SCHEDULE E

Form of Completion Report for Studies

Please do not hesitate to contact your project officer to receive an electronic copy of the template of the Completion Report for Studies.

Upon completion of the Feasibility Study, a copy of the Final Study must be submitted along with this Completion Report for Studies.

FCM will post your report on the Green Municipal Fund™ (GMF) website.[1] 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. Before you submit a report to FCM, make sure you hold the copyright for the report (you own all the rights to the content and can decide who is allowed to reproduce and distribute the report) and that it does not contain any confidential information.

If the report contains confidential information, you need to submit two versions: one containing confidential information, to be read by FCM staff, and one that does not contain confidential information, which can be posted on the GMF website. Please contact FCM if you have any questions about copyright and confidentiality. 16278

How to complete the Completion Report for Studies

The purpose of the Completion Report for Studies is simple: to share the story of your community's experience in undertaking a Feasibility Study 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 for Studies is typically in the range of 5–10 pages, but may be longer or shorter, depending on the complexity of the Feasibility Study.

GMF grant recipients must enclose **final** copies of the Completion Report for Studies and the Final Study, both in electronic format, 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.

[1] http://www.fcm.ca/home/programs/green-municipal-fund.htm

Completion Report for Studies

GMF number	16278
Name of lead applicant (municipality or other partners)	City of Mount Pearl
Name, title, full address, phone, fax, and e-mail address of lead technical contact for this Study	Keith Bartlett, P.Eng. Civil Area Lead - NL Infrastructure Engineering – Eastern Canada SNC-Lavalin Dir.: +1(709)368-0119 x 54959 Tel.: 709.368.0118 Cell.: 709.689.3464 Fax: 709.368.3541
Date of the report	January 29, 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.

City of Mount Pearl:

- Mahima Sharma, Junior Engineer, Engineering Services
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- Darryl Drover, P. Eng., Assistant Engineering Manager, Engineering Services

SNC-Lavalin - Project consultant

- Keith Bartlett, P.Eng., Civil Area Lead – NL

- Mike Smith, B.Tech., AScT, EP, Environmental Area Lead

- Justin Mayo, P. Eng., Civil Engineer

- Steve Lundrigan P.Eng., Civil Engineer

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.

Power's Pond is one of the City of Mount Pearl's most visited green spaces. This Park is located adjacent to Donovan's Business Park. On June 1st of 2018, an oil spill was reported in the wetland of Power's Pond. The pollutants were determined to be oil and grease, which seem to have reached the Power's Pond wetland by way of our storm sewer outfall on Old Placentia Road.

After completing an immediate environmental response at the discovery of the spill and investigation work, the City was unable to locate the source of the spill. This is why the City start to look at longer-term prevention of pollution solutions for that pound to help prevent future incidents of pollutants from contaminating the Pond. A Green Municipal fund grant was pursued to complete the Study.

Once the grant was secured, the City of Mount Pearl issued a Statement of Work for the Study. Three quotes were received. One of the quotes was retained with SNC-Lavalin. The City and consultant then proceeded to complete data collection, modeling, options review, and financial analysis for the project. The results of those steps are collected in the Study report.

b) *What were the objectives of the Feasibility Study (what was it seeking to determine)?*

The objectives of the Feasibility Study were:

- To assess the current condition of the storm sewer system near Power's Pond and provide necessary preventive/protection options.
- To provide quantifiable environmental benefits from the implementation of the project.
- To provide life cycle cost analysis for each preventive/protection option presented.

Options considered had to:

- improve water quality by trapping pollutant laden sediment in runoff from urban drainage areas (essential)
- eliminate oil and grease and suspended solids (essential)
- ensure less potential flood damage
- preserve groundwater and baseflow characteristics
- increase in return on investment
- increase in municipal revenue streams
- improve public safety

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

- Compared the different options and determined the most desirable solution
- Measured performance of alternative against set criteria
- Developed evaluation criteria matrix and applied this matrix to each option to determine a technical score.
- Establish a technical score from 1 to 10 for each option considered, based on the evaluation criteria matrix.
- Options with a failing technical score were not evaluated further. Options passing the technical component had preliminary cost estimates completed using life cycle cost analysis to generate a combined technical and cost recommendation.

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

No public consultations were conducted as part of the feasibility study. There was public awareness of the spill and clean-up. Mount Pearl will consider consulting the public prior to any implementation of a solution since the citizens hold great care towards Power's Pond Park.

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).*

Four options were included in the Study: Detention ponds, Wetlands, Infiltration Systems, and Hydrodynamic Separators (Stormceptor). Only two options turned out to be viable when helping up against the evaluation criteria matrix; Ponds and Hydrodynamic Separators. The feasibility report recommended hydrodynamic separator is the preferred option for the City to use at the outfalls. The Hydrodynamic separators achieved the highest score overall score from the technical evaluation to achieve the primary objective of capturing and storing hydrocarbons from entering the nearby water system. These systems require less capital to install, are not limited by placement location and space, and require a smaller footprint when compared to the next closest option.

Wetlands and Infiltration Systems are effective at the removal of suspended solids as well as some other metals, nutrients, and organic and inorganic chemicals. Their major drawback for this project is that they are not able to treat hydrocarbons effectively on their own. For that reason, those options did not retain in the life cycle costs investigation.

A qualitative environmental performance options review can be found on page 8 of the project report.

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).*

Capital costs estimates:

- Installation of the hydrodynamic separator is estimated at $1.14M, assuming that is installed at the nearest manhole upstream of the outfall and that it is connected to existing storm sewer pipes by joiners.

The capital costs estimate details can be found in Appendix D of the project report.

Life cycle costs estimate:

- Operation and maintenance costs for a hydrodynamic separator is estimated between $2,000 and $5,000 net present value (NPV) per year.
- Both options operation and maintenance costs tend to be more expensive in the first few years of operation and gradually go down over the years.

The operation and maintenance costs estimate can be found in Appendix D of the project report.

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

It was determined that hydrodynamic separators (Stormceptors) would be preferred because they require less upfront capital and are less expensive to maintain compared to detention ponds. Plus, more risks are associated with ponds than hydrodynamic separators, as ponds are typically not used as a primary or sole method for treating hydrocarbons in stormwater.

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?

1. Find sources of funding for the capital investment required
2. Complete technical designs
3. Launch RFP

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?*

- Get involved in the Study. It is critical to understand why the consultant is recommending a specific solution to ensure the best and most practical option is chosen for the needs. This required a lot of communication and meetings between the consultant and the municipality.
- Ensure that the evaluation criteria used for the Study match the project needs and will inform you accordingly. Don't let the consultant assume your needs.
- Don't limit your choice on the price. Look for other aspects that might affect your project results.

What would you do differently if you were to do this again?

Plan for more interaction (touch points, calls or meetings) with the consultant.
Include more options to look at from the start of the Study. Think outside the box and maybe include options that are not widely spread in the sector. Be more innovative with the options.

b) *What barriers or challenges (if any) did you encounter in doing this Feasibility Study? How did you overcome them?*

The consultant first provided scoring of the option without being clear in the evaluation criteria used. It was not possible to know why one option scores better than another one. Mount Pearl then asked to build an evaluation matrix that would provide transparency and understanding of the recommended solutions. The matrix was developed with the Mount Pearl staff to make sure it truly catered to the project needs. Also, to make sure needs are understood well, communication is key. Plan more touch points with the consultant would have benefited the project.

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.*

No URL provided.

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).*

A ranking matrix was developed in partnership with the municipality to rank the different options included in this feasibility study. Although the criteria included in the matrix are specific to this project, the concept could be of interest to many other municipalities that are looking for decisions tools. The matrix can be found in Appendix B of the project report.