

CAPITAL FUND - 2016 Capital Projects

		2016 Budget Recommended (\$000s)	Formula Funding (\$000s)	CCBF (\$000s)	IT Reserve (\$000s)
General Government	Page #				
Tourism Kiosk in Old Town	342	50	50		
		50	50	-	-
Community Energy Plan (CEP) Initiatives	226				
CEP Implementation		90	90		
Energy Efficiency Projects		410	410		
		500	500	-	-
Information Technology					
Network Upgrades	228	25			25
GIS Enhancements	230	50			50
Server Replacement	231	30			30
Communication Infrastructure Renewal	324	25			25
Security Cameras	233	20			20
Secondary Site & Data Replication	234	20			20
Library Public Access	343	20			20
Website Enhancements	236	15			15
Server Room Upgrades	344	25			25
Virtualization	240	20			20
Multi-function Devices and Printers	241	50			50
Social Media	327	15			15
Open Data	245	15			15
Computer Aided Dispatch	246	10		10	
Client Access Management	345	25			25
Wireless Controllers	346	55			55
		420	-	10	410
Subtotal		970	550	10	410

CAPITAL FUND - 2016 Capital Projects

DEPARTMENT	COMMUNICATIONS AND ECONOMIC DEVELOPMENT
DIVISION	COMMUNICATIONS AND ECONOMIC DEVELOPMENT
PROJECT	Tourism Kiosk in Old Town
COST	\$50,000
STATUS	New
PHASE	1 of 3
DESCRIPTION	<p>The creation of a Tourism Kiosk in Old Town will be linked to the Tourism Strategy. This project is envisioned to be completed in three parts:</p> <ol style="list-style-type: none">1) feasibility/location/costing/operations2) design3) tender <p>This project works toward Council's Objective #1(a)¹.</p>
O&M IMPACT	<p>There is no O&M Impact. This project can be undertaken with existing O&M resources. Recommendations from Part 1 will impact future Capital and O&M deliberations.</p>

¹ Realize opportunities to encourage economic growth and diversity



CAPITAL FUND - 2016 Capital Projects

DEPARTMENT CORPORATE SERVICES / COMMUNITY SERVICES

DIVISION INFORMATION TECHNOLOGY / LIBRARY

PROJECT Library Public Access

COST \$20,000

STATUS Replacement

PHASE 1 of 1

DESCRIPTION The City provides eight workstations for public use at the Library. These units are heavily utilized and deliver a valuable public service; however they have a limited lifespan and should be replaced in 2016.

This project works toward Council's Goal #1¹.

O&M IMPACT This project should not directly impact O&M expenditures. However, if regular refreshes are not sustained, there will be increased equipment failure rates which will negatively impact service levels and require additional IT troubleshooting and repair resources.

¹ Building a sustainable future

CAPITAL FUND - 2016 Capital Projects

DEPARTMENT CORPORATE SERVICES

DIVISION INFORMATION TECHNOLOGY

PROJECT Server Room Upgrades

COST \$25,000

STATUS New

PHASE 1 of 1

DESCRIPTION A significant portion of the City's information technology infrastructure equipment is housed in its City Hall server room. As the City's dependence on technology increases, so do the demands on this room, particularly in terms of power, cooling, and monitoring requirements. This means that periodic updates are required to ensure the room remains a safe, secure, and appropriate environment for the equipment it contains.

The major components of this project will be to install improved cable management for the server racks and to remove old air conditioning units that have been supplanted with newer, more energy efficient devices. Improvements must also be made to advance the server room environment toward a "clean" room. These include installing an air purifier to remove dust and other contaminants and removing all cabinets and storage to improve air flow and environmental cleanliness.

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.

O&M IMPACT There will be no direct impact on O&M expenditures.



CAPITAL FUND - 2016 Capital Projects

DEPARTMENT CORPORATE SERVICES

DIVISION INFORMATION TECHNOLOGY

PROJECT Client Access Management

COST \$25,000

STATUS New

PHASE 1 of 1

DESCRIPTION Providing network access for employees and the public is a critical service that necessitates balancing transparency for the client (effortless logon) with adequate administrative controls for authentication, authorization and accounting. Managing this network access becomes increasingly complex, however, 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.

This project will implement Cisco's Identity Services Engine (ISE), a highly functional and flexible access / authentication / accounting appliance that provides intelligent centralized access management. It is capable of recognizing what type of device (iPad, smartphone, laptop, etc.) is accessing the network, determining the ownership (City, vendor, public, etc.) of the device, and then establishing what policies should automatically be applied.

Coordinated with this device recognition are capabilities for authentication (challenge and verification of who the client is), authorization (what the authenticated client is permitted to do) and accounting (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.

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.

O&M IMPACT This project will increase annual O&M expenditures by 20% of the acquisition cost.

CAPITAL FUND - 2016 Capital Projects

DEPARTMENT	CORPORATE SERVICES
DIVISION	INFORMATION TECHNOLOGY
PROJECT	Wireless Controllers
COST	\$55,000
STATUS	Replacement
PHASE	1 of 1
DESCRIPTION	<p>The Information Technology Division currently provides wireless network services for citizens and employees at City Hall, the Multiplex, the Fieldhouse, and the Library. It also provides wireless network services for employees at the Fire Hall and the Public Works Garage.</p> <p>The number of sites and devices requiring wireless service and the number of clients accessing these services is expected to grow at a steady rate. Known growth areas include employee use for mobility, citizen use for internet and city services, Public Works use for traffic cameras and vehicle diagnosis, and Fire Hall use for vehicle communications.</p> <p>These wireless services are managed by wireless controllers. There is currently one high high-capacity wireless controller at City Hall. It serves all wireless sites, with the exception of the Public Library, which is served by two lower-capacity controllers to provide redundancy and use-specific security. These controllers are in turn controlled by a Wireless Control System (WCS) which provides security, accounting, monitoring, and reporting.</p> <p>All of these controllers are approaching their license limit for the number of registered access points and will not be able to support the anticipated growth. As well, all wireless services ultimately depend on the single controller at City Hall and, if it goes offline, all wireless</p>

services across the organization are unavailable. Therefore, with this project, the City will upgrade its wireless controllers to provide larger client capacity, redundancy, and improved functionality to meet current and foreseeable needs.

Examples of the benefits to be derived from this upgrade include the following:

- *Expanded capacity.* When trade shows and other major events are held at the Multiplex and Fieldhouse, there is the potential for hundreds of devices (including smart phones, tablets, laptops, and payment machines) to require wireless access. The existing controllers do not have the capacity to accommodate these requests. However, the upgraded controllers will support additional access points and handle these demands without exceeding licensing limits.
- *Redundancy.* If the main controller fails in the current configuration, wireless service is unavailable at all sites throughout the organization. With redundancy, automatic failover will ensure there is no disruption to client services.
- *Additional connections and sites.* The current controllers are operating at their maximum licensed capacity, restricting the Information Technology Division's ability to offer additional wireless services. However, the upgraded controllers will support more access points, so when the need arises to connect additional wireless devices, such as more security cameras, or there is a requirement to extend wireless connectivity to additional sites like a skate park or another facility, there is the licensed capacity to do so.



- *Technical longevity.* By 2016, the 802.11n (N) wireless protocol is expected to be the industry standard. The City's current equipment is based on the 802.11g protocol, which does not allow full exploitation of the higher throughput speeds and improved reliability inherent in the N environment. This upgrade will ensure the City has end-to-end N capability to supply reliable and high performance wireless services.

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.

O&M IMPACT This project will not directly impact O&M expenditures. However, if the wireless controllers are not upgraded they will not be able to handle the anticipated growth in demand

CAPITAL FUND - 2016 Capital Projects

		2016 Budget Recommended (\$000s)	Formula Funding (\$000s)	Grants (\$000s)
Community Services	Page #			
Arenas				
YKCA - Wiring	349	15	15	
Fieldhouse Floor Cover	350	170	170	
Parks/Trails				
Lakeview Cemetery Expansion	351	300	300	
Ball Diamond Upgrade	352	40	40	
Rental Equipment	353	15	15	
Yellowknife Rotary Park -Trail Extension	258	20		20
Doornbos Park Playground Equipment Replacement	354	60		60
Con Mine Remediation	355	210	210	
Pool				
Residing of Exterior Walls	356	250	250	
Subtotal		1,080	1,000	80



CAPITAL FUND - 2016 Capital Projects

DEPARTMENT COMMUNITY SERVICES

DIVISION FACILITIES

PROJECT Yellowknife Community Arena – Wiring

COST \$15,000

STATUS New

PHASE 1 of 1

DESCRIPTION The Yellowknife Community Arena was built in 1982 and has served the needs of the community very well over the years. During maintenance of the facility and on advice of our electrical contractor, it has been determined that the wiring from the penalty box side of the facility to the main control box is in need of replacement.

This wiring controls power to the game clock, the facility's public address system, and the entire arena on the penalty box side. A failure in the wiring system will result in these items being nonfunctional.

This project works toward Council's Objective #2¹ and Objectives #2(a)², #2(b)³, and #2(e)⁴.

O&M IMPACT There will be no additional costs for maintenance as this will be covered under our current budget for repairs and maintenance.

¹ Stewards of our natural and built environment.

² Maintain, respect, preserve and enhance the natural environment, natural heritage and green space.

³ Improve transit, roads, sidewalks, recreation facilities and trails with an emphasis on active and healthy living choices.

⁴ Maintain and enhance core services and adapt to changing needs.

CAPITAL FUND - 2016 Capital Projects

DEPARTMENT COMMUNITY SERVICES

DIVISION FACILITIES

PROJECT Fieldhouse Floor Cover

COST \$170,000

STATUS New

PHASE 1 of 1

DESCRIPTION While the primary use of the Fieldhouse is by sport and recreation programs, there have been requests for other community events in the facility such as trade shows, conferences, and bingos. In order to accommodate the needs of the community, the playing surface carpets in the Fieldhouse will need protective coverings.

The product that will be used is a multi-use snap-together portable flooring system designed for high-volume pedestrian traffic. The translucent sheets overlap to provide an easily installed, cost-effective turf protection system. This floor cover will allow the City to showcase major events at the facility without jeopardizing the quality of the turf.

This project works toward Council's Objective #2¹ and Objectives #2(a)², #2(b)³, and #2(e)⁴.

O&M IMPACT There will be little or no O&M impact.

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CAPITAL FUND - 2016 Capital Projects

DEPARTMENT COMMUNITY SERVICES

DIVISION FACILITIES

PROJECT Lakeview Cemetery Expansion

COST \$300,000

STATUS New

PHASE 1 of 1

DESCRIPTION Lakeview Cemetery has been in existence since the late 1940s. There are approximately 15 to 20 interments 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 mass, and it is now necessary to undertake the development of the area to ensure it continues to meet the interment 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. This will ensure an orderly expansion in appropriate phases that will take into account topography and landscaping of the site.

This project works toward Council's Objective #2¹ and Objectives #2(a)², #2(b)³, and #2(e)⁴.

O&M 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 12,000m² with an annual O&M budget of approximately \$12,000.

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CAPITAL FUND - 2016 Capital Projects

DEPARTMENT	COMMUNITY SERVICES
DIVISION	FACILITIES
PROJECT	Ball Diamonds Upgrade
COST	\$40,000
STATUS	Replacement
PHASE	1 of 1
DESCRIPTION	<p>The City directly administers five ball diamonds: two at Fritz Theil, two at Parker Field, and one at William McDonald School.</p> <p>Several of the diamonds use shale which requires periodic replacement and conditioning. This project will allow for the purchase of shale to address this need.</p> <p>This project would allow the department to replace the shale on the five remaining fields, improving the ball playing experience there.</p> <p>This project works toward Council's Objective #2¹ and Objectives #2(a)², #2(b)³, and #2(e)⁴.</p>
O&M IMPACT	<p>There will be no additional costs for maintenance as this will be covered under our current budget for repairs and maintenance.</p>

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CAPITAL FUND - 2016 Capital Projects

DEPARTMENT COMMUNITY SERVICES

DIVISION FACILITIES

PROJECT Rental Equipment

COST \$15,000

STATUS Replacement

PHASE 1 of 1

DESCRIPTION The Department utilizes various tables, chairs, and staging while renting out the arenas and parks for a variety of events. These items are further utilized by the public and are incorporated into the Fees and Charges By-Law, generating revenue for the City.

Due to the amount of use, the equipment requires ongoing replacement.

It is proposed to replace a portion of the tables and chairs that have been damaged or disposed of over a four-year period which commenced in 2012.

The replacement costs are as follows:

80 tables \$8,200

350 chairs \$6,800

This project works toward Council's Objective #2¹ and Objectives #2(a)², #2(b)³, and #2(e)⁴.

O&M IMPACT There will be no additional costs for maintenance as this will be covered under our current repairs and maintenance budget.

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CAPITAL FUND - 2016 Capital Projects

DEPARTMENT	COMMUNITY SERVICES
DIVISION	FACILITIES
PROJECT	Doornbos Park Playground Equipment Replacement
COST	\$60,000
STATUS	Replacement
PHASE	Replacement
DESCRIPTION	<p>Playgrounds have a lifespan of about 15 to 20 years and need to be replaced on an ongoing basis to serve the community.</p> <p>There have been multiple code changes and advances in play equipment over the past 20 years, and the new equipment is mostly hard plastic that stands up well to our northern climate. It is now recommended by suppliers that all new playground equipment be erected utilizing plastics/powder-coated aluminum technologies.</p> <p>In 2016, it is proposed that the playground equipment be replaced at Doornbos Park. The equipment is a combination of steel and wooden structures that have deteriorated over the years.</p> <p>The equipment is used frequently by many citizens in the area. The new playground equipment will stimulate children and encourage their mental and physical growth.</p> <p>A sport grant of \$60,000 will completely offset the cost of the project.</p> <p>This project works toward Council's Goal #2¹ and Objectives #2(a)², #2(b)³, and #2(e)⁴.</p>

O&M IMPACT There will be no financial impact as this playground already exists and will require the same level of safety checks and maintenance regardless of the age of the equipment.

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CAPITAL FUND - 2016 Capital Projects

DEPARTMENT COMMUNITY SERVICES

DIVISION FACILITIES

PROJECT Con Mine Remediation

COST \$210,000

STATUS New

PHASE One

DESCRIPTION Currently, the City has a number of outdoor recreational sport facilities: six ball diamonds, three sport (soccer) fields, a 340-metre track, eight tennis courts, one skateboard park, and 17 playgrounds. Many of the facilities are at maximum use, and some of the facilities, such as two of the soccer fields, do not meet minimum acceptable standards.

The City is currently working on an agreement with Newmont Mining to obtain over eight hectares of land which would be turned into a major outdoor recreational facility. In anticipation that the property would become available to the City within the next few years, it is important that the City and user groups work together to come up with a design concept for a major outdoor recreational facility.

After the completion of the consultation, planning, and development process in 2013/2014, it is proposed to begin work in 2016 on the field which will be the first phase of a multi-year project. This will include adding topsoil to the field to bring it up to recreation field standards.

This project works toward Council's Objective #2¹ and Objectives #2(a)², #2(b)³, and #2(e)⁴.

O&M IMPACT This development would occur in phases, spreading the operational costs over several years and allowing for efficiencies to be developed. The immediate impact will be in 2017, with one sports field costing \$14,000 annually.

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CAPITAL FUND - 2016 Capital Projects

DEPARTMENT	COMMUNITY SERVICES
DIVISION	PROGRAMS
PROJECT	Ruth Inch Memorial Pool – Re-siding of Exterior Walls
COST	\$250,000
STATUS	Replacement
PHASE	1 of 1
DESCRIPTION	<p>Ruth Inch Memorial Pool opened its doors to the public in the fall of 1988. The pool continues to be popular among the citizens and visitors of Yellowknife. In 2010, the City contracted an engineering firm to do a life cycle analysis of the building, identifying items that needed to be addressed to ensure the pool meets or exceeds its life expectancy. According to the report, the exterior finish has started to show signs of deterioration due to the combination of extreme weather and high humidity inside the building. Prolonged exposure to moisture penetrating the exterior finish could lead to rotting of the walls, mould and mildew.</p> <p>The proposed project is to re-side the exterior walls of the building in the summer of 2016. The process would include removal of the existing stucco finish, repair of damaged finishes, installation of vapour barriers and replacement with metal siding.</p> <p>This project addresses City Council’s Objective #2(2)¹.</p>
O&M IMPACT	<p>No immediate impact on the O&M, however these renovations will ensure the life cycle of this facility will be maximized.</p>

¹ Improve transit, roads, sidewalks, recreation facilities and trails with an emphasis on active and healthy living choices.



CAPITAL FUND - 2016 Capital Projects

		2016 Budget Recommended (\$000s)	Formula Funding (\$000s)
Public Safety	<u>Page #</u>		
Fire & Ambulance			
Air Conditioning for Fire Hall Expansion	358	40	40
EMS Training Manikin	359	115	115
Subtotal		<u>155</u>	<u>155</u>
Planning & Development	<u>Page #</u>		
Harbour Plan & Smart Growth Development Plan Initiatives	268	600	600
Streetscaping Initiatives	269	500	500
Subtotal		<u>1,100</u>	<u>1,100</u>

CAPITAL FUND - 2016 Capital Projects

DEPARTMENT	PUBLIC SAFETY
DIVISION	FIRE AND AMBULANCE
PROJECT	Air Conditioning for Fire Hall Expansion
COST	\$40,000
STATUS	New
PHASE	1 of 1
DESCRIPTION	<p>The Fire Hall expansion that was completed in 2012 did not include air conditioning. Air conditioning will improve the work environment for the staff.</p> <p>This project works toward City Council's Goal #4¹ and Action #4.3².</p>
O&M IMPACT	Minimal

¹ Creating and sustaining meaningful relationships

² Strengthen internal culture/relationships (staff)



CAPITAL FUND - 2016 Capital Projects

DEPARTMENT PUBLIC SAFETY
DIVISION FIRE AND AMBULANCE
PROJECT EMS Training Manikin
COST \$ 115,000
STATUS New
PHASE 1 of 1

DESCRIPTION This state-of-the-art training manikin will improve our EMS delivery to the general public. It simulates working with a real patient, giving our emergency responders a chance to train and refresh their skills based on actual medical situations. The manikin simulates all the medical problems and speaks to the emergency responders, describing what the patient is feeling to coincide with how the patient presents him or herself.

This project works toward City Council's Goal #4¹ and Action #4.13².

O&M IMPACT Minimal.

¹ Creating and sustaining meaningful relationships.
² Develop a Customer Service Model of Excellence.

CAPITAL FUND - 2016 Capital Projects

		2016 Budget Recommended (\$000s)	Formula Funding (\$000s)	M.E.R. Reserve (\$000s)	MACA Capital Grant (\$000s)
Public Works & Engineering	Page #				
Fleet Management	362				
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		19		19	
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	
		1,333	-	1,333	-
Engineering & Garage	Page #				
Traffic Lights Video Detection Equipment	282	75	75		
Diagnostic Equipment & Specialty Tools for Mechanics	283	20	20		
City Garage Yard and Building Improvements	285	50	50		
Roads & Sidewalks					
Road Rehabilitation	286	3,000	790		2,210
Drainage Improvements	290	50	50		
		3,195	985	-	2,210



CAPITAL FUND - 2016 Capital Projects

		2016 Budget Recommended (\$000s)	Formula Funding (\$000s)	Water & Sewer User Fees (\$000s)	M.E.R. Reserve (\$000s)	Capital Fund (\$000s)	Gas Tax Rebate (\$000s)	MACA Capital Grant (\$000s)
Solid Waste Management	Page #							
Landfill								
Landfill Expansion (New Landfill Cell Construction)	292	3,000	2,089			911		
Baling Facility Mechanical Upgrades	293	25	25					
Site Restoration	294	125	125					
Centralized Composting Program	295	500	500					
Baling Facility Roof Repairs	366	100	100					
		3,750	2,839	-	-	911	-	-
Pumphouses/Liftstations (PHs/LSs)	Page #							
Water Treatment Plant	299	150		150				
Capital Upgrades	302	65		65				
Reservoir Flushing, Cleaning & Repairs	303	25		25				
Pump Replacement	304	100		100				
Monitors & Controls Upgrading	305	75		75				
Pipe Replacement	307	300		300				
PH#3 Pipe Replacement	367	1,000		1,000				
Other								
Submarine Line Inspection	308	30		30				
PH & LS - Genset Installation (Backup Power)	309	250		250				
Fire Hydrant Maintenance	310	30		30				
CMP Replacement Program	314	4,610		91			4,519	
		6,635	-	2,116	-	-	4,519	-
PW Subtotal		14,913	3,824	2,116	1,333	911	4,519	2,210

CAPITAL FUND - 2016 Capital Projects

DEPARTMENT	PUBLIC WORKS & ENGINEERING
DIVISION	FLEET MANAGEMENT
PROJECT	Upgrading of Fleet
COST	\$1,332,710
STATUS	Replacement/ New
PHASE	Ongoing
DESCRIPTION	<p>The mobile equipment fleet has a replacement value of \$13.0 million and must be maintained to meet the service levels expected by residents. The City has a fleet of 118 heavy-duty and mobile equipment that support Fire and Ambulance, Road Maintenance, Water and Sewer Maintenance, Solid Waste, Parks, Arenas and Administrative functions, plus 24 stationary engines for emergency power generation and fire pumping capacity.</p> <p>The replacement vehicles listed have passed their useful lives according to City practices. In addition, they are recommended for replacement according to a mechanical assessment carried out by mechanics. In the 2006 Infrastructure Needs Assessment by Ferguson, Simek and Clark Architects and Engineers, it was noted that nearly half of the City's fleet is beyond its anticipated life span.</p> <p><u>Pickups – 43 units</u> According to the City of Yellowknife Fleet Management Practices, these vehicles should be reviewed for replacement after five years and replaced after eight years. We currently have 43 pickups and vans in the fleet and two of them are over ten years old. The average age of the fleet is five years. If the policy were followed, the average age of the fleet would be five years. There have been 41 pickups that have been replaced in the last eight years. Replacing the aging fleet will lower the O&M</p>

to operate the fleet. Five pickups have to be replaced every year to maintain the fleet to the policy standard. If the standard is not followed, more maintenance staff will have to be hired to maintain the fleet to a safe and operational level and there will be increased costs. Status: Good – meets standards. Note: Replacement increased from 8 to 10 years.

Medium-Duty Trucks – 8 units

According to the City of Yellowknife Fleet Management Practices, these vehicles should be reviewed for replacement after eight years and replaced after ten years. The City currently has eight medium-duty trucks in the fleet, with none of them over ten years old. The average age of the fleet is four years. If the policy were followed, the average age of the medium-duty truck fleet would be five years. Status: Medium - duty trucks meet standard and no replacement medium trucks are planned.

Municipal Enforcement Vehicles – 4 units

These are to be replaced every three years or 100,000 km. The average age of the fleet of four Municipal Enforcement vehicles is three years and one has over 100,000 km. Due to the high usage, Municipal Enforcement vehicles require a high amount of maintenance (nearly five times that of similar vehicles in the fleet). For this reason, it is important to maintain the replacement of the vehicles. One Municipal Enforcement vehicle must be replaced yearly to maintain the City standards and in order to reduce O&M costs and labour requirements. With the replacement of one vehicle this year, the City will meet the practice identified. Status: Good – standard is maintained.

Heavy Trucks – 18 units

The 18 heavy-duty trucks and trailers, includes trailers, tandem tractors, dump trucks, and street sweepers. One of the heavy-duty trucks and trailers is due for replacement. The heavy trucks are to be replaced every



twelve years. Currently, the age of the fleet is ten years old, and if the replacement policy is followed, the average age should be six years old. Trucks are used for City projects and snow removal in the winter. The cost of operating these vehicles over hiring contractors is about half. Each truck is operated for about 1,000 hrs/yr, saving the City \$45,000/year each truck it operates rather than contracting out.

Trailers are reviewed when aged out. If practical, the trailer is refurbished and returned to service. The dump trailer (due to more use and normal wear and tear) is replaced when aged out.

As trucks get older, increased maintenance and repairs are required, such as replacing motors and transmissions at costs of \$20,000 and \$10,000 respectively. Breakdowns inevitably occur when equipment is needed resulting in a cost to the City to engage contractors at a much higher cost than using our own forces. Condition: if replacements continue, heavy duty fleet condition is good.

Heavy Equipment – 10 units

The heavy equipment is to be replaced every 12 years, and two are due for replacement. Currently, the age of the fleet is six years old, and the average age should be six years old. Heavy equipment is used for City projects and snow removal in the winter. The cost of operating our equipment over hiring contractors is about half the cost. Each piece of heavy equipment is operated for about 1,000 hrs/yr, saving the City \$45,000 per year for each piece of heavy equipment it operates. As heavy equipment gets older, increased maintenance and repairs are required such as replacing motors and transmissions at a cost of \$30,000 and \$20,000 respectively. Breakdowns inevitably occur when equipment is needed resulting in a cost to the City to engage contractors.

The City has explored contracting out heavy equipment services and leasing vehicles, but recommends the acquisition of replacement vehicles as the most cost-effective option to the City. Condition: Heavy equipment fleet is in good condition.

Mobile Tractors – 6 units

The average age of the fleet is six years. This includes Zambonis, skid steers, compactors, and forklifts. The anticipated life span is ten years. The average age of fleet if replaced as per the schedule should be five years. This equipment is currently tasked with sidewalk maintenance in the winter. Work in the summer includes sidewalk resurfacing and cold mix patches, Community Services trail repairs, and grounds maintenance. Two are due for replacement. Condition: Good.

Emergency Vehicles – 9 units

This includes fire trucks, ambulances and water trucks. The average age of the fleet is 15 years. Due to increased demand, the replacement life cycle standard has been evaluated by the Public Works and the Fire and Ambulance Division. The standard for replacement was reduced from 30 years to 20 years for most firefighting equipment. This was done after a replacement part was not available for a vehicle that was over 20 years old and a fire truck was out of service for 8 weeks while a part was found at a used car wrecker. Parts are no longer manufactured for vehicles over 20 years old.

Ambulances are now replaced on a 12-year cycle due to the high amount of use and reliability issues with ambulances as they get older. We have three ambulances and one is replaced every four years. The newest is placed on “first out the door” service and the oldest is surplus. Status: Most of the Emergency Vehicles are due for replacement since the re-evaluations of the life cycle. A new piece of Emergency equipment is due scheduled for replacement in 2017 when the new replacement schedule will be realized.

Other Equipment – 34 units

Other equipment includes the miscellaneous equipment required by City departments to do their work. Included are: riding mowers, snowmobiles (Municipal Enforcement Division), All-terrain vehicles (firefighters), Solid Waste Facility baler, light trailers (Community Services and Public Works), line-painters, crack sealing equipment, trailer mounted water pumps, and ground thawing equipment. Equipment in this group have a varied life expectancy and replacement cost. Status: for the most part, the other equipment group is in good shape and the replacement schedule allows for safe work and consistent work flow.

Stationary Engines 21 Units

Our fleet mechanics also maintain and service 21 stationary engines. These include standby generators for City water and sewer supply and City facilities (City Hall, Fire and Ambulance Division, Multiplex/Fieldhouse). The stationary engines provide standby electricity on water and sewer services in times of power outages or natural disasters. The estimated value of the stationary engines is approximately \$4.8 million. Many of the existing engines are older; five are over 30 years old, 12 are over 20 years old, 14 are over 10 years old, and only seven are under 10 years. Parts are often unavailable for engines over 20 years old. Though these engines get little use, even small breakdowns may lead to lengthy repairs.

The mobile reserve fund is not used to replace Stationary engines though the Fleet resources are used to maintain them. It is recommended to departmental managers that the older stationary engines be replaced. Fleet-wide, it is recommended that one engine a year is replaced until all stationary engines are less than 20 years old.

Summer Vehicles (12)

Summer vehicles are vehicles that have been replaced but are still useful in a secondary or low priority role.

There are nine light vehicles used mainly by Community Services Park staff in the summer or administration vehicles year-round, and one heavy equipment class dump trailer used in winter as a back-up or with a leased tractor for winter snow removal. If a repair of a summer vehicle exceeds an estimated cost of \$500, the vehicle may be removed from service at the discretion of the Works Superintendent.

This project addresses City Council's Goal #1¹ and Objective #1(b)².

O&M IMPACT

Maintenance costs will decrease if the City of Yellowknife Fleet Management Practices are followed due to reduced fuel consumption and repair costs. City residents will have a high satisfaction with City services. If the fleet is replaced and a schedule followed, services will be more consistent and not halted due to equipment failure.

¹ Building a sustainable future

² Continue to have a sustainable and practical approach to infrastructure deficit reduction.



CAPITAL FUND - 2016 Capital Projects

UNIT #:	DESCRIPTION:	2016 BUDGET:
1004-06	F-150	34,880.00
1005-06	F-150	34,880.00
1163-06	F-150	34,880.00
1164-06	F-150	34,880.00
1124-04	F-150	32,960.00
1125-04	F-150	32,960.00
1165-06	F-250	45,780.00
1166-06	E-150 Leak detection	38,150.00
1188-11	Zero Turn Exmark Mower	19,620.00
1190-11	Can Am ATV	15,000.00
1193-12	Polaris S12BA6NSL	15,260.00
1194-12	Polaris S12BA6NSL	15,260.00
2099-02	Freightliner FC70 Road Sweeper	370,800.00
2012-10	John Deere 304J	147,150.00
2101-03	LT9500 Sterling (Mercedes)	163,500.00
2104-04	LT9500 Sterling (Cat)	163,500.00
2121-08	CAT 246C SKID STEER	70,850.00
T010-65	45' High Boy Trailer	42,400.00
T011-80	45Ton Low Boy Trailer	20,000.00

Total = 1,332,710.00

CAPITAL FUND - 2016 Capital Projects

DEPARTMENT PUBLIC WORKS & ENGINEERING

DIVISION SOLID WASTE FACILITY

PROJECT Baling Facility Roof Repairs

COST \$100,000

PHASE New

DESCRIPTION The Baling Facility is the key piece of infrastructure at the Solid Waste Facility. It houses the baler and all mobile equipment for the site during winter months. All residential garbage and recyclables are baled in this facility year-round. The Baling Facility was built in 1992 and, over the past 21 years, birds have had a considerable impact on the building. The two biggest impacts have been 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. This results in high heat loss. The roof has been compromised from the acidic effects caused by bird feces. This results in certain materials deteriorating from the feces which have caused multiple leaks. The leaks also pose a safety risk by creating slippery conditions.

Repairs to the roof of the Baling Facility at the Solid Waste Facility works toward Council's Objective #2(c)¹.

O&M IMPACT Repairing the ceiling insulation would prevent considerable heat loss. Reducing heat loss will help lower the cost of heating the Baling Facility and reduce environmental impact.

Repairing the roof will eliminate water leaks which damage the interior of the building. Once those leaks are prevented, maintenance and heating costs are expected to decrease.

¹ Develop smart and sustainable approaches to energy, water and sewer, waste management and building systems.



CAPITAL FUND - 2016 Capital Projects

DEPARTMENT	PUBLIC WORKS & ENGINEERING	will reduce the probability of pipe failures on aged infrastructure which could be large scale and very costly as an emergency repair.
DIVISION	WATER & SEWER (PUMPHOUSES & LIFTSTATIONS)	
PROJECT	Pump House #3 - Pipe Replacement	Any future repairs on replaced pipe may be done by City crews at significant cost savings.
COST	\$1,000,000 – New Piping for Pump House #3	
STATUS	New	
DESCRIPTION	<p>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 needs repairs or replacement.</p> <p>The asset management plan suggested that Pump House #3 be replaced in 2016 due to the year of construction and useful life expectancy. This entailed the complete reconstruction of the Pump House 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.</p> <p>As recently as October 2013, Public Works staff had to repair a section of deteriorated pipe. This repair proved very difficult because of the condition of the pipe, it was very hard to create a structurally sound welded connection. The piping replacement should be completed to minimize any pipe failures in a vital piece of potable water infrastructure.</p> <p>This works toward City Council's Goals #1¹ and 2².</p>	
O&M IMPACT	The welded pipe will be replaced with Victaulic style connectors. Replacement pipe will be coated with epoxy paint to prolong the life cycle replacement. This project	

¹ Building a sustainable future

² Stewards of our natural and built environment

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