Agenda – Council – July 18, 2024

Report – Standing Policy Committee on Water, Waste and Environment – June 28, 2024

Item No. 1 Winnipeg Sewage Treatment Program 2023 Annual Report Program Agreement Between the City of Winnipeg and VWNA Winnipeg Inc. (Veolia)

STANDING COMMITTEE RECOMMENDATION:

On July 9, 2024, the Executive Policy Committee concurred in the recommendation of the Standing Policy Committee on Water, Waste and Environment and submitted the following to Council:

1. That the report be received as information.

Report – Standing Policy Committee on Water, Waste and Environment – June 28, 2024

DECISION MAKING HISTORY:

EXECUTIVE POLICY COMMITTEE RECOMMENDATION:

On July 9, 2024, the Executive Policy Committee concurred in the recommendation of the Standing Policy Committee on Water, Waste and Environment and submitted the matter to Council.

STANDING COMMITTEE RECOMMENDATION:

On June 28, 2024, the Standing Policy Committee on Water, Waste and Environment concurred in the recommendation of the Winnipeg Public Service and submitted the matter to the Executive Policy Committee and Council.

David Grant submitted a communication with respect to the matter.

ADMINISTRATIVE REPORT

Title: Winnipeg Sewage Treatment Program 2023 Annual Report Program Agreement Between the City of Winnipeg and VWNA Winnipeg Inc. (Veolia)

Critical Path: Standing Policy Committee on Water, Waste and Environment - Executive Policy Committee – Council

AUTHORIZATION

Author	Department Head	CFO	CAO
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EXECUTIVE SUMMARY

This annual report to Council summarizes the accomplishments and financial results that were realized in 2023, the 13th year of the 30-year Winnipeg Sewage Treatment Program (WSTP), as well as the plans and objectives that have been set for 2024.

The Veolia personnel augment the City's team and bring worldwide expertise to the Winnipeg Sewage Treatment Program (WSTP).

The WSTP day-to-day operations are governed by the program's Management Team (MT). The MT provides advice and recommendations on the WSTP activities to the Leadership Team (LT) and the Director of the Water and Waste Department (Director). The City retains full ownership and control of the sewage treatment plant facilities. The membership of the MT and LT are attached as Appendix A.

In 2023, the program continued its focus on the delivery of the major capital projects, implementation of maintenance strategies, and readiness for operation of the new infrastructure.

RECOMMENDATIONS

1. That the report be received as information.

REASON FOR THE REPORT

A 30-year consulting services agreement with VWNA Winnipeg Inc. (Veolia) was executed on April 20, 2011. This agreement requires the City to report on results of the Winnipeg Sewage Treatment Program to Council on an annual basis.

IMPLICATIONS OF THE RECOMMENDATIONS

There are no implications with receiving this report as information.

HISTORY/DISCUSSION

On April 20, 2011, the City entered into a consulting services agreement with VWNA Winnipeg Inc. (Veolia). The scope includes advice on operations and capital upgrades at the City's three sewage treatment plants for the duration of a 30-year agreement. The City retains full ownership and control of the sewage treatment plant facilities.

The Winnipeg Sewage Treatment Program (WSTP) day-to-day operations are governed by the program's Management Team (MT), Leadership Team (LT) and the Director of Water and Waste (Director). Within City delegated authority, it is the Director who approves all final decisions related to the WSTP. The annual report details the progress made by the WSTP in 2023 and the goals established for 2024. (See Appendix A for the current membership of the MT and LT.)

ANNUAL WSTP REPORT 2023

Successes and Challenges

- South End Sewage Pollution Control Centre (SEWPCC) Upgrade:
  - Process startup has continued at the SEWPCC including the High Rate Clarifier (HRC) which will provide treatment of wet weather flows. Upgrade of the Ultraviolet (UV) Disinfection process was completed and put into service which doubles the disinfection capacity of the facility. Replacement of one of the plants raw sewage pumps was completed which increases the maximum flow the facility can treat.

    In addition to the progress on process capacity, the WSTP has started to resolve outstanding contract appeals.

- North End Sewage Treatment Plant (NEWPCC) Upgrade: Headworks Facilities Project:
  - Construction progress of the NEWPCC Headworks has continued with concrete structures both above and below ground. The building envelope of the standby generator facility is the first to be completed and work is now progressing on fitting out the building.

Completion of both tunnels between the sewer interceptor chambers H1 and H2 was a significant milestone in 2023 despite the unexpected failure of the North West Interceptor (NWI) which is discussed below.

- Northwest Interceptor (NWI):
  - The headworks project includes construction of two deep chambers with two interconnecting tunnels. This work required exposing and working around the existing NWI, a large diameter pipe built in 1970 that transports sewage to the NEWPCC.

    In June 2023, an exposed portion of the NWI failed following a heavy rain event. High flows in the NWI flooded both chambers, the completed tunnel, and the tunnel in progress. The tunnel boring machine, a specialized piece of equipment that excavates tunnels, was also submerged.

    No personnel were injured during the event and an insurance claim has been initiated. A portion of the related costs may be reimbursed. Cleanup and repair were completed during October however the failure has significantly impacted the project schedule's critical path.

    An event analysis created lessons learned which will be applied to manage construction risk when a similar large diameter pipe, the Main Street Interceptor, is exposed within the Y5 Chamber as part of the project.

- NEWPCC Upgrade: Biosolids Facilities Project:
  - Market sounding for a delivery partner revealed limited interest in a traditional Design-Build (DB) project. This market intelligence allowed the project to pivot quickly to develop a more favorable procurement strategy; allowing the first stage of the procurement of a delivery partner to proceed.

    In addition to the critical work on procurement, the project team has had successes progressing early works which will mitigate some known risks.

- Interim Phosphorous Removal (IPR) Project:
  - Construction of the IPR project progressed throughout the year and will be ready for commissioning in 2024.

- NEWPCC Primary Clarification Facility Refurbishments, Replacements, and Upgrades:
  - The construction contract for the Scum Dewatering Building was tendered and one bid was received and was substantially higher than the Class 1 pre-bid estimate. It was determined it would not be in the best interest of the City to award the contract.

- NEWPCC Return Activated Sludge (RAS) Pipe Refurbishment:
  - The life of the RAS piping system at the NEWPCC was extended by fully wrapping it in a carbon fiber composite. The work mitigated particular risks

associated with deferral of the secondary treatment upgrade and the construction method minimized operational risks and reduced the construction schedule by over two years.

- Capital Planning
  - The first Wastewater Master Plan has been developed for the West End Sewage Pollution Control Centre (WEWPCC). The draft plan was completed in 2023 which indicates what future work is required to maintain service and capacity for the WEWPCC.

- Operational and Maintenance
  - Wastewater Services (WWS) re-tendered a contract for planned refurbishment of biosolids centrifuges which will provide control over these significant maintenance costs until the assets are scheduled to be replaced through the major upgrade project.

    Reliability of equipment in the NEWPCC Sequence Batch Reactor (SBR) impacted the ability of the facility to remove nitrogen which is a licence requirement. Failure of process equipment beyond normal annual maintenance required significant levels of corrective work in 2023 in order to regain treatment reliability. This work will continue on into 2024.

1. Compliance and Operation

The three treatment plants have performed well during the year. Particular attention has been given to the SEWPCC following the transition from a High Purity Oxygen process to the Biological Nutrient Removal (BNR) treatment process commissioned in 2022. The BNR process has been largely successful in meeting nitrogen levels required by the environmental licence. Phosphorous removal currently requires the addition of a chemical. Chemical addition will continue until construction and commissioning of the additional treatment processes required to support biological phosphorus removal are complete.

Although the new SEWPCC disinfection process is functioning as designed, E-coli exceedances have been observed in plant effluent due to SEWPCC Upgrade Project construction issues. A plan for correcting the problems has been developed and will be implemented when flow levels allow the plan to be completed safely.

NEWPCC nitrogen removal was temporarily out of compliance in 2023 due to systemic equipment issues with the centrate treatment process. To ensure consistent long-term compliance, a plan to replace the problematic equipment was started in 2023 and will be completed in 2024.

2. Maintenance Strategy

Progress delivering the maintenance strategy in 2023 included:

- Implementing regular preventive maintenance on SEWPCC areas that were handed over in 2023 including the backup power generators and new secondary clarifiers;

- Preparing for regular preventive maintenance on SEWPCC areas that were handed over in late 2023 and early 2024 including Area R (BNR), Area G (Screenings and Grit removal), and Area K (HRC);

- Implementing a multi-year contract to provide Medium Voltage preventive maintenance services at both NEWPCC and SEWPCC power supply switchyards, which requires specialized electrical power contractors. Although WWS Electrical and Instrumentation staff are trained and licensed to work on electrical equipment within the plants, the Medium Voltage work is performed by contractors who specialize in electrical substation maintenance;

- Implementing a new multi-year contract to provide specialist centrifuge refurbishment and overhaul services (for biosolids dewatering). Following the success of our previous multi-year contract from 2016 which expired in Q2 2022, a new multi-year contract to continue these services until 2030 was posted, awarded, and implemented.

3. NEWPCC Upgrade Projects

Upgrades to the NEWPCC for licence compliance and reliability are being delivered in three major projects, and some supporting projects, in order to better manage risk, scope, and cost of this large complex program.

Project 1 - NEWPCC Upgrade: Power Supply Upgrade (PSU) and Headworks Facilities	The PSU project has provided a new City owned substation which provides greater system control and protective features along with enhanced employee operator safety. The project reached Total Performance in April 2023 and was successfully transitioned to long-term operations. Monitoring for defects has been ongoing throughout the year with plans in place for correcting deficiencies prior to the end of the warranty period. Upgrade of the NEWPCC Headworks Facility will ensure reliability through the replacement of some of the oldest wastewater treatment infrastructure and processes in the City. The work will also provide improved grit and screening removal to the standard required by the advanced wastewater treatment technologies to be provided for Biosolids and Nutrient Removal. Construction of the new facility continued throughout 2023 including tunneling between sewer interceptor chambers H1 and H2 and concrete pours continued with: • the base slab for interceptor chamber H2; • the concrete structure for the Grit Building; • lower level concrete structure of the Fine Screening Area; • base slab for the Solids Handling and Mechanical Rooms;

	• and the concrete structure of the Y4 Connection Gallery. Construction of the building envelope for the Standby Generator Facility was completed and work continues to fit the building with mechanical and electrical equipment.
Project 2- NEWPCC Upgrade: Biosolids Facilities	Market sounding revealed limited interest by the contracting market in a DB project delivery model. As a result, the project delivery approach was adjusted to one of Progressive Design Build (PDB). This delivery model selects a Development Partner, through a competitive procurement, qualified to design and construct the works. The successful proponent will work closely with the WSTP to complete design to 60 percent, propose a delivery schedule, estimate costs, and offer to engage in a Design Build Agreement to complete the design and construction of the facility. Procurement documents for the PDB approach were developed with two delivery teams being successfully short listed in December 2023. Procurement will continue in 2024 with submission of proposals by the short-listed Development Partner teams. The project was independently re-estimated in 2023, resulting in an increased budget which was approved by Council. The revised project estimate and cash flow was communicated to the City's funding partners. Work has been progressing to manage land and procurement risks including: • A Heritage Resource and Impact Assessment was completed during 2023 and approval to proceed was received from the Province of Manitoba (Province). • Social Procurement requirements have been incorporated into procurement documents. • The NEWPCC property is constrained on four sides with a limited availability of land for construction. City land not required for the anticipated future construction of Chief Pequis Trail was transferred to the Biosolids project which will help ease restrictions on the project design. An agreement with the Public Works Department for temporary use of Chief Pequis Trail property has been drafted, which will manage a site access risk. • Progress has been made on approvals for a utility crossing under the active railway line which passes through the NEWPCC property. Further rail crossing approvals are required and anticipated in 2024.
Project 3 - NEWPCC	The deep tank (Westbank) biological nutrient removal process was selected as the nutrient removal technology to be used in the

Upgrade: Nutrient Removal Facilities	enhanced preliminary design (EPD); this technology is used at the WEWPCC. Work on the EPD continues and will be ongoing until mid-2024.
NEWPCC Primary Clarification Facility Refurbishments, Replacements, and Upgrades	This project will improve reliability of the NEWPCC Primary Clarifiers and provide a new treatment process for dewatering of scum, which in turn will mitigate some risk of digester capacity. The project has separated the works into two phases, i) new build works for scum handing and dewatering and ii) reliability improvements. Design of the scum handling and dewatering facility was completed in 2023. A tender for the pre-purchase of the scum presses was awarded. The tender for the construction of a Scum Dewatering Building only received one bid that was substantially higher than the Class 1 pre-bid estimate. It was determined it would not be in the best interest of the City to award the contract. Other work completed included a condition assessment of two primary clarifier travelling bridge collectors (for sludge scraping and scum skimming) which will provide information for refurbishment or replacement planning.
Distributed Control System (DCS) Migration	Installation of a new fibre optic communication ring began in 2023 which will be the foundation of the new control system. A Request for Proposal (RFP) was awarded in November 2023 for a Systems Integrator, which is a specialist resource to provide a seamless integration of different technologies and components to create a unified and efficient system.

4. SEWPCC Upgrade and Expansion Project

The SEWPCC Upgrade and Expansion Project is being constructed through four main contracts. Contracts 1,2, and 3 have achieved Total Performance. Contract 4 (C4), the final phase of the project, is on-going. This year has seen the commissioning of Secondary Clarifiers 4 and 5, and final preparations for commissioning of the BNR process.

Construction Completed	At the beginning of the year, the focus remained on completing construction of UV Disinfection (Area U) and Raw Sewage Pump Replacement (Area G). Work on multiple areas was required to maintain the construction schedule and commission areas of the plant for environmental compliance. Throughout the year, construction continued on several areas which resulted in the successful hand over of specific assets from Contract to the City Operations and Maintenance team including Secondary (Area S); Raw Sewage Pump P-G102 (Area G); Chemical and Electrical (Area C); and Biological Nutrient and Blower Building (Area R).

Commissioning	In 2023, the focus for commissioning has been replacement of the UV Disinfection System; startup of the HRC system which provides treatment of storm flows; and preparation for commissioning of the biofilter and fermenter systems. The biofilters are required for odour treatment and the fermenters to reduce the amount of chemicals required to remove phosphorous and nitrogen. Early in 2023, the existing UV Disinfection System was retired and replaced with two new UV streams providing a higher overall capacity. A planned disinfection bypass event, required to bring the new systems online, was coordinated with the Province. Remote monitoring systems were completed to allow operators to monitor and control the UV equipment from the central control room. During the summer/fall, the two HRC trains were commissioned and started for the first time. Further performance verification tests will be conducted to confirm that license requirements can be achieved during all ranges of plant flows. Work progressed on installation of the Odour Control System and commissioning is planned to take place in 2024. Construction of the fermenter systems (used to create a biological substitute for Ferric Chloride) has required re-purposing existing concrete structures which are no longer required and conversion of these tanks progressed throughout 2023. This work has progressed in parallel with construction of equipment for thickening waste sludge which, once complete, will reduce the cost of transporting this material to the NEWPCC. Delamination of newly applied chemical resistant coatings was observed in certain areas of the fermenters and odour control tanks. This required inspection, testing, and repairs and further delayed the schedule. Correction of post-commissioning deficiencies and construction of remaining works has continued through 2023. Care and custody of equipment remains with the Contractor until all issues required for handover to the City operations staff are completed. Once a given process area is assessed as complete, that area is handed over to care and custody of the City operations and maintenance teams.

5. Asset Refurbishment and Replacement Program (ARR) and Minor Capital Projects

ARR is a program which follows the City Asset Management framework to identify, prioritize, and manage small to medium sized projects required to maintain current levels of service during the sewage treatment plant upgrades. ARR projects are being delivered by resources from the Water and Waste Department's Engineering Division and the Wastewater Services Division.

5.1. Projects in Delivery Phase:

Interim Phosphorous Removal	This project will provide interim chemical removal of phosphorus at the NEWPCC prior to the planned nutrient removal upgrade. Construction of a new sodium hydroxide chemical storage building and two additions to the railcar shelter began in January 2023. This will improve chemical handling efficiency, reduce supply risk, and provide a space for additional ferric chloride storage tanks. Construction of two remote chemical dosing points in other areas of the plant, an additional rail track into the new facility, and a rail spur for railcar storage was also started in 2023. Construction completion and commissioning of the new process is expected to be completed in Q2 of 2024.
NEWPCC Return Activated Sludge (RAS) Pipe Refurbishment	This project has refurbished the existing RAS piping system at the NEWPCC by fully wrapping it in a carbon fibre composite. The work has extended the life of the asset and mitigated particular risks associated with deferral of the secondary treatment upgrade. Total Performance was achieved in 2023 and the project is in its warranty period.
NEWPCC Boiler #5 Replacement:	This project will replace one of the natural gas fired boilers which is required for digester and space heating and is currently out of service. Design works for the mitigation plan were completed in 2023 and a contract was awarded for construction of temporary supplementary heating. Design on the permanent works is ongoing.
NEWPCC SBR Optimization	This project transitioned the SBR nitrification-de-nitrification process to a Nitrite-Shunt with the objective of reducing operating costs.

	Commissioning was completed in 2022. However, following commissioning, the facility experienced a reliability failure which will prevent the process being operated in its optimized mode until the issues are addressed. A new ARR project was created to replace the aeration grid.
NEWPCC SBR Aeration Grid Replacement:	This project will replace the aeration grid in both SBR's to provide improved reliability. The grid in SBR#1 was replaced in 2023 together with other necessary repairs from wear and tear. SBR#2 grid is scheduled to be replaced in 2024.
NEWPCC UV Transformer Refurbishment/Replacement	This project will repair the enclosures for transformers which provide power for the UV facility. The construction contract was re-tendered in 2023 and construction is ongoing.
NEWPCC UV Pump Replacement:	This project replaced five pumps which lift effluent to the UV facility and provided an off-line spare pump. Work continued with construction of minor electrical upgrades in 2023.
NEWPCC Secondary Clarifier Sludge Blanket Detection	This project will remove a safety hazard by providing staff with remote real-time monitoring of sludge levels in the clarifiers, which is required for effective process control. A trial of alternative technologies to provide the data was completed in 2023.
Perimeter Road Pumping Station, Pump 1 & 2 Equipment Replacement & Electrical Upgrades	This project will provide reliability improvements for two pumps which transfer sewage flow to the WEWPCC and upgrade elements of the electrical system. An RFP for a design consultant was prepared and awarded. Design is nearing completion and preparation of a construction contract is progressing.
SEWPCC Chiller Replacement:	This project will replace equipment in the HVAC system that has reached the end of its service life. An RFP for a design consultant was prepared and awarded. Design is nearing completion and preparation of a construction contract is progressing.
NEWPCC Spiral Heat Exchanger Replacements for Digester Tank Nos. 9-14:	This project will replace equipment in the digester process area that has reached the end of its service life. An RFP for a design consultant was prepared and awarded. Design was completed and a tender for equipment supply closed in late 2023 and will be awarded in early 2024.

5.2. Projects in Procurement Phase:

WEWPCC Grit and Screening Improvements	This project will upgrade the WEWPCC inlet screens to the 6mm perforated standard required for the future thermal hydrolysis facility at the NEWPCC. The project will also refurbish or replace the grit facility which has reached the end of its useful life and conduct condition assessments on specific assets to facilitate future capital work planning. An RFP for design services has been drafted.

6. Capital Planning

Development of WEWPCC Master plan started in 2022 with posting and award of an Request for Proposal (RFP) for development of the plan. The outcomes of this study will indicate what future work is required to maintain service and capacity for the WEWPCC. All technical memos required by the Master Plan were advanced to draft status in 2023. The Master Plan will be presented to the WSTP and completed in 2024.

7. Biosolids Reuse

The City continues its multi-pronged biosolids strategy utilizing Land Application and Soil Fabrication. Together these routes provide an environmentally sound, sustainable, and cost-effective strategy for beneficial reuse of biosolids while meeting provincial regulations.

Land Application	2023 marked the sixth year of the City of Winnipeg's Biosolids Land Application Program that involves the annual spreading of biosolids onto local farmland. Land application is an environmentally sustainable practice that supplies valuable nutrients for crop production and provides an opportunity to reuse wastewater biosolids. The Biosolids Land Application Program in 2023 included: ○ In-field stockpiling and storage of the biosolids materials on agricultural land; ○ Continuation of odour assessments of the biosolids storage site; ○ Biosolids land application after crop harvest onto agricultural fields at agronomic rates that matched crop uptake of nutrients;

	○ Fulfillment of monitoring and reporting requirements as outlined in the City's Notice of Alteration. To meet revised regulated phosphorus emissions limits, process modifications were made that significantly increased the rate of sludge generation at SEWPCC, and of biosolids overall. The Biosolids Land Application Program successfully managed the hauling and land application of the increased volume of biosolids.
Soil Fabrication Program	The City has continued its Soil Fabrication Program which uses biosolids, woodchips, and street sweepings to produce a soil mixture that serves as landfill top cover. This soil cover helps reduce water infiltration, erosion, and greenhouse gas emissions while restoring the land to native prairie landscape. Operationally, the Soil Fabrication Program provides an alternative to landfill disposal of biosolids in winter months when land application routes are not viable.

8. 2023 WSTP Key Performance Indicators (KPI) Results

2023 KPIs were evaluated in accordance with Schedule III of the WSTP Agreement.

KPI	Description	Target	Value Achieved
NEWPCC Constructability Review	Complete a review of the upgrade projects required to meet NEWPCC licence requirements, including funding information, by 2030. To be used by the WSTP when implementing new capital projects related to NEWPCC by helping identify the overlaps, tie-ins, coordination and optimizing the integration of new projects into the NEWPCC.	$172,260	$172,260
Project Controls Report	To show the overall health of the program/project in terms of Budget and Time to help improve overall program/project reporting of cost and schedule variances in a user friend dashboard/report.	$124,410	$118,190
NEWPCC Power Supply Protection: Relay Training	Develop a training program to understand the basics of protection relays.	$124,410	$124,410

KPI	Description	Target	Value Achieved
NEWPCC Heating Master Plan	Develop a plan to manage the operational risk related to building and process heating; ensure adequate heating is maintained throughout the major upgrade works; avoid unnecessary capital costs by replacing boilers that are not required due to heat load changes; and provide a long-term road map for facility heating.	$153,120	$153,120
Digester De-Commissioning / Commissioning Best Practice	Improve digester safety during decommissioning and recommissioning activities. Scope includes review of regulatory and best practices, risk management, and a gap analysis	$172,260	$172,260
NEWPCC Risk Mitigation	Provide an investment profile for current assets at the three treatment plants. Obtain a flexible engineering resource to improve investment planning for refurbishment and replacement projects	$76,560	$76,560
NEWPCC Biosolids Operational Strategy	Explore operational challenges for the new biosolids facility so there is support for operations and maintenance readiness through each phase of the project.	$133,980	$133,980

9. 2023 Financial Results

Veolia's compensation components that are earned annually include:

- Fees on aggregate program target costs;
- Gain share/pain share allocations;
- Meeting key performance indicators; and
- Interest adjustments.

Compensation earnings in any given year are credited to the Earnings At Risk Account (EARA) and earn interest. EARA categories are itemized in the following table.

Earnings At Risk Account Summary ($thousands) as of December 31	**2023**	2022
Fees	**$ 1,722**	$ 1,779
Share of gain/(pain) on operations	**(399)**	348
Key performance indicators	**951**	929
Interest on funds	**216**	203

Performance compensation	**2,490**	3,259
EARA opening balance	**7,137**	3,878
EARA closing balance before withdrawals	**9,627**	7,137
Veolia withdrawal with security	**(3,878)**	-
EARA closing balance after withdrawals	**5,749**	7,137
Accumulated Veolia withdrawals	**$16,992**	$13,114

The EARA is compared to the At Risk Amount (ARA) to determine if Veolia is entitled to reduce their at risk amount. The ARA represents numerically the amount of risk remaining in the WSTP over the balance of the contract, and includes best estimates of operating and capital expenditures. As of December 31, 2023, the EARA balance was $5.7 million ($7.1 million, 2022) and the ARA balance was $45.0 million ($47.9 million, 2022).

Veolia can only reduce their ARA at such time as the EARA balance exceeds the ARA balance or if a letter of credit is issued to support a withdrawal. In April 2023, upon approval from the LT, $3,877,9477 of the EARA balance was paid out to Veolia and replaced with a Standing Letter of Credit.

As per the Agreement, Veolia is required to post security to the City with the purpose of protecting the City in the event of certain situations. Veolia has posted $50 million security ($25 million letter of credit and $25 million performance bond). There is also a Parental Guarantee in place to protect the City whereby Veolia North America guarantees all of Veolia's obligations under the agreement.

The financial summary for 2023 with comparative figures for 2022 is as follows:

Financial Summary ($millions)	**December 31, 2023**	December 31, 2022
Reimbursement of Veolia direct costs	**$ 2.9**	$ 2.5
Earnings At Risk Account	**5.7**	7.1
At Risk Amount	**45.0**	47.9
Performance Security	**50.0**	50.0
Standing Letter of Credit	**17.0**	13.1

2024 ANNUAL PROGRAM PLAN (APP) DELIVERABLES:

The WSTP will build on the previous years' work continuing the focus on delivery of the capital projects and operations and maintenance readiness. The WSTP remains fully

committed to compliance and will be continuing to assist Operations with ongoing initiatives.

1. WSTP Goals and Objectives

The WSTP focus will remain on progressing the major capital upgrades to:

SEWPCC Upgrade and Expansion	Complete construction and have all processes commissioned and handed over to operations. Targeting Substantial Performance in 2024.
NEWPCC Power Supply Upgrade	Resolve outstanding warranty work and issue Acceptance Certificate.
NEWPCC Headworks Upgrade	Complete design work and continue construction activities on site. Begin planning for commissioning and readiness activities.
NEWPCC Biosolids Upgrade	Select the Development Phase Partner and execute the Development Phase Agreement.
NEWPCC Phosphorus Master Plan	Successfully commission and achieve substantial performance of the project during the year.
NEWPCC Nutrient Removal Project	Complete an Enhanced Preliminary Design and Class 3 cost estimate.
WEWPCC Grit and Screening Upgrade	Award an Engineering Services contract and commence the detailed design.

In addition, the WSTP will continue to progress smaller NEWPCC capital projects including Distributed Control System (DCS) migration, primary clarifier and UV upgrades, and continue to support the ARR Program.

2. Program Management Initiatives

Management Team Planning	The MT has established a rolling three-year plan, year one of which has been used to create this APP. The MT planning tool will continue to be used to follow progress throughout the year and plan for subsequent APPs.
Communication	The WSTP will continue to create, build, and maintain relationships throughout the City, Veolia, and all Program stakeholders. The WSTP will focus on collaboration with the new development partner for the Biosolids Upgrade Project, specifically to build a project communication and resource management plan for the intensive design and constructability

	phase of the project to ensure successful delivery throughout 2025 and into the implementation phase. The WSTP will continue to inform the Province on risks and practicality of goals for the NEWPCC Nutrient Removal Project and advance planning activities to progress towards achieving those goals for the plant effluent.
Change Management	Activity on the NEWPCC Upgrades is ramping up in 2024 and the SEWPCC Upgrade and Expansion Project is reaching the end of its commissioning phase. To keep knowledge and experience within the WSTP, engineering roles within both the City and Veolia will be progressively transitioned from the SEWPCC to the NEWPCC. Implications for Change Management will continue to be considered by the MT through its planning activities.
Target Costs	The WSTP has Capital Project Target Costs (CPTC) in place for the SEWPCC Upgrade and Expansion and the NEWPCC PSU Projects. The CPTC tracking framework will be further developed. A CPTC methodology for the NEWPCC Headworks Project will be developed in 2024. Lessons learned from the Headworks Project will be utilized to develop a CPTC methodology for the Biosolids Upgrade Project, and an initial CPTC submission for the NEWPCC Biosolids Project is planned to be submitted by the end of 2024. The strategy for a Baseline Operating Cost adjustment for the SEWPCC Upgrade and Expansion project is to focus on specific process areas where a Target Cost can add value though optimization. The goal for 2024 is to identify potential improvement areas which will benefit from the Target Cost. The NEWPCC SBR aeration systems repairs will be completed in 2024 and the SBR Optimization Baseline Operating Target Cost will be reinstated later in the year.

3. NEWPCC Upgrade Projects

Power Supply Upgrade	A new electrical substation has been built at the NEWPCC in advance of the commencement of the Headworks and subsequent capital projects. The new electrical supply is designed to accommodate additional power demand for the

	future upgraded facility and replace the existing on-site Manitoba Hydro substation with a City owned substation. The new Power Supply has been in operation for over two years and will reach Project Completion in 2024, including the conclusion of the warranty period.
Headworks Facilities	The NEWPCC Headworks Upgrade is being delivered through a DB contract. Construction began in 2021 and design is planned to be complete during 2024. Construction activities will continue through the year and the WSTP will work on Operations and Maintenance Readiness planning to prepare for commissioning and tie in activities scheduled for 2025 and 2026.
DCS Migration	The DCS Migration project will upgrade the existing plant automation system to a new technology based on modern Programable Logic Controllers. The modernization of this system is an important pre-requisite for the major capital upgrade projects and is anticipated to be complete in 2027. In 2023, a System Integrator was selected and construction of an optical fibre ring was completed. The installation contractor will be selected in 2024. This year, lessons learned from SEWPCC Capital Upgrade will be incorporated during the planning and execution of the control system upgrade for the first two areas (Headworks and Primaries) scheduled to be migrated by 2024.
UV Disinfection and Flushing Water Upgrade	Existing equipment for UV disinfection of NEWPCC effluent is no longer supported by the supplier, requiring the facility to be upgraded. This project will be delivered as a Design Bid Build, with the NEWPCC Consultant (AECOM) as the designer. To mitigate supply risks from long lead-times, the UV equipment will be pre-purchased; detail design for the equipment is currently in progress with the goal to award the supply contract in 2024. A construction tender is planned to be awarded in 2024, with Total Performance currently scheduled for 2027.
NEWPCC Primary Clarification Facility Refurbishments, Replacements, and Upgrades:	This project will improve reliability of the NEWPCC Primary Clarifiers and provide a new treatment process for dewatering of scum, which in turn will mitigate some risk of digester capacity. The project has separated the works into two phases, i) new build works for scum handing and dewatering and ii) reliability improvements. The scum handling and dewatering facility construction tender will be reposted in 2024, after only a single high bid was received in 2023.

Biosolids Facilities	As a result of the market soundings performed in 2023, the Biosolids procurement model changed from a Fixed Price DB to a PDB. This is a new project delivery model for the WSTP that requires a significant amount of collaboration between the Development Partner and the City, Veolia, and AECOM (owners advocate). A two-step RFP procurement for a delivery partner is anticipated to be completed in 2024 which will select the Development Partner. Once selected, the project will progress to collaboratively develop the design during the Development Phase of the project.
Nutrient Removal	The final project of the NEWPCC Upgrade is the BNR Project. The enhanced preliminary design is currently under development and the Class 3 Cost estimate and associated market soundings are expected to be complete by the end of 2024. The program continues to work with the City Finance department and the Province to review the funding model required to complete this project. It is anticipated this work will ramp up later in the year when the Class 3 Cost Estimate is received. The project team will continue work on the NEWPCC Constructability review in 2024 and provide a further update to the Provincial regulator for options related to schedule efficiency.

4. SEWPCC Upgrade and Expansion Project

The design phase of the SEWPCC Upgrade and Expansion project is complete. Work on the last construction contract (C4) is continuing as a Program priority in the context of significant schedule and contract relationship challenges.

The WSTP will continue to work closely with the Consultant to manage the progress of C4. This includes working closely with external legal resources to document and manage activities with the C4 contractor to minimize risk exposure to the City and protect the best interests of the Program.

The goal is to achieve the successful commissioning of the remaining major treatment processes and provide full biological removal of Phosphorous in 2024.

5. Biosolids Management

The Program will continue to support the City’s biosolids re-use strategy which has developed multiple beneficial re-use routes for biosolids: Land Application and Soil Manufacturing. Land fill remains part of the biosolids management strategy contingency.

6. Capital Planning

The priority for WSTP support to Capital Planning will be on the Phosphorous Master Plan, which is on track to be commissioned and achieve Total Performance by the end of 2024. Completion of this project will allow for increased ferric chloride dosing to reduce total phosphorus in the final effluent, a regulatory requirement.

An RFP for engineering services, for design of the WEWPCC Grit and Screening Project, will be awarded in 2024, with the construction tender expected to be awarded in 2025. This project is a pre-requisite to the Biosolids Project, as the Cambi Thermal Hydrolysis process is highly sensitive to grit and large non-biological material found in wastewater (known as screenings).

7. Compliance and Operation

The WSTP will continue to prioritize the operational support to manage process compliance. A focus will be maintained on readiness activities related to the major upgrade projects.

8. Maintenance Strategy

The WSTP will continue to support the improvement of maintenance strategies. A Project Charter will be created for maintenance priority activities in 2024.

9. Asset Refurbishment and Replacement Program

The priority ARR Projects for 2024 are:

- WEWPCC Grit and Screenings project;
- NEWPCC Primary Clarifier Upgrade; and
- NEWPCC Phosphorus Master Plan: Construction of the Interim Phosphorus Removal project will continue through the year with the goal of successfully commissioning and achieving substantial performance of the project.

10. 2024 Program Key Performance Indicators (KPI)

KPI	Description
Power Supply Training	Provide a detailed understanding of: • transformer maintenance; • functions of accessory equipment related to control and protection; • how to test accessory equipment; and

KPI	Description
	• what inspections and tests are required monthly, annually and every four to five years.
NEWPCC Facility Plan Update	Review and update the NEWPCC Facility Plan. The NEWPCC Facility Plan, last updated in 2015, documents the plant's current state and details ongoing and future capital upgrade projects. It requires updating to reflect updated project scopes, procurement methods, and timelines. The Plan serves as a single source of information for the WSTP, and will assist with identifying project overlaps and tie-ins.
Program Documents Update	Review and update WSTP documentation to remove redundant content which is addressed elsewhere by the City; ensure the remaining procedures and tools represent the way the WSTP wants to function; and ensure WSTP governance activities are up to date.
Process Control Management Plan (PCMP) Update	Review and update the PCMP to ensure they remain current and relevant. The PCMP is one part of a comprehensive process management program which defines the information and communication methods that management needs to control and to direct the operations of unit processes. The SEWPCC Upgrade and Expansion Project will be commissioned in 2024 and will require the PCMP to be updated for that site.
Series of Lunch and Learns	Enhance the City's understanding in Program-related areas. The topics for 2024 have been selected based on their relevance to current subjects in the WSTP and include: best practices on concrete tank coatings, program agreement training, PDB procurement method training; and indoor Cambi facility training.
Class A Biosolids Marketing Roadmap	Review the existing biosolids reuse strategy, identify possible future markets, and assess the risks and opportunities within these markets. It will be important to understand the market within Manitoba to balance resale value, storage requirements, and consistent supply chain year-round.
Capital Projects Sampling Parameters	Facilitate WWS, Environmental Standards, and Engineering Teams to plan for changing requirements for sampling and analysis for commissioning of the NEWPCC Upgrade Projects and transition of these projects and the SEWPCC into long-term operations.

FINANCIAL IMPACT

Financial Impact Statement

Date: May 15, 2024

Project Name:

WINNIPEG SEWAGE TREATMENT PROGRAM 2023 ANNUAL REPORT PROGRAM AGREEMENT BETWEEN THE CITY OF WINNIPEG AND VWNA WINNIPEG INC. (VEOLIA)

COMMENTS:

The report is received for information. Financial implications of the Program are discussed in the Financial Results section of the report.

Lucy Szkwarek, CPA, CGA

Lucy Szkwarek, CPA, CGA
Manager Finance and Administration

CONSULTATION

This Report has been prepared in consultation with:

WSTP Leadership Team

OURWINNIPEG POLICY ALIGNMENT

This report aligns with OurWinnipeg 2045:

Goal: Environmental Resilience
Policy 2.19 Leverage Green Infrastructure
Objective: Protect and value ecosystems as essential components to life.

WINNIPEG CLIMATE ACTION PLAN ALIGNMENT

This report aligns with the Winnipeg Climate Action Plan through Strategic Opportunity 6: Waste Reduction and Diversion.
Key Direction 6.3 Utilize Biosolids In Agriculture and Landscaping Industries

WINNIPEG POVERTY REDUCTION STRATEGY ALIGNMENT

Consideration was given as to whether this report connects to the Winnipeg Poverty Reduction Strategy (PRS) and its Goals and Objectives, and it was determined that the PRS is not applicable to this specific report.

SUBMITTED BY

Department: Water and Waste Department
Division: Finance and Administration
Prepared by: Ashleigh Campbell, CPA CA
Date: May 17, 2024
File No.: 020-17-06-10-01

Appendix A: Leadership and Management Team Membership

APPENDIX A: LEADERSHIP AND MANAGEMENT TEAM MEMBERSHIP (updated)

