

Minutes – Standing Policy Committee on Finance – March 16, 2020

REPORTS

**Item No. 4 North End Sewage Treatment Plant (NEWPCC) Upgrade Projects,
Project ID: 2031001304, 2031001310 and 203110013B,
Quarterly Project Status Report No. 20 For the Period Ended
October 31, 2019**

STANDING COMMITTEE DECISION:

The Standing Policy Committee on Finance concurred in the recommendation of the Winnipeg Public Service and received as information the financial status of the North End Sewage Treatment Plant (NEWPCC) Upgrade Projects, as contained in this report.

Minutes – Standing Policy Committee on Finance – March 16, 2020

DECISION MAKING HISTORY:

Moved by Councillor Santos,

That the recommendation of the Winnipeg Public Service be concurred in.

Carried

ADMINISTRATIVE REPORT

**Title: North End Sewage Treatment Plant (NEWPCC) Upgrade Projects,
Project ID: 2031001304, 2031001310 and 203110013B,
Quarterly Project Status Report No. 20
For the Period Ended October 31, 2019**

Critical Path: Standing Policy Committee on Finance

AUTHORIZATION

Author	Department Head	CFO	CAO
G.K. Patton, P. Eng., Manager of Engineering Services	M. L. Geer, CPA, CA, Director, Water and Waste Department	P. Olafson, Interim CFO	M. Ruta, Interim CAO

EXECUTIVE SUMMARY

Project On Schedule: Yes No

Project On Adopted Budget: Yes No

Percent of Schedule Complete:

Percent of Adopted Budget Spent:

Council has approved the submission of the Headworks and Biosolids Facilities projects for Federal and Provincial funding under the Investing in Canada Infrastructure Program. The Public Service has submitted the application with additional information being requested at this time.

The Request for Qualification for the design build of the Headworks Facility has closed and the submissions are under review.

The construction of the new Power Supply Facility and the relocation of an existing communications tower at NEWPCC are ongoing

The Advisory Committee has reviewed this report and recommends that the report be sent to the Standing Policy Committee on Finance.

RECOMMENDATIONS

That the financial status of the North End Sewage Treatment Plant (NEWPCC) Upgrade Projects, as contained in this report, be received as information.

REASON FOR THE REPORT

The Asset Management Administrative Standard FM-004 requires all projects with a total estimated cost of \$23 million (2019) or more report quarterly to the Standing Policy Committee on Finance. This threshold is adjusted annually for construction inflation as part of the annual Capital Budget approval. The Standing Policy Committee on Finance may also request reporting on any capital project.

IMPLICATIONS OF THE RECOMMENDATIONS

No implications.

HISTORY/DISCUSSION

See Appendix C – Key Project Events (History)

(Update from last report)

NEWPCC Upgrade: Power Supply and Headworks Facilities

Power Supply Facility

This part of the project is in the Design Build execution phase.

- **RFP 40-2014:** KGS Group's (Owner's Advocate) Phase 2 work, for professional engineering services during construction continues under a Supplemental Agreement to RFP 40-2014.
- **RFP 599-2015B:** A design build contract was executed on April 16, 2018 with Black & McDonald Ltd. Black & McDonald Ltd. has completed 98% of the design. Excavation and piling for the new electrical building have been completed. The new switchgear and transformers for the Secondary clarifier building have been installed and commissioned. Factory acceptance testing for the 5 MVA transformers has been completed.
- **RFP 42-2018:** A construction agreement was executed on July 11, 2018 with Manitoba Hydro. Manitoba Hydro removed the existing NEWPCC substation and completed the soil remediation in Q3 2019. The design for the final arrangement is nearing completion. Construction of Manitoba Hydro's permanent power lines is anticipated in Q4 2019.

Headworks Facilities

This part of the project is in the Procurement Stage.

- **RFP 182-2015:** AECOM continues to work on Request for Proposal documents and technical requirements for the NEWPCC Upgrade: Headworks Facilities Project.

- **RFP 9-2017:** P1 Consulting (fairness advisor) continues to be involved in the RFQ process for the of the design build of the NEWPCC Upgrade: Headworks Facilities Project.
- **RFP 102-2017:** Blakes Cassels & Graydon (Legal advisor) continues to be involved in reviewing procurement documents and design build agreement for the project.
- **Bid Opportunity 586-2018:** NEWPCC - Upgrade Site Preparation Works has reached substantial performance.
- **RFQ 659-2018A:** The Request for Qualifications (RFQ) for the design build of the NEWPCC Upgrade: Headworks Facilities Project has closed and shortlisting of proponents is in progress.
- **WWD File # S-1146:** AECOM was awarded a sole source professional consulting services contract in the amount of \$30,118.00 to review potential interim phosphorus removal options for the City of Winnipeg. The work is complete and a report was discussed with the Standing Policy on Water and Waste, Riverbank Management and the Environment on September 5, 2019.
- **RFP 249-2019:** On May 10, 2019 the Request for Proposal for Validation of Cost Estimate Classifications for NEWPCC Upgrade Project was awarded to Turner & Townsend. This was based on Council decision that the City Auditor proceed with a capital project estimate audit of the Class 3 Estimate for the three NEWPCC Upgrade projects and that any additional resources required by the Audit Department to complete the audit in a timely manner be allocated from the North End Sewage Treatment Plant Biological Nutrient Removal Upgrade project budget. Reports on the audit of the first two projects of the NEWPCC Upgrade (Power Supply & Headworks Facilities and Biosolids Facilities) have been completed and were presented to Council September 26, 2019.
- **Bid Opportunity 68-2019:** The work associated with relocating the communication tower from Parcel A to Parcel B of NEWPCC site is ongoing. An over-expenditure in the amount of \$133,715 was required for additional foundation works at the new site due to poor soil conditions, additional tower steel to satisfy new CSA safety code, and shipping and offloading of the pre-fabricated tower.

Table 1 – Contracts

NEWPCC Upgrade: Power Supply and Headworks Facilities							
Contracts Table							
Bid Opportunity #	Company Name	Description	Original Contract Award Value (GST & MRST extra as applicable)	Total Approved Over-Expenditures (Over-Expenditure amount only)	Date of Award	Date of Completion	Estimated % Complete
Power Supply Facility							
40-2014 (Phase 1)	KGS Group Inc	Professional Engineering Consulting Services for the NEWPCC Power Supply Upgrade – Phase 1	\$ 1,180,110	\$ 94,602	7-Nov-2014	29-Jun-2018	100
40-2014 (Phase 2)	KGS Group Inc	Professional Engineering Consulting Services for the NEWPCC Power Supply Upgrade – Phase 2	\$ 1,376,613	\$ -	3-May-2018	-	35
10-2015	Knowles Consultancy Services Inc	Fairness Advisor for the NEWPCC Power Supply Upgrade Project	\$ 37,620	\$ 44,260	8-May-2015	5-Mar-2019	100
599-2015 A ¹	Pre-qualified parties are Black & McDonald Limited Wescan Electrical Mechanical Services	Request for Qualifications for Design Build of the City of Winnipeg's North End Sewage Treatment Plant Power Supply Upgrade Project	N/A	N/A	N/A	-	100
599-2015 B ²	Black & McDonald Limited	Request for Proposal for Design Build of the City of Winnipeg's North End Sewage Treatment Plant Power Supply Upgrade Project	\$ 34,961,209	\$ 43,389	16-Apr-2018	-	35
816-2015	Hanscomb Limited	Cost Consultant for the NEWPCC Power Supply Upgrade Project	\$ 45,040	\$ -	16-Dec-2015	2-Aug-17	100
773-2016	MB Hydro	Professional Consulting Services For Load Interconnection Facilities Study For The North End Sewage Treatment Plant (NEWPCC)	\$ 88,299	\$ -	7-Nov-2016	10-Jan-18	100
136-2017	Blakes Cassels & Graydon LLP	External Legal Counsel - NEWPCC Power Supply Project	\$ 95,575	\$ -	14-Dec-2016	-	90
42-2018	MB Hydro	Manitoba Hydro Works Associated with the North End Sewage Treatment Plant (NEWPCC) Biological Nutrient Removal Upgrade Project	\$ 2,531,527	\$ 249,556	29-Mar-2018	-	50
Headworks Facilities							
506-2014	Ostara Nutrient Recovery Technologies Inc	Supply and Delivery of a Struvite Recovery System	TBD	\$ -	23-Jul-2015	-	-
182-2015	AECOM Canada Ltd	Professional Engineering Consulting Services for the North End Sewage Treatment Plant (NEWPCC) Upgrade – Phase 1	\$ 16,015,439	\$ 354,746	6-Jan-2016	-	80
866-2016	Cambi Inc.	Pre-Selection and Design Services for Thermal Hydrolysis Process System for the North End Sewage Treatment Plant	\$ 75,000	\$ -	15-Jun-2017	-	100
9-2017	P1 Consulting Inc	Request for Proposal for a Fairness Advisor for the North End Sewage Treatment Plant Upgrade Project	\$ 82,880	\$ -	2-May-2017	-	30
102-2017	Blakes Cassels & Graydon LLP	External Legal Counsel - NEWPCC Upgrade Project	\$ 358,800	\$ -	23-Nov-2017	-	30
225-2018	Hanscomb Limited	Professional Cost Consulting Services contract for the NEWPCC Upgrade Project	\$ 98,800	\$ -	27-Apr-2018	20-Jul-2018	100
586-2018	Chabot Enterprises Ltd	NEWPCC - Upgrade Site Preparation Works	\$ 1,395,578	\$ -	15-Aug-2018	-	95
S-1192	AECOM Canada Ltd	Professional Consulting Services for City of Winnipeg Interim Phosphorus Removal Options Evaluation	\$ 30,118	\$ -	17-Dec-2018	-	100
68-2019	Westower Communications Ltd	Installation of a 120 Meter Guyed Radio Tower & Design & Installation of Associated Site Works	\$ 401,762	\$ 133,715	22-May-2019	-	27
249-2019	Turner & Townsend	Validation of Cost Estimate Classifications for NEWPCC Upgrade Project	\$ 253,852	\$ -	10-May-2019	-	67
502-2019	Dillon Consulting Ltd	Professional Consulting Services for Development of the Consultant Portions of a Design Build Template	\$ 72,193	\$ -	13-May-2019	-	75
Total			\$ 59,100,415	\$ 920,268			

¹This is the first stage of two stage process and the contract value will be determined in the second stage

²The Original Contract Award Value includes MRST.

Upcoming Procurements:

Description	Anticipated Award Date
Request for Qualifications for NEWPCC Upgrade : Headworks Facilities	Nov-2019

NEWPCC Upgrade: Biosolids Facilities
Contracts Table - Not applicable at this time

NEWPCC Upgrade: Nutrient Removal Facilities
Contracts Table - Not applicable at this time

Schedule (Update from last report)

N/A

Table 2 – Milestones

Milestones					
Deliverable		Original Targeted Completion Date	Revised Targeted Completion Date	Actual Completion Date	Estimated % Complete
NEWPCC Power Supply Upgrade					
1	Project Definition Report ¹	2015 Q3	2015 Q4	2015 Q4	100
2	Preliminary Design Report	2016 Q1	2016 Q4	2017 Q1	100
3	Cost Report ²	2017 Q1	2017 Q2	2017 Q3	100
4	Design Build RFP	2016 Q2	2017 Q1	2017 Q1	100
5	Design Builder Contract Award	2017 Q2	2018 Q2	2018 Q2	100
6	Design Build Substantial Performance	2020 Q2	-	-	-
7	Design Build Total Performance	2020 Q4	-	-	-
NEWPCC Upgrade: Headworks Facilities Project					
1	Project Definition Report ¹	2017 Q2	2017 Q2	2017 Q2	100
2	Preliminary Design Report	2018 Q1	2018 Q3	2018 Q3	100
3	Cost Report ²	2018 Q3	2018 Q3	2018 Q3	100
4	Design Build RFP	2020 Q1	-	-	60
5	Design Builder Contract Award	2020 Q4	-	-	-
6	Design Build Substantial Performance	2025 Q4	-	-	-
7	Design Build Total Performance	2026 Q4	-	-	-
NEWPCC Upgrade: Biosolids Facilities Project					
Project not Initiated - Dependent on Funding					
NEWPCC Upgrade: Nutrient Removal Facilities Project					
Project not Initiated - Dependent on Funding					

¹ Owner's Advocate Class 5 Estimate

² Cost Consultant Class 3 Estimate

Risk (Update from last report)

N/A

Table 3 – Significant Risks and Mitigations Strategies

NEWPCC Upgrade: Power Supply and Headworks Facilities Project	
Significant Risks and Mitigation Strategies	
Power Supply Facility	
Risk Statement and Explanation	Risk Mitigation Management Plan
<u>New:</u>	
None	
<u>Ongoing:</u>	
Safety issues could occur as a result of coring through concrete wall / floor / ceiling during equipment installation. Utilities at NEWPCC are not always marked in drawings.	Design Builder is responsible for site safety. The Design Builder will scan the concrete infrastructure prior to coring.
Safety issues could occur as a result of increased traffic on the NEWPCC site.	The Design Builder has plans in place to address construction traffic. Construction traffic is largely limited to a separate entrance to the plant.
Manitoba Hydro may not have the required power available within the required timeframe.	Ongoing close coordination with Manitoba Hydro and will obtain commitments from Manitoba Hydro based upon a firm schedule.
As part of construction activities, the power in an area believed to be de-energized could be energized resulting in a potential shock or arc flash and associated injury and equipment damage.	The Design Builder developed and implemented a Health and Safety Plan, Construction Phasing Plan and Interface Plan. The DB maintains close coordination with City personnel.
<u>Mitigated:</u>	
There may be unknown geotechnical conditions that impact the project schedule and cost.	A preliminary geotech study was performed by the Owners Advocate. Part of the risk was transferred to the DB and the remainder was retained by the City. Most of the subsurface work is underway.
Old electrical equipment and building parts may contain asbestos.	The Design Builder's Project Safety Plan includes management of asbestos.
The Design Builder is not familiar with the existing equipment labelling, some of which may be confusing due to historical issues and thus there is a possibility of incorrect switching or electrical lock-out resulting in a potential shock or arc flash and associated injury and equipment damage.	City to carry out electrical switching of all equipment outside of the Design Builder's scope of work. Design Builder to prepare detailed plans of all switching events.
<u>Closed:</u>	
The existing substation is owned by Manitoba Hydro and it's environmental condition is unknown. Substation environmental issues may be identified through the course of the project resulting in project delays and additional costs.	Manitoba Hydro removed the existing NEWPCC substation and completed the soil remediation for the site.
There will be a period during construction when only a single power line will be active. In the event of a construction induced failure of that single line there could be a complete loss of power to the site along with the associated process consequences.	The construction period in time where there was no Manitoba Hydro electrical redundancy is now complete.

NEWPCC Upgrade: Power Supply and Headworks Facilities Project	
Significant Risks and Mitigation Strategies	
Headworks Facilities	
Risk Statement and Explanation	Risk Mitigation Management Plan
New:	
None	
Ongoing:	
There may be unknown conditions that may be associated with reusing existing facilities.	The DB agreement to include mechanism to deal with unforeseen conditions of existing facilities. Proponents will also be provided access to the site for due diligence and examination.
Unknown existing conditions related to geotechnical, environmental and hazardous material may be encountered during construction causing schedule delays and additional costs.	Geotechnical investigations and environmental impact assessments are being carried out prior to construction to minimize unknowns. It is also anticipated that contracting with a single entity responsible for construction risks would minimize impact.
Mitigated:	
Assumptions made on the grit quantities in the sludge may not be appropriate resulting in damage to grit sensitive equipment and under sizing of sludge facilities.	The grit characterization study of the raw sewage was carried out. This report will be included as a background document in the Design Build agreement for the prequalified proponents.
Closed:	
The Project may be affected due to project costs now estimated to be \$1.8 billion.	A Class 3 cost estimate was carried out after preliminary design to validate the budget. An independent cost consultant was also retained to provide a Class 3 estimate.
No existing legislation on odour release threshold causing potential impact and complaints from neighbors resulting in post - construction renovations or changes in operation at additional cost.	A field study with dispersion modelling has been carried out. Since this risk is mainly applicable to the NEWPCC Upgrade: Nutrient Removal Project it will be identified at the start of that project.

Financial (Update from last report)

An over-expenditure in the amount of \$133,715 for RFP 68-2019 related to geotechnical conditions and additional steel was required as indicated in Table 1.

For further information, refer to Appendix B – Financial Forecast

Funding (Update from last report)

On September 26, 2019, Council approved the recommendation that the capital budget sheet for the Biosolids Facilities project be approved subject to final written confirmation of federal and provincial funding satisfactory to the Chief Financial Officer, and that the 2019 Capital Budget be amended to reflect the same.

Table 4 – Project Funding Forecast

Funding Forecast				
Funding Source	Adopted Budget (in millions)	Amended Budget¹ (in millions)	Committed (in millions)	Conditional Budget² (in millions)
Class of Estimate	Class 5	Class 3	Class 3	Class 3
North End Sewage Treatment Plant (NEWPCC) Biological Nutrient Removal Upgrade Project				
City of Winnipeg Total	795.59			
Retained Earnings	87.64			
External Debt	690.29			
Environmental Projects Reserve	17.66			
NEWPCC Upgrade: Power Supply and Headworks Facilities				
Project 1 Total		408.38	408.38	408.38
Retained Earnings		87.64	87.64	87.64
External Debt		303.08	303.08	82.40
Environmental Projects Reserve		17.66	17.66	17.66
Province Government				120.37
Federal Government				100.30
NEWPCC Upgrade: Biosolids Facility				
Project 2 Total				552.71
External Debt				184.46
Province Government				200.87
Federal Government				167.38
Total	795.59	408.38	408.38	961.09

¹ On February 28, 2019 Council approved the existing project be amended to consist of three projects. Project one being Power Supply and Headworks Facilities only. With projects two and three pending Council approval.

² On September 26, 2019 Council approved Project 2 Biosolids Facilities conditional upon Federal/Provincial funding. Council also directed to submit the Headworks Facilities and the Biosolids Facilities projects for Federal and Provincial contribution funding under the Investing in Canada Infrastructure Program. This contribution funding could result in combined Federal and Provincial contribution funding of \$220 million for the Headworks Facilities project and \$368 million for the Biosolids Facilities project.
Project 3 - NEWPCC Upgrade: Nutrient Removal Facilities - \$828 million is, pending Council approval.

Property Acquisition (Update from last report)

N/A

Stakeholder Engagements/Communications (Update from last report)

N/A

Subsequent Events after Report Period End Date

Two proponents, Red River Solutions joint venture and Graham/PCL joint venture were

shortlisted on November 12, 2019 as the prequalified proponents for RFQ 659-2018A Design Build of the City of Winnipeg's NEWPCC Upgrade: Headworks Facilities Project.

On December 5, 2019, a response was received from Manitoba Conservation and Climate, Environmental Approvals Branch with regards to the Notice of Alteration (NOA) for NEWPCC submitted July 30, 2019. The response indicated that the NOA was not approved and that the City will be out of compliance with the Environmental Act Licence 2684 RRR and with the phosphorus compliance plan pursuant to the Water Protection Act on January 1, 2020. In the absence of an approved phosphorus compliance plan, the City is required to participate in two project committees namely; the Project Steering Committee and Project Advisory Committee.

The Project Steering Committee is tasked with:

- preparing an interim phosphorus reduction plan by January 31, 2020 for implementation beginning of February 1, 2020.
- preparing an implementation Plan with timelines by January 31, 2020 for the complete upgrade of the NEWPCC to meet Licence conditions.
- submitting monthly progress reports to the project advisory committee until the commissioning of the completed the facility.

The overall Project Advisory Committee is tasked with providing ongoing advice on the progress of nutrient reductions at NEWPCC.

FINANCIAL IMPACT

Financial Impact Statement

Date: **January 30, 2020**

Project Name:

North End Sewage Treatment Plant (NEWPCC) Upgrade Projects

Project ID: 2031001304, 2031001310 and 203110013B,

Quarterly Project Status Report No. 20

For the Period Ended October 31, 2019

COMMENTS:

Financial forecast for the NEWPCC Upgrade Projects can be found in Appendix B.

"Original signed by L. Szkwerek, CPA, CGA"

Lucy Szkwerek, CPA, CGA

Manager of Finance and Administration

CONSULTATION

This Report has been prepared in consultation with:

N/A

OURWINNIPEG POLICY ALIGNMENT

01-3 Prosperity Direction 1: Provide efficient and focused civic administration and governance. This report supports demonstration of accountability through service performance measurement and reporting.

02-2 Environment: The NEWPCC Upgrade Projects will reduce the environmental impact of our citizens on the Red River and the downstream lakes and rivers. They are in collaboration with the Regulatory Licence requirements issued by the Province of Manitoba.

WINNIPEG CLIMATE ACTION PLAN ALIGNMENT

N/A

SUBMITTED BY

Department: Water and Waste
Division: Engineering Services
Prepared by: R. Y. Adedapo, M.A.Sc., PMP, P. Eng., Senior Project Engineer
Date: February 5, 2020
File No. S-972

Appendices

Appendix A – Key Project Facts
Appendix B – Financial Forecast
Appendix C – Key Project Events (History)
Appendix D – Funding

Appendix A – Key Project Facts

Project Name	NEWPCC Upgrade: Power Supply & Headworks Facilities Project
Business Owner (Department)	Water and Waste Department
Project ID	2031001304 , 2031001310 and 203110013B
Project Sponsor	Director of Water and Waste
Department Responsible for Project Delivery	Water and Waste Department
Consultant Engineer (Company Name)	KGS Group Consulting Engineers and AECOM Canada Ltd.
Adopted Budget	\$795.95 million
Class of Estimate (Adopted)	Class 5
Range of Estimate (Adopted)	-50% to +100% \$397.80 million to \$1,591.18 million.
Amended Budget	\$408.38 million
Class of Estimate (Amended)	Class 3
Range of Estimate (Amended)	-20% to +30% \$326.70 million to \$ 530.89 million
<u>Project Scope</u>	
<p>The scope is to upgrade the North End Sewage Treatment Plant (NEWPCC) for expected 2037 flows and to meet new effluent limits for nitrogen and phosphorous. The upgrade will add wet weather treatment capability, a new facility to treat the sludge from all three sewage treatment plants and replace end-of-life equipment.</p>	
Major Capital Projects Advisory Committee Membership:	
<ul style="list-style-type: none"> - Moira Geer, Director of Water and Waste Department (Chair) - Doug McNeil, Chief Administrative Officer - Dave Wardrop, Chief Transportation and Utilities Officer - Georges Chartier, Chief Asset and Project Management Officer - Lucy Szkwarek, Manager of Finance and Administration, Water and Waste - Jackie Veilleux, Project Director, Winnipeg Sewage Treatment Program, Water and Waste 	

Project Name	NEWPCC Upgrade: Biosolds Facilities Project
Business Owner (Department)	Water and Waste Department
Project ID	TBD
Project Sponsor	Director of Water and Waste
Department Responsible for Project Delivery	Water and Waste Department
Consultant Engineer (Company Name)	TBD
Adopted Budget	On September 26, 2019 Council approved a budget of \$552.71 million conditional on government funding
Class of Estimate (Adopted)	
Range of Estimate (Adopted)	
Amended Budget	
Class of Estimate (Amended)	
Range of Estimate (Amended)	
<u>Project Scope</u>	
The Biosolds Facilities project will address end of life equipment and regulatory requirements regarding the recovery of nutrients and maximize biosolids reuse. It will add new facilities to treat the sludge from City of Winnipeg's three sewage treatment plants and replace end-of-life equipment.	
Major Capital Projects Advisory Committee Membership:	
TBD	

Project Name	NEWPCC Upgrade: Nutrient Removal Facilities Project
Business Owner (Department)	Water and Waste Department
Project ID	TBD
Project Sponsor	Director of Water and Waste
Department Responsible for Project Delivery	Water and Waste Department
Consultant Engineer (Company Name)	TBD
Adopted Budget	Funding Dependent
Class of Estimate (Adopted)	
Range of Estimate (Adopted)	
Amended Budget	
Class of Estimate (Amended)	
Range of Estimate (Amended)	
<u>Project Scope</u>	
The Nutrient Removal Facilities project will address end of life equipment and regulatory requirements regarding the new effluent limits for nitrogen and phosphorous. It will add mostly all new facilities including new wet weather treatment capability; and replace end-of-life equipment.	
Major Capital Projects Advisory Committee Membership:	
TBD	

Appendix B – Financial Forecast

Appendix B - North End Sewage Treatment Plant (NEWPCC) Upgrade Projects Financial Forecast*
As at October 31, 2019

Project Component Deliverables	Budget (in 000's)			Actual Costs To October 31, 2019	Expenditure Forecast (in 000's)					Total Forecasted Costs	Surplus (Deficit) From Amended Budget	Variance Last Report	Change in Variance
	Adopted Budget	Council Approved Change	Amended Budget		Projected Costs								
					2019	2020	2021	2022	2023 and Beyond				
Power Supply & Headworks Facilities Project¹													
Engineering, Design and Other	\$ 57,196	\$ (8,503)	\$ 48,693	\$ 19,996	\$ 1,381	\$ 5,366	\$ 3,473	\$ 2,633	\$ 16,592	\$ 49,441	\$ (748)	\$ (748)	\$ -
Construction	\$ 621,011	\$ (352,645)	\$ 268,366	\$ 3,937	\$ 2,325	\$ 34,128	\$ 12,000	\$ 35,000	\$ 181,403	\$ 268,793	\$ (427)	\$ (293)	\$ (134)
Land Acquisition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Internal Financing/Overhead Costs	\$ -	\$ 15,969	\$ 15,969	\$ 1,417	\$ 8	\$ 1,474	\$ 2,419	\$ 2,000	\$ 8,651	\$ 15,969	\$ -	\$ -	\$ -
Contingency	\$ 117,383	\$ (42,031)	\$ 75,352	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 74,177	\$ 74,177	\$ 1,175	\$ 1,041	\$ 134
Subtotal	\$ 795,590	\$ (387,210)	\$ 408,380	\$ 25,350	\$ 3,714	\$ 40,968	\$ 17,892	\$ 39,633	\$ 280,823	\$ 408,380	\$ -	\$ -	\$ -
Biosolids Facilities Project - Conditional Budget²													
Engineering, Design and Other	\$ -	\$ -	\$ 30,967	\$ -	\$ -	\$ 143	\$ 10,195	\$ 7,670	\$ 12,959	\$ 30,967	\$ -	\$ -	\$ -
Construction	\$ -	\$ -	\$ 377,967	\$ -	\$ -	\$ -	\$ -	\$ 53,810	\$ 324,157	\$ 377,967	\$ -	\$ -	\$ -
Land Acquisition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Internal Financing/Overhead Costs	\$ -	\$ -	\$ 43,161	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 43,161	\$ 43,161	\$ -	\$ -	\$ -
Contingency	\$ -	\$ -	\$ 100,617	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 100,617	\$ 100,617	\$ -	\$ -	\$ -
Subtotal	\$ -	\$ -	\$ 552,712	\$ -	\$ -	\$ 143	\$ 10,195	\$ 61,480	\$ 480,894	\$ 552,712	\$ -	\$ -	\$ -
Nutrient Removal Facilities Project - Funding Dependent³													
Engineering, Design and Other	\$ -	\$ -	\$ 34,973	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 34,973	\$ 34,973	\$ -	\$ -	\$ -
Construction	\$ -	\$ -	\$ 536,250	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 536,250	\$ 536,250	\$ -	\$ -	\$ -
Land Acquisition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Internal Financing/Overhead Costs	\$ -	\$ -	\$ 143,252	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 143,252	\$ 143,252	\$ -	\$ -	\$ -
Contingency	\$ -	\$ -	\$ 113,582	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 113,582	\$ 113,582	\$ -	\$ -	\$ -
Subtotal	\$ -	\$ -	\$ 828,057	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 828,057	\$ 828,057	\$ -	\$ -	\$ -
Total Project Budget		\$ (387,210)	\$ 1,789,149	\$ 25,350	\$ 3,714	\$ 41,111	\$ 28,087	\$ 101,113	\$ 1,589,774	\$ 1,789,149	\$ -	\$ -	\$ -

% of Project Budget Spent ⁴	
Power Supply & Headworks Facilities	6%
Biosolids Facilities	TBD
Nutrient Removal Facilities	TBD

Power Supply & Headworks Facilities Amount in '000's			
Project ID	Project Year	Amended Budget	Costs to Date
2031001304 ⁵	2004	\$214	\$214
2031001310 ⁵	2010	\$305	\$305
203110013B	2012 – 2017	\$407,861	\$24,831
Total Project Budget		\$408,380	\$25,350

¹ Amended budget and actual costs to date have been agreed to the City's general ledger and Monthly Capital Expenditures Report and include closed budget years

² On September 26, 2019 Council approved NEWPCC Upgrade Biosolids Facility \$552.71 conditional on government funding

³ Budget has not been approved

⁴ Actual costs to date/Amended budget

⁵ Does not appear in the Capital Expenditures Monthly Report as the funds have been expended and it is designated as a closed Project ID.

Appendix C – Key Project Events (History)

THE PROJECT

The goal of this project is to upgrade the North End Sewage Treatment Plant (NEWPCC) to meet new Regulatory Licence requirements regarding the maximization of nutrient removal and biosolids reuse and new effluent limits for nitrogen and phosphorous. The upgrade will also add wet weather treatment capability; add a new facility to treat the sludge from all three plants and replace end-of-life equipment. The Project design will accommodate expected influent flows and loads to 2037. It will also take into account future regulatory trends and long term planning to year 2067 to facilitate effective process or facility modifications should they be required.

A new power sub-station is required at the NEWPCC to accommodate the additional power demand of the upgrades at the facility. The power supply upgrade is being delivered as a separate project from the main NEWPCC upgrade to allow for early procurement of long-lead items such as transformers, to ensure that the electrical power upgrade is available for the new processes when needed.

The delivery method for NEWPCC Power Supply and Headworks Facilities Upgrade Projects is largely design build (DB) with a small scope being procured as design bid build (DBB).

The upgraded facility will have an economical whole-life cost and be an efficient and safe workplace for operational personnel. In addition, the plant must operate continuously during the work and continue to meet current effluent limits. The impact of construction and commissioning to the capacity of the treatment facility will be minimized as much as possible.

In 2003 Clean Environment Commission Hearings on the City's wastewater collection and treatment systems, Manitoba Conservation and Water Stewardship (now Manitoba Sustainable Development, the Regulator) notified the City that it intended to issue a licence for the North End Water Pollution Control Centre (NEWPCC) that would require control of nutrients discharged to the Red River.

On May 16, 2007, Council authorized the Chief Administrative Officer to finalize the terms and conditions of a contribution agreement with the Government of Canada and the Province of Manitoba for funding of Wastewater Treatment Plant upgrades under the Canada Strategic Infrastructure Fund.

On November 19, 2008, City Council authorized the Winnipeg Public Service to:

- begin the procurement of a strategic partner that could bring private sector experience to the design, construction, finance and potentially the operation of the North and South End Sewage Treatment Plants as well as potential operation of the West End Sewage Treatment Plant, and;
- authorize the Chief Administrative Officer to approve and issue the Request for Expressions of Interest followed by a Request for Qualifications and the Request for Proposals.

On May 6, 2009 the Environment Act Licence (EAL) No. 2684 RRR was issued for the NEWPCC.

On May 19, 2010 Council:

- directed the Chief Administrative Officer to approve and issue a Letter of Notification to Veolia in order to immediately begin design and construction of the South and North End Sewage Treatment Plant upgrades and expansion and biosolids handling facility.
- delegated the authority to the Chief Administrative Officer to “approve contract awards for upcoming South and North End Sewage Treatment Plant capital projects where the value of each contract does not exceed \$30 Million and there are sufficient funds in a budget approved by Council.

On June 16, 2011, the Save Lake Winnipeg Act amending sections of the Water Protection Act (Act) came into effect. Section 4.2(3) of the amended Act requires the City to submit a plan that details how the City will comply with subsections 4.2(1) and (2).

The NEWPCC Upgrading Plan was submitted to the Regulator in compliance with Section 4.2(3) of the amended Water Protection Act on June 15, 2012. The Regulator approved the Upgrading Plan on October 2, 2012. The Department submitted the NEWPCC Master Plan and the revised NEWPCC Master Plan on September 27, 2013 and April 28, 2014 respectively. The Master Plan was approved by the Regulator on May 29, 2014.

In the Regulator’s Licence alteration Letter dated December 30, 2014, the project completion date was specified as December 2019. However, the Regulator was notified on June 23, 2016 that the project schedule was not achievable. Manitoba Sustainable Development acknowledged receipt of this notice on August 16, 2016 and indicated they had “no concerns at this time.” Regular schedule updates and progress reports continue to be submitted to MB Sustainable Development on a quarterly basis.

In the second quarter of 2017, the Department reported that an updated conceptual design project cost estimate was received from the design consultant. This new information indicated costs over a billion dollars, much higher than the currently approved budget of \$795.59 million (Class 5 estimate).

The Adopted Budget, \$795.59 million, was based on a Class 5 cost estimate which has an Association for the Advancement of Cost Engineering (AACE) expected accuracy range of -50% and + 100% or \$397.80 million to \$1,591.18 million.

On February 28, 2019, Council approved the recommendation to split the planned NEWPCC Upgrade project into three distinct projects and execute them based on process criticality and available funding. The recommendation to Council requested approval to proceed with the project scope for Power Supply and Headworks Facilities.

Other levels of Government funding for the remaining projects to complete the plant upgrade are required.

The three capital projects and Class 3 cost estimates (including interest charges) to complete the NEWPCC Upgrade are identified as:

1. NEWPCC Upgrade: Power Supply and Headworks Facilities - \$408 million;
2. NEWPCC Upgrade: Biosolids Facilities - \$553 million; and
3. NEWPCC Upgrade: Nutrient Removal Facilities - \$828 million

The total budget to upgrade NEWPCC is approximately \$1,789 million; based on a class 3 cost estimate which has an Association for the Advancement of Cost Engineering (AACE) expected accuracy range of -20% and +30% or \$1,431.2 million to \$2,325.7 million. This amount includes an estimated \$155 million in interest charges to be capitalized during the construction period.

RISKS AND RISK MITIGATION STRATEGIES

There are risks associated with the cost and schedule for a project that is this large and complex especially at the early stages. In addition, the final bid amounts for projects are unknown until the project agreement is finalized with the Design Builder.

In consultation with our engineering advisors, it was necessary to make estimates about the pace of engineering design and the pace of construction. Any delays typically result in increases in cost.

An ongoing risk management strategy has been implemented for both the NEWPCC Upgrade Power Supply and Headworks Facilities Projects. It includes a proactive process of identifying risks, performing qualitative and quantitative risk analyses, creating response plan strategies and ongoing monitoring. The risk management process is an active part of the management of the projects. The projects will also incorporate structured Hazard and Operability Analysis and a Construction Hazard Assessment Implication Review. Since detailed design and construction will be carried out through a DB contract, the WSTP will be transferring as much risk as reasonable to the Design Builder.

The Risk Registers for each of the Projects contain cost and schedule risks associated with design, procurement, construction, operation and unknown events. The Risk Register is reviewed and updated regularly by the WSTP.

Appendix D - Funding

Funding: North End Sewage Treatment Plant (NEWPCC) and Winnipeg Sewage Treatment Program (WSTP) Appendix D

1) Funding for the NEWPCC Upgrade is as follows:

NEWPCC Upgrade (in \$millions)	Total Cost	Funded to Date		Funding Pending		Total Funding		City Share of Costs
		Canada	Manitoba	Canada	Manitoba	Canada	Manitoba	
Power Supply and Headworks Facilities ¹	\$ 408.38	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 408.38
Funding Dependent								
Biosolids Facilities ²	552.71	-	-	-	-	-	-	\$ -
Nutrient Removal Facilities	828.06	-	-	-	-	-	-	\$ -
Estimated Program Costs	\$ 1,789.15	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 408.38

¹ Council has approved NEWPCC Upgrade budget for Power Supply and Headworks Facility.

² On September 26, 2019 Council approved NEWPCC Upgrade Biosolids Facility \$552.71 conditional on government funding. Nutrient Removal budget is pending Council Approval.
Federal/Provincial funding applications have been submitted for Headworks and Biosolids Facilities but have not been approved to date.

2) Funding from other levels of government for the Winnipeg Sewage Treatment Programs is as follows:

WSTP All Projects (in \$millions)	Total Cost	Funded to Date		Funding Pending		Total Funding		City Share of Costs
		Canada	Manitoba	Canada	Manitoba	Canada	Manitoba	
WEWPCC Biological Nutrient Removal ¹	\$ 33.23	\$ 5.07	\$ 8.19			\$ 5.07	\$ 8.19	\$ 19.97
NEWPCC Centrate and UV Disinfection ¹	52.08	5.59	14.54			5.59	14.54	31.95
SEWPCC Nutrient Removal/Expansion ²	335.60	33.21	49.52	9.13	1.10	42.34	50.62	242.64
NEWPCC Power Supply and Headworks Facilities	408.38	-	-	-	-	-	-	408.38
NEWPCC Biosolids Facilities	552.71							-
NEWPCC Nutrient Removal Facilities	828.06							-
Estimated Program Costs	\$ 2,210.06	\$ 43.87	\$ 72.25	\$ 9.13	\$ 1.10	\$ 53.00	\$ 73.35	\$ 702.94

¹ WEWPCC Biological Nutrient Removal and NEWPCC Centrate and UV Disinfection have been completed.

² \$33.54 of the \$195 million, committed by the Province of Manitoba for upgrade of all three wastewater treatment plants in the 2007 Throne Speech, has been received and is proposed to be applied to the SEWPCC subject to Provincial approval.