



Appendices

Green Municipal Fund 2018–2019 Annual Report



FEDERATION
OF CANADIAN
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Appendices contents

These appendices contain a detailed account of our efforts throughout the fiscal year, from funding allocations to our activities' reach and details about approved initiatives. **They're a great way to better understand our real-world impact.**

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Appendix A: Funding allocations

Table A1: Number of applications and approvals for sustainable community plans, feasibility studies and pilot projects

	2018-2019	Since inception
Applications submitted*	52	1,765
Approvals**	46	1215

* The submission year is based on the date we received the application.

** The number of applications approved by the FCM Board is based on their approval date. Applications may have been submitted in the previous fiscal year.

Table A2: Number of applications and approvals for capital projects

	2018-2019	Since inception
Applications submitted*	15	642
Approvals**	11	331

* The submission year is based on the date we received the application.

** The number of applications approved by the FCM Board is based on their approval date. Applications may have been submitted in the previous fiscal year.

Table A3: Approved sustainable community plans, feasibility studies and pilot projects by region

				2018-2019				Total net approved since inception*					
Region/province	Population**	% of pop. (%)	#	TPV*** (\$)	Total grant (\$)	% of total (#) (%)	% of total (\$) (%)	#	Grant (\$)	TPV (\$)	% of total (#) (%)	% of total (\$) (%)	Per capita (\$)
Atlantic	2,327,638	6.95	6	1,392,904	698,300	13.04	12.61	114	6,529,028	15,744,973	10.35	6.71	3
New Brunswick	751,171	2.24	3	1,115,153	554,100	6.52	10.09	50	3,047,764	7,343,456	4.54	3.13	4
Newfoundland and Labrador	514,536	1.54	2	88,000	44,100	4.35	0.80	17	694,543	1,635,435	1.54	0.71	1
Nova Scotia	921,727	2.75	1	189,751	100,100	2.17	1.72	41	2,263,001	5,412,784	3.72	2.33	2
Prince Edward Island	140,204	0.42	0	0	0	0	0	6	523,720	1,353,298	0.54	0.54	4
British Columbia	4,400,057	13.14	6	1,141,400	535,400	13.04	10.33	200	15,965,516	46,023,589	18.17	16.42	4
Northern Territories	107,265	0.32	0	0	0	0	0	23	1,538,271	4,609,781	2.09	1.58	14
Northwest Territories	41,462	0.12	0	-	-	0	0	10	891,101	2,353,715	0.91	0.92	21
Nunavut	31,906	0.10	0	-	-	0	0	4	232,333	911,500	0.36	0.24	7
Yukon	33,897	0.10	0	-	-	0	0	9	414,837	1,344,566	0.82	0.43	12
Ontario	12,851,821	38.39	18	5,352,390	1,934,900	39.13	48.44	362	35,392,824	98,286,832	32.88	36.39	3
Prairies	5,886,906	17.59	5	740,430	364,300	10.87	6.70	184	16,937,481	57,531,870	16.71	17.42	3
Alberta	3,645,257	10.89	2	235,430	116,700	4.35	2.13	106	9,937,966	29,311,671	9.63	10.22	3
Manitoba	1,208,268	3.61	0	0	0	0	0	36	3,144,177	15,012,155	3.27	3.23	3
Saskatchewan	1,033,381	3.09	3	505,000	247,600	6.52	4.57	42	3,855,337	13,208,044	3.81	3.96	4
Quebec	7,903,001	23.61	11	2,423,240	1,084,100	23.91	21.93	218	20,884,407	76,534,371	19.80	21.48	3
Total	33,476,688	100	46	11,050,364	4,617,000	100	100	1,101	97,247,527	298,731,416	100	100	3

* The "total net approved since inception" includes the original board-approved amount plus any additional approved amount, less the amounts that were withdrawn, closed or cancelled.

** Source: Statistics Canada 2011 Census

*** TPV = Total project value reported by the applicant

Table A4: Approved capital projects by region

				2018-2019					Total net approved since inception*						
Region/province	Population**	% of pop. (%)	#	TPV*** (\$)	Total grant (\$)	Total loan (\$)	% of total (#) (%)	% of total (\$) (%)	#	Grant (\$)	Loan (\$)	TPV (\$)	% of total (#) (%)	% of total (\$) (%)	Per capita (\$)
Atlantic	2,327,638	6.95	1	4,483,600	452,115	3,014,100	9.09	6.09	29	11,863,135	96,685,249	678,939,072	13.88	13.82	47
New Brunswick	751,171	2.24	0	-	-	-	-	-	9	3,833,571	33,447,692	108,123,576	4.31	4.75	50
Newfoundland and Labrador	514,536	1.54	0	-	-	-	-	-	6	3,119,735	25,846,964	117,561,835	2.87	3.69	56
Nova Scotia	921,727	2.75	1	4,483,600	452,115	3,014,100	9.09	6.09	12	3,982,403	37,083,323	451,089,291	5.74	5.23	45
Prince Edward Island	140,204	0.42	0	-	-	-	-	-	2	927,425	307,270	2,164,370	0.96	0.16	9
British Columbia	4,400,057	13.14	1	10,670,000	750,000	5,000,000	9.09	10.11	34	17,740,161	129,418,182	749,101,073	16.27	18.73	33
Northern Territories	107,265	0.32	0	-	-	-	-	-	1	750,000	7,500,000	37,507,579	0.48	1.05	77
Northwest Territories	41,462	0.12	0	-	-	-	-	-	0	-	-	-	-	-	-
Nunavut	31,906	0.10	0	-	-	-	-	-	1	750,000	7,500,000	37,507,579	0.48	1.05	259
Yukon	33,897	0.10	0	-	-	-	-	-	0	-	-	-	-	-	-
Ontario	12,851,821	38.39	7	54,717,000	4,230,530	27,051,000	63.64	54.99	73	26,089,973	262,965,705	1,374,109,516	34.93	36.79	22
Prairies	5,886,906	17.59	1	6,279,400	655,200	4,368,300	9.09	8.83	35	20,166,473	90,832,461	501,405,774	16.75	14.13	19
Alberta	3,645,257	10.89	0	-	-	-	0	0	19	13,464,702	51,597,262	351,330,732	9.09	8.28	18
Manitoba	1,208,268	3.61	1	6,279,400	655,200	4,368,300	9.09	8.83	10	5,788,533	34,937,934	133,487,448	4.78	5.18	34
Saskatchewan	1,033,381	3.09	0	-	-	-	0	0	6	913,239	4,297,264	16,587,594	2.87	0.66	5
Quebec	7,903,001	23.61	1	15,741,800	1,482,900	9,885,900	9.09	19.98	37	19,103,436	102,482,000	404,288,308	17.70	15.48	15
Total	33,476,688	100	11	91,891,800	7,570,745	49,319,300	100	100	209	95,713,177	689,883,597	3,745,351,322	100	100	23

* The “total net approved since inception” includes the original board-approved amount plus any additional approved amount, less the amounts that were withdrawn, closed or cancelled.

** Source: Statistics Canada 2011 Census

*** TPV = Total project value reported by the applicant

Table A5: Approved initiatives by region (sustainable community plans, feasibility studies, pilot projects and capital projects)

Region/province	Population**	% of pop.	#	2018-2019						Total net approved since inception*					
				TPV*** (\$)	Total grant (\$)	Total loan (\$)	% of total (#) (%)	% of total (\$) (%)	#	Grant (\$)	Loan (\$)	TPV (\$)	% of total (#) (%)	% of total (\$) (%)	Per capita (\$)
Atlantic	2,327,638	6.95	7	5,876,504	1,168,429	3,014,100	12.28	6.80	143	18,392,162	96,685,249	694,684,045	10.92	13.03	49
New Brunswick	751,171	2.24	3	1,115,153	554,100	0	5.26	1	3	6,881,335	33,447,692	115,467,032	4.50	4.57	54
Newfoundland and Labrador	514,536	1.54	2	88,000	44,100	0	3.51	0	2	3,814,278	25,846,964	119,197,270	0.46	3.36	58
Nova Scotia	921,727	2.75	2	4,673,351	552,215	3,014,100	3.51	5.80	2	6,245,404	37,083,323	456,502,075	4.05	4.91	47
Prince Edward Island	140,204	0.42	0	-	-	-	-	-	8	1,451,145	307,270	3,517,668	0.61	0.20	13
British Columbia	4,400,057	13.14	7	11,811,400	1,274,400	5,000,000	12.28	10.21	234	33,705,677	129,418,182	795,124,662	17.86	18.48	37
Northern Territories	107,265	0.32	0	-	-	-	-	-	24	2,288,271	7,500,000	42,117,360	1.83	1.11	91
Northwest Territories	41,462	0.12	0	-	-	-	-	-	0	-	-	-	-	-	-
Nunavut	31,906	0.10	0	-	-	-	-	-	5	982,333	7,500,000	38,419,079	0.38	0.96	266
Yukon	33,897	0.10	0	-	-	-	-	-	0	-	-	-	-	-	-
Ontario	12,851,821	38.39	25	60,069,390	6,114,242	27,051,000	43.86	53.96	435	61,482,797	262,965,705	1,472,396,348	33.21	36.75	25
Prairies	5,886,906	17.59	6	7,019,830	1,019,500	4,368,300	10.53	8.77	219	37,103,954	90,832,461	558,937,644	16.72	14.49	22
Alberta	3,645,257	10.89	2	235,430	116,700	0	3.51	0.19	125	23,402,667	51,597,262	380,642,403	9.54	8.50	21
Manitoba	1,208,268	3.61	1	6,279,400	655,200	4,368,300	1.75	8.17	46	8,932,711	34,937,934	148,499,603	3.51	4.97	36
Saskatchewan	1,033,381	3.09	6	505,000	247,600	0	10.53	0.40	48	4,768,576	4,297,264	29,795,638	3.66	1.03	9
Quebec	7,903,001	23.61	12	18,165,040	2,567,000	9,885,900	21.05	20.26	255	39,987,843	102,482,000	480,822,679	19.47	16.14	18
Total	33,476,688	100	57	102,942,164	12,143,571	49,319,300	100	100	1,310	192,960,704	689,883,597	4,044,082,738	100	100	26

* The “total net approved since inception” includes the original board-approved amount plus any additional approved amount, less the amounts that were withdrawn, closed or cancelled.

** Source: Statistics Canada 2011 Census

*** TPV = Total project value reported by the applicant

Table A6: Urban–rural balance of all approved initiatives (sustainable community plans, feasibility studies, pilot projects and capital projects)

					2018-2019			Total net approved since inception*					
Municipality type	Population**	% of pop. (%)	#	TPV*** (\$)	Total (grant & loan) (\$)	% of total (#) (%)	% of total (\$) (%)	#	TPV(\$)	Total (grant & loan) (\$)	% of total (#) (%)	% of total (\$) (%)	Per capita (\$)
Small, rural and remote (rural)****	6,329,414	18.90	14	44,356,030	31,048,015	24.56	50.48	393	649,891,099	206,295,101	30.00	23.37	33
Towns and cities (urban)	27,147,274	81.10	43	58,586,134	30,459,030	75.44	49.52	917	3,394,191,640	676,549,200	70.00	76.63	25
Total	33,476,688	100	57	102,942,164	61,507,045	100	100	1,310	4,044,082,738	882,844,301	100	100	26

* The “total net approved since inception” includes the original board-approved amount plus any additional approved amount, less the amounts that were withdrawn, closed or cancelled.

** Source: Statistics Canada 2011 Census 1

*** TPV = Total project value reported by applicant

**** Municipalities with a population of less than 10,000 are classified as rural. In the case of regional municipal governments, to be considered rural, each member municipality must have a population of less than 10,000. Urban regional municipalities have at least one member municipality with a population of 10,000 or more.

Appendix B: Fund management

Table B1: Amount and type of funding disbursed

	2018–2019 (\$)	Since inception (\$)
Grants for plans, feasibility studies and pilot projects	4,669,112	81,861,319
Grants for capital projects	5,254,722	73,458,478
Project Performance Reporting Grant Agreement (PPRGA) grants for capital projects *	0	1,295,002
Loans for capital projects	44,004,213	561,858,087
Total	53,928,047	718,472,886

* Approvals under the Project Performance Reporting Grant Agreement (PPRGA) grants for capital projects ended in August 2006.

Table B2: Performance of unallocated funds

Fiera Capital manages the portion of our fund that has not yet been disbursed. Directives for investments of these unallocated funds are in GMF's *Statement of Investment Policy* to ensure that the Fund generates adequate returns in line with our objectives and financial sustainability. This policy is reviewed annually and was last updated in July 2018.

This is the rate of return on all unallocated funds in 2018–2019 and since our inception:

	2018–2019	Since inception
Return on investment	5.28%	4.91%

Table B3: Senior management compensation

The GMF senior management team consists of one Managing Director and five Senior Managers—one for each of the following business units: Funding Services, Knowledge and Sector Development, Marketing and Communications, Risk Management, and Governance and Performance Measurement.

Their remuneration for the fiscal year 2018–2019 was based on the salary ranges listed below.

From April 1, 2018, to March 31, 2019

Managing Director	\$137,700 to \$188,750
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Senior Managers	\$105,800 to \$139,950
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In addition to a salary, employees receive a contribution to a group RRSP (five per cent of their annual salary) and group benefits.

Compensation for GMF Council members and peer reviewers

GMF Council members, except for federal government appointees, may claim an honorarium of \$350 for each day of an in-person Council meeting, plus a one-day honorarium of \$350 to cover their preparation time. They may also claim a half-day honorarium rate of \$175 for teleconference meetings, plus a half-day honorarium of \$175 to cover their preparation time.

GMF peer reviewers may claim fees of \$114.28 per hour, to a maximum of \$60,000 per reviewer every four years. There is a benchmark of 10 hours per application, per reviewer for standard reviews. Reviewers may request more time to work on complex files, as long as it is requested before the assessment is due to be completed. While our Funding Agreement allows peer reviewers who were appointed by the federal government to be compensated, none have made any claims since GMF's inception.

Appendix C: GMF Council members

Members representing the municipal sector

Councillor Ben Henderson, Chair
City of Edmonton, AB
Appointed February 2015

Mayor Berry Vrbanovic
City of Kitchener, ON
Appointed April 2015

Mayor Alan DeSousa, Vice-Chair
Saint-Laurent Borough, QC
Appointed June 2018

Mayor Sheila Fitzgerald
Town of Roddickton-Bide Arm, NL
Appointed April 2017

Councillor Andrea Reimer, Vice-Chair
City of Vancouver, BC
Appointed April 2015
*Resigned November 2018**

Councillor Laurel Collins
City of Victoria, BC
Appointed January 2019

Members representing the private and academic sectors

Guy Burry, Chair
Craigellachie Corporation
Appointed September 2015

David Martin
Principal, knoWater
Appointed April 2018

Marco Perron
Partner, Raymond Chabot Grant Thornton
CEO, RCGT Consulting Inc.
Appointed September 2015

Denis Leclerc
President, Écotech Québec
Appointed April 2018

Dr. Arne Elias
Principal, Elias Consulting
Appointed April 2016

Members representing the federal government

Permanent seat	Alternate
<p>Joyce Henry, Director General Office of Energy Efficiency, Natural Resources Canada <i>Appointed February 2018</i></p>	<p>Claude Lefrançois, Senior Chief Communities, Housing Division Office of Energy Efficiency, Natural Resources Canada <i>Appointed September 2012</i> <i>Resigned July 2018*</i></p> <p>Renée Lazarowich, Manager Strategic Partnerships, Housing Division Office of Energy Efficiency, Natural Resources Canada <i>Appointed February 2019</i></p>
<p>Judith Bossé, Director General CanmetENERGY–Varennnes Research Center Innovation and Energy Technology Sector Natural Resources Canada <i>Appointed September 2017</i> <i>Resigned March 2019*</i></p>	<p>Josef Ayoub, Energy S&T Research Advisor Office of the Director General CanmetENERGY – Varennes Research Center Innovation and Energy Technology Sector Natural Resources Canada <i>Appointed February 2019</i></p>
<p>Rupa Bhawal-Montmorency, Director General Science and Technology Branch Environment and Climate Change Canada <i>Appointed February 2019</i></p>	<p>Adrianne Sinclair, Manager Science and Technology Branch Environment and Climate Change Canada <i>Appointed February 2019</i></p>

<p>Michelle Brownlee, Director General Strategic Policy Branch Environment and Climate Change Canada <i>Appointed February 2019</i></p> <p>Matt Parry, Director General Strategic Policy Directorate Environment and Climate Change Canada <i>Appointed July 2016</i> <i>Resigned June 2018*</i></p>	<p>Laniel Bateman, Acting Executive Director Strategic Policy Branch Environment and Climate Change Canada <i>Appointed February 2019</i></p>
<p>Nathalie Lechasseur, Director General Program Integration, Infrastructure Canada <i>Appointed December 2018</i></p> <p>Laura Di Paolo, Director General Program Operations, Program Integration Infrastructure Canada <i>Appointed September 2017</i> <i>Resigned September 2018*</i></p>	

Appendix D: Funding assessment and approval process

Our GMF Peer Review Committee assesses eligible funding applications against a set of criteria established by the GMF Council and approved by the FCM Board of Directors. They use the criteria, shown in tables D1 to D4, to assess the expected sustainability performance, knowledge value and management approach of each initiative, with an emphasis on anticipated environmental benefits. In 2015–2016, we introduced new criteria for capital projects, which encourage an optimal range of environmental benefits, more public consultations and higher-quality approaches to measurement. These criteria promote stronger project planning as a way to achieve long-term success.

There are approximately 60 independent experts with specific environmental, project management or financial expertise on our GMF Peer Review Committee, and they were all selected by the FCM Board of Directors. Up to one-third of the members are selected from a list (provided by the ministers of Natural Resources Canada and Environment and Climate Change Canada) of qualified candidates representing federal departments. Another third are experts from municipal governments, selected through a call for applications. The final third are experts from private sector or non-governmental organizations, also selected through a call for applications. Members are appointed to the committee for a four-year term and may be reappointed for one or more four-year terms based on the Committee's general participation, turnover and need for a balance of technical and financial expertise.

At least two peer reviewers assess each application for plans, studies and pilots and a minimum of three peer reviewers assess applications for capital projects.

After the peer assessment, applications for pilot projects and capital projects are submitted to the GMF Council for consideration. During this review, the Council considers a number of factors, including the independent peer review score, funding priorities outlined in FCM's Funding Agreement with the Government of Canada, a regional balance, the level of each project's innovation, and the available funding. The GMF Council recommends only the most exceptional projects for funding and submits these to the FCM Board of Directors.

In April 2018, the FCM Board of Directors delegated the approval of any grants associated with plans and feasibility studies to FCM staff. After the peer assessment phase, applications for plans and feasibility studies are submitted to GMF's Managing Director for a funding decision. The final decision is primarily informed by the peer assessment. When there are other considerations (e.g., a divergence of opinion, a conflict with GMF funding priorities), the Managing Director may ask the GMF Council and the FCM Board of Directors for a decision.

Funding sectors and objectives

GMF funding is available in five sectors: brownfields, energy, transportation, water and waste. They all strive for similar, overarching objectives:

- Promote the redevelopment of brownfield sites and avoid “greenfield” development.
- Reduce energy consumption and GHG emissions through measures such as efficiency, conservation, demand management and energy recovery, and by promoting renewable or waste energy use.
- Reduce fossil fuel consumption and emissions for transportation, through projects that encourage a shift away from single-occupancy vehicles or that encourage fleet fuel efficiency or fleet fuel switching.
- Reduce potable water use and loss, or protect local water bodies through measures such as demand management, water efficiency, water recovery, or stormwater or wastewater treatment.
- Reduce, reuse or recycle material that would otherwise enter the waste stream. This also reduces GHG emissions from landfills.

Plans, feasibility studies and pilot projects

Table D1: Assessment criteria for plans

Rated criteria	Maximum score
Sustainability considerations	15
Links to existing plans and policies	15
Systems approach	20
Innovative practices and technologies—beyond business as usual	10
Replication potential and lessons learned	10
Management capacity (project management)	10
Work plan	10
Budget	10
Total	100

Table D2: Assessment criteria for feasibility studies and pilot projects

Rated criteria	Maximum score
Expected environmental benefits	25
Links to existing plans and policies	10
Systems approach	10
Community benefits	5
Innovative practices and technologies—beyond business as usual	10
Replication potential and lessons learned	10
Project management	10
Work plan	10
Budget	10
Total	100

Capital projects

Table D3: Assessment criteria for capital projects in the energy, transportation, water and waste sectors

Rated criteria	Maximum score
Environmental performance	
Primary sector: Water or energy performance or waste reduction	20
Secondary sector: Water or energy performance or waste reduction	5
Secondary sector: Water or energy performance or waste reduction	5
Sustainable design, procurement and construction	10
Total (environmental performance)	40
Other benefits	
Financial performance and sustainability	10
Community benefits	10
Community engagement	5
Alignment with supportive plans, policies, programs and investments	10
Measurement systems	10
Replication potential	15
Total (other benefits)	60
Total score	100

Project management	"Traffic light" rating system*
Project team	red, yellow, green
Risk management and timelines	red, yellow, green
Finance	red, yellow, green

Table D4: Assessment criteria for capital projects in the brownfield sector

Rated criteria	Maximum score
Environmental performance	
Brownfield remediation, risk management and brightfields—direct environmental benefits	30
Sustainable practices	10
Total (environmental performance)	40
Other benefits	
Financial performance and sustainability	10
Community benefits	10
Community engagement	10
Alignment with supportive plans, policies, programs and investments	10
Measurement systems	10
Potential for replication by other municipalities	10
Total (other benefits)	60
Total score	100

Project management	"Traffic light" rating system*
Project team	red, yellow, green
Risk management and timelines	red, yellow, green
Finance	red, yellow, green

* Project management is scored according to three "traffic light" ratings: red, yellow and green. A **red light** means the peer reviewers identified serious issues, such as inadequacies in the planning, project team or budget, or major gaps in the design that could prevent the project from being successfully completed on time or within budget, or from delivering the expected benefits. A **yellow light** means the reviewers identified some weaknesses or minor issues. The applicant would benefit from addressing them, but the issues wouldn't likely prevent them from completing the project or delivering its expected benefits. A **green light** means the peer reviewers identified no notable concerns.

Appendix E: GMF initiatives approved in 2018–2019

The FCM Executive Committee approved 58 initiatives in 2018-2019, based on assessments of their potential to make significant improvements to air, water and soil quality, including reductions in GHG emissions.

Table E1: Initiatives approved in 2018-2019

Project information	Lead applicant	GMF grant amount (\$)	GMF loan amount (\$)	Total project value (\$)
Alberta				
City of Lethbridge Alternative Fuels Feasibility Assessment (16180)	City of Lethbridge	71,500		143,000
County of Vermilion River Fuel Switching Project - Diesel to CNG from Recovered Gas (16037)	County of Vermilion River	45,200		92,300
British Columbia				
Albion Community Centre Step 4 Feasibility Pathways (15920)	City of Maple Ridge	21,300		42,500
Cumberland High Performance Wastewater Lagoon and Wetland Upgrade (15981)	Village of Cumberland	750,000	5,000,000	10,670,000
Delineation of Groundwater, Bedrock, and Soil Contamination at the McLoughlin Point Wastewater Treatment Plant Site (15822)	Capital Regional District	175,000		418,800
Meade Creek Solar Photovoltaic Feasibility Study (15968)	Cowichan Valley Regional District	11,000		22,000
Mixed Waste Materials Recovery - Feasibility Analysis & Impact Assessment (15679)	Fraser Valley Regional District	133,200		266,300

Project information	Lead applicant	GMF grant amount (\$)	GMF loan amount (\$)	Total project value (\$)
Remediation and Risk Assessment for the McLoughlin Point Wastewater Treatment Plant Site (16342)	Capital Regional District	171,900		343,800
Town of Comox Water Metering Feasibility Study (16486)	Town of Comox	23,000		46,000
Manitoba				
Moving Bed Biofilm Reactor (MBBR) Upgrade and Expansion of Water Treatment Lagoons in Neepawa (16446)	Town of Neepawa	655,200	4,368,300	6,279,400
New Brunswick				
AFMNB SAUVÉR - SSé Project (16468)	Association francophone des municipalités du Nouveau-Brunswick	280,900		561,700
Moncton Wood Chip Biomass Heating Pilot Project (16019)	City of Moncton	280,914		561,828
Use of GPS to reduce GHG Emissions of the Municipal Fleet (15866)	Municipalité régionale de Tracadie	10,300		27,700
Newfoundland and Labrador				
A1Next Innovation Park Talent Pool (16277)	City of Mount Pearl	20,400		40,700
Power's Pond Storm Water Quality Management Feasibility Study (16278)	City of Mount Pearl	23,700		47,300
Nova Scotia				
District of Argyle New Municipal Administration Building (15979)	District of Argyle	452,115	3,014,100	4,483,600
Meadowview Solar Energy Feasibility Study (16279)	Municipality of the County of Kings	100,100		200,200

Project information	Lead applicant	GMF grant amount (\$)	GMF loan amount (\$)	Total project value (\$)
Ontario				
Arthur Wastewater Treatment Plant (WWTP) Upgrade (15982)	Township of Wellington North	750,000	5,000,000	18,576,200
Belleville Net Zero Initiative: Codigestion and Energy Generation Feasibility Study (16332)	City of Belleville	80,400		160,800
City of Toronto: Waterfront Neighbourhood Centre - Lake-based Geoexchange System (16353)	City of Toronto	350,000		1,349,100
Coupling Nutrient and Anaerobic Treatments to Upgrade a Wastewater Treatment Plant in South Bruce (16460)	Municipality of South Bruce	1,153,000	6,534,000	9,608,800
Courtright WWTP Final Effluent Reuse System (15977)	Township of St. Clair	167,430	1,116,200	1,604,600
Energy Evolution: Ottawa's Community Energy Transition Strategy Phase 2 (16029)	City of Ottawa	94,600		262,400
Environmental Due Diligence, City Owned Waterfront Property (15883)	City of Orillia	63,500		132,700
Equalization Ponds and Moving Bed Biofilm Reactor (MBBR) to Convert Wastewater Lagoons in Thunder Bay (16444)	City of Thunder Bay	295,300	1,968,800	2,830,100
Former Beaches Property Environmental Site Assessment and Remedial Action Plan Development (16058)	Township of South Stormont	64,000		138,800
Two Low Impact Development Pilot Projects to Manage Stormwater Runoff in Brampton (16505)	City of Brampton	350,000		954,300

Project information	Lead applicant	GMF grant amount (\$)	GMF loan amount (\$)	Total project value (\$)
Loyalist Township - Sustainable Community Hub (16440)	Loyalist Township	101,200		280,200
McNab/Braeside's New Township Office Targets Net-zero Energy Consumption (16329)	Township of McNab/Braeside	364,800	2,432,000	4,751,100
Moving Biofilm Reactor (MBBR) Upgrade of Water Treatment Lagoons in Mapleton (16445)	Township of Mapleton	750,000	5,000,000	7,363,400
Net Zero Feasibility Study: New Township Municipal Office and Site (15967)	Township of McNab/Braeside	11,000		32,700
Ottawa Low Cost Electricity for Thermal (16355)	City of Ottawa	50,500		125,200
Petawawa WPCP Net Zero Project (Biosolids and Energy Generation Feasibility Study) (16284)	Town of Petawawa	52,600		105,200
Phase II ESA - 25 Daniel Street North (15314 – additional amount approved)	Town of Arnprior	22,300		90,500
Phase II ESA and Risk Assessment for the City of Welland Fire Hall and Emergency Services Training Centre (15816)	City of Welland	104,500		209,000
Region of Waterloo Feasibility Study to Evaluate Potential Greenhouse Gas Reductions Through the Implementation of Miovision Spectrum (15998)	Regional Municipality of Waterloo	27,300		54,590
Regional Municipality of York Water Reuse Research Demonstration Project (16327)	Regional Municipality of York	191,300		631,700

Project information	Lead applicant	GMF grant amount (\$)	GMF loan amount (\$)	Total project value (\$)
Site Assessment and Remedial Planning - Pelee Island Co-operative Property (15394)	Pelee Island Co-operative Association	46,100		108,300
Thunder Bay Art Gallery Waterfront Relocation Project (15676)	The Thunder Bay National Exhibition Centre and Centre for Indian Art	95,800		292,800
Town of Orangeville Sustainable Neighbourhood Action Plan (15729)	Town of Orangeville	46,400		94,800
Waterloo Wastewater Treatment Plant Tertiary Treatment Alternatives Feasibility Study (16003)	Regional Municipality of Waterloo	30,700		61,300
Windmill Development Group's Sustainable Neighbourhood Action Plan for Guelph's Baker District (16546)	Windmill Development Group Ltd.	175,000		358,500
York Region Transit Electric Bus Demonstration and Integration Trial to Reduce Greenhouse Gas Emissions (16447)	York Region Transit	750,000	5,000,000	9,982,800
Québec				
A Sustainable Development Action Plan for the Town of Contrecoeur (16467)	Ville de Contrecoeur	20,100		40,100
Assessment of the Environmental, Social and Economic Performance and Incidents Related to Use of the ECOFIXE System in the First Lagoon of an Aerated Lagoon Wastewater Treatment System Dedicated to Treating Household Effluent (16325)	Municipalité d'Ascot Corner	350,000		712,100
Feasibility Study for a Zero-Energy, Zero-Carbon Birds of Prey Interpretation Centre (15257)	Union québécoise de réhabilitation des oiseaux de proie (UQROP)	175,000		527,400

Project information	Lead applicant	GMF grant amount (\$)	GMF loan amount (\$)	Total project value (\$)
In-situ Reduction of Sludge Volume by Microbial Digestion (16456)	Ville de Notre-Dame-de l'Île-Perrot	99,800		199,600
Pilot Project for an Organic Waste Collection System with an Incentive-Based Pricing for Industrial, Commercial and Institutional (ICI) Clients of Les Basques RCM (Les Basques RCM) (15719)	Municipalité régionale de comté des Basques	66,300		132,500
Pilot Project for an Organic Waste Collection System with an Incentive-Based Pricing on Weight for Industrial, Commercial and Institutional (ICI) Clients including the Educational Sector at the Arthabaska RCM (Arthabaska RCM) (15621)	Société de développement durable d'Arthabaska inc. (SDDA)	204,300		408,600
Pilot Project to Set Up Voluntary Residual Material Drop-off Points along Principale Street in the City of Magog (15984)	Ville de Magog	44,100		94,100
Quantifying the Organic Matter Diversion Resulting from Domestic Composting and a Study of Potential Organic Matter Collection Scenarios in a Context of Incentive-Based Pricing in Beaconsfield (15848)	Ville de Beaconsfield	38,500		77,000
Rainwater Collection for Refilling Units and Skill Maintenance Training: Alma South Firehall (16358)	Ville d'Alma	27,800		61,440
Sustainable and Innovative Public Spaces in the Technopôle Angus Eco-District (15927)	Société du patrimoine Angus	1,482,900	9,885,900	15,741,800
Sustainable Development Action Plan (15651)	Ville de Sainte-Brigitte-de-Laval	25,500		50,900

Project information	Lead applicant	GMF grant amount (\$)	GMF loan amount (\$)	Total project value (\$)
Zero Waste Challenge (16238)	Ville de Montréal - Arrondissement de Rosemont-La Petite-Patrie	32,700		86,200
Saskatchewan				
City of Saskatoon Corridor Growth – Brownfield Renewal Strategy (15650)	City of Saskatoon	46,400		92,800
City of Saskatoon Corridor Growth Brownfield Renewal - Field Investigation (15677)	City of Saskatoon	56,600		113,100
Organics Feasibility Study (15827)	City of Saskatoon	144,600		299,100
Total		\$12,228,059	\$49,319,300	\$103,043,758

Appendix F: Environmental results

Table F1: Anticipated environmental benefits of approved capital projects that have not yet reported their results

		Indicators								
Sector		# of projects	Land recovered*	Contaminated media** managed (m ³)	GHG*** emissions avoided (tonnes CO ₂ e/yr) ⁺	CAC emissions avoided (kg/yr) ⁺⁺	Waste diverted (tonnes/yr)	Water+++ treated (m ³ /yr)	Reductions in water use (m ³ /yr)	Stormwater managed (m ³)
Brownfields	Approved in 2018–2019	0	0	0	0	0	0	0	0	0
	Since inception	1	20	115,905	0	0	0	0	0	0
Energy	Approved in 2018–2019	2	0	0	108	1,028	0	0	0	102
	Since inception	19	4	0	7,296	72,285	0	0	50,870	102
Transportation	Approved in 2018–2019	1	0	0	915	1,613	0	0	0	0
	Since inception	5	0	0	4,543	20,803	0	0	0	0
Waste	Approved in 2018–2019	0	0	0	0	0	0	0	0	0
	Since inception	6	0	0	326,771	149,962	213,768	0	0	0
Water	Approved in 2018–2019	8	0	0	78	623	1,058	2,800,825	8,619	987
	Since inception	14	0	0	1,202	2,073	1,058	9,417,168	8,619	987
Total	Approved in 2018–2019	11	0	0	1,101	3,265	1,058	2,800,825	8,619	1,089
	Since inception	45	24	115,905	339,812	245,124	214,826	9,417,168	59,489	1,089

* Includes land brought back into productive use without remediation.

** Includes contaminated soil and groundwater.

*** Refer to the list of abbreviated terms at the end of this section for acronyms.

+GHG emissions for energy projects are calculated based on average provincial/territorial electrical emissions intensities. GMF supports energy efficiency and conservation projects which do not always result in significant GHG emission changes given the differences in provincial/territorial electricity sources, some of which have a higher carbon intensity than others.

++CAC emissions include nitrogen oxides (NO_x), sulphur oxides (SO_x), volatile organic compounds (VOCs), and particulate matter (PM₁₀).

+++Includes treated drinking water and wastewater.

Table F2: Anticipated vs. actual environmental benefits reported for capital projects in 2018–2019^{*, **}

			Sectors					Total g***
Number of projects			Brownfields 0	Energy 6	Transportation 0	Waste 0	Water 3	
Indicators	GHG emissions avoided (tonnes CO ₂ e/yr)	Anticipated	0	77,420	0	0	0	77,420
		Actual	0	32,044	0	0	26	32,070
	CAC emissions avoided (kg/yr)	Anticipated	0	107,890	0	0	0	107,890
		Actual	0	104,588	0	0	0	104,588
	Land recovered (ha)	Anticipated	0	0	0	0	0	0
		Actual	0	0	0	0	0	0
	Contaminated media managed (m ³)	Anticipated	0	0	0	0	0	0
		Actual	0	0	0	0	0	0
	Waste diverted (tonnes/yr)	Anticipated	0	0	0	0	0	0
		Actual	0	0	0	0	0	0
	Water treated (m ³ /yr)	Anticipated	0	0	0	0	1,550,850	1,550,850
		Actual	0	0	0	0	1,273,953	1,273,953
	Reductions in water use (m ³ /yr)	Anticipated	0	199,652	0	0	0	199,652
		Actual	0	317,998	0	0	0	317,998
	Stormwater managed (m ³)	Anticipated	0	0	0	0	0	0
		Actual	0	0	0	0	0	0

* See Table F4 for details about projects that reported their environmental results in 2018–2019.

** Refer to the list of abbreviated terms at the end of this section for acronyms.

*** Two capital projects (one in the wastewater sector and one in the energy sector) were cancelled after partial disbursement. Partial environmental results were reported for one of the projects (GMF 5055; energy sector) and they are presented in this table. There were no results available for GMF 9448, in the wastewater sector.

Table F3: Anticipated vs. actual environmental benefits reported for capital projects since inception (updated for 2018–2019)*

Some projects do not achieve their expected performance after one year of operation. This is reflected in the differences between actual and anticipated results in Table F2. In most cases, however, projects have achieved or exceeded their anticipated performance. Since inception, 12 capital projects (eight in the water sector, three in the energy sector and one in the brownfield sector) have been completed for which no environmental results were reported:

- ▶ One project was cancelled after partial disbursement. Although the municipality completed the project, they did not submit their environmental results report (ERR) to us.
- ▶ The brownfield component of the Fort Rouge project in Winnipeg, MB, was disbursed in 2015–2016, but no ERR was submitted at that time. Actual results will be submitted when the energy and transportation components of the project are complete.
- ▶ One project was completed (loan fully disbursed) for which we didn't receive the ERR. The GMF Council decided to close the project in May 2014, so the grant was not disbursed.
- ▶ One project was completed (loan fully disbursed) for which we didn't receive the ERR. The applicant withdrew before we received the ERR.
- ▶ Because of reporting requirements at the time, six projects didn't provide sufficient information to report on the actual environmental benefits.
- ▶ A project approved in 2002 reported on an environmental impact that does not fit within any of our existing environmental indicators. The project's objective was to improve sludge quality only.
- ▶ One project was cancelled after disbursement. The invoices we received only covered the design of a filtration system. The design was not implemented, so there are no environmental benefits claimed for this project.

The total number of capital projects completed since inception is 164, and 152 have reported on their environmental performance.

*Refer to the list of abbreviated terms at the end of this section for acronyms.

			Sectors					
			Brownfields	Energy	Transportation	Waste	Water	Total
Number of projects			9	82	5	16	40	152
Indicators	Land recovered (ha)	Anticipated	94	0	0	0	0	94
		Actual	94	0	0	0	0	94
	Contaminated media managed (m³)	Anticipated	193,272	0	0	0	0	193,272
		Actual	191,768	0	0	0	0	191,768
	GHG emissions avoided (tonnes CO ₂ e/yr)	Anticipated	0	292,952	27,249	406,748	7,424	734,373
		Actual	0	209,247	28,390	171,920	12,992	422,549
	CAC emissions avoided (kg/yr)	Anticipated	0	578,257	133,822	8,137	18,545	738,762
		Actual	0	402,242	141,065	8,073	7,077	558,458
	Waste diverted (tonnes/yr)	Anticipated	0	178	0	253,836	0	254,014
		Actual	0	1,722	0	171,874	0	173,596
	Water treated (m³/yr)	Anticipated	0	0	0	0	273,514,178	273,514,178
		Actual	0	0	0	0	244,752,512	244,752,512
	Reductions in water use (m³/yr)	Anticipated	0	208,601	0	0	490,322	698,924
		Actual	0	359,762	0	0	281,539	641,301
	Solid waste treated (m³)	Anticipated	0	0	0	0	7,000	7,000
		Actual	0	0	0	0	34,675	34,675
	Stormwater managed (m³/yr)	Anticipated	0	0	0	0	1,552	1,552
		Actual	0	0	0	0	1,552	1,552

GHG reporting

Our approach to reporting on GHG emissions avoided through funded initiatives includes two components: the cumulative annual (one-time only) GHG emissions reduction benefits presented in Table F3 and one based on internationally accepted standards for reporting GHG emissions. The latter assumes that we fund projects that are better than business as usual (BAU) even after the first year of operation. Based on this assumption, we will determine the cumulative GHG emissions avoided based on these better than BAU benefits, continuing for seven years—the same length of time as the crediting period of the United Nations’ Clean Development Mechanism. On an annual basis, any changes to the carbon profile of electricity consumed from the grid will be incorporated into the reduction for that given year. This approach provides a more accurate picture of the overall positive GHG impacts generated by GMF-funded projects. As is shown in Figure F1, based on this approach, the total cumulative GHG emission reductions from all GMF projects that have reported to date is **2.6 million tonnes**.

As seen in Figure F1, the cumulative GHG emission reductions since 2012–2013 are less than in previous years. This is because we funded fewer capital projects during this time frame, so fewer have reached completion. Their final environmental reporting is pending. The graph may also reflect the influence of other factors, such as an increased proportion of wastewater-focused projects in recent years, a cleaner electricity grid in Ontario and an increased number of projects from Quebec, where hydropower is prevalent.

Figure F1: Cumulative GHG emission reductions by project year

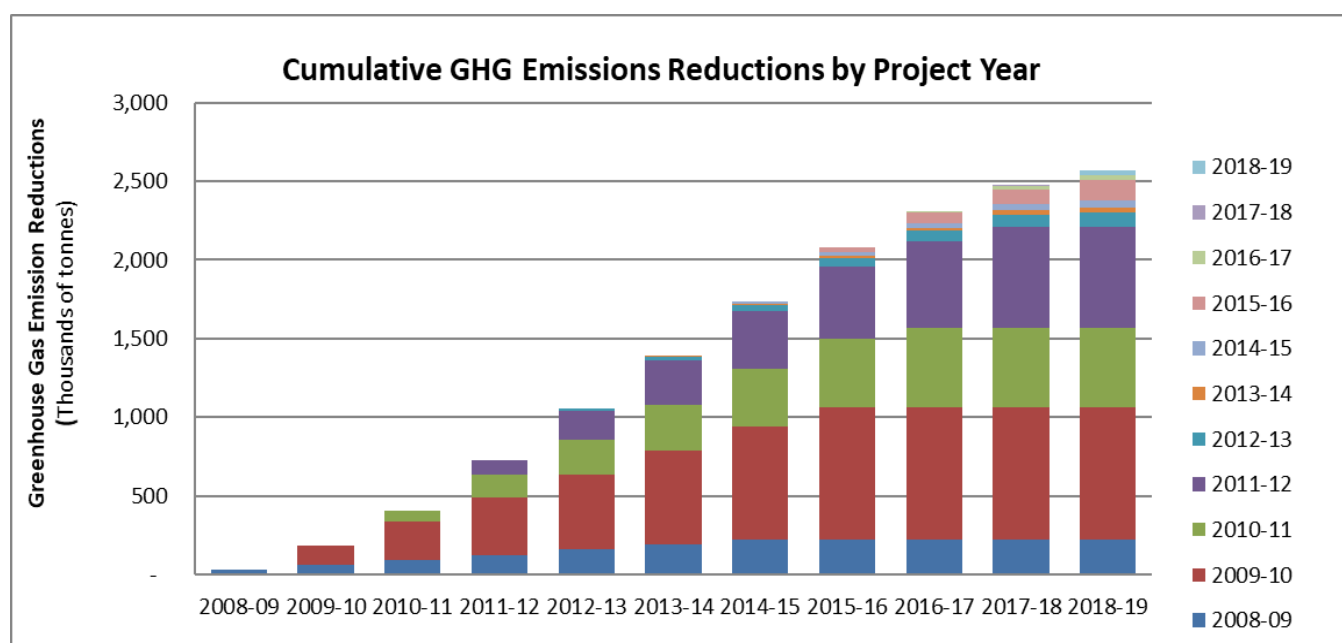


Table F4: Details on capital projects that reported environmental results in 2018–2019

Project information	Anticipated results	Actual results	Comments
<p>(1) Ville de Montréal - Arrondissement de St. Laurent, QC</p> <p>Year approved: 2012–2013 Sector: Energy</p> <p>Complexe sportif, multifonctionnel, vert et vivant de l'arrondissement de Saint-Laurent <i>GMF 12018</i></p>	GHG emissions reduced by 349 tonnes per year	GHG emissions reduced by 308 tonnes per year	<p>In order to offer the residents of the Saint-Laurent borough a location for sports and recreational activities, the City of Montréal built a highly energy-efficient sports complex that also serves as a meeting and integration center. This green building is one of the first sports facilities in Canada to achieve LEED Canada NC 1.0 Gold certification, and its annual energy consumption is less than 55.8 % of that of a reference building that respects the minimum standards of the Model National Energy Code of Canada for Buildings (MNCEB) 1997.</p> <p>The anticipated energy reduction at the application stage was 64.2%. Due to construction-side contingencies, the number of geothermal wells had to be reduced to 67 wells. Furthermore, adjustments were made to the initial energy model (such as an increase of the building's surface area and the use of electrical furnaces to supplement the natural gas-powered hot water tank). The municipality is proactively trying to find additional solutions to further reduce the building's energy consumption.</p> <p>The project has many strong social and economic benefits, as well as detailed lessons learned that can be shared with other municipalities.</p>
	Energy use (electricity and natural gas) reduced by 20,310 GJ per year	Energy use (electricity) reduced by 14,160 GJ per year	

Project information	Anticipated results	Actual results	Comments
<p>(2) Town of Hampton, NB</p> <p>Year approved: 2015–2016 Sector: Energy</p> <p>Former Kings County Court House Energy Retrofit and Renewal <i>GMF 13138</i></p>	GHG emissions reduced by 27 tonnes per year	GHG emissions reduced by 26 tonnes per year	<p>The Town of Hampton reduced the energy usage of the provincially designated heritage former Kings County Court House building by converting from oil heat to HVAC heat pumps for heat and cooling, increasing attic insulation and upgrading electrical services. The renovations resulted in an energy reduction of 33% (350 GJ per year), as well as improved accessibility in the building. Additional environmental benefits include reduced GHG emissions and reduced water use (from the installation of low flow toilets).</p>
	Energy use reduced by 365 GJ per year	Energy use reduced by 350 GJ per year	<p>The Town of Hampton originally planned to increase insulation throughout the building's envelope. However, as the building is a 140-year-old heritage building, the walls could not be insulated.</p> <p>Although it hasn't met the 69% energy target set in the application stage, a 30% energy reduction meets our criterion for retrofit buildings. Heritage buildings are often difficult to retrofit due to construction site contingencies and provincial regulations. This project has many positive social and economic impacts, including the revitalization of the downtown core (i.e., thriving local businesses).</p>

Project information	Anticipated results	Actual results	Comments
<p>(3) Town of Ladysmith, BC</p> <p>Year approved: 2012–2013 Sector: Water</p> <p>Ladysmith Wastewater Treatment Plant Upgrade <i>GMF 12012</i></p>	<p>1,277,500 m³/yr of wastewater treated to provincial water quality standards</p>	<p>1,000,603 m³/yr of wastewater treated to provincial water quality standards</p>	<p>The Town of Ladysmith upgraded its wastewater treatment plant with a moving bed biofilm reactor, a dissolved air flotation tertiary treatment process, and other features to meet BC's current water quality standards, as well as to protect the local shellfish industry—a major resource in the area. The integrated design of the plant and its connected buildings goes beyond water quality to address sludge treatment, renewable energy and energy efficiency.</p>
<p>(4) Town of Montague, PEI</p> <p>Year approved: 2015–2016 Sector: Water</p> <p>Montague Sludge Dewatering System <i>GMF 15047</i></p>	<p>273,350 m³/yr of wastewater treated to provincial water quality standards</p> <p>N/A</p>	<p>273,350 m³/yr of wastewater treated to provincial water quality standards</p> <p>GHG emissions reduced by 26 tonnes per year</p>	<p>Prior to the project, the Town's wastewater treatment plant was able to remove only a small portion of waste sludge for agricultural land spreading. A pumping system now diverts pre-treated effluent through high-strength geotextile dewatering bags, which passively filters the effluent and creates drier and lighter-weight sludge. After one year of settling in the bags, plant operators applies the dried biosolid as a nutrient additive to sod fields one kilometer from the plant.</p> <p>The project performed better than expected as the biosolids tested to be Class A exceptional quality, which is higher quality than expected. The project also resulted in significant improvements in diesel consumption and operational savings for the municipality. Although the facility operated within environmental regulations prior to the project's implementation, the increased removal of sludge results in higher quality effluent and safer MLSS levels.</p>

Project information	Anticipated results	Actual results	Comments
<p>(5) City of Grand Prairie, AB</p> <p>Year approved: 2013–2014</p> <p>Sector: Energy</p> <p>Aquatera / City of Grande Prairie Landfill Gas to Energy and District Heat Project</p> <p><i>GMF 13004</i></p>	GHG emissions reduced by 70,739 tonnes per year	GHG emissions reduced by 26,604 tonnes per year	<p>Aquatera Utilities Inc., a utility company owned by the City of Grande Prairie, by the County of Grande Prairie No. 1, and by the Town of Sexsmith, AB, partnered with the City of Grande Prairie to build a district energy system fueled by methane gas captured from the city landfill and serving the city's water and wastewater treatment plants. The Aquatera facility burns the methane and supplemental natural gas in a combined heat and power plant and supplies both electricity and recovered waste heat to the water and wastewater treatment plants. The project as built reduces the overall energy consumption of the plants by approximately 18% annually.*</p> <p>The Aquatera facility sells the carbon credits from the landfill methane capture through Alberta's voluntary offset program. Through the program, the project has reduced GHG emissions by 26,604 tonnes (reporting year 2017), by capturing methane that would otherwise be off-gassed from the landfill and by substituting residual energy for electricity from the grid to fuel both plants.</p>
	Not enough information**	Energy use reduced by 22,697 GJ per year	
<p>(6) City of Toronto, ON</p> <p>Year approved: 2013–2014</p> <p>Sector: Energy</p> <p>Green Energy Retrofit</p>	Energy use reduced by 21,473 GJ per year	Energy use reduced by 18,383 GJ per year	<p>To improve energy efficiency in Toronto Community Housing Corporation (TCH) buildings, the City of Toronto partnered with the The Atmospheric Fund (TAF) to retrofit seven social housing buildings through the Energy Savings</p>
	GHG emissions reduced by 910 tonnes per year	GHG emissions reduced by 743 tonnes per year	

of Seven Social Housing Buildings <i>GMF 12110</i>	Water consumption reduced by 28,936 m ³ /y	Water consumption reduced by 53,643 m ³ /y	Performance Agreement (ESPA). The ESPA is a performance-based, non-debt financing solution structured as a service agreement, which enables TCH to repay loan capital as a percentage of verified energy savings that are guaranteed and insured. The project reached a 21% reduction in energy use and GHG emissions across the seven buildings, which equates to approximately 743 tonnes of CO ₂ -equivalent, as well as a 26% reduction in water use.
(7) City of London, ON Year approved: 2014–2015 Sector: Energy	GHG emissions reduced by 215 tonnes per year	GHG emissions reduced by 201 tonnes per year	The City of London's Canada Games Aquatic Centre (CGAC) underwent significant retrofits to improve its energy efficiency. Completed in 1991

The City of London's Canada Games Aquatic Centre Renewal and Energy Retrofit <i>GMF 13033</i>	<p>Energy use reduced by 5,225 GJ per year</p>	<p>Energy use reduced by 4,661 GJ per year</p>	<p>and having hosted more than 8.5 million users, the facility is in need of significant updating and system replacement. The redesign of existing systems and energy-efficient equipment such as new HVAC and lighting systems, the implementation of a combined heat and power system, automation controls, and improving the pool's mechanical and filtration components reduced energy consumption by 4,661 GJ per year (26 per cent). Energy demand is managed through an ongoing commissioning and optimizing process, allowing managers to adapt to changes in operating parameters over time.</p>
Project information	Anticipated results	Actual results	Comments
<p>(8) City of Toronto, ON</p> <p>Year approved: 2003–2004</p> <p>Sector: Energy</p>	<p>Energy use reduced by 97,355 GJ per year</p>	<p>Energy use reduced by 77,384 GJ per year</p>	<p>The Energy and Waste Management Office (EWMO) of the City of Toronto developed a citywide comprehensive energy and water conservation plan, which the City adopted in February 2003. The plan was implemented in</p>
	<p>GHG emissions reduced by 5,179 tonnes per year</p>	<p>GHG emissions reduced by 4,162 tonnes per year</p>	

Energy and Water Efficiency Retrofits <i>GMF 5055</i>	<p>Water consumption reduced by 170,716 m³/y</p>	<p>Water consumption reduced by 264,355 m³/y</p>	<p>200+ City buildings, including City centers, fire halls, arenas and outdoor ice rinks and buildings at Exhibition Place. The plan included, but was not limited to, simple initiatives such as lighting retrofits and building envelope measures, as well as more complex undertakings such as HVAC measures and building automation systems.</p> <p>Note that the project was cancelled after partial disbursement. Partial environmental results were reported in 2009 for retrofits completed between 2006 and 2008. We didn't obtain data for retrofits completed after 2008.</p>
<p>(9) Village of Lytton, BC</p> <p>Year approved: 2006–2007</p> <p>Sector: Water</p> <p>Lytton Well and Storage Completion Project <i>GMF 9448</i></p>	<p>The original application proposed a more secure source of potable water by implementing two groundwater wells, tying them into one chlorination facility and pumping the well water uphill via a booster station to a reservoir. Reduced reliance on the primary water source, Lytton Creek, was anticipated to result in lower turbidity and associated boil water advisories, while having two wells operating on a full-time basis was projected to reduce water shortages. After a large hole in the water intake pipe from Lytton Creek was found and repaired, water volumes coming from Lytton Creek were determined to meet the community's needs, negating the necessity of the wells. A scope change was submitted to us in order to implement a slow sand filtration process in order to address the water quality. This project was cancelled after disbursement and the invoices sent to us only covered the design of the filtration system. The filtration system, however, was not implemented and as such there are no environmental benefits to be claimed for this project.</p>		

* Note that concurrent to the GMF project, a major upgrade was completed on the wastewater treatment plant. This changes the energy profile of the plants (both electricity and heat loads). There was however not enough information available to update the baseline, so we used the baseline data submitted at the application stage. As such, the project's energy reduction is a conservative estimate.

** Note that the anticipated energy data provided at the application stage were not adequate to establish equivalence between the project and the baseline (project boundaries were not well defined). We made this error at the application stage. The anticipated results should not be compared to the actual results.

Abbreviated terms

- ▶ CAC: Criteria air contaminant
- ▶ GHG: Greenhouse gas
- ▶ GJ: Gigajoules
- ▶ ICI: Industrial, commercial and institutional
- ▶ NECB: National Energy Code for Buildings
- ▶ RCM: Regional county municipality

Appendix G: Knowledge resources and activities

At GMF, our capacity building mandate complements our funding mandate. We create peer learning programs, workshops, webinars, case studies and other knowledge and information resources to help build municipal stakeholders' capacity to develop and deliver exemplary environmental projects.

In 2018-19, we completed our first year of activities under GMF's *Five Year Plan: 2018–2023*, all of which were designed to help us increase our program's overall influence in the sector. The activities achieved three key desired outcomes (all of which are explored in further detail below):

1. Deliver excellence in our core capacity building programming through:
 - a. Leadership in Brownfield Remediation (LiBRe) peer learning program
 - b. Partners for Climate Protection program (PCP)
 - c. Sustainable Communities Awards (videos, guides and Inspire Award guidebook)
 - d. Workshops and consultations
 - e. Webinars
2. Pilot new capacity building approaches and activities through:
 - a. Leader's Exchange Forums
3. Develop new initiatives for long-term impact through:
 - a. A learning strategy
 - b. Capacity building for funded projects
 - c. Online decision support tool
 - d. Online course development
 - e. Energy roadmap support
 - f. Circular economy
 - g. Mid-sized cities initiative

1. Deliver excellence in core capacity building programming

We work to inspire, connect, and build the capacity of Canadian municipalities to implement innovative infrastructure initiatives. We've delivered our core capacity building programming over several years and have a proven track record of impact in supporting municipal learning and applying best practices. Below are summaries of our core capacity building work in 2018-2019.

- a. Peer learning program: LiBRe network

The LiBRe network connects municipal staff from Canadian communities of all sizes. These municipalities have committed to remediating and redeveloping brownfield sites as a way to revitalize their communities. Members of LiBRe gain access to a network of peers and leading municipalities in this sector. The program is founded on a seven-step best practices framework that municipalities use to chart their unique courses while revitalizing their communities and redeveloping underused brownfield sites.

GMF supports and convenes the online and in-person meetings of two networks. One is francophone (eight municipalities) and the other is anglophone (23 municipalities), and their members are from across Canada. We have also published a series of guidebooks ([available on our website](#)) outlining best practices in each of the program's seven milestones. In 2018-19, we hosted four online network meetings (two English, two French) that involved 50 participants, and two in-person events that involved 30 participants. Surveys showed that 100% of the participants were *satisfied* or *very satisfied* with their participation in the LiBRe network. Their feedback also demonstrated how well the program responds to their need to connect, as its most valued elements were the sharing experiences, networking with peers, and in-person meetings. We are recruiting new members to [join the LiBRe network](#).

“The work you have done to bring Canadian colleagues together, who all are working, or have an interest in Brownfields, is very commendable!

It's great to see how the Brownfield narrative has changed from technical/chemical engineering discussions to City Building initiatives.

I have reached out to my colleagues in the Environmental Engineering Division and have encouraged them to become more involved in LiBRe moving forward.

Thanks for all your support, for being a great source of information, and for facilitating the national discussion.”

Lorenzo Ruffini, O.A.L.A.
Manager, City Building Initiatives
City of Mississauga, ON

b. PCP program

The PCP program is a partnership between ICLEI — Local Governments for Sustainability (ICLEI Canada) and FCM. More than 400 Canadian municipalities belong to the PCP program, which is built on a five-milestone framework. It guides municipalities from commitment to action in reducing their GHG emissions and taking action on climate change. FCM's contributions to PCP are supported by both GMF and the Municipalities for Climate Innovation Program (MCIP).

Fiscal year 2018-19 was an active and successful year for PCP. In this fiscal year, 41 municipalities joined the program, members achieved 232 new milestones, and 32 members reached Milestone Five. The PCP Hub (an online networking space) continues to grow, and two regional recognition events supported knowledge sharing between members. We released a range of useful tools and resources in 2018-19 including: an updated [online Milestone Tool](#) to support municipalities that are completing their GHG inventories; the [2018 National Measures Report](#) highlighting 164 climate actions taken by member

municipalities across Canada; and [seven Milestone Five Case Studies](#) profiling leadership among PCP members. FCM and ICLEI Canada also delivered a webinar series and workshops across Canada. A network of five regional climate advisors continued to support members across the country with a combination of awareness raising and direct technical assistance support. For details on the reach and impact of these activities, see Annex 5 of the *Municipalities for Climate Innovation Program Annual Report*.

c. Sustainable Communities Awards

Since 2001, FCM has recognized excellence and leadership in municipal sustainability through the [Sustainable Communities Awards](#) program. The 2018 awards were presented in February at the Sustainable Communities Conference, where the winners delivered TED-style presentations, which were then produced as videos. We released the videos and accompanying guides in April 2018 to share the winners' compelling stories more broadly and offer guidance on how to follow their example. They have been downloaded more than 2,400 times since their launch. We also released case studies (3,600 views) and guides (770 downloads) to support the replication of the winning initiatives.

The conference's delegates selected the Inspire Award winner from among the 2018 Sustainable Communities Award winners. The City of Kingston won the inaugural Inspire Award for its Kingston Transit High School Pass Program. Following the announcement, Kingston received dozens of enquiries from municipalities, transit authorities and Ministries of Education wanting to learn more about this innovative project and how to replicate it in other communities. To respond to this need, we worked with the City of Kingston and the Limestone District Schoolboard to develop a toolkit outlining the steps, keys to success and lessons learned from the Kingston Transit High School Pass Program. We launched a [guidebook](#) in early April 2019.

d. Events

We raise awareness and built the capacity of municipal staff and elected officials through workshops and presentations at in-person events. In 2018-2019, our staff presented workshops at three events. The first was an international symposium on environmental education for adults, held in Sherbrooke, QC (*Colloque internationale : Éducation à l'environnement auprès des adultes*). There, a GMF staff member made a presentation about engaging municipal environmental leaders (*Former les leaders environnementaux au Canada en milieu municipal*). Staff also presented a workshop at the Canadian Brownfields Network Annual Conference and a storytelling workshop at the Canadian Institute of Planners Annual Conference on Canadian Brownfield Redevelopment: Stories of Revitalization. These all helped to profile municipal leadership in sustainable development, and reached 105 participants in total.

GMF staff also took part in consultations with municipal practitioners regarding the current GMF funding offer in the transportation sector. They did this at the ACT Canada and Canadian Parking Association's Unified Mobility Summit and at the Annual Conference and Transit Show of the Canadian Urban Transit Association. We'll use what we learned at these consultations to shape our communications materials and eligibility criteria in the transportation sector.

e. Webinars

We host free webinars (online seminars) to raise awareness about GMF's funded sectors. These are important opportunities for municipalities and their project partners to learn about best practices in the sector from the comfort of their offices. In 2018-19, we hosted 15 webinars (eight in English and seven in French) across the energy (2), land-use (2), water (1) and waste (10) sectors. These reached 1,435 participants, 88% of whom (on average) were *satisfied* or *very satisfied* with the webinars they attended. An average of 82% reported that they understood the subject matter better after attending a webinar.

This year's topics included:

- Land use: Fostering brownfield redevelopment
- Water: Effective financing strategies for stormwater management
- Waste: Toward a circular economy approach for plastics management (held in partnership with the National Zero Waste Council and the Smart Prosperity Institute)
- Energy: Introduction to RETScreen for municipalities, a leading tool to help unlock energy saving opportunities (held in partnership with Natural Resources Canada)

2. Pilot new capacity building approaches and activities

a. Leader's Exchange Forums

In 2018-2019, we explored a new approach to supporting online peer learning among GMF-funded projects, called Leader's Exchange Forums. This is an initiative of the larger project to build capacity for GMF-funded projects, outlined in section 3b.

The Leader's Exchange Forums brought together representatives from past and current projects, as well as new projects in the planning phase that are not yet funded by us. The forums focused on project types and had a critical mass of currently funded projects. They looked at high-efficiency fire halls and wastewater systems (mechanical and lagoon).

These forums were similar to webinars, in that presenters and participants joined remotely and the sessions began with a presentation from previously and currently funded project representatives. In contrast to webinars though, these smaller group forums included a live discussion among the participants. There were many constructive conversations during the forums, and some project leads even plan to visit previously funded project sites or follow up with project representatives to learn more.

These forums were conducted as a pilot project to explore the viability of online peer learning between funded and prospective projects. On average, 93% of the participants were *satisfied* or *very satisfied* with their experiences, and 100% reported understanding the subject matter better after the forum. Notably, 79% intend to apply what they learned to their own projects. We will continue to explore opportunities for online and in-person peer learning.

3. Develop new initiatives for long-term impact

Our *Five Year Plan: 2018–2023* focuses on increasing our endowment fund’s impact. During the first year (i.e., 2018-2019), it was important to deliver programming and develop new relationships, approaches and strategies to achieve our new objectives. These new initiatives are outlined below.

a. Learning strategy

Our new *Learning Strategy* enhances support for GMF clients who want to bring innovative sustainability solutions to their municipalities. The strategy focuses on two program areas: capacity building related to the Energy Roadmap and capacity building for GMF-funded projects.

The *Learning Strategy* creates value, while extrapolating findings (when it’s appropriate) to create larger strategic recommendations for all of FCM. The document concludes with a summary of recommendations and a clear roadmap that our GMF staff plan to follow in the next 12 months. Along with this document, we also submitted working documents, appendices, and supplementary materials.

b. Capacity building for GMF-funded projects

We want every GMF-funded project to get the capacity building support it needs to be successful. Our early successes in making this happen include creating reference materials and regular training programs for GMF’s front-line staff. Through these projects, they’ve learned how to more effectively share project information, guidebooks and other relevant information with clients and prospective clients. Our clients report that the information they’ve received improves their projects and that they would not have found these resources without our staff’s assistance.

In 2018-2019, we also improved our internal information management systems and piloted the Leader’s Exchange Forums to support peer learning among past, current and prospective clients. We will continue to develop and pilot new approaches to capacity building for funded projects in the years ahead.

c. Online decision support tool

There are 11 work packages in our *Five Year Plan: 2018–2023*. The objective of work package six is to “Leverage and mobilize GMF’s knowledge, decision tools and capacity-building support for planning and executing sustainable projects”. It has several anticipated five-year outcomes:

- a. Work with a network of partners in Canada to lever each other’s:
 - i. Data sets
 - ii. Knowledge and knowledge products
 - iii. Decision tools
 - iv. Lessons learned
 - v. Capacity building support and training
 - vi. Peer and expert networks

- b. Establish a modern, accessible, navigable, versatile and easily updated online platform. Use that platform to promote GMF's assets as well as those available through its partner network.

To achieve these objectives, we're exploring the development of an online platform to support municipalities in identifying the highest-impact opportunities in their communities. Small and mid-sized communities would be the primary target for this tool.

This project is closely linked with our Energy Roadmap, which identifies the highest-impact opportunities for municipalities in the energy sector. During consultations on the Energy Roadmap, municipal staff and elected officials indicated that they want support to quickly identify the best energy-saving opportunities for their communities, and that they would prefer an interactive online tool.

While we developed our Energy Roadmap in 2018-19, we also prepared the data upon which it is founded. This made it easier to convert the roadmap into an online tool and determine the frequency and level of effort required to update the data. When we work on online tools like this one in the future, we will conduct a full needs assessment as well as a scan of existing tools to identify our tool's niche and unique value proposition.

d. Online course development

In 2018-19, we began developing two online courses focused on the energy sector, and both are set for release in 2019-2020.

We supported York University and the Community Energy Knowledge Action Partnership (CEKAP) in developing the online portion of [Energy Conscious Community: An Energy Planning Course for Planning Professionals](#). It's a continuing education course for professional planners that focuses on the intersection between energy planning and land-use planning in Ontario. We also worked with York University to license this material under a creative commons, which encourages other planning associations to adapt it to their own provincial and legislative context.

Over the years, we have noticed that errors in energy modeling make it harder to get funded projects to match their anticipated environmental outcomes. That's why we've explored developing an introduction to energy modeling for municipal project managers. This course may be released in 2019-2020.

e. Energy Roadmap support

Developing our Energy Roadmap is a priority initiative, as stated in work package three of our *Five Year Strategic Plan: 2018-2023*. Our staff supported a consultation exercise on the Energy Roadmap and participated in document reviews to ensure they could develop appropriate, public-facing materials in 2019-2020.

f. Circular economy

A global circular-economy movement is well underway. Many European countries, such as the Netherlands, are leading innovative circular economy initiatives. We recognize that a circular economy in itself is a vast topic, so we have focused on the fact that every Canadian municipality must manage its *plastics* at the end of their disposal cycle. We also recognize that today, inadequate plastic management worldwide results in plastics accumulating in our oceans and other bodies of water, as well as landfills. It is also ingested by humans and animals alike.

In an effort to promote the exploration and development of long-term solutions to plastic waste management in Canadian municipalities, we have begun collaborating with key actors across Canada to foster a circular economy:

- We are members of the Advisory Group for the Recycling Council of Ontario's 'Circular Procurement Summit' in June 2019.
- We are members of the *Cercle de mise en oeuvre de l'économie circulaire*, organized by *l'Institut de l'environnement, du développement durable et de l'économie circulaire* (IEDDEC)
- We hosted a workshop organized by the International Institute on Sustainable Development (IISD) to present the results of their research on "Canada's international trade obligations: Barrier or opportunity for sustainable public procurement?"

We are interested in future opportunities to support and advance a circular economy in Canada.

g. Mid-sized cities initiative

One of our staff members attended the first meeting of Evergreen Canada's Mid-Sized Cities Learning Exchange in May 2018 in London, Ontario. The participants included municipal staff and elected officials from several Ontario municipalities as well as the cities of Halifax, Nova Scotia, and Victoria, British Columbia. Through a mix of presentations, case studies, learning tours and working sessions, participants explored a number of high priority municipal topics:

- Neighbourhood revitalization and community economic development
- The meaningful engagement of community stakeholders in municipal decision making
- How to apply strategic foresight principals in municipal planning processes

4. Reach and impact summary

Capacity building activities can offer participants opportunities to raise their awareness on a given topic, develop skills and learn about project implementation. The tables below provide insights about the reach and impact of our capacity building activities in 2018-19. We define reach as the number of participants, unique views or downloads; and measure impact through our participants' self-reporting about their satisfaction with the event, whether they gained new knowledge and their intent to apply what they learned to their projects.

a. LiBRe program

Program reach	EN	FR	TOTAL
Total number of participating municipalities	23	8	31
Total number of participants	30	8	38
Total number of participants in online meetings	38	12	50
Total number of participants in face-to-face meetings (including non-LiBRe municipalities)	20	10	30

Program impact	EN (%)	FR (%)
Satisfaction with the event (<i>satisfied or very satisfied</i>)	100	100
Gained new knowledge and/or capabilities (<i>agree or strongly agree</i>)	100	100
Will apply the ideas and approaches to their own project (<i>agree or strongly agree</i>)	93	100

b. Partnership for Climate Protection program

For details on the reach and impact of this program's activities, see Annex 5 of the *Municipalities for Climate Innovation Program Annual Report*.

c. 2018 Sustainable Communities Awards

Product type	Language	Reach
Case studies (18)	English/French	3,632 unique views
Guides (18)	English/French	770 downloads
Videos (12)	English/French	2,225 unique views

d. Events

Date	Activity type	Language	Description	Reach
6/14/2018	Workshop	French	<i>Colloque internationale : Éducation à l'environnement auprès des adultes - Former les leaders environnementaux au Canada en milieu municipal</i>	25
6/14/2018	Workshop	English	Canadian Brownfields Network annual conference	20

7/19/2018	Workshop	English	Canadian Institute of Planners Annual Conference - Canadian Brownfield Redevelopment: Stories of Revitalization	60
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e. Webinars

Date	Number in the series	Language	Activity title / description	Reach	Satisfied or very satisfied (%)	Improved under- standing (%)	Intend to apply new info.(%)
06/20/2018	2	English French	Fostering Brownfield Redevelopment	104	95	78	-
6/26/2018	1	English	Effective Financing Strategies for Stormwater Management	54	-	-	-
2/14/2019 to 3/14/2019	5	French	<i>Gestion des déchets plastiques grâce à l'économie circulaire</i>	247	85	72	59
2/14/2019 to 3/14/2019	5	English	A circular economy approach to plastics (held in collaboration with National Zero Waste Council and Smart Prosperity Institute)	1136	89	82	57
3/6/2019 & 3/7/2019	2	English French	Introduction to RETScreen for municipalities - "Leading tool to help unlock energy saving opportunities" (held in collaboration with Natural Resources Canada)	131	93	97	90