THE CITY OF WINNIPEG

REQUEST FOR PROPOSAL

RFP NO. 249-2019

VALIDATION OF COST ESTIMATE CLASSIFICATIONS FOR NEWPCC UPGRADE PROJECT

Proposals shall be submitted to:

The City of Winnipeg
Corporate Finance Department
Materials Management Division
185 King Street, Main Floor
Winnipeg MB R3B 1J1

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 VALIDATION OF COST ESTIMATE CLASSIFICATIONS FOR NEWPCC UPGRADE

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 p.m. Winnipeg time, April 5, 2019.

B2.2 Proposals determined by the Manager of Materials to have been received later than the Submission Deadline will not be accepted and will be returned upon request.

B2.3 The Project Manager or the Manager of Materials may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

B3. ENQUIRIES

B3.1 All enquiries shall be directed to the Project Manager identified in D2.

B3.2 If the Proponent finds errors, discrepancies or omissions in the Request for Proposal, or is unsure of the meaning or intent of any provision therein, the Proponent shall promptly notify the Project Manager of the error, discrepancy or omission at least five (5) Business Days prior to the Submission Deadline.

B3.3 Responses to enquiries which, in the sole judgment of the Project Manager, require a correction to or a clarification of the Request for Proposal will be provided by the Project Manager to all Proponents by issuing an addendum.

B3.4 Responses to enquiries which, in the sole judgment of the Project Manager, do not require a correction to or a clarification of the Request for Proposal will be provided by the Project Manager only to the Proponent who made the enquiry.

B3.5 All correspondence or contact by Proponents with the City in respect of this RFP must be directly and only with the City's Project Manager. Failure to restrict correspondence and contact to the Project Manager may result in the rejection of the Proponents Proposal Submission.

B3.6 The Proponent shall not be entitled to rely on any response or interpretation received pursuant to B3 unless that response or interpretation is provided by the Project Manager in writing.

B4. CONFIDENTIALITY

B4.1 Information provided to a Proponent by the City or acquired by a Proponent by way of further enquiries or through investigation is confidential. Such information shall not be used or disclosed in any way without the prior written authorization of the Project Manager. The use and disclosure of the Confidential Information shall not apply to information which:

(a) was known to the Proponent before receipt hereof; or

(b) becomes publicly known other than through the Proponent; or

(c) is disclosed pursuant to the requirements of a governmental authority or judicial order.

B4.2 The Proponent shall not make any statement of fact or opinion regarding any aspect of the Request for Proposals to the media or any member of the public without the prior written authorization of the Project Manager.

B5. ADDENDA

B5.1 The Project Manager may, at any time prior to the Submission Deadline, issue addenda correcting errors, discrepancies or omissions in the Request for Proposal, or clarifying the meaning or intent of any provision therein.

B5.2 The Project Manager will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.

B5.3 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/bidopp.asp

B5.4 The Proponent is responsible for ensuring that he/she has received all addenda and is advised to check the Materials Management Division website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.

B5.5 The Proponent shall acknowledge receipt of each addendum in Paragraph 9 of Form A: Proposal. Failure to acknowledge receipt of an addendum may render a Proposal non-responsive.

B5.6 Notwithstanding B3, enquiries related to an Addendum may be directed to the Project Manager indicated in D2.

B6. PROPOSAL SUBMISSION

B6.1 The Proposal shall consist of the following components:

(a) Form A: Proposal (Section A) in accordance with B7; and

(b) Fees (Section B) in accordance with B8.

B6.2 The Proposal should also consist of the following components:

(a) Experience of Proponent and Subconsultants (Section C) in accordance with B9;

(b) Experience of Key Personnel Assigned to the Project (Section D), in accordance with B10;

(c) Project Understanding and Methodology (Section E) in accordance with B11; and

(d) Project Schedule (Section F) in accordance with B12.

B6.3 Further to B6.1 all components of the Proposal shall be fully completed or provided in the order indicated, and submitted by the Proponent no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Proposal.

B6.4 Further to B6.2, all components of the Proposal should be fully completed or provided in the order indicated, and submitted by the Proponent no later than the Submission Deadline, with all required entries made clearly and completely.

B6.5 Proponents should submit one (1) unbound 8.5” x 11” originals (marked “original”) and three (3) copies (copies can be in any size format) for sections identified in B6.1 and B6.2.

B6.6 Proposal format, including type of binding, number of pages, size of pages and, font, etc., will not be regulated, except that the Proposal should contain a table of contents, page numbering and should be in the Sections identified above. Proponents are encouraged to use their creativity to submit a Proposal which provides the requested information for evaluation and other information which illustrates the strength of their team.

B6.7 Proponents are advised that inclusion of terms and conditions inconsistent with the Request for Proposal, will be evaluated in accordance with B22.1(a).

B6.8 The Proposal shall be submitted enclosed and sealed in an envelope/package clearly marked with the RFP number and the Proponent's name and address.

B6.9 Proposals submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.

B6.10 Proposals shall be submitted to:

The City of Winnipeg
Corporate Finance Department
Materials Management Division
185 King Street, Main Floor
Winnipeg MB R3B 1J1

B6.11 Any cost or expense incurred by the Proponent that is associated with the preparation of the Proposal shall be borne solely by the Proponent.

B7. PROPOSAL (SECTION A)

B7.1 The Proponent shall complete Form A: Proposal, making all required entries.

B7.2 Paragraph 2 of Form A: Proposal shall be completed in accordance with the following requirements:

(a) if the Proponent is a sole proprietor carrying on business in his/her own name, his/her name shall be inserted;

(b) if the Proponent is a partnership, the full name of the partnership shall be inserted;

(c) if the Proponent is a corporation, the full name of the corporation shall be inserted;

(d) if the Proponent is carrying on business under a name other than his/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.

B7.2.1 If a Proposal is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B7.2.

B7.3 In Paragraph 3 of Form A: Proposal, the Proponent shall identify a contact person who is authorized to represent the Proponent for purposes of the Proposal.

B7.4 Paragraph 12 of Form A: Proposal shall be signed in accordance with the following requirements:

(a) if the Proponent is a sole proprietor carrying on business in his/her own name, it shall be signed by the Proponent;

(b) if the Proponent is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;

(c) if the Proponent is a corporation, it shall be signed by its duly authorized officer or officers and the corporate seal, if the corporation has one, should be affixed;

(d) if the Proponent is carrying on business under a name other than his/her own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.

B7.4.1 The name and official capacity of all individuals signing Form A: Proposal should be printed below such signatures.

B7.5 If a Proposal is submitted jointly by two or more persons, the word "Proponent" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Proponents in the Proposal and the Contract, when awarded, shall be both joint and several.

B8. FEES (SECTION B)

B8.1 The Proposal shall include a Fixed Fee for all disciplines and/or phases identified in D5 Scope of Services.

B8.2 Adjustments to Fees will only be considered based on increases to the Scope of Services.

B8.2.1 The City will not consider an adjustment to the Fees based on changes in the Project budget or the Final Total Construction Cost.

B8.3 Notwithstanding C1.1(b), Fees shall include costs for out of town travel, related meals and accommodations for the duration of the Project and shall not be considered an Allowable Disbursement.

B8.4 The Fee Proposal shall also include an allowance for Allowable Disbursements as defined in C1.1(b).

B8.5 Notwithstanding C11.1, Fees submitted shall not include the Goods and Services Tax (GST) or Manitoba Retail Sales Tax (MRST, also known as PST), which shall be extra where applicable.

B8.6 Payments to Non-Resident Consultants are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B9. EXPERIENCE OF PROPONENT AND SUBCONSULTANTS (SECTION C)

B9.1 Proposals should include:

(a) details demonstrating the history and experience of the Proponent and Subconsultants in providing consulting services on three projects of similar complexity, scope and value.

B9.2 For each project listed in B9.1(a), the Proponent should submit:

(a) description of the project;

(b) role of the consultant;

(c) project's original contracted cost and final cost;

(d) design and schedule (anticipated Project schedule and actual project delivery schedule, showing design separately);

(e) project owner;

(f) reference information (two current names with telephone numbers per project).

B9.2.1 Where applicable, information should be separated into Proponent and Subconsultant project listings.

B9.3 The Proposal should include general firm profile information, including years in business, average volume of work, number of employees and other pertinent information for the Proponent and all Subconsultants.

B10. EXPERIENCE OF KEY PERSONNEL ASSIGNED TO THE PROJECT (SECTION D)

B10.1 Describe your approach to overall team formation and coordination of team members.

B10.1.1 Include an organizational chart for the Project.

B10.2 Identify the following Key Personnel assigned to the Project:

(a) project manager;

(b) project team members;

(c) subconsultant team members, if applicable.

B10.3 Submit the experience and qualifications of the Key Personnel assigned to the Project for projects of similar complexity, scope and value, including the principals-in-charge, the Consultants Representative, managers of the key disciplines and lead designers. Include educational background and degrees, professional recognition, job title, years of experience in current position, years of experience in cost consulting, years of experience with existing employer, and experience with AACE recommended practices and guidance. Roles of each of

the Key Personnel in the Project should be identified in the organizational chart referred to in B10.1.1.

B10.4 For each person identified, list at least two comparable projects in which they have played a primary role similar to that proposed for this Project. If a project selected for a key person is included in B9, provide only the project name and the role of the key person. For other projects provide the following:

(a) Description of project;

(b) Role of the person;

(c) Project Owner;

(d) Reference information (two current names with telephone numbers per project).

B11. PROJECT UNDERSTANDING AND METHODOLOGY (SECTION E)

B11.1 Describe your firm's project management approach and team organization during the performance of Services, so that the evaluation committee has a clear understanding of the methods the Proponent will use in the delivery of this Project.

B11.2 Methodology should be presented in accordance with the Scope of Services identified in D5.

B11.3 Describe the collaborative process/method to be used by the Key Personnel of the team in the various phases of the Project.

B11.4 Proposals should address:

(a) the team's understanding of the broad functional and technical requirements;

(b) the team's understanding of the cost estimate classification system for the City of Winnipeg and how it applies to the City's Capital Budget;

(c) the proposed Project budget;

(d) the City's Project methodology with respect to the information provided within this RFP; and;

(e) any other issue that conveys your team's understanding of the Project requirements.

B11.5 The Proposal should include Form P: Person Hours for all disciplines and deliverables identified in D5 Scope of Services.

B11.5.1 The total Fees on Form P: Person Hours should match Fees submitted in response to B8.

B11.6 Proponents may use Form P: Person Hours or a table of their own design provided it includes all information requested in accordance with B11.5.

B12. PROJECT SCHEDULE (SECTION F)

B12.1 Proponents should present a carefully considered Critical Path Method schedule using Microsoft Project or similar project management software, complete with resource assignments (all personnel), durations (weekly timescale) and milestone dates or events. The schedule should address each requirement of the Scope of Services.

B12.2 The Proponent's schedule should include critical dates for review and approval processes by the City anticipated during the Project. Reasonable times should be allowed for completion of these processes.

B12.3 The schedule shall achieve critical stages of the Services for this Contract in accordance with the following requirements:

(a) Validation work completion and final report issuance on the Phase 1 – NEWPCC Upgrade: Power Supply and Headworks Facilities – cost estimate by June 17, 2019.

B12.4 Contract completion and final reports issuance for remaining two phases of the NEWPCC Upgrade Project costs estimates by July 31, 2019.

B13. ELIGIBILITY

B13.1 As a result of having provided cost consulting services in relation to this Project, the following Persons or their affiliates are not eligible to be a Proponent, participate as Team Members of a Proponent, or act as advisors to a Proponent or to any of its Team Members or to otherwise participate in the development and preparation of Proposals for the Project:

(a) AECOM Canada Ltd.

(b) Hanscomb Limited

(c) Veolia Water North America (Winnipeg) Inc. (Veolia)

B13.2 A Proponent may be disqualified if any of the above-noted ineligible persons participate in the development and preparation of the Proponent's Proposal for this Project.

B13.3 Due to access to design information from this project that will not be available to other proponents of future consulting work for the NEWPCC Upgrade Project, completion of this validation project may preclude the Consultant from bidding on any future work for the NEWPCC Upgrade Project.

B14. DISCLOSURE

B14.1 Various Persons provided information or services with respect to this Work. In the City's opinion, this relationship or association does not create a conflict of interest because of this full disclosure. Where applicable, additional material available as a result of contact with these Persons is listed below.

B14.2 The Persons are:

(a) N/A

B15. CONFLICT OF INTEREST AND GOOD FAITH

B15.1 Proponents, by responding to this RFP, declare that no Conflict of Interest currently exists, or is reasonably expected to exist in the future.

B15.2 Conflict of Interest means any situation or circumstance where a Proponent or Key Personnel proposed for the Work has:

(a) other commitments;

(b) relationships;

(c) financial interests; or

(d) involvement in ongoing litigation;

that could or would be seen to:

(i) exercise an improper influence over the objective, unbiased and impartial exercise of the independent judgment of the City with respect to the evaluation of Proposals or award of the Contract; or

(ii) compromise, impair or be incompatible with the effective performance of a Proponent's obligations under the Contract;

(e) has contractual or other obligations to the City that could or would be seen to have been compromised or impaired as a result of its participation in the RFP process or the Project; or

(f) has knowledge of confidential information (other than confidential information disclosed by the City in the normal course of the RFP process) of strategic and/or material relevance to

the RFP process or to the Project that is not available to other proponents and that could or would be seen to give that Proponent an unfair competitive advantage.

B15.3 In connection with its Proposal, each entity identified in B15.2 shall:

(a) avoid any perceived, potential or actual Conflict of Interest in relation to the procurement process and the Project;

(b) upon discovering any perceived, potential or actual Conflict of Interest at any time during the RFP process, promptly disclose a detailed description of the Conflict of Interest to the City in a written statement to the Project Manager; and

(c) provide the City with the proposed means to avoid or mitigate, to the greatest extent practicable, any perceived, potential or actual Conflict of Interest and shall submit any additional information to the City that the City considers necessary to properly assess the perceived, potential or actual Conflict of Interest.

B15.4 Without limiting B15.3, the City may, in its sole discretion, waive any and all perceived, potential or actual Conflicts of Interest. The City's waiver may be based upon such terms and conditions as the City, in its sole discretion, requires to satisfy itself that the Conflict of Interest has been appropriately avoided or mitigated, including requiring the Proponent to put into place such policies, procedures, measures and other safeguards as may be required by and be acceptable to the City, in its sole discretion, to avoid or mitigate the impact of such Conflict of Interest.

B15.5 Without limiting B15.3, and in addition to all contractual or other rights or rights at law or in equity or legislation that may be available to the City, the City may, in its sole discretion:

(a) disqualify a Proponent that fails to disclose a perceived, potential or actual Conflict of Interest of the Proponent or any of its Key Personnel;

(b) require the removal or replacement of any Key Personnel proposed for the Work that has a perceived, actual or potential Conflict of Interest that the City, in its sole discretion, determines cannot be avoided or mitigated;

(c) disqualify a Proponent or Key Personnel proposed for the Work that fails to comply with any requirements prescribed by the City pursuant to B15.4 to avoid or mitigate a Conflict of Interest; and

(d) disqualify a Proponent if the Proponent, or one of its Key Personnel proposed for the Project, has a perceived, potential or actual Conflict of Interest that, in the City's sole discretion, cannot be avoided or mitigated, or otherwise resolved.

B15.6 The final determination of whether a perceived, potential or actual Conflict of Interest exists shall be made by the City, in its sole discretion.

B16. QUALIFICATION

B16.1 The Proponent shall:

(a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Proponent does not carry on business in Manitoba, in the jurisdiction where the Proponent does carry on business; and

(b) be financially capable of carrying out the terms of the Contract;

(c) have all the necessary experience, capital, organization, and equipment to perform the Services in strict accordance with the terms and provisions of the Contract;

B16.2 The Proponent and any proposed Subconsultant (for the portion of the Services proposed to be subcontracted to them) shall:

(a) be responsible and not be suspended, debarred or in default of any obligations to the City. A list of suspended or debarred individuals and companies is available on the Information

Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/debar.stm

B16.3 The Proponent and/or any proposed Subconsultant (for the portion of the Services proposed to be subcontracted to them) shall:

(a) have successfully carried out services for the projects of similar complexity, scope and value; and to those required for this Project; and

(b) be fully capable of performing the Services required to be in strict accordance with the terms and provisions of the Contract; and

undertake to meet all licensing and regulatory requirements of the appropriate governing authorities and associations in the Province of Manitoba.

B16.4 The Proponent shall submit, within three (3) Business Days of a request by the Project Manager, further proof satisfactory to the Project Manager of the qualifications of the Proponent and of any proposed Subconsultant.

B17. OPENING OF PROPOSALS AND RELEASE OF INFORMATION

B17.1 Proposals will not be opened publicly.

B17.2 After award of Contract, the names of the Proponents and the Contract amount of the successful Proponent and their address(es) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/

B17.3 The Proponent is advised any information contained in any Proposal Submission may be released if required by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law or by City policy or procedures (which may include access by members of City Council).

B17.3.1 To the extent permitted, the City shall treat as confidential information, those aspects of a Proposal Submission identified by the Proponent as such in accordance with and by reference to Part 2, Section 17 or Section 18 or Section 26 of The Freedom of Information and Protection of Privacy Act (Manitoba), as amended.

B17.4 Following the award of Contract, a Proponent will be provided with information related to the evaluation of his/her submission upon written request to the Project Manager.

B18. IRREVOCABLE OFFER

B18.1 The Proposal(s) submitted by the Proponent shall be irrevocable for the time period specified in Paragraph 10 of Form A: Proposal.

B18.2 The acceptance by the City of any Proposal shall not release the Proposals of the other responsive Proponents and these Proponents shall be bound by their offers on such Work for the time period specified in Paragraph 10 of Form A: Proposal.

B19. WITHDRAWAL OF OFFERS

B19.1 A Proponent may withdraw his/her Proposal without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.

B19.1.1 The time and date of receipt of any notice withdrawing a Proposal shall be the time and date of receipt as determined by the Manager of Materials.

B19.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Proposal or the Proponent's authorized representatives named in Paragraph 12 of Form A: Proposal, and only such person, has authority to give notice of withdrawal.

B19.1.3 If a Proponent gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:

(a) retain the Proposal until after the Submission Deadline has elapsed;

(b) open the Proposal to identify the contact person named in Paragraph 3 of Form A: Proposal and the Proponent's authorized representatives named in Paragraph 12 of Form A: Proposal; and

(c) if the notice has been given by any one of the persons specified in B19.1.3(b), declare the Proposal withdrawn.

B19.2 A Proponent who withdraws its Proposal after the Submission Deadline but before its offer has been released or has lapsed as provided for in B18.2 shall be liable for such damages as are imposed upon the Proponent by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law.

B20. INTERVIEWS

B20.1 The Project Manager may, in his/her sole discretion, interview Proponents during the evaluation process.

B21. NEGOTIATIONS

B21.1 The City reserves the right to negotiate details of the Contract with any Proponent. Proponents are advised to present their best offer, not a starting point for negotiations in their Proposal Submission.

B21.2 The City may negotiate with the Proponents submitting, in the City's opinion, the most advantageous Proposals. The City may enter into negotiations with one or more Proponents without being obligated to offer the same opportunity to any other Proponents. Negotiations may be concurrent and will involve each Proponent individually. The City shall incur no liability to any Proponent as a result of such negotiations.

B21.3 If, in the course of negotiations pursuant to B21.2, the Proponent amends or modifies a Proposal after the Submission Deadline, the City may consider the amended Proposal as an alternative to the Proposal already submitted without releasing the Proponent from the Proposal as originally submitted.

B22. EVALUATION OF PROPOSALS

B22.1 Award of the Contract shall be based on the following evaluation criteria:

(a)	compliance by the Proponent with the requirements of the Request for Proposal or acceptable deviation therefrom:	(pass/fail)
(b)	qualifications of the Proponent and the Subconsultants, if any, pursuant to B16:	(pass/fail)
(c)	Fees; (Section B)	40%
(d)	Experience of Proponent and Subconsultant; (Section C)	20%
(e)	Experience of All Personnel Assigned to the Project; (Section D)	10%
(f)	Project Understanding and Methodology (Section E)	20%
(g)	Project Schedule. (Section F)	10%

B22.2 Further to B22.1(a), the Award Authority may reject a Proposal as being non-responsive if the Proposal Submission is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Proposal, or waive technical requirements or minor informalities or irregularities if the interests of the City so require.

B22.3 Further to B22.1(b), the Award Authority shall reject any Proposal submitted by a Proponent who does not demonstrate, in its Proposal or in other information required to be submitted, that it is qualified.

B22.4 If, in the sole opinion of the City, a Proposal does not achieve a pass rating for B22.1(a) and B22.1(b), the Proposal will be determined to be non-responsive and will not be further evaluated.

B22.5 Where references are requested, the reference checks to confirm information provided may not be restricted to only those submitted by the Proponent, and may include organizations representing Persons, known to have done business with the Proponent.

B22.6 Further to B22.1(c), Fees will be evaluated based on Fees submitted in accordance with B8.

B22.7 Further to B22.1(d), Experience of Proponent and Subconsultants will be evaluated considering the experience of the organization on projects of similar size and complexity as well as other information requested, in accordance with B9.

B22.8 Further to B22.1(e), Experience of Key Personnel Assigned to the Project will be evaluated considering the experience and qualifications of the Key Personnel and Subconsultant personnel on Projects of comparable size and complexity, in accordance with B10

B22.9 Further to B22.1(f), Project Understanding and Methodology will be evaluated considering your firm's understanding of the City's Project, project management approach and team organization, in accordance with B11.

B22.10 Further to B22.1(g), Project Schedule will be evaluated considering the Proponent's ability to comply with the requirements of the Project, in accordance with B12.

B22.11 Notwithstanding B22.1(d) to B22.1(g), where Proponents fail to provide a response to B6.2(a) to B6.2(d), the score of zero may be assigned to the incomplete part of the response.

B22.12 Proposals will be evaluated considering the information in the Proposal Submission and any interviews held in accordance with B20.

B23. AWARD OF CONTRACT

B23.1 The City will give notice of the award of the Contract, or will give notice that no award will be made.

B23.2 The City will have no obligation to award a Contract to a Proponent, even though one or all of the Proponents are determined to be qualified, and the Proposals are determined to be responsive.

B23.2.1 Without limiting the generality of B23.2, the City will have no obligation to award a Contract where:

(a) the prices exceed the available City funds for the Services;

(b) the prices are materially in excess of the prices received for similar services in the past;

(c) the prices are materially in excess of the City's cost to perform the Services, or a significant portion thereof, with its own forces;

(d) only one Proposal is received; or

(e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.

B23.3 Where an award of Contract is made by the City, the award shall be made to the qualified Proponent submitting the most advantageous offer.

B23.4 The City may, at its discretion, award the Contract in phases.

B23.5 Notwithstanding Paragraph 6 of Form A: Proposal and C4, the City will issue a Letter of Intent to the successful Proponent in lieu of execution of a Contract.

B23.5.1 The Contract documents as defined in C1.1(o)(ii) in their entirety shall be deemed to be incorporated in and to form a part of the Letter of Intent notwithstanding that they are not necessarily attached to or accompany said Letter of Intent.

B23.6 The form of Contract with the City of Winnipeg will be based on the Contract as defined in C1.1(o).

B23.7 Following the award of Contract, a Proponent will be provided with information related to the evaluation of its Proposal upon written request to the Project Manager.

B23.8 If, after the award of Contract, the NEWPCC Upgrade Project is cancelled, the City reserves the right to terminate the Contract. The Consultant will be paid for all Services rendered up to time of termination.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

C0.1 The *General Conditions for Consultant Services* (Revision 2017-03-24) are applicable to the Services of the Contract.

C0.1.1 The *General Conditions for Consultant Services* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm.

C0.2 A reference in the Request for Proposal to a section, clause or subclause with the prefix "**C**" designates a section, clause or subclause in the *General Conditions for Consultant Services*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

D1.1 In addition to the *General Conditions for Consultant Services*, these Supplemental Conditions are applicable to the Services of the Contract.

D2. PROJECT MANAGER

D2.1 The Project Manager is:

Micheal Giles
Telephone No. 204 986-2467
Email Address: mgiles@winnipeg.ca

D2.2 Acting for the Project Manager for the period of March 8 to March 31, 2019 inclusive is:

Larissa Klimchak
Telephone No. 204 986-8074
Email Address: lklimchak@winnipeg.ca

D2.3 At the pre-commencement meeting, the Project Manager will identify additional personnel representing the Project Manager and their respective roles and responsibilities for the Services.

D2.4 Proposal Submissions must be submitted to the address in B6.

D3. BACKGROUND

D3.1 The City of Winnipeg prepares an annual operating and capital budget in line with appropriate municipal government financial practices and as required by *The City of Winnipeg Charter*. The budget contains information on all of the City's planned spending and is approved by City Council.

D3.2 To aid in the City's capital investment decisions, the Public Service has implemented a capital project cost estimate classification system based on the recommended practices of the Association for the Advancement of Cost Engineering (AACE) (see **Appendix A**). This system classifies cost estimates from Class 5 to Class 1 (with Class 5 being the least defined and Class 1 being the most defined). The classes communicate the level to which the underlying design documents have been developed and, by extension, how accurate or risky one could reasonably expect the estimate to be (see **Appendix B**).

D3.3 The City Auditor performs audits of the estimate classifications for all major capital projects (those projects in excess of $23.4 million (2019), adjusted annually for inflation) to provide City Council with assurance that estimates have been appropriately classified. These audits provide an opinion on whether the communicated class number is supported by an appropriate level of design work, and an appropriate costing methodology and support. The audits do not provide an opinion on the quality of the engineering design work that has been completed, which would be outside of the technical expertise of the City Auditor.

D4. PROJECT DESCRIPTION – NEWPCC UPGRADE COST ESTIMATE

D4.1 The City of Winnipeg is expanding and upgrading its North End Sewage Treatment Plant. This expansion and upgrade will help enable the facility to meet the Province of Manitoba Regulatory License requirements.

D4.2 The capital budget for the North End Sewage Treatment Plant Upgrade Project ("NEWPCC Upgrade Project") was approved in the 2016 Capital Budget, and amended in the 2017 Capital Budget (**Appendix C**), adopted by City Council on December 13, 2016. The amended Class 5 estimate for the NEWPCC Upgrade Project was $795 million.

D4.3 On February 14, 2019, after the preliminary design was completed for the overall project, the Winnipeg Public Service requested an adjustment to the cost estimate for the NEWPCC Upgrade Project (**Appendix D**). The adjustment aimed to break the previously-approved, Class 5 cost estimate into three separate Class 3 cost estimates, one for each phase of the project. The Winnipeg Public Service also aimed to seek approval for the estimate on the first phase of the project, and will bring forward the remaining two estimates for approval at later dates. All three Class 3 estimates were based on the single preliminary design report, and the overall cost for the NEWPCC Upgrade Project was revised from $795.590 million to $1.789 billion.

D4.3.1 The preliminary design study report is about 900 pages, including about 700 drawings.

D4.3.2 To support the preparation of the Class 3 estimates, the Public Service has informed the City Auditor that an independent firm was engaged to prepare cost estimates for the NEWPCC Upgrade Project to an expected accuracy of +/-20% (RFP 816-2015); that another independent firm was create separate check cost estimates on the Enhanced Preliminary Design documents to an expected accuracy of +/-20% (RFP 225-2018); and that the Infrastructure Planning Office of the Winnipeg Public Service also reviewed the estimates submitted by both firms. The Consultant will be provided access to the documents referenced in this subsection.

D4.4 On February 19, 2019, the City Auditor communicated to the City of Winnipeg's Audit Committee that an audit of the classification for the revised estimate had not been completed due to the insufficiency of time provided between when the City Auditor was notified of the adjustment request and when the administrative report was to be presented to the approving committee. The Audit Committee then instructed the City Auditor to perform a classification audit concurrently with the RFQ process for Phase 1 of the NEWPCC Upgrade Project, and report back as soon as practically possible (**Appendix E**).

D5. SCOPE OF SERVICES

D5.1 The purpose of this consulting engagement is to procure an independent third-party Consultant to validate the stated Class 3 classifications of the cost estimates for all three phases of the NEWPCC Upgrade Project.

D5.2 The Services required under this Contract shall consist of a comparison of the underlying design documents that the cost estimates for the NEWPCC Upgrade Project were prepared from to the guidance under AACE Recommended Practices on estimate classification, including but not limited to "AACE Recommended Practice No. 18R-97: Cost Estimate Classification System – As Applied in Engineering, Procurement, and Construction for the Process Industries", and specifically including the "Estimate Input Checklist and Maturity Matrix" noted in 18R-97. The services will also consist of a comparison of the cost estimate methodology employed to costing methodologies noted in the Recommend Practices, and a validation of a sample of estimated project costs within an appropriate tolerance range.

D5.3 The project costs sampled will consist of any line items that exceed a calculated "materiality" threshold, standard high-risk conceptual costs in the estimate, and a randomly selected sample of construction costs line items below the materiality threshold based on an appropriate sampling methodology. The random sample shall not be less than 20% of the total estimated construction costs of the phase.

D5.4 The Consultant will be required to provide weekly status updates on the status of the services required.

D5.5 The Consultant will submit three (3) final reports on the services provided to the City Auditor, one report for each cost estimate for each phase of the NEWPCC Upgrade Project, that include:

(a) A summary of the reasons for the engagement and the terms of the agreement with the Consultant.

(b) The scope of the engagement including any limitations in scope that were encountered during the engagement, and the impact of those limitations, if any, on the final report.

(c) The validation methodology, including the specific AACE Recommended Practices used in the validation, the specific underlying documents examined to complete the validation, the sampling methodology, and the specific costs validated in the sample. The Consultant will be required to discuss the source(s) of information used to validate the costs sampled from the estimate, but will not be required to disclose any proprietary or confidential information that the Consultant uses in the validation.

(d) A conclusion on the appropriate class for the cost estimate for the phase of the NEWPCC Upgrade Project.

(e) Full appendices of the documents used in the validation, without providing specific documentation proprietary to the Consultant.

D5.6 The Consultant's report will be used by the City Auditor to create an audit opinion letter for each Phase of the project to provide to City Council for assurance on the classification.

D5.7 The Consultant's report may be publicly disclosed in whole or in part.

D6. DEFINITIONS

D6.1 When used in this Request for Proposal:

(a) "**AACE**" means Association for the Advancement of Cost Engineering International;

(b) "**City**" means City of Winnipeg;

(c) "**NEWPCC**" means North End Sewage Treatment Plant, also known as North End Water Pollution Control Centre;

(d) "**NEWPCC Upgrade Project**" means North End Sewage Treatment Plant (NEWPCC) Biological Nutrient Removal Upgrade Project including: (1) NEWPCC Upgrade: Power Supply and Headworks Facilities; (2) NEWPCC Upgrade: Biosolids Facilities; and (3) NEWPCC Upgrade: Nutrient Removal Facilities phases;

(e) "**Public Service**" means Management of the City of Winnipeg organization, also commonly known as Administration.

SUBMISSIONS

D7. AUTHORITY TO CARRY ON BUSINESS

D7.1 The Consultant shall be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Consultant does not carry on business in Manitoba, in the jurisdiction where the Consultant does carry on business, throughout the term of the Contract, and shall provide the Project Manager with evidence thereof upon request.

D8. INSURANCE

D8.1 The Consultant shall procure and maintain, at its own expense and cost, insurance policies with limits no less than those shown below.

D8.2 As a minimum, the Consultant shall, without limiting its obligations or liabilities under any other contract with the City, procure and maintain, at its own expense and cost, the following insurance policies:

(a) Comprehensive or Commercial General Liability Insurance including:

(i) an inclusive limit of not less than $2,000,000 for each occurrence or accident with a minimum $2,000,000 Products and Completed Operations aggregate and $5,000,000 general aggregate;

(ii) all sums which the Consultant shall become legally obligated to pay for damages because of bodily injury (including death at any time resulting therefrom) sustained by any person or persons or because of damage to or destruction of property caused by an occurrence or accident arising out of or related to the Services or any operations carried on in connection with this Contract;

(iii) coverage for Products/Completed Operations, Blanket Contractual, Consultant's Protective, Personal Injury, Contingent Employer's Liability, Broad Form Property Damage, Employees as Additional Insureds, and Non-Owned Automobile Liability;

(iv) a Cross Liability clause and/or Severability of Interest clause providing that the inclusion of more than one Insured shall not in any way affect the rights of any other Insured hereunder in respect to any claim, demand, suit or judgment made against any other Insured;

(b) if applicable, Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Consultant directly or indirectly in the performance of the Service. The limit of liability shall not be less than $2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence.

(c) Professional Errors and Omissions Liability Insurance including:

(i) an amount not less than $2,000,000 per claim and $2,000,000 in the aggregate.

D8.2.1 The Consultant's Professional Errors and Omissions Liability Insurance shall remain in force for the duration of the Project and for twelve (12) months after total performance.

D8.3 The policies required in D8.2(a) shall provide that the City is named as an Additional Insured thereunder and that said policies are primary without any right of contribution from any insurance otherwise maintained by the City.

D8.4 The Consultant shall require each of its Subconsultants to provide comparable insurance to that set forth under D8.2(a) and D8.2(c).

D8.5 The Consultant shall provide the Project Manager with a certificate(s) of insurance for itself and for all of its Subconsultants, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Services, but in no event later than the date specified in C4.1 for the return of the executed Contract. Such certificates shall state the exact description of the Services and provide for written notice in accordance with D8.8.

D8.6 The Consultant may take out such additional insurance as it may consider necessary and desirable. All such additional insurance shall be at no expense to the City.

D8.7 All insurance, which the Consultant is required to obtain with respect to this Contract, shall be with insurance companies registered in and licensed to underwrite such insurance in the Province of Manitoba.

D8.8 The Consultant shall not cancel, materially alter, or cause any policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the City.

SCHEDULE OF SERVICES

D9. COMMENCEMENT

D9.1 The Consultant shall not commence any Services until it is in receipt of a notice of award from the City authorizing the commencement of the Services.

D9.2 The Consultant shall not commence any Services until:

(a) the Project Manager has confirmed receipt and approval of:

(i) evidence of authority to carry on business specified in D7;

(ii) evidence of the insurance specified in D8;

(b) the Consultant has attended a meeting with the Project Manager, or the Project Manager has waived the requirement for a meeting.

D9.3 The City intends to award this Contract by May 3, 2019.

D10. CRITICAL STAGES

D10.1 The Consultant shall achieve critical stages of the Services for this Contract in accordance with the following requirements:

(a) Validation work completion and final report issuance on the Phase 1 – NEWPCC Upgrade: Power Supply and Headworks Facilities – cost estimate by June 17, 2019;

(b) Contract completion and final reports issuance for remaining two phases of the NEWPCC Upgrade Project costs estimates by July 31, 2019.

APPENDIX A – COST ESTIMATE CLASSIFICATION SYSTEM FOR THE CITY OF WINNIPEG

Cost Estimate Classification

Cost Estimate Class*	Project Definition	Project Definition/ Design % Complete	Accuracy of Cost Estimate
Class 5	Concept Screening, Rough Order of Magnitude Estimate	~1%	-50% to +100%
Class 4	Feasibility	~10%	-30% to +60%
Class 3	**Preliminary Design (for Budget Authorization)**	**~30%**	**-20% to +30%**
Class 2	Detailed Design in progress	~60%	-10% to +20%
Class 1	Detailed Design Documentation Complete, Pre-Tender Estimate	~99%	-5% to +10%
Scalable	Project/Program scope can be adjusted to fit the Budget	N/A	N/A

Cost Estimate Class Descriptions

Class 5	Rough estimate prepared based on very limited information. Used to make an assessment of initial viability and for long range capital planning.
Class 4	Estimates prepared based on limited information with some engineering work completed and preliminary scope determination.
Class 3**	**Estimates based on completed preliminary design documentation. This Class 3 estimate will form the basis for budget authorization and set initial control estimate against which project deliverables will be measured (i.e. on budget).**
Class 2	Estimates prepared in progressive detail from a Class 3 and are used to establish a contract value against which decisions can be made to revise the scope of the project and manage risk at a specific milestone in the design development.
Class 1	Pre-tender estimates prepared based on completed detailed design documentation (i.e. drawings, plans, specifications, etc.) as well as complete project delivery plans.
Scalable	Scalable projects/programs will be sized according to the final budget authorization.

* Determined using the AACE International Recommended Practices 17R-97, 18R-97 & 56R-08

** City Auditor has recommended that a Class 3 estimate be prepared one year in advance of construction

Source: Appendix 2 of the City of Winnipeg's 2019 Preliminary Budget (Vol. 3). Retrieved from https://winnipeg.ca/finance/files/2019PreliminaryCapitalBudget_Volume3.pdf

APPENDIX B – AACE PGD-01: GUIDE TO COST ESTIMATE CLASSIFICATION SYSTEMS

AACE® International Professional Guidance Document No. 01

GUIDE TO COST ESTIMATE CLASSIFICATION SYSTEMS

TCM Framework: 7.3 - Cost Estimating and Budgeting

Rev. August 9, 2018

TABLE OF CONTENTS

PURPOSE

The *Guide to Cost Estimate Classification Systems* provides a roadmap and annotated table of contents for finding AACE International ® (AACE) Recommended Practices (RPs) relating to cost estimate classification (Classification) and estimate accuracy.

The various AACE Classification RPs were developed as a series. The series starts with 17R-97 which covers the principles of Classification including a generic *Cost Estimate Classification Matrix*; a table of estimate characteristics by Class (of which there are five; Class 5 to 1 from least to most defined). (DRAFT) CE-48 titled *Understanding Estimate Accuracy* supplements 17R by providing further information about accuracy which is a key characteristic of estimate Class. 17R is followed by a series of "As Applied In…" addenda RPs that add specific, detailed *Estimate Input Checklist and Maturity Matrix* tables for various industries. The purpose of this guide is to address the difficulty in locating the appropriate RP(s) for one's project situation or concern. This document is not intended to provide a guideline for any specific practice; only to guide one to other RPs with that purpose.

INTRODUCTION

The first AACE guideline of any kind was developed by the Estimating Methods Committee in 1958 [1]. It was titled *Estimate Types* and proposed 4 types; Order of Magnitude, Preliminary, Definitive, and Detailed. For each type, it described four typical estimate characteristics; purpose, accuracy, information available for estimating, and methods. A central principle was that as the level of scope definition (information available for estimating)

Source: Retrieved from http://library.aacei.org/pgd01/pgd01.shtml on March 4, 2019.

improved, so too did the accuracy when expressed as a high to low range. While the details have changed, the general idea of Classification or phased estimates is the same today.

In the 1990s, formal project phase or stage-gate scope development processes and procedures became ubiquitous in the process industries where the term front-end loading (FEL) was commonly used to represent such processes [2]. In 1997, the AACE Cost Estimating Committee developed the generic RP 17R-97 to align with these processes. The same year, the first "As Applied In" RP was developed for the process industries (RP 18R-97). In these RPs, the four *types* were replaced by five *classes* to align with the most common FEL processes that had 5 scope development phases and associated investment decision or funding approval gates or milestones.

The changes from the 1958 guidelines started with replacing the *type* narrative names (which improperly implied estimate use, accuracy or method) with class numbers. A significant improvement was adding industry-specific detail to the *information available* (deliverables) for estimating. Also, the fixed +/- accuracy ranges were replaced by indicative *range-of-ranges* recognizing that the accuracy range is not wholly determined by the level of scope definition. For example, an estimate for a project with new technology will have much less accuracy than an estimate for a clone project. Unfortunately, inappropriate statements of fixed accuracy ranges continues, so the RP *Understanding Estimate Accuracy* was prepared [3].

Speaking of accuracy, state or phase-gate systems, which estimate classification supports, are a risk management approach. Funds are released in proportion to the decision maker's understanding of and willingness to accept risk. For example, at Class 5 (the least defined phase), understanding of scope definition is minimal, so only minimal funding is approved to advance the definition to the next phase. Just as stage-gate is a risk management process, Classification is tied to quantitative risk analysis (QRA) which provides the accuracy ranges. While QRA RPs are not included in this series, it is recommended that they be understood by estimators and RP users. In particular, RP 42R-08 covers systemic risks and parametric modeling which is a method that directly quantifies the uncertainty related to the level of scope definition based on empirical research [4].

Finally, it should be noted that schedules can also be classified as to the level of scope definition that they are based on [5]. While schedules and cost estimates should be integrated and of the same Class, AACE developed an RP to better define the meanings in respect to schedule development.

In summary, to understand the concept of estimate classification, the sequence of RPs to study are:

1. **17R-97: Cost Estimate Classification System**
2. **27R-03: Schedule Classification System**
3. **(DRAFT) CE-48: Understanding Estimate Accuracy**
4. **Industry-specific "As Applied In" estimating RPs** (see list in this guide)
5. **42R-08: Risk Analysis and Contingency Determination Using Parametric Estimating**

Source: Retrieved from http://library.aacei.org/pgd01/pgd01.shtml on March 4, 2019.

CLASSIFICATION CONCEPTS AND PRINCIPLES

RP 17R-97 provides a summary of the general principles of Classification. However, a key principle is:

The maturity level of definition is the sole determining (i.e., primary) characteristic of Class.

All other estimate characteristics including the end use, methodology, effort and accuracy are secondary. Note that Class does not speak to the requirements for or quality of an estimating process; i.e., Class alone is not a valid contract specification for estimating services (e.g., "Contractor will provide a Class 3 estimate" only requires what deliverables that must be used as the estimate basis.) To obtain quality, one must define, and assure, estimating requirements, processes, methods, and plans in detail.

Another principle for all RPs in this series is that for each industry there is a level of scope definition at which the cost uncertainty (typically expressed as an accuracy range) is reduced to a point that most reasonably prudent decision makers can make a full-funds (sanction) project investment decision, at least in respect to the capital expenditure (capex) element. For each industry, this full-funding uncertainty level is expressed by Class 3. That is not to say that Class 3 is a standard; for example, in upstream oil, full funds may be committed early (Class 4) due to the need to sign development agreements. On the other hand, for government funded infrastructure, policy often dictates that commitment of funds be held off until tenders are received (Class 2).

The principle above leads to certain commonalities among the industry-specific RPs. For example, the "Project Master Schedule" and "Work Breakdown" are to be "Defined" at Class 3 for all industries. Most of the industry differences are in the engineering and other deliverables (e.g., P&IDs for process plants versus Room Layout Plans for buildings).

For some industries, the deliverables and their status to define each Class and the resultant typical accuracy range-of-ranges are backed by extensive empirical risk research; particularly for the process industries. For less well researched industries, the deliverables and their status are based more on general consensus of the RP reviewers. Some industries have standards related to Class; for example, in mining the Canadian Securities Administrators, National Instrument 43-101 defines requirements for "Feasibility" studies. Where applicable, the industry RPs discuss these; they may not be aligned as the objectives of these other categorizations may vary.

A characteristic of Class is that it is intended as a threshold (not continuous) metric. i.e., a Class level is not achieved until all key deliverables reach the desired Class level of definition or status (there is not Class 3.5). If some deliverables are lagging, the rating may be described as "Class X with Exceptions" with the specific laggard deliverables identified for stakeholder consideration. This is not an exhaustive list of principles and concepts. Users should refer to the appropriate RPs.

MORE ON UNCERTAINTY AND ACCURACY

It is worth repeating that accuracy range does not determine the Class, nor does Class determine the accuracy. Accuracy can only be determined through QRA; each scope and estimate will have its own unique range driven by its unique uncertainties and risk profile. It was also mentioned that the accuracy characteristic provided in Table 1 of each RP is a "range-of-ranges" for each Class. These ranges are indicative of the relative improvement in the range from Class 5 though Class 1; they are not to be used in as absolute metrics or targets. Research shows that it is not uncommon for the high (+) range for projects of high complexity and/or supported by weak project systems may be more than 2 times the values shown.

Each RP includes Figure 1 below that illustrates the concept of improving accuracy with increased scope definition (as a percent of full definition). Note the absence of axis values; this reflects the fact that absolute range values cannot be quoted in the absence of QRA. Also note the overlap in the Class bars; this expresses the concept that percent of definition, like accuracy, is not a given for each Class. For example, Class 3 for a clone project wherein P&IDs are just red-lined, may be achieved very quickly (a small percent of total engineering effort) versus a new technology process requiring significant effort (a large percent of total engineering effort) in front-end process engineering. For more information, refer to RP (DRAFT) CE-48, *Understanding Estimate Accuracy*.

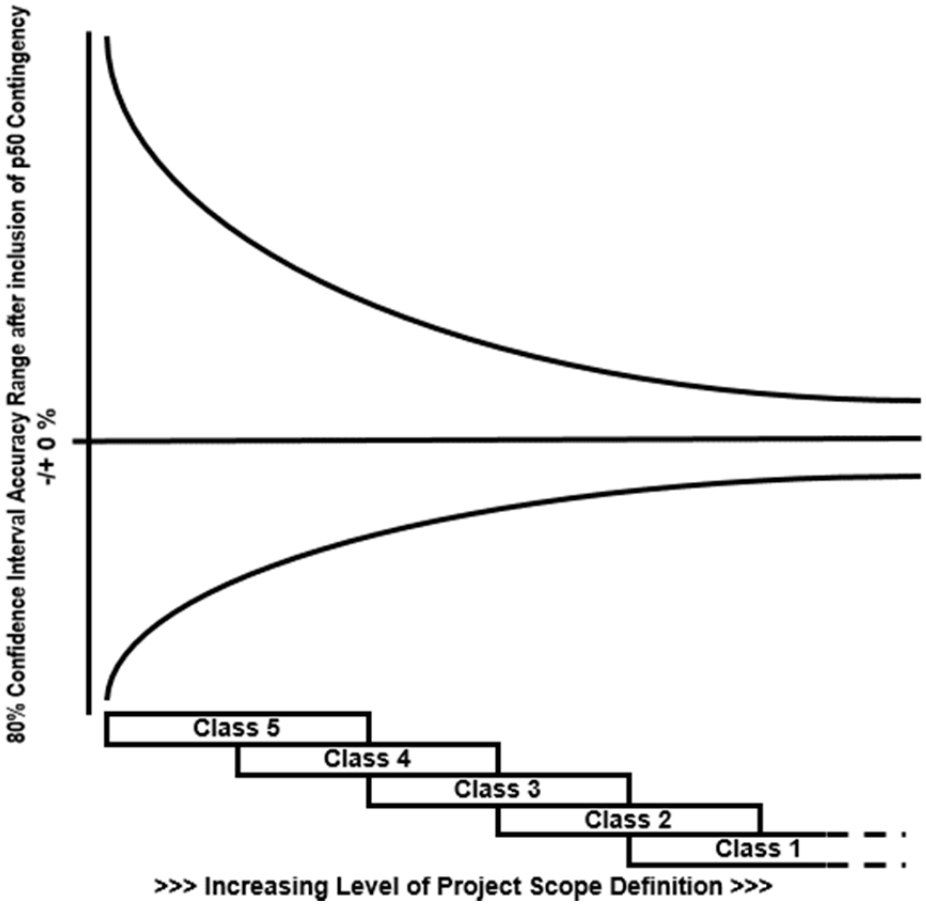


Figure 1 – Estimate Accuracy Improves as the Level of Project Definition Improves

Source: Retrieved from http://library.aacei.org/pgd01/pgd01.shtml on March 4, 2019.

ADDRESSING PROJECTS OF MIXED SCOPE

It is common for project scope to include assets of multiple types. For example, a process project may include not only the process plant, but infrastructure to support that plant such as pipelines and rail as well as administration and other buildings. In developing separate Classification RPs, typical physical or asset types were assumed. It is also common for design and engineering and/or construction contractors to specialize in projects of different types. In those cases, common practice is to develop a high level Work Breakdown Structure (WBS) that segregates the asset types, and for each element of the WBS an estimate will be prepared for which the Class is rated using the most appropriate industry-specific RP.

The dependence of the WBS elements should be considered when deciding if a phase-gate threshold has been achieved for an overall program or project. For example, if the process plant estimate is Class 3, but the plant utilities estimate is Class 4, sanctioning just the plant scope may not be justified because the lagging utility definition adds risk of major changes to the process plant to the degree that the plant and utilities are interconnected.

GUIDE TO INDUSTRY SPECIFIC ESTIMATE CLASSIFICATION RPS (IN NUMERICAL ORDER)

17R-97: Cost Estimate Classification System
Generic
Scope: Covers basic concepts and principles of Classification

18R-97: Cost Estimate Classification System – As Applied in Engineering, Procurement, and Construction for the Process Industries
Process Industries
Scope: Facilities for the manufacture and production of chemicals, petrochemicals, and hydrocarbon processing, but also pharmaceutical, utility, metallurgical, converting, and similar. These rely on process flow diagrams (PFDs, piping and instrument diagrams (P&IDs) and electrical one-lines as primary scope defining documents. Estimates typically center on mechanical and chemical process equipment, and they have significant amounts of process piping, electrical, instrumentation, and process controls involved as well as civil/structural work associated with the plant. Substations, a common element of process plant facilities, are covered as well. Also includes pumping and compression stations, and terminal tank facilities for pipelines projects.

47R-11: Cost Estimate Classification System – As Applied in the Mining and Mineral Processing Industries
Mining and Mineral Processing Industries
Scope: Definitions depends on data from/for project permitting; drilling and exploration; underground and surface mining; ore handling, milling and metallurgical processing; tailings and water management; and other onsite and offsite infrastructure facilities that may be similar to any process plant or uniquely mining. Intended to cover entire mining projects from the mine (surface or underground) through the initial processing including all associated

Source: Retrieved from http://library.aacei.org/pgd01/pgd01.shtml on March 4, 2019.

process and infrastructure facilities within the scope. However, if the project is for a processing plant with no other mining aspect, it is assumed covered by 18R-97. Similarly, if the project is only for infrastructure elements alone (pipeline, power lines, road and rail) or buildings, those are covered by their respective RPs. Standalone exploration programs based on drilling or remote means are not included in this RP; however, exploration such as sinking shafts, driving drifts from an operation or drilling funded as part of mine development may be covered. In addition, projects for mine reclamation and closure may be included. Other than these exclusions, this addendum is specifically intended to cover the full mining project scope and should not be combined with other addendums.

56R-08: Cost Estimate Classification System – As Applied for the Building and General Construction Industries

Building and General Construction Industries

Scope: Covers new or renovated building (vertical) construction, as well as site/civil projects of repetitive and repeatable nature. Examples for buildings include: residential construction, commercial buildings, hotels, resorts, offices, retail, etc. Examples for site/civil projects include: site development, utility infrastructure, telecom, water and sanitary sewer pipelines, storm water and water resources projects. Estimates center on: functional space requirements, structural requirements, site requirements, architectural elements, sustainability, and supporting mechanical, electrical, plumbing, and life-safety systems. This addendum specifically does not address process industries, environmental remediation, road and rail transportation, hydropower, reservoirs, and tunnels. This RP also does not fully cover “one-of-a-kind” projects with special scope like concert halls, sports stadium, research building, health facilities, pharmaceutical, science laboratories and hi-tech manufacturing.

69R-12: Cost Estimate Classification System – As Applied in Engineering, Procurement, and Construction for the Hydropower Industry

Hydropower Industry

Scope: involves the production of electrical power, exclusive of transmission and distribution, using natural gravitational force of falling or flowing water, excluding tidal forces, to drive a turbine that powers a generator. Hydropower facilities are typically composed of key features such as reservoir area preparation (e.g., clearing, removal of structures and earthmoving), river management (e.g., cofferdams, diversion channels or tunnels, sediment management plans, environmental monitoring programs), principal structures (e.g., dams, dykes, intakes, penstocks, powerhouses, low level outlets, power tunnels, de-silting basins, and spillway structures), permanent local infrastructure (e.g., access roads, railroads, bridges, offices, warehouse and housing), Temporary infrastructure (e.g., construction camp, site access roads, airport, workshops, construction power, etc.) and environmental mitigation features (e.g. fish ladders, water bypass and creation of new fish or wildlife habitat). Typical hydropower facilities may include: turbines, generators, exciters, governors, transformers, gates for intake, spillway and draft tubes, and supporting electrical, mechanical, telecom, protection, and control systems. The water storage reservoir is typically required to support the operations of the hydropower facility. This RP does not specifically address commercial buildings, environmental remediation, regional transportation infrastructure, transmission and distribution of electricity, thermal, wind, solar, tidal and geothermal generation.

Source: Retrieved from http://library.aacei.org/pgd01/pgd01.shtml on March 4, 2019.

87R-14: Cost Estimate Classification System - As Applied for the Petroleum Exploration and Production Industry

Petroleum Exploration and Production Industry

Scope: Petroleum exploration and production (E&P) projects covering drilling, completion, gathering systems, and processing to a marketable product, including all associated process and infrastructure facilities within the scope of the project (but not including major infrastructure such as major pipelines, power transmission, and road and rail). Offshore facilities, such as subsea systems, fixed platforms, and floating facilities, are covered. As with mining, early seismic and exploration studies may be expensed and excluded. All facilities downstream of the production facilities are also excluded. E&P projects must pay special attention to the political and regulatory environment.

96R-18: Cost Estimate Classification System – As Applied in Power Transmission Line Infrastructure Projects

Power Transmission Line Infrastructure Projects

Scope: Facilities for overhead, buried and submarine transmission of electrical power in the infrastructure industries. High voltage is typically >100kV but may be less (e.g., 33 or 66kv) if long distance with light loads. This excludes power supply and distribution scope within a process plant or building. It also excludes power generation facilities and substations. Like pipeline, a distinguishing feature is that they often traverse wide areas, cross country or subsea, which puts an emphasis on the definition of routing, land ownership and conditions, and establishing right-of-way (ROW). Associated scope definition challenges include defining stakeholder, permitting and regulatory requirements (power transmission is usually a regulated industry if not government owned). Submarine installations increase the focus on cable selection including armoring and joint considerations. While many distinguish power transmission (higher voltage, long distances) from power distribution (short distance, lower voltage connections to retail customers), the principles of estimating these elements are similar; i.e., the RP applies to both. The main physical power transmission line scope elements are conductors and their support structures if installed overhead. Main installation elements include land clearing if over land (including forestry if applicable), foundation and structure erection and conductor stringing if overhead, or trenching, laying and horizontal boring if subsurface or subsea. Special scope elements are involved with crossings of water, road, rail and so on and at terminations. The main scope definition deliverables are associated with defining the power requirements (i.e., kV), the conductors and structure, and the routing. The route's land (or subsea) characteristics and the nature of developments drive the need for special design features and execution strategies.

97R-18: Cost Estimate Classification System – As Applied in Pipeline Transportation Infrastructure Projects

Pipeline Transportation Infrastructure Projects

Scope: Facilities for onshore and offshore pipelines for transportation of gas and liquids in the infrastructure industries. Including but not limited to hydrocarbons, chemicals and water. This primarily covers pipelines under pressure (e.g., steel, composite, etc.) and not gravity drainage (e.g., concrete; see general construction). Excludes piping within a process plant. It also

excludes pumping and compression stations and storage and shipping terminals (see process). However, incidental valve, monitoring or pigging stations may be included. A key element of defining scope is to study system hydraulics. A distinguishing feature of these projects is that they often traverse wide areas, cross country or subsea, which puts an emphasis on the definition of routing, land ownership and conditions, and establishing right-of-way (ROW). Associated scope definition challenges include defining stakeholder, permitting and regulatory requirements (pipeline transportation is usually a regulated industry if not government owned). Special scope elements are involved with crossings of water, road, rail and so on (including borings) and at the pipeline terminations. Environmental, safety and health concerns are paramount with pipelines under pressure, and may carry hazardous materials, therefore, monitoring and control systems are key scope elements as well as inspection and maintenance considerations (e.g., pigging).

(DRAFT) CE-92: Cost Estimate Classification System – As Applied in Engineering, Procurement, Construction and Qualification for the Pharmaceutical and Related Industries

Pharmaceutical and Related Industries

Scope: Includes facilities in the pharmaceutical and biopharmaceutical industries, but also nutraceuticals which approach pharmaceutical grade quality. These facilities support the manufacturing and packaging of products regulated as drugs or medicines (or of near quality such as nutraceuticals). These facilities typically combine specialized process plant, packaging, utilities and waste handling scope, with specialized building scope. Their scope is similar to that of other indoor process facilities except for the level of quality and process and environmental control. In terms of stage-gate processes, these projects also include a more extensive, rigorous and regulated start-up and commissioning phase than typical process plants termed Qualification and Validation. Qualification typically has sub-phases of Installation and Operational Qualification (IQ/OQ) that verify that the facility was installed correctly and operates as intended respectively. Additional defining deliverables are required which can be of extensive duration (and added uncertainty). For non-medicine nutraceuticals, there are food safety qualification practices of a similar nature but less regulated. The scope elements are similar to process plants and buildings covered in RPs 18R-97 and 56R-08 respectively [5.6]. It includes the site and building (site development and; architectural, civil and structural works, mechanical systems [e.g., HVAC], power and lighting, and so on); major plant installations; production areas; production equipment and the process facilities (equipment, piping, electrical, controls and so on).; support production systems; protection and associated control and automation system; qualification and validation. However, some of the building and process elements are of a highly specialized nature such as the hygienic piping, valves and fittings, impervious and aseptic building finishes, and clean room HVAC to name a few. If a project consists of a site and building or process element that is of a more standard nature (e.g., an office building adjacent to the plant) and lacks the specialized features and Qualification requirements, RPs 18R-97 and 56R-08 can be applied.

(DRAFT) 98R-18: Cost Estimate Classification – As Applied Road and Rail Transportation Industries

Road and Rail Transportation Industries

Source: Retrieved from http://library.aacei.org/pgd01/pgd01.shtml on March 4, 2019.

Scope: Facilities for major roads, highways, railroads, transit rail and similar facilities for transporting people and goods. Rail may be primarily for freight, people (transit) or both including specialized systems such as metros, light rail, high speed, monorails and people movers. This includes the right-of-way and access site preparation and civil work (excavation, drainage, causeway, etc.), structures (e.g., over and underpasses, bridged crossings, monorail structure, walkways, etc.), electrical for lighting and for power (if electric driven), road surfaces, guides, rail components and rolling stock, safety, signaling and signage, telecommunications, and other ancillary facilities. This excludes specialized elements (major projects in their own right) including major long-span bridges and viaducts (e.g., major river or canyon crossings, etc.) and major tunnels; however elevated structure for urban monorail or people movers is included. Also excludes major buildings such as toll stations, rail stations, rail maintenance, fueling and remote operations and control facilities. Also excluded are specialized systems such as hyperloop and traction/cable funiculars and cable car. Major system power generation, transmission and substations are also excluded but distributed traction substations and power lines/rail for electric trains are included. The main elements are the roadway itself including embankments, cuts, and pavement layers, drainage and culverts, retaining/shoring structures, noise barriers, safety structures, support structures (under/overpasses, minor bridges and walkways), signage, signals and lighting. Typical installation elements include earthworks (land clearing, top soil removal, embankment and cut sections), paving (with specialized equipment), underground and surface drainage, utility relocation and modification, road and structure foundations including retaining/shoring features, structural steel and/or concrete, lighting electrical, signal electrical and controls and various specialty items (sound barriers, guardrail, fence, speed control systems, smart systems, etc.). Environmental concerns are paramount. The main rail elements are track components (rails, fastenings, sleepers, switches and crossings, ballast or slab track (if not ballast), and the railroad base (sub ballast, sub base) including earthworks (land clearing, top soil removal, embankment and cut sections), underground and surface drainage, utility relocation and modification. Elevated structures for monorail or other transitways may be included. It also adds grade crossings and safety barriers. If electric propulsion is used, overhead lines and structure are required, as well as power distribution such as traction substations. Finally, the engines and rolling stock, trainsets and other vehicles are included.

REFERENCES

[1] Gorey, J.M., “Estimate Types: A Proposal by the Estimating Methods Committee”, AACE Bulletin Vol 1, No. 1, 1958.

[2] Lukas, Joseph and R Nemes, “Reengineering Kodak’s Capital Process”, AACE International Transactions, 1996.

[3] AACE International, Recommended Practice (DRAFT) CE-48, “Understanding Estimate Accuracy”, AACE International, Morgantown, WV, (latest revision).

[4] AACE International, Recommended Practice 42R-08, "Risk Analysis and Contingency Determination Using Paramteric Estimating", AACE International, Morgantown, WV, (latest revision).

[5] AACE International, Recommended Practice 27R-03, “Schedule Classification System”, AACE International, Morgantown, WV, (latest revision).

Source: Retrieved from http://library.aacei.org/pgd01/pgd01.shtml on March 4, 2019.

CONTRIBUTORS

Disclaimer: The opinions expressed by the contributors to this professional guidance document are their own and do not necessarily reflect those of their employers, unless otherwise stated.

John K. Hollmann, PE CCP CEP DRMP FAACE Hon. Life (Primary Contributor)

APPENDIX C – ORIGINAL COST ESTIMATE FOR NEWPCC UPGRADE PROJECT

WATER AND WASTE - SEWAGE DISPOSAL SYSTEM FUND

Project Name: **North End Sewage Treatment Plant (NEWPCC) - Nutrient Removal / Upgrade**

Standing Policy Committee: Water and Waste, Riverbank Management and the Environment

Department: Water and Waste
Project: 203110013B

Service: Wastewater
OurWinnipeg: Environment

AUTHORIZATION	Previous Budgets	2017 Adopted	FORECAST 2018	2019	2020	2021	2022	Five-Year Forecast Total	Six-Year Total
Project Costs ($000's)	794,610	980	-	-	-	-	-	-	980
Financed by:									
Retained Earnings		980						-	980

CASH FLOW	2017	2018	2019	2020	2021	2022	Beyond 2022	Total
Project Costs ($000's)	980	-	-	-	-	-	-	980
Financed by:								
Retained Earnings	980							980

NET OPERATING IMPACT ($000's)	2017	2018	2019
Operating costs			4,069
External debt and finance charges			
Transfer to General Capital Fund			
Total Direct Costs	-	-	4,069
Less: Incremental Revenue/Recovery			
Net Cost/(Benefit)	-	-	4,069
Incremental Full Time Equivalent Positions	-	-	-

Class Estimate: 5

An Environment Act Licence has been issued for the North End Sewage Treatment Plant (NEWPCC) requiring treatment for nitrogen (N) and phosphorus (P). The implementation of a nutrient removal process will require a major plant expansion and, given the age of the existing structure and the complexity of phasing the construction, several new facilities will be constructed as part of this project.

The North End Sewage Treatment Plant (NEWPCC) - Nutrient Removal/Upgrade project will be delivered through a design-build procurement model.

The communication tower on the NEWPCC site needs to be relocated as it is in the way of the upgrade.

The current funding requirements are based on the Facility Plan (class 5) report. Funding requirements will be revised as engineering progresses; class estimates will be updated to class 3 prior to construction.

The expected life of the structures is 50 years, the expected life of electrical and mechanical components are 25 years, and the expected life for computer related systems is 10 years.

Source: The City of Winnipeg's 2017 Adopted Budget (Vol. 3). Retrieved from https://winnipeg.ca/finance/files/2017AdoptedCapitalBudget_Volume3.pdf

APPENDIX D – NEWPCC UPGRADE PROJECT CAPTIAL BUDGET ADJUSTMENT REQUEST

Agenda – Council – February 28, 2019

Report – Standing Policy Committee on Water and Waste, Riverbank Management and the Environment – February 14, 2019

Item No. 2 North End Sewage Treatment Plant Biological Nutrient Removal Upgrade Project

STANDING COMMITTEE RECOMMENDATION:

On February 19, 2019, the Executive Policy Committee concurred in the recommendation of the Standing Policy Committee on Water and Waste, Riverbank Management, and the Environment, as amended, and submitted the following to Council:

1. That the existing capital project budget for the North End Sewage Treatment Plant (NEWPCC) Biological Nutrient Removal Upgrade be renamed to NEWPCC Upgrade: Power Supply and Headworks Facilities.

2. That the existing capital project budget be reduced by $387,209,958 and the remaining capital budget of $408,380,000 (including $4.2 million of interest to be capitalized during the construction period) be used to deliver the NEWPCC Upgrade: Power Supply and Headworks Facilities which is based upon a Class 3 estimate.

3. That subject to written confirmation of funding from the Federal and Provincial governments, the Winnipeg Public Service prioritize the remaining two major capital projects, NEWPCC Upgrade: Biosolids Facilities, and NEWPCC Upgrade: Nutrient Removal Facilities, to complete the NEWPCC Upgrade, taking into consideration licencing requirements, rate impacts and available funding, and report back to Council.

4. That the Proper Officers of the City of Winnipeg do all things necessary to implement the foregoing.

Source: February 28, 2019 City of Winnipeg Council Meeting Agenda. Retrieved from http://campuswebapps/clerksdmis/

Agenda – Council – February 28, 2019

Report – Standing Policy Committee on Water and Waste, Riverbank Management and the Environment – February 14, 2019

DECISION MAKING HISTORY:

EXECUTIVE POLICY COMMITTEE RECOMMENDATION:

On February 19, 2019, the Executive Policy Committee concurred in the recommendation of the Standing Policy Committee on Water and Waste, Riverbank Management and the Environment, with the following amendment:

- Add "subject to written confirmation of funding from the Federal and Provincial governments," immediately after "That" in Recommendation 3,

and submitted the matter to Council.

STANDING COMMITTEE RECOMMENDATION:

On February 14, 2019, the Standing Policy Committee on Water and Waste, Riverbank Management and the Environment concurred in the recommendation of the Winnipeg Public Service and submitted the to the Executive Policy Committee and Council.

Source: February 28, 2019 City of Winnipeg Council Meeting Agenda. Retrieved from http://campuswebapps/clerksdmis/

ADMINISTRATIVE REPORT

Title: **NORTH END SEWAGE TREATMENT PLANT (NEWPCC) BIOLOGICAL NUTRIENT REMOVAL UPGRADE PROJECT**

Critical Path: **The Standing Policy Committee on Water and Waste, Riverbank Management and the Environment – Executive Policy Committee – Council**

AUTHORIZATION

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

EXECUTIVE SUMMARY

The objectives of the North End Sewage Treatment Plant Biological Nutrient Removal Upgrade (NEWPCC Upgrade) project are to meet regulatory requirements, address end-of-life assets, and to manage wet weather flows. The revised overall estimated project construction cost is $1.634 billion (Class 3 estimate +30%/-20%) which exceeds the existing construction cost budget of $795.59 million (Class 5 estimate, +100%/-50%) approved by Council. In addition to the overall project construction cost there is an estimated $155.0 million in interest charges to be capitalized during the construction period. The total estimated cost for the NEWPCC Upgrade project is $1.789 billion.

The Department undertook a review of the procurement strategy with the goal to mitigate risk and provide opportunities to manage the overall project complexity and cost.

The Department recommends implementing the NEWPCC Upgrade in phases by creating three capital projects, and prioritizing the projects based on risks and available funding.

The funding strategy for the NEWPCC Upgrade is included in the 2019 Water and Sewer Rates Report.

RECOMMENDATIONS

1. That the existing capital project budget for the North End Sewage Treatment Plant (NEWPCC) Biological Nutrient Removal Upgrade be renamed to NEWPCC Upgrade: Power Supply and Headworks Facilities.

2. That the existing capital project budget be reduced by $387,209,958 and the remaining capital budget of $408,380,000 (including $4.2 million of interest to be capitalized during

Source: February 28, 2019 City of Winnipeg Council Meeting Agenda. Retrieved from http://campuswebapps/clerksdmis/

the construction period) be used to deliver the NEWPCC Upgrade: Power Supply and Headworks Facilities which is based upon a Class 3 estimate.

3. That the Public Service prioritize the remaining two major capital projects, NEWPCC Upgrade: Biosolids Facilities, and NEWPCC Upgrade: Nutrient Removal Facilities, to complete the NEWPCC Upgrade, taking into consideration licencing requirements, rate impacts and available funding, and report back to Council.

4. That the Proper Officers of the City of Winnipeg do all things necessary to implement the foregoing.

REASON FOR THE REPORT

Council approval is required to change an existing approved capital project and budget.

IMPLICATIONS OF THE RECOMMENDATIONS

Completing the NEWPCC Upgrade as three separate capital projects will mitigate the risk associated with a single large, complex, and lengthy project, and provide opportunities to better manage the overall project scope and cost.

Completing the Power Supply and Headworks Facilities project first maintains momentum of the project team, achieves progress towards licence compliance and provides risk mitigation of critical end-of-life assets. Completion of this project will also provide the necessary reliability for the treatment plant's power supply, raw sewage pumping and pre-treatment assets, and automation control system.

Funding for the NEWPCC Upgrade: Power Supply and Headworks Facilities project is incorporated as part of the Water and Waste Department 2019, Water and Sewer rate 10-year Financial Plan. Funding of the overall NEWPCC Upgrade assumes support from the federal and provincial governments.

HISTORY / DISCUSSION

The NEWPCC has been in operation since 1937 and treats about 70% of sewage in Winnipeg. It is the largest and most complex of the three sewage treatment plants serving the City of Winnipeg, and provides all primary and secondary activated sludge treatment, and sludge processing for the City's 3 sewage treatment plants. The objectives of the NEWPCC Upgrade are:

- to meet the Province of Manitoba regulatory licence and Water Protection Act;
- address end-of-life assets;
- expand solids capacity for future growth; and
- manage wet weather flows.

In the past 15 years, the Manitoba Clean Environment Commission has convened public hearings on the City's wastewater collection and treatment systems (2003) and nutrient reduction and ammonia treatment at the sewage treatment plants (2009 and 2011).

Source: February 28, 2019 City of Winnipeg Council Meeting Agenda. Retrieved from http://campuswebapps/clerksdmis/

Following these hearings, the Province issued Environment Act Licenses for the City's 3 sewage treatment plants which stipulate limits for nitrogen and phosphorus. The biological nutrient upgrade at the West End Sewage Treatment Plant is complete and the South End Sewage Treatment Plant upgrade is ongoing.

The NEWPCC Environment Act License No 2684 RRR stipulates an in service date of December 31, 2014 which was subsequently altered to December 31, 2019 in a letter from Manitoba Sustainable Development on December 30, 2014. In 2019 the Public Service will submit a request for alteration of the license for the in service date based upon the three project schedule.

The NEWPCC Plant upgrade was previously estimated at $795.59 million based upon a Class 5 Association for the Advancement of Cost Engineering (AACE) cost estimate. Council approved this budget on March 22, 2016. At that time, the project procurement strategy was that the NEWPCC Upgrade project be undertaken predominantly as a single, large capital project with smaller ancillary projects. In 2017 a revised Class 5 cost estimate was provided by the engineering consultant, as the design of the Upgrade progressed, indicating that the estimated project would cost over one billion dollars.

The NEWPCC estimate, based upon a Class 3 estimate is $1.634 billion (+30%/-20%) which is based upon an updated preliminary level design construction cost, escalation, an increase in the US dollar exchange rate and lessons learned from South End Sewage Treatment Plant Upgrade. In addition to the overall project construction cost there is an estimated $155.0 million in interest charges to be capitalized during the construction period. The total estimated cost for the NEWPCC Upgrade project is $1.789 billion. Due to the increase in the project construction cost, the procurement strategy was reviewed for mitigating opportunities.

Based on the review of the procurement strategy, the Department recommends that the NEWPCC Upgrade be completed as three separate capital projects but that the design-build methodology still be utilized for project one and evaluated for future works. Each project has consideration for innovation, its attractiveness to bidders, less interdependency and process constraints, and increased independent operation. Decommissioning is also considered to be carried out within each project.

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

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

The Department recommends that the Power Supply and Headworks Facilities project be delivered first as it is associated with critical end-of-life assets and the scope of work needs to be operational before the work in the remaining two projects can be brought on-line. It should be noted that the Power Supply component has been awarded and construction is ongoing under the original project budget and being reported on at the Standing Policy Committee on Finance.

The estimated total cost for NEWPCC Upgrade: Power Supply and Headworks Facilities capital project is $ 408.38 million (Class 3 estimate, +30%/-20%) which also includes existing committed funds.

Source: February 28, 2019 City of Winnipeg Council Meeting Agenda. Retrieved from http://campuswebapps/clerksdmis/

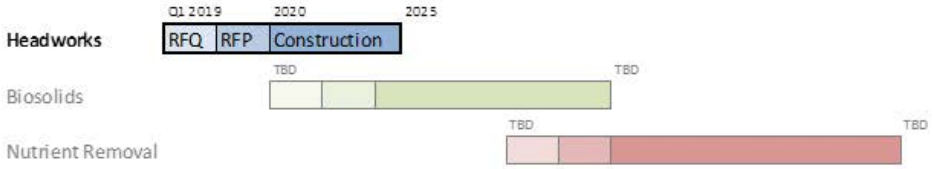
The existing sewage sludge treatment facility (Biosolids) at NEWPCC is nearing its treatment capacity – preliminary reviews indicated that the facility could be at capacity in the next 5 – 10 years. Additional and ongoing reviews are needed to be undertaken to confirm the facility's capacity horizon, including the beneficial impact of upgrades to the Headworks Facility and the SEWPCC. Failure to upgrade the sludge treatment facility at NEWPCC will result in limiting the economic growth within the City of Winnipeg and the Capital Region.

The project schedule is indicated in Figure 1. Based on a Request for Qualification (RFQ) posting date of Q1 2019, it is anticipated that Headworks Facilities construction would start in 2020, and would be substantially complete in 2025. The duration of the project is anticipated to be six years due to the need for tunneling, numerous tie-ins, extensive control system migration work, and several deep excavations. The contractor selected for this work could potentially reduce the project schedule through innovation.

The Biosolids Facilities and Nutrient Removal Facilities capital projects will be evaluated after the Power Supply and Headworks Facilities project has been awarded. It is possible that these projects can be executed simultaneously to reduce the overall construction schedule but this will require additional review by the Department.

A funding strategy for the capital projects is expected to include support from the provincial and federal governments.

Figure 1 – NEWPCC Upgrade Schedule



Scope of Project: NEWPCC Upgrade: Power Supply and Headworks Facilities

The scope of work under this capital project will include the following:

- Upgrading the existing power supply as the electrical loads associated with the future NEWPCC upgrades will exceed the current power supply capacity and redundancy. It also provides improved high voltage switchgear performance.
- Construction of standby power generation to mitigate the risks associated with utility power failure. The NEWPCC, largest of the City's three sewage treatment plants, is the only facility without standby power.
- Implementation of a plant-wide migration of the existing distributed control system (at its end-of-life) to a new process control system to avoid loss-of-support, obsolescence and reliability issues.
- Replacement of the existing 1937 raw sewage pumping station, which is approaching the end of its service life.
- Replacement of the existing re-aeration and grit removal building with a new aeration and grit removal facility which will meet the requirements of the future downstream treatment

Source: February 28, 2019 City of Winnipeg Council Meeting Agenda. Retrieved from http://campuswebapps/clerksdmis/

process. The existing screening and grit removal system is at end-of-life and would not be compatible with the future works.

- Removal of the scum and carrier water from the primary treatment to reduce the volumetric loading rate to the digesters.
- Decommissioning of the existing raw sewage pumping station, aeration and grit removal facility and associated appurtenances.
- Relocation of the communication tower and early planning works.
- Professional consulting services and administrative costs.

Source: February 28, 2019 City of Winnipeg Council Meeting Agenda. Retrieved from http://campuswebapps/clerksdmis/

FINANCIAL IMPACT

Financial Impact Statement **Date:** January 14, 2019

Project Name: **First Year of Program** 2018

NORTH END SEWAGE TREATMENT PLANT (NEWPCC) BIOLOGICAL NUTRIENT REMOVAL UPGRADE PROJECT

	2018	2019	2020	2021	2022
Capital					
Capital Expenditures Required	$ 408,380,000				
Less: Existing Budgeted Costs	795,589,958				
Additional Capital Budget Required	$ (387,209,958)	$ -	$ -	$ -	$ -
Funding Sources:					
Debt - Internal					
Debt - External					
Grants (Enter Description Here)					
Reserves, Equity, Surplus					
Other - Enter Description Here					
Total Funding	$ -	$ -	$ -	$ -	$ -
Total Additional Capital Budget Required	$ (387,209,958)				
Total Additional Debt Required	$ -				
Current Expenditures/Revenues					
Direct Costs					
Less: Incremental Revenue/Recovery					
Net Cost/(Benefit)	$ -	$ -	$ -	$ -	$ -
Less: Existing Budget Amounts					
Net Budget Adjustment Required	$ -	$ -	$ -	$ -	$ -

Additional Comments: Adopted capital budget of $408,380,000 will be retained to fund the NEWPCC Upgrade: Power Supply and Headworks Facilities project. The balance of existing capital budget, in the amount of $387,209,958, formerly the NEWPCC Biological Nutrient Removal Upgrade project will be cancelled.

"Original signed by L. Szkwarek, CPA, CGA"
Lucy Szkwarek, CPA, CGA
Manager of Finance and Administration

Source: February 28, 2019 City of Winnipeg Council Meeting Agenda. Retrieved from http://campuswebapps/clerksdmis/

CONSULTATION

In preparing this report there was consultation with:

N/A

OURWINNIPEG POLICY ALIGNMENT

This report is in accordance with the OurWinnipeg policies through

OurWinnipeg Reference: 02-2 Environment:

The upgrade of NEWPCC seeks to reduce the environmental impact of our citizens on the Red River and the downstream lakes and rivers while also increasing the reliability of the sewage treatment facility.

SUBMITTED BY

Department: Water and Waste
Division: Engineering Services
Prepared by: Jackie Veilleux, PMP, P. Eng., and, Remi Adedapo, M.A.Sc., PMP, P. Eng.
Date: January 23, 2019
File No.: S-972

Source: February 28, 2019 City of Winnipeg Council Meeting Agenda. Retrieved from http://campuswebapps/clerksdmis/

APPENDIX E – CITY AUDITOR'S REPORT ON REVISED NEWPCC UPGRADE COST ESTIMATE

Agenda – Council – February 28, 2019

Report – Executive Policy Committee – February 19, 2019

Item No. 6 Capital Project Estimates - North End Sewage Treatment Plant

EXECUTIVE POLICY COMMITTEE RECOMMENDATION:

On February 19, 2019, the Executive Policy Committee, in its capacity as the Audit Committee, concurred in the recommendation of the Winnipeg Public Service, as amended, and submitted the following to Council:

1. That this report be received as information.

2. That the City Auditor proceed with a capital project estimate audit of the Class 3 Estimate for the North End Sewage Treatment Plant Biological Nutrient Removal Upgrade project.

3. That any additional resources required by the Audit Department to complete the audit in a timely manner be allocated from the North End Sewage Treatment Plant Biological Nutrient Removal Upgrade project budget.

4. That the Proper Officers of the City be authorized to do all things necessary to implement the intent of the foregoing.

Source: February 28, 2019 City of Winnipeg Council Meeting Agenda. Retrieved from http://campuswebapps/clerksdmis/

Agenda – Council – February 28, 2019

Report – Executive Policy Committee – February 19, 2019

DECISION MAKING HISTORY:

EXECUTIVE POLICY COMMITTEE RECOMMENDATION:

On February 19, 2019, the Executive Policy Committee, in its capacity as the Audit Committee, concurred in the recommendation of the Winnipeg Public Service with the following amendments:

- Add the following new recommendations:

    2. That the City Auditor proceed with a capital project estimate audit of the Class 3 Estimate for the North End Sewage Treatment Plant Biological Nutrient Removal Upgrade project.

    3. That any additional resources required by the Audit Department to complete the audit in a timely manner be allocated from the North End Sewage Treatment Plant Biological Nutrient Removal Upgrade project budget.

    4. That the Proper Officers of the City be authorized to do all things necessary to implement the intent of the foregoing.

and submitted the matter to Council.

Councillor Lukes submitted a communication dated February 19, 2019 with respect to the matter.

Source: February 28, 2019 City of Winnipeg Council Meeting Agenda. Retrieved from http://campuswebapps/clerksdmis/

ADMINISTRATIVE REPORT

Title: **Capital Project Estimates - North End Sewage Treatment Plant**

Critical Path: Audit Committee - Council

AUTHORIZATION

Author	Department Head	CFO	CAO
B. Mansky	B. Mansky City Auditor		

EXECUTIVE SUMMARY

The Audit Department was informed on December 28, 2018 that the Water and Waste Department intended to bring forward a preliminary design study report to seek project approval for Phase 1 (Headworks) of the North End Sewage Treatment Plant project (NEWPCC).

Since 2015, the Audit Department has included capital project estimate audits in our annual audit plans that are approved by Audit Committee. The purpose of the capital project estimate audits is to provide Council with assurance that the estimate classes have been appropriately determined and disclosed for new major capital projects requiring Council approval.

The Audit Department is unable to perform a capital project estimate audit of the Class 3 Estimate for Phase 1 of the NEWPCC project prior to the Water & Waste Department's report submission. The magnitude of this project and volume of documentation supporting it, combined with the length of time between when we were notified about the estimate and the intended date to bring the Public Service report forward, simply doesn't allow sufficient time to complete an audit.

The Audit Department was informed that the Public Service has undertaken extra effort, both internally and through contracts with professional services firms to provide additional oversight and scrutiny of the project estimate. The Audit Department has not reviewed the work performed by these parties.

RECOMMENDATIONS

That this report be received as information.

REASON FOR THE REPORT

The report is being submitted in accordance with the City Organization By-law 7100/97 section 19(d)(iv) that the Audit Committee will "receive and review audit reports, and table such reports with its recommendations at a regular meeting of Executive Policy Committee."

Source: February 28, 2019 City of Winnipeg Council Meeting Agenda. Retrieved from http://campuswebapps/clerksdmis/

IMPLICATIONS OF THE RECOMMENDATIONS

There are no implications to the recommendation that the report be received as information.

HISTORY/DISCUSSION

Since 2015, Audit Committee and Council has approved a "Capital Project Estimates" project in the Audit Department's annual audit plan to provide assurance that the documentation supporting a new major capital project supports the identified class estimate (AACE).

Preparation of budget estimates and disclosure of the estimate classes for the capital projects is the responsibility of the Public Service. The classification system used by the Public Service is based on the recommended practices of the Association for the Advancement of Cost Engineering (AACE). Those recommended practices provide a system for classifying cost estimates that is primarily determined by the level of design work that supports the estimates, and secondarily by the costing methodology used to develop the estimates.

It is important to note when the Audit Department performs these audits, we are providing an opinion on the level of design work we have observed to be completed and the quality of the costing methodology supporting that estimate; however, we are not providing an opinion on the quality of the design engineering completed, which is outside the scope of our professional expertise. In addition, the Audit Department evaluates whether the appropriate AACE recommended practice is being used to classify the estimate since the AACE has different classification guidelines for different types of industries.

The NEWPCC project was previously included in the 2016 capital budget with a total estimate of $794,610,000 comprised of $651,396,000 adopted in 2016 and $143,214,000 from previous adopted budget amounts. At that point in time the Audit Department did not undertake a capital project estimate audit due to the fact it was submitted as a Class 5 estimate. Since then there has been periodic reporting to SPC Finance to communicate that the estimated budget for this project has increased, referencing a $1.4 billion figure. Throughout this period the project was being communicated as a single capital project.

Information received from the Infrastructure Planning Office identifies that approval for the project is now being sought in three stages and that the Water & Waste Department is representing that it has obtained a Class 3 estimate for the project. The overall total budget has increased to an estimated $1.789 billion with Phase I Headworks, for which Council approval is currently being sought, at an estimated total cost of $356 million.

While this project was previously approved by Council with a supporting Class 5 estimate, the completion of a Class 3 estimate, the revised multi-phase approach to the project (seeking Council approval for each stage) and the significant increase in the total estimated budget would typically warrant Audit to undertake a capital project estimate audit to provide assurance to elected officials that the underlying documentation supports the stated class estimate.

The CPA Manitoba Code of Professional Conduct requires us to take due care, acting carefully, thoroughly, and diligently in all professional services that we provide. The Audit Department will not be able to complete an audit of the estimate classification within the period from when we

Source: February 28, 2019 City of Winnipeg Council Meeting Agenda. Retrieved from http://campuswebapps/clerksdmis/

were notified of the estimate to when the Administrative Report seeking Council approval for the project is planned to be submitted.

The Audit Department was informed that the Public Service contracted out the design work with the conceptual design being initiated in January 2016, and the preliminary design being completed in September 2018; that an independent firm specializing in cost management reviewed and commented on the preliminary design between April and August 2018; and that the Public Service reviewed all available information and established the cost as described in their administrative report. The Audit Department has not reviewed any of the work performed by these parties.

FINANCIAL IMPACT

Financial Impact Statement **Date:** January 17, 2019

Project Name:

Capital Project Estimates - North End Sewage Treatment Plant

COMMENTS:

There is no financial impacted associated with receiving this report as information.

original signed by
Tanis Yanchishyn
Manager of Finance (Campus)
Corporate Finance Department

CONSULTATION

This Report has been prepared in consultation with:
Infrastructure Planning Office

OURWINNIPEG POLICY ALIGNMENT

01-3 Prosperity - Direction 1 - Provide Efficient and Focused Civic Administration and Governance

This report supports the demonstration of accountability through reporting and to continuously pursue innovative, streamlined service delivery and decision-making processes.

SUBMITTED BY

Department: Audit Department
Prepared by: B. Mansky
Date: January 10, 2019

Source: February 28, 2019 City of Winnipeg Council Meeting Agenda. Retrieved from http://campuswebapps/clerksdmis/