Environmental Utilities

2018-2027 Capital Improvement Program
**Curbside Recycling - Collection and Materials Recovery Facility**

**Description**
This project will support the implementation of Lethbridge’s curbside recycling program, approved by City Council in November of 2016. It includes the purchase of two addition garbage trucks, the extension of the Waste and Recycling Services vehicle storage building, and the purchase and delivery of new recycling carts for residents.

Recyclable materials will need to be processed in a Materials Recovery Facility (MRF - $12 million). Waste and Recycling Services will undertake the siting, design and construction for the project in 2017 and 2018. The facility is expected to be operational in 2019.

**Total Cost (2018-2019):** $16.3 million

**Incremental increase to utility bill:** $7/month
Landfill Gas and Leachate Management System

Description
This project would help develop a management system for the two major by-products of waste decomposition at the Waste and Recycling Centre - liquid and gas. The liquid is primarily water which leaches elements from the decomposing waste and is referred to as leachate. The gas is primarily carbon dioxide and methane, greenhouse gases which contribute to climate change.

The Waste and Recycling Master Plan provides initial concept plans for the landfill gas and leachate management systems. These concept plans now require further refinement prior to construction.

Total Cost (2018-2025): $6.3 million
Net increase to Operating Cost: $180,000/year
Macleod Westward Storm Outfall

Description
This project includes a new storm outfall draining to the Oldman River proceeding west in the vicinity of the extension of Macleod Drive West.

As growth in west Lethbridge proceeds, the land begins to slope towards the west. A storm water outfall will be required to drain the area west of the drainage divide and south of Whoop-Up Drive. Several future outfalls have been identified that will allow growth to proceed. Growth projections indicate that a new outfall draining the south west portion of west Lethbridge will be required by approximately 2026.

Total Cost (2026): $3.35 million

Net increase to Operating Cost: $0
Utility Extension Macleod Dr (Mount Burk to Metis Tr)

Description
This project extends underground utilities along Macleod Drive from Mount Burke Blvd to Metis Trail servicing growth in the community of Watermark. This includes water, sanitary sewer and storm sewer service.

Growth projections indicate that utility extensions will be required by this time.

Total Cost (2027): $1.75 million
Net increase to Operating Cost: $0
Utility Extension Whoop-Up (Mauretania Road to 30 Street)

Description
This project will extend utility services west on Whoop-Up Drive to 30 Street, allowing for ongoing development in the Crossings/Piers and Copperwood neighbourhoods west of 30 Street. The project will need to occur in advance of the full urbanization of Whoop-Up Drive past 30 Street and the construction of the neighbourhood entrances at 30 Street.

Total Cost (2026): $2.4 million
Net increase to Operating Cost: $0
Waste and Recycling Centre Disposal Cell Development and Closure

Description
This program provides a mechanism for ongoing development and closure of Class II mixed solid waste (MSW) disposal cells and industrial contaminated soil (ICS) disposal cells at the City’s Waste and Recycling Centre.

The program includes conceptual design, detailed design, tender/specifications, construction management and commissioning of waste disposal cells. These cells will be constructed as described in the Alberta Environment and Parks Approval to Operate and the Standards for Landfills in Alberta.

Total Cost (2018-2021): $11.6 million
Net increase to Operating Costs: $0
Waste and Recycling Centre Site Enhancements

Description
This project includes:
• Landscaping of public drop-off, scale house, entrance, construction drop-off, educational centre and perimeter areas of the expanding Waste and Recycling Centre (screening berms).
• Water transfer system consisting of a network of underground pipes, vaults and pumps.
• Automated irrigation system that meets City of Lethbridge irrigation standards.
• Development of an education centre to provide a permanent space for exhibits, a classroom, meeting space, offices, a kitchen and washroom facilities

Total Cost (2018): $3 million
Net increase to Operating Cost: $0
Waste Processing Facility Upgrade

Description
This project includes detailed design and construction of a waste processing facility with increased storage capacity.

This upgrade will include increasing the building size and enhancing the tipping floor. This will ensure the facility has the capacity needed to store waste during extended periods of high wind.

Total Cost (2019): $3.1 million

Net increase to Operating Costs: $0
Wastewater Lift Station Rehabilitation

Description
This project will make the following improvements to some of the City's older lift stations:

- 39 St N standby generator
- 26 Ave N switchgear replacement
- Lakeview, 39 St N and 26 Ave replacement of pumps and motors with more efficient models, sized based on actual flows

Total Cost (2019): $1 million

Net increase to Operating Cost: $0
Wastewater Treatment Plant
Bioreactor Aeration Blowers Upgrade

Description
Three 1,500 HP blowers supply air to the plant's five bioreactors. Replacement of the three existing blowers with smaller blowers will reduce the amount of electricity used. This project will also include modifications to the existing aeration piping to allow individual zone control and greater operational efficiency.

Total Cost (2022-2024): $3 million

Net increase to Operating Cost: $0
Wastewater Treatment Plant Biosolids Treatment Upgrades

Description
This project will implement additional biosolids dewatering equipment and upgrade the existing biosolids digester process control.

The two existing wastewater treatment plant digesters were constructed in 1987. A third digester was previously believed to be required to allow periodic maintenance. Implementation of new technology will allow more efficient use of the existing digester capacity and postpone the need for a third digester.

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<th>Total Cost (2018-2019):</th>
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Wastewater Treatment Plant Headworks and Clarifier Upgrade

Description
This project will implement wastewater treatment plant improvements as recommended in a 2003 Wastewater Treatment Plant Asset Condition Assessment. Improvements to the headworks facilities include: new grit removal system and screens, improvements to influent channels and a new receiving station.

Improvements to the primary and secondary clarifiers consist of replacement of components that are operating past their useful service life.

Total Cost (2018): $11.4 million
Net increase to Operating Cost: $0
Wastewater Treatment Plant
Phosphorous Recovery

**Description**
As part of the Biological Nutrient Removal (BNR) process, phosphorous is removed from wastewater and captured in biosolids. Over time, the suspended phosphorous can create a byproduct called struvite, a crystal structure that builds on pipes, tanks and pumps. This project will implement equipment to remove the phosphorous and thus protect existing equipment from blockage and service interruption.

**Total Cost (2020-2021):** $6 million

**Net increase to Operating Cost:** $0
Wastewater Treatment Plant
Primary Clarifier Replacement

Description
This project will construct three new primary clarifiers to replace the four existing primary clarifiers. The existing clarifiers, which range in age from 56 to 37 years, have deteriorated to the point that rehabilitation and refurbishment are no longer practical.

In addition, a new sludge pumping facility and new channels in and out of the clarifiers will be constructed.

Total Cost (2018-2025): $13.8 million

Net increase to Operating Cost: $0
Wastewater Treatment Plant UV Disinfection Upgrades

Description
This project will upgrade the Ultra Violet (UV) equipment at the Waste Water Treatment Plant with modern technology to improve equipment performance, reliability, and power efficiency.

The UV Disinfection System was installed in 1998. The equipment requires frequent maintenance and is approaching the end of its useful life. Replacement parts and components are becoming difficult to source.

Total Cost (2022-2023): $3 million

Net increase to Operating Cost: $0
## Water Reservoir Upgrades

**Description**
This project consists of lifecycle replacement and upgrading of aging mechanical and electrical equipment at the Uplands, Northeast and Mayor Magrath Drive Reservoirs.

It also includes additional water storage capacity at the Northeast Reservoir and pump station equipment upgrades.

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<thead>
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<th><strong>Total Cost (2018-2021):</strong></th>
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Water Treatment Plant Instrumentation Upgrade

**Description**
This project consists of the replacement of existing analytical instrumentation with up-to-date technology.

The Water Treatment Plant was constructed in the mid 1980's. The existing instrumentation is outdated and replacement parts and equipment are difficult to obtain.

**Total Cost (2018-2019):** $1.5 million

**Net increase to Operating Cost:** $0
Water Treatment Plant Residuals Management

Description
Excess sludge from the clarifiers, screen backwash, filter backwash water, and filter to waste are presently discharged directly to the Oldman River. These waste streams can impact river water quality.

The requirement to upgrade the plant to address this impact is regulated in the treatment plant’s 2010 Alberta Environment Approval.

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Water Treatment Plant Process
Redundancy

Description
The Water Treatment Plant (Plant No. 3 constructed in 1982) has two clarifiers. Each of these clarifiers must be taken out of service annually for maintenance. Additionally, the existing plant cannot meet daily demand in summer with one unit out of service.

This project will provide additional clarification capacity and the required level of treatment process redundancy.

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<th>Total Cost (2018-2021):</th>
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Watermain Loop Métis Trail
(Coalbanks Link to Temple Blvd)

Description
This project will create a water main loop along Metis Trail from Coalbanks Link to Temple Blvd. This will mean improved reliability and pressure in the system in the neighbourhoods adjacent to the project.

Total Cost (2018): $250,000

Net increase to Operating Cost: $ 0
West Siphon Screen Relocation

Description
The existing siphon is presently operating at full capacity. Relocation of the screen chamber to a higher elevation will increase the capacity of the siphon without having to install additional pipelines across the river. The increased capacity will allow for continued growth in southern areas of west Lethbridge.

Total Cost (2019-2020): $1.7 million

Net increase to operating cost: $0