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	17905
Name of lead applicant (municipality or other partner)	Pictou County Wellness Centre Building Authority Incorporated
Name, title, full address, phone, fax and e-mail address of lead technical contact for this study	Graham MacNeil, Chief Operating Officer, 2-2756 Westville Road, Pictou County, NS, B2H 5C6, 902-759-6346, graham.macneil@pcwellnesscentre.ca
Date of the report: November 17, 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.

Pictou County Wellness Centre Building Authority Incorporated (PCWCBAI), engaged Johnson Controls Canada LP (Johnson Controls) to conduct the Pathway Feasibility Study. An ASHRAE Level 3 Audit was conducted in November 2021. The main contact for input from the Pictou County Wellness Centre was provided from PCWCBAI's Chief Operating Officer, Graham MacNeil. Further support was provided by staff members from the Wellness Centre including our Stationary Engineer, Vince Atwater, and our Chairman of PCWCBAI, Jim Ryan. Additional support was provided from our largest stakeholder Town of New Glasgow, by their Climate Change and Sustainability Manager, Rachel Mitchell.

The main contact information is as follows:

Name	Organization	Title	Phone Number	Email Address
Preston Blair	Johnson Controls	Account Executive	(613)222-3392	preston.blair@jci.com
Graham MacNeil	Pictou County Wellness Centre Building Authority Incorporated	Chief Operating Officer	(902)759-6346	graham.macneil@pcwellnesscentre.ca
Jim Ryan	Pictou County Wellness Centre Building Authority Incorporated	Chairman of the Board	(902)301-9526	jim.ryan@townofpictou.ca
Vince Atwater	Pictou County Wellness Centre	Stationary Engineer	(902)759-0116	vince.atwater@pcwellnesscentre.ca
Rachel Mitchell	Town of New Glasgow	Climate Change and Sustainability Manager	(902)759-3188	rachel.mitchell@newglasgow.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.

Pictou County Wellness Centre's Board engaged with the Town of New Glasgow to issue a Request for Proposal (RFP) in October 2020 to select an Energy Savings Partner (ESCO), to provide PCWCBAI with an energy retrofit study and consequently retrofit project of the Wellness Centre. The aim of the RFP was to select a partner to help achieve our goal of energy reduction and GHG reduction, to lower utility costs and lower the Federal Carbon Tax being implemented. Other goals that PCWCBAI was aiming to achieve with their selected partner included the reduction of operational expenses and upgrading required infrastructure for the facility.

Through the RFP process, Johnson Controls was selected as the Wellness Centre's partner to conduct the feasibility study and they have continued to lead the process. PCWCBAI received approval from all five supporting municipalities on the board to proceed with the study, which include the County of Pictou, the Town of New Glasgow, the Town of Pictou, the Town of Stellarton and the Town of Trenton. Their

collaboration is evident through letters of support (provided to FCM), and we have continued to include all board members throughout the process of the study.

Throughout the study we were provided with detailed workshops from Johnson Controls. The workshops included a Construction Workshop which reviewed the Energy Conservation Measures (ECMs) suggested for implementation, the potential energy and GHG savings, and operational savings and support. A Measurement and Verification Workshop was executed to review the guarantees provided by our ESCO partner and how they would be implemented. Finally, a Financial Workshop was conducted to review the opportunities we had for funding, including grants such as FCM's. These workshops helped us make the best decisions possible for our facility and surrounding communities. The board has now approved Johnson Controls to move into the construction phase of our project and we have submitted our application to the FCM CBR Pathways Capital Grant program.

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

The overlying objective of the feasibility study was to conduct an energy audit that gave us a pathway for the facility achieve net zero carbon emissions. Other aims included the analysis of utility cost reduction, carbon tax reduction and operational improvements. The primary goal was to determine an initial phase with a lower term payback that we can implement immediately. Our secondary goal was to be provided with a high-level analysis to move into future phases on our pathway to Net Zero.

Our intentions were and are to proceed with the first phase of the study so we can have the Wellness Center achieve a lower cost of operations, modernize the Centre's aging infrastructure and achieve over 30% GHG reduction to keep in line with our targets.

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

For our approach, we began with detailed discussions with our contractor to identify the inefficiencies at the PCWC, such as spending over $800,000 per year on utilities, which have been as high as 75% of revenue from operations. We also provided our contractor with information such as schematic drawings and provided site visits to our contractor and required subtrades. The process included an assessment on all the mechanical and electrical equipment on site as well as the condition assessment of the equipment.

After initial informational gathering and analysis, our contractor provided the Wellness Centre's board with a Preliminary Audit (ASHRAE Level 2) prior to the full audit, to determine a more focused scope of work for the initial phase of the pathway. We were reviewed the findings with our Board and selected our desired Energy Conservation Measures. This allowed us to proceed with the full Feasibility Study and Pathway Analysis to Net Zero.

Throughout the full Feasibility Study, regular cadences with Johnson Controls were conducted. These meetings ensured a collaborative approach with our contractor so that we were able to meet all our objectives. Specific workshops were provided, which ensured our engagement for all key milestones throughout the study.

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

The board members representing each of the five municipalities were kept informed and provided feedback throughout the Feasibility Study. The Board consists of members of the community such as Mayors and Wardens of respective municipalities, which provided us with essential public consultation. Furthermore, our Construction, Measurement and Verification, and Financial Workshop were attended by our largest municipal stakeholder – the Town of New Glasgow – which ensured their input throughout the study. Feedback from each of the board members were deemed to represent consultations from their respective communities.

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).

The environmental findings for the Phase One of the pathway include that the project would yield 34% energy reduction and a reduction of 1,085 tonnes of CO2, which translates to 34% reduction of the entire facility from the baseline year of April 1st, 2019, to March 31st, 2020. Full details are provided in the PCWC Feasibility Study – Appendix C, which includes the various pathways including 50% GHG Reduction in 10 years and 80% reduction in 20 years.

We used the EPA GHG equivalencies calculator was used to calculate the reduction of GHG emissions of this project. Below is an example of how the environmental findings will be of impact.

GHG emissions from	236	Passenger vehicles driven for one year 
Carbon sequestered by	7.4	Acres of U.S. forests in one year 

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).

The financial summary for Phase One is included starting on page 6 of the PCWC Feasibility Study. It includes the initial capital investment of Phase One, the Annual Energy and Operating and Maintenance Savings. The analysis also provides the details of avoided capital expenditures as well as incentives estimated. The study continues to breakdown the details of the savings further by the individual measures being implemented within the descriptions of the measures.

Description	Project
Capital Investment	$2,873,321
Annual Energy Savings	$356,502
Annual O&M Savings[1]	$12,500
Total Annual Savings	$369,002
Avoided capital costs	$40,000
Utility / NRCan Incentives[2]	$327,728
Simple Payback (yrs)[3]	6.8

Notes:
1 O&M savings based on improved equipment operation
2 Includes FCM - Energy Study Assessment Incentive of $30K, ENS Retrofit Incentives of $197,278, and Rink Revitalization incentive of $100K.
3 Includes O&M and Energy Savings, Avoided Costs and Incentives.

Appendix C provides the details for projected savings of energy usage the subsequent phases to achieve Net Zero. As we do not have the future phases in plan, we do not have a monetary amount associated with the savings.

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

Based on the findings from the Feasibility Study it is recommended to proceed with Phase One of the project as it will yield the largest return with a shortest payback. For this phase of the project, PCWC will require to focus on optimizing the facilities energy usage as well as operating and maintenance costs associated with the facility.

Implementing the recommended capital improvements will be critical to PCWC's financial viability. The organization's total annual utility expenditure of approximately $800,000 represents 76% of total income from operations and 41% of total expenditures.

The measures being implemented will include:

1. Controls Optimization: This includes optimizing and controlling the existing equipment in an integrated fashion to maximize comfort and energy savings, resulting in an expected 1,121,350 kWh in electrical energy savings.
2. Heat Recovery Optimization: This measure focuses on improving the recovery of all available heat from the ice plant compressors and leveraging that heat in other areas of the facility, resulting in an expected 591,644 kWh in electrical energy savings.
3. Lighting: This measure involves replacing all existing fluorescent and HID technologies with LED technology, resulting in an expected 193,672 kWh in electrical energy savings.
4. Solar Air Heating: This measure will utilize radiant heat from the sun to preheat a portion of the ventilation air used in the buildings during the winter months, resulting in an expected 66,113 kWh in electrical energy savings.
5. Atrium, Dressing Room Colling/ Dehumidification and Equipment Upgrades: This measure is included to address staff, occupant and visitor comfort and safety. It addresses humidification issues associated with summer months and helps upgrade mechanical equipment which is at it's end of life.

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?

PCWCBAI believes that in order to maintain the economic viability of the Wellness Centre as well as achieve its stated carbon reduction goals, the decision to proceed with an ESCO partner to design and construct Phase One of the Pathway Study is in the best interests of the community and the facility. The final engineering, construction drawings and equipment procurement began in February 2022, with construction to begin in May 2022. Additionally, we have completed the FCM CBR Pathway Capital application and submitted it in February 2022 which includes the specifics of the phase we are proceeding with.

b) What potential benefits or internal municipal improvements would result from these next steps?

The immediate benefits that would result from completing the first phase of our pathway to net zero include energy reduction, GHG reduction, and operational improvements. We are also able to tackle renewal of outdated mechanical infrastructure through the first phase of the pathway. Moreover, by lowering the overall operating costs of the facility, PCWCBAI would require less financial assistance from

the supporting municipalities and thus allowing them to distribute their funds towards other municipal needs.

The enhanced infrastructure will enable the Wellness Centre to provide better services to the community through better management of the environmental conditions within the Centre. The retrofit work performed will also minimize any downtime of the Wellness Centre through the improved reliability of the new and efficient equipment that has been implemented.

Reducing our overall utility spend extends the benefits further to now allocate our funds towards more programming to support our residents. Although more than 43,000 Pictou County residents can use the facility, only 10% usage or 4,300 participate in current programming activities. New and enhanced programming will match the needs of underserved communities: older adults, ethnic and racial minorities, financially disadvantaged individuals, people with disabilities, LGBTQ+ community, and First Nation populations.

The PCWC's project would also serve as an exemplary practice for other rural communities, not only in Nova Scotia but across Canada. We would be able to provide lessons learned to help support other municipalities in reaching their environmental and infrastructure targets.

We would like to note that the benefits of energy and carbon reduction are guaranteed through our Energy Performance Contract with our partnership with Johnson Controls. The guaranteed outcomes will help mitigate the financial risk to the organization and it's supporting municipalities.

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?

As the PCWC is located in a tertiary location and community we do not have the required resources to support a large-scale initiative such as the Pathway Feasibility Study and the pending Capital Project. Through selecting an ESCO partner we were provided with a single point of accountability and given a Turn-Key solution. The solution kept us informed and organized through all steps of the Feasibility Study.

We had a collaborative approach with Johnson Controls providing us with the depth of professional expertise with the energy solutions and our PCWC team providing the local Nova Scotian perspective. Working in tandem with them is allowing us to make our goals a reality and we highly recommend this method as it allowed us to reach our objectives in a timely manner with minimal resources.

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

The process and outcome was satisfactory.

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

The main barrier we faced is the requirement to work cooperatively with five different municipalities. Having various decision makers can make the process slightly more complicated and can often take more time. We were able to mitigate these challenged by keeping an open line of communication with all stakeholders and providing them with the necessary information throughout the process. We also

ensured adequate time to review information and documents pertaining to the study and thus were able to keep on schedule.

6. Knowledge Sharing

a) Has the Project received any recognition, media coverage, or notable public support? If so, please describe briefly (three to four sentences).

- Published articles in the New Glasgow News, Saltwire Atlantic News and Municipality of Pictou's website have been released, highlighting our partnership with Johnson Controls and the outcomes we are looking to achieve.
- Local News Radio (989XFM) has promoted the retrofit and our partnership with Johnson Controls on January 18, 2022.
- Rink Revitalization Nova Scotia Fund has provided publicity of our Capital Project through www.NovaScotia.ca

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

We currently do not have a dedicated website with more information on the Feasibility Study, however we are planning on including information on our Social Media platforms and the PCWC's main website in the future. We would like to do so to promote to municipalities in Nova Scotia and other rural communities across Canada on the energy conservation solutions we reviewed and the results of the Study and the future Capital Project.

PCWC is also planning a Community Awareness and Engagement Campaign that will be executed towards the end of constructure of Phase One of our Capital project, winter/ spring 2023. Further information on this campaign will be promoted through our website and Social Media platforms. The intent of the Awareness Campaign is to serve the surrounding communities and beyond. We hope that our project will serve as a ripple effect through other rural municipalities in the Maritimes and across Canada.

c) 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).

One of the main activities that has been exemplified through the Feasibility Study is the need for a Community Advisory Board. PCWC has already begun the initiation of this board as we realize the need to expand engagement of our community beyond the PCWCBAI. This process began prior to the study; however, the study has further solidified this need and is expediting the initiative.

d) Would you like to showcase your Project through an FCM webinar or workshop?

The Pictou County Wellness Centre would be happy to showcase our Project with FCM. We feel it is crucial to share our Project and environment stewardship to other communities across Canada.