

Minutes – Standing Policy Committee on Finance – April 20, 2021

REPORTS

**Item No. 4 North End Sewage Treatment Plant (NEWPCC) Upgrade Projects
Project ID: 2031001304, 2031001310, 203110013B and 203110028B,
Quarterly Project Status Report No. 24
For the Period Ended December 31, 2020**

STANDING COMMITTEE DECISION:

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

Minutes – Standing Policy Committee on Finance – April 20, 2021

DECISION MAKING HISTORY:

Moved by Councillor Rollins,

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, 203110013B and 203110028B,
Quarterly Project Status Report No. 24
For the Period Ended December 31, 2020**

Critical Path: Standing Policy Committee on Finance

AUTHORIZATION

Author	Department Head	CFO	CAO
T. W. Shanks, P. Eng., Acting Manager of Engineering Services	M. L. Geer, CPA, CA, Director, Water and Waste Department	C. Kloepfer	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:

The procurement process for the Design Build of the City of Winnipeg's NEWPCC Upgrade: Headworks Facilities Project is ongoing. The execution of the Project is contingent on funding through the Investing in Canada Infrastructure Program (ICIP). The duration of the funding review period is unknown and as a result, the project schedule may be impacted. An award of the NEWPCC Upgrade: Headworks Facilities design build contract was not completed in first quarter 2021 which may result in the loss of a construction season which will result in increased costs and schedule delays.

Prequalified proponents for the Headworks design build project submitted their proposals via Merx on January 13, 2020. Evaluation of the proposals deemed both bids exceeded the affordability threshold due to the global market conditions. An award recommendation report with further detail will be at Standing Policy Committee on Water and Wastewater, Riverbank Management and the Environment in May. The report will request a capital budget increase of \$65 million.

The NEWPCC Power Supply Facility design build project is now substantially complete. The design build contractor has submitted a claim in relation to costs associated with impacts the COVID-19 pandemic has had on delivering the Project. The claim is under review by the Department.

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 \$24 million (2020) 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 Projects General

- A new Winnipeg Sewage Treatment Program Project Director was recruited and started in November 2020.
- On December 16, 2020, Council approved the recommendations on the biosolids treatment capacity for the City of Winnipeg.
- **RFP 805-2020:** At the direction of the Province, as part of the inter-government funding review for NEWPCC Upgrade: Biosolids Facilities project, a P3 procurement process is being evaluated by the City. In November 2020, Deloitte LLP was engaged to analyze the P3 market to create a comparative assessment of the risks and opportunities to deliver the NEWPCC Upgrade: Biosolids Facilities and the NEWPCC Upgrade: Nutrient Removal Facilities projects under a P3 deal structure, as compared to a Design-Bid-Build or Design Build approach. The outcome of the report will be presented in future status reports.

NEWPCC Upgrade: Power Supply and Headworks Facilities

Power Supply Facility

Design Build Execution

- **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:** The design build contract executed on April 16, 2018 with Black & McDonald Ltd and design is now substantially complete; total completion is anticipated to occur in Q1 2021.

An over-expenditure of \$95,6345 was required to make repairs to an existing catch basin, provide additional fibre patch panels to the Control Room at NEWPCC, provide circuit breakers shunt trips and transformer over-temperature alarms.

The design build contractor submitted a claim in relation to cost associated with impacts the COVID-19 pandemic has had on delivering the Project. The claim is under review by Department, more information will be provided in a future report.

- **RFP 42-2018:** A construction agreement was executed on July 11, 2018 with Manitoba Hydro. Design for the final arrangement was completed in Q4 2019. Construction of Manitoba Hydro's permanent power lines has been completed. It is anticipated that removal of UV transformer will be completed in Q1 2021.

Headworks Facilities

Design

- **RFP 182-2015 - DCS Migration:** As part of their phase 2 services, AECOM was also required to carry out professional engineering services for plant-wide migration of the existing distributed control system to a new process control system. It was determined that migration of the automation control system in the near term will mitigate potential risks, such as automation component failures that may occur during the design and construction of the new Headworks Facilities by the design builder, avoiding loss-of-support, obsolescence and reliability issues.

Design Build Procurement

- **RFP 182-2015 Phase 1:** AECOM prepared the Request for Proposal documents and Technical Requirements issued to Proponents under RFP 659-2018B. AECOM continues to be involved with responding to Request for Information (RFIs) associated with the Technical Requirement.
- **RFP 9-2017:** P1 Consulting (Fairness Advisor) continues to be involved in the procurement process for the design build of the NEWPCC Upgrade: Headworks Facilities Project.
- **RFP 102-2017:** Blakes Cassels & Graydon (Legal Advisor) continues to be involved with the procurement process including responses to RFIs associated with the Design Build Agreement for the project.
- **RFP 659-2018B:** The Request for Proposal (RFP) documents and associate documents were issued to the two proponents, Aecon/Oscar Renda joint venture (Red River Solutions) and Graham/PCL joint venture, shortlisted as the prequalified proponents for the Design Build of the NEWPCC Upgrade: Headworks Facilities Project on March 10, 2020. Proponents continue to be engaged in the procurement process through requests for information and commercially confidential meetings.

Due to the duration of the Investing in Canada Infrastructure Program (ICIP) funding review, the project schedule may be impacted. Award and execution of the Headworks design build contract is required Q1, 2021 and early Q2 2021, respectively, to prevent the loss of a construction season.

Design Build Execution

- **RFP 182-2015 Headworks Phase 2:** Based on RFP182-2015 which indicated that the contract may be awarded in phases, on October 8, 2020, AECOM was awarded phase 2 of their contract to carryout owners advocate services for the design build of the NEWPCC Upgrade: Headworks Facilities Project. This involves services required prior to the execution of the DB contract, contract administration services and post-construction services for the Headworks DB contract.

NEWPCC Upgrade: Biosolids Facilities

This part of the project is delayed pending a P3 analysis that the Province has requested prior to approval of Investing in Canada Infrastructure Program (ICIP) funding.

Notice of Alteration (NOA) for NEWPCC

- On October 16, 2020 Manitoba Conservation and Climate issued a letter to the City indicating that the Committees, established as part of the Notice of Alteration, would be changed and that the Province was adapting their role. The City will continue to submit monthly progress reports for the work to the Province and these reports will be posted publicly. The City will continue to meet with stakeholders who have participated in the Project Advisory Committee.

Table 1 – Contracts

NEWPCC Upgrade Project : 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	-	75
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	\$ 181,135	16-Apr-2018	-	92
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	-	99
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	-	90
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 NEWPCC Upgrade – Phase 1	\$ 16,015,439	\$ 354,746	6-Jan-2016	-	90
182-2015 (Phase 2 Headworks)	AECOM Canada Ltd	Professional Engineering Consulting Services for NEWPCC Upgrade – Phase 2 (Headworks)	\$ 7,992,827	\$ -	8-Oct-2020	-	0
182-2015 (DCS Migration)	AECOM Canada Ltd	Professional Engineering Consulting Services for NEWPCC Upgrade – DCS Migration	\$ 2,698,331	\$ -	8-Oct-2020	-	0
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	1-Nov-2018	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	-	90
102-2017	Blakes Cassels & Graydon LLP	External Legal Counsel - NEWPCC Upgrade Project	\$ 358,800	\$ -	23-Nov-2017	-	90
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	13-Nov-2019	100
659-2018 A ¹	Prequalified proponents are Aecon/Oscar JV (Red River Solutions) & Graham/PCL JV	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
S-1192	AECOM Canada Ltd	Professional Consulting Services for City of Winnipeg Interim Phosphorus Removal Options Evaluation	\$ 30,118	\$ -	17-Dec-2018	18-Jul-2019	100
68-2019	Westtower Communications Ltd	Installation of a 120 Meter Guyed Radio Tower & Design & Installation of Associated Site Works	\$ 401,762	\$ 133,715	22-May-2019	-	50
249-2019	Turner & Townsend	Validation of Cost Estimate Classifications for NEWPCC Upgrade Project	\$ 253,852	\$ -	10-May-2019	31-Oct-2019	100
502-2019	Dillon Consulting Ltd	Professional Consulting Services for Development of the Consultant Portions of a Design Build Template	\$ 72,193	\$ -	13-May-2019	-	97
200-2020 ³	Harris Holdings Ltd	Award of Contract for Installation of Underground Traffic Signals Services & Associated Works	\$ 34,377	\$ -	1-Jun-2020	-	99
805-2020	Deloitte LLP	Professional Consulting Services for NEWPCC Funding and Deal Support Structuring Services	\$ 52,250	\$ -	4-Nov-2020	-	99
Total			\$ 69,878,200	\$ 1,058,014			

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.

³The majority of this contract is related to Public Works Department. Only the amount related to Water and Waste Department is indicated.

Upcoming Procurements:

Description	Anticipated Award Date
RFP 659-2018B Request for Proposals for NEWPCC Upgrade : Headworks Facilities Design Build Project	Early Q2 2021

NEWPCC Upgrade Project 2: Biosolids Facilities
Contracts Table - Not applicable at this time

NEWPCC Upgrade Project 3: Nutrient Removal Facilities
Contracts Table - Not applicable at this time

Schedule (Update from last report)

The Power Supply Design Build contract has been substantially completed.

Table 2 – Milestones

Milestones					
Deliverable		Original Targeted Completion Date	Revised Targeted Completion Date	Actual Completion Date	Estimated % Complete
NEWPCC Upgrade Project 1: Power Supply & Headworks Facilities					
Power Supply Facility					
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	2020 Q4	2020 Q4	100
7	Design Build Total Performance	2020 Q4	2021 Q1	-	-
Headworks Facilities					
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	2020 Q1	2020 Q1	100
5	Design Builder Contract Award	2020 Q4	2021 Q2	-	-
6	Design Build Substantial Performance	2025 Q4	-	-	-
7	Design Build Total Performance	2026 Q4	-	-	-
8	DCS Migration	2027 Q4	-	-	-
NEWPCC Upgrade Project 2: Biosolids Facilities Project					
TBD					
NEWPCC Upgrade Project 3: 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)

NEWPCC Upgrade: Power Supply and Headworks Facilities

Power Supply Facility

Risks associated with plant load transfer and safety issues are now closed as associated work are complete.

The Department continues to assess the impact of the risk associated with COVID-19 on the project. It is anticipated that the COVID-19 may affect the design build construction project costs as a result of the claim submitted by the design build contractor. The claim is under review by the Department.

Headworks Facilities

Due to the duration of the Canada Infrastructure Program (ICIP) funding review, the project schedule may be impacted. An award of the Headworks design build contract is required in early 2021 to prevent the loss of a construction season resulting in an extended schedule and increased project costs. Since an actual delay in execution of the Headworks design build contract has not been realized, cost and schedule increase associated with any delay will be determined after the execution of the contract.

In anticipation of the Headworks construction, additional construction risks and associated mitigation plans related to the plant as a continuously operating plant, internationally procured equipment, construction impact on the community, community impacts, jobsite safety, and work around existing infrastructure are included in Table 3.

NEWPCC Upgrade: Biosolids Facilities

There are no risks identified for the Biosolids Facilities project.

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>	
COVID-19 Impacts	The Department is working to assess the impact of the risk.
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>	
Manitoba Hydro may not have the required power available within the required timeframe.	Ongoing close coordination with Manitoba Hydro. Construction dates confirmed for line entrance structure.
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>	
Plant load transfer is required to commission new electrical system. Planned power outages and loss of redundancy periods are required for each plant process area, which increases the risk of process upset.	This risk is closed. New distribution has been commissioned..
Safety issues could occur as a result of increased traffic on the NEWPCC site.	This risk is closed. Construction is complete and the contractor's presence on site is minimal
Old electrical equipment and building parts may contain asbestos.	This risk is closed. Construction that may have disturbed existing asbestos has been completed.
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.	This risk is closed. Construction that necessitated coring through concrete has been completed.
There may be unknown geotechnical conditions that impact the project schedule and cost.	This risk is closed as subsurface works is complete.
The UV facility transformer must be de-energized during the Manitoba Hydro construction period. No power redundancy for the UV facility for a 4 week period.	This risk is closed as Manitoba Hydro construction is complete.

NEWPCC Upgrade: Power Supply and Headworks Facilities Project	
Significant Risks and Mitigation Strategies	
Headworks Facilities	
Risk Statement and Explanation	Risk Mitigation Management Plan
<u>New:</u>	
NEWPCC is a continuously operating sewage treatment plant, the design builder may cause unintended shut downs or disruptions resulting in failure to meet the Environment Act Licence.	Project requirements include details on how the design builder coordinates with the City prior to tying in to the existing plant. Payment adjustments are included in the contract if it occurs.
Tariffs may be imposed on equipment procured internationally resulting in increased project costs.	Project requirements include tariffs within the definition of change in law which would be treated as a relief event if it
There could be excess noise, dust and light during construction as a result of the project.	The project requirements include construction requirements related to noise, the design builder is also required to have a community impact mitigation plan to avoid such issues.
Due to construction occurring around existing infrastructure, destabilization or damage to existing structures may occur resulting in increased costs and potential schedule delays	Project requirements include detailed requirements for working around existing infrastructures.
Accidents may occur on an active project construction site resulting in injuries and damaged property causing project delays and reduction in productivity.	Project requirements includes details on safety measures and the design builder is required to be COR certified.
The existing automation system requires migration to an updated automation system as it is at end of life. Due to the age, there may be unforeseen circumstances resulting in quality issues, schedule delays and operational impacts.	This risk is best handled by the City; as a result, the scope was separated as a stand alone design bid build project. This risk also requires knowledgeable and qualified personnel. As part of Phase 2 of their existing contract, the design consultant will carry out the work due to their qualifications and extensive knowledge and experience on the existing automation system.
<u>Ongoing:</u>	
The Public Service submitted funding application for NEWPCC Headworks DB project for the Federal and Provincial funding under the Investing in Canada Infrastructure Program based on Council approval. Delay of the funding agreement or an agreement in principle may result in loss of a construction season causing increase in project costs and schedule delays.	The Public Services is working with the Provincial Government to obtain a funding agreement in a timely manner.
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.
<u>Mitigated:</u>	
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.
<u>Closed:</u>	
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 of \$95,6345 was required by the Power Supply contractor to repair an existing catch basin, provide additional fibre patch panels to the Control Room at NEWPCC, provide circuit breakers shunt trips and transformer over-temperature alarms.

For further information, refer to Appendix B – Financial Forecast

Funding (Update from last report)

The Province, as part of the Investing in Canada Infrastructure Program funding review, requested additional information from the Department. The Department responded to the request in November 2020 and December 2020.

Table 4 – Project Funding Forecast

Funding Forecast				
Funding Source	Adopted Budget (in millions)	Amended Budget ¹ (in millions)	Committed (in millions)	Conditional Budget (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 ¹		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
Federal Government				120.37
Provincial Government				100.30
NEWPCC Upgrade: Biosolids Facility				
Project 2 Total ²		15.33	15.33	552.71
External Debt ³		15.33	15.33	184.46
Federal Government				200.87
Provincial Government				167.38
Total	795.59	423.71	423.71	961.09

The funding forecast should match The Capital Budget Detail Sheet.

¹ On February 28, 2019 Council approved the existing project be amended to consist of three projects: Project 1 Power Supply and Headworks Facilities, Project 2 Biosolids Facilities, Project 3 Nutrient Removal Facilities. Budget of \$408.38 allocated for Project 1 Power Supply and Headworks Facilities and that an application for Federal/Provincial funding be submitted. Projects 2 and 3 remained pending Council approval.

² On September 26, 2019 Council approved budget of \$552.71 million for Project 2 conditional upon Federal/Provincial Funding.

³ On January 30, 2020 Council approved \$15.33 million for Project 2 to proceed with engineering services. Total conditional budget includes \$15.33 million.

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

Interim Phosphorus

The Public Service has proposed a new separate capital project to address interim chemical phosphorus removal at the North End Sewage Treatment Plant. It is anticipated that the new project will be considered by Council in February 2021.

Headworks Facilities – Design Build Execution

Prequalified proponents for the Headworks design build project submitted their proposals via Merx on January 13, 2020. Evaluation of the proposals deemed both bids exceeded the affordability threshold. An award recommendation report is pending and bids expire on June 12, 2021

ICIP Funding

In a letter dated April 1, 2021, the Province confirmed that funding for Headworks Project would be reduced to \$96.749 million from \$100.300 million (Province) and to \$116.111 million from \$120.373 million (Federal). This means that the City's share of costs will increase by \$7.813 million as a result of owner advocate costs incurred.

FINANCIAL IMPACT

Financial Impact Statement

Date: **March 26, 2021**

Project Names:

**North End Sewage Treatment Plant (NEWPCC) Upgrade Projects,
Project IDs: 2031001304, 2031001310, 203110013B and 203110028B,
Quarterly Project Status Report No. 24
For the Period Ended December 31, 2020**

COMMENTS:

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

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

Lucy Szkwarek, 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

NEWPCC Upgrade Project 1: Power Supply and Headworks Facilities

N/A

NEWPCC Upgrade Project 2: Biosolids Facilities

NEWPCC Upgrade: Biosolids Facilities Project aligns with the Strategic Opportunity #6 Waste Reduction and Diversion found on page 51 of the Climate Action Plan approved by Council on September 20, 2018; Key Directions 6.3 & 6.4.

The Water Protection Act requires the City to reuse the wastewater biosolids, and to recover the nutrients from the biosolids to the maximum extent possible. The intent is for the facility to produce a Class A Biosolids which can be reused resulting in diversion of Biosolids from the landfill.

SUBMITTED BY

Department: Water and Waste

Division: Engineering Services

Prepared by: R. Y. Adedapo, M.A.Sc., PMP, P. Eng., Senior Project Engineer

Date: April 9, 2021

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 Project: Power Supply & Headworks Facilities
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 Power Supply and Headworks Facilities projects will address end-of-life equipment at the front end of the plant and upgrade the power supply to provide adequate power capacity for the NEWPCC Upgrade Projects. The Project design will accommodate expected influent flows and loads to 2037 and take into account future regulatory trends and long term planning to year 2067.</p>	
Major Capital Projects Advisory Committee Membership:	
<ul style="list-style-type: none"> - Moira Geer, Director of Water and Waste Department (Chair) - Mike Ruta, Interim Chief Administrative Officer - Christopher Klos, Acting Director of Assets and Project Management - Lucy Szkwarek, Manager of Finance and Administration, Water and Waste - Colin Javra, Project Director, Winnipeg Sewage Treatment Program, Water and Waste 	

Project Name	NEWPCC Upgrade Project: Biosolids Facilities
Business Owner (Department)	Water and Waste Department
Project ID	203110028B
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. \$15.334 million was approved by Council on January 30, 2020 out of the \$552.71 million to commence engineering services.
Class of Estimate (Adopted)	
Range of Estimate (Adopted)	
Amended Budget	
Class of Estimate (Amended)	
Range of Estimate (Amended)	
<u>Project Scope</u>	
The Biosolids 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 Project: Nutrient Removal Facilities
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 December 31, 2020

Project Component Deliverables	Budget (in 000's)			Actual Costs To Dec 31, 2020	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								
					2021	2022	2023	2024	2025 and Beyond				
Power Supply & Headworks Facilities Project¹													
Engineering, Design and Other	\$ 57,196	\$ (8,503)	\$ 48,693	\$ 23,630	\$ 3,912	\$ 3,388	\$ 3,109	\$ 3,097	\$ 12,305	\$ 49,441	\$ (748)	\$ (748)	\$ -
Construction	\$ 621,011	\$ (352,645)	\$ 268,366	\$ 37,060	\$ 24,570	\$ 47,876	\$ 57,363	\$ 54,259	\$ 47,803	\$ 268,931	\$ (565)	\$ (469)	\$ (96)
Land Acquisition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Internal Financing/Overhead Costs	\$ -	\$ 15,969	\$ 15,969	\$ 1,798	\$ 583	\$ 1,200	\$ 1,400	\$ 1,820	\$ 9,168	\$ 15,969	\$ -	\$ -	\$ -
Contingency	\$ 117,383	\$ (42,031)	\$ 75,352	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 74,039	\$ 74,039	\$ 1,313	\$ 1,217	\$ 96
Subtotal	\$ 795,590	\$ (387,210)	\$ 408,380	\$ 62,488	\$ 29,065	\$ 52,464	\$ 61,872	\$ 59,176	\$ 143,315	\$ 408,380	\$ -	\$ -	\$ -
Biosolids Facilities Project - Conditional Budget²													
Engineering, Design and Other	\$ -	\$ 15,334	\$ 30,967	\$ -	\$ 3,000	\$ 4,500	\$ 4,500	\$ 5,000	\$ 13,967	\$ 30,967	\$ -	\$ -	\$ -
Construction	\$ -	\$ -	\$ 377,967	\$ -	\$ -	\$ -	\$ 25,000	\$ 50,000	\$ 302,967	\$ 377,967	\$ -	\$ -	\$ -
Land Acquisition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Internal Financing/Overhead Costs	\$ -	\$ -	\$ 43,161	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 43,161	\$ 43,161	\$ -	\$ -	\$ -
Contingency	\$ -	\$ -	\$ 100,617	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 100,617	\$ 100,617	\$ -	\$ -	\$ -
Subtotal	\$ -	\$ 15,334	\$ 552,712	\$ -	\$ 3,000	\$ 4,500	\$ 29,500	\$ 55,000	\$ 460,712	\$ 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		\$ (371,876)	\$ 1,789,149	\$ 62,488	\$ 32,065	\$ 56,964	\$ 91,372	\$ 114,176	\$ 1,432,084	\$ 1,789,149	\$ -	\$ -	\$ -

% of Project Budget Spent ⁴	
Power Supply & Headworks Facilities	15%
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	\$61,969
Total Project Budget		\$408,380	\$62,488

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 \$552.71M conditional on government funding
On January 31, 2020 \$15.334M was approved for Engineering Services

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 consider 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
- 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

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.

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 by the City 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 in January 1, 2020. In the absence of an approved phosphorus compliance plan, the City was required to participate in two project committees namely; the Project Steering Committee and Project Advisory Committee.

On September 26, 2019 Council approved a 2019 capital project budget of \$552,712,000, for NEWPCC Upgrade: Biosolids Facilities, subject to final written confirmation of federal and provincial funding satisfactory to the Chief Financial Officer

On January 30, 2020 Council approved \$15,334,000 from the Biosolids Facilities Budget to commence engineering services.

On February 19, 2020 Minister Squires sent a letter to the Mayor indicating that additional funding of \$21.8 million is an initial payment to be allocated to the NEWPCC project under any potential Investing in Canada Infrastructure Program (ICIP) arrangements, along with the previous allocation of \$34.4 million for a total of \$56.2 million.

On September 20, 2020 Council approved that the City agree to transfer \$321.24 million of Federal Government's funding under the ICIP from the Public Transit Infrastructure Stream to the Green Infrastructure Stream to fund the Federal Government's funding portion for the NEWPCC Upgrade: Headworks Facilities project and the NEWPCC Upgrade: Biosolids Facilities project as per the Province of Manitoba's requirement, subject to certain conditions.

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

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

1) Funding for the NEWPCC is as follows:

NEWPCC Nutrient Removal Facilities (in \$millions)	Total Cost	Funded to Date		Funding Pending		Total Funding		City Share of Costs
		Canada	Manitoba	Canada	Manitoba	Canada	Manitoba	
Provincial Funding								
Power Supply and Headworks Facilities	\$ 408.38			\$ 120.37	\$ 100.30	\$ 120.37	\$ 100.30	\$ 187.71
Funding Dependent								
Biosolids Facilities	552.71			200.87	167.38	200.87	167.38	184.46
Nutrient Removal Facilities	828.06							
Estimated Program Costs	\$ 1,789.15	\$ -	\$ -	\$ 321.24	\$ 267.68	\$ 321.24	\$ 267.68	\$ 372.17

2) Funding 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 ⁵	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	335.60	37.04	15.98	5.30	1.10	42.34	17.08	276.18
NEWPCC Power Supply and Headworks ²	408.38			120.37	100.30	120.37	100.30	187.71
NEWPCC Biosolids ³	552.71			200.87	167.38	200.87	167.38	184.46
NEWPCC Nutrient Removal ⁴	828.06					-	-	-
Estimated Program Costs	\$ 2,210.06	\$ 47.70	\$ 38.71	\$ 326.54	\$ 268.78	\$ 374.24	\$ 307.49	\$ 700.27

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

² City Council has approved the NEWPCC Upgrade Power Supply and Headworks project. On September 26, 2019 City Council approved submitting an application for Federal and Provincial funding under the Investment in Canada Infrastructure Program (ICIP). The City is waiting for ICIP application approval.

³ On September 26, 2019 City Council approved the NEWPCC Upgrade Biosolids project, conditional on Federal and Provincial government funding under the Investment in Canada Infrastructure Program (ICIP). The City is waiting for ICIP application approval.

⁴ NEWPCC Upgrade Nutrient Removal project has not been approved.

⁵ The Provincial government has made funding commitments to date totaling \$182.6 million towards the Headworks and Biosolids projects. Provincial funding received is held in reserve until the ICIP application is approved and project expenditures have occurred.