources	Total Estimated Cost \$	Prior Year Funding \$	2015 \$	2016 \$	2017 \$
Formula Funding	45,000			45,000	
Total:	45,000			45,000	



CAPITAL FUND - 2016 Capital Projects

Department Community Services
Division Programs
Project Re-Siding the Exterior of Ruth Inch Memorial Pool

Project Description

The project proposed is to re-side the exterior walls of Ruth Inch Memorial Pool in the summer of 2016. This would include the removal of the existing stucco finish, repair of any other damage to the finish, installation of vapour barrier and replacement of the stucco with metal siding.

Justification

Ruth Inch Memorial Pool opened its doors to the public in the fall of 1988. The pool continues to be popular among residents and visitors. In 2010, the City contracted an engineering firm to do a life cycle analysis of the Ruth Inch Memorial Pool which identified items that needed to be addressed to ensure the pool meets or exceeds its life expectancy. The report indicated that the exterior finish has started to show signs of deterioration due to the combination of extreme weather and high humidity inside the building. If the exterior finish is not dealt with soon, moisture could penetrate past the exterior finish and cause rot, mold, and mildew.

Operating Cost Impact

This project will have no impact on the operating costs of the pool.

Project's Impact on Other Departments

This project will have no impact on other Departments.

Project's Return on Investment

Undertaking this project will ensure that the facility achieves its full life expectancy.

City Council's Goals/Objectives/Actions

Goal #2(b): Improve transit, roads, sidewalks, recreation facilities and trails with an emphasis on active and healthy living choices.

2016 Capital Cost: \$250,000

Funding Sources	Total Estimated Cost \$	Prior Year Funding \$	2015 \$	2016 \$	2017 \$
Formula Funding	170,000			170,000	
Grant	80,000			80,000	
Total:	250,000			250,000	

CAPITAL FUND - 2016 Capital Projects

				2016	
				Budget	Formula
				Recommended	Funding
				(\$000s)	(\$000s)
Public Safety	Page				
Directorate					
Wildland Fire Mitigation -Emergency Measures	253		100	100	
Municipal Enforcement					
New Parking Meters	255		92	92	
Fire & Ambulance					
Fire Safety House	331		75	75	
Fire Extinguisher Trainer	332		12	12	
Paving and Foundation Repairs	333		140	140	
Subtotal			419	419	

				2016	
				Budget	Formula
				Recommended	Funding
				(\$000s)	(\$000s)
Planning & Development	Page				
Harbour Plan & Smart Growth Improvements	262		600	600	
Streetscaping Initiatives	264		500	500	
Subtotal			1,100	1,100	



CAPITAL FUND - 2016 Capital Projects

Department Public Safety
Division Fire and Ambulance
Project Fire Safety House

Project Description

Fire Safety House is a mobile unit that can be set up at schools and community events to promote fire safety among children.

Justification

Today’s prevention activities need to be more creative to capture the attention of young audiences, and the Fire Prevention House has proven to be an effective way to teach youngsters about fire safety.

Operating Cost Impact

Minimal, as current O&M budget would cover the cost

Project’s Impact on Other Departments

None

Project’s Return on Investment

Better life safety messaging

City Council’s Goals/Objectives/Actions

Goal #2: Stewards of our natural and built environment

Objective #2(e): Maintain and enhance core services and adapt to changing needs

Action #2.18: Create a safer, cleaner and vibrant city

2016 Capital Cost: \$75,000

Funding Sources	Total Estimated Cost \$	Prior Year Funding \$	2015 \$	2016 \$	2017 \$
Formula Funding	75,000			75,000	
Total:	75,000			75,000	

CAPITAL FUND - 2016 Capital Projects

Department Public Safety
Division Fire and Ambulance
Project Fire Extinguisher Trainer

Project Description

This is a propane-fired training appliance.

Justification

Enables the Fire Division to complete National Fire Protection Association 1001 Standards for firefighters. The system currently used for this training requires petroleum products, which are harmful to the environment.

Operating Cost Impact

Minimal, as cost would fit into the current training budget.

Project's Impact on Other Departments

None

Project's Return on Investment

None

City Council's Goals/Objectives/Actions

Goal #2: Stewards of our natural and built environment

Objective #2(e): Maintain and enhance core services and adapt to changing needs

Action #2.18: Create a safer, cleaner and vibrant city

2016 Capital Cost: \$12,000

Funding Sources	Total Estimated Cost \$	Prior Year Funding \$	2015 \$	2016 \$	2017 \$
Formula Funding	12,000			12,000	
Total:	12,000			12,000	



CAPITAL FUND - 2016 Capital Projects

Department Public Safety
Division Fire and Ambulance
Project Paving and Foundation Repairs

Project Description
 Replacement of pavement and foundation coverings.

Justification
 The ground has started to shift, lifting the foundation of the Fire Hall and causing significant damage.

Operating Cost Impact
 None

Project's Impact on Other Departments
 None

Project's Return on Investment
 None

City Council's Goals/Objectives/Actions
 Goal #2: Stewards of our natural and built environment
 Objective #2(e): Maintain and enhance core services and adapt to changing needs
 Action #2.18: Create a safer, cleaner and vibrant city

2016 Capital Cost: \$140,000

Funding Sources	Total Estimated Cost \$	Prior Year Funding \$	2015 \$	2016 \$	2017 \$
Formula Funding	140,000			140,000	
Total:	140,000			140,000	

CAPITAL FUND - 2016 Capital Projects

		2016	
		Budget	M.E.R.
		Recommended	Reserve
		(\$000s)	(\$000s)
Public Works & Engineering	Page		
Fleet Management	274		
1004-06 F-150		35	35
1005-06 F-150		35	35
1163-06 F-150		35	35
1164-06 F-150		35	35
1124-04 F-150		33	33
1125-04 F-150		33	33
1165-06 F-250		46	46
1166-06 E-150 Leak Detection		38	38
1188-11 Zero Turn Exmark Mower		20	20
1190-11 Can Am ATV		15	15
1193-12 Polaris S12BA6NSL		15	15
1194-12 Polaris S12BA6NSL		15	15
2099-02 Freightliner FC70 Road Sweeper		371	371
2012-10 John Deere 304J		147	147
2101-03 LT9500 Sterling (Mercedes)		164	164
2104-04 LT9500 Sterling (Cat)		164	164
2121-08 CAT 246C Skid Steer		71	71
T010-65 45' High Boy Trailer		42	42
T011-80 45 Ton Low Boy Trailer		20	20
		1,334	1,334



CAPITAL FUND - 2016 Capital Projects

	Page	2016		Water &			MACA	
		Budget	Formula	Sewer	M.E.R.	Capital	Gas Tax	Capital
		Recommended	Funding	User Fees	Reserve	Fund	Rebate	Grant
		(\$000s)	(\$000s)	(\$000s)	(\$000s)	(\$000s)	(\$000s)	
Engineering & Garage								
Traffic Lights Video Detection Equipment	278	40	40					
Diagnostic Equipment & Specialty Tools for Mechanics	280	20	20					
City Garage Building and Yard Improvements	336	50	50					
Roads & Sidewalks								
Road Rehabilitation	282	2,925	715				2,210	
Drainage Improvements and Storm Sewer Repairs	286	50	50					
		3,085	875	-	-	-	2,210	
Solid Waste Management								
Landfill								
New Landfill Cell Construction	338	3,000	1,511			1,489		
Baling Facility Mechanical Upgrades	288	25	25					
Centralized Composting Program	290	750	750					
Baling Facility Roof Repairs	340	100	100					
		3,875	2,386	-	-	1,489	-	
Pumphouses/Liftstations (PHs/LSs)								
Water Treatment Plant	295	150		150				
Capital Upgrades	298	65		65				
Potable Water Reservoir Flushing & Cleaning	341	25		25				
Pump Replacement	300	100		100				
Monitoring & Controls Maintenance and Upgrading	302	75		75				
PH#3 Pipe Replacement	343	1,000		1,000				
LS#5 Pipe Replacement	344	300		300				
Other								
Water Meter Replacement and Upgrades	304	25		25				
Potable Water Submarine Pipe Inspection	346	30		30				
PH & LS - Genset Installation	306	250		250				
CMP Replacement Program	308	4,575		56			4,519	
		6,595	-	2,076	-	-	4,519	
PW Subtotal		14,889	3,261	2,076	1,334	1,489	2,210	

CAPITAL FUND - 2016 Capital Projects

Department Public Works & Engineering
Division Garage
Project City Garage Building and Yard Improvements

Project Description

The City garage houses a large portion of the City's fleet, valued at approximately \$18 million, on a floor area of 1,971 square metres. The cost of rebuilding the garage is estimated at over \$4.52 million. The building is essential to the City's response to both daily and emergency circumstances. The garage is an alternative operations centre for Northland Utilities, should its main office be destroyed. The yard at the garage includes storage areas and buildings, fuel pumps, energized parking stalls and other items that require upgrades when problems are discovered.

The work plan for 2015 (to be funded by 2014 Budget carryover):

- Window replacement – There are windows along the longest wall of the main garage bay. These windows are old and are a major source of heat loss. Only every second window will be replaced. Every other window will be removed, the hole re-insulated and siding replaced.
- Boiler overhaul or replacement – More recently there have been increasing costs for the boiler for the facility. An assessment will be completed in 2015 to determine the remaining useful life of the unit.

Should the funding be inadequate, the project with higher implications will be chosen.

Justification

Over the past several years, upgrades have been done on the building as required by both an occupational health and safety audit and a technical assessment. Annual repairs and maintenance of a capital nature must continue in the future, and projects may increase or decrease in value to meet that need.

Operating Cost Impact

O&M costs will be reduced by addressing problems as they arise, rather than making do with inadequate equipment or buildings until the budget can be found for small projects.

Project's Impact on Other Departments

N/A

Project's Return on Investment

N/A

Council Goals/Objectives/Actions

Objective #2(c): Develop smart and sustainable approaches to energy, water and sewer, waste management and building systems



CAPITAL FUND - 2016 Capital Projects

Expenditures	Total Estimated Cost \$	Prior Year Funding \$	2015 \$	2016 \$	2017 \$
Capital Cost	100,000		0	50,000	50,000
Design					
Development					
Construction Engineering					
Construction					
Equipment					
Materials					
Total:	100,000		0	50,000	50,000

Funding Sources	Total Estimated Cost \$	Prior Year Funding \$	2015 \$	2016 \$	2017 \$
Formula Funding	100,000		0	50,000	50,000
Total:	100,000		0	50,000	50,000

CAPITAL FUND - 2016 Capital Projects

Department Public Works & Engineering
Division Solid Waste Management
Project New Landfill Cell Construction

Project Description

In 2011 a new second-generation landfill cell was built in the quarry adjacent to the old landfill site. The cell includes a leachate collection and containment system which consists of a liner system, overlaid with collection pipes, which direct liquids to a sump pit located in a utility hole. It is anticipated the cell will 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 problems involved with building and using a landfill cell in an active quarry. The cell is located in an area that has the least impact on quarry operations.

The location and design of the next cell will pose several unique engineering problems which will require careful consideration during the design and construction process, including how the new cell will connect with the existing cell. Discussions will take place with the quarry lessee in order to determine a suitable location for the cell which will allow quarry operations to continue. It is anticipated that the life of the next cell will be seven years.

The City's water licence requires that the new cell include monitoring wells to be established upstream and downstream of the site in order to ensure the integrity of the liners in the cells. These wells will be installed as part of this project.

Justification

The cell constructed in 2011 has a five-year life span and is nearing capacity. Operational staff have been conducting, and will continue to conduct, onsite operations to extend the life of this and future cells as long as possible. This is done through improved recycling and diversion plans such as the citywide composting initiative.

In 2014, the design of the new cell was approved. It was noted that the construction would be coming forward in 2016. The design will be completed in 2014 and regulatory approvals sought throughout 2015, with construction set to begin in 2016.

Operating Cost Impact

For each landfill cell that is constructed, there must be a liability fund established to cover close-out procedures. The landfill site restoration liability will be set up once we have more details about all related future remediation and close-out costs.

Project's Impact on Other Departments

n/a

Project's Return on Investment

n/a

City Council's Goals/Objectives/Actions

Goal #1: Building a sustainable future

Goal #2: Stewards of our natural and built environment

2016 Capital Cost: \$3,000,000



CAPITAL FUND - 2016 Capital Projects

Expenditures	Total Estimated Cost \$	Prior Year Funding \$	2015 \$	2016 \$	2017 \$
Capital Cost	3,000,000			3,000,000	
Design					
Development					
Construction					
Engineering					
Construction					
Equipment					
Materials					
Total:	3,000,000			3,000,000	

Funding Sources	Total Estimated Cost \$	Prior Year Funding \$	2015 \$	2016 \$	2017 \$
Formula Funding	1,511,000			1,511,000	
Capital Fund	1,489,000			1,489,000	
Total:	3,000,000			3,000,000	

CAPITAL FUND - 2016 Capital Projects

Department: Public Works & Engineering
Division: Solid Waste Management
Project: Baling Facility Roof Repairs

Project Description

The Baling Facility is the key piece of infrastructure at the Solid Waste Facility. It houses the baler, as well as the site's mobile equipment during winter months. Residential garbage and recyclables are baled here year-round. The Baling Facility was built in 1992 and, over the past 21 years, birds have had a considerable impact on the building, particularly on the ceiling insulation and the exterior of the roof. The birds have pecked at the interior insulation to the point that insulation is completely missing in numerous locations, resulting in high heat loss. The acidic nature of bird feces has compromised the roofing material, causing multiple indoor leaks that constitute a slip-and-fall safety risk for the staff.

Justification

The general life cycle of any facility is estimated at 50 years. By 2016, the Baling Facility will have reached the half-life of the building. Investing in the roof, along with other parts of the infrastructure, will ensure that the life cycle is fully achieved and even extended beyond what is anticipated. It will also help reduce the operation costs associated with the facility.

Operating Cost Impact

Repairing the ceiling insulation would prevent considerable heat loss and help to lower the cost of heating the Baling Facility, reducing its environmental impact. Repairing the roof will eliminate water leaks which damage the interior of the building and present a safety risk to staff. Once

those leaks are prevented, maintenance and heating costs are expected to decrease.

Project's Impact on Other Departments

n/a

Project's Return on Investment



There will be an estimated saving of \$9,900.

City Council's Goals/Objectives/Actions

Objective #2(c): Develop smart and sustainable approaches to energy, water and sewer, waste management and building systems

2016 Capital Cost: \$100,000

Funding Sources	Total Estimated Cost \$	Prior Year Funding \$	2015	2016	2017
			\$	\$	\$
Formula Funding	100,000			100,000	
Total:	100,000			100,000	



Department **Public Works & Engineering**
Division **Water & Sewer**
Project **Potable Water Reservoir Flushing and Cleaning**

Project Description

Flushing the reservoir requires advanced planning and management. The process includes draining the reservoir, removing and disposing of the sediment, and disinfecting the interior of the reservoir, all while maintaining a continuous water supply to the city. An additional requirement during the flushing is to evaluate the walls and grout small cracks.

Justification

The City has three water storage reservoirs that provide potable drinking water to our residents, as well as firefighting capabilities. The City's Water Licence MV2009L3-0007 was renewed with a condition that the main reservoir be cleaned. To remain compliant with its licence, the City should clean the main reservoir at Pumphouses #3 and #4.

Public Works & Engineering recommends the flushing, cleaning and repair of the City's water reservoirs once a year on a three-year cycle, as there are three reservoirs.

During the construction of the Water Treatment Plant, work will be done on the pumps, pump wells and other processes for Pumphouse #1, which will eliminate the need for the scheduled cleaning of the Pumphouse #1 reservoir in 2015.

Operating Cost Impact

Less debris in the reservoir will add to the effectiveness of the chlorine added to the water. This will increase the free chlorine residual and, in turn, reduce the quantity of chlorine required for disinfection. Additional savings will occur when any cracks found in the reservoir walls are filled and leaks abated.

Project's Impact on Other Departments

n/a

Project's Return on Investment

n/a

City Council's Goals/Objectives/Actions

Goal #2: Stewards of our natural and built environment.

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CAPITAL FUND - 2016 Capital Projects

Expenditures	Total Estimated Cost \$	Prior Year Funding \$	2015 \$	2016 \$	2017 \$
Capital Cost	50,000			25,000	25,000
Design					
Development					
Construction Engineering					
Construction					
Equipment					
Materials					
Total:	50,000			25,000	25,000

Funding Sources	Total Estimated Cost \$	Prior Year Funding \$	2015 \$	2016 \$	2017 \$
Water & Sewer User Fees	25,000			25,000	
Gas Tax Rebate	25,000				25,000
Total:	50,000			25,000	25,000



CAPITAL FUND - 2016 Capital Projects

Department: Public Works & Engineering
Division: Water & Sewer
Project: Pumphouse #3 Pipe Replacement

Project Description

The age of our infrastructure is such that the City will have to rebuild the piping of a pumphouse or liftstation yearly to avoid catastrophic failure. An asset management study was completed in 2011 which highlighted several areas of the City's water and sewer infrastructure that need repairs or replacement.

As recently as October 2013, Public Works staff had to repair a section of deteriorated pipe. This repair proved difficult because the pipe was in such poor condition that it was a challenge to weld a structurally sound connection. The piping replacement should be completed in order to minimize pipe failures in this vital piece of potable water infrastructure.

Justification

The asset management plan recommended that Pumphouse #3 be replaced in 2016 due to its age and useful life expectancy. This entailed the complete reconstruction of the pumphouse components, as well as the building envelope itself. However, after a more detailed evaluation of the building, Public Works has determined that a complete rebuild is not necessary if the appropriate infrastructure upgrades are completed to remove aged infrastructure.

Operating Cost Impact

If staff spent less time repairing aged pipe infrastructure, they would be able to concentrate on other areas of operation and maintenance.

Project's Impact on Other Departments

N/A

Project's Return on Investment

N/A

Council Goals/Objectives/Actions

- Goal #1: Building a sustainable future
- Goal #2: Stewards of our natural and built environment

2016 Capital Cost: \$1,000,000



Funding Sources	Total Estimated Cost \$	Prior Year Funding \$	2015	2016	2017
			\$	\$	\$
Water & Sewer User Fees	1,000,000			1,000,000	
Total:	1,000,000			1,000,000	

Department Public Works & Engineering
Division Water & Sewer
Project Liftstation #5 Pipe Replacement

Project Description

The age of our infrastructure is such that the City will have to rebuild the piping of a pumphouse or liftstation yearly to avoid catastrophic failure. In a study performed by A.D. Williams Engineering in 2004, it was determined that pipes inspected at two buildings were only 40% to 70% the thickness of new pipes. Small leaks occur regularly in these buildings.

Justification

Liftstation #5 is the main liftstation for the city. All but one of the other liftstations in the city pump sewage to Liftstation #5 and from there it is pumped to Fiddler's Lake Lagoon. With nine liftstations pumping to Liftstation #5, it is very important that it function at peak operating performance. Shutdowns for unplanned repairs are not viable, as overflow sewage goes into Kam Lake. There are not enough trucks in the City to haul the sewage to the lagoon, should a break occur.

The pipe at Liftstation #5 has deteriorated over time to the point that it is now 40% of its original thickness. Average thickness at elbow bends is 50% of original thickness and most straight-run pipes are 60% to 65% of original thickness (A.D. Williams Engineering, November 2004). Leaks require repair approximately every two months. Should pipe replacement not be completed, it is inevitable that a main pipe break will occur resulting in the City being unable to remove sewage.

Operating Cost Impact

The welded pipe will be replaced with Victaulic-style connectors. Replacement pipe will be coated with epoxy paint to prolong its life cycle. Future repairs may be done by City crews at significant cost savings.

Project's Impact on Other Departments

N/A

Project's Return on Investment

n/a

Council Goals/Objectives/Actions

- Goal #1: Building a sustainable future
- Goal #2: Stewards of our natural and built environment

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CAPITAL FUND - 2016 Capital Projects

Expenditures	Total Estimated Cost \$	Prior Year Funding \$	2015 \$	2016 \$	2017 \$
Capital Cost	600,000			300,000	300,000
Design					
Development					
Construction Engineering					
Construction					
Equipment					
Materials					
Total:	600,000			300,000	300,000

Funding Sources	Total Estimated Cost \$	Prior Year Funding \$	2015 \$	2016 \$	2017 \$
Water & Sewer User Fees	300,000			300,000	
Gas Tax Rebate	300,000				300,000
Total:	600,000			300,000	300,000

CAPITAL FUND - 2016 Capital Projects

Department Public Works & Engineering
Division Water & Sewer
Project Potable Water Submarine Pipe Inspection

Project Description

The City obtains all of its potable water from the Yellowknife River. Pumphouse #2, located at the Yellowknife River just upstream of the bridge, delivers water via a 400-mm welded steel submarine pipeline below Yellowknife Bay to Pumphouse #1 which is the water distribution centre for the City.

The existing submarine pipeline was installed in 1968, and is now 45 years old. It was constructed using internally and externally coated steel pipe. The pipe sections were field butt-welded and the welds were externally covered with heat shrink sleeves.

Justification

In 1993, a study on the conditions of the pipeline commissioned by the City concluded that the internal weld surfaces of the pipeline had corroded and there was a reduction in the wall thickness of the weld material. The study recommended that, in order to maintain the design service life of the pipeline, the current rate of weld corrosion had to be arrested as soon as possible.

One of the options for arresting the corrosion recommended by the study was to recoat the internal surface of the pipeline. This option involves a three-step pigging process. First, the pipe is cleaned with solvent and acid runs. Next, the internal surface is chemically dried and conditioned. The last step is to coat the internal surface of the pipeline. To prepare for the internal coating project (i.e., to investigate the pipe conditions and to assess the urgency of the project), a submarine pipeline inspection will be carried out beforehand. The coating process may be physically impossible to perform. The Giant Mine branch of the submarine pipeline was decommissioned in March of 2006.

Operating Cost Impact

There is no direct impact on O&M but these inspections will help determine the structural integrity of the aging pipeline. Funding is currently being set aside for the replacement of this pipeline in 2020.

Project's Impact on Other Departments

N/A

Project's Return on Investment

N/A

Council Goals/Objectives/Actions

Goal #1: Building a sustainable future
 Goal #2: Stewards of our natural and built environment

2016 Capital Cost: \$30,000

Funding Sources	Total Estimated Cost \$	Prior Year Funding \$	2015 \$	2016 \$	2017 \$
Water & Sewer User Fees	30,000			30,000	
Total:	30,000			30,000	

