



CITY OF HAMILTON
CITY MANAGER'S OFFICE
Administration

and

HEALTHY AND SAFE COMMUNITIES DEPARTMENT
Public Health Services - Healthy Environments Division

TO:	Mayor and Members General Issues Committee
COMMITTEE DATE:	May 19, 2021
SUBJECT/REPORT NO:	Hamilton's Home Energy Retrofit Opportunity (HERO) Detailed Design Study (CM21008/HSC21016) (City Wide)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Trevor Imhoff (905) 546-2424 Ext. 1308
SUBMITTED BY: SIGNATURE:	Janette Smith City Manager City Manager's Office
SUBMITTED BY: SIGNATURE:	Paul Johnson General Manager Healthy and Safe Communities Department

RECOMMENDATION

- (a) That staff be directed to undertake a process to develop a detailed design for a flexible Home Energy Retrofit Opportunity (HERO) Program with a one-time project budget cost of \$200,000, subject to a successful funding application outlined in Recommendation (b);
- (b) That the City Manager be authorized to submit an application to the Federation of Canadian Municipalities (FCM) Community Efficiency Financing stream to cover 80%, or up to a maximum of \$160,000 of eligible costs to complete a detailed design for a flexible HERO program;

OUR Vision: To be the best place to raise a child and age successfully.

OUR Mission: To provide high quality cost conscious public services that contribute to a healthy, safe and prosperous community, in a sustainable manner.

OUR Culture: Collective Ownership, Steadfast Integrity, Courageous Change, Sensational Service, Engaged Empowered Employees.

- (c) That should the FCM application be successful the City portion of the project, contingent on FCM funding, up to \$40,000 be funded through the 2021 Healthy and Safe Communities 2021 Air Quality Climate Change operating budget surplus, Department Id 674620;
- (d) That should the FCM application be successful, Council approve the single source procurement, pursuant to Procurement Policy #11 – Non-competitive Procurements, for the project management services for the development of the detailed design for a flexible HERO program at the upset limit of \$200,000 and that the General Manager, Healthy and Safe Communities Department be authorized to negotiate, enter into and execute a Memorandum of Understanding (MOU) and any ancillary documents required to give effect thereto with Mohawk College of Applied Arts and Technology, in a form satisfactory to the City Solicitor; and,
- (e) That should the FCM application be successful, the appropriate City staff be directed to consult and collaborate with external stakeholders including but not limited to the Bay Area Climate Change Council, Environment Hamilton, Green Venture and other applicable community-based organizations in the development of a flexible HERO program.

EXECUTIVE SUMMARY

The recommendations in this report would accelerate the completion of a detailed design for a flexible Home Energy Retrofit Opportunity (HERO) Program. City staff are recommending leveraging the work completed to date from the following initiatives/projects in order to obtain funding from the Federation of Canadian Municipalities (FCM) Community Energy Financing funding stream currently available:

- The City's ongoing Community Energy and Emissions Plan;
- The Centre for Climate Change Management (CCCM) at Mohawk College development of an "Accelerator Centre" for building retrofits through funding from The Atmospheric Fund (TAF);
- Bay Area Climate Change Council (BACCC) Home Retrofit Policy Analysis; and,
- Hamilton and Burlington Low-Carbon Scenario and Technical Report 2016 to 2050 completed in 2018 for BACCC by SSG and Whatif? technologies.

All of these initiatives provide technical evidence and research in support for a HERO Program. A HERO Program in simple terms is a program whereby a low interest loan, grant and/or or subsidy is provided to homeowners in order to retrofit their building to reduce energy consumption, GHG emissions and live more comfortably. The most commonly recommended way loans are structured is through Local Improvement Charges (LIC) legislation where the loan is placed on the property taxes and paid off

over time. However, this will be decided throughout the detailed design stage of program development.

Hamilton's Community-Wide Greenhouse Gas (GHG) Inventory for 2018 shows the residential sector represents the second largest source of building GHG emissions at approximately 885,651 tonnes of Carbon Dioxide Equivalent (tCO_{2e}). The majority of these emissions are from natural gas consumption used for space heating and water heating. BACCC also completed a technical low carbon scenario model in 2018 for the cities of Hamilton and Burlington with an action of retrofitting 98% of dwellings by 2050, with retrofits achieving thermal and electrical savings of 50%. The HERO program is not intended to achieve this target alone. Instead it is meant as a kick-starter program that will be designed for flexibility and scalability in order to meet these long-range targets.

The CCCM, an applied research arm of Mohawk College, was a key partner in BACCC's technical low carbon scenario model and has recently been successful in acquiring funds from TAF to develop a building retrofit Accelerator Centre. Based on this information City staff are recommending the City of Hamilton to single source and provide funding to CCCM at Mohawk College to project manage program development. There are several reasons for this including cost savings, time savings and most importantly their expertise and knowledge of the local retrofit sector across Hamilton and Burlington. The City of Burlington's Council approved a similar recommendation in September 2020¹.

The total project cost for the development of a detailed design for a HERO program is \$200,000.00. The work that would be completed through this detailed design, which aligns with FCM's funding eligibility guidelines will include but not limited to:

- Building off BACCC's market readiness research complete a market intelligence analysis to lay the foundation for a financing program;
- Complete surveys, research and an awareness campaign to identify target audiences and strategies for maximum participation;
- Identify and confirm eligibility criteria for retrofits, map client journey, and develop application templates and processes;
- Identify City and partner resources needed to design a sustainable, scalable financing program sources and budgets (both capital and operating) that promotes transparency, access and equity;
- Develop a flexible and detailed delivery model for the program that includes synergies and best practices related to other retrofit programs;
- Develop a comprehensive marketing and communication strategy to grow participation in the program;

¹ City of Burlington (2020). Residential deep energy retrofit pilot program. Retrieved from: <https://burlingtonpublishing.escribemeetings.com/filestream.ashx?DocumentId=42896>

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- Work with local businesses and associations to address increase workforce capacity and training needs to meet the growing market; and,
- Design a program that works to align with existing programs, such as the Ontario the Low-income Energy Assistance Program (LEAP) and NRCAN's Greener Homes Initiative Design a program that helps homeowners "future proof" their homes through a focus on resilience and adaptation, as well as climate change mitigation; co-benefits might include improved air quality, access to air conditioning and energy cost mitigation.

The detailed design of the HERO program including short and long-range funding and any staffing impacts will be presented to City Council for approval prior to proceeding with implementation.

The City of Hamilton would be joining many other municipalities across Ontario who have either implemented or are in the process of designing a HERO like program for deep energy building retrofits. More information on what other municipalities are doing can be found in Appendix "A" to Report CM21008/HSC21016.

The City of Hamilton's HERO program will be designed to complement and leverage existing and future federal programs that will help drive uptake, impact and maximize benefits.

The City of Hamilton has an existing partnership with the City of Burlington and Mohawk College. Through this partnership formed the Bay Area Climate Change Council (BACCC). There is an opportunity and benefit to join forces with CCCC at Mohawk College who have also agreed to help the City of Burlington develop a deep energy retrofit pilot program.

Alternatives for Consideration – See Page 11

FINANCIAL – STAFFING – LEGAL IMPLICATIONS

Financial: It is anticipated that the FCM Community Enrichment fund would cover 80% of project costs up to \$160,000. The City would be expected to contribute 20%, or up to \$40,000 of project costs, which are contingent on FCM funding. There is no net levy impact for the City's contribution as this would be funded through the 2021 Healthy and Safe Communities 2021 Air Quality Climate Change operating budget surplus, Department Id 674620

Staffing: FCM funding applications will be completed by existing in-kind staff resources. A core team of in-kind staff resources will also be required to act as the City of Hamilton's Advisory Team for project development.

Legal: A Memorandum of Understanding (MOU) will be required between the City of Hamilton and the CCCM at Mohawk College for the completion of this work.

HISTORICAL BACKGROUND

In October 2016, City Council approved a motion directing "That the appropriate staff report back to the next appropriate General Issues Committee to allow for Environment Hamilton to request a delegation, and prior to reporting on the feasibility of creating a Local Improvement Charge Loan program similar but not limited to like building energy efficiency programs as in Halifax, Toronto and Guelph".

On April 3, 2018, Planning Committee approved Report PED18057 Community Energy Plan Terms of Reference. These Terms of Reference had objectives related to building retrofit programs including "To develop community priorities for implementation around renewable energy and other energy infrastructure, including a HERO/LIC program for the City".

Following the City of Hamilton's Climate Emergency Declaration on March 27, 2019 and after community stakeholder engagement the Community Energy Plan changed its name to the Community Energy and Emissions Plan which set new objectives to develop a low carbon pathway to achieve net zero carbon emissions by 2050.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

As a response to Council's Climate Emergency Declaration the formation of an interdepartmental Corporate Climate Change Task Force was directed to investigate actions to help Hamilton transition to a net carbon zero community by 2050. The foundational report Corporate Goals and Areas of Focus for Climate Mitigation and Adaptation (CMO19008/HSC19073) was approved by City Council in December 2019 that set goals and areas of focus for the entire corporation.

The first goal related to buildings is "To increase the number of new and existing high-performance state-of-the-art buildings that improve energy efficiency and adapt to a changing climate".

Local Improvement Charge (LIC) financing is one option that will be considered through the detailed design of a HERO program. LIC is enabled by the Ontario Ministry of Municipal Affairs and Housing and has been used in Ontario municipalities for decades. Prior to 2012 the use of LIC mechanisms was confined to public, not private property. In the LIC Primer report prepared by Sustainable Alternatives Consulting for the Collaboration on Home Energy Efficiency Retrofits in Ontario (CHEERIO) it states that the City of Windsor, the Township of East Gwillimbury and the City of Hamilton passed Council Resolutions in early 2012 in support of the concept and requesting the

regulatory amendments to allow an expanded use of LICs. On October 24, 2012, the Ontario Ministry of Municipal Affairs and Housing authorized Ontario Regulations 322/12 and 323/12, amending O. Regs 586/06 and 596/06 under the *Municipal Act, 2001* and the *City of Toronto Act, 2006* respectively².

A HERO program has many benefits beyond reducing energy and GHG emissions. A HERO program has the opportunity to provide a just and green recovery through creating good paying local jobs, reducing energy poverty and making more affordable and comfortable living conditions.

Recommendation #94 from A Just Recovery for Hamilton policy paper states "Proceed with plans to create a Home Energy Retrofit Opportunity or 'HERO' program immediately, offering low-interest loans to homeowners to enable greenhouse gas emission reductions via energy retrofit of existing housing stock"³.

The Mayor's Task Force on Economic Recovery also included a similar recommendation for priority areas for action that states "Immediately establish a municipal HERO program for homeowners, with a plan to extend retrofit support to commercial and multi-residential buildings in the future"⁴.

RELEVANT CONSULTATION

There have been several ongoing initiatives that support the completion for a detailed design for a flexible HERO program that included robust consultation with several internal and external stakeholders.

Community Energy and Emissions Plan (CEEP)

Initiated in 2019, The CEEP is a long-term plan to meet Hamilton's future energy needs while improving energy efficiency, reducing GHG emissions and fostering local sustainable and community-supported energy solutions. An extensive Community Stakeholder Advisory Committee comprised of stakeholders from the organizations in

² Sustainable Alternatives Consulting (2013). LIC Primer: Using Local Improvement Charges to Finance Residential Energy Upgrades. Retrieved from: <https://www.cleanairpartnership.org/wp-content/uploads/2016/08/Primer.pdf>

³ Just Recovery Hamilton (2021). A Just Recovery for Hamilton: Municipal Policy, Investment and Opportunities for a more equitable COVID-19 recovery in 2021. Retrieved from: <https://img1.wsimg.com/blobby/go/8f506d6a-c19c-4d0e-9714-b94e774e3ed5/Just%20Recovery%20Hamilton%20-%20Policy%20Paper-0004.pdf>

⁴ Mayor's Task Force on Economic Recovery (2020). Report of the Mayor's Task Force on Economic Recovery. Retrieved from: <http://investinhamilton.ca/wp-content/uploads/2020/12/Mayors-Task-Force-on-Economic-Recovery-Report-DEC2020.pdf>

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Table 1.0 below was established to provide a forum for feedback, guidance and advice to the City staff at key points during the process of developing the CEEP.

Table 1.0 CEEP Stakeholder Advisory Committee Member Organizations

Mohawk College	The Hamilton Wentworth Catholic District School Board
The Centre for Climate Change Management (Mohawk)	Enbridge
The Hamilton Chamber of Commerce	Hydro One
The Bay Area Climate Change Council	Sustainable Hamilton Burlington
City Housing Hamilton	The Hamilton Burlington Society of Architects
Environment Hamilton	McMaster University
Hamilton Health Sciences	The Hamilton Industrial Environmental Association
HCE Energy Inc.	Alectra Utilities
Stelco	Faith and the Common Good
Neighbour to Neighbour Center	ArcelorMittal Dofasco
Clean Air Hamilton	The Hamilton Oshawa Port Authority
The West End Home Builders Association	

To date, there have been four Stakeholder Advisory Committee Meetings, which have included discussion on the implementation of a home energy retrofit program specific to the Hamilton context. Several members of the Advisory Committee also took part in an optional workshop, which served to gather more in-depth feedback on a potential home energy retrofit program for Hamilton. The City project team also held a series of 1 on 1 meetings with key Advisory Committee members to discuss a potential Hamilton home energy retrofit program. All discussions with stakeholders have been focused on advancing a home energy retrofit action through the CEEP process.

General public consultation through the Community Energy and Emissions Plan process has included a website survey in the summer and fall of 2020 on actions that the community should prioritize to reduce greenhouse gas emissions. Retrofitting existing homes and businesses to improve their energy efficiency was the third most popular response of a possible 36 actions. In January and February of 2021, another online survey was conducted through the Engage Hamilton platform. When respondents were asked how they saw themselves contributing to GHG reductions at home or at work; undertaking a deep energy retrofit to increase energy efficiency was the third most popular response. Furthermore, 68% of respondents indicated they would be supportive of the implementation of a residential/commercial building deep energy retrofit program in their community.

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A Draft of the Community Energy and Emissions Plan is anticipated to be brought to General Issues Committee in September 2021, prior to going out for public consultation on the document.

Bay Area Climate Change Council (BACCC)

BACCC is a collective of organizations across Hamilton and Burlington (Bay Area) advancing climate action in the Bay Area. BACCC is focusing on transportation, buildings and industry which they state account for 95% of direct emissions from the Bay Area. BACCC is advocating and supporting the successful implementation of home energy retrofit programs and the development of a retrofit delivery centre as a “one stop shop” for consumers to access the information they need to undertake a home energy retrofit⁵.

Through BACCC and their Building Implementation Team stakeholders, they have completed surveys, one-on-one meetings and interviews from the following sectors, associations and subject matter experts included in Table 2.0 below:

Table 2.0 BACCC Building Retrofit Stakeholder Engagement

Energy Auditors	Contractors
Suppliers	Manufacturers
Local, Provincial, Federal Government Agencies	Legal Aid Lawyers
Environmental Organizations	Affordable Housing Providers
Citizen Representatives	Tenant Rights Advocates
Realtors	Engineers
Utility Companies	Landlord/Property Managers
Incentive Deliver Agents	Architects
Homebuilder Associations	Business Associations
Equipment Specialists	

ANALYSIS AND RATIONALE FOR RECOMMENDATION

If approved to proceed the City of Hamilton will be joining many other Ontario municipalities that have either implemented or are in the design process of some sort of HERO like program focussing on home energy efficiency retrofits. Appendix “A” to Report CM21008/HSC21016 is based on 2020 data collected on a summary of municipal approaches to designing and implementing a home energy retrofit program.

⁵ Bay Area Climate Change Council (2021). Focus Areas. Retrieved from: <https://bayareacclimate.ca/focus-areas/#buildings>

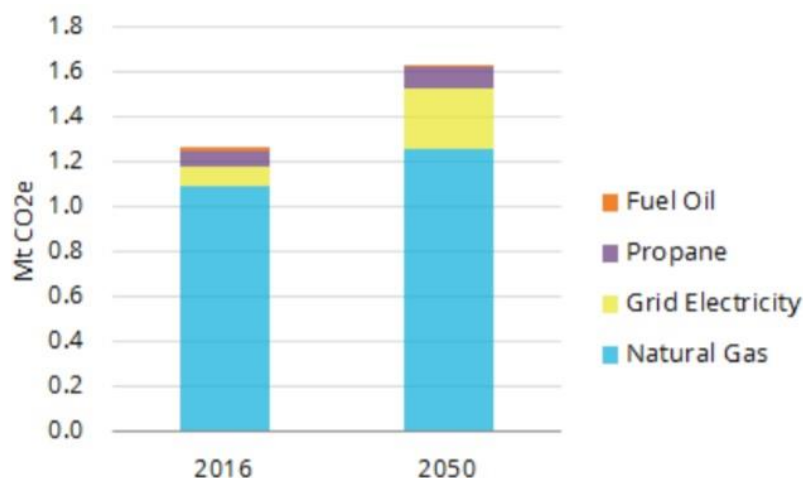
Hamilton's most recent Community-Wide GHG Emissions Inventory (2018) shows that residential building emissions represent approximately 13.4% of Hamilton's total GHG emissions. Residential GHG emissions are the second largest source of building emissions (behind industrial building emissions) and has shown to be trending upwards over the past three inventory years (2016-2018). Table 3.0 below shows Hamilton's Community-Wide GHG Emissions between 2014 and 2018.

Table 3.0 Hamilton's Community Greenhouse Gas Emissions 2014 – 2018

	2014	2015	2016	2017	2018
Residential	931,187	862,509	725,596	728,786	885,651
Commercial	737,180	691,890	585,227	620,576	735,359
Industry	3,344,239	3,521,905	3,140,812	3,319,497	3,469,068
Transportation	1,486,476	1,541,545	1,606,712	1,704,352	1,660,167
Waste	8,396	7,811	8,396	7,639	8,205
Wastewater	14,882	14,036	540	535	531
Steel Industry	5,124,597	5,012,087	5,124,596	5,156,276	5,054,817
Agriculture	29,912	30,207	25,747	25,879	25,950
TOTAL	11,676,869	11,681,990	11,217,626	11,563,540	11,839,748

Through the CEEP development, a "Business-As-Planned" (BAP) scenario was modelled to understand future energy and GHG emissions based on existing policies and actions. The model shows that, without a sustained effort to retrofit Hamilton's existing building stock, GHG emissions from buildings are projected to increase by 29%, from 1.25 MtCO₂e, to 1.62 MtCO₂e in 2050⁶. See Figure 1.0 taken from the BAP report.

Figure 1.0 Building Emissions in 2016 and 2050, by Fuel Type (MtCO₂e)



⁶ City of Hamilton (2021). Community Energy and Emissions Plan. Retrieved from: <https://www.hamilton.ca/city-initiatives/priority-projects/community-energy-and-emissions-plan>

Although it is projected that the majority of increased GHG emissions from buildings are from the expansion of commercial floor space, existing residential buildings continue to represent a large proportion of building emissions in the future.

A home energy retrofit program would enable the City to reduce its GHG emissions coming from existing residential buildings, while also building up the necessary logistical and work force capacity to enable a future scale up for retrofits in other sectors.

BACCC had previously retained SSG and whatIf? Technologies Inc. to undertake a technical model and low carbon pathway for both the City of Hamilton and Burlington. Through that technical model it is estimated that approximately 98% of residential buildings built before 2017 will need to be retrofitted to achieve thermal and electrical savings of 50% or more by 2050⁷. This was based off the City's previous 2050 GHG emission reduction target of 80% by 2050. This in itself is a very ambitious target and the HERO program will help start the acceleration of the retrofits needed to build capacity, local knowledge and can attract future private investments that can scale retrofits to the amount needed to reach these long-range targets.

City staff are recommending the project be managed by the CCCM at Mohawk College. As an applied research division of the College, aimed at supporting the cities of Hamilton and Burlington transition to a low carbon economy, the CCCM is already embarking on a business plan for a scale-able pilot program for a home energy efficiency retrofit project for the City of Burlington.

The CCCM has been working with The Atmospheric Fund (TAF) to build the business plan for the creation a Regional Home Energy Retrofit Delivery Centre. This delivery centre would be a "one stop shop" for residents who are looking to get clear, trustworthy information on retrofitting their homes. It could also serve as a central location for contractors and local businesses to engage in the program. Working with the CCCM will ensure Hamilton's program is integrated effectively. A third-party consultant who has not previously completed this work would need to familiarize and work directly with the CCCM which would take extra time and resources from all parties involved.

Based on other municipalities completing similar scope of work as outlined in Appendix "A" to Report CM21008/HSC21016 the range of estimated costs is between \$300 K to \$600 K. For example, the Town of Halton Hills had retained Dunskey Energy Consulting to complete a business case and program design with the Town funding \$300 K and submitting FCM application for approximately the same amount. Another example is the City of Windsor who retained Peter Garforth and Associates who completed a business case with an estimated budget of \$200 K. This however did not include a detailed design of a program.

⁷ Bay Area Climate Change Council (2021). Regional GHG Inventory. Retrieved from: <https://bayareaclimate.ca/zero-carbon/#ghg-inventory>

With a total budget of \$200 K which includes the completion of the following work:

- Market readiness research complete a market intelligence analysis to lay the foundation for a financing program;
- Complete surveys, research and an awareness campaign to identify target audiences and strategies for maximum participation;
- Identify and confirm eligibility criteria for retrofits, map client journey, and develop application templates and processes;
- Identify City and partner resources needed to design a sustainable, scalable financing program sources and budgets (both capital and operating) that promotes transparency, access and equity;
- Develop a flexible and detailed delivery model for the program that includes synergies and best practices related to other retrofit programs;
- Develop a comprehensive marketing and communication strategy to grow participation in the program;
- Work with local businesses and associations to address increase workforce capacity and training needs to meet the growing market; and,
- Design a program that works to align with existing programs, such as the Ontario the Low-income Energy Assistance Program (LEAP) and NRCAN's Greener Homes Initiative Design a program that helps homeowners "future proof" their homes through a focus on resilience and adaptation, as well as climate change mitigation; co-benefits might include improved air quality, access to air conditioning and energy cost mitigation.

The City of Hamilton is estimated to save between \$100 K to \$300 K in total project costs if deciding to work with the CCCM.

ALTERNATIVES FOR CONSIDERATION

Option 1

City staff would apply for FCM funding but look to retain another consultant through a competitive bidding process, instead of single sourcing CCCM.

This option is not recommended given the substantial value and experience CCCM has in working with the City of Hamilton on its climate actions and specifically in its existing work and research that can be leveraged to complete a cost-effective detailed design for a flexible and scalable HERO program. Furthermore, existing synergies and resources may be able to be pooled from both cities with implementing the future deep energy retrofit programs.

Option 2

The City of Hamilton to fund 100% of the project costs.

FCM funding historically takes between 4 to 8 months to work through the applications, scoring and final contract agreements between FCM and the municipality. By funding 100% of the project cost, the City of Hamilton could retain the CCCM at Mohawk College immediately and begin working on the HERO program. City staff have already spoken with FCM and their Outreach Coordinator feels confident Hamilton could submit a strong application to be awarded funding.

Given this and the financial resources available through FCM, staff are recommending that an application be submitted.

ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN

Community Engagement and Participation

Hamilton has an open, transparent and accessible approach to City government that engages with and empowers all citizens to be involved in their community

Economic Prosperity and Growth

Hamilton has a prosperous and diverse local economy where people have opportunities to grow and develop.

Healthy and Safe Communities

Hamilton is a safe and supportive City where people are active, healthy, and have a high quality of life.

Clean and Green

Hamilton is environmentally sustainable with a healthy balance of natural and urban spaces.

Built Environment and Infrastructure

Hamilton is supported by state-of-the-art infrastructure, transportation options, buildings and public spaces that create a dynamic City.

APPENDICES AND SCHEDULES ATTACHED

Appendix "A" to Report CM21008/HSC21016:	2020 Summary of Municipal Approaches to Implementing a Deep Energy Efficiency Retrofit Program
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