REGIONAL MUNICIPALITY OF WOOD BUFFALO

Capital Budget Request - DESIGN & CONSTRUCTION

Project Name **Saunderson Pressure Reducing Valve (PRV) Station** **$ 26,524,000**

Order Code	**601487**	**Project Location**	Fort McMurray
Project Category	Environmental	**Ward**	1 - Fort McMurray
Type of Project	Lifecycle - Construction	**Municipal Function**	41 - Water Sup & Distribution

Project Description and Scope

This project is the result of the amalgamation of two pre-existing projects: The 4-way chamber and the MacDonal Avenue water supply line. This amalgamation was the recommendation from an Engineering study that proposed a re-design of the 4-way chamber and to reduce the number of watermains connecting the chamber to the Lower Town Site reservoir from two lines to one. This will result in a more efficient operation and reduction in maintenance cost to the water system network south of the Athabasca River. Potential savings in excess of $4M construction costs are achieved by undertaking the re-designed approach.

The existing 3-way chamber is currently at its end-of-useful-life, and requires substantial maintenance to remain online. The 3-way is critical to all water flow East of the lower townsite.

Project Cash Flows

Year	Total Annual Cost	Federal Grant	Provincial Grant	Reserve	Other	Debenture
2018 & Prior	7,000,000			7,000,000		
2019	-					-
2020	10,800,000			10,800,000		-
2021	8,724,000			8,724,000		-
2022	-					-
2023	-					-
Thereafter	-					-
Total Budget	**26,524,000**	**-**	**-**	**26,524,000**	**-**	**-**

Additional Funding Details

Business Case created by	OSCAR GONZALEZ
Project Sponsor Branch	Water Treatment
Project Sponsor Department	Public Works
Project Delivery Branch	Engineering
Project Delivery Department	Engineering Services

REGIONAL MUNICIPALITY OF WOOD BUFFALO

Capital Budget Request - CONSTRUCTION

Project Name **Beacon Hill Outfall and Pipeline Upgrades - Construction** **$ 23,000,000**

Order Code	**600854**	**Project Location**	Beaconhill
Project Category	Environmental	**Ward**	1
Type of Project	Lifecycle - Construction	**Municipal Function**	41 - Water Sup & Distribution

Project Description and Scope

The construction of this project should be deferred until slope stability issues are addressed. The design is complete.

This project includes water supply from Beaconhill to King Street and storm and sewer in the adjacent subdivision. These pipes were installed in 1975. In July 2011 a blockage in the Beacon Hill Sanitary Outfall caused an overflow into the storm system which is against Alberta Environment standards and guidelines. This project is intended to enhance the capacity and reliability of the existing south urban infrastructure system.

This project is being completed in two phases. Phase #1 was complete in 2015, which included the upgrade of the storm system, the construction of a new dry pond, and the upgrade of sanitary piping in the areas where the storm piping was upgraded. Phase #2 includes the upgrade of the watermain from the Beaconhill reservoir to the King Street Booster Station, and the sanitary piping in the areas where the new watermain will be installed.

Project Cash Flows

Year	Total Annual Cost	Federal Grant	Provincial Grant	Reserve	Other	Debenture
2018 & Prior	9,673,858			9,673,858		
2019	-					
2020	13,326,142			13,326,142		
2021	-					
2022	-					
Thereafter	-					
Total	**23,000,000**	**-**	**-**	**23,000,000**	**-**	**-**

Additional Funding Details

Project Sponsor Department	Environmental Services
Sponsor Department Director	Marc Fortais
Project Delivery Department	Engineering Services
Delivery Department Contact	Adel Youssef
Project Manager (if assigned)	Adel Youssef

REGIONAL MUNICIPALITY OF WOOD BUFFALO

Capital Budget Request - CONSTRUCTION

Project Name **Fort McMurray WWTP Process Improvements - Construction** **$ 13,000,000**

Order Code	**601316**	**Project Location**	Fort McMurray
Project Category	Environmental	**Ward**	1
Type of Project	Lifecycle - Acquisition and/or Installa	**Municipal Function**	37 - Storm Sew & Drainage

Project Description and Scope

The Fort McMurray Wastewater Treatment Facility (FMWWTF) Process Improvements project detail design commenced with the design of a filtration facility and other process improvements. The filtration component of the FMWWTF Process Improvements Project has been removed from the scope of design after a decision by the Municipality to not proceed with filtration. The decision was made after Alberta Environment and Parks issued an amendment to the EPEA Approval that did not change the current Total Suspended Solids (TSS) and total phosphorus (TP) limits. The other process improvements remained. This change was made after the 50% design was already completed.

The original Scope was mainly for the filtration system and the below eight process areas:
1) Grit System Upgrades – to reduce grit pumping system clogging and down time with manual cleaning.
2) Septage Monitoring Upgrades – to provide early warning system to profile truck waste delivered.
3) Utility Final Effluent (UFE) Pump Upgrades – to provide improved safety/access and efficiency to existing system.
4) Sampling and Instrumentation Upgrades – for improvements to sampling systems required for best practices, operational monitoring, and to minimize maintenance requirements.
5) Primary Sludge Grinder Installation – to reduce maintenance from frequent clogging.
6) Centrate Pipe Upgrades – to hydraulically debottleneck current system.
7) Chemical Feed Upgrades – to reduce maintenance on current system.
8) UV System Upgrades – to reduce maintenance on current system.

The revised and final scope is: Removed the filtration system (50% design completed) from the scope & add 9) Foul Air Optimization, to prevent ice formation issues and potential structural damage in the winter months, to the above eight process areas.

Project Cash Flows

Year	Total Annual Cost	Federal Grant	Provincial Grant	Reserve	Other	Debenture
2018 & Prior	7,000,000			7,000,000		
2019	6,000,000			6,000,000		
2020	-					
2021	-					
2022	-					
Thereafter	-					
Total	**13,000,000**	**-**	**-**	**13,000,000**	**-**	**-**

Additional Funding Details

Project Sponsor Department	Environmental Services
Sponsor Department Director	Marc Fortais
Project Delivery Department	Engineering Services
Delivery Department Contact	Matthew Hough
Project Manager (if assigned)	Adel Youssef

REGIONAL MUNICIPALITY OF WOOD BUFFALO

Capital Budget Request - CONSTRUCTION

Project Name **Fort Chipewyan Lift Station Upgrades - Construction** **$ 20,000,000**

Order Code	**New**	**Project Location**	Fort Chipewyan
Project Category	Environmental	**Ward**	2
Type of Project	Lifecycle - Construction	**Municipal Function**	42 - Sanitary Sew - Coll/Disposal

Project Description and Scope

Following a 2015 assessment, it was recommended to re-build the lift stations in Fort Chipewyan. There are three lift stations in the hamlet, each numbered 1, 2, and 3. Priority was established for replacement in the following order of lift station 2, 3, and then 1. These stations are showing detrimental conditions in their mechanical, structural, and electrical components.

Project Cash Flows

Year	Total Annual Cost	Federal Grant	Provincial Grant	Reserve	Other	Debenture
2018 & Prior	6,000,000			6,000,000		
2019	14,000,000			14,000,000		
2020	-					
2021	-					
2022	-					
Thereafter	-					
Total	**20,000,000**	**-**	**-**	**20,000,000**	**-**	**-**

Additional Funding Details

Project Sponsor Department	Environmental Services
Sponsor Department Director	Marc Fortais
Project Delivery Department	Engineering Services
Delivery Department Contact	Matthew Hough
Project Manager (if assigned)	Yogesh Acharya

REGIONAL MUNICIPALITY OF WOOD BUFFALO

Capital Budget Request - DESIGN & CONSTRUCTION

Project Name **Landfill Storm Pond 2 - Design Build** **$ 3,540,000**

Order Code	**New**	**Project Location**	Fort McMurray
Project Category	Environmental	**Ward**	1 - Fort McMurray
Type of Project	New Asset - Construction	**Municipal Function**	43 - Solid Waste - Coll/Disposal

Project Description and Scope

In 2013/14, the Municipality updated the surface water management plan for the regional landfill facility. The plan identified the need for two more storm ponds to meet surface water requirements for the landfill site as the landfill expands. This is a regulatory requirement. Failure to build additional storm ponds would put the landfill in regulatory non-compliance upon expansion of existing footprint.

Construction of the storm pond 2 and cell 5 adjacent to one another may facilitate some economy of scale by undertaking both projects under one contractor.

Project Cash Flows

Year	Total Annual Cost	Federal Grant	Provincial Grant	Reserve	Other	Debenture
2018 & Prior	-					
2019	-					-
2020	400,000			400,000		-
2021	-					-
2022	3,140,000			3,140,000		-
2023	-					-
Thereafter	-					-
Total Budget	**3,540,000**	**-**	**-**	**3,540,000**	**-**	**-**

Additional Funding Details

Business Case created by	Lyndon Payne
Project Sponsor Branch	Solid Waste Services
Project Sponsor Department	Public Works
Project Delivery Branch	Engineering
Project Delivery Department	Engineering Services

REGIONAL MUNICIPALITY OF WOOD BUFFALO

Capital Budget Request - DESIGN & CONSTRUCTION

Project Name **Fort McMurray WTP Filter 1-4 Efficiency Improvements** **$ 1,500,000**

Order Code	**New**	**Project Location**	Fort McMurray
Project Category	Environmental	**Ward**	1 - Fort McMurray
Type of Project	Lifecycle - Construction	**Municipal Function**	41 - Water Sup & Distribution

Project Description and Scope

Filters 1-4 are in need of a flowmeter upgrade for filter optimization. Filters 1 through 4 are currently filtered based on time intervals, which allows for consistent operation through less efficient operations.
By knowing accurately how much water passes through each filter, we can develop flow pacing processing, allowing all filters run at a similar rate during normal operations. As a filter fouls, flow can be diverted to other filters to maximize run times and reduce the number of backwashes (used to clean filters).

Backwashing uses treated drinking water to clean filters. Increasing the efficiency of backwash water use decreases chemical use, energy needs, and improves overall enviornmental performance.

Project Cash Flows

Year	Total Annual Cost	Federal Grant	Provincial Grant	Reserve	Other	Debenture
2018 & Prior	-					
2019	200,000			200,000		-
2020	1,300,000			1,300,000		-
2021	-					-
2022	-					-
2023	-					-
Thereafter	-					-
Total Budget	**1,500,000**	**-**	**-**	**1,500,000**	**-**	**-**

Additional Funding Details

Business Case created by	Steven Cross
Project Sponsor Branch	Water Treatment
Project Sponsor Department	Public Works
Project Delivery Branch	Engineering
Project Delivery Department	Engineering Services

REGIONAL MUNICIPALITY OF WOOD BUFFALO

Capital Budget Request - DESIGN & CONSTRUCTION

Project Name **FMM Landfill Closure Cells 1,2,3, Lateral Expansion and Old Landfill** **$ 6,500,000**

Order Code	**New**	**Project Location**	Fort McMurray
Project Category	Environmental	**Ward**	1 - Fort McMurray
Type of Project	New Asset - Construction	**Municipal Function**	43 - Solid Waste - Coll/Disposal

Project Description and Scope

The old landfill began operations in 1974 and was in service into 2010. From 2010 to 2016 the landfill went through the process of installing Bioreactor (compost the landfill internally) to capture the landfill gas and potentially mining out the old landfill to remove any remaining metals, plastics and tires. In 2016 before the system could get up and running, the system sustained substantial damage. Despite the loss of most of the above ground infrastructure, about 1650 of the 1800 wells are still operational. Landfill Cells 1,2,3 and Lateral Expansion should be completely filled sometime in 2019/2020. In October 2017, InnoTech Alberta completed a report to identify several closure options for the old and new landfill cells and to evaluate the technical and economic feasibility of landfill gas mitigation. The options included for repairing the bioreactor at the old landfill, Landfill gas capture and flaring and methane biofilter. To determine the appropriate method, further analysis of the old landfill is currently underway and should be complete by the end of October 2018. Analysis of the new landfill will be completed once the lateral expansion is at capacity. This request is for the closure of cells 1, 2, 3, lateral expansion, and old landfill which would include the following: Design/Completion of final cover, erosion control, surface water drainage, leachate collection, landfill gas monitoring and control systems, decommissioning and removal of structures, and preparation of the post closure plan.

Project Cash Flows

Year	Total Annual Cost	Federal Grant	Provincial Grant	Reserve	Other	Debenture
2018 & Prior	-					
2019	3,500,000			3,500,000		-
2020	3,000,000			3,000,000		-
2021	-					-
2022	-					-
2023	-					-
Thereafter	-					-
Total Budget	**6,500,000**	**-**	**-**	**6,500,000**	**-**	**-**

Additional Funding Details

Business Case created by	Lyndon Payne
Project Sponsor Branch	Solid Waste Services
Project Sponsor Department	Public Works
Project Delivery Branch	Solid Waste Services
Project Delivery Department	Public Works

REGIONAL MUNICIPALITY OF WOOD BUFFALO

Capital Budget Request - CONSTRUCTION

Project Name	**Recycle Chamber**	**$**	**75,000**

Order Code	**New**	**Project Location**	Fort McMurray
Project Category	Environmental	**Ward**	5 - Muni-Wide
Type of Project	New Asset - Construction	**Municipal Function**	41 - Water Sup & Distribution

Project Description and Scope

Piping changes, large pump installation, and a clean-out of the recycle chamber are required to complete the WTP upgrades started over 5 years ago. Work was scheduled to be completed in May 2016, but was cancelled due to the Wildfire.

Project Cash Flows

Year	Total Annual Cost	Federal Grant	Provincial Grant	Reserve	Other	Debenture
2017 & Prior	-					
2018	-					
2019	75,000			75,000		
2020	-					
2021	-					
2022	-					
Thereafter	-					
Total	**75,000**	**-**	**-**	**75,000**	**-**	**-**

Additional Funding Details

Project Sponsor Department	Environmental Services
Sponsor Department Director	Travis Kendel
Project Delivery Department	Environmental Services
Delivery Department Contact	Paul Curtis (Acting Manager)
Project Manager (if assigned)	

REGIONAL MUNICIPALITY OF WOOD BUFFALO

Capital Budget Request - DESIGN & CONSTRUCTION

Project Name **Fort McMurray WTP - Crossflow Clarifier Lifecycling** **$ 500,000**

Order Code	**New**	**Project Location**	Fort McMurray
Project Category	Environmental	**Ward**	1 - Fort McMurray
Type of Project	Lifecycle - Construction	**Municipal Function**	41 - Water Sup & Distribution

Project Description and Scope

The Fort McMurray water treatment plant at 1 Silin forest road was original built in 1987. Portions of the original plant are over 30 years old. The crossflow clarifier is in need of a detailed inspection and overhaul. Internal work to develop a detailed scope is underway, and will include structural assessments of clarifier supports/walls, repairs of damaged components and structural members, and lifecycling of equipment within or critical to the operation of the Clarifier. The original moving parts are past the intended lifespan and are due for replacement. Dangers without proceeding would be the loss of half of the treatment capacity. Major upgrades in 2012-2013 to the Fort McMurray Water Treatment Plant did not include the crossflow clarifier (this project) or filters 1 through 4 (which has been identified in another project).

Project Cash Flows

Year	Total Annual Cost	Federal Grant	Provincial Grant	Reserve	Other	Debenture
2018 & Prior	-					
2019	500,000			500,000		-
2020	-					-
2021	-					-
2022	-					-
2023	-					-
Thereafter	-					-
Total Budget	**500,000**	**-**	**-**	**500,000**	**-**	**-**

Additional Funding Details

Business Case created by	Steven Cross
Project Sponsor Branch	Water Treatment
Project Sponsor Department	Public Works
Project Delivery Branch	Engineering
Project Delivery Department	Engineering Services

REGIONAL MUNICIPALITY OF WOOD BUFFALO

Capital Budget Request - EQUIPMENT

Project Name **Overhead Crane Modifications 1A Lift Station** **$** **500,000**

Order Code	**New**	**Project Location**	Lower Townsite
Project Category	Environmental	**Ward**	1 - Fort McMurray
Type of Project	New Asset - Acquisition and/or Instal	**Municipal Function**	42 - Sanitary Sew - Coll/Disposal

Project Description and Scope

The 1A Lift Station is located downtown and is the largest lift station in Fort McMurray. All sewage from the downtown area and South Fort McMurray passes through the 1A Lift Station to reach the Wastewater Treatment Plant.
The 1A Lift Station is comprised of a wet side and a dry side, that each have chambers under the floor. Both the wet and dry side have a crane and monorail located on the main floor above a floor hatch, to remove equipment from the lower floor.
In 2011 the 1A Lift Station was upgraded and a Grinder was added to the wet side and two large sewage pumps were added to the dry side. However there is no hoist system in place on the lower floors to safely move equipment from their installed positions to below the hatch. The proposed capital project is to create two hoist systems, one for each side to allow for removal of equipment for maintenance.
Performing regular maintenance on equipment is compulsory to ensure continual operation of the 1A Lift Station.
Based on the current system a contractor with specialized lifting equipment would need to be hired for removal of the equipment. This could take weeks and leave the lift station without crucial equipment. If both pumps failed, then the lift station would not be able to keep up with high flow demands resulting in sewer backups across the entire lower townsite.

Project Cash Flows

Year	Total Annual Cost	Federal Grant	Provincial Grant	Reserve	Other
2018 & Prior	-				
2019	500,000			500,000	
2020	-				
2021	-				
2022	-				
2023	-				
Thereafter	-				
Total Budget	**500,000**	**-**	**-**	**500,000**	**-**

Additional Funding Details

Business Case Created By	Debbie Wier
Project Sponsor Branch	Wastewater Treatment
Project Sponsor Department	Public Works
Project Delivery Branch	Engineering
Project Delivery Department	Engineering Services