SCHEDULE F – PROJECT COMPLETION REPORT TEMPLATE

VERY IMPORTANT:

Timing: You need to email a report, to your GMF project officer (contact info is in Schedule C), on the dates indicated in Schedule C or whenever FCM asks for such a report.

Copyright: Before you submit a report to FCM, make sure you hold the copyright for the report. If you're hiring a consultant to prepare the report, please make sure to get the copyright (see FCM's copyright tips document), or else FCM will not be able to disburse the Grant Amount.

Accessibility for people with disabilities: Please do not change the format, font, layout, etc. of this report. This template has been specially designed, following FCM's Accessibility Guidelines, in order to be accessible to people with disabilities.

Confidentiality: If your report contains any Confidential Information that you would prefer not be made available to the public (e.g. through a case study or other materials produced by FCM that relate to your Project), please submit two versions of the report:

1. **Complete report including Confidential Information:** Please clearly label this report with the word "**Confidential**" or similar wording and FCM will treat it as confidential.

2. **Abridged report excluding Confidential Information:** This report may be posted on the FCM website and otherwise made available to interested third parties, to help FCM meet its knowledge sharing objectives.

Please contact your project officer to receive an electronic copy of the Completion Report Template.

Upon completion of the project, a copy of the Final Deliverable must be submitted along with this Completion Report.

FCM will post your report on the Green Municipal Fund™ (GMF) website. This is because one of FCM's mandates is to help municipal governments share their knowledge and expertise regarding municipal environmental projects, plans and studies.

How to complete the Completion Report

The purpose of the Completion Report is to share the story of your community's experience in undertaking your project with others seeking to address similar issues in their own communities.

Please write the report in plain language that can be understood by people who are not specialists on the subject. A Completion Report is typically in the range of 5–10 pages, but may be longer or shorter, depending on the complexity of the project.

GMF grant recipients must enclose **final** copies of the Completion Report and the Final Deliverable with their final Request for Contribution. The reports, including all attachments and appendices, must be submitted in PDF format with searchable text functionality. Reports that are not clearly identifiable as final reports, such as those displaying headers, footers, titles or watermarks containing terms like "draft" or "for internal use only," will not be accepted by GMF. Additionally, reports must be dated. If you have questions about completing this report, please consult GMF staff.

GMF number	16786
Name of lead applicant (municipality or other partner)	City of North Battleford
Name, title, full address, phone, fax and e-mail address of lead technical contact for this study	Kevin Thurston, RR#9 Site 908 Comp 12, Saskatoon, SK S7K 1P3, 306-220-1998, kthurston@teservices.ca
Date of the report	March 9, 2021

1. Introduction

a) Who was involved in doing the Feasibility Study, and what are their affiliations? Please include name, title and contact information. Those involved could include municipal staff, engineers and other consultants, a representative from a non-governmental organization, and others.

The RFP was prepared by Eco-Ouest Canada with the following support staff:
Dany Robidoux – Executive Director - drobidoux@eco-ouest.com
Michel Forest – Technical Writer - mforest@eco-ouest.com

The Study was prepared by Thurston Engineering Services with the following support staff:
Kevin Thurston – Professional Engineer, Certified Energy Manager - kthurston@teservices.ca
Ryan Basaraba - Professional Engineer, Certified Energy Manager - rbasaraba@teservices.ca
Jason Praski – Professional Engineer, sub-consultant from Thurston Engineering – Axa Energy Consulting - jspraski@baudoux.ca
Tyler Krause – Structural Engineer – Rempel Engineering & Management Ltd - Tyler Krause tyler@rempeleng.ca

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Randy Patrick – City Manager – rpatrick@cityofnb.ca
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Mike Lepp – Building Maintenance Supervisor – mlepp@cityofnb.ca
Michelle Horncastle – Cuplex Manager – mhorncastle@cityofnb.ca
Nathan Martell – Waste Water Treatment Plant Supervisor – nmartell@cityofnb.ca

2. The Feasibility Study

a) Describe the process that you undertook to make this feasibility study a reality, from concept, to council approval, to RFP, to final deliverable.

The intent of this study was to improve the overall sustainability of five City buildings while reducing the City's carbon footprint. The City engaged Eco-West from Winnipeg to provide assistance around writing the RFP and reviewing the content. Council approved engaging Thurston Engineering Services during the Council meeting held on November 23rd, 2020. There was constant communication between Thurston Engineering Services and City representatives. Thurston met with Council on February 22, 2021 where the recommendations were presented.

b) What were the objectives of the Feasibility Study (what was it seeking to determine)?
The main two areas of the study were to:
Objective # 1

Review existing facility operations and identify opportunities to improve the energy efficiency through better practices, equipment management or strategic infrastructure investment

Objective # 2
Explore the feasibility of installing alternative energy sources at each facility that reduces the City's carbon footprint and ultimately uses less non-renewable energy sources to operate the buildings.

c) What approach (or methodology) was used in the Feasibility Study to meet these objectives?

Objective #1:
Thurston Engineering made several site visits to review the buildings. Interviews were done with building management and building operations staff to identify issues. Operation of systems were reviewed with operations staff. Operation issues were troubleshot and operating parameters were reviewed. Operation of mechanical equipment was reviewed remotely through the building management system to observe how the equipment operated through the day. System operation was then reviewed to determine how systems could be run more efficiently and retrofits were analyzed to reduce energy consumption. This process was done on all 5 five buildings that were considered.

Objective #2:
The consultant utilized City facility utility bills, aerial photographs, site visits, custom financial spreadsheets for each technology recommended (which also calculates the proposed emission reductions), previous local project experience and information from technology vendors as needed.

d) Please describe any public consultations conducted as part of the Feasibility Study and their impact on the Study.

The only discussion that was held was on Public Council meetings.

3. Feasibility Study Findings and Recommendations

a) What were the environmental findings related to the options explored in the Feasibility Study? Please provide quantitative results and summary tables of these results (or the page numbers from the Feasibility Study report).

Objective #1:
- Wastewater Treatment Plant – Refer to the Executive Summary page 4 and Energy Conservation Measures page 21 and 22.
- Aquatic Centre - Refer to the Executive Summary page 5 and Energy Conservation Measures page 33 to 36.
- Curling Rink - Refer to the Executive Summary page 5 and Energy Conservation Measures page 29 to 32.
- Dekker Centre - Refer to the Executive Summary page 5 and Energy Conservation Measures page 31 to 34.
- Field House - Refer to the Executive Summary page 5 and Energy Conservation Measures page 28 to 30.

Objective #2:
See the "Renewable Energy Preliminary Design & Feasibility Study" file – "The combined estimated greenhouse gas emission reductions of the recommended five solar power installations and one biomass heating installation is 979 tonnes per year, which represents a 19% reduction in electricity emissions and a 23% reduction in natural gas emissions".
The report also references the environmental findings on the following pages:
- Dekker Centre: Page 5

- Northland Power Curling Rink – Page 7
- NationsWest Field House – Page 8
- Aquatic Centre – Page 8
- Wastewater Treatment Plant – Page 9
- Summary of Solar Power Project Recommendation – Page 10
- Feasibility Study Results Summary – Page 16 and 17
- Refer to the one-page feasibility datasheets for each location.

b) What were the financial findings related to the options explored in the Feasibility Study (for example, results of a cost-benefit analysis, financial savings identified, and so on)? Please provide quantitative results and summary tables of these results (or the page numbers from the Feasibility Study report).

Objective #1:
- Wastewater Treatment Plant – Refer to the Executive Summary page 4 and Energy Conservation Measures page 21 and 22.
- Aquatic Centre - Refer to the Executive Summary page 5 and Energy Conservation Measures page 33 to 36.
- Curling Rink - Refer to the Executive Summary page 5 and Energy Conservation Measures page 29 to 32.
- Dekker Centre - Refer to the Executive Summary page 5 and Energy Conservation Measures page 31 to 34.
- Field House - Refer to the Executive Summary page 5 and Energy Conservation Measures page 28 to 30.

Objective #2:
- Refer to Economic Analysis reports
- Refer to the Feasibility Analysis reports

c) Based on the environmental and financial findings above, what does the Feasibility Study recommend?

Objective #1:
- Wastewater Treatment Plant – Refer to the Executive Summary page 4 and Energy Conservation Measures page 21 and 22.
- Aquatic Centre - Refer to the Executive Summary page 5 and Energy Conservation Measures page 33 to 36.
- Curling Rink - Refer to the Executive Summary page 5 and Energy Conservation Measures page 29 to 32.
- Dekker Centre - Refer to the Executive Summary page 5 and Energy Conservation Measures page 31 to 34.
- Field House - Refer to the Executive Summary page 5 and Energy Conservation Measures page 28 to 30.

Objective #2:
- See Page 1, 10 and 16 – five solar power installations and one biomass heating installation. The five power installations would be installed at each building as shown on pages 4, 6, 7, 8 and 9.

4. Lead Applicant's Next Steps

a) Taking the Feasibility Study's recommendations into account, what next steps do you as the municipality plan to take? What potential benefits or internal municipal improvements would result from these next steps?

Objective 1:

- The City started to create a work plan to ensure we can complete and adapt the buildings to the recommendations in the following way:
    - Review recommendations and implement the zero cost and monitor them.
    - For the recommendations with a cost involved, the City needs to strategically implement them within the current maintenance plan and budget.
    - Additional operating funding might need to be requested to Council or seek grants to implement them.

Objective 2:

- Inspect the roof-tops of the buildings to ensure that solar panels can be installed – work to be performed by a structural engineer. – This work was performed by Rempel Engineering & Management Ltd. The conclusion was that the roof its strong enough to support the solar panels as recommended. If the City was to look at installing panels on the wall a further study will need to be done.
- Apply for capital funding.
- Learn more about biomass heating potential technology and providers.
- Prepare an RFP for solar panels installation.

5. Lessons Learned

In answering the questions in this section, please consider all aspects of undertaking the Study — from the initial planning through each essential task until the Final Study was prepared.

a) What would you recommend to other municipalities interested in doing a similar Feasibility Study? What would you do differently if you were to do this again?
    - Hire an expert to inspect all the City buildings and recommend which buildings should be targeted.
    - Involve all stakeholders from the beginning.

b) What barriers or challenges (if any) did you encounter in doing this Feasibility Study? How did you overcome them?
    - Covid – we managed to overcome this challenge using virtual meetings and conference calls
    - Gathering information regarding utility bills and putting the information together – Took additional time but all the information was found and summarized.
    - Making all levels of building staff available – We had to make appointments to ensure staff were available. For these projects involving all levels of personnel was critical as everyone experiences different problems within the same building.

6. Knowledge Sharing

a) Is there a website where more information about the Feasibility Study can be found? If so, please provide the relevant URL.

    Not at his time however, once the project starts, we will expect to have some links on the City's website.

b) In addition to the Feasibility Study results, has your Feasibility Study led to other activities that could be of interest to another municipality (for example, a new policy for sustainable community development, a series of model by-laws, the design of a new operating practice, a manual on public consultation or a measurement tool to assess progress in moving toward greater sustainability)? If

so, please list these outcomes, and include copies of the relevant documents (or website links).

Not at this stage, however, it is provides really good understanding for future buildings and best practices.

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