



SUBJECT: Home Energy Efficiency Retrofit program

TO: Environment, Infrastructure & Community Services Cttee.

FROM: Environment, Infrastructure and Community Services

Report Number: EICS-01-22

Wards Affected: all

File Numbers: 210-19

Date to Committee: March 3, 2022

Date to Council: March 22, 2022

Recommendation:

Receive and file Appendix A – Better Homes Burlington: Recommendations Report for City of Burlington Home Retrofit Program; and

Direct the Executive Director or Environment, Infrastructure and Community Services to bring forward a business case as part of the 2023 budget process for the resources required to support implementation of a small-scale home energy efficiency retrofit program including a virtual delivery centre/support for homeowners and loans through a Local Improvement Charge (LIC) mechanism for Burlington homeowners to improve home energy efficiency and a lower carbon footprint as outlined in environment, infrastructure and community services report EICS-01-22; and

Direct Executive Director or Environment, Infrastructure and Community Services to report back in 2023 with recommended program design elements, including a by-law to support the LIC loan, application, review and approval process, and loan agreement.

PURPOSE:

Vision to Focus Alignment:

- Increase economic prosperity and community responsive city growth
- Support sustainable infrastructure and a resilient environment
- Building more citizen engagement, community health and culture
- Deliver customer centric services with a focus on efficiency and technology transformation

This report is related to Focus Area 3 – Supporting sustainable infrastructure and a resilient environment, specifically the following initiative: Assess the Home Retrofit Program with key stakeholders. Implementation of a home energy efficiency retrofit program helps the city achieve its goal to become a net carbon neutral community.

Executive Summary:

The Centre for Climate Change Management at Mohawk College has completed the feasibility study for a home energy efficiency retrofit program in Burlington which also includes some program design elements (Appendix A).

Based on the results of this study, staff recommend that a small scale home energy efficiency retrofit program be developed to Burlington homeowners supporting the implementation of specific measures to reduce the carbon footprint in the residential sector. The program would make available a virtual delivery centre/homeowner education and an interest-bearing loan of up to \$10,000 per household to cover the cost of an air source heat pump and leak sealing to improve energy efficiency; it would be flexible to coordinate with other incentive programs. Starting with a small scale program will provide staff with the experience and knowledge required to work on scaling up a program to engage more homeowners.

As part of the 2023 budget process, staff will present a business case to include funding for an FTE (full time employee) to coordinate the program and allocate funding to support retrofit loans to homeowners.

From 2022 to early 2023, staff will work on the necessary elements required to support a small scale program including developing a by-law to support a loan through a Local Improvement Charge, the homeowner application, review and approval process, and a loan agreement. If council approves the budget to support launching a small scale program, staff will follow up with a report in 2023 to present the necessary program elements for council approval.

A website (Better Homes Burlington) will also be launched as a one stop shop for homeowners.

The eventual goal is to scale up the program to support Burlington homeowners in completing energy efficiency retrofits of their homes but there are many variables which can impact the next steps:

- Competing priorities to be assessed during the 2023 budget process and final outcome;
- Demand by residents for a city loan (subject to interest) to finance their energy retrofit;
- The extent of interest and commitment of other municipalities to partner with Burlington on a regional program;

- Changes in senior governments which can impact the type and range of energy efficiency programs offered at a federal and/or provincial level; and,
 - Interest by local contractor businesses to participate in and support the program.
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Background and Discussion:

Council declared a climate emergency in 2019 and approved the Climate Action Plan in 2020 with a target for Burlington to become a net carbon neutral community by 2050. Implementation of a home energy efficiency retrofit (HERO) program is one of the key program areas identified in the Climate Action Plan. The plan includes a target of over 50,000 existing homes (singles, semis and towns) requiring energy retrofits, including the installation of heat pumps. The challenge becomes how to educate, encourage and incent homeowners to undertake a retrofit to reduce their carbon footprint.

Staff reported to Council in September 2020 with a proposal to partner with the Centre for Climate Change Management at Mohawk College (CCCM) to develop a home energy efficiency retrofit program. Council approved the following direction:

Authorize the Mayor and Clerk to enter into an agreement with the Centre of Climate Change Management at Mohawk College to project manage the development of a pilot home energy efficiency retrofit program to the satisfaction of the Executive Director of Legal Services;

Approve a budget of \$182,000 for year one of this project from the Tax Rate Stabilization Reserve Fund; and

Direct the Executive Director of Environment, Infrastructure and Community Services to report back to council within one year on the progress of the pilot program and confirm the budget request for year two.

As noted above, council approved the \$182,000 budget but also encouraged staff to apply to the Federation of Canadian Municipalities' (FCM) Community Efficiency Financing (CEF) initiative for funding to support the HERO project. Staff worked with the CCCM on a funding application and were successful in securing a \$100,000 grant to support the project. FCM's CEF initiative supports feasibility studies, program design, and project implementation for municipal HERO projects. The city's funding application was focused on assessing the feasibility of a home energy efficiency program with elements of program design included. It is important to note that the FCM funding primarily supports full program development (via homeowner loans offered through Local Improvement Charge (LIC) loans), scaling and implementation, but not pilots unless they are innovative and unique.

FCM funding was approved in March 2021 and the CCCM was able to progress with the feasibility and program design elements. CCCM also secured a \$32,000 grant from The Atmospheric Fund to assist with the development of the business case for a Retrofit Delivery Centre.

Home energy efficiency retrofit program:

Refers to a project or upgrade to a home that reduces energy use and/or greenhouse gas emissions (ie. adding insulation; upgrading heating and air conditioning equipment; and/or adding renewable energy options, etc.). Over the past few months, the CCCM with support from the Bay Area Climate Change Council, has developed a program based on these values:

- Support for upgrades with high emission reduction potential
- Manage (minimize) costs to reduce emissions
- Program equity to address energy poverty
- Promote transparency and consumer choice
- Create market confidence for home upgrades

The overall goal of the program is to implement a home upgrade program to reduce greenhouse gas emissions from Burlington homes. Co-benefits of a program include local employment opportunities; reducing energy poverty; and improved home comfort and enjoyment. Full details of the methodology are found in the report in Appendix A.

Summary of Program Elements:

The following provides a summary of the program design elements presented by the Centre for Climate Change Management in the Better Homes Burlington report in Appendix A for consideration by the City of Burlington.

1. Program offering - efficiency measures

Based on analyses completed by the Bay Area Climate Change Council staff and stakeholders, a specific but scalable program should be offered to homeowners for leak sealing and air source heat pumps. There are many advantages to this:

- It improves energy efficiency and significantly lowers the carbon footprint of homes
- It is a financially viable option for homeowners, and
- It is not as disruptive as a whole-home energy efficiency retrofit.

For those homes that still rely on heating oil, the efficiency improvements and carbon reduction potential are even greater. Leak sealing is a fairly inexpensive option and air source heat pump technology has evolved significantly to meet the needs of those living

in colder climates. This includes the option of hybrid heat pumps where a furnace is only required on extreme cold weather days.

Importantly, for Burlington, this option best assists the city in meeting its 2050 target to becoming a net carbon neutral community by supporting the electrification of heating (thermal energy) through efficient technology. Most homes in Burlington rely on burning of fossil fuels (natural gas and heating oil) for heating.

As the program evolves, options to expand eligible energy efficiency measures can be assessed based on experience and demand from homeowners. The program will be flexible in that homeowners can opt to coordinate their participation with other existing programs, such as Greener Homes offered by the federal government.

2. Better Homes Burlington Delivery Centre

Research showed that for a program to be successful, a home energy efficiency retrofit Delivery Centre is necessary to engage homeowners and local contractors. In fact, staff anticipate that this type of resource is crucial to increase the number of home energy efficiency retrofits in Burlington, more so than providing the LIC loan (described below). Interested parties can seek out information related to available efficiency measures (ie. leak sealing, insulation, heat pumps, etc.); guidance to understand energy audits and energy efficiency measures; and available options to finance home upgrades (ie. including government and utility incentives) and qualified contractors. Local contractors also need to be engaged on the objectives of the program and are looking for a program with consistency and longevity. As part of the program, consideration should be given to registering qualified contractors as a resource for homeowners. Implementation of a delivery centre is an opportunity to invest in local jobs as the program grows and expands.

A delivery centre can be a virtual entity with staff available to engage Burlington residents and contractors. The city could consider pursuing a partnership with a local non-profit organization to deliver the required program, with a review and selection process through a request for proposals. Opportunities may also emerge to partner with nearby municipalities to offer the delivery centre as a regional centre. The city of Hamilton and the towns of Oakville and Halton Hills are all working to develop a home energy efficiency retrofit program. In the long run, consideration could be given to a physical location where examples of efficiency measures could be on display to engage both homeowners and contractors.

As staff are working towards the completion of Climate Resilient Burlington (CRB) – A Plan For Adapting to Our Warmer, Wetter and Wilder Weather, there have been many discussions about the opportunity to expand the mandate of a delivery centre to also include programs related to improving home resiliency in the face of a changing climate. Staff expect to present the draft CRB report in the second quarter of 2022.

A small scale virtual delivery centre could be offered initially through the city, starting with one staff person to provide guidance and advice to homeowners on energy audits, energy efficiency measures, financing and incentive options, as well as to develop and scale up the program. Potential partnerships with neighbouring municipalities and external organizations will continue to be explored to support a regional approach.

3. Home Energy Efficiency Retrofit Financing

The homeowner survey results showed that the majority of homeowners would use their own means to finance home energy efficiency upgrades such as lines of credits and savings. However, the city can offer a financing mechanism through a Local Improvement Charge (LIC) program as other municipalities like Toronto and Ottawa are doing. Advantages of a LIC loan include:

- The loan is tied to the property and is paid back to the municipality through property taxes
- Longer term financing (10 years) with affordable fixed rates
- Low income households may qualify for financing, addressing equity and home energy poverty issues
- Can provide the necessary capital to address home energy efficiency and can improve home comfort.

If a home is sold, the LIC loan is tied to the property and can be assumed by the new owner if the homeowner chooses not to pay down the remaining balance. The new homeowner would assume responsibility for the loan but would also enjoy the improved efficiency of the home and a lower carbon footprint. A by-law is required to issue LIC loans as well as a budget to support the loan program. An online application and review process would need to be created.

An alternative financing option that the CCCM has also been pursuing is a loan offered by a third party financial institution, such as a local credit union. This financing option is being pursued by Durham Region as part of their regional home energy efficiency program (although local municipalities in Durham can opt to provide LIC loans as another option for homeowners).

4. Marketing and Community Engagement

Research has shown that an engaging marketing program is necessary to encourage homeowners to enquire about the program and commit to their participation. The City of Toronto has been delivering a program for a few years and it is apparent that to grow the program requires a creative marketing approach.

To engage homeowners and contractors on this initiative, a standalone one-stop-shop website has been designed to host the information related to home energy efficiency retrofit measures, current programs, financing options, and home energy audits.

The program brand is Better Homes Burlington and is modelled on other existing and/or emerging programs such as Better Homes TO, Better Homes Kingston, and Better Homes Ottawa, which supports consistency between municipalities. A logo has been designed as part of the brand. See appendix B for examples of the website and logo design.

A marketing and communications plan would need to be developed to support implementation of the program.

5. Monitoring and Evaluation

To track energy improvements and reduction of greenhouse gas emissions, programs offered by Enbridge Gas Inc. and Natural Resources Canada require homeowners to complete a home energy assessment audit (pre and post retrofit). However, given the time it can take to find and book an energy assessment, this has been seen as a barrier to homeowner participation in these programs. An alternative which could be developed is the use of RETScreen, an energy tracking system that would require information about the home and energy consumption, but would not require an in person home assessment. However, if a homeowner was also participating in one of the other existing programs, then a home energy assessment would be required by qualified home energy assessor.

Recognizing that many homeowners may not require a loan from the city to undertake this work, effort will be required to find other methods to track homeowner participation to improve the energy efficiency of their homes, such as community surveys. Data can also be obtained from Natural Resources Canada and Enbridge Gas Inc. on uptake of their programs and emissions reduced overall. Staff already track annual total energy consumption in the residential sector and carbon emissions. Other metrics that can be tracked include touch points with homeowners through the delivery centre to provide advice and guidance, community engagement initiatives and participation by residents, and number of qualified contractors registered.

A monitoring and tracking process will be developed and confirmed along with other elements necessary to support the home energy efficiency program.

Next Steps to Implementation:

A significant amount of work has been completed by the CCCM and BACCC to assess the feasibility and present program design elements for a home energy retrofit program in Burlington. These next steps outline the work necessary to develop the necessary measures and processes to support a small scale program providing a home energy efficiency interest-bearing loan and create a virtual delivery centre and education to support Burlington residents. Many of these elements are available from those municipalities who have launched their programs and can share their lessons learned.

Delivering a small scale program will provide experience and lessons learned for city staff to assess and determine the necessary elements, resources, investment and partnership opportunities required to scale up the program which may involve a retrofit delivery centre.

2022

- Work with Finance and Legal staff to draft a by-law to support a home energy efficiency loan through the LIC mechanism. The offering of an LIC loan will require an online application, criteria for loans, a review and approval process and monitoring.
- Work with finance staff to develop and submit a business case for the 2023 budget to support:
 - An FTE position to focus on delivering home energy efficiency loans to Burlington homeowners. This position would be responsible for the next steps to scale the program to be provided through a retrofit delivery centre, pursuing partnerships with other municipalities and 3rd party organizations;
 - Funding to offer a limited number of energy efficiency loans to Burlington homeowners in 2023 and 2024 (maximum 50);
- Launch website and brand – market existing programs and opportunities to homeowners (one stop shop)
- Continue to run educational opportunities for residents (webinars, takeactionburlington.ca blog; special events, etc.) to engage them on options to improve energy efficiency and reduce the carbon footprint of their homes.

2023

Subject to budget approval (note that due to 2022 election, budget approval may be delayed which may push launch of program to mid 2023):

- Hire FTE position to administer a home energy efficiency loan for Burlington residents through the LIC mechanism, subject to approval of 2023 business case
- Report to council with recommended elements to support a LIC loan program for homeowners, including a by-law.
- Develop a communications strategy and update Better Homes Burlington webpage to announce home energy efficiency loan program
- Engage contracting community about setting up a list of qualified contractors as a resource for homeowners
- Submit business case to support LIC loans for 2024, based on experience in 2023 and potential base funding for an FCM application to support a scaled up program in Burlington.

A report to council is planned end of 2023 or early 2024 to provide an update on results of loan program, lessons learned and next steps for scaling up the program. Staff will include the status of programs by neighbouring municipalities and potential interest in partnering on a regional program and delivery centre.

The CCCM forecasts growth over a number of years in home energy efficiency, specifically related to the Burlington program air source heat pump conversions and leak sealing initiatives:

Program Year	Homes Upgraded per Year
1	20
2	40
3	100
4	150
5	200

Other residents may pursue other programs offered through Enbridge Gas and Natural Resources Canada for other energy efficiency measures. Participation data will be monitored for all programs to assess uptake and demand.

There are a number of variables that can impact the implementation of and scale of a program offered in Burlington that are unknown at the time of preparing this report, such as:

- Competing priorities to be assessed during the 2023 budget process and final outcome;
- Demand by residents for a city loan to finance their energy retrofit;
- Experience of residents participating in a financing program offered by the city;
- The extent of interest and commitment of other municipalities to partner with Burlington on a regional program;
- Changes in senior governments which can impact the type and range of energy efficiency programs offered at a federal and/or provincial level; and
- Interest by local contractor businesses to participate in and support the program.

The program to be developed in Burlington supporting the implementation of heat pumps and leak sealing is just one option available to residents, one of several tools in a toolbox. Through information on the Better Homes Burlington website and support from a program coordinator, assistance can be provided to local homeowners to understand options (retrofit measures and financing options including incentives) available to improve home energy efficiency.

In the event that the budget business case (for 2023) is not approved to support the initial proposed program, staff will provide limited support to homeowners by continuing to promote options available and host informational webinars with community partners. However, individual support to homeowners would not be possible without a full time position to support the program. Staff will continue to discuss regional partnership opportunities with nearby municipalities with the potential to present a subsequent business case for consideration during the 2024 budget.

Strategy/process

The CCCM led the process to assess the feasibility of a HERO program for Burlington. It started with background research of best practices across many jurisdictions where home energy efficiency programs are offered. There was a coordinated effort with the Bay Area Climate Change Council to interview local stakeholder groups, city staff, municipal staff (from other communities), and 3rd party delivery agents. A homeowner survey was completed with both online and telephone respondents. Demographic and housing data was assessed along with home energy audit data (audits previously completed in Burlington) to help narrow down home energy efficiency measures for Burlington.

Regular updates were provided to a small staff team with the Executive Director of Environment, Infrastructure and Community Services; the Manager of Environmental Sustainability; and representation from the Finance department. Updates were also provided to the Community Stakeholder Advisory Committee for the city's Climate Action Plan and the Bay Area Climate Change Council's Implementation Team (focused on home energy efficiency retrofits) who provided guidance and acted as sounding boards.

Financial Matters:

Total Financial Impact

It is recommended that the city develop necessary measures to support a small scale program with LIC loans and communications and marketing. This is a preliminary budget and a business case will be submitted for the 2023 budget cycle to support the operational elements for a small scale program, including one full-time staff member to administer the program.

HERO Operations		2023 Budget Proposal
Salary		
-	Program Coordinator (Salary & Benefits)	\$103,000
Program Costs		
-	Marketing and Supplies	\$20,000
TOTAL		\$123,000

LIC Loans:

It is proposed to cap a loan (subject to interest) at \$10,000 per household to support the implementation of the prescribed efficiency measures: air source heat pumps and air leak sealing. This is deemed a manageable amount for homeowners, does not add significantly to homeowner debt load, would likely be more acceptable to mortgage institutions (LIC loans are prioritized liens), and would represent minimal risk to the city.

At the present time, debt issued for an LIC program is not included in the determination of the city's debt limit. However, it is important to note the debt would still need to be managed in context of the city's overall debt portfolio and the city continues to assume any risk for loan defaults. Debt payments would also have to be managed as the city cannot retire debt early if loans are repaid in advance of terms. In year one, to support loans for 20 homes, a financing budget of \$200,000 would be required, under the assumption each household undertakes the maximum loan of \$10,000.

Year one of the program allows for monitoring and reporting on demand for city sponsored loans. As noted above, homeowners have many alternatives to undergo home retrofits which may include savings, line of credit (home improvement loan) or financing through a local credit union (being pursued by the CCCM). It is difficult to know at this point what the uptick on the LIC program will be as it is homeowner dependant and often comes down to convenience, effort required, and acceptable terms of repayment.

Loan Loss Reserve:

Although research shows that the risk of loan defaults under HERO programs is very low, it is recommended that a loan loss reserve fund (5% of capital budget for loans) be considered for risk management purposes. If the city does pursue a partnership with a third party lending institution like a credit union, the loan loss reserve fund could be a vehicle that might be a condition of the partnership. This will be explored further as staff set up a small scale program and will be included as part of the report back in 2023.

Feasibility and Program Design Budget:

As noted above, Council approved \$182,000 in September 2020 to support this project. In addition, staff were successful in securing an additional \$100,000 in a grant from the Federation of Canadian Municipalities for a total of \$280,000. Staff received council direction in report EICS-03-21 to transfer \$60,000 to the development of the Climate Adaptation Plan (Climate Resilient Burlington), leaving \$220,000 available for the HERO feasibility and program design project.

Council approved budget	\$182,000	Report EICS-18-20
FCM CEF funding	\$100,000	Final approval pending
Sub-total	\$282,000	
Transfer funding to Climate Adaptation Plan	(\$60,000)	Report EICS-03-21
Final TOTAL to support Home Energy Retrofit Program	\$222,000	

The agreement with CCCM for their work has a budget of \$174,000, leaving \$46,000 in available funding for climate related initiatives. The final remaining amount is subject to change based on the final review and reconciliation of expenses with FCM.

Source of Funding

The funding source to launch a small scale program in 2023 will be assessed through the 2023 budget review process.

Other Resource Impacts

To implement an LIC loan, staff resources would be required to draft the LIC by-law (Legal) and develop the internal processes for the application, loan agreement, loan management (review, approval, collection and tracking), and debt management (ITS and Finance). Sustainability staff would lead and coordinate program development and utilize best practices from other municipalities already delivering programs (ie. LIC by-laws, loan applications and agreements). Communications support would also be required for engagement and marketing.

Climate Implications

The purpose of this program is to help reduce greenhouse gas emissions in the residential sector by supporting air source heat pumps to reduce the burning of fossil

fuels for heat (thermal energy). The use of natural gas in Burlington represents a significant source of GHG emissions across the community (for all sectors – residential, industrial, commercial and institutional), as noted in Figure 1. Figure 2 shows that the residential sector is responsible for approximately 26% of GHG emissions across the community.

Figure 1 – Emissions by Source – Percentage (2020 data)

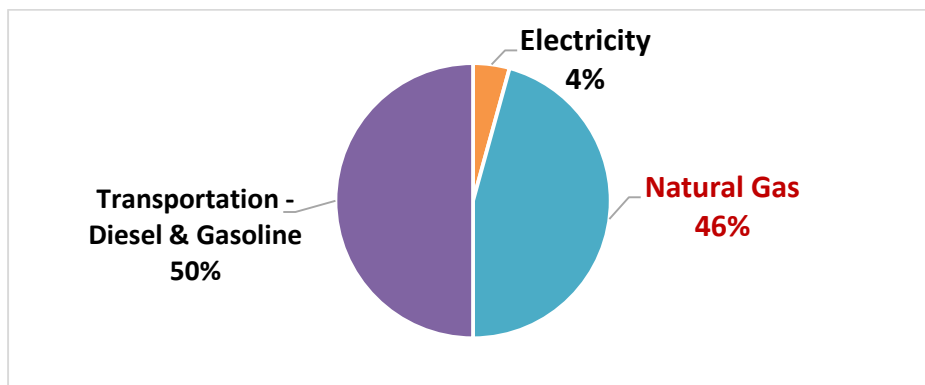
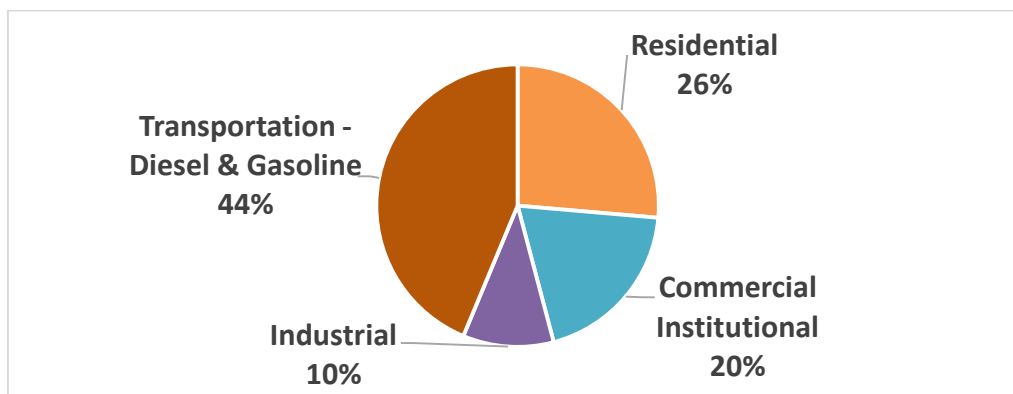


Figure 2 - Emissions By Sector – Percentage (2020 data)



Engagement Matters:

As noted above, there was extensive stakeholder engagement undertaken and coordinated between the CCCM and BACCC, working jointly and sharing information. Over 40 groups, experts, businesses, program delivery centres, utilities and other municipalities were interviewed. Key findings are summarized here:

1. A local municipal HERO program is feasible and desirable.
2. A municipal program should support a 'phased' approach to retrofits.
3. Education and outreach to homeowners and contractors is needed.

4. A HERO program can help homeowners future proof their homes.
5. A retrofit delivery centre will drive participation and positive outcomes for homeowners.

A total of 383 residents were surveyed (258 online and 125 telesurveys), with approximately 78% of respondents living in a single detached home. The majority of respondents (98%) own their own home. Some key takeaways from the survey include:

- **Home comfort** is the most important decision-making factor, followed by **cost saving on energy and utility bills**.
- **A large majority also say that being more eco-conscious is important.**
- There was an **even split** between those comfortable spending less or more than \$15,000 – and **30% anticipating spending \$20,000 or more**.
- It is most likely that **those looking to upgrade their system will use incentive programs** to finance this upgrade.
- **Most will not require financing** or a loan to do so, while one in five say they will very likely use a line of credit.
- Most importantly, respondents want to know their options and associated costs before upgrading.
- Understanding what incentives and rebates they may qualify for is second-most important, followed by understanding how much they will save on their utility bills.
- Environmental benefits are a secondary factor to cost /cost savings.

Additional details related to the stakeholder engagement process are found in the final HERO report in Appendix A.

BACCC also developed and delivered a social media campaign to engage homeowners and help educate them on home energy efficiency measures, simple upgrades for homes, and how to understand a home energy audit. Increased interest in these topics shows that there is a need to provide support and guidance to homeowners who are interested in improving home energy efficiency.

In addition, three webinars delivered by Humber College and sponsored by Enbridge Gas were held to engage homeowners on what is entailed in a home energy efficiency retrofit. The first two were open to both Hamilton and Burlington homeowners on November 30th, 2020 (am and pm) and the third was for Burlington homeowners (October 13th, 2021). Overall, a total of 79 Burlington residents participated in the webinars with positive feedback on the content.

Conclusion:

The Better Homes Burlington proposal is a key measure identified in the city's Climate Action Plan. Support for homeowners to improve energy efficiency and reduce their carbon footprint will assist Burlington in becoming a net carbon neutral community and showing leadership on climate action.

Respectfully submitted,

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Appendices:

- A. Better Homes Burlington – Recommendations Report for City of Burlington Home Retrofit Program
- B. Better Homes Burlington graphics - logo

Report Approval:

All reports are reviewed and/or approved by Department Director, the Chief Financial Officer and the Executive Director of Legal Services & Corporation Counsel.