Environment, Transportation & Public Safety Standing Committee Meeting Agenda

Date: Wednesday, March 26, 2025
Time: 4:30 o'clock p.m.

Location: Council Chambers, 1st Floor, Windsor City Hall

All members will have the option of participating in person in Council Chambers or electronically and will be counted towards quorum in accordance with Procedure By-law 98-2011 as amended, which allows for electronic meetings. The minutes will reflect this accordingly. Any delegations have the option to participate in person or electronically.

MEMBERS:

Ward 2 – Councillor Fabio Costante (Chairperson)

Ward 3 – Councillor Renaldo Agostino

Ward 4 – Councillor Mark McKenzie

Ward 8 – Councillor Gary Kaschak

Ward 9 – Councillor Kieran McKenzie

ORDER OF BUSINESS

Item #	Item Description
1.	**CALL TO ORDER**

READING OF LAND ACKNOWLEDGMENT

We [I] would like to begin by acknowledging that the land on which we gather is the traditional territory of the Three Fires Confederacy of First Nations, which includes the Ojibwa, the Odawa, and the Potawatomi. The City of Windsor honours all First Nations, Inuit and Métis peoples and their valuable past and present contributions to this land.

2. DISCLOSURE OF PECUNIARY INTEREST AND THE GENERAL NATURE THEREOF

3. ADOPTION OF THE MINUTES OF THE ETPS STANDING COMMITTEE

3.1. Adoption of the Environment, Transportation, and Public Safety Standing Committee minutes of its meeting held January 29, 2025 **(SCM 34/2025)**

4. REQUEST FOR DEFERRALS, REFERRALS OR WITHDRAWALS

5. COMMUNICATIONS

6. PRESENTATIONS AND DELEGATIONS

7. COMMITTEE MATTERS

7.1. Minutes of the Windsor Licensing Commission of its meeting held December 5, 2024 **(SCM 28/2025)**

7.2. Minutes of the Essex-Windsor Solid Waste Authority (EWSWA) Regular Board of its meeting held January 7, 2025 **(SCM 69/2025)**

7.3. Minutes of the Essex-Windsor Solid Waste Authority (EWSWA) Regular Board of its meeting held February 4, 2025 **(SCM 71/2025)**

8. ADMINISTRATIVE ITEMS

8.1. Options for Licensing Hotels and Motels - City Wide **(S 21/2025)**

8.2. Proactive By-law Enforcement Strategies in Paved Alleys in Response to CQ 22-2023 - City Wide **(S 23/2025)**

8.3. Pedestrian Generator Sidewalk on Garden Court Drive (East Side) from Sumach Crescent (North) to Edgar Street - Ward 6 **(S 24/2025)**

8.4. Response to CQ 35-2024 – Removal of Underused Street Parking Meters **(S 29/2025)**

8.5. Windsor Deep Energy Efficiency Retrofit Program - City Wide **(S 100/2024)**

9. TRANSIT BOARD ITEMS

10. ADOPTION OF TRANSIT BOARD MINUTES

11. QUESTION PERIOD

12. ADJOURNMENT

THE CITY OF WINDSOR ONTARIO, CANADA

Committee Matters: SCM 34/2025

Subject: Adoption of the Environment, Transportation, and Public Safety Standing Committee minutes of its meeting held January 29, 2025

CITY OF WINDSOR MINUTES 01/29/2025

Environment, Transportation & Public Safety Standing Committee Meeting

Date: Wednesday, January 29, 2025
Time: 4:30 PM

Councillors
Ward 2 - Councillor Fabio Costante (Chairperson)
Ward 3 - Councillor Renaldo Agostino
Ward 4 - Councillor Mark McKenzie
Ward 8 - Councillor Gary Kaschak
Ward 9 - Councillor Kieran McKenzie

PARTICIPATING VIA VIDEO CONFERENCE ARE THE FOLLOWING FROM ADMINISTRATION:

Sandra Gebauer, Council Assistant

ALSO PARTICIPATING IN COUNCIL CHAMBERS ARE THE FOLLOWING FROM ADMINISTRATION:

Jelena Payne, Commissioner, Economic Development
David Simpson, Commissioner, Infrastructure Services & City Engineer
Wira Vendrasco, City Solicitor
Dana Paladino, Acting Senior Executive Director Corporate Service
Stephan Habrun, Acting Executive Director Transit Windsor
Stacey McGuire, Executive Director, Engineer/Deputy City Engineer
Matthew Johnson, Executive Director, Economic Development
Mark Spizzirri, Manager, Performance Measurement & Business Case Development
Ian Day, Senior Manager Traffic Operations/Parking
Adam Pillon, Manager of Right-of-Way
Kathleen Quenneville, Active Transportation Coordinator
Bill Kralovensky, Coordinator, Parking Services
Anna Ciacelli, Deputy City Clerk

1. CALL TO ORDER

The Chairperson calls the meeting of the Environment, Transportation & Public Safety Standing Committee to order at 4:30 o'clock p.m.

2. DISCLOSURE OF PECUNIARY INTEREST AND THE GENERAL NATURE THEREOF

None disclosed.

3. ADOPTION OF THE MINUTES OF THE ETPS STANDING COMMITTEE

3.1. Adoption of the Environment, Transportation, and Public Safety Standing Committee minutes of its meeting held November 27, 2024

Moved by: Councillor Mark McKenzie
Seconded by: Councillor Gary Kaschak

THAT the minutes of the Environment, Transportation & Public Safety Standing Committee meeting held November 27, 2024, **BE ADOPTED** as presented.
Carried.

Councillor Renaldo Agostino was absent from the meeting when the vote was taken on this matter.

Report Number: SCM 359/2024

4. REQUEST FOR DEFERRALS, REFERRALS OR WITHDRAWALS

None requested.

5. COMMUNICATIONS

None presented.

6. PRESENTATIONS AND DELEGATIONS

None presented.

7. COMMITTEE MATTERS

7.1. Minutes of the Active Transportation Expert Panel of its meeting held October 28, 2024

Councillor Kieran McKenzie inquires about the number of times the group meets per year. Kathy Quenneville, Active Transportation Coordinator appears before the Environment, Transportation & Public Safety Standing Committee regarding the "Minutes of the Active Transportation Expert Panel of its meeting held October 28, 2024" and indicates that they met three to four times, the mandate states they are to meet two to three times per year.

Moved by: Councillor Kieran McKenzie
Seconded by: Councillor Gary Kaschak

Decision Number: **ETPS 1039**
THAT the minutes of the Active Transportation Expert Panel meeting held October 28, 2024, **BE RECEIVED**.
Carried.

Report Number: SCM 390/2024

7.2. 2024 Annual Report of the Active Transportation Expert Panel

Moved by: Councillor Kieran McKenzie
Seconded by: Councillor Gary Kaschak

Decision Number: **ETPS 1040**
THAT 2024 Annual Report of the Active Transportation Expert Panel **BE APPROVED.**
Carried.

Report Number: SCM 1/2025

7.3. 2024 Annual Report of the Environment & Climate Change Advisory Committee

Councillor Kieran McKenzie commends the committee for their work and diligence.

Moved by: Councillor Kieran McKenzie
Seconded by: Councillor Mark McKenzie

Decision Number: **ETPS 1041**
THAT the 2024 Annual Report of the Environment & Climate Change Advisory Committee **BE APPROVED**.
Carried.

Report Number: SCM 2/2025

7.4. 2024 Annual Report of the Transit Windsor Working Group

Councillor Kieran McKenzie inquires as to how many times the group meets per year.Jelena Payne, Commissioner, Economic Development appears before the Environment, Transportation & Public Safety Standing Committee regarding the "2024 Annual Report of the Transit Windsor Working Group" and indicates that the group met once, but meetings are meant to be quarterly. Ms. Payne indicates that the clerk's office has been contacted and asked that the committee coordinator schedule four meetings for 2025.

Moved by: Councillor Mark McKenzie
Seconded by: Councillor Renaldo Agostino

Decision Number: **ETPS 1042**
THAT the 2024 Annual Report of the Transit Windsor Working Group **BE APPROVED**.
Carried.

Report Number: SCM 6/2025

8. ADMINISTRATIVE ITEMS

8.1. Automated Speed Enforcement Program Implementation – City wide

Councillor Mark McKenzie requests clarification regarding the run time of the speed enforcement devices. David Simpson, Commissioner, Infrastructure Services & City Engineer appears before the Environment, Transportation & Public Safety Standing Committee regarding the administrative report dated January 7, 2025, entitled "Automated Speed Enforcement Program Implementation – City wide" and indicates that the municipality will decide the run time. School zones will align with the timing that school is in session. Mr. Simpson adds that the intent is that acquiring five mobile cameras will allow us to move them around every 2 months, operating at 250 days per year per camera.

Councillor Mark McKenzie inquires about the idea of a specified area as recommended by a councillor. Mr. Simpson indicates that we would need to abide by the city policies for community safety zones and school neighbourhoods. Both documents prescribe a criteria for the eligibility of a given site.

Councillor Mark McKenzie inquires whether the data supports the need if that would assist in the implementation in the recommended area. Mr. Simpson indicates that the existing speed data indicates some areas that may be eligible. Final validation will allow us to have the sites added to the by-law.

Councillor Kieran McKenzie requests confirmation about the cost for implementation of $1.2 Million. Mr. Simpson indicates that is correct.

Councillor Kieran McKenzie inquires whether the potential revenue generated by this program would exceed the cost of implementation. Mr. Simpson indicates the intent is to operate at a budget neutral baseline and in the event of any nominal surplus revenues we would look to put that into a reserve

fund that could be reapplied to mobilize additional cameras or applying it back to other traffic calming initiatives.

Councillor Kieran McKenzie inquires whether the $1.2 million is an annual expense or if there are related expenses that may be mitigated in upcoming years. Mr. Simpson indicates that is a long-term annualized expense, and it may be dictated by the number of penalty orders that may be issued. Mr. Simpson adds that administration's estimation is about 23,000 tickets per year, plus or minus through this program and you might expect a small drop off over time as driver compliance increases. But the cameras will migrate every 2 months city-wide to fifty plus locations. There is enough cycle time that it would be a sustainable impact at that rate.

Councillor Renaldo Agostino inquires whether the cameras are the most effective traffic calming measure compared to other measures. Mr. Simpson indicates that the cameras are another tool that can be added to the toolbox. Mr. Simpson adds that there is no single standalone approach that will drive the best value for money, it is best to look at the unique applications, monitor the performance and adjust as needed to achieve the goal of making our roads safer.

Councillor Renaldo Agostino inquires whether this is going to take away any other alternative methods for traffic calming. Mr. Simpson indicates that it is going to work in complement with the other methods of traffic calming. Prioritization of the camera location will be identified using the appropriate data measures.

Councillor Renaldo Agostino inquires whether the data will be reviewed to identify the areas that need the cameras the most. Ian Day, Senior Manager, Traffic Operations & Parking appears before the Environment, Transportation & Public Safety Standing Committee regarding the administrative report dated January 7, 2025, entitled "Automated Speed Enforcement Program Implementation – City wide" and indicates that they identified 7 areas where speed radar feedback signs had already been placed and collected their data on which the estimates were based.

Councillor Renaldo Agostino inquires whether the cameras are leased. Mr. Day indicates that is correct.

Councillor Renaldo Agostino inquires whether the cameras are more expensive to purchase than to lease and if they are proprietary to Brampton. Mr. Day indicates that the Ministry must approve the supplier and is responsible for the installation, calibration, and certification of the cameras as a third-party.

Councillor Renaldo Agostino inquires about the cost to purchase a camera. Mr. Day indicates that cameras cannot be purchased at this time. The City must go through a certified supplier by the ministry.

Councillor Renaldo Agostino inquires whether the cameras have the ability for add-ons such as noise pollution. Mr. Day indicates not at this time, they are intended for automated speed enforcement only.

Councillor Gary Kaschak inquires about the potential for damage that may be associated with moving cameras. Mr. Simpson indicates that is a risk, but any theft or vandalism would be covered through the annual lease rate.

Councillor Gary Kaschak inquires, with the plan for parking modernization, if the parking enforcement staff could potentially rotate to support this automated speed enforcement program. Mr. Simpson indicates that there is a small level of integration that can be afforded. By proposing to move to the administrative penalty framework, we can seamlessly harmonize what we are already using for our parking tickets. Red light camera and automated speed enforcement can be done within the same platform. There is a need for an additional administrative penalty hearing officer. We already have one in place dealing predominantly with just parking tickets.

Councillor Gary Kaschak inquires whether there is a reason that demerit points are not associated with these penalties. Mr. Simpson indicates that the automated speed enforcement takes a photo of a license plate and cannot verify the driver of the vehicle. The penalty is not assigned to a driver, only to the vehicle owner.

Councillor Gary Kaschak inquires about the time frame for implementation. Mr. Simpson indicates that they are in negotiations and are hoping to implement the program within 60 to 90 days of signing agreements, acquiring the equipment and coordinating installation.

Councillor Gary Kaschak inquires whether the municipality is able to determine the penalty pricing or if it is provincial jurisdiction. Mr. Simpson indicates that it is up to the municipality to set the threshold. There are best practices that we are aware of as to how that threshold is established and we will follow suit.

Councillor Mark McKenzie inquires whether we have an idea of what the threshold will be. Mr. Simpson indicates that at the staff level, we have determined an appropriate threshold based on municipal best practice.

Councillor Mark McKenzie inquires about the vandalism cases and whether it occurred to cameras that were at ground level and if our cameras are going to be mounted. Mr. Day indicates that the cameras they are considering are mounted.

Councillor Kieran McKenzie inquires about the data reporting timeline. Mr. Simpson indicates that 2 years is proposed to provide a more substantive sample size. A report back at 1 year can be done should Council request it.

Councillor Kieran McKenzie inquires whether there will be baseline data to compare to. Mr. Simpson indicates that we have a good handle on the data from our speed feedback signs that are already in place. There are specific data reporting requirements back to the Ministry of Transportation as well.

Councillor Mark McKenzie inquires whether they are able to provide the data quarterly if asked by a councillor. Mr. Simpson indicates that they are happy to share that data.

Councillor Fabio Costante inquires about how many school zones and community safety zones have been identified throughout the city. Mr. Day indicates that thirteen community safety zones and two school zones have been identified. They are currently in the process of the school neighbourhood policy review. Next steps would be to conduct speed studies to be able to establish these school zones.

Councillor Fabio Costante indicates that once this program is rolled out, how many school zones are expected to be identified. Mr. Day indicates that we currently have twenty-five that have been run through the evaluation process and hope to have them all established before the school year begins.

Councillor Fabio Costante inquires whether the community safety zone number is expected to increase as well. Mr. Day indicates that community safety zones are initiated under a traffic calming policy then they follow all other criteria to establish a community safety zone. Mr. Day adds that they have not established other community safety zones because they didn't have a method of enforcement.

Councillor Fabio Costante inquires about the general terms that would classify a community safety zone. Mr. Day responds that a community safety zone is initiated through a request through 311 or referral from another policy. The factors considered are the presence of community buildings, including schools, parks and hospitals as well as the presence of other facilities that attract high or generate high volumes of pedestrian and cyclist traffic.

Moved by: Councillor Mark McKenzie
Seconded by: Councillor Gary Kaschak

Decision Number: **ETPS 1043**

1. THAT Council **APPROVE** the implementation of the Automated Speed Enforcement (ASE) and Red Light Camera (RLC) Administrative Penalty (AP) Systems and **AUTHORIZE** Administration to undertake all required steps for this as set out in the following Recommendations; and,

2. THAT Council **DIRECT** Administration to negotiate an ASE Violation Processing Services Agreement with the City of Brampton for the operation and cost sharing of their municipal Joint Processing Centre (JPC) for processing AP speeding violation penalties and issuing penalty orders; and further,

3. THAT Council **DIRECT** Administration to negotiate with JENOPTIK Smart Mobility Solutions, our current approved RLC equipment provider for the provision of ASE camera equipment; and further,

4. THAT Council **AUTHORIZE** Administration to enter into an Authorized Requester agreement with the Ministry of Transportation Ontario for the access to licence plate registry; and further,

5. THAT Council **AUTHORIZE** the addition of 2 FTE's (Transportation Technologist 1, AP Screening Officer), funded from program revenues, to oversee the operational aspects of the ASE and RLC programs; and further,

6. THAT Administration **PROVIDE** a report back to Council after two years of ASE implementation to summarize program effectiveness, budget, etc.; and further,

7. THAT Council **DIRECT** Administration to update the existing RLC Violation Processing Services Agreement with the City of Toronto for the operation and cost sharing of their municipal JPC (which currently processing violations and issuing tickets using POA framework) to an AP system which will process violation penalties and issuing penalty orders; and further,

8. THAT City Council **AUTHORIZE** the City Clerk and CAO to execute any required agreements and documents as considered necessary for program implementation and maintenance, satisfactory in legal content to the City Solicitor, in financial content to the City Treasurer, and in technical content to the City Engineer; and further,

9. THAT City Council **DIRECT** any resulting surplus in revenue, after all Administrative costs have been recovered, be transferred to the Traffic Calming Reserve (Fund TBD) to be used for purposes of traffic road and safety improvements; and further,

10. THAT Council **AUTHORIZE** Administration to prepare or amend any applicable by-laws, policies and undertake any processes or steps necessary to establish and implement an AP system for contraventions of ASE and RLC offences.

Carried.

Report Number: S 2/2025
Clerk's File: ST/13765

8.2. Banner Policy Implementation- City Wide

Moved by: Councillor Renaldo Agostino
Seconded by: Councillor Kieran McKenzie

Decision Number: **ETPS 1044**
THAT Council **APPROVE** the attached Banner Policy Implementation.
Carried.

Report Number: S 4/2025
Clerk's File: APR2025

8.3. Way Finding Signs for "Place of Worship" - City Wide

Moved by: Councillor Renaldo Agostino
Seconded by: Councillor Mark McKenzie

Decision Number: **ETPS 1045**
THAT the report of the Senior Manager of Traffic Operations dated December 19, 2024, entitled "Way Finding Signs for "Place of Worship" - City Wide" an amendment to the Trailblazing and Identification Signs Policy **BE RECEIVED** by Council for information.
Carried.

Report Number: S 178/2024
Clerk's File: SW2025

9. TRANSIT BOARD ITEMS

None presented.

10. ADOPTION OF TRANSIT BOARD MINUTES

None presented.

11. QUESTION PERIOD

None registered.

12. ADJOURNMENT

There being no further business, the Environment, Transportation & Public Safety Standing Committee is adjourned at 5:04 o'clock p.m. The next meeting of the Environment, Transportation & Public Safety Standing Committee will be held Febraury 26, 2025.
Carried.

Ward 2 – Councillor Fabio Costante (Chairperson)	Deputy City Clerk / Supervisor of Council Services

Committee Matters: SCM 28/2025

Subject: Minutes of the Windsor Licensing Commission of its meeting held December 5, 2024

Windsor Licensing Commission

Meeting held December 5, 2024

A meeting of the Windsor Licensing Commission is held this day commencing at 9:30 o'clock a.m. in Room 140, 350 City Hall Square West, there being present the following members:

Councillor Ed Sleiman, Chair
Councillor Renaldo Agostino
Councillor Angelo Marignani
Harbinder Gill
Sam Sinjari

Delegations in attendance:

Mohammad Khan and Ajim Tash regarding Item 6(a)
Walter Bezzina, General Manager, Vets Cab Company, regarding Item 6(a)

Also present are the following resource personnel:

Craig Robertson, Manager, Licensing & Enforcement, Deputy Licence Commissioner
Rory Sturdy, Supervisor of By-law Enforcement
Gabrielle Fillion, By-law Enforcement Officer
Sandy Hansen, Senior Licence Issuer
Karen Kadour, Committee Coordinator

1. Call to Order

The Chair introduces and welcomes Sam Sinjari as a new member of the Windsor Licensing Commission.

The Chair calls the meeting to order at 9:40 o'clock a.m. and the Windsor Licensing Commission considers the Agenda being Schedule A, attached hereto, matters which are dealt with as follows:

Craig Robertson provides a brief overview of the Windsor Licensing Commission as follows:

- The City of Windsor issues business licences as well as public vehicle licences. Individuals that are applying for one of these licences have certain criteria that they must meet for the Commission to issue that licence.

- Once the licence is issued, there are certain regulations and standards that must be upheld.
- There may be conditions placed on business licences up to and leading to suspension or revocation.
- The authority of the Licensing Commissioner is to ensure that applications are submitted and that all requirements are met and if they need to take it the next level, the Licence Commissioner will make a recommendation to the Commission. The Windsor Licensing Commission is the body that hears the applications and holds these hearings and has full authority to make decisions that are recommended by Administration.
- The decisions made by the Commission are final.

2. Disclosure of Interest

None disclosed.

3. Adoption of the Minutes

Moved by Councillor Angelo Marignani, seconded by Councillor Renaldo Agostino, That the minutes of the meeting held August 28, 2024 **BE ADOPTED** as presented. Carried.

4. Request for Deferrals, Referrals or Withdrawals

None.

5. Communications

None.

6. Licence Transfers

6(a) Mohammed Khan, (family member) for Transferor and Ajim Tash, Transferee appear before the Windsor Licensing Commission on behalf of The Estate of the late Saleem Raza regarding the transfer of Plate #133.

Walter Bezzina, General Manager, Vets Cab Company is also present.

Ajim Tash agrees with the requirements outlined in the recommendation**.**

Moved by Councillor Angelo Marignani, seconded by Harbinder Gill,

That the transfer of Taxicab Plate #133 from The Estate of the late Saleem Raza to Ajim Tash **BE APPROVED** with the following conditions:

i. Ajim Tash be given thirty (30) days from the date of the approval to submit a vehicle for inspection that complies with Schedule 5 to By-Law 137 as amended, including a valid safety standards certificate.
ii. Ajim Tash be given thirty (30) days from the date of the approval to submit a Taxicab Plate Holder application and pay the associated fee.
iii. Ajim Tash be given thirty (30) days from the date of the approval to provide verification that full compensation has been made to Rubina Amjad in consideration of the transfer of Taxicab plate #133.
iv. Ajim Tash shall not lease Taxicab plate #133 for a one-year period as stated in Schedule 5, Section 21.3 of Licensing By-Law 137-2007 as amended.

Carried.

7. Applications/Hearings

(a) Tremor Entertainment Inc. o/a Rally Sport Collective

Craig Robertson advises that Garrett Seifarth, Tremor Entertainment Inc. o/a Rally Sport Collective is not present.

Craig Robertson advises this is a new livery business that includes higher standard vehicles with prearranged contract trips. There are different categories which include limousines and vans and in this case is a Class “C” Executive vehicle. He adds that the By-law does limit the number of vehicles to 15, and currently there are five (5) Class “C” vehicles. He recommends the approval of the application and requests that the owner provide valid insurance for this vehicle (which has not been provided) and requests that the By-law Enforcement Team inspect the vehicle and ensure it is up to standards.

Councillor Angelo Marignani asks if Class “C” or Class “D” vehicles can be used as a shuttle service in an international border crossing. Craig Robertson responds that any vehicle that holds more than 7 passengers is governed under the Province of Ontario.

Sam Sinjari asks if the history of the vehicle is checked by Carfax to ensure they were not salvaged or had been in a major accident. Craig Robertson responds that they do not check the history as his staff are not mechanics, however, they do require two annual Ontario Safety Standard Certificates and twice a year the vehicle goes through a mechanical fitness report. If there are complaints regarding a vehicle, the Licence Commissioner has the authority to ask for a new Ontario Safety Standard Certificate or that repairs be made and if repairs are not made, the vehicle can be pulled out of service. There are also periodic blitzes that are held with the Ministry of Transportation where they will haul in the cabs to look at them.

Harbinder Gill concurs with Mr. Sinjari and suggests a provision in the wording to say any vehicle that has a salvage title or rebuilt title should not be considered for

licensing. Craig Robertson responds that a recommendation to amend the bylaw could be considered by Council. He states that he will provide a verbal report for the next meeting of the Windsor Licensing Commission.

The Chair also requests that Administration report back at the next meeting regarding the dress code of cab drivers.

Moved by Councillor Angelo Marignani, seconded by Harbinder Gill,

That the livery vehicle plate holder application, submitted by Garrett Seifarth on behalf of Tremor Entertainment Inc. o/a Rally Sport Collective, 420 Kildare Street, Windsor, Ontario, N8Y 3G4, to operate one (1) Class "C" – Livery Vehicle, namely a 2023 Cadillac Escalade, **BE APPROVED** with the following conditions:

- Garrett Seifarth be given sixty (60) days from the date of this decision to submit a certificate of insurance that is satisfactory to Section 9.1 of Schedule 3 to By-law 137 as amended,
- The vehicle must submit to and pass an inspection by the By-law Enforcement Unit.

Carried.

8. Reports & Administrative Matters

(a) Expired Application(s) for Business Licence

Moved by Councillor Renaldo Agostino, seconded by Sam Sinjari,

That the report of the Deputy Licence Commissioner dated November 12, 2024 entitled "Expired Application(s) for Business Licence" **BE RECEIVED.**

Carried.

9. In Camera

No In Camera session is held.

10. Date of Next Meeting

The next meeting will be held at the call of the Chair.

11. Adjournment

There being no further business, the meeting is adjourned at 10:15 o'clock a.m.

Committee Matters: SCM 69/2025

Subject: Minutes of the Essex-Windsor Solid Waste Authority (EWSWA) Regular Board of its meeting held January 7, 2025

Essex-Windsor Solid Waste Authority
Regular Board Meeting
MINUTES

Meeting Date: **Tuesday, January 7, 2025**

Time: **4:00 PM**

Location: **Essex County Civic Centre**
Council Chambers, 2nd Floor
360 Fairview Avenue West
Essex, Ontario N8M 1Y6

Attendance

Board Members:

Gary McNamara – Chair	County of Essex
Hilda MacDonald	County of Essex
Michael Akpata	County of Essex
Rob Shepley	County of Essex
Kirk Walstedt	County of Essex
Gary Kaschak – Vice Chair	City of Windsor
Kieran McKenzie	City of Windsor
Jim Morrison	City of Windsor

EWSWA Staff:

Michelle Bishop	General Manager
Steffan Brisebois	Manager of Finance & Administration
Cathy Copot-Nepszy	Manager of Waste Diversion
Tom Marentette	Manager of Waste Disposal
Madison Mantha	Project Lead
Teresa Policella	Executive Assistant

City of Windsor Staff:

Tony Ardovini	Deputy Treasurer Financial Planning
Jim Leether	Manager of Environmental Services

County of Essex Staff:

Melissa Ryan	Director of Financial Services/Treasurer
David Sundin	Solicitor/Interim Director, Legislative and Community Services

Absent:

Drew Dilkens	City of Windsor (Ex-Officio)
Mark McKenzie	City of Windsor
Mark Spizzirri	Manager of Performance Management and Business Case Development

1. Call to Order

The General Manager called the meeting to order at 4:04 PM.

2. Board Composition for 2025

The General Manager welcomed returning Board Member, Kirk Walstedt. She thanked Board Member Fred Francis for his contributions to the Board in 2024. Mr. Francis will return to the Board in 2026.

3. Election of Chair and Vice Chair for 2025

The General Manager stated that per the agreement between the City of Windsor (City) and the County of Essex (County) that created the Authority, the positions of Chair and Vice Chair rotate between the City and the County on a yearly basis. She noted that for 2025, the Chair will be a County of Essex Board member and the Vice Chair will be a City of Windsor Board member.

In the event there are more than one nominee for each position, all Board members will vote by ballot.

The General Manager called for any declarations of pecuniary interest in regard to the elections of the Chair and Vice Chair. None were noted.

The General Manager called for nominations for the position of Board Chair.

Board Member Rob Shepley nominated Board Member Gary McNamara for Board Chair.

The General Manager called three (3) additional times for nominations for the position of Board Chair. There were no other nominations.

The General Manager asked Mr. McNamara if he would stand for the position of Board Chair.

Mr. McNamara accepted the nomination as Board Chair.

The General Manager declared Mr. McNamara as Chair for 2025.

The General Manager asked for a motion for the nominations for Chair to be closed.

Moved by Rob Shepley
Seconded by Kirk Walstedt
That Gary McNamara is named as Board Chair for the period ending December 31, 2025.

1-2025
Carried

The General Manager called for nominations for Vice Chair.

Board Member Jim Morrison nominated Board Member Gary Kaschak for the position of Vice Chair.

The General Manager called three (3) additional times for nominations for the position of Board Vice Chair. There were no other nominations.

The General Manager asked Mr. Kaschak if he would stand for the position of Board Vice Chair.

Mr. Kaschak accepted the nomination of Board Vice Chair.

The General Manager declared Mr. Kaschak as Vice Chair for 2025.

The General Manager asked for a motion for the nominations of Vice Chair to be closed.

Moved by Kieran McKenzie
Seconded by Michael Akpata
That Gary Kaschak is **named** as Board Vice Chair for the period ending December 31, 2025.

2-2025
Carried

4. Motion to Move In-Camera

Moved by Gary Kaschak
Seconded by Kieran McKenzie

That the Board **move** into a closed meeting pursuant to Section 239 (2) (f) of the Municipal Act, 2001, as amended for the following reason:

- (f) advice that is subject to solicitor-client privilege, including communications necessary for that purpose.

3-2025
Carried

Moved by Rob Shepley
Seconded by Kirk Walstedt
That the EWSWA Board **rise** from the Closed Meeting at 4:42 PM.

6-2025
Carried

5. Declaration of Pecuniary Interest

The Chair called for any declarations of pecuniary interest and none were noted. He further expressed that should a conflict of a pecuniary nature or other arise at any time during the course of the meeting that it would be noted at that time.

6. Approval of the Minutes

Moved by Rob Shepley
Seconded by Gary Kaschak
That the minutes from the Essex-Windsor Solid Waste Authority Regular Meeting, dated November 5, 2024, be **approved and adopted**.

7-2025
Carried

7. Business Arising from the Minutes

No items were raised for discussion.

8. Waste Diversion

A. Source Separated Organics Hauling at the Essex-Windsor Solid Waste Authority Facilities

The General Manager presented the report and recommended the Board approve the execution of the extension provision included within the existing contract with 1869096 Ontario Limited (operating as Canadian Transfer Essex Waste Depot (CT)) for the hauling of refuse to the Essex-Windsor Regional Landfill (RL) from the Windsor Transfer Station (TS1) and Transfer Station 2 (TS2) in Kingsville for a period of 5 years. Further, that the Board approve the amendment of the existing refuse hauling contract to include the provision of Source Separated Organics (SSO) hauling services from the Essex-Windsor Solid Waste Facilities to Seacliff Energy (Seacliff) located at 1200 Mersea Road 1 in Leamington, Ontario, or to another processing facility as directed by the Authority under the same terms and conditions of the base contract.

She explained that the Authority must retain a service provider to haul SSO material from Authority facilities to Seacliff. Since CT is currently transferring waste for the Authority, Administration engaged in discussions with CT to amend the hauling contract for refuse from its sites to include the hauling of SSO from the Authority's new SSO Transfer to Seacliff.

She noted that amending the contract with CT will offer synergies with refuse hauling and eliminate the need for a short-term contract. CT provides excellent service and the Authority is pleased with their work.

The General Manager asked if there were any questions. No questions were asked.

Moved by Kieran McKenzie
Seconded by Hilda MacDonald

1. THAT the Board **approve** the recommendation to execute the extension provisions included within the contract for refuse hauling to the Essex-Windsor Regional Landfill from the Windsor Transfer Station (TS1) and the Kingsville Transfer Station (TS2) with 1869096 Ontario Limited (operating as Canadian Transfer Essex Waste Depot) for the period of January 1, 2029 to December 31, 2033 per the original contract terms and agreement.

2. And further, THAT the Board **approve** the amendment of the existing refuse hauling contract to include the provision of Source Separated Organics hauling services from Essex-Windsor Solid Waste Facilities to Seacliff Energy located at 1200 Mersea Road 1 in Leamington, Ontario, or to another processing facility as directed by the Authority under the same terms and conditions of the base contract.

8-2025
Carried

B. Promotion & Education Plan for the 2025 Green Bin Program Launch

The Manager of Waste Diversion provided an update on the Promotion and Education (P&E) Program Plan for 2025 that Administration has developed to prepare Essex-Windsor for the Green Bin Program launch the week of October 21, 2025. This comprehensive plan will inform, engage, and connect local residents and partners to the launch of the Green Bin Program.

The report identified a number of communication campaigns that will be rolled out in 2025 through multiple media strategies and partnerships (e.g., municipal) including:

- Campaign 1: Grow Green in 2025 - This campaign will be initiated with the reveal of the new EWSWA Logo and ask partners and residents to go green in 2025 with the Authority.

- Campaign 2: Grow Green with the Green Team - The Green Team, a group of diverse Green Superheroes selected to help engage residents in the program and lighten the conversation around the program will be launched in Q2 (e.g., annual Earth Day event).

- Campaign 3: Bin Roll-out - The key message here is that the "Bins are coming!" and advise residents on when their Green Bin Kit will be delivered to their home.

- Campaign 4: Green Bin Launch: "How to be ready" - The key message is that the Green Bin Collection Program starts the week of October 21, 2025 for Phase 1 municipalities and many pieces of information on how residents can be ready for collection will be shared.

- Campaign 5: How Are We Doing?/Prep for Winter – This will provide feedback on Green Bin participation and opportunities to improve participation and/or usage of the program and provide tips for the winter.

Mr. Shepley asked if this information is being included in the 2025 collection calendar.

The Manager of Waste Diversion confirmed this information will be included in the 2025 calendars. She also noted that information for Phase 2 municipalities will also be included.

Mr. McKenzie asked if any groups inquired or expressed interest in participating in the public education.

The Manager of Waste Diversion stated no organizations have yet to reach out. The Authority is looking at a partnership with the migrant community and the Multicultural Council of Windsor to assist with language translation.

Mr. McKenzie believes that apprehension from residents is anticipated. He asked what type of message would assist with apprehension.

The Manager of Waste Diversion stated that Campaign #2 will focus on debunking any myths or apprehension regarding pests, cold weather situations and odours. The Authority will produce videos on how to use the system successfully. The Authority benchmarked other municipalities and it has been advised that apprehension should be addressed. The Authority will be working alongside the City of Windsor to align with their transition to bi-weekly garbage collection as well as looking for ambassadors to assist with P&E.

Mr. Kaschak asked if P&E will be conducted in grade schools.

The Manager of Waste Diversion stated that school education is not part of the first year of the rollout of the program. The Authority will reach out to teachers to engage with their students.

Mr. Kaschak asked if it has been decided which items will be accepted in the green bin.

The Manager of Waste Diversion stated that the items have been identified in order to award the processing contract.

There were no further questions.

Moved by Kieran McKenzie
Seconded by Gary Kaschak
That the Board **receive** the report as information.

9-2025
Carried

9. Waste Disposal

A. Board Appointment to the Landfill Liaison Committee for 2025

The Chair called for nominations to appoint a Board member to the Regional Landfill Liaison Committee.

Rob Shepley nominated Board member Kirk Walstedt.

The Chair called for other nominations.

There were no other nominations.

The Chair asked Mr. Walstedt if he accepted the nomination.

Mr. Walstedt accepted the nomination.

Moved by Rob Shepley
Seconded by Hilda MacDonald
That the Board appoint Kirk Walstedt, who is not a member of the Council of the Town of Essex, to the Landfill Liaison Committee for a one-year term for 2025.

10-2025
Carried

B. Regional Landfill Dozer Purchase

The Manager of Waste Disposal presented the report regarding the acquisition of a new Dozer to be utilized at the Regional Landfill. He recommended the acquisition be made through a Buying Group which will result in a discount off the list price of the Dozer. Additionally, he recommended the Authority enter into a MARC agreement with the supplier of the Dozer. Purchasing through a Buying Group is permitted per the Authority's Procurement Policy

The Chair asked if there were any questions. No questions were asked.

Moved by Jim Morrison
Seconded by Kirk Walstedt

1. **That** the Board **approve** the acquisition of the New Dozer through the Buying Group at a cost of $1,511,089.20, plus applicable taxes.

2. **That** the Board **approve** the Authority entering into a MARC Agreement with the supplier of the New Dozer for a period of five (5) years or 12,000 hours (whichever occurs first), at a pre-tax rate of $46.87 per hour.

11-2025
Carried

10. Finance and Administration

A. Approval Status of the 2025 EWSWA Budget

The Manager of Finance and Administration provided an update on the EWSWA 2025 Operational Plan and Budget approval process. On November 5, 2024, the Authority Board approved the 2025 recommendations.

As a part of the budget approval process, the Budget is referred to the County of Essex and the City of Windsor and their Councils for their consideration. On December 4, 2024, Administration attended Essex County Council to present the 2025 Budget, address questions and seek approval. Essex County Council resolved to approve the Authority's budget. Authority Administration will attend City of Windsor Council on January 27, 2025 to present the 2025 Budget.
Moved by Rob Shepley
Seconded by Hilda MacDonald
That the Board **receive** the report as information.

12-2025
Carried

11. New Business

A. Collection Calendar

In light of the recent issues with garbage collection in the Town of Essex during the holidays, Mr. Shepley requested that the Authority share the municipal collection calendar development process and provide a possible solution to ensure that this would not happen again.

The General Manager stated that this was an unfortunate situation because it was during the holiday season but was pleased that the Town of Essex was able to work with the contractor to provide a solution. She noted that the Authority does not have any legal right to deal with the contractor as the waste collection contract is between the municipality and the contractor, not the Authority. She referred to the Manager of Waste Diversion to explain the development process of the collection calendars.

The Manager of Waste Diversion provided a detailed explanation of the process that is guided by a Letter of Understanding (LOU) and a standardized data collection form. The process is led by the Authority's Communications

Coordinator. She noted that the Letter of Understanding was developed approximately 5 years ago as a result of timeline issues with some municipalities and to eliminate errors.

The Manager of Waste Diversion outlined the design process of the calendars:

- The first draft is sent to the municipal lead to verify yard waste, recycling and waste collection dates as well as any municipal information (i.e. Council dates) that the municipalities provided.

- The second draft is sent to the municipal lead in early October. As the first and second drafts are prepared, municipalities are working with their collection contractor.

- The third draft is sent to the municipal lead the second week of December. Municipalities are provided 3-4 weeks to review the last draft.

Although the collection dates are provided by the municipality, in an attempt to identify how the error occurred Administration discussed the situation with the municipality and after a review of the process, noted opportunities to ensure correct information is received. A suggestion to the municipalities is to have the contractor sign off on the final draft of the calendar. It was also noted that the Authority requests 3-4 revisions/drafts but actually 5-9 revisions are received.

While this process has been successful for many years and most municipalities for the 2024 calendar, as a result of the recent issues, Administration is reviewing the current process and looking for opportunities to enhance it to reduce staff resources and publication errors. Administration will be meeting with its municipal partners in the coming weeks to discuss opportunities that will form the 2026 calendar process. She noted that all municipalities should review the 2025 collection calendars upon receipt and before they are distributed to residents.

Mr. Shepley thanked Administration for the excellent description of the process. He appreciates the Authority for extending hours to receive the garbage.

The Chair asked if there were any further questions or new business. No further questions were asked.

12. Other Items

No other items raised for discussion.

13. By-Laws

A. By-Law 1-2025

Moved by Rob Shepley
Seconded by Kieran McKenzie
That By-Law 1-2025, Being a By-Law to **authorize** the Extension of an Agreement between the Essex-Windsor Solid Waste Authority and 1869096 Ontario Limited, operating as Canadian Transfer, for Refuse Hauling to the Essex-Windsor Regional Landfill from the Windsor Transfer Station (TS1) and the Kingsville Transfer Station (TS2) for the period of January 1, 2029 to December 31, 2033, and further, **amend** the existing Refuse Hauling contract to include the provision of Source Separated Organics.

13-2025
Carried

B. By-Law 2-2025

Moved by Rob Shepley
Seconded by Kieran McKenzie
That By-Law 2-2025, Being a By-Law to **authorize** the acquisition of a New Dozer through the Buying Group at a cost of $1,511,089.20, plus applicable taxes, and further, enter into a MARC Agreement with the supplier of the New Dozer for a period of five (5) years or 12,000 hours (whichever occurs first), at a pre-tax rate of $46.87 per hour.

14-2025
Carried

C. By-Law 3-2025

Moved by Hilda MacDonald
Seconded by Jim Morrison
That By-Law 3-2025, being a By-law to Confirm the Proceedings of the Board of the Essex-Windsor Solid Waste Authority be given three readings and be **adopted** this 7th day of January, 2025.

15-2025
Carried

14. Next Meeting Dates

Tuesday, February 4, 2025
Tuesday, March 4, 2025
Tuesday, April 1, 2025
Tuesday, May 6, 2025
Tuesday, June 3, 2025
Wednesday, July 9, 2025
Wednesday, August 13, 2025
Wednesday, September 10, 2025
Tuesday, October 7, 2025
Tuesday, November 4, 2025
Tuesday, December 2, 2025

15. Adjournment

Moved by Kieran McKenzie
Seconded by Rob Shepley
THAT the Board stand **adjourned** at 5:36 PM.

16-2025
Carried

All of which is respectfully submitted.

Gary McNamara
Chair

Michelle Bishop
General Manager

Committee Matters: SCM 71/2025

Subject: Minutes of the Essex-Windsor Solid Waste Authority (EWSWA) Regular Board of its meeting held February 4, 2025

Essex-Windsor Solid Waste Authority
Regular Board Meeting
MINUTES

Meeting Date: **Tuesday, February 4, 2025**

Time: **4:00 PM**

Location: **Essex County Civic Centre**
Council Chambers, 2nd Floor
360 Fairview Avenue West
Essex, Ontario N8M 1Y6

Attendance

Board Members:

Gary McNamara – Chair	County of Essex
Hilda MacDonald	County of Essex
Michael Akpata	County of Essex
Rob Shepley	County of Essex
Kirk Walstedt	County of Essex
Gary Kaschak – Vice Chair	City of Windsor
Kieran McKenzie	City of Windsor
Jim Morrison	City of Windsor

EWSWA Staff:

Michelle Bishop	General Manager
Steffan Brisebois	Manager of Finance & Administration
Cathy Copot-Nepszy	Manager of Waste Diversion
Tom Marentette	Manager of Waste Disposal
Madison Mantha	Project Lead
Heather Girard	Administrative Assistant

City of Windsor Staff:

Tony Ardovini	Deputy Treasurer Financial Planning
Jim Leether	Manager of Environmental Services

County of Essex Staff:

Melissa Ryan	Director of Financial Services/Treasurer
Claire Beddington	Deputy County Solicitor
David Sundin	Solicitor/Director, Legislative and Community Services

Absent:

Drew Dilkens	City of Windsor (Ex-Officio)
Mark McKenzie	City of Windsor
Mark Spizzirri	Manager of Performance Management and Business Case Development

1. Call to Order

The Chair called the meeting to order at 3:57 PM.

2. Declaration of Pecuniary Interest

The Chair called for any declarations of pecuniary interest and none were noted. He further expressed that should a conflict of a pecuniary nature or other arise at any time during the course of the meeting that it would be noted at that time.

3. Approval of the Minutes

Moved by Kirk Walstedt
Seconded by Hilda MacDonald
That the minutes from the Essex-Windsor Solid Waste Authority Regular Meeting, dated January 7, 2025, be **approved and adopted**.

17-2025
Carried

4. Business Arising from the Minutes

No items were raised for discussion.

5. Waste Diversion

A. Tender Award for Windsor Source Separated Organics Transfer Station Retrofit

The General Manager presented the report and recommended that the Board award the request for tender to TCI Titan Contracting Inc. (**TCI Titan**). The tender closed January 16, 2025, and in total, five (5) bids were received with the lowest bid submitted by TCI Titan. A large increase over the expected budget of approximately $800,000 was observed. She expressed that Administration used the engineering consultant (Stantec) to form the 2025 budget estimate.

The General Manager reminded the Board of the approved funding strategy. She noted that funds were earmarked within the Equipment Replacement Reserve for the replacement of recycling equipment however due to the windup of the recycling program, the equipment is considered surplus. The funds are to be redirected to fund the retrofit project. The balance of the costs will be funded by a loan from Authority reserves and repaid over a 20-year period. As a result of the additional cost, the annual loan repayment amount is estimated to increase by $40,000 per year however the impact will not be realized until 2026.

The General Manager noted that bids did come in higher than budget however, all submissions were within 2-3% of the lowest bid. She added that Administration worked with Stantec to identify the reasons for the cost deferential and the rationale was primarily caused by a lack of competition within the mechanical subcontractor bid item.

The General Manager indicated that the procurement policy allows Administration to enter into discussions with the lowest bidder to negotiate the terms of the Contract. As part of the negotiations, Administration will seek to identify potential cost savings with TCI Titan. She expressed and acknowledged that the costs are high.

The General Manager spoke to some cost-saving measures which included pausing on building the Essex SSO Transfer Station building. This original recommendation for constructing the Essex SSO Transfer Station building came from EXP's SSO Collection Strategic Plan report. Administration's rationale for postponing the project is attributable to having enough capacity to accept the program tonnages at the new Windsor facility with no significant impact on any contractual obligations between EWSWA and SSO curbside collection contractor (Miller Waste Systems).

The General Manager restated Administration's recommendation.

The Chair asked if there were any questions.

Mr. Morrison asked about the mechanical subcontractor and why there is no competition. Further, he asked what percentage of the costs made up the mechanical subcontracting portion and if Administration could look to identify further savings.

The General Manager expressed that the portion represented a significant amount, and further noted the general lack of skilled trades available in certain areas. Further, the General Manager explained that Administration had requested TCI Titan review the scope of work and identify any additional cost savings. Any savings would be brought back to the Board for information once more information is available.

Mr. Morrison expressed concern regarding the tight timeline and he does not want to hold up the approval for this project.

The General Manager noted that Administration is requesting that the Board approve the recommendation to award the RFT to TCI Titan and that any price adjustments would be brought back to the Board for information.

Mr. Kaschak agreed that TCI Titan was a good company to work with. He asked if the Authority is still taking red box material collected from the curb and delivering the material to the fibre building or are the recycling trucks combining the two stream materials. He asked what was happening with the material recovery facility (MRF) buildings.

The Manager of Waste Diversion responded that the fibre MRF building is now decommissioned and any materials arriving from the Non-Eligible Source program are being deposited in the container building. This fibre building will purely be an SSO transfer station building.

There were no further questions.
Moved by Gary Kaschak
Seconded by Jim Morrison
That the Board **award** the Request for Tender 2024-11-18 for the Source Separated Organics Transfer Station Retrofit to TCI Titan Contracting Inc. with an upset limit in the amount of $4,516,709.44 (plus HST) and that the chair and General Manager be authorized to enter into an agreement in accordance with the tender documents.

18-2025
Carried

6. Waste Disposal

A. Regional Landfill Remaining Lifespan

The Manager of Waste Disposal presented the report regarding the remaining lifespan of the Regional Landfill. He spoke to the report noting that the original landfill was designed to accept waste for approximately 25 years from the time the Regional Landfill began accepting waste. He highlighted that waste diversion efforts have greatly prolonged the projected lifespan with the anticipated closing date being 2040.

The Manager of Waste Disposal spoke to the Regional Landfill's design and expressed that new technologies have aided waste compaction levels. He noted that the higher compaction also contributed to the added life of the landfill.

He brought attention to select graphs and charts located within the report. He concluded by expressing that the 2040 closure date does not take into consideration the impact of the new green bin program and/or an increase in the region's population. This report presents no financial implications.

Mr. McKenzie acknowledged Administration's efforts to divert waste and assist with prolonging the life of the landfill. He asked if there is anything the Authority is not doing and what might be the next things the Authority can do to extend the life of the Regional Landfill.

The Manager of Waste Disposal explained that other diversion methods could be expanded. The example provided was the recycling of mattresses as he explained, the waste material type is problematic for landfilling operations. Another notable way to expand the life of the landfill is by educating the public on best diversion practices. He reiterated that all recycling efforts preserve the life of the landfill.

The Manager of Waste Diversion added that communication about diversion may result in behavioural changes. The launch of the Green Bin program should aid in the efforts to promote waste diversion. She anticipates the Green Bin promotion and education campaigns should aid in promoting diversion keep waste out of the landfill.

Mr. Morrison asked if Administration is comfortable with extending the anticipated 2040 closing date of the landfill. He wondered how the organic efforts would impact the closing date.

The General Manager stated that the landfilling tonnages have fluctuated more over recent years. She highlighted that the Regional Landfill received fewer vines in 2024 than in past years. Adding that the Green Bin participation levels will be more challenging in 2025 however, tonnages will be better understood in 2026 given the program rollout dates. She expressed that the landfill closing date is a moving target and Administration will bring new figures forward to the Board when Administration is prepared to do so.

Mr. Akpata joined the meeting at 4:22 pm.

The Chair expressed that if the population in the region continues to grow the anticipated 2040 closing date may still reign true but did agree that the Green Bin program will help divert landfill tonnages thereby prolonging its life.

There were no further questions.

Moved by Rob Shepley
Seconded by Kirk Walstedt
That the Board receive this report as information.

19-2025
Carried

B. Operational Update: Reverse Osmosis Plant at the Regional Landfill

The Manager of Waste Disposal presented an update on the Reverse Osmosis Plant at the Regional Landfill. The Reverse Osmosis leachate treatment plant at the Essex-Windsor Regional Landfill began full-scale operation in April 2024 with Rochem providing technical assistance as needed. Operational improvements and targets for 2025 were discussed. A permeate retention pond was built for the purpose of holding more capacity.

The long-term leachate plan is to discharge permeate to the stormwater system eliminating the current need to truck and treat the leachate. The Authority has retained the contractor RWDI to assist with this project.

There was no financial impact as the costs were included in the 2024 and 2025 operational budgets. He brought the Board’s attention to the financial chart highlighting that permeate trucking and treating will continue until the Ministry

of Environment and Parks approves the discharge to the stormwater system. The Windsor pollution control agreed to accept more permeate loads at the plant.

Mr. Shepley asked if in the future the Authority will need a larger plant.

The Manager of Waste Disposal stated that in order to meet the current leachate volumes, multiple larger plants would need to be considered. He expressed that potentially two (2) 75,000 Gal units would be needed to manage the current leachate volumes. The existing plant is smaller at only 50,000 Gal.

Mr. Shepley acknowledged that Regional Landfill continues to produce leachate so he believes it is a wise investment.

The Manager of Waste Disposal reminded the Board that the Regional Landfill is estimated to produce leachate for an estimated 100-years based on the contaminating life span reports performed at closed landfills 2 and 3.

There were no further questions.

Moved by Hilda MacDonald
Seconded by Rob Shepley
That the Board receive this report as information.

20-2025
Carried

7. Finance and Administration

A. Approval Status of the 2025 EWSWA Budget

The Manager of Finance and Administration presented the approval status of the EWSWA 2025 budget. The budget was fully approved by the Windsor City Council at the January 27, 2025 meeting.

Moved by Gary Kaschak
Seconded by Michael Akpata
That the Board **receive** the report as information.

21-2025
Carried

8. New Business

No new business presented.

9. Other Items

No other items raised for discussion.

10. By-Laws

A. By-Law 4-2025

Moved by Rob Shepley
Seconded by Kieran McKenzie
That By-Law 4-2025, Being a By-Law to **authorize** the Execution of an Agreement with TCI Titan Contracting Inc. for the Source Separated organics Transfer Station Retrofit with an upset limit in the amount of $4,516,709.11 (plus HST).

22-2025
Carried

B. By-Law 5-2025

Moved by Rob Shepley
Seconded by Kieran McKenzie
That By-Law 5-2025, being a By-law to Confirm the Proceedings of the Board of the Essex-Windsor Solid Waste Authority be given three readings and be **adopted** this 4th day of February, 2025.

23-2025
Carried

11. Next Meeting Dates

Tuesday, March 4, 2025
Tuesday, April 1, 2025
Tuesday, May 6, 2025
Tuesday, June 3, 2025
Wednesday, July 9, 2025
Wednesday, August 13, 2025
Wednesday, September 10, 2025
Tuesday, October 7, 2025
Tuesday, November 4, 2025
Tuesday, December 2, 2025

12. Adjournment

Moved by Gary Kaschak
Seconded by Michael Akpata
THAT the Board stand **adjourned** at 4:34 PM.

24-2025
Carried

All of which is respectfully submitted.

Gary McNamara
Chair

Michelle Bishop
General Manager

THE CITY OF WINDSOR ONTARIO, CANADA

Council Report: S 21/2025

Subject: Options for Licensing Hotels and Motels - City Wide

Reference:

Date to Council: March 26, 2025
Author: Craig Robertson
Manager of Licensing and Enforcement & Deputy Licence Commissioner
519-255-6100 ext. 6869
crobertson@citywindsor.ca
Policy, Gaming, Licensing & By-Law Enforcement
Report Date: 2/13/2025
Clerk's File #:

To: Mayor and Members of City Council

Recommendation:

THAT Council **RECEIVE** the report of the Manager of Licensing & Enforcement and Deputy Licence Commissioner dated February 13, 2025 entitled 'Options for Licensing Hotels and Motels' in response to CQ 17-2021.

Executive Summary:

N/A

Background:

At the July 26, 2021 Meeting of Council, Councillor Kieran McKenzie asked the following of Administration (CQ 17-2021):

> *'Asks that, to promote greater public safety for all people, that Administration work to develop a by-law for Council consideration to provide the City of Windsor with additional tools within the licensing framework for enforcement agencies to address unsafe and illicit activity in hotels and motels across the community that create dangerous and undesirable situations for motel guests, neighbours, and community members alike. The bylaw development process should include consultation process with industry stakeholders and social service providers, social agencies and health providers from both within and external to the City of Windsor as well as any other stakeholder group deemed appropriate by Administration.'*

In order to respond to Councillor Kieran McKenzie's question, a number of municipalities were surveyed as well as the Ontario Restaurant Hotel and Motel Association. The Housing and Children's Services area for the City of Windsor was also

called upon to provide input. Each group noted various comments and concerns which are summarized for Council's information.

Discussion:

The City of Windsor currently licenses Bed and Breakfasts, Short Term Rentals (airbnb style) and lodging homes. The City does not currently licence hotels and motels. Approximately thirty similarly or larger-sized municipalities in Ontario were examined to determine their licensing regimes. Of those surveyed, seven had hotel/motel licensing programs and many did not respond to requests for information on compliance levels or staff/agency utilization. The responses that were received are outlined below while detailed responses can be found attached as 'Appendix A'.

Some of the responding municipalities license hotels and motels, but enforcement of guest behavior and broader public concerns often fall outside licensing and is primarily addressed by police and controlled by other legislation. Hamilton, Brantford, Chatham-Kent, Guelph, Halton Hills, and Niagara Falls all require varying degrees of licensing oversight, including fire, electrical, health, and zoning certifications, maintaining guest registers, and periodic inspections. However, Brantford and Hamilton explicitly acknowledge that behavioral issues are a policing matter rather than something licensing can fully regulate. Similarly, Chatham-Kent and Brantford have found their licensing programs effective for compliance but do not report significant impacts on nuisance issues.

Hamilton and Niagara Falls take a more proactive stance by including broader nuisance provisions, while other municipalities, like Guelph, do not. Brantford and Niagara Falls impose general conditions preventing licensees from permitting by-law violations, but again, enforcement ultimately relies on external agencies for any issues presenting an element of criminality. Hamilton escalates repeated noncompliance through license conditions, revocations, and appeals. Meanwhile, London does not license hotels or motels but instead relies on a broad regulatory framework addressing health, safety, nuisance control, consumer protection, and crime prevention, reinforcing the idea that broader legislative tools play a more significant role than licensing in addressing public concerns.

Stakeholder Survey

The Ontario Restaurant Hotel & Motel Association (ORHMA) is an industry group with over 4,000 members, representing more than 11,000 establishments across the province. Administration reached out and asked the following questions:

1. Does ORHMA have a stance or policy position on municipal licensing of Hotels and Motels? What are the major concerns for your members for/against?
2. What experience might ORHMA members have with municipal licensing relating to health and safety/nuisance control? Can it be effective? How could it be done better?
3. What industry guidance might the ORHMA offer a municipality considering instituting Hotel and Motel licensing?

In response, ORHMA surveyed member businesses in known hotel-licensing cities, being, Niagara Falls, Guelph, Hamilton, and Halton Hills. ORHMA determined that many establishments are not aware of the licensing requirements and concluded that the licenses have “no impact” on their members. However they did state their position is that municipal licensing systems largely duplicate other statutory or industry requirements.

ORHMA provided examples of duplication of regulations commonly found in licensing by-laws. The primary example were the requirements to maintain registers of guests and complaints. Guest logs are statutorily required, and guest complaint tracking is a standard industry practice described as a “brand-driven requirement” for quality assurance. It was also asserted that requiring a register of complaints for hotels may be an unfair singling out of the hotel sector among other service-oriented businesses.

ORHMA’s response also included a list of statutes or regulations their members are subject to in order to illustrate their assertion that the industry is currently well regulated. The association’s response is included as an appendix to this report.

Being a member of ORHMA is a voluntary requirement, and the response of ORHMA may not be representative of the business that may be most affected by nuisance or criminal enforcement actions. It should be noted that any licensing regime would have to be applied to all operators and not just ones deemed as ‘nuisance’, possibly resulting in push back from some of the larger scale operators or those who operate in good standing.

In consultation with **Housing and Children’s Services**, it was identified that new regulations or enforcement actions may have an effect on low-income or homeless populations since many people who cannot find permanent affordable housing often rent motel rooms as a temporary low-cost housing option. In an effort to conceptualize the scope of possible impacts of licensing or nuisance closures, the city’s Housing and Children’s Services were identified as a source of data highly tuned to the anticipated affected populations. Continued consultation with Homelessness and Housing Support is recommended while these impacts are considered and evaluated.

According to the By Names Prioritized List (BNPL), there were 942 households in Windsor-Essex experiencing homelessness in December 2024. Of those, 21 households were known to be most frequently staying in a hotel or motel. The true number of households using motels as an affordable housing option is estimated to be higher given that some may not access community housing agencies and thus would not be reflected on the BNPL. If a motel is unable to meet new licensing requirements this could result in the displacement of these low income individuals and families

An increase in demand and costs in the emergency shelter system is another concern if motel rates increase and people are no longer able to stay in motels for longer term accommodations. Rates would be expected to increase due to the costs of licensing, safety inspections and updates, or a decrease in room supply resulting from possible motel closures

Using City records, it is noted that bylaw enforcement response to motel and hotel matters is extremely rare. In the limited situations which by-law has responded, it has

usually been in relation to violations under a current by-law such as land maintenance, rather than public and guest behaviour. In behavioural cases it is assumed that Windsor Police Services have been the primary enforcement entity involved.

Windsor Police Service provided the following information after doing a query of all reports written in which a hotel or motel was added as an entity. The below numbers do not include calls for service where a report was not generated. In these cases, an officer may have attended a call for service at a motel regarding noise and the noise stopped upon their arrival, so the officer did not do a report, or a call about a trespasser, the officer arrived and the party left. If the trespasser did not cause any damage, or there wasn't a report of criminality, then the officer doesn't have to do a report. These type of instances are not included in the below numbers.

Occurrence Reports - in which a hotel/motel is listed as an entity

2024	2023	2022	2021	2020	2019	2018	5 yr avg
93	104	83	126	130	92	72	107.20

Windsor Fire and Rescue Service already inspects hotels and motels to ensure all fire life safety systems are in working order. These items include; fire suppression systems, posted emergency escape plans, emergency lighting and exit signs, ensuring fire extinguishers and smoke alarms and Carbon Monoxide detectors are inspected, maintained and in proper locations, etc. They regularly do blitz inspections and respond to any complaints related to legitimate Fire Code contraventions expediently.

Options

Option 1

Status Quo - the alternatives to licensing mainly rely on existing enforcement agencies and mechanisms, and can be a highly targeted approach to specific conditions.

Currently, the City is able to enforce the following by-laws without any changes. This list is not exhaustive but consists of by-laws that may be called upon in specific situations related to the Councillor's Question.

- By-law Number 8544: respecting the removal of snow and ice from sidewalks on the highways in the City of Windsor
- By-law Number 6716: respecting the emission of sounds (Noise By-law)
- By-law Number 113-2006: to prohibit smoking in the City of Windsor
- By-law Number 2-2006: to establish and maintain a system for the collection and disposal of waste in the City of Windsor
- By-law Number 3-2006: to establish standards respecting yard waste & exterior property maintenance and to prohibit littering in the City of Windsor

In most cases however, illicit or nuisance activity would still need to be dealt with by police enforcement agencies as is currently the case.

Option 2 – General Licensing Regime

Implementing a license for hotels and motels is the most general manner a municipality could seek to regulate that business sector, and the City of Windsor's current licensing by-law is adequate to address business and safety standards but challenges remain for addressing the activity of guests. A hotelier could be held accountable if breaches to any bylaws occur and gives the Corporation some power in a general sense. By-laws which would be able to be enforced by City staff are those which are also listed in Option 1, as implementing a licence would make owners responsible to follow and answer to existing bylaws only. To more specifically address illicit activity within the licensing framework, the by-law could be amended to include a general nuisance provision similar to Niagara Falls, a crime-specific "do not cause, suffer, or permit" provision similar to Brantford, or a fourth goal for the licensing by-law of "suppressing conditions conducive to crime" similar to London. The main strength a licencing regime would offer would be to allow an owners' licence to be suspended or revoked for repeated infractions of City by-laws.

In most cases, City Bylaw Officers are limited in the nuisance claims they can address and cannot address criminal activity. Accordingly, Administration recommends maintaining status quo.

Risk Analysis:

Option 1

It is likely that existing by-laws and codes currently enforced by Municipal Enforcement Agencies including Police, Building, Fire, Bylaw Enforcement, etc. can address nuisance concerns as they have been.

Option 2

The likelihood for large scale operators to comply with a newly implemented licensing regime without complaint is low. These operators are generally not the source of nuisance complaints and do provide economic benefit to the City. In the case of operators where 'nuisances' have been identified, it could be argued that revoking the license itself would only punish the owners and not the person creating the nuisance itself. Also, as noted in the discussion portion, licensing hotels and motels have not made significant changes in the overall number of nuisance complaints received in municipalities with licencing in place.

Climate Change Risks

Climate Change Mitigation:

N/A

Climate Change Adaptation:

N/A

Financial Matters:

Option 1

There are no financial implications arising from option 1, other than the status quo.

Option 2

If a program is implemented the licence fees would need to cover the City's costs. These include the amounts related to Administrative costs to issue the licence, enforcement costs responding to complaints and inspection costs for Zoning, Building, Fire etc.

If Council directs Administration to go forward with Option 2, Administration will draft an additional report, outlining the costs associated with the need for additional resources from Building, Bylaw Enforcement and Fire - as additional inspections would be required. A licence program would require all hotels and motels to be licensed not just nuisance ones so caseloads would increase for these areas. This option may also result in increased overtime for the Bylaw division, as enforcement issues of this nature occur at all times of day.

Consultations:

Various Municipalities as named

Ontario Restaurant Hotel & Motel Association (ORHMA)

Social Services/Housing and Children's Services

Windsor Fire and Rescue Services– Fire Prevention Division

Windsor Police Service

Rosa Scalia – Finance

Sharon Strosberg - Legal

Conclusion:

According to City records, By Law Enforcement response to nuisance hotel/motel matters is extremely rare. In the limited situations which by-law has responded, it has usually been in relation to violations under a current by-law such as land maintenance, rather than public and guest behaviour. In these cases it is most likely that Windsor Police have been the primary enforcement entity involved. In most scenarios this would still be the case, as Police have authority over any incident relating to unruly guests and the like.

As noted by ORHMA, in most municipal licensing regimes, a duplication in processes is occurring as a great deal of legislation exists regulating the hotel/motel industry. This legislation already requires hotels and motels to comply with what the bylaws are requiring in most municipalities, making the licensing regime redundant.

Planning Act Matters:

N/A

Approvals:

Name	Title
Craig Robertson	Manager of Licensing & Enforcement and Deputy Licence Commissioner
Steve Vlachodimos	City Clerk & Licence Commissioner
Dana Paladino	Senior Executive Director of Corporate Service
Michael Chantler acting for Ray Mensour	Commissioner of Community and Corporate Services
Joe Mancina	Chief Administrative Officer

Notifications:

Name	Address	Email

Appendices:

1 Municipal Scan Responses
2 Response from The Ontario Restaurant Hotel & Motel Association

Appendix A – Full Municipal Scan

1. **City of Hamilton** - licenses Bed and Breakfasts, Hotels, and Motels as a premises with one or more bedrooms offered to the public for rent on a basis of 7 days or less. Upon application a licensee must submit a site plan and certifications for fire, electrical, and property standards. Additional electrical and property standards certifications are required every three years thereafter.

   License conditions include the keeping of a record of guest complaints, the duty to immediately report any personal safety complaints to the Director of Licensing, and the requirement of an employee to be present at all times if the establishment has four or more rooms available.

   In a 2012 committee report on the proposed licensing of Motels, Hamilton administration staff noted that *"some Motels/Hotels are known to be a chronic source of complaint to enforcement staff and the Police concerning behavioural activities of guests"* and continuous proactive enforcement efforts would be required to protect the public against violations.

   Hamilton administration confirmed that the primary enforcement mechanisms are the imposition of conditions or revocation of a license in a progressive enforcement process. Repeated noncompliance is referred to Hamilton's Licensing Appeal Tribunal. Administration works in collaboration with law enforcement if there are behavioural concerns.

2. **City of Brantford** - licenses Hotels and Motels as businesses where rooms are provided for rent on a temporary or transient basis. Licensing requirements consist of periodic electrical and fire certifications and there is a condition to maintain a guest register.

   Brantford has a general provision which states no licensee may cause, suffer, or permit a breach of any by-law of the Municipality or of any statute, order-in-council or regulation of the Legislature of the Province of Ontario, or of the Parliament of Canada to arise upon or in connection with the licensed place or premises.

   In response to a Council request to conduct public consultations prior to the implementation of Hotel/Motel licensing, the report noted public concern for safety and nuisance issues created by guests. Administration responded to these concerns by stating:

   "Behavioural calls are and remain a policing matter. While the licensing program is designed to achieve compliance in order to operate at the time of application, there is no catch-all business licensing provision that will adequately address behaviour of the guests at the hotels and motels."

   Brantford Administration has recently noted that their program is working well from a compliance standpoint pertaining to building, health, fire inspections and duties

of the operators. Anyone looking to report a complaint about criminal activity would be directed to the police. They have found that the program is a good tool to make the operators aware of Council's expectations through the local legislation.

3. In the Municipality of **Chatham-Kent,** Hotels and Motels are licensed. As per their bylaw: Hotel/Motel shall mean one or more adjacent Buildings or part thereof primarily used for the purposes of catering to the needs of the traveling public wherein individual sleeping facilities are provided in separate units each containing sanitary facilities and which may contain cooking facilities. Accessory uses may include restaurants, rooms licensed under the *Liquor Licence Act*, recreational facilities, and conference and convention facilities. There shall be two classes for Hotel/Motel:

   Hotel/Motel Class 1: Inspections required by Health and Fire

   Hotel/Motel Class 2: Inspection required by Fire

   The inspections are required upon renewal: (For renewals of a Licence, the Premises shall have been inspected within the calendar year in which the Licence renewal is applied for, or in the previous calendar year). The business must operate in a "clean and sanitary condition in compliance with all requirements of the Chatham-Kent Public Health Unit" and maintain a register of guests. Chatham-Kent administration indicated the hotel/motel license was implemented in 2002 and confirmed to continue after a 2015 service review. Reasons cited for continuance are regular inspection by Fire Services and use of the register of guests to Police, if necessary. Administration is not aware of any effect on nuisance complaints and is not aware of any additional staff or outside agency resources as a result of licensing hotels/motels.

4. **City of Guelph -** licenses hotels as any premises that provides four or more rooms available for rent by the travelling public. Upon application, the licensee must provide Zoning, By-law, Building, and Fire certifications and only Fire upon annual renewal.

   There is a condition on the license to maintain a guest register. There are no general nuisance provisions in their licensing by-law.

5. **Town of Halton Hills -** licenses hotels and motels as 'accommodation services' offered to the public on a temporary basis with either at least four suites (hotels) or being accessed from the outside (motel). Licensees must receive certification from Fire, Health, Zoning, and a Town official.

   Conditions require the maintenance of a guest register including their name, address, and motor vehicle plate number. Safety and sanitation standards are included as conditions.

6. **City of Niagara Falls -** licenses Motels and “tourist establishments” with five or more rental units under a general Licensing By-law. Businesses are directed to obtain reports or certifications as decided by Administration. The sole condition is the maintenance of a complete guest register which must be open to inspection by any Officer of the Municipality.

   Notably, Niagara Falls maintains general nuisance provisions in the bylaw which applies to all licenses. It states that licensees shall not cause, suffer, or permit: (b) nuisance, (c) shouting, noise or other disturbance which is unnecessary, unreasonable or contrary to any By-Law, (e) profane, offensive or abusive language or disorderly conduct, or (f) a breach of any by-law of the Municipality or of any statute, order-in-council or regulation of the Legislature of the Province of Ontario, or of the Parliament of Canada to arise upon or in connection with the licensed place or premises.

Furthermore, while the above municipalities noted licensing regimes, the City of London provided that;

7. **The City of London** does not license hotels or motels, they provided general provisions which may be applicable to the goals of the Council Question. They state the same goals for the exercise of its licensing powers as Windsor does: Health and Safety; Nuisance Control; and Consumer Protection. Importantly, London adds a fourth goal- “Suppressing conditions conducive to crime”. This may pair with a generalized duty of licensees to not ‘suffer, cause, or permit’ violations of laws or by-laws to explicitly target illicit conditions.

RE: Hotel / Motel Business Licensing

1. Does ORHMA have a stance or policy position on municipal licensing of Hotels and Motels? What are the major concerns for your members for/against?

2. What experience might ORHMA members have with municipal licensing relating to health and safety/nuisance control? Can it be effective? How could it be done better?
    a. For instance, some municipalities like Hamilton require a record of complaints to be maintained;

3. What industry guidance might the ORHMA offer a municipality considering instituting Hotel and Motel licensing?

There are very few Ontario municipalities that mandate a hotel specific business license. To our knowledge only the cities of Niagara Falls, Guelph, Hamilton and the town of Halton Hills have such a license. ORHMA has conducted calls to various hotels across these cities with indication that many are not even aware of being a part of such mandated licenses which means they have no impact.

The absence of a hotel specific business license does not translate that the sector is not regulated. In fact, it is extremely regulated by all three levels of government and it's through this governance that the vast majority of municipalities are not entertaining implementing a municipal license. Regulation is good as it provides safety and security for our many employees and guests, but duplication becomes "red tape" and an obstacle for doing business. We believe a municipal license only adds another layer of enforcement and it comes with fees. Fees that are costly to an industry that will have a long tough pandemic recovery road ahead and currently face a huge labour shortage.

Keeping track of guest complaints is a standard practice by most hotels and usually is a brand driven requirement for quality and service assurance but to include this as a government requirement does not equate to any positive outcome and appears to be unfair singling out only the hotel sector among the other many service-minded businesses operating. Not to mention that any health and safety issues are documented by the local health units and/or applicable agencies.

The recent amendment to the Accommodation Sector Registration of Guests Act, 2021 mandates documentation be kept of registered guests and this guest log be handed over to police officials if required in the on-going effort to combat human trafficking.

The Rules/Regulations of the Hotel/Motel Industry

The listing below is an unofficial listing for the average hotel/motel operating in Ontario and outlines the laws they must abide by from what signage must be posted to courses their staff must take and the burden is not inconsequential. They must continually update these requirements as ideas are conceived that a new law, regulation, or sign is required by any new government initiatives at all levels. This list is not meant to be exhaustive nor is it appropriate to cite this list as an authority.

Signage Requirements for Hotel Restaurants

Business License (municipal requirement)
Liquor Licence (Liquor Licence Act)
Fetal Alcohol Syndrome Warning Poster (Liquor Licence Act)

No-Smoking Signs (Smoke-Free Ontario Act)
Occupational Health and Safety Poster (Occupational Health and Safety Act)
Employment Standards Poster (Employment Standards Act)
Food Premise Inspection Sign (municipal requirement)
WSIB Poster (Workplace Safety and Insurance Act)
Pay Equity Poster (Pay Equity Act, either by legislative obligation or director order from Pay Equity Commission)
Elevator Safety Certificates (Technical Safety and Standards Act)

Licenses/permits/registrations that new business have to apply for a hotel restaurant:

- Register your business
- Business number - HST number
- Liquor license - which then includes food establishment license
- Ontario - need to apply for Hours of Work & Averaging Hours - Ministry of Labour
- Employer's Health Tax number
- WSIB number
- Certifications required:
    - Food Safety
    - Common Safety Orientation(CSO) certification
    - SmartServe
- Permits required to pass before opening (these final inspections are also all required before to obtain your liquor license):
    - Fire
    - Health
    - Building

Signage Requirements for Hotel Guest Rooms

Emergency Exit Routes (Fire Code)
Notice of Liability (Innkeepers Act)
Room Rates (Hotel Registration of Guests Act including guest documentation which has recently been revised to support the fight against Human Trafficking)
No Smoking Signs (Smoke Free Ontario Act)

Legislative/Regulatory Obligations Provincial
Liquor Licence Act
Liquor Control Act
Health Protection and Promotion Act
Smoke-Free Ontario Act
Employment Standards Act
Occupational Health and Safety Act
Labour Relations Act
Pay Equity Act
Workplace Safety and Insurance Act
Waste Diversion Act
Environmental Protection Act
Accessibility for Ontarians with Disabilities Act
Consumer Protection Act
Private Security and Investigative Services Act

Planning Act
Retail Sales Tax Act
Employer Health Tax Act
Corporations Tax Act
Corporations Act
Business Corporations Act
Business Names Act
Innkeepers Act

Accommodation Sector Registration of Guests Act, 2021

Safe Drinking Water Act
Ontario Water Resources Act
Ontario Human Rights Code
Technical Safety and Standards Act (TSAA)
Electrical Safety Authority (ESA)
Ontario Fire Code
Ontario Building Code

Legislative/Regulatory Obligations- Federal

SOCAN/Re Sound

THE CITY OF WINDSOR ONTARIO, CANADA

Council Report: S 23/2025

Subject: Proactive By-law Enforcement Strategies in Paved Alleys in Response to CQ 22-2023 - City Wide

Reference:

Date to Council:
Author: Craig Robertson
Manager of Licensing and Enforcement & Deputy Licence Commissioner
519-255-6100 ext 6869
crobertson@citywindsor.ca
Policy, Gaming, Licensing & By-Law Enforcement
Report Date: 2/21/2025
Clerk's File #: SW2025

To: Mayor and Members of City Council

Recommendation:

THAT City Council **RECEIVE** the report entitled 'Proactive By-law Enforcement Strategies in Paved Alleys in Response to CQ 22-2023' and;

THAT City Council **SUPPORT** the proactive initiatives and deployment plan of By-law Enforcement resources to address issues in paved alleys and other areas in the City that may require a similar targeted approach.

Executive Summary:

N/A

Background

At the July 10, 2023 meeting of City Council, the following Council Question was registered by Councillor Mark McKenzie;

> *CQ 22-2023:*
>
> *Assigned to: Commissioner of Legal & Legislative Services*
>
> *Asks that Administration be directed to provide options on targeted and pro-active enforcement in paved alleys to address garbage, vandalism, encampments, and land maintenance concerns up to and including any possible collaborative efforts that can be initiated with other City departments and resources.*

There have been recent administrative reports to Council that speak to alley maintenance and enforcement to some degree. These reports have addressed matters such as the approval of the Downtown Revitalization Plan, the creation of an Ad-Hoc

Alley Standards Committee, changes to municipal recycling services and the removal of residential refuse collection from certain alleys to the curbside. All these initiatives could have impacts on how alley maintenance and enforcement in our municipality will look in the future.

Conversations have been underway between the relevant departments assigned to the Ad-Hoc Alley Standards Committee. The City Departments include, but are not limited to, Operations, Public Works, Environmental, Parks, Planning and By-law Enforcement. A future report to Council from this committee will provide various options and the required resources for consideration to address alley maintenance and standards across the city which will also include a plan for compliance & enforcement services to be provided.

This specific report provides Council with some strategies that Licensing & Enforcement Administration (Council Services Department) proposes to implement in the meantime, while utilizing existing resources, to address non-compliant matters in paved alleys and/or other areas across the City that may require a similar targeted approach from the service area.

Discussion:

The By-law Enforcement Division in the Council Services Department is responsible to ensure compliance with the City's regulatory and licensing by-laws. The service area currently has twelve (12) regular full-time By-Law Enforcement Officers, one (1) regular full-time By-law Enforcement Clerk and one (1) regular full-time Supervisor.

In 2024, the By-law Enforcement Officers responded to approximately 16,000 service requests. Given this high demand for service, the By-law Enforcement Division primarily operates a complaint driven model, limiting proactive services that could be provided to the community.

Officers will often proactively address other major concerns observed when in the area of an assigned service call in progress. The By-law Enforcement Division also conducts random blitzes when called upon to address problematic issues. To name a few; habitual noise complaints, unleashed dogs in parks, alley standards, hot spots for illegal dumping or improperly discarded furniture near the University area (end of school year). The ability for the Division to conduct more frequent proactive work or increase targeted blitzes is a goal that has been set by the Department.

Licensing and Enforcement Administration recognized a need to explore new ideas and initiatives to enhance by-law enforcement services and how it can engage the community through public awareness and education to proactively gain voluntary compliance. Rather than requesting additional resources, Administration is first examining how to better allocate existing resources to achieve maximal results.

Administration networked with other municipalities to determine how they deliver by-law enforcement services and to seek initiatives they may have implemented to increase the frequency of proactive inspections and/or blitzes in targeted areas. It was discovered that most municipalities operate a complaint driven model however, there was a consensus that a proactive community-based enforcement model would be more effective by engaging the public through education and awareness campaigns rather

than issuing automatic fines and penalties through staff resourced blitzes. In addition, by-law prioritization was a strategy identified to comprehensively manage performance and to focus staff's efforts on the enforcement issues deemed by Council to be most important to the community.

The implementation of some initiatives along with operational changes could likely improve the delivery of by-law enforcement services, increase voluntary compliance and potentially free up staff resources to increase proactive responses to Council and community priorities such as but not limited to the enforcement of paved alley conditions. Administration provides an overview below.

By-law Enforcement Officer Deployment

The staff compliment of twelve (12) Officers for By-law Enforcement has undergone a number of different staff deployment strategies over the past twenty years.

In 2022, Officer deployment was divided between the East and West Divisions Based on individual call volumes, the ten (10) political Ward boundaries were administratively split into two (2) Divisions which consisted of six (6) Officers each. Administration believes there is an opportunity to further enhance this particular model and ensure by-law enforcement staff resources are being utilized to its full potential. Administration is planning to utilize the data captured by the 311 Customer Contact Centre to analyze call volumes and the types of service requests being made by our residents. Officers will be deployed in concentrated areas based on where by-law enforcement services are needed and in anticipation of or proactively based on the calendar. This will be an opportunity for the Division to improve complaint time management and focus on seasonal and problematic issues raised by residents such as alley enforcement, yard maintenance and snow-covered sidewalks.

Thresholds for Officer Response

As previously mentioned, the By-law Enforcement Division operates a complaint driven model. Services are provided Monday to Friday between 8:30 am and 4:30 pm. The By-law Enforcement Officers are not immediately dispatched to a particular call. During peak seasons, it is often that Officers will respond to calls several days from the date the request for service is called in. Aside from service requests with obvious or visual violations like alley and yard maintenance issues, concerns such as noisy parties/music, excessive idling or even dogs found running at large are often dealt with after the fact and at times, the violation no longer exists, or the matter has resolved itself. This approach has been identified as problematic. An evaluation of the work and the development of specific thresholds for response from a By-law Enforcement Officer may be necessary to improve service delivery and free up Officer time to proactively focus on Councillor and resident priorities like unmaintained alleys. Service calls involving priority matters with obvious violations or habitual offenders would still require the response from an Officer, however, calls of less significance or involving first time offenders could potentially be resolved by means of an educational letter or literature issued by enforcement clerical staff upon receipt of the complaint. This would then free up valuable Officer resources to attend higher priority calls.

Preliminary analysis of thresholds and identifying priority work for this initiative has commenced. It should be known that it will take some time to fully implement this process as the Department will also need to liaise with 311 to ensure that the Customer Contact Centre, City Council and the public is aware of how complaints will be dealt with and prioritized.

Councillor & Community Feedback & Engagement

As previously mentioned, each political Ward boundary has its own set of unique circumstances that require different levels of attention or response from By-law Enforcement. In combination with utilizing 311 data to deploy officer resources where needed, Administration from Licensing & Enforcement is committing to meet individually with each City Councillor on a regularly scheduled basis to identify problematic areas and where the by-law enforcement priorities exist within their Ward based on the feedback from residents and their constituents (ex. paved alley maintenance). In addition, Administration will be reaching out to the individual Business Improvement Areas (BIAs) to schedule meetings with their representatives to receive feedback on any by-law enforcement concerns in their areas they may experience on a regular basis.

This initiative will be implemented in the spring of 2025. As a result of these meetings, By-law Enforcement would strategize a plan to address the priority and problematic areas within the Councillor's Ward boundary.

Education Campaigns

Proactive enforcement can be achieved by simply engaging the community and making it aware of the municipality's rules and regulations. It is imperative that existing and new residents are made aware of municipal by-law regulations. Administration also envisions reaching out to the various local school boards to develop scholastic programs, similar to that of Police & Fire services to engage our community's youth population in municipal by-law enforcement regulations.

Together, with the City's Communication Department, Licensing & Enforcement Administration has initiated a social media campaign which provides residents with timely valuable tips and responsibilities based on the City's by-laws to make Windsor a better and cleaner place to call home. The campaign will be on-going, and fluid based on seasonal concerns.

Administration is planning to initiate, in the second quarter of 2025, the implementation of a long term "Walk In Your Ward" program where enforcement resources would be deployed to conduct organized enforcement efforts to target specific issues at hand, provide education and community outreach. This initiative would go hand in hand based on the Councillor and community feedback mentioned above. They would be advertised in advance so that residents know when this specific outreach will be happening. It is hopeful that this program would eventually become routine for our community over time and provide recognition to neighbourhoods with positive results.

The education and public awareness initiatives already in place by Licensing & Enforcement Administration will continue. The implementation of the "Walk in Your

Ward" plan will certainly take some time to fully implement and coordinate but will coincide with Administration's individual Councillor consultations mentioned above.

Department Collaboration

When it comes to "municipal by-law enforcement services", there are several City departments that fall under this label that may be called upon to initiate their individual expertise. In addition, there may be times for departments to work in collaboration or to call upon third party resources to deal with a specific issue when it falls outside the scope of a municipal officer or inspector's jurisdiction. As a result, this can cause some confusion with residents as to the responsibility of a particular department of how their concern will be addressed, compliances processes and time frames for resolution.

In spring of 2022, Licensing & Enforcement Administration, under the guidance of the City Clerk, established an administrative working group of municipal enforcement partners comprised of staff representatives from By-law Enforcement. Building, Public Works, Parks, Fire, Police, Environmental Services and Customer Service/311. The purpose of this working group was to bring together the municipality's enforcement partners to understand each other's responsibilities, compliance processes, collaboratively deal with community issues and minimize the perception of silo work.

Due to a variety of departmental priorities across the group, meetings amongst the enforcement partners have been stalled. The intent is to resurrect the working group in the third quarter of 2025 to continue discussions. The objective is to continue collaborative approaches to all by-law enforcement matters across the City.

Bylaw Amendments & Officer Discretion

Municipal by-laws can become outdated needing amendments to apply effective and efficient services to the community. As part of Administration's review of the by-law enforcement operations in the Council Services Department, a need was identified to recommend changes to certain bylaws to remove barriers from staff performing their duties and to improve service delivery.

As part of the top to bottom review of operations, the Management Team tasked the By-law Enforcement Officers to provide feedback and a list of by-laws that they felt required updating or amendments to potentially remove the barriers based on challenges in the field they face and their "boots on the ground" experience. For example, officers have recommended changes to the City's Land Maintenance By-law (Dirty Yards) to improve service delivery, resolution techniques and compliance standards.

Management has reviewed these recommendations from the Officers and will work with Legal to formalize and improve the municipality's regulations. Amendments to current regulatory by-laws will be presented to City Council for consideration and approval.

Risk Analysis:

There is minimal risk by implementing or exploring improvements to the delivery of by-law enforcement services within the Council Services Department that are identified in this report.

Climate Change Risks

Climate Change Mitigation:

N/A

Climate Change Adaptation:

N/A

Financial Matters:

There are currently no financial implications by supporting the content of this report. In addition, Licensing and Enforcement Administration does not recommend additional staff resources to implement the initiatives identified in this report. There could be some future cost associated with marketing and advertising however, it would be conducted in-house and would fall under existing budget allotments.

Consultations:

Ad-Hoc Alley Standards Committee Members
By-law Enforcement Services (various regional and provincial municipalities)
Carrie MacInnes, Customer Contact Centre Manager (A)
Rosa Maria Scalia, Financial Planning Administrator

Conclusion:

As previously mentioned, the future of the municipality's alley maintenance and enforcement standards will be based on the priorities identified and desired by City Council. The creation of the Ad-Hoc Advisory Committee will provide for a collaborative approach from a number of City Departments and partners who will bring forward options for City Council's consideration.

The Licensing & Enforcement Administration has completed a two (2) year review of operations and will continue to make operational changes to the delivery of by-law enforcement services and engage our citizens through various education opportunities and awareness campaigns to encourage voluntary compliance and allow enforcement personnel to potentially spend more time on Council and community priorities such as but not limited to paved alley standards.

Planning Act Matters:

N/A

Approvals:

Name	Title
Craig Robertson	Manager of Licensing and Enforcement & Deputy Licence Commissioner
Steve Vlachodimos	City Clerk & Licence Commissioner
Dana Paladino	Acting Senior Executive Director of Corporate Services
Ray Mensour	Commissioner of Community & Corporate Services
Joe Mancina	Chief Administrative Officer

Notifications:

Name	Address	Email

Appendices:

THE CITY OF WINDSOR ONTARIO, CANADA

Council Report: S 24/2025

Subject: Pedestrian Generator Sidewalk on Garden Court Drive (East Side) from Sumach Crescent (North) to Edgar Street - Ward 6

Reference:

Date to Council: March 26, 2025
Author: Pierfrancesco Ruggeri
Technologist III
(519) 255-6257 Ext. 6506
pruggeri@citywindsor.ca
Engineering - Design
Report Date: 2/25/2025
Clerk's File #: SW2025

To: Mayor and Members of City Council

Recommendation:

I. THAT Council **APPROVE** the construction of a Pedestrian Generator Sidewalk on the east side of Garden Court Drive from Sumach Crescent (North) to Edgar Street as proposed in this report and outlined in Council Drawing C-3846 attached as Appendix B; and further,

II. THAT costs related to the construction (estimated at $56,400, excluding taxes) **BE CHARGED** to the Pedestrian Safety Improvements Project (Project No. 7045034); and further,

III. THAT Council **PRE-APPROVE** and **AWARD** any procurement(s) necessary related to this project, provided that the procurement(s) are within the approved budget, pursuant to the Purchasing By-Law 93-2012 and amendments thereto satisfactory in legal content to the City Solicitor, in financial content to the City Treasurer and in technical content to the City Engineer; and further,

IV. THAT Administration **BE AUTHORIZED** to take any other steps as may be required to bring effect to these resolutions, and that the Chief Administrative Officer and City Clerk **BE AUTHORIZED** to execute any required documentation/agreement(s) for that purpose, satisfactory in legal content to the City Solicitor, in financial content to the City Treasurer and technical content to the City Engineer.

Background:

A request was received from an area resident to investigate the need for a new sidewalk on Garden Court Drive to provide a connection to Edgar Street to increase pedestrian/student safety.

Administration has determined that this section of Garden Court Drive qualifies under the Pedestrian Generator Sidewalk Policy, as established by CR 120/2024. This policy allows for the construction of sidewalks on local roads and school approach streets, at no cost to the abutting property owners.

Discussion:

Pedestrian Generator Sidewalk Policy

The definition of a Pedestrian Generator Sidewalk is contained within the Pedestrian Generator Sidewalk Policy adopted by CR 120/2024 on March 18, 2024, and reads as follows:

1.2 A Pedestrian Generator Sidewalk and related pedestrian facilities may be warranted where any of the following conditions exist:

- **1.2.1** It is located on a route leading to significant pedestrian destination(s);
- **1.2.2** It serves more than the abutting properties, including institutional and parkland access;
- **1.2.3** Where separation of pedestrians from vehicles is lacking in the road cross-section in the community;
- **1.2.4** It is requested or endorsed by the significant pedestrian operator; or,
- **1.2.5** It would be inequitable to charge the full cost of the sidewalk to the abutting property owners.

The evaluation below is based on the above definition confirming that this section qualifies as a Pedestrian Generator Sidewalk.

1. The proposed sidewalk is on a route that leads to the following pedestrian generating locations all within 1 kilometer of the Garden Court Drive and Edgar Street intersection:

Heavy Pedestrian Generators:
École Élémentaire Catholique Georges-P.-Vanier
Dr. David Suzuki Public School
Princess Elizabeth Public School
St. Rose Catholic Elementary School
Riverside Business Improvement Area

Moderate Pedestrian Generators:
Realtor Park
Thompson Park
Homesite Park

Esdras Park
Riverside Baseball Park
Tranby Park
2 Bus Routes (Crosstown 2 and Ottawa 4)
Several High-Density Residential Properties

2. The proposed sidewalk would connect directly to Edgar Street and is in very close proximity to both École Élémentaire Catholique Georges-P.-Vanier and Dr. David Suzuki Public School.

3. Garden Court Drive is considered a school approach street as it provides pedestrian access to Edgar Street and the schools listed above.

4. The pavement width of 7.3 metres on Garden Court Drive carries two-way traffic (50km/h speed limit) and on-street parking on the west side. This leaves insufficient level space to accommodate pedestrians within the cross-section. There is no existing physical space for pedestrians to travel that is separate from vehicles which increases the probability of a pedestrian-vehicle conflict.

5. Conseil Scolaire Catholique Providence (French Catholic School Board) has submitted a letter of support for the construction of this sidewalk to ensure the safety of the students and residents while travelling to École Élémentaire Catholique Georges-P.-Vanier. This letter is attached as Appendix A.

6. This sidewalk would serve the surrounding community as shown above. Thus, it would be inequitable to charge the abutting property owners for this project.

Additionally, the Active Transportation Master Plan has identified this section of Garden Court Drive as requiring sidewalk improvements.

Administration has determined that this section of Garden Court Drive qualifies under the Pedestrian Generator Sidewalk Policy, as established by CR 120/2024.

Risk Analysis:

Associated risks to the City resulting from the undertaking of this project include risks typical of construction projects, such as bodily injury, property damage, and matters arising from violations of the Occupational Health and Safety Act.

These risks will be transferred to the successful Contractor through the contract entered into with the City. As part of the contract with the successful Contractor, the Contractor will be required to provide proof of insurance to the City, as well as indemnify the City from any claims which may arise from their work during or after construction.

Risks associated with not undertaking this project include the possibility of pedestrian and vehicle conflicts during peak traffic times (student drop-off/pick-up).

Climate Change Risks:

Climate Change Mitigation

Construction will result in GHG emissions that are accounted for within the Community GHG emissions inventory.

Climate Change Adaptation

The life and service levels of the sidewalk may be impacted by several climate variables including temperature extremes and precipitation. Proper drainage shall be incorporated into the design.

Financial Matters:

Costs associated with this project will be charged to Project 7045034 – Pedestrian Safety Improvements, which has been established to address projects based on warrant and priority analysis. The estimated cost of the work, including design, construction is 56,400 (excluding non-recoverable taxes of approximately $923).

There is approximately $296,000 in available funding within this project, which will be sufficient for this project to proceed, if approved.

Consultations:

Kathy Buis	Financial Planning Administrator
Michael Dennis	Manager, Strategic Capital Budget Development and Control
Aaron Farough	Senior Legal Counsel

Conclusion:

Administration recommends that Council approve the construction of the proposed sidewalk on Garden Court Drive in accordance with the Pedestrian Generator Sidewalk Policy (CR 120/2024).

Planning Act Matters:

N/A

Approvals:

Name	Title
Mark Spizzirri	Manager, Performance Measurement and Business Case Development
Fahd Mikhael	Manager of Design
Stacey McGuire	Executive Director of Engineering/Deputy City Engineer
David Simpson	Commissioner, Infrastructure Services and City Engineer
Wira Vendrasco	City Solicitor
Janice Guthrie	Commissioner, Finance and City Treasurer
Joe Mancina	Chief Administrative Officer

Notifications:

Name	Address	Email

Appendices:

1 Appendix A: Letter of Support from Conseil Scolaire Catholique Providence (French Catholic School Board)

2 Appendix B: C-3846 - Proposed Pedestrian Generator Sidewalk on the East Side of Garden Court Drive from Sumach Crescent to Edgar Street

CONSEIL SCOLAIRE CATHOLIQUE
ProVidence

Pierfrancesco Ruggeri
Engineering Department
Design Division
City of Windsor
350 City Hall Square West, 3rd Floor Suite 310
Windsor, ON N9A 6S1

Mr. Ruggeri,

On behalf of the Conseil scolaire catholique Providence, I am submitting this letter of support for the proposed sidewalk on Garden Court Drive, between Sumach Crescent (North) and Edgar Street, in the city of Windsor.

One of our schools, École élémentaire catholique Georges-P. Vanier located at 6200 Edgar Street, Windsor is in this immediate vicinity, where many of our students walk to and from school every day. It would be safer for them and all pedestrians to have this sidewalk available to them.

Thank you in advance for your consideration of this project.

Sincerely,

Jean Blanchette, CPA
Superintendent of Business and Board Treasurer

/ds

SIÈGE SOCIAL
7515, promenade Forest Glade
Windsor, Ontario N8T 3P5
téléphone 519-948-9227
sans frais 1-888-768-2219
télécopieur 519-948-1091

BUREAU SATELLITE DE
CHATHAM-KENT
105, promenade Glenwood
Chatham, Ontario N7L 3X5
téléphone 519-355-1304
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télécopieur 519-354-8337

BUREAU SATELLITE DE
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1569, rue Oxford Est
London, Ontario N5V 1W5
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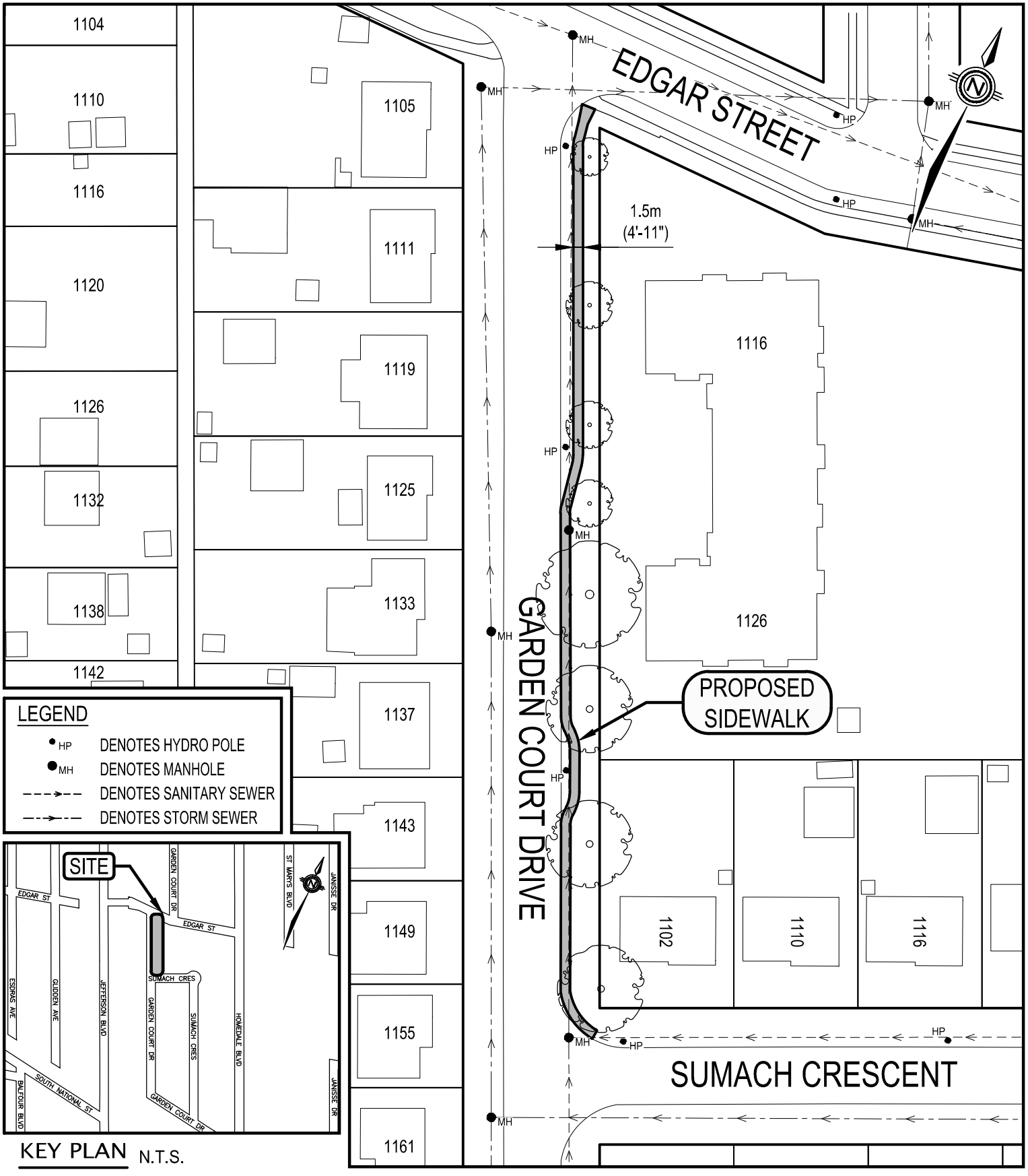
télécopieur 519-673-1924



THE CORPORATION OF THE CITY OF WINDSOR - ENGINEERING DEPARTMENT

Proposed Pedestrian Generator Sidewalk on the East Side of Garden Court Drive from Sumach Crescent to Edgar Street

Kirk Tamm, Manager of Geomatics

SCALE: 1:750	DATE: JAN 2025	REVISED: -	DWG. NO.
DWN BY: JM	CHKD BY: PJU / TR	REVISION NO.: -	C-3846

THE CITY OF WINDSOR ONTARIO, CANADA

Council Report: S 29/2025

Subject: Response to CQ 35-2024 – Removal of Underused Street Parking Meters

Reference:

Date to Council: March 26, 2025
Author: Bill Kralovensky
Coordinator, Parking Services
(519)-255-6247 ext. 6103
bkralovensky@citywindsor.ca
Report Date: 3/5/2025
Clerk's File #: SW2025

To: Mayor and Members of City Council

Recommendation:

THAT report S 29/2024, "CQ 35-2024 – Removal of Underused Street Parking Meters", **BE RECEIVED** for information.

Executive Summary:

N/A

Background:

On Monday, July 22, 2024, Councillor Mark McKenzie asked the following Council Question:

CQ 35-2024: *Administration report back to Council on the potential of removing underused street parking meters including, but not limited to, Tecumseh Road East.* This report is provided in response to CQ 35-2024.

Discussion:

The City currently has approximately 1,440 on-street parking meters throughout Windsor. These meters are located within the borders of Tecumseh Road, northerly to Riverside Drive, and Walker Road, westerly to Huron Church Road.

This report focuses on the on-street parking meters located on Tecumseh Road East from Windermere Westerly to Hall Avenue (both north and south sides of the street). These meters, known as walk #8 for collection reporting purposes, have a total of 54 meters and are not within a recognized Business Improvement Area (BIA). Most businesses in this area are of a "Pick up – Drop off" variety, with no long-term parking needed.

If Council so directs the removal of these meters, a 2-hour parking restriction would be recommended by the administration as a replacement for the “paid for parking” street spaces. As opposed to no parking restrictions at all in this area, 2-hour restrictions continue the transient nature of parking turnover, which is encouraged via on-street parking meters. This restriction should mimic the enforcement times of street meters, which is 9:00am to 7:00pm beginning in 2025. This will allow for continued residential parking for the many residential occupants located above the majority of the businesses in the area. Residents can continue to park in these spaces for the overnight hours. If Council directs these changes, one dedicated space on each side of the street in each block should be made as an Accessible parking space to ensure parking is available for permitted accessible vehicles.

Removal of on-street parking meters may also give present and prospective new businesses the appearance of a boost to visiting customers in this area as this is a form of “Free Parking” for this area.

If adopted by Council, a policy for the removal of other underused on-street parking meters should be developed. This policy should include a baseline low-end threshold of revenue that is not attained on a previous yearly average before a group of meters can be removed. The policy should also include information about who may bring the request forward and the procedure for presenting this to the administration and or Council. This policy would also allow for consistent application of said policy on a City-Wide basis.

Risk Analysis:

If a time-based restriction is approved as a replacement for on-street parking meters, enforcement contractors may have the appearance of “hovering” or “targeting” the area, as they must spend more time checking the violators of the restriction. A Parking Enforcement Officer must electronically mark the initial contact with a vehicle, then return at the appropriate time later to either clear the marking or lay the infraction.

With the replacement of this large group (54) of meters, the marking of vehicles in this area may pull contracted parking enforcement resources away from other areas where simple parking meter reading (enforcement) is undertaken. The diversion of increased enforcement time within this area may ultimately lead to reduced (under) enforcement in other areas of the City.

Climate Change Risks

Climate Change Mitigation:

N/A

Climate Change Adaptation:

N/A

Financial Matters:

If Council directs the removal of on-street parking meters and a time-restricted parking replacement, appropriate signage must be installed. A minimum of 40 signs over the 10 blocks would result in signage costs of approximately $4,850, which includes the manufacture of the new signs and installation by the Traffic Operations Signs and Markings Division. In addition, there would be one-time costs of approximately $2,600 incurred for the removal of space identifying paint markings on the pavement. All costs for new signage and removal of paint markings would be absorbed through the On-Off Street Parking operating budget.

Based on available 2024 data summarized in the table below, the expected loss of annual revenue resulting from the removal of the proposed meters on Tecumseh Road East would be approximately $20,250, based on the average revenue per meter in that specific area. The total amount of revenue brought in through all on-street parking meters based on the 2024 data below was approximately $1.4 million.

Metered Area	Average Revenue per Meter per Month	Average Hours of Meter Usage per Month
Walk #8 (Tecumseh Rd E): **54 meters**	$31.25 per meter/month	15.62 hours/month
Remainder of City-wide: **1,386 Meters**	$83.75 per meter/month	41.87 hours/month

Lost revenue resulting in a variance would be included and reported through the quarterly operating variance reports for 2025, should Council direction be to remove the underused street parking meters within this specified area.

Consultations:

Cindy Becker, Financial Planning Administrator – Public Works.

Conclusion:

In consideration of the loss of annual revenue, the cost of installation of new signage and removal of paint markings, Administration is not recommending policy alteration.

Approvals:

Name	Title
Mark Spizzirri	Manager Performance Measurement and Business Case Development
Ian Day	Senior Manager, Traffic and Parking
Phong Nguy	(A) Deputy City Engineer / Executive Director of Operations
David Simpson	Commissioner, Infrastructure Services and City Engineer
Janice Guthrie	Commissioner, Finance and City Treasurer
Ray Mensour acting for Joe Mancina	Chief Administrative Officer

Notifications:

N/A

Appendices:

THE CITY OF WINDSOR ONTARIO, CANADA

Council Report: S 100/2024

Subject: Windsor Deep Energy Efficiency Retrofit Program - City Wide

Reference:

Date to Council: March 26, 2025
Author: Michelle Moxley-Peltier
Community Energy Plan Project Administrator
Environmental Sustainability and Climate Change
519-255-6100 ext. 6109
mmoxleypeltier@citywindsor.ca

Co-author: Sandra Bradt
Executive Initiatives Coordinator
Economic Development
519-255-6100 ext. 6445
sbradt@citywindsor.ca

Economic Development & Innovation
Report Date: February 24, 2025
Clerk's File #: EI/10822

To: Mayor and Members of City Council

Recommendation:

THAT City Council **RECEIVE FOR INFORMATION** the Residential Deep Energy Efficiency Retrofit Program Design Study, and the Residential Deep Energy Efficiency Retrofit Market Validation Study; and further,

THAT City Council **AUTHORIZE** Administration to **SUBMIT** the Residential Deep Energy Efficiency Retrofit (R-DEER) Design Study to the Federation of Canadian Municipalities' Green Municipal Fund in accordance with the grant criteria and to meet the deadline of May 15, 2025; and further,

THAT City Council **SUPPORT** the recommendation that the City of Windsor does not apply for the Community Efficiency Financing (CEF) "Capital Program: Loan or Credit Enhancement for Local Home-energy Upgrade Financing Program" for funding for the R-DEER program due to the requirements for municipal cost-sharing and ongoing expectation of municipal funding; and further,

THAT City Council **APPROVE** the transfer of any remaining monies in Deep Energy Efficiency Retrofit ("DEER") Business Plan Project ID # 7224001, once all expenses are paid, to the Climate Change Reserve Fund (#223); and further,

THAT the Mayor and City Council issue a letter to the federal Minister of Environment and Climate Change to **ADVOCATE** for long-term federal funding to support municipal actions to reduce greenhouse gas emissions and improve energy efficiency, without the requirement for municipal cost-sharing.

Executive Summary:

The City of Windsor's history with climate change mitigation commenced in 2016 with the development of the Community Energy Plan (CEP). The CEP was developed over the course of eighteen months under the guidance of a multi-stakeholder task force representing the major sectors in the Windsor community to address climate change through mitigation actions. In 2017, the City approved a Community Energy Plan (CR 426/2017).

Implementing actions to reduce greenhouse gas (GHG) emissions is vital to limiting the rate and extent of climate change. Through the CEP, the City set ambitious reduction targets and identified strategies to meet them. Targets were created to align with best practices (Paris Agreement, and Government of Canada and Ontario mandates).

The CEP set ambitious and transformative community-wide targets to reduce:

1. Greenhouse gas (GHG) emissions by 40% of 2014 levels by 2041; and
2. Per-capita energy consumption by 40% of 2014 levels by 2041.

The City of Windsor is at a critical juncture in its efforts to address GHG emissions. Community emissions are currently trending downward as a result of increased awareness, energy-efficiency programs, and sustainability initiatives adopted by residents and supported through a variety of programs.

Since 2017, the City has undertaken two studies to determine the feasibility of creating a deep energy retrofit program for existing buildings.

1. Windsor Residential Deep Energy Efficiency Retrofit (R-DEER) Business Case (CR 425/2018) to investigate the feasibility of the home energy retrofit strategy;
2. Windsor Deep Energy Efficiency Retrofit Program Grant Opportunity (CR466/2020) to develop a home energy retrofit program rationale and design study for use as a guideline for program implementation; and
3. Residential Deep Energy Efficiency Retrofit market validation Study to confirm program viability and achievement of the established targets.

Administration formed a Project Working Team (PWT) in early 2022 to investigate R-DEER program design opportunities. Over the course of thirty months, the multi-disciplinary team collaborated with internal and external stakeholders to gain knowledge and insight into home energy retrofit programs, and explore how Windsor's program could be positioned to meet local needs, build capacity, and overcome barriers.

Using CEP Strategy #1: Create a Deep Energy Retrofit Program for Existing Homes as a benchmark, the PWT developed a program framework, complete with proposals for program uptake, delivery, and financing that support the CEP target to deep-retrofit 80% of Windsor's existing homes by 2041 (or 2050), and improving energy efficiency by up

to 50%. This translates to approximately 57,200 homes saving an estimated 0.235MTCO2e annually by 2041 (or 2050).

The R-DEER Program explored by the PWT incorporated the following features:

1. Energy Coaching services. Program participants will have access to an energy coach and education materials to aid in the retrofit journey. An administration fee could be considered to cover the cost of this service, which may be offset by program grants and incentives.
2. Program grants and incentives. Participants who are not covered for a similar grant under another energy efficiency or retrofit program would be considered eligible. Grants included are the Audit grant and Low-income grant. Both grants are designed to encourage program participation by reducing upfront costs. Performance incentives are proposed for participants who demonstrate significant energy or GHG emissions reductions.
3. Flexible financing options. Program participants are provided with the option of financing home energy retrofits through a City Local Improvement Charge (LIC) or an unsecured loan with a financial institution. In this design, 25% of participants were anticipated to select the LIC option, with the majority (75%) utilizing an alternative (i.e. personal loan, loan provided from Canada Greener Homes Program).
4. Eligible measures include those focusing on energy and/or GHG reductions (excludes fossil fuel equipment), resiliency (i.e. flooding prevention, health and safety), and electrification (i.e. renewables, EV charging).
5. Program duration is expected to cover a period of 25 years (2026-2050).

The R-DEER program design study clearly indicated that a significant amount of human and financial resources would be required to implement the program in a manner that achieved the intended goals and targets. Subsequent to the completion of the R-DEER study, Administration secured the services of Posterity Group consulting to undertake a Residential Deep Energy Efficiency Retrofit Market Validation Study to confirm program viability and achievement of the established targets.

A significant capital investment would be essential for R-DEER to reach the scale required to achieve its GHG emission reduction target. Financing a loan program is the greatest barrier to launching R-DEER. Significant monies are required to encourage the level of participation required to meet climate change mitigation goals and to secure the projected 10 FTE staff positions required to administer the program. Municipalities are ill equipped to afford the long-term program costs alone.

Implementation of R-DEER requires multiple funding sources. Financial partnerships with financial institutions and investors are anticipated requirements to sustain an R-DEER program long-term. The Federation of Canadian Municipalities' (FCM), through its CEF program, offers municipalities loans and grants with which to implement programs and support the initial development and deployment of residential energy efficiency programs. However, as these programs are finite and program implementation would also require a significant municipal contribution, Administration does not recommend proceeding with the program at this time.

Background:

The Community Energy Plan's (CEP) Strategy #1: Create a Deep Energy Retrofit Program for Existing Homes set a target to deep-retrofit 80% of Windsor's existing homes by 2041, improving energy efficiency by 30 to 50%, depending on the age and type of home.

The Federation of Canadian Municipalities' (FCM) Municipal Climate Innovation Program (MCIP) offered financial support for municipalities to develop a feasibility study and market analysis study to create a potential home energy retrofit programs. An application for this funding was approved in 2017 as part of CR 714/2017. The grant covered 80% of eligible costs, up to a maximum of $125,000.

In 2018, City Council approved the development of a Windsor Residential Deep Energy Efficiency Retrofit (R-DEER) Business Case to investigate the feasibility of a home energy retrofit strategy (CR 425/2018). A project Working Team (PWT) was tasked to oversee the project, engage stakeholders and report back to Council.

This work investigated the feasibility (or Business Case) of establishing an Entity to deliver high quality, standardized residential energy efficiency retrofit packages to most Windsor homes. The Business Case proposed to achieve this target through:

- The creation of an Entity to deliver retrofits standardized by home age and type;
- Collaboration with local contractors, material suppliers and investors to transform the energy retrofit market; and
- The use of Local Improvement Charge (LIC) financing and standardized pricing approaches to create scale.

In 2020, City Council accepted the Windsor Residential Deep Energy Efficiency Retrofit (R-DEER) Business Case report (CR 112/2020). Also in 2020, City Council directed administration to apply to FCM's CEF program for funding to develop a program rationale and design study (CR 466/2020).

Upon completion of the draft R-DEER Design Study, Administration engaged the Posterity Group to review and validate key program assumptions including forecasted uptake, methodology, expenditures, and contractor capacity. Their Market Validation Study also provides recommendations to align with other municipal retrofit programs and improve participation rates.

Discussion:

The City of Windsor is at a critical juncture in its efforts to address greenhouse gas (GHG) emissions. Our community emissions are trending downward, thanks to increased awareness, energy-efficient programs, and sustainability initiatives adopted by residents and supported through programs like:

1. **Home Efficiency Retrofit Orientation (HERO)**: HERO was developed by Humber College in partnership with Enbridge Gas and delivered in collaboration with different Ontario municipalities. HERO helps homeowners incorporate best practice energy-efficiency upgrades in home renovations that improve comfort,

resilience, peace of mind, GHG reductions, and lower energy costs. Overviews of current government, or utility programs offering incentives or loans are presented. By making improvements, residents can lower their energy consumption, reduce greenhouse gas emissions, and save on utility bills.

2. **Windsor Basement Flooding Protection Subsidy Program**: This program offers financial support to homeowners to help protect their homes from basement flooding, which is becoming more common due to increased extreme weather events. Eligible improvements include installing sump pumps, backwater valves, and disconnecting downspouts to prevent water from entering the sewer system, thus reducing flood risks.
3. **Residential Stormwater Management Programs**: Windsor residents can take advantage of programs that provide guidance and incentives for managing stormwater on their property. Options like rain barrels, permeable paving, and rain gardens help reduce the amount of stormwater runoff, minimizing the strain on the city's sewer system and lowering flood risks.
4. **Green Bin Program (Upcoming 2025)**: Windsor is launching a green bin program aimed at diverting organic waste from landfills. This program allows residents to compost their organic waste, helping reduce methane emissions from landfills and promoting more sustainable waste management practices.
5. **Home Renovation Savings**: Since January 2025, Enbridge Gas and IESO's Save on Energy, with support from the Ontario Government, offers the Home Renovation Savings™ program to help Ontarians improve home energy efficiency and comfort. This includes rebates for home energy assessments, and installing measures such as heat pumps, windows and doors, and insulation, all of which help reduce energy costs and lower emissions.
6. **Canada Greener Homes Loan**: The federal Canada Greener Homes Loan provides up to $40,000 in interest free loan financing to support energy-efficient home upgrades like insulation, air sealing, and the installation of heat pumps or solar panels. These improvements help reduce household energy use, lower emissions, and make homes more climate-resilient.
7. **Tree Planting Programs**: Windsor offers several tree planting initiatives that encourage residents to plant trees on their properties. Trees provide numerous environmental benefits, such as absorbing carbon dioxide, offering shade that reduces cooling costs, and managing stormwater through natural absorption.
8. **Windsor Review of Community Improvement Program (Upcoming – Date TBD)**: An upcoming program in Windsor may offer incentives to residents/business who install energy efficient upgrades as part of their development. This initiative aligns with the above city efforts to increase the use of renewable energy, reduce reliance on fossil fuels, and help residents lower their energy bills while contributing to climate mitigation efforts.

Windsor's 2022 Community and Corporate Greenhouse Gas and Energy Monitoring Report (CR 165/2024) reported residential GHG emissions as 0.305 $MTCO_2e$, which represents approximately 21% of Windsor's community-wide emissions.

An R-DEER program was identified in the Community Energy Plan as a key strategy in Windsor's effort to further reduce GHG emissions within the community. Assisting residents to lower their energy consumption and implement low-carbon measures like

renewable energy and energy-efficient upgrades, contributes to a positive downward trend.

Once funding through FCM's Community Efficiency Financing (CEF) program was confirmed, a PWT was assembled to explore the design of the R-DEER program. Led by Environmental Sustainability and Climate Change, the PWT included representatives from Building, Communications, Finance, Legal, and Planning.

As per the FCM grant requirements, the PWT engaged with the community and industry partners in person (i.e. Earth Day, Windsor Home Show, malls, and libraries) and virtually using the Let's Talk Windsor website. The R-DEER page on Let's Talk Windsor hosted homeowner and contractor surveys with outcomes forming the foundation of program design.

Overview of R-DEER Rationale and Design Study

The PWT was tasked to investigate what a home energy retrofit program to reduce energy consumption and GHG emissions could look like for Windsor.

The design study used an accessibility lens focusing on equity, diversity, and inclusion, and considered collaboration with local organizations serving marginalized communities. By focusing on inclusivity, the program could help those facing access barriers to lower energy costs and improve living conditions.

The section below provides a summary of the ideal aspirational program design for R-DEER. It proposes program requirements and eligibility criteria, the specific measures that could be implemented, and the staff and resources needed to ensure effective delivery and broad community impact.

Program Eligibility

R-DEER would be a voluntary program open to Windsor residents. Applicants must meet the following requirements:

1. Homeowner Eligibility: All legal owners of property must agree to participate and are deemed creditworthy (allows for both owned and rental properties to participate in the program);
2. Dwelling type: Detached, semi-detached, and row / townhouse; and
3. Dwelling Age: Minimum of 20 years old at the time of application.

Potential Eligible measures focus on reducing energy and GHG emissions, improving climate resilience, and enhancing electrical system reliability through electrification and renewable energy adoption. A list of eligible measures is provided in Figure 1. Participants would be required to adopt core eligible measures before accessing funding to proceed with premium and resiliency measures.

Figure 1: List of R-DEER Eligible Energy and Non-Energy Related Measures

The proposed offering can be adapted to meet participant need and market conditions.

Program Features

1. **Energy Coaching Services**

Energy coaching services are a key proposed feature to provide guidance to participants. One-on-one and group sessions, in several formats and languages, are proposed for participants to seek out information on available measures and financing options, or receive guidance on measure selection, contractor selection, and contractor quotes.

An administration fee could be accessed per participating property for long term program viability. The fee would be used to first offset costs associated with offering energy coaching services and any surplus revenue could be returned to participants in the form of program grants or incentives.

2. **Program Grants and Incentives**

R-DEER proposes offering two grants and a performance incentive to facilitate program uptake. These could be offered to eligible participants who are not covered by a similar grant under another energy efficiency or retrofit program (i.e. Enbridge Gas Inc., Canada Greener Homes, etc.). An audit and low-income grant are designed to encourage program participation by reducing upfront costs. Participants who

demonstrate significant energy or GHG emission reductions could be eligible to receive a performance incentive to be paid once savings have been validated. A funding source would be required where grant uptake exceed revenue received through fees.

3. Flexible Financing Options

The homeowner survey results showed that a majority of homeowners would use their own means to finance home energy retrofits, such as lines of credit, home improvement loans, or savings.

The program proposes that the City could offer, as an alternative, a financing mechanism through a Local Improvement Charge (LIC). A LIC loan offers the advantages of being tied to the property and repaid through property taxes, providing long-term financing with affordable fixed rates, enabling low-income households to qualify, and addressing energy efficiency, resiliency, and home comfort needs in a single project.

If the home is sold, the LIC loan would be tied to the property and would be paid in full at time of sale, or it could be assumed by the new owner. A by-law is required to issue LIC loans as well as the development of a robust financing strategy to support the loan, or other program loans (i.e. Canada Greener Homes Loan program.

The Design Study assumes 25% of participants would select the LIC option, with the majority (75%) utilizing an alternative (i.e. homeowner's line of credit, personal loan, or other program loans (i.e. Canada Greener Homes Loan).

4. Extended Program Duration

The Rationale and Design Study was completed assuming a program duration of 25 years, covering a period of 2026 to 2050.

Program Delivery

1. Program Staffing

The Design Study was developed assuming R-DEER is staffed by City of Windsor personnel. Table 1 outlines R-DEER's staffing recommendations at three program stages: pre-launch, launch, and at full capacity, measured in Full Time Equivalents (FTEs). R-DEER responsibilities would require the creation of new positions within the Corporation. For example, the R-DEER Program Administrator and Energy Coach(es) positions would be new full-time positions, with 100% of their time dedicated to the program. As indicated in Table 1, staffing could be scalable to meet program demand.

Table 1: R-DEER's Staffing Recommendations

Area	FTE's at Pre-Launch	FTE's at Launch	FTE's at Full Scale
R-DEER Program Administrator	0.75	1.0	1.0
Energy Coach(es)	0.0	0.5	3.0
Communications and Marketing Coordinator	0.1	0.5	1.0
Program Analyst	0.0	0.50	2.0
Legal Counsel (Contracts)	0.15	0.5	1.0
Measurement and Verification (M&V) Professional	0	0.25	1.0
Total	**1.0**	**3.25**	**10.0**

The City could consider pursuing a partnership with a Program Delivery Agent (PDA) to deliver the program, with a review and selection process determined through an Expression of Interest (EOI) or Request for Proposal (RFP).

Program Uptake Target

To determine the scope of the R-DEER program, the PWT explored several program uptake targets. CEP Strategy #1 was used as the starting point for the analysis, as it represents what is required to meet the City's approved GHG Emission targets by 2041. It is recognized that meeting CEP Strategy #1 is the ultimate target, and that reaching it will be extremely challenging.

As part of the program development, the PWT contracted a consultant to conduct a Market Validation Study (MVS). The purpose of the MVS was to review and validate key program assumptions including forecasted uptake, methodology, expenditures, and contractor capacity. These assumptions were compared with municipal, utility, and government home retrofit programs. The MVS also provided actionable recommendations to align with other municipal retrofit programs and improve participation rates.

Overall, the proposed R-DEER program aligned favourably with other municipal and utility retrofit programs in the Ontario market. The consultant found the proposed R-DEER uptake curves to be overly aggressive, as they overestimated participation when compared with utility and government retrofit programs. The study did recognize that sufficient contractor capacity and community interest existed to make the program feasible in Windsor, if program uptake was re-assessed periodically (3-4 years) to adapt projections based on Windsor specific data.

A key finding from the MVS:

> *"Our findings suggest that accelerating the rate of deep retrofits in Windsor (and Canada) will require substantial investments from federal and provincial governments. Windsor is currently on track to miss the climate targets set out in its Community Energy Plan and will struggle to meet them without further*

investment in residential deep retrofit incentive programs like Canada Greener Homes. Increased federal, provincial, and utility investment in energy efficiency programs would help the City meet its climate targets faster."

Figure 2 highlights a select number of program uptake curves, including the uptake curve recommended by Posterity Group (Market Validation Study (Results)).

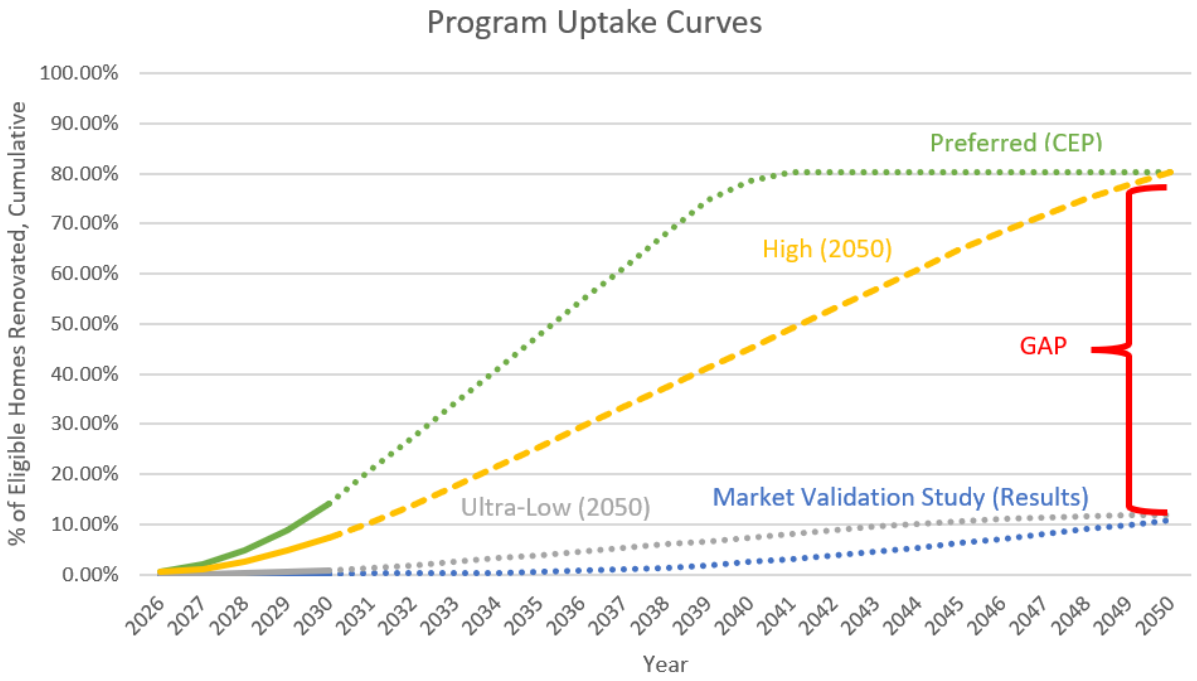


Figure 2: Program Uptake Curves

- **The Preferred (CEP) Curve:** represents the program uptake required to meet the CEP Target of 80% of homes retrofitted by 2041;
- **The Aspirational (High (2050)) Curve:** represents the program uptake required to meet the CEP Target of 80% of homes retrofitted by 2050;
- **The Ultra-Low (2050) Curve:** represents the program uptake required to meet 15% of the CEP Target by 2050; and
- **The Market Validation Study (Results) Curve:** represents the program uptake recommended by Posterity Group, which is consistent with the actual program uptake from other home-retrofit programs offered in Ontario from municipal, utility, or government sources, assuming a business-as-usual forecast model (utilizing current investments in deep retrofit programs).

The graph represents the percentage of Eligible Homes renovated as compared to the total number of eligible homes. Following the Market Validation Study (Results) uptake curve will result in the City missing the targets set out for CEP Strategy #1 (identified as GAP), leaving Windsor struggling to make up the shortfall. The time needed to retrofit 57,200 homes by following the Market Validation Study (Results) curve is 100 years.

2. **Program Community Engagement and Marketing**

Communication is an ongoing activity for any program that serves, depends upon, or interacts with the community. The purpose, audience, message, and communication channels may change, but the need to maintain relationships with the media and with key community stakeholders remain. As a result, a communication plan that incorporates community engagement and marketing would be required and should be revised periodically based on program experience, and feedback received.

Administration remains committed to championing environmental sustainability and facilitating positive change through education and communication. Funding opportunities that support the city to reach its environmental goals and targets without adding to the burden on the municipal tax base will be aggressively pursued.

Risk Analysis:

At this stage there is no risk associated with tabling the R-DEER Design Study report, as it fulfills the requirements of the GMF 17571 grant.

The aspirational R-DEER program design considered a phased implementation, providing opportunities to suspend the endeavor if deemed unattractive or potentially exposing the city to an unacceptable level of risk. However, additional human resources would still be required for implementation, and FCM is only supporting the most ambitious and transformative climate change mitigation programs. A modest or phased approach does not deliver the results required to achieve the city's greenhouse gas emission reduction goals, and may result in receiving less than maximum funding.

Additional risks are outlined below.

Current Resource Risks

The Environmental Sustainability and Climate Change (ESCC) department has helped make the environment a part of decision making for the City of Windsor since 2005. The ESCC is responsible for spearheading the following environmentally focused plans:

- Environmental Master Plan (2017)
- Community Energy Plan (2017)
- Corporate Climate Action Plan (2017)
- Climate Change Adaptation Plan (2020)

There are nearly 500 recommendations and action items contained in these plans and other associated plans and policies. Tasks and actions for the department approved by Council with identified sources of funding (budget, grants) have been completed. In 2023 the organizational structure of the City was amended and the Environmental Sustainability and Climate Change team was moved under the Commissioner of Economic Development. An Executive Director of Economic Development and Climate Change was hired in early 2024. As part of a new portfolio, the Executive Director will undertake a comprehensive review of the guiding documents to identify priority items within the City's sphere of control and explore resourcing options. The results of that review and proposed projects will be the subject of future reports to Council.

There are limited human resources available in the Environmental Sustainability and Climate Change department. Other departments are also constrained in their ability to support an R-DEER program in addition to their existing commitments to Council.

Financial Risk

Financing a loan program is the greatest barrier to an R-DEER program. Significant monies are required to encourage the level of participation required to meet climate change mitigation goals. Municipalities are ill equipped to afford the long-term program costs alone, given the inherent competition for scarce financial resources.

There is a risk that any grant funding programs may be oversubscribed, resulting in less funding available and/or funding available for shorter timeframes.

Several municipal home energy retrofit programs have temporarily paused application intake, as applications have outpaced available program funding. Programs relying on CEF funding and municipal in-kind contributions quickly saw their loan or rebate funds fully allocated within weeks or months, as opposed to the four years indicated in their CEF applications. Some municipalities pivoted and entered into partnerships with third-party lenders to supplement budgets.

FCM funding for this program expires in February 2026. At time of writing, no replacement program has been announced.

Reputational Risk

A home retrofit program is identified as the number one strategy for emissions reductions in the 2017 Community Energy Plan. Stakeholders are expecting that the city reduce emissions, create jobs and establish a smart energy future in Windsor by implementing the strategies from the Community Energy Plan. Social awareness of the dangers of climate change and the importance of climate change mitigation through emissions reduction has increased significantly since 2017, as demonstrated by climate strikes and the recent climate emergency declaration. Despite action in other areas to advance environmental sustainability, there is reputational risk to the city if it does not proceed with this major strategy as outlined in the Community Energy Plan and CEP emission reduction targets are not met.

Many programs across sectors are funded by upper levels of government, but delivered in partnership with municipalities. When priorities change and programs are altered or cancelled, it is often the municipal government that shoulders the blame for circumstances beyond their control. There is an expectation that municipalities will allocate funding to ensure the programs continue. There may be further reputational risk should any program be introduced and subsequently cancelled due to lack of funding.

Staffing Risk

There are several risks associated with the staff complement required to implement the R-DEER program. The program is projected to require at least 10 FTE positions. Recruiting qualified individuals to take on the identified roles takes time, and there is a

risk of missed milestones if hiring is delayed. Without sufficient and sustainable funding to maintain the program, the staff positions will be eliminated. In the event that union positions are eliminated, staff may exercise their bumping rights as contained in the collective agreement, which has the potential to impact other departments in the corporation.

Timing Risk

In addition to the financial risk posed by the expiry of the FCM funding program in February 2026, the deadline also poses a timing risk. Elements of the design study, particularly the development of an RFP or EOI to secure a Program Delivery Agent (PDA) and the recruitment of up to 10 additional FTE's, take months to execute. Administration would be significantly challenged to finalize these details before the end of the funding, and even if successful, there is no guarantee that the PDA and recruits would be in place by February 2026.

The project working team has undertaken extensive due diligence to determine the feasibility of implementing an R-DEER program and designing what such a program could potentially look like for Windsor. To proceed towards implementation would require extensive work to develop the grant and loan parameters, the funding strategy and program delivery details which limit the impact on the municipal tax base. Unfortunately, the program is not sustainable at this time.

Climate Change Risks

Climate Change Mitigation:

The purpose of R-DEER is to reduce energy consumption and GHG emissions in the residential sector through energy conservation and the reduction of fossil fuel usage for space and water heating. The use of natural gas in Windsor represents a significant source of GHG emissions community-wide, as noted in Figure 3. Figure 4 shows that the residential sector is responsible for approximately 21% of community GHG emissions.

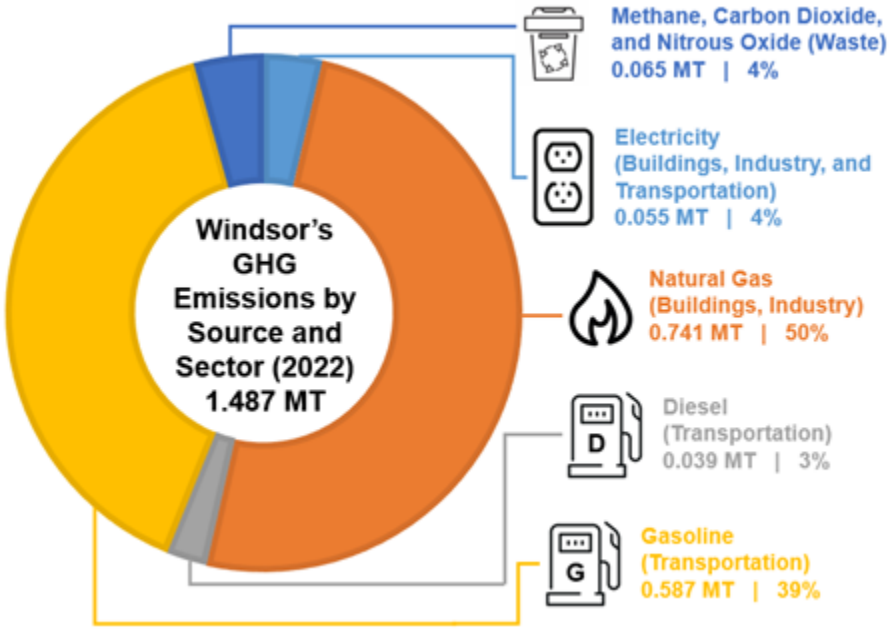


Figure 3: Emissions by Source – Percentage (2022 data)

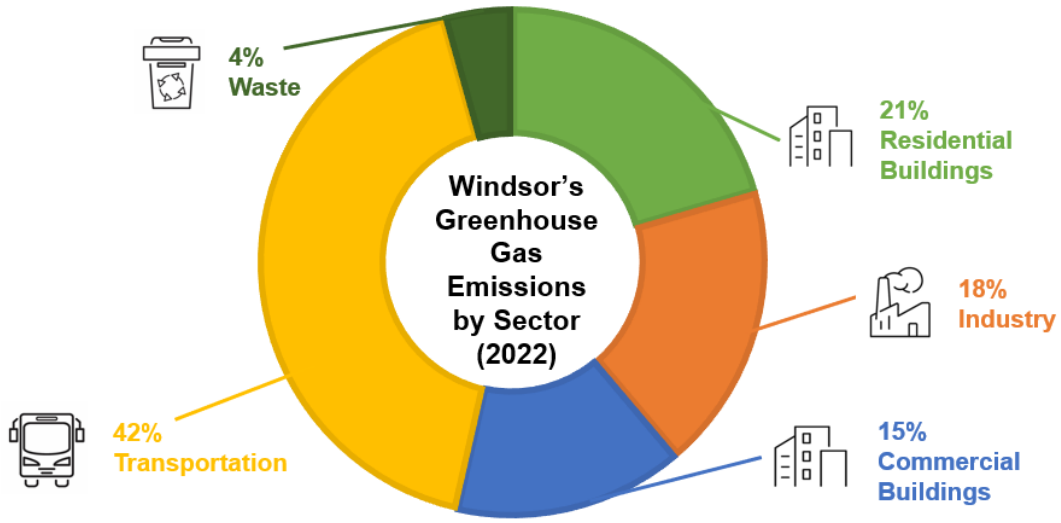


Figure 4: Emissions by Sector – Percentage (2022 data)

To date, Windsor's Community-wide GHG Emissions are tracking favourably against targets set forth in the CEP and Science Based Targets for GHG Reduction (CR 209/2022 ETPS 893), as shown in Figure 5. With an estimated GHG Emissions reduction of 0.235MTCO2e/yr. (2050) attributed to R-DEER, failing to implement the program will result in the City not meeting it's GHG reduction targets in the medium- (i.e. 2028-2030) to long- term (2031-2050).

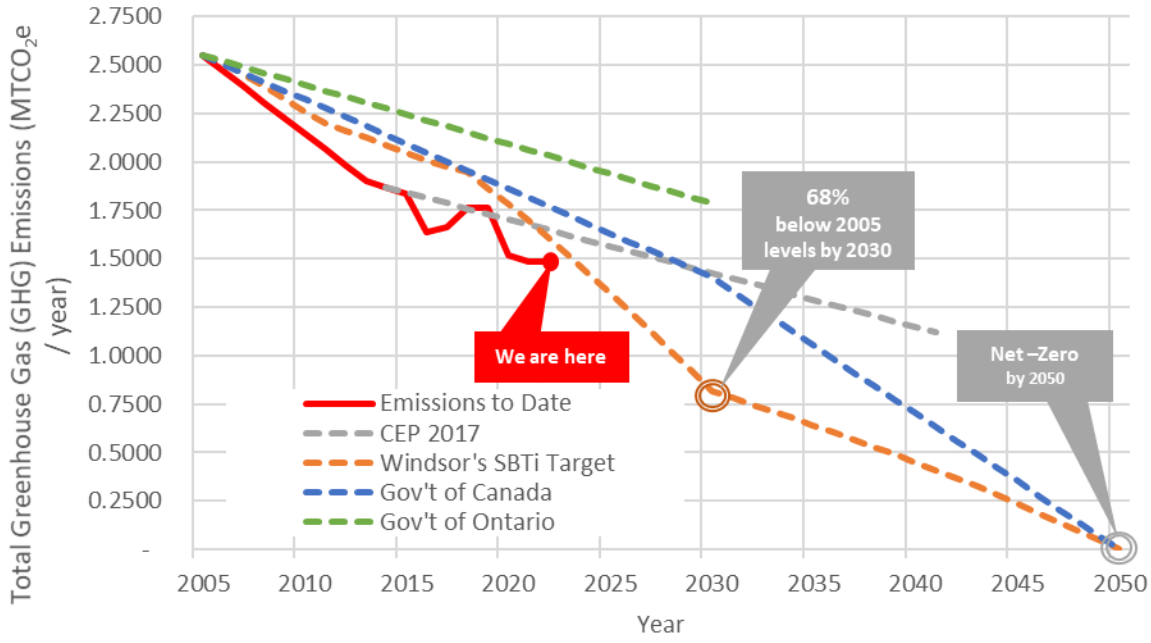


Figure 5: Windsor's Community-wide GHG emissions and GHG emissions targets (2022 data)

Climate Change Adaptation:

By integrating energy efficiency into climate adaptation strategies, communities can enhance their resilience while contributing to broader climate goals.

R-DEER is a crucial component of climate change adaptation efforts in several ways:

- **Improved Resilience to Energy Disruptions:** Efficient systems require less energy, making communities less vulnerable to energy supply disruptions caused by extreme weather events. This resilience is vital as climate change increases the frequency and intensity of such events.
- **Enhanced Comfort and Safety:** Improved energy efficiency often leads to better indoor environments, maintaining comfort and safety during extreme temperatures, which is increasingly important in a changing climate.
- **Supporting Adoption of Renewable Energy:** Energy efficiency complements renewable energy initiatives. By reducing demand, it allows for a smoother transition to renewable sources, which is essential for long-term sustainability and adaptation.

Financial Matters:

Financial Projections to Fund R-DEER

Implementation of R-DEER requires multiple funding sources. It is anticipated that financial partnerships with financial institutions and investors would be required for long-term sustainability of R-DEER. FCM, through its CEF program, offers municipalities loans and grants to a maximum of $10 million, with which to implement programs and support the initial development and deployment of residential energy efficiency

programs, which is projected to support the first four years of operation. Thereafter, failing additional financial supports, it would be incumbent upon the municipality to continue to provide full funding for the program.

Municipalities have the option of partnering with financial institutions or investors for additional funding (including loans). This option provides participants with funds, while limiting municipality financial risk. Financing partners may also have limited funds available which could impact program participation rates and program viability. Utilization of financing partners to support LIC loans will have an impact of the affordable rate offered to homeowners. Third-party financing would be essential for the long-term viability of the program.

Administration has modelled several financing options based on multiple program scenarios all of which result in a significant financial commitment by the municipality. For illustrative purposes included in this report is the option that would be needed to fully maximize the program outcomes meeting the city's goals and emission reduction targets.

R-DEER's program budget was projected using a number of assumptions, and incorporated program flexibility. Assumptions include, but are not limited to:

- R-DEER would receive the maximum loan available as part of FCM CEF Capital program: Loan or credit enhancement for local home-energy upgrade financing program (up to $10 million);
- Program participation follows the Aspirational (High (2050)) uptake curve;
- 100% of the forecasted participants would apply to participate and make use of services and education provided by Energy Coaches;
- Participants would be assessed an administrative fee to offset program costs;
- The design rationale assumes 25% of total participants would use the LIC option, with the remaining participants utilizing personal funding options such as personal savings, lines of credit, banks loans etc.; and
- Windsor City Council would approve the creation and funding of an R-DEER LIC Fund to assist in providing LIC loans to participants in need or in emergency situations.

Table 2 projects R-DEER's program costs for the first four years of program implementation.

- City In-Kind expenditures consider a combination of administrative costs (i.e. payroll and benefits) and capital outlays from existing city programs (i.e. Basement Flooding Prevention Subsidy Program (BFPSP));
- Revenues in italics are estimates to ensure program budget is balanced; and
- Program shortfalls may be mitigated through the creation of municipal budget funds or levies, or through municipal loans, and would be undertaken at the direction of Council.

Table 2: Proposed R-DEER Budget (Pre-launch to Year 4)

	Pre-Launch	Year 1	Year 2	Year 3	Year 4	Total
Number of Homes Upgraded		300	500	1,050	1,500	3,350
Number of Homes Financed Through LIC (25%)		75	125	263	375	838
Expenses						
Administrative Costs	1,200,000	900,000	870,000	900,000	1,120,000	4,990,000
Loan Disbursements	0	3,000,000	5,000,000	10,520,000	15,000,000	33,520,000
Rebates / Incentives	0	400,000	850,000	1,950,000	2,925,000	6,125,000
Total Program Expenses	**1,200,000**	**4,300,000**	**6,720,000**	**13,370,000**	**19,045,000**	**44,635,000**
Revenues						
Customer Fees	0	90,000	150,000	315,000	450,000	1,005,000
FCM Funding						
FCM (Loan)	0	650,000	1,200,000	1,400,000	1,750,000	5,000,000
FCM (Grant)	1,050,000	1,750,000	1,200,000	750,000	250,000	5,000,000
Municipal Funding	150,000	1,810,000	4,170,000	10,905,000	16,595,000	33,630,000
Total Program Revenues	**1,200,000**	**4,300,000**	**6,720,000**	**13,370,000**	**19,045,000**	**44,635,000**
Portion covered by non-FCM sources	12.5%	44.2%	64.3%	83.9%	89.5%	77.6%

CEF's loan and grant offerings are designed to allow municipalities to spearhead a market transformation by undertaking the initial development and deployment of home energy retrofit programs. CEF is looking to support municipal programs that focus on long term sustainability, that is, programs designed to outlast the duration of CEF's funding (i.e. greater than 4 years). In this regard, Administration has extrapolated the financial projection for years 5 to 9, Table 3.

Table 3: Proforma R-DEER Budget (Year 5 to Year 9)

	Year 5	Year 6	Year 7	Year 8	Year 9	Grand Total
Number of Homes Upgraded	1,800	2,200	2,450	2,800	2,800	15,400
Number of Homes Financed Through LIC (25%)	450	550	613	700	700	3,851
Expenses						
Administrative Costs	1,225,000	1,250,000	1,340,000	1,360,000	1,475,000	11,640,000
Loan Disbursements	18,000,000	22,000,000	24,520,000	28,000,000	28,000,000	154,040,000
Rebates / Incentives	3,990,000	4,860,000	6,000,000	6,825,000	7,000,000	34,800,000
Total Program Expenses	**23,215,000**	**28,110,000**	**31,860,000**	**36,185,000**	**36,475,000**	**200,480,000**
Revenues						
Customer Fees	540,000	660,000	735,000	840,000	840,000	4,620,000
FCM Funding						
FCM (Loan)	0	0	0	0	0	5,000,000
FCM (Grant)	0	0	0	0	0	5,000,000
Municipal Funding	22,675,000	27,450,000	31,125,000	35,345,000	35,635,000	185,860,000
Total Program Revenues	**23,215,000**	**28,110,000**	**31,860,000**	**36,185,000**	**36,475,000**	**200,480,000**
Portion covered by non-FCM sources	100%	100%	100%	100%	100%	95%

The budgets illustrated above recognizes that any financial resource allocation through the municipality or applications for FCM funding are not guaranteed. The budgets assume that after the first four years, the program would no longer receive FCM funding. While initial funding for pre-launch and early years (Years 1 and 2 of the program) may be available from internal working capital reserves, any long-term funding strategy would require the need for third-party capital provider(s) and lender(s). Third parties could include financial institutions like credit unions, investment bank(s) or consumer bank(s). This type of borrowing, would be considered debt for purposes of financial statement reporting and while funded from non-tax levy repayments would impact the City's ability to leverage debt financing for other capital projects and initiatives that have been projected in the current 10-year capital plan.

FCM GMF Program Grant

The budget for the R-DEER Program Design Project was estimated at $247,700. The City of Windsor was awarded an FCM GMF grant (GMF 17571 grant) equal to $175,000 or 80% of the eligible costs which ever is less. Remaining project funds of $72,700 were transferred from the Community Climate Change Mitigation (Project ID #7159001) to the DEER Program Design (Project ID # 7224001) (CR 466/2020 ETPS779).

Effective February 28, 2025, the project has spent or committed approximately $195,473 (includes non-recoverable HST). As the grant completion date is May 15, 2025, administration has forecasted additional expenses of approximately $3,000 to cover staff remuneration between March 1, 2025, and June 30, 2025. With estimated final eligible expenses totalling $203,983, the City is eligible to receive approximately $163,100 in grant funding. The City's contribution is estimated at $56,964, which will be funded by the available funding capital project # 7224001. Any remaining monies in Deep Energy Efficiency Retrofit ("DEER") Business Plan Project ID # 7224001, once all expenses are paid, is requested to be transferred to the Climate Change Reserve Fund (#223).

Grant disbursement for GMF 17571 grant will be provided to the City, within 30 days of confirming that the City has met all FCM's conditions, to FCM's satisfaction. The City has a deadline of May 15, 2025 to submit a project completion report to meet the project close out date of June 30, 2025.

Consultations:

- Karina Richters – Supervisor, Environmental Sustainability and Climate Change (former)
- Mirella Allison – Engineer Plan Examiner, Building Services
- Greg Atkinson – Deputy City Planner – Development, Planning and Development Services
- Jill Braido – Corporate Marketing & Communications Officer, Communications and Customer Service
- Stephen Cipkar – Manager Financing Accounting, Financial Accounting and Corporate Controls
- Barbara Lamoure – Environmental Sustainability Coordinator, Environmental Sustainability and Climate Change (former)
- Joshua Meloche – Senior Legal Council, Legal, Real Estate and Risk Management
- Kate Tracey – Senior Legal Council, Legal, Real Estate and Risk Management
- Josie Gualtieri – Financial Planning Administrator
- Natasha Gabbana – Senior Manager, Asset Planning

Conclusion:

Administration continues to explore ways to address climate change and make progress towards the targets established in the Community Energy Plan. A Residential Deep Energy Efficiency Retrofit (R-DEER) program is an aspirational measure studied, as support for homeowners to improve energy efficiency and reduce their GHG emissions would assist Windsor in its efforts towards Net-Zero and show leadership on climate action.

However, the R-DEER program funding requirements are substantial, and no federal funding is available after 2026. There is too much financial risk to the City of Windsor to proceed with the program and apply for additional funding. To continue would put pressure on already constrained human and financial resources.

After a review of the action plans guiding the work of the Environmental Sustainability and Climate Change department, any opportunities to action identified priorities while reducing the financial burden on the municipal tax levy will be explored and brought to City Council for consideration.

Planning Act Matters:

N/A

Approvals:

Name	Title
Michelle Moxley-Peltier	Community Energy Plan Project Administrator
Emilie Dunnigan	Manager Development Revenue & Financial Administration
Matthew Johnson	Executive Director, Economic Development & Climate Change
Janice Guthrie	Commissioner, Finance & City Treasurer
Jelena Payne	Commissioner, Economic Development
Ray Mensour acting for Joe Mancina	Chief Administrative Officer

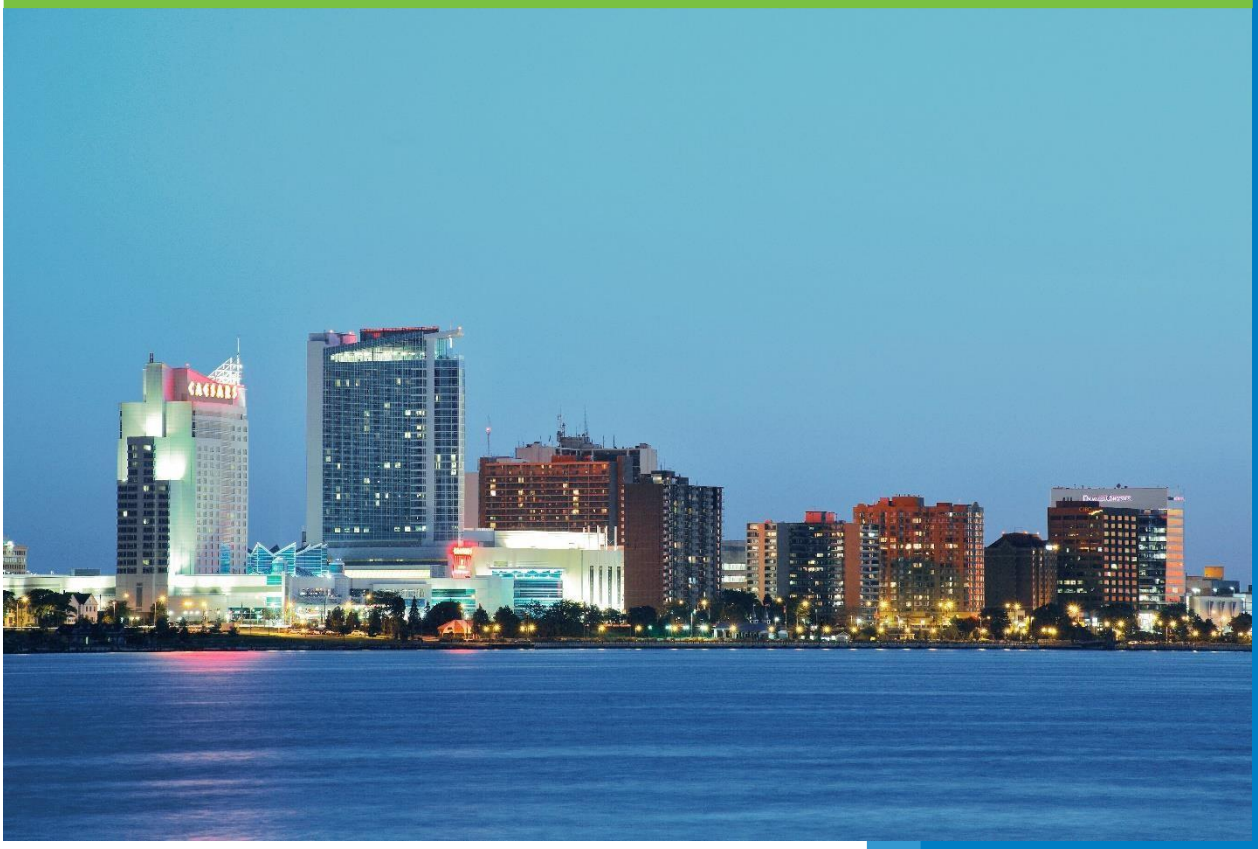
Notifications:

Name	Address	Email

Appendices:

R-DEER Design Study
R-DEER Design Study – Appendices
R-DEER Market Validation Report

Residential Deep Energy Efficiency Retrofits Design Study



February 2025

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Acknowledgements

The Windsor Residential Deep Energy Efficiency Retrofit (R-DEER) design study was developed with the oversight of a Project Working Team consisting of members from City staff.

City of Windsor Project Staff

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Mirella Allison	Engineer Plan Examiner, Building Services
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Joanna Melnyk	Modelling and Analysis Lead, Posterity Group

We would also like to acknowledge the effort of the stakeholders who gave their time and shared their expertise to provide meaningful feedback to the development of this Design Study, including members of the local contractor community, Windsor residents and homeowners, along with individuals from the investment community.

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List of Acronyms

BFPSP: Basement Flooding Protection Subsidy Program

CCAP: Corporate Climate Action Plan

CEF: Community Efficiency Financing

CEP: Community Energy Plan

CLT: Corporate Leadership Team

CMVP: Certified Measurement and Verification Professional

CTF: Community Task Force

CUSP: Canadian Urban Sustainability Practitioners

ERS: EnerGuide Rating System

FCM: Federation of Canadian Municipalities

FSA: Forward Sortation Area

GHG: Greenhouse Gas

GMF: Green Municipal Fund

LIC: Local Improvement Charge

LLR: Loan Loss Reserve

MCIP: Municipal Climate Innovation Program

$MTCO_2e$: Mega Tonnes of Carbon Dioxide Equivalent

M&V: Measurement and Verification

NRCan: Natural Resources Canada

PACE: Property Assessed Clean Energy

PCP: Partners for Climate Protection

PDA: Program Delivery Agent

PWT: Project Working Team

R-DEER: Residential Deep Energy Efficiency Retrofits

Executive Summary

The City of Windsor (City) released its Community Energy Plan (CEP) in 2017 [1], setting targets to reduce greenhouse gas (GHG) emissions and per-capita energy consumption by 40% below 2014 levels by 2041. The first strategy identified in the CEP to achieve significant GHG reductions and improve energy affordability, thereby meeting its targets, was a Deep Energy Efficiency Retrofit Program for existing homes.

Through their Municipal Climate Innovation Program, the Federation of Canadian Municipalities (FCM) offered financial support for municipalities to explore home energy retrofit programs, covering 80% of eligible costs up to a maximum of $125,000. The City secured grant funding to assess the feasibility of a comprehensive residential energy retrofit program. City Council received the Windsor Residential Deep Energy Efficiency Retrofit (R-DEER) program Business Case report in 2020. Subsequently City Council directed administration to apply to FCM's Community Efficiency Financing (CEF) program under its Green Municipal Fund (GMF) to investigate options for program design, with consideration for the financing required for home energy retrofits. The CEF program covered 80% of eligible costs up to a maximum of $175,000.

The program design study was completed primarily by a project working team (PWT) comprised of city staff who worked to administer a homeowner survey, model environmental benefits, and develop the financial and legal elements of the program. Program elements were validated through external collaboration, which included energy, financial, and legal consultations, as well as a market validation report [2].

Fundamental to the study's development was consideration of:

- Financing Models**:** Exploring grants, loans, and Local Improvement Charges (LICs) to reduce financial barriers for homeowners.
- Stakeholder Engagement: Leveraging partnerships with contractors, financial institutions, and community organizations to enhance program delivery and accessibility.
- Barriers and Solutions: Addressing challenges such as affordability, complexity, and trust through education, energy coaching, and tailored program incentives.

Key components included in the program design for Windsor include:

- Energy Coaching Services
- Grants and Incentives (performance based)
- Flexible financing
- Eligible measures include resiliency (i.e. flood mitigation), home comfort, and emerging trends for homes (i.e. EV and renewables)

The R-DEER program supports energy savings and greenhouse gas reductions by focusing on deep residential retrofits, with a goal of retrofitting 80% of Windsor's existing homes to achieve 30-50% energy savings per home, and up to an 80% reduction in GHG emissions, depending on the age and type of the home.

The design study builds on the business case by refining program elements, including financing options, incentives, and local economic impacts. The design study further outlines the program's potential structure and long-term sustainability, in alignment with Windsor's broader climate objectives. Program targets are explored, including potential uptake scenarios, with hypothetical targets ranging from moderate to ambitious participation rates extended to 2041 and 2050. These targets are included for illustrative purposes as the program is dependent on future approvals and funding.

Public engagement and survey findings have provided valuable insights into homeowner preferences and contractor capacity, highlighting key areas for program consideration.

This report summarizes the exploratory work conducted by the project working team, fulfilling the requirements of the grant from FCM. Recognizing that each municipality's circumstances are unique, this report provides an analysis from a Windsor perspective, outlining potential participation scenarios, indicative cost estimates, and considerations for program governance.

Windsor's R-DEER program includes several key differentiators. The inclusion of Energy Coaching Services ensures homeowners receive personalized guidance throughout their retrofit journey. The program also offers performance-based grants and incentives, rewarding homeowners for achieving significant energy savings and GHG reductions. Flexible financing options make it easier for residents to participate, while eligible measures extend beyond energy efficiency to include resiliency improvements like flood mitigation, enhanced home comfort, and the integration of emerging trends such as electric vehicle (EV) charging and renewable energy solutions.

Introduction

The City of Windsor has been one of the Federation of Canadian Municipalities (FCM) Partners for Climate Protection (PCP) since 2002. For over twenty years the City has taken action to address climate change and promote environmental sustainability. In 2017, Windsor City Council approved a Community Energy Plan (CEP) [1] and associated Corporate Climate Action Plan (CCAP) [3].

The vision of the CEP is to create economic advantage, mitigate climate change, and improve energy performance. It strives to position Windsor as an energy centre of excellence that boasts efficient, innovative, and reliable energy systems that contribute to the quality of life for residents and businesses.

The CEP included a community-wide goal to reduce GHG emissions by 40% of 2014 levels and to reduce per-capita energy consumption by 40% by 2041. As Windsor has one of the oldest building stocks in the province, and older homes use more energy and produce more emissions, home energy retrofits were identified as a pathway in reducing energy consumption and GHG emissions at the community-wide level.

The CEP set a very ambitious target to deep-retrofit 80% of Windsor's existing homes by 2041, achieving an efficiency gain between 30 and 50% per retrofit, and up to an 80% reduction[1] in GHG emissions depending on the age and type of home, as shown in Figure 1.

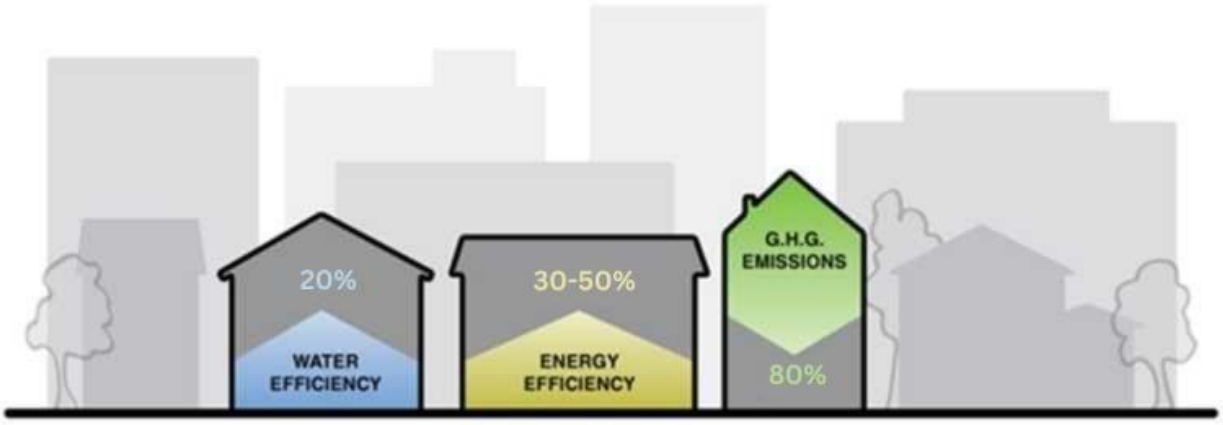

Figure 1: CEP's Deep Energy Efficiency Retrofit program for Existing Homes – Targets

The CEP also noted that the residential sector would require comprehensive strategies to address energy consumption and GHG emissions. It was identified through public engagement that many residents had not undertaken any home energy retrofit program for one of two reasons:

1. Insufficient upfront capital to complete the work.
2. Uncertainty regarding if they would remain in their homes long enough to see a payback.

[1] Corresponds to a GHG emissions reduction of 0.235MTCO_2e as calculated by City of Windsor Staff

In 2020, City Council received a supplementary report called Acceleration of Climate Change Actions in Response to the Climate Change Emergency Declaration [4] that prioritized the development of a Residential Deep Energy Efficiency Retrofit (R-DEER) program.

Funding through the FCM's Municipal Climate Innovation Program (MCIP) provided financial support to determine if the City's strategy for home energy retrofits would meet community and economic goals.

This study concluded that a Residential Deep Energy Efficiency Retrofit (R-DEER) program could assist in meeting the City's goals and in 2020, City Council directed administration to apply to FCM's Community Efficiency Financing program for funding to explore the options required to design and finance an R-DEER program.

The grant provided the opportunity:

- To evaluate options to establish a municipal service corporation to deliver the program.
- Explore energy retrofit packages.
- Investigate financing models.
- Develop a homeowner engagement tool.
- Share information with other municipalities.

Program Rationale

Windsor has one of the oldest residential building stocks in the province, with the average home constructed in 1960 as compared to the Ontario average of 1981 [5]. Older homes tend to experience more energy loss through drafts and leaks due to poor air sealing, insufficient levels of insulation in walls, floors, and attics, and the prevalence of single-paned windows.

Table 1 compares Windsor's baseline indicators for energy consumption and GHG emissions for residential to Canada's average, Ontario's average, and international best practices using a common reporting year of 2014. The comparisons highlight room for improvement.

Table 1: Windsor's Energy and Emissions Benchmarking

Item	Windsor Baseline	Canada Average	Ontario Average	Comparable Best Practice[2]
Utility/household (GJ)	142	106	107	68[a]
Utility/m² (Res) (GJ)	1.00	0.79		0.29[b]
Utility/m² (non-res) (GJ)	1.61	1.65		0.72[c]
GHG/person (tonnes CO_2e)	8.8	9.7	6.2	3.5[d]

More recent calculations indicate that the energy consumed to heat, cool, and power homes represents an estimated 21% of Windsor's community-wide GHG emissions in 2022[3] [6]. Like many municipalities, Windsor is actively pursuing the reduction of energy consumption and greenhouse gas (GHG) emissions from its residential buildings.

To provide a comprehensive starting point for program design, key housing information, utility data, and GHG emissions information were collected for Windsor residences, specifically detached homes, semi-detached homes, and row townhouses. **Appendix A – Baseline Data** provides further details regarding the Windsor specific data which informed program design. The following information summarizes important Windsor housing information relevant to the program:

- Approximately 93% of the City's housing stock is at least 18 years old.
- Approximately 76% of the City's housing stock would be eligible for the program, as they fall within the "residential" definition of detached, semi-detached, row townhomes that are no larger than triplexes [5].
- 35% of residents facing energy cost burdens that exceed 6% of their income, thus limiting their ability to invest in energy-saving upgrades.
- Approximately 11% of Windsorites have an income below the poverty line.

[2] Superscripts: (a) Use per home is 35 per cent above Ontario average and more than twice Danish average; (b) Use per square meter of home 20 per cent higher than Ontario average which is more than 3 times the typical German A-rated home which represents about 30 per cent of the current new construction market; (c) Use per square meter of non-residential is comparable to the Canadian average but more than twice German average; and (d) GHG/capita is comparable to Canada average but nearly 3 times the average per capita emissions for the City of Copenhagen.

[3] Corresponds to community-wide GHG emissions of 1.487MTCO_2e as calculated by City of Windsor Staff

- In 2022, Natural gas consumption represented 94% of residential GHG emissions[4]

Equity, Diversity, and Inclusion Considerations

In addition to considering specific measures to ensure Windsor's R-DEER program is accessible to residents with modest incomes, the program also considers specific measures that focus on equity, diversity, and inclusion. Outreach to underrepresented groups, information provided in multiple languages, and resources tailored to meet diverse needs have been considered for program inclusion. Collaboration with local organizations that serve marginalized communities is crucial in ensuring that their voices are heard in program development. R-DEER aims to create equitable opportunities for home retrofits that promote energy efficiency and GHG emission reductions.

R-DEER aims to address equity and affordability by providing access to resources and support for home energy retrofits. Financial incentives, such as grants or rebates, aimed at low- to moderate-income households, would make upgrades more affordable.

Additionally, R-DEER may offer educational resources to help residents understand the benefits of energy efficiency, assisting community members to make informed decisions. By focusing on inclusivity, the program could reduce energy costs and improve living conditions for everyone, particularly those who may face barriers in accessing such opportunities. The design study considers program affordability and financing options that meet the needs of residents across all social, cultural and economic groups. Refer to **Appendix B: Triple Bottom Line Economic Analysis** for additional details.

Energy Poverty and Affordability

High home energy costs place a burden on households and impact housing affordability. The Canadian Urban Sustainability Practitioners (CUSP) notes that the median Canadian household spends less than 3% of its after-tax income to pay for their home energy consumption. Households that spend more than twice this value on home energy services can be considered as experiencing high home energy cost burdens. CUSP uses a 6% home energy cost burden to identify the high threshold, 10% as the very high threshold, and 15% as the extreme threshold.

Energy poverty occurs when a household must reduce its energy consumption to a degree that negatively impacts the inhabitants' health and wellbeing. It is mainly driven by three root causes, a high proportion of household income spent on energy, low-income, and low energy performance of buildings and appliances [7].

CUSP assessed energy poverty for communities across Ontario and Canada, including Windsor. Windsor's assessment noted that:

- 23% of Windsor CYA households are experiencing low energy cost burden (<3%)
- 42% of Windsor CYA households are experiencing medium energy cost burden (3%-6%)
- 35% of Windsor CYA households are experiencing high energy cost burden (6%+)
- 14% of Windsor CYA households are experiencing very high energy cost burden (10%+)

[4] Based on residential energy consumption and excludes transportation fuels

- 7% of Windsor CYA households are experiencing extreme energy cost burden (15%+)

Recommendations made throughout this report consider how energy poverty at all stages within Windsor can be alleviated. There is an inherent challenge of reducing emissions from homes while also reducing utility bills.

Stakeholder Engagement

The R-DEER Project Working Team (PWT) collaborated with internal and external stakeholders to draft a program framework that meets CEP targets, and provides suggestions for program uptake, delivery, and financing that could support program adoption. A summary of the work undertaken by the PWT to complete this work includes:

- A detailed background review of the City's documents and data, including those referenced above.
- Workshops with the Corporate Leadership Team.
- Regular Project Working Team meetings which included representatives from Building, Communications, Environmental Sustainability and Climate Change, Finance, Legal, and Planning.
- Reviewing the responses to an online homeowners' survey questionnaire for Windsor residents.
- Reviewing responses to an online contractors' survey questionnaire.
- Fourteen in-person community pop-up events to promote the surveys and answer questions to gather feedback on program design from Windsor citizens and homeowners.
- Targeted interviews with five major stakeholder groups to obtain feedback on design choices and explore partnership opportunities.
- Targeted interviews with local contractors and energy advisors to solicit feedback.
- Review of 11 municipal home retrofit programs, as well as 14 federal, provincial, and utility retrofit or residential energy efficiency programs.
- Conducting lessons-learned interviews with personnel from five municipal home retrofit programs under design or active in market.
- Participation in detailed bimonthly meetings with Enbridge to explore program synergies and sharing of resources, or marketing and promotions.
- Analyses of program uptake and cost estimates under three scenarios.

These efforts have provided guidance as the project working team considered options for the design of an R-DEER program for Windsor.

Homeowner Engagement

As noted above, several public engagement activities were undertaken to help inform program design and delivery options. An R-DEER homeowner survey, focused on gathering feedback surrounding interest in home upgrades, current knowledge, preferred financing, and eligible measures, was also open to Windsor residents through the *Let's Talk Windsor* online engagement platform.

A total of 294 surveys were completed, with approximately 90% of respondents living in a single detached home. The majority (98%) of respondents owned their home.

Homeowners are looking for programs that:

- Are easy to navigate.
- Provide guidance, education, and knowledgeable customer service.
- Provide peace of mind when interacting with contractor partners.
- Deliver on stated benefits to participants (i.e. increased comfort, energy savings, reduced utility bills, etc.).

While homeowners do consider benefits that are beyond payback periods and return on investment, most will not invest in their homes for the sole purpose of reducing GHG emissions, as they are unable to quantify the impact of a retrofit on energy savings, cost savings and / or GHG emissions. Homeowners are more likely to put emphasis on retrofits that improve comfort, improve aesthetics (i.e. indoor and curb appeal), and/or increase resiliency and safety.

General Home Statistics

The survey contained several questions related to the age of homes and owner resale intentions.

- 29% of homeowners indicated that their home was built prior to 1940.
- 85% of homeowners indicated that their home was built prior to 1981.
- 92% of homeowners indicated that their home is heated by natural gas.

Previous Experience with Home Energy Retrofits

Previous experience with home energy upgrades / retrofits provided the project team with valuable insight into the existing demand for energy upgrades / retrofits at the residential level.

- 56% of homeowners either have not undertaken a retrofit, or don't know if the home has had an energy retrofit in the past.
- 21% of homeowners have indicated that an energy retrofit has happened more than 5 years ago.
- Respondents indicate that they have installed the following measures:
    - 35% Furnace or Air conditioner upgrade
    - 25% Windows and doors upgrade
    - 24% Water Heater replacement
    - 21% did not make upgrades

The top 3 motivations of homeowners when completing home energy retrofits:

- Saving money on utility bills (31%)
- Improving home comfort (24%)
- Climate change concerns (13%)

Of note, 73% of all retrofits were completed without accessing a rebate or incentive.

Future Home Energy Retrofit Plans

Several survey questions probed homeowners on their plans for future home energy retrofits with 72% of homeowners planning to complete a home energy retrofit within the next three years.

Homeowners were presented with several possible eligible measures and were asked how likely they would be to complete the upgrade[5]. Top measures homeowners are considering include:

- 72% Weatherization and Air Sealing
- 70% Insulation Upgrade (attic/walls/basement)
- 70% Window/Door Replacement

Measures with low homeowner interest include:

- 58% Smart Thermostats
- 56% Sump Pump installation
- 49% Furnace Upgrade

These measures have high adoption rates which could account for the low level of interest. There are several measures that homeowners are unsure about. These measures offer an opportunity to provide added education and guidance, as they are new applications or poorly understood.

- Energy Recovery Ventilation Systems
- Heat Recovery Ventilation Systems
- Installation of Air Source or Ground Source Heat Pumps

Program Features

Homeowners were asked to indicate their preferences for program features.

- 30% of homeowners think the municipality should provide grants and / or incentives to help reduce the costs of retrofits.
- 21% of homeowners think the municipality should provide support to homeowners for retrofits (i.e. help to find and choose contractors, answer questions, streamline application to other rebate programs, etc.).
- Preferred features for a program include:
    - Support in finding a qualified contractor (88% agree).
    - Support in finding money (financing and rebates) to cover the cost of upgrades (87% agree).
    - Support to understand the costs, savings, and time required to do the retrofits (86% agree).

There is interest among respondents, with 57% saying they would very likely use an R-DEER program, with an additional 32% saying they would be somewhat likely to use such a program.

[5] Survey was created and released prior to changes to Greener Homes Canada and Enbridge programs making natural gas upgrades ineligible for incentive, rebates, and loans.

Financing Preferences

78% of homeowners are willing to spend less than $20,000 for home energy retrofits, with 29% indicating that it is too difficult to estimate their limit currently.

- 96% of homeowners would take advantage of equipment rebates or utility rebates to help pay for upgrades, with 63% of homeowners interested in taking out a low interest loan tied to their property tax bill for assistance.
- Low interest rates on a financing option, coupled with an ability to pay off the loan at anytime without penalty, are the top financing options most important to homeowners.
- Homeowners were in favour of a tiered performance-based incentive approach with 60% favouring:
    - $1,000 incentive for energy / GHG reduction between 20 and 24%
    - $2,000 incentive for energy / GHG reduction between 25 and 29%
    - $4,000 incentive for energy / GHG reduction greater than or equal to 30%

Contractor Engagement

Contractors have a crucial role in ensuring the success of a home retrofit program. It is important that the local workforce is qualified and adequately staffed to meet anticipated participant demand. To help inform program design and delivery, the project working team conducted interviews with targeted contractors, in addition to offering an online R-DEER contractor survey to Windsor area contractors. The survey focused on gathering contractor feedback surrounding interest in home upgrades, current knowledge, current capacity, and eligible measures. Survey results were collected through the *Let's Talk Windsor* online engagement platform.

Insights from the contractor survey and one-on-one conversations with contractors:

- Respondents indicated that there is enough capacity currently in the home energy retrofit workforce in Windsor-Essex to support an R-DEER initial goal of 300-500 additional home energy retrofits annually.
- Challenges would exist for the skilled workforce required to support a peak goal of 2,000 to 2,500 additional home energy retrofits annually.
- Training or certification of skilled trades may need to significantly increase, along with a shift towards building science training and new low-carbon solutions (i.e. heat pumps).
- Homeowner education is crucial for the success of a home energy retrofit program. Contractors find that homeowners lack the following knowledge:
    - Technical knowledge of eligible measures
    - Environmental impacts of recommended retrofits
    - GHG emission reductions, how the potential reductions change depending on energy source
    - Cost benefit / or payback analysis
- Certified Energy Advisors are currently tasked with assisting homeowners to navigate existing programs like Canada Greener Homes Grant/Loan and Enbridge HER+.

- EnerGuide Energy Assessments evaluate building energy usage and proposed savings using energy units (GJ) and generally do not provide insights on bill savings to homeowners.
- Contractors see the value in working with Energy Coaches to help deliver retrofits. These proposed positions take on the role of educator and independent authority to provide information and answer questions relating to home energy retrofits.

Similar to homeowners, contractors are more likely to participate in programs that:

- Have a long-term outlook
- Are easy to navigate
- Complement existing operating models
- Provide guidance, training, and assists with customer service

Municipalities can support contractor capacity and increase the probability of program success through the following actions:

- Understanding the current workforce landscape
- Understanding the needs for a skilled local workforce
- Identifying opportunities and partner organizations for additional training and education
- Providing homeowner peace of mind through contractor vetting

Contractors for home energy retrofits can be divided into two categories:

- Certified Energy Advisors
- Contractors / Renovators / Skilled Trades

Both contractor categories could assist homeowners in navigating program requirements by providing qualified advice, quality work, and customer protections that safeguard homeowner investments in energy efficiency measures.

Certified Energy Advisors

Certified Energy Advisors complete the first and last steps of a home energy retrofit project. They are certified by Natural Resources Canada (NRCan) and conduct the pre-retrofit and post-retrofit EnerGuide evaluations that are generally required for incentive programs. The pre-retrofit EnerGuide evaluation explores the current state of a home and recommends upgrades to reduce energy consumption and GHG emissions. The post-retrofit EnerGuide evaluation documents the changes to energy consumption and GHG emissions once retrofits have been completed.

Certified Energy Advisors can take a system-based whole home approach to viewing energy deficiencies and can assist homeowners to:

- Measure the current performance of the home (pre-retrofit EnerGuide evaluation)
- Access the potential impacts of various energy efficiency measures (recommendations from pre-retrofit EnerGuide evaluation)
- Provide advice, guidance, and / or education to homeowners

- Verify and validate energy and GHG savings by measuring the future performance of the home (post-retrofit EnerGuide evaluation)

Contractors / Renovators / Skilled Trades

Contractors, renovators, and skilled trades are contracted by homeowners to install the energy efficiency retrofits once the pre-retrofit EnerGuide audit and the selection of retrofits are complete. Contractors, renovators, and skilled trades can meet homeowner renovation needs utilizing technical and people skills, and providing:

- Quality work to renovate homes considering equipment and techniques to achieve higher energy performance.
- Assurances to homeowners that work completed is done correctly at a reasonable price and will achieve energy efficiency goals.

Contractor Capacity Skills

Contractors and renovators require a range of skills and capabilities to meet homeowners' home energy retrofit needs, and to ensure the success of retrofit projects and the goals of the home energy retrofit program. Contractors and renovators need to:

- Understand the technical and craftmanship skills necessary to complete the work.
- Understand building science methodologies that help achieve energy efficiency and high-performance in homes.
- Understand and exhibit the necessary people skills to ensure customer satisfaction and efficient homeowner/contractor collaboration.

It is important that the local workforce is qualified and adequately staffed to meet anticipated demand. Three key considerations are detailed below.

Ensuring Consumer Protection

A retrofit program should endeavour to facilitate trust between participating homeowners and contractors by incorporating program features aimed at ensuring consumer protection. Home energy retrofit programs can leverage training certifications, trade designations or memberships to prequalify contractors, ensuring homeowners have the necessary knowledge and guidance to select a contractor to complete their home energy retrofit projects.

Using an industry-led contractor directory instead of a municipal preferred vendor list could help minimize liability risk for the municipality. As an example, Toronto's Home Energy Loan Program (HELP) uses RenoMark to pre-qualify contractors. RenoMark is a program delivered in partnership with local Canadian Home Builders Associations that connects homeowners with contractors who have agreed to abide by a renovation-specific Code of Conduct [8].

Support for Local Companies

Supporting a local qualified workforce can help in developing or expanding the capacity of the contractor network. Benefits could include retrofit cost reductions due to minimized time and travel costs for

contractors. In addition, companies specializing in equipment and materials may establish offices or facilities in the area to support the supply chain and contributing scope 3 GHG reductions due to transportation, if the program is designed to increase participation above previous uptake levels.

Increasing Contractor Capacity

Contractors, renovators, and skilled trades are required to perform home retrofit work under R-DEER programs. To meet the aspirational targets of this design, the number of these professionals would need to increase to meet program demand, both in terms of number of annual retrofits and skills required.

Municipalities could assist local contractors in growing their capacity to meet the anticipated growing demand for home energy retrofits by promoting training, education, or other enabling strategies.

Leveraging of Existing Programs

Existing college programs and certificates could be used to address the need for low-carbon design skills, and provide training in renewable energy technologies, building design and renovation, and heating, refrigeration and air conditioning techniques.

Colleges are valuable partners and are open to partnerships focused on the development of supplementary courses through their Continuing education departments. Courses could be offered individually or as part of a micro credential which bundles a handful of related courses and provides a specialized certificate.

Utilities are another valuable partner in energy-based training programs. IESO's Save ON Energy and Enbridge Gas have courses, or incentives that can offer additional training and support to contractors.

Industry and training organizations can also provide support through advocacy, training, education, or with enabling strategies. These organizations can offer a broad range of programming (webinars, workshops, formalized training) to cover subjects such as HVAC systems, insulation and envelope fundamentals, building controls, passive house design, building re/commissioning, renovation fundamentals, etc.

Other Stakeholder Engagement

In addition to the local in-person and online engagement as noted above, the project working team conducted additional research and program reviews. They analyzed home energy retrofit programs being offered in other communities and spoke with representatives to understand lessons learned. The team also benchmarked existing energy conservation programs to understand best practices.

Windsor's experience mirrors that of other municipalities striving to meet their long-term climate and GHG reduction goals. Building on the lessons learned from similar programs in other communities, R-DEER is designed to support affordability and address knowledge gaps. The program proposes flexible financing options, grant structures, and contractor partnerships to make it easier for homeowners to participate, contributing to the program's success. R-DEER offers a critical step forward in Windsor's journey towards achieving its climate goals, creating a more sustainable future for residents, and setting a model for progress in the fight against climate change.

Based on primary and secondary research conducted to design a home retrofit program, the main barriers for residents to implement energy improvements within their homes include:

- Affordability
- Knowledge
- Complexity
- Trust

Table 2 summarizes the main barriers to participation from the perspective of homeowners, contractors, and program partners (including financing, education, or institutional organizations or groups)

Table 2: Program Barriers to Participation

Category	Homeowners	Contractors	Program Partners
Affordability	Upfront costs to improve energy efficiency is often prohibitive • Lack of available capital • Lack of access to low-cost borrowing options Long payback duration for retrofits in relation to resident's home ownership Homeowners may resort to low cost, less efficient measures	Upfront costs to provide energy efficiency services can be prohibitive • Equipment costs • Training and certification of personnel Contractors may require financing options to expand to serve market Concern around stranding assets	Upfront and ongoing costs to run program and manage debt is often prohibitive. • Debt from loans • Loan default rates • Staff training • IT support Lending or mortgage providers • Credit worthiness of participants (i.e. priority liens) • Homeowner debt capacity Loan default rates
Knowledge	Understanding of the value of energy retrofits Understanding bids from various contractors is burdensome Reliance on homeowner knowledge in navigating program requirements, selecting contractors, securing funding/loans, and applying for rebates	Understanding of the value of energy retrofits Lack of certifications for whole home retrofit or building sciences knowledge Adequately sized, engaged, reputable, and skilled local workforce to meet consumer demand	Understanding of the value of energy retrofits
Complexity	Low-income households may not own their home and have no authority to make improvements		Low-income households may not own their home and have no authority to make improvements

Category	Homeowners	Contractors	Program Partners
Trust	Trust in contractors to complete retrofits at a reasonable price and quality (homeowner protections) Trust in program provider that program will continue long-term and not be cancelled prematurely (i.e. Save on Energy and Canada Greener Homes)	Trust in program provider that program will continue long-term and not be cancelled prematurely	Trust in that homeowners pay back loans in a timely manner Trust in program provider that program will continue long-term and not be cancelled prematurely

Substantial engagement, along with primary and secondary research has been undertaken to inform program design. A summary of existing energy conservation programs is attached as **Appendix C – Existing Energy Conservation Programs**, and other retrofit programs as **Appendix D – Summary of Home Energy Retrofit Programs**.

The Residential Deep Energy Efficiency Retrofit (R-DEER) program design outlined below offers Windsor a potential, long-term solution to address the challenges to achieving progress towards the city's climate and GHG reduction targets. By focusing on deep retrofits, which can achieve energy savings of 30-50% per home, R-DEER as designed may help reduce GHG emissions in the residential sector, aligning with Windsor's climate goals. These retrofits could include upgrades such as better insulation, energy-efficient heating systems, and renewable energy solutions, which support Windsor in meeting its targets, while also helping residents save on energy costs in the long run.

The R-DEER program not only supports Windsor's climate goals but also offers an opportunity to stimulate the local economy. By creating demand for skilled trades, energy auditors, and contractors, the program is anticipated to contribute to the growth of Windsor's green economy and local workforce. In addition, by reducing energy consumption in homes, R-DEER may help avoid the need for costly energy infrastructure investments in the future.

Program Design

Residential Energy Efficiency Retrofit Program developers are tasked with deciding the appropriate level of energy savings and GHG reductions required from their program to achieve their desired objectives. Energy efficiency retrofitting allows the participant to perform an energy audit/assessment on their existing energy usage and determine a pathway to reduce energy consumption, GHG emissions, and operational costs.

Approaches to Residential Energy Efficiency Retrofit Program Development

Historical and existing residential energy efficiency programs fall into one of two categories, either Shallow Retrofits or Deep Retrofits. Shallow retrofits, also known as minor retrofits, typically consist of low-cost, simple-to-implement changes that reduce energy consumption between 10 and 30%, and can involve one or a few of the following upgrades:

- Air sealing around windows, doors, wall cracks, and cavities with caulking or spray foam
- Adding insulation into attics, walls, and crawl spaces
- Replacing bulbs and lighting fixtures
- Adding low-flow faucet aerators and showerheads

While shallow retrofits typically involve a lower initial investment, there is a cost to delaying energy efficiency upgrades, and such actions typically do not assist to reach long term energy and GHG goals [9].

Deep retrofits, also known as major retrofits, typically involve high-cost, complex items to implement changes. Deep retrofits are more cost effective in the long run. They address issues with the building envelope and integrate necessary upgrades to allow for energy efficient heating and air conditioning. Typically, as walls and ceilings are opened to access wiring, ductwork, and piping, multiple upgrades are completed at the same time. Deep retrofits aim to reduce a home's energy consumption by 50% or more, and can involve combining multiple upgrades including:

- Upgrading heating, cooling, and ventilation systems with a higher efficiency, non GHG emitting, and/or renewable energy options
- Substituting natural gas hot water systems with a higher efficiency, non-GHG emitting, and/or renewable energy options
- Replacing existing windows with higher performance models
- Adding insulation to walls, floors, and ceilings
- Using environmentally friendly materials and practices wherever possible, such as low embodied carbon options for insulation
- Installing low-flow toilets and high-performance appliances

Whole home is an approach used in deep retrofits that looks at the entire home as an energy system with interdependent parts. Taking a whole home approach allows homeowners, contractors, and energy advisors to develop a retrofit plan that includes energy conservation, energy efficiency, and/ or renewable energy strategies that can assist homeowners in making informed decisions about their retrofit journey

[10]. A retrofit plan considers all areas of the home, providing a roadmap on the retrofits recommended to reduce energy consumption and GHG emissions.

Planning out retrofits has an added benefit of mitigating upfront costs, as homeowners have a clear understanding of the entire process and can schedule upgrades so that retrofits can be staged to maximize benefits (i.e. building envelop and insulation projects completed prior to upgrades to HVAC equipment).

A retrofit plan will consider:

- Energy Conservation measures – reduced energy consumption through behavioural changes (adjusting temperature setpoints, turning off equipment not in use, etc.). These measures are typically no-cost, low-cost and are the easiest to implement.
- Energy Efficiency – leverages technology to reduce the amount of energy use for a specific function (i.e. LED lightbulbs, more efficient appliances).
- Renewable Energy measures – incorporates the use of non-emitting energy sources to build upon energy and GHG reductions. Allows for the transition of energy to cleaner, more sustainable sources.
- Net-Zero Transition – identifies opportunities to reduce or eliminate reliance on fossil fuel energy sources used predominantly for space heating and domestic hot water. The NetZero transition is a critical component in order to reach GHG reduction targets.

In general, the whole home approach leads to higher GHG reductions per home, as multiple upgrades are made in one large renovation, but there are some drawbacks to this approach, including:

- A potentially higher price tag for homeowners that can limit program interest
- The need for a larger number of contractors and added logistics
- Higher levels of inconvenience
- Longer construction periods

Experience in Other Municipalities

Several municipalities across Ontario, Canada, and North America are offering home energy efficiency (aka retrofit) programs. Funding for home energy retrofit programs has historically been fixed to government policy through legislation and budgetary sources. Mandate changes, ruling political party changeovers, and exhaustion of budgetary sources have proven to be very detrimental to program longevity, with many programs suspended or cancelled before reaching their full potential.

Municipal programs in Ontario are relatively new with most operating for less than three years. It is too soon to say whether these programs will experience similar challenges in the future.

The PWT conducted a review of several historical and current home energy retrofit programs focusing on program eligibility, measures offered, program features, delivery methodologies, and financing. A combination of literature reviews and one-on-one interviews with municipal staff were conducted to gather relevant information. These program comparisons are attached as **Appendix D – Summary of Home Energy Retrofit Programs**. Several themes emerged that could be considered in any R-DEER program design, mainly:

- Long-term program viability
- Limited funds impacting on program scope
- Criteria homeowners utilize to justify participation[6]
- Contractor requirements[7]

Long-Term Program Viability

Many home energy efficiency programs are linked to a government directive or source of funding. As such, these programs are subject to changes in policy or government direction. Programs can be suspended or lose funding depending on government priorities. Government grants may be exhausted, discontinued, or reallocated, making it a challenge for programs to continue.

As programs enter and exit the market, it becomes a challenge for future programs to attract participants. Innovators and early adopters will recognize new opportunities and quickly benefit, whereas later participants may be skeptical that programs will stay in the market long enough to benefit them. Program design should consider program duration.

Limited Funds Impact Project Scope

Municipalities may see the benefit of promoting home retrofit programs but are not necessarily in the position to offer funds in the form of grants or loans to support homeowners. As the decision to finance programs at scale is often cost prohibitive for municipalities, many municipal programs have engaged third party lenders in providing financing options to participants. Programs must make tough decisions regarding the program's target market and the program features offered considering the amount of funds they have access to.

FCM provides funding through its Green Municipal Fund to assist municipalities to start up a home retrofit program and is intended to offset project costs for the first four years. As funding dwindles, FCM is looking at innovative programs that address local needs. The expectation is that programs become self-sufficient and continue once the one-time funding ends.

Of late, some third-party lenders (i.e. banks, credit unions, mortgage providers, and investment firms) are seeking to invest in programs promoting "green" initiatives like home retrofit programs and look to loan money to municipalities as these programs are aligned with Environmental mitigation targets and have an added benefit of certainty of repayment. Considerations are given to programs with the following key features:

- Quantifiable Energy Savings: Clear metrics demonstrating potential energy savings and reductions in utility costs are essential, helping investors assess the program's financial viability.
- Robust Financial Models: Transparent financial structures, including cost-benefit analyses and payback periods, are critical. Investors want to understand the return on investment (ROI) and risk profiles.
- Scalability: Programs that can be scaled across multiple building types or municipalities / regions tend to attract interest. Investors seek models that can be replicated efficiently.

[6] Discussed as part of Homeowner Engagement
[7] Discussed as part of Contractor Engagement

- Strong Market Demand: Evidence of demand for home energy retrofits, such as regulatory drivers, incentives, or market trends, may enhance the attractiveness of a program.
- Comprehensive Solutions: Programs offering a range of measures as they address multiple aspects of energy efficiency.
- Innovative Financing Options: Creative financing solutions, such as LIC financing, or performance-based contracts, may make projects more attractive.
- Monitoring and Reporting: Features that allow for ongoing monitoring of energy savings and program effectiveness are important for accountability and continuous improvement.
- Education and Awareness: Programs that include elements of education and training for homeowners or contractors and service providers may enhance participation and long-term success.

As it relates to homeowner financing, most programs recognized the importance of offering flexible financing options to meet homeowner needs. A suite of grants, rebates, tax incentives, and loans are crucial in providing the funds required for participants to install retrofits providing the most benefit.

Collaboration and engagement with lenders (i.e. banks, credit unions, mortgage lenders) should address issues around lender consent and LIC disclosure. Programs have learned that requiring homeowners with a mortgage to acquire consent from their lender before participating in the program reduces uptake. Failure to obtain lender consent is one of the greatest reasons applications are denied.

Flexibility in financing terms and interest rates are other areas where municipalities could address local needs. Balance is required between the loan term length and the lifecycle of measures. Programs should aim for loan repayment to occur prior to the end of life of measures. Several existing programs allow fixed financing terms for up to 20 years on qualifying projects given historic low interest rates. This strategy was put in place to accommodate deep retrofits that have a longer payback period (i.e. solar PV, geothermal and air source heat pumps). With the recent increases in interest rates since spring 2023, affordability of capital has emerged as a potential barrier to participation.

Program design should consider how to best allocate program funds to maximize program participation. The project team heard from a variety of sources that preferential financing options alone are not sufficient to influence homeowner participation rates. Consideration should be given to expenditures that will provide the greatest benefit including:

- Grant vs. loan offerings
- LIC loan vs. Personal loan
- Application / user fees
- Funding single measures (i.e. cold weather air source heat pump)
- Income specific programming (i.e. low income)
- Program pilot which limits the number of participants (i.e. 50 retrofits to 500 retrofits total)
- Alignment with existing programs with funding options to avoid double incentives

R-DEER Program Features

The R-DEER Program explored by Windsor's project working team incorporated the following features:

1. Energy Coaching services. Access to an energy coach and education materials to aid in the retrofit journey. An administration fee of approximately $300 could be considered to cover the cost of this service, which could be offset by program grants and incentives.
2. Program grants and incentives. Participants who are not covered for a similar grant under another energy efficiency or retrofit program would be considered eligible. Grants included are the Audit grant and Low-income grant. Both grants are designed to encourage program participation by reducing upfront costs. Performance incentives are proposed for participants who demonstrate significant energy or GHG emissions reductions.
3. Flexible financing options. Program participants are provided with the option of financing home energy retrofits through a City Local Improvement Charge (LIC) or an unsecured loan with a financial institution. In this design, 25% of participants were anticipated to select the LIC option, with the majority (75%) utilizing an alternative (i.e. personal loan, loan provided from Canada Greener Homes Program).
4. Eligible measures include those focusing on energy and/or GHG reductions (excludes fossil fuel equipment), resiliency (i.e. flooding prevention, health and safety), and electrification (i.e. renewables, EV charging).
5. Program duration is projected to cover a period of 25 years (2026-2050).

The R-DEER Program could drive transformative reductions in energy end-use and GHG emissions and could stimulate local job creation by keeping energy dollars local. In addition, the R-DEER program design would be expected to address barriers to participation by:

- Encouraging home upgrade projects with high GHG reductions
- Promoting equity for low-income homeowners
- Promoting transparency and consumer choice
- Instilling market confidence for home upgrades
- Promoting high uptake
- Preventing unintended harm to tenants
- Addressing gaps in existing home upgrade programs and incentives
- Providing options that balance GHG reductions and that alleviate high upfront costs
- Providing flexibility in program options
- Limiting inconvenience for homeowners and contractor

Program Theory Logic Model (PTLM)

A program theory logic model provides a visual representation of the program and the links between barriers, activities, and expected outcomes.

The program theory logic model, as illustrated in Figure 2, makes several assumptions about existing conditions/actions needed for program success, including:

- Funding available from FCM and other source capital
- Sufficient internal / external resources to deliver the program
- Robust financing and other enabling strategies

- Homeowners will use the supports and services available through the program

There are also external factors/influences that may impact outcomes, including:

- Competing City of Windsor priorities
- Additional staffing required for any new municipally-led program
- Municipal funding allocations may impact the tax levy
- Incentives / other program changes
- Program implementer/partner changes
- Supply chain constraints
- Risks associated with managing a financial lending program

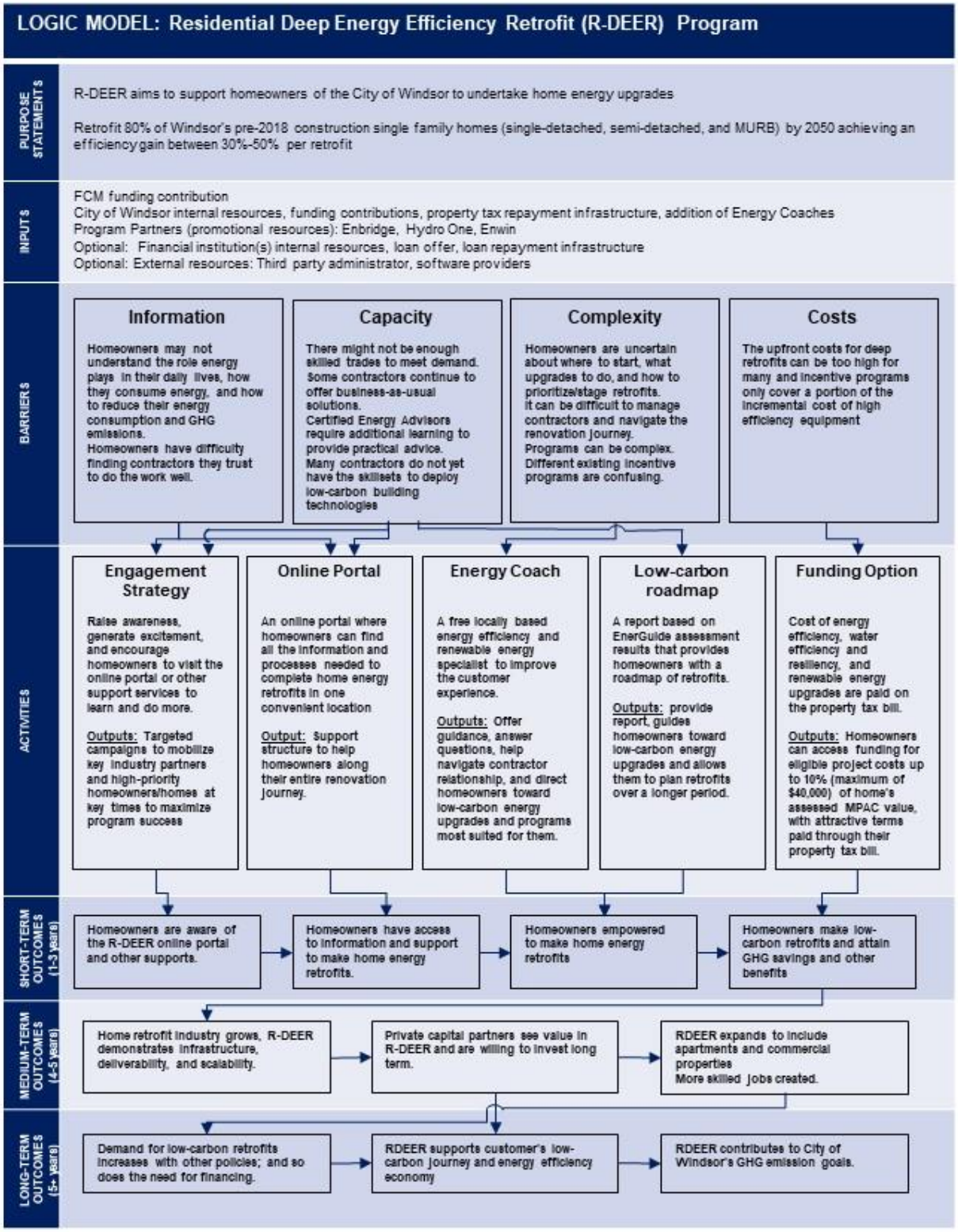

Figure 2: R-DEER program theory logic model

Below are program design elements considered for Windsor's Residential Deep Energy Efficiency Retrofit Program.

The following are suggested criteria for property eligibility:

- The home must be a low-rise residential property (e.g., detached, semi-detached, row housing and similar) three-storeys or less, on a permanent foundation with a space heating system and all windows and doors in place to be eligible for an EnerGuide assessment [11].
- The home must be at least 20 years old at the time of application.
- The property must have a property tax account with the municipality and be in good standing (i.e. property taxes paid in full at time of application).

Participation in the program would be voluntary, and owner initiated. Suggested eligibility requirements are as follows:

- All registered owner(s) of the property must consent to participate in the program.
- The applicant must be the owner of the home in which energy improvements are made.
- Owner-occupants, landlords, and tenants with landlord approval would be eligible.
- There is no income level requirement.
- Retrofit work for which a loan would be used cannot start or have any materials purchased prior to approval by program administrator.

In line with R-DEER's goals, a list of potential eligible measures focusing on GHG reductions and electrification is provided in Figure 3. The final measures list should be determined prior to program implementation and/or as new technologies come on the market.

Energy and GHG reducing measures generally include HVAC equipment and control systems (heating, cooling, and ventilation), water heating, home insulation and air sealing, efficient windows and doors, renewables (solar PV, solar water heating), LED lighting, Energy Star® appliances, and smart thermostats. In alignment with the GHG abatement goals of the City of Windsor, natural gas furnaces, water heaters and appliances were not included as eligible measures in this proposed program.

Figure 3: List of R-DEER Eligible Energy and Non-Energy Related Measures

The electrification of home heating (i.e. fuel switching from natural gas to electricity) for space or hot water heating offers a significant opportunity for GHG emission reductions. However, due to the low cost of natural gas, homeowners who switch to electricity may not see overall bill reductions (when considering utility bills and loan repayments), unless they obtain important rebates from ongoing programs. A recent report from the Canadian Climate Institute [12], indicates that annual operating costs between a standard furnace and air conditioning package is comparable to a heat pump.

The program design suggests that any application that includes fuel switching from natural gas should involve a conversation with an Energy Coach to discuss the cost implications of these measures. The outreach should highlight both the advantages (i.e. emission reductions, air quality, insulating from future carbon pricing costs, opportunity to add air conditioning, etc.) and disadvantages (i.e. potential for increased homeowner costs).

The City of Windsor, as part of the grant application to FCM, introduced the concept of standardized retrofit packages, with the intention to simplify program offerings and reduce retrofit costs. A key learning emerging from stakeholder engagement is customer choice is paramount. Participants want the ability to select the measures that best fit their needs. There's a hesitancy among program stakeholders regarding selecting retrofits from a select number of packages with little to no opportunity for customization.

This program model is designed to offer participants options from any of the three categories (i.e. Core, Resiliency, and Premium). Retrofits should be made to the recommended levels (i.e., equipment performance standards, envelope upgrade levels, etc.) as outlined in the EnerGuide Pre-Retrofit Assessment. Program Energy Coaches are proposed to assist homeowners on their retrofit journey, including interpreting EnerGuide Assessments, selecting retrofit measures, contractor selection, etc.

In order to receive potential performance incentives, participants would need to complete one or more upgrade(s) that meet the energy reduction threshold of 30% to 50% and / or the GHG emission reduction threshold of up to 80%. Participants must address core measures before proceeding to resiliency and premium measures.

Core Measures

Eligible retrofit measures indicated as Core measures form the basis of the proposed R-DEER Program. The replacement of older, less efficient, and predominantly fossil fuel equipment would assist in meeting targets. The program proposes a whole home approach to improving performance and not just the swapping of individual measures.

Resiliency measures

Mitigation is one aspect to consider in the context of climate change. Climate adaptation and resilience (i.e. preparing and reducing a community's vulnerability to the severity of climate change related impacts) is also key as communities continue to feel the impacts of climate change.

Resiliency improvements may be viewed as highly valuable or even essential for homeowners to pursue home energy retrofits. In this R-DEER design, up to 30% of project funding is proposed for resiliency measures (which is aligned with FCM funding caps for non-energy measures). R-DEER program participants, through Energy Coaching services will have access to the City's existing resiliency programs:

- Basement Flooding Protection Subsidy Program (BFPSP) [13].
- Downspout Disconnect Program [14].

Each home is unique with different needs; thus, it is suggested that the homeowner use the non-energy improvement portion of the proposed loan for any items that fall within the allowable FCM categories, notably:

- Health and safety measures such as environmental remediation, electrical wiring improvements, and service upgrades that require undertaking to permit energy improvements.
- Water efficiency improvements such as low-flow fixtures.
- Climate adaptation improvements such as waterproofing basement and window wells, or sump pump battery back-ups and alarms.

Premium measures

Premium measures include renewables, battery storage systems, heat recovery, and electric vehicle chargers. As new technology is introduced in the market, it would be assessed, and as applicable, added to the eligible premium measures list. Consultation with an Energy Coach is strongly encouraged for participants undertaking premium measures to ensure program goals are met.

Figure 4 illustrates the process a homeowner may follow in selecting retrofit measures to install.

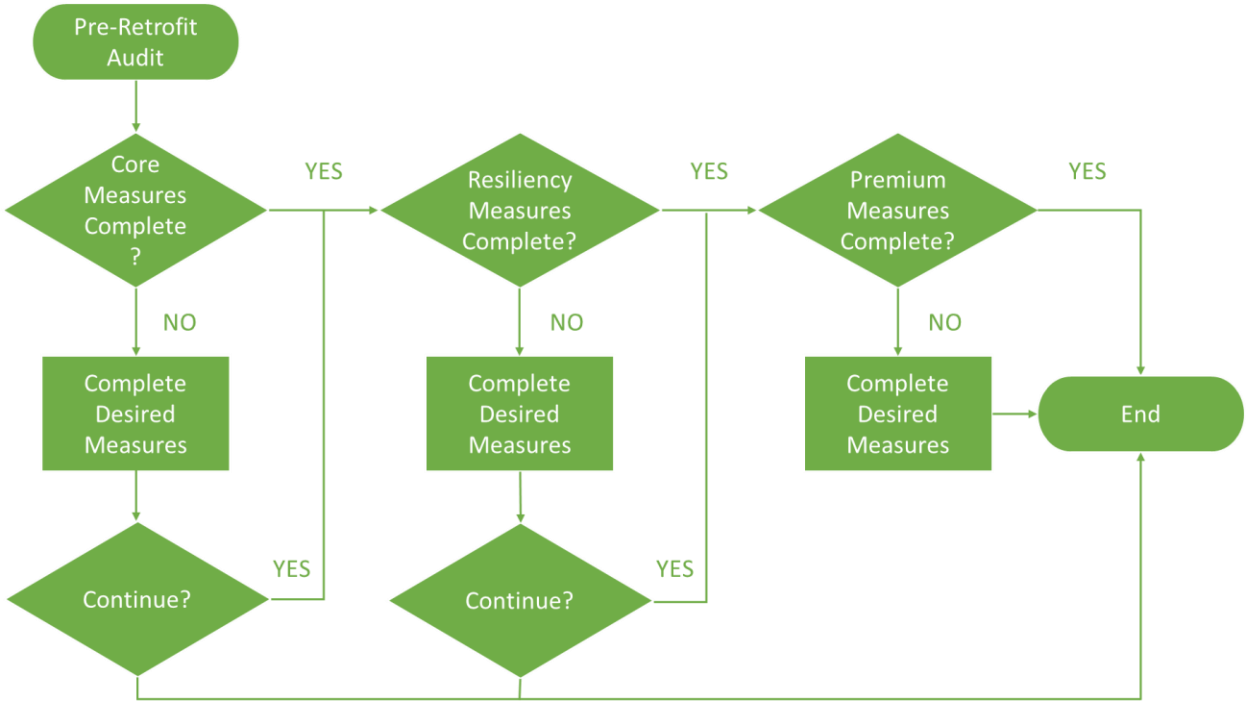

Figure 4: Measure Selection Flowchart

Emergency Replacement Measures

Emergency replacement of space and water heating devices may be faced by homeowners. The R-DEER program proposes to offer an emergency replacement option for these items. Homeowners would engage with an Energy Coach to access information and additional funding options to assist with the selection of a higher efficiency, low-carbon replacements.

The following measures are eligible for emergency replacement measures:

- Primary (not secondary) space heating and cooling systems.
- Water heating systems.

A modified program could be offered, with no requirement for energy audits, with funding capped at $10,000 per property. Submission of utility bills (electricity and natural gas) would be required for energy savings and GHG emission reduction calculations[8].

Contractor and Service Provider Eligibility

Contractors and service providers are a critical component of the R-DEER Program. While participants make the ultimate decision in contractor selection, the R-DEER program would outline criteria for contractors wishing to participate. R-DEER endeavours to balance the needs and address barriers faced by participants, contractors, and service providers.

[8] Minimum of 12 months of utility bills from pre and post installation

Contractors and service providers are attracted to programs with minimal program requirements that align with current operating models. While this R-DEER Program does not include providing a qualified contractor list, Table 3 below provides an overview of criteria contractors and service providers could expect to demonstrate for program participation. The purpose of the contractor and service provider criteria is to provide participants a measure of certainty that the contractors they engage are competent and reliable.

Table 3: Contractor and Service Provider Criteria

Contractor and Service Provider Criteria		
Mandatory	**Recommended**	**Optional**
Proof of Liability Insurance	Proof of professional Insurance	Membership in Windsor/Essex Home Builders Association
Company Licence / GST Number displayed on all quotes / invoices	Proof of applicable industry training for services offered (i.e. HRAI, NRCan)	Credentials / certifications as applicable for services offered
Completion of a City of Windsor sanctioned R-DEER Training session.	Complete Code of Conduct	

Additional Program Feature Options

Consideration could be given to the inclusion of coaching or concierge services for participants and contractors, as lack of knowledge and project complexity are often cited as barriers to participation.

Another feature which could be included in programs revolves around the development of local partnerships which leverage in-kind contributions, whether advice for local experts on key program areas, development of post-secondary courses, opportunities for organizations to support the program through volunteer opportunities, etc.

Contractor Networking

Pre-qualifying contractors could enable program success in that pre-qualification allows the program administrator to interact with contractors providing services to program participants. This pre-qualification can support both the contractors and the homeowners by:

- Ensuring consistent messaging in the market to promote customer awareness
- Supporting homeowners in finding contractors that have minimum qualifications
- Building relationships between the contractors and the program to identify opportunities to reduce costs and time requirements from the contractor.

Technology

Technological advancements are rapidly increasing opportunities to reduce and manage home energy use. For example, smart thermostats and cold air heat pumps are now common upgrades that can manage a

home's thermal comfort even from a distance. The design of any energy efficiency retrofit program should be flexible enough to allow for recognized technology improvements.

Technology improvements are also incorporated into building codes and existing equipment to reduce the efficiency gap between the base and high efficiency models.

Program Website / Portal

A website / portal could be the one place participants, contractors, and lenders can access that provides all relevant program information in a location that is easy to understand and navigate, as it would be the first point of contact with participants.

Program portals could include the following features:

- Step by step guide to assist participants in navigating the website
- Ability to interact with Energy Coach
- Educational content
- Checklists and forms
- Financial Resources
- Frequently Asked Questions
- Other resources deemed applicable

Energy Coaching Services

Energy coaching services are a key proposed feature to provide guidance to participants. Energy coaches engage participants in one-on-one and / or group settings to:

- Build program awareness
- Answer questions
- Offer assistance in understanding Energy Audits, selecting measures, contractors, financing
- Provide peace of mind
- Share knowledge of other programs – provide assistance in off ramping and on ramping (incentive stacking).

Energy coaches could take the lead in providing participant education, allowing energy advisors and contractors to focus on their core responsibilities.

Training

Training modules for participants and contractors in the form of webinars, workshops, continuing education courses and potentially micro credentials could be offered. Programming could be developed in collaboration with industry partners and post-secondary institutions. Formats may include in-person, virtual classroom, or asynchronous learning utilizing platforms such as YouTube.

Program Steps

The R-DEER program framework developed by Windsor's project team aligns with FCM requirements, including the use of NRCan EnerGuide home rating systems for data collection and environmental

reporting. Figure 4 outlines R-DEER's program steps, which are preliminary and subject to further refinement. They aim to reduce homeowner barriers while maintaining flexibility for potential integration with utility and government programs, should the program proceed to an implementation phase. Refer to **Appendix E: R-DEER Program Steps** for more detailed information.

Figure 5: R-DEER Program Steps

Participation Forecast

The program uptake target is a hypothetical calculation aligned with CEP Strategy #1, which outlines an aspirational goal of retrofitting 80% of homes by 2041. As part of the R-DEER Business Case (2019), an analysis was conducted to forecast potential savings under this scenario (Table 4 below) [15]. Using the 2021 Census data, coupled with NRCan's definition of a single-family home, the project team was able to set the maximum number of qualified homes at 71,265. 80% of the qualified number of homes was rounded to set the program uptake target at 57,200 homes. This target reflects the estimated number of eligible participants.

Table 4: R-DEER Business Case Savings Metrics

Savings Metric	Units	Savings
Electricity Saved	MWh/yr	690,000
Natural Gas Saved	MWh/yr	2,320,000
Water Saved	m^3/yr	2,840,000
Total Energy Saved	MWh/yr	3,010,000
GHG Emissions Avoided	$MTCO_2e$/yr	**0.235**

This analysis represents an estimated 64% reduction in residential GHG emission reductions, as compared to the 2014 baseline[9].

To explore potential alignment with CEP and Net-Zero 2050 targets, the project team modeled and evaluated six hypothetical uptake curves.

- Option 1: Meet CEP Target of 80% of homes retrofitted by 2041 (High Uptake (CEP))
- Option 2: Meet 66.7% of CEP Target by 2041 (Mid Uptake (CEP))
- Option 3: Meet 33.3% of CEP Target by 2041 (Low Uptake (CEP))
- Option 4: Meet CEP Target of 80% of homes retrofitted by 2050 (High Uptake (2050))

[9] Corresponds to a GHG emission reduction of 0.366$MTCO_2e$ as calculated by City of Windsor Staff

- Option 5: Meet 66.7% of CEP Target by 2050 (Mid Uptake (2050))
- Option 6: Meet 33.3% of CEP Target by 2050 (Low Uptake (2050))

These uptake curves were evaluated as part of the R-DEER Market Validation Study conducted by Posterity Group. In discussions with the consultant, it was determined that the six identified uptake curves did not represent the actual uptake curves of other home energy efficiency programs offered in Ontario from municipal, utility or government sources. As a result, two additional options were developed and included in the analysis.

- Option 7: Meet 15% of CEP Target by 2041 (Ultra-Low Uptake (2041))
- Option 8: Meet 15% of CEP Target by 2050 (Ultra-Low Uptake (2050))

Figure 6 below highlights several program uptake curves, including the Market Validation Study (Results) uptake curve.

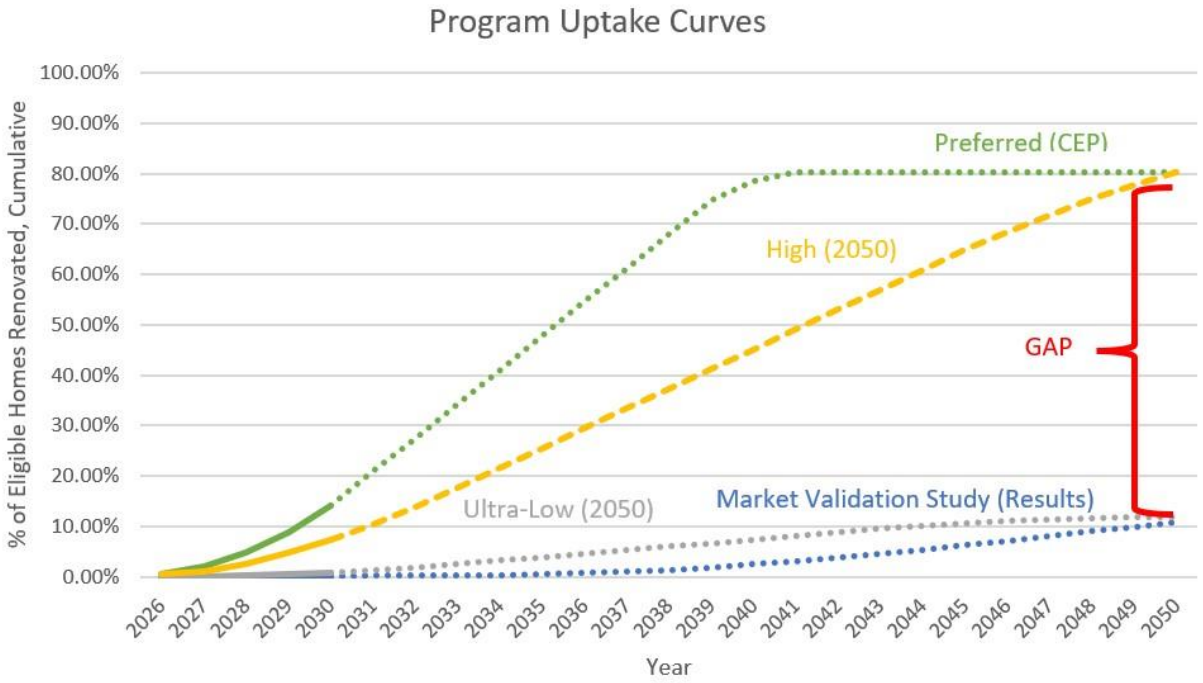

Figure 6: Program Uptake Curves

The graph represents the percentage of eligible homes renovated as compared to the total number of eligible homes. The Market Validation Study curve was suggested as part of the R-DEER Market Validation Study. Posterity Group benchmarked and evaluated uptake rates from a variety of municipal, utility, and government energy efficiency or energy retrofit programs, and developed a business-as-usual forecast model which aligns with the findings of the Market Validation Study, given the current levels of investment in deep retrofit programs [2]. In its findings, Posterity stated:

> *An in-depth revision of the R-DEER program uptake forecasts determined that the R-DEER Ultra-Low (2050) Uptake forecast was the most reasonable estimate of program uptake rates compared to the other R-DEER uptake*

scenarios but overestimated participation when compared with utility and government retrofit programs.

The R-DEER program should include milestones at which time program uptake would be re-assessed to develop additional projections based on Windsor specific data. During the re-assessment, R-DEER would look to evolve the program to align with Windsor's climate targets and adapt to changes in the retrofit market (i.e. introduction of new utility or government programs).

Aspirational Uptake Curve

To meet the target set out in the CEP, Windsor's R-DEER program would have to be designed using the High (2050) uptake curve, as illustrated in Table 5, while providing flexibility regarding program duration.

Table 5: Aspirational Uptake Curve (High (2050))

Year	Annual Homes Retrofitted	Cumulative Homes Retrofitted	Year	Annual Homes Retrofitted	Cumulative Homes Retrofitted
2026	300	300	**2039**	2,800	29,400
2027	500	800	**2040**	2,800	32,200
2028	1,050	1,850	**2041**	2,800	35,000
2029	1,500	3,350	**2042**	2,800	37,800
2030	1,800	5,150	**2043**	2,800	40,600
2031	2,200	7,350	**2044**	2,800	43,400
2032	2,450	9,800	**2045**	2,800	46,200
2033	2,800	12,600	**2046**	2,600	48,800
2034	2,800	15,400	**2047**	2,400	51,200
2035	2,800	18,200	**2048**	2,200	53,400
2036	2,800	21,000	**2049**	2,000	55,400
2037	2,800	23,800	**2050**	1,800	57,200
2038	2,800	26,600			

Reaching R-DEER's aspirational uptake curve would require substantial program investments from senior levels of governments and utilities.

Financing Options

This section summarizes financing options that could be made available to participants to help increase program accessibility and participation.

Affordability of home upgrades is one of the most important program aspects that drives participation. Loans, grants, and incentives provide participants funds to undertake home retrofits without the need to fund the total cost of improvements in advance. Many programs in market provide financing options at the end of the project once the participant has validated installation through submission of invoices. The following items were considered when evaluating financing options:

- Recommendations from City legal and financing staff
- Appeal to residential homeowners
- Implementation experience from municipalities
- Ability to provide homeowner value

Overview of Financing Options

Financing options for residential retrofit programs have been extensively studied by groups such as The Atmospheric Fund (TAF) [16]. These studies categorize tools into two main approaches: repayment mechanisms and credit enhancements. The R-DEER program framework explored the potential for administration fees to partially offset operational costs; however, the structure and extent of these fees would require further review and stakeholder engagement.

Programs should have the ability to provide additional value, flexibility, and be tailored to customer financing needs. Home upgrade programs typically offer one or more of the following financial incentives to homeowners.

- Grants and Rebates – non-repayable funds to participants to complete home energy retrofits. Programs can elect to provide grant funding upfront or after work is complete, with rebates provided only after work is complete. Providing grants upfront is seen as more inclusive, as those unable to pay upfront are still able to participate.
- Tax Incentives – reduced taxes (i.e. property) to incentivize program participation.
- (LIC) Loan – loans to property owners at favourable financing rates to pay for improvements that benefit property owners, which can include energy efficiency improvements, water upgrades, and climate action through home retrofits and improvements.

The table below provides a comparison of the three types of financial incentives that could be offered by municipal home energy retrofit programs.

Table 6: Comparison of Three Primary Financial Incentives Offered by Home-Retrofit Programs

		LIC	Grant/Rebate	Tax Incentive
Environment & Funding	GHG Reduction Potential	Highest	Lowest	Medium
	FCM Funding Available	Yes	Yes	No
City Supports	Count Towards municipal debt	Potential	N/A	N/A
	Repayment to City	Yes	No	No
	City personnel required	Yes	Yes	Yes
	Agreement with City required	Yes	Yes	Yes
Homeowner Needs	Homeowners required to pay upfront	No	Yes	Yes
	Supports Low-Income homeowners	No	Yes	No
	Available to a greater number of residents	Yes	No	Yes
	Repayments stay with the home	Yes	N/A	Potential
	Resale concerns	Potential	No	No
Other	Requires FTEs to administer	Yes	Yes	Yes
	Requires Marketing to run program	Yes	Yes	Yes
	Requires municipal by-law	Yes	Potential	Yes

Programs could have the option to assess administration fees. Although administration fees may pose a barrier for program participation, they may provide a mechanism to support program services. R-DEER proposes assessing a nominal administration fee for participants that may be partially or fully recovered by program incentives. The administration fee, which would be determined prior to program launch, is estimated to be in the range of $100 to $400 per application.

Potential Financing Risks

Financing programs could have potential risks, for which mitigation strategies would be required. Mitigation strategies have been identified and are expected to be further fleshed out with program partners.

The potential impact for each of these risks are briefly examined in **Appendix F: Potential Financing Risks and Mitigation Strategies**

Potential Financial Incentives

R-DEER could offer a portfolio of financing options, including grants, loans, and performance incentives.

Grants

Grants could be offered to program participants provided that participants are not eligible for the same grant through participation in another program.

Audit Grant

Municipal programs like R-DEER accessing funding from the FCM's GMF CEF require pre- and post- retrofit energy audits to be completed by NRCan sanctioned Energy Advisors. Pre-Retrofit Energy Audits cost in the range of $400 to $700, with an additional $200 - $400 required for Post- Retrofit Energy Audits.

Several programs offer grants covering a portion of the costs of Energy Audits, provided that both the pre- and post- Energy Audit Reports are submitted to the program administrator. A grant of up to $1,000[10] could be paid in two disbursements; up to 50% after submission of the preaudit, with the remaining after installation of a minimum of two (2) eligible measures as identified in the pre-Energy Audit is verified.

Low-Income Grant

As evidenced earlier in the report, many low income and/or marginalized communities may be challenged to participate in any retrofit programs due to costs. Low-income participants may require additional assistance to participate in the R-DEER program. A grant, up to $2,000, may be considered in order to assist low-income participants with the installation of eligible measures, provided they are not eligible for similar incentives from other programs.

Loans

While loans are a potential source of funding for the program, it is recognized that obtaining funding for loans poses a significant challenge for the program. Adjustments to funding sources and maximum loan amounts may be required as the program matures. An R-DEER program must ensure the long-term viability of loan funding. Capping annual loan expenditures, limiting eligibility based on income, or limiting eligible measures are options requiring additional consideration. To improve flexibility, R-DEER participants could also have the option of applying for a LIC or personal loan.

Local Improvement Charge (LIC)

Several groups such as TAF, Clean Air Partnership, and the Pembina institute have completed reports and analyses on the effectiveness of Local Improvement Charges as a tool to incentivize participation in municipal programs. In 2005, the Pembina institute released its "using Local Improvement Charges to Finance Energy Efficiency Improvements: Applicability Across Canada" [17] for the Office of Energy Efficiency. This report has been referenced by several municipal programs and outlines principles that could be incorporated into LIC programs such as:

- Participation is voluntary

[10] Grant not to exceed the actual cost of the pre- and post- Energy Audits minus any applicable grants/rebates/incentives received from other programs

- Financing covers most or all of upgrade costs
- Long financing terms (up to 30 years)
- Financing can be combined with other programs
- Finances are permanently fixed to the property
- LIC agreement is retained on file with the local municipality as a lien on the property that can be transferred between owners

LICs could be considered as a low-risk way for municipalities to encourage investment in measures with long payback terms or community benefits by providing homeowners access to capital. The Ontario Municipal Act, 2001 (O. Reg. 586/06) allows municipalities to offer LIC loans to homeowners for infrastructure improvements and programs. This regulation has been used to facilitate the implementation of home upgrade programs by financing energy efficiency and renewable energy measures voluntarily carried out by individual property owners.

LIC loans are recoverable and do not directly impact a municipality's debt provided the municipality has sufficient working capital to fund the loans. In the event loan repayments are in arrears, the overdue amount can be recovered from the property(ies) using a special priority lien that takes precedence over other liens on the property, including mortgage liens. LIC's may also assist the municipality in obtaining private investment for programs by bundling upgrades or programs to meet private investment thresholds.

From the homeowner perspective, the capital provided from the LIC may be used to complete improvements that reduce energy consumption and flood risks, while improving home comfort. Utility bill or insurance premium savings may then be used to offset LIC repayments. Additional benefits to homeowners may include:

- Eliminates or minimizes the need of upfront capital to finance home energy retrofits, thereby allowing low-income individuals to upgrade their homes
- Loan is attached with the property, and can be paid in full or transferred upon sale of a home ensuring homeowner does not continue to payback a loan for a home they are no longer living in

From a program design perspective, LICs offer an effective financing tool with the potential to increase program participation. When homeowners have a source of financing that reduces or eliminates the need for upfront capital, they may be more likely to complete upgrades that are more complex and expensive and contribute to greater GHG emission reductions. Municipalities often have the ability to arrange for longer term, low interest financing based on the municipality's credit rating.

Refer to **Appendix G: Local Improvement Charges** for more details.

R-DEER LIC Eligibility

To limit the municipal funding which would be required to support an LIC program under the proposed framework, it is proposed that R-DEER LIC loans be capped, for example, at the lesser of $40,000 or 10% of the MPAC-assessed value of a participating property. Eligibility criteria and minimum upgrade costs, such as a $10,000 threshold, could also be taken under consideration.

Personal Loan Eligibility

To be eligible for a Personal Loan Stream, this study proposed that applicants must meet the program eligibility criteria, along with the requirements required by local lender(s). The applicant must agree to abide by R-DEER reporting requirements.

Performance Incentives

R-DEER could also offer performance incentives for retrofit projects that meet a performance target, either energy savings (in GJ) or GHG emissions reduction (in tCO_2e). Future performance incentives could include Community Improvement Plans (CIPs) and incentives for the installation of solar, EV chargers, or other measures.

Program Delivery

Partnerships between several organizations are anticipated to be required to deliver an R-DEER program successfully. A Program Delivery Agent (PDA) could be responsible for program implementation and administration. The type of organization tasked with program delivery could include municipal, utility, and / or nongovernment organizations (NGO) (i.e. community groups, non-profits, 3rd party administrators).

This section proposes roles and responsibilities for successful delivery of an R-DEER Program, including:

- PDA core responsibilities
- PDA selection criteria
- Staffing
- Long Term Goals

The PDA would be responsible for program implementation including activities for:

- Initial set-up
- Management and/or coordination
- Day to day operations
- Other activities as applicable

PDA Core Responsibilities

The core responsibility for the PDA would be to administer the R-DEER program and address identified barriers to participation through streamlining processes, targeted guidance, and building trust-based relationships between homeowners, contractors, the PDA, local stakeholders, and others. Lack of knowledge has highlighted the need for ongoing education and guidance to improve program interest and uptake. This need stems from homeowner and contractor confusion regarding the energy retrofit market, namely:

- Constant changes to programs by utilities or upper levels of government.
    - Understanding how homeowners can leverage multiple programs to increase financial incentives.
    - Technological advances that impact retrofit eligibility.
- Lack of consistent messaging on the benefits of home energy retrofits.
- Assessing the best options for home energy retrofits based on homeowner needs.

A PDA could help build the required relationships between local stakeholders, contractors, and service providers to increase interest and program participation. Coordinating with existing programs offered by utilities and upper levels of government would allow a delivery agent to develop a complementary program to achieve meaningful GHG emission reductions. The PDA should prioritize:

- Exceptional customer service geared towards improving participant and contractor experience. This may include items such as setting up energy audits, gathering contractor quotes, identifying paperwork that needs to be submitted for grants, and other tasks deemed essential.

- Understanding current market offerings. This may include understanding requirements and financing options available through other programs, so participants can take advantage of rebates, incentives, grants, loans, etc.
- Building trust through accountability, honesty, and transparency to create a positive reputation. Note these services are customer focused, not operations focused.
- Provide awareness of other programs available through other groups, such as climate adaptation programming.

Table 7 provides an overview of the core PDA responsibilities and the program barriers they address.

Table 7: Core PDA Responsibilities

Focus	Responsibilities	Barrier(s) Addressed
Program Process	• Helping homeowners coordinate baseline GHG analysis, such as helping to gather data, communicating with energy advisors to set up energy audits, etc. • Identifying local contractors available to complete work. • Point of contact for contractor and homeowner.	• Homeowner and contractor capacity. • Technical knowledge required by homeowner. • Construction inconveniences. • Customer distrust.
Funding and financial support	• Identifying funding opportunities that align with home energy retrofit goals. • Source for funding inquiries. • Support funding submissions that may be required.	• Linking retrofits to financial incentives. • Low Return on Investment (ROI).
Home Energy Use	• After baseline is complete, homeowner is guided through how their home is using energy, retrofit options (home as a system).	• Lack of awareness regarding retrofit benefits.
Home Retrofit Options	• Communicating options for homeowner based on their end goals and needs at their level of understanding.	• Lack of understanding for retrofit options. • ROI
Financial Assistance	• Understanding options available, eligible retrofits, submission requirements	• Lack of knowledge navigating programs

Consideration should be given to the following administrative responsibilities undertaken by the PDA:

- Screening homeowners for eligibility.
- Home energy retrofit education.
- Contractor coordination including training and contractor compliance.

Energy coaching services, including guiding program participants through process, answering questions, and aiding with accessing financing options (i.e. loans or incentives) and completing applications.

- Coordinating with municipal personnel[11].
- Pairing non-GHG related offers with more aesthetic or functional incentives additional value can support uptake.
- Conducting post-retrofit inspection and arranging homeowner sign-off.
- Program measurement and verification activities.
- Marketing to grow applicant base, which is expanded upon below.

PDA Selection Criteria

The R-DEER PWT explored several delivery options that other municipalities have chosen to administer home energy retrofit programs, focusing on PDA definitions, and the advantages and disadvantages for each. A summary of PDA delivery types is provided in Table 8. Refer to in **Appendix I: Advantages and Disadvantages of Program Delivery Agent Options** for additional information on the advantages and disadvantages of each PDA type [18].

Table 8: PDA Delivery Type Options

Delivery Type	Description	Additional Information
Public Sector	Government entity organizes and coordinates program and secures or supports funding	• Easy to implement • Municipal processes utilized (i.e. procurement, By-law, LIC) • Option to implement in partnership with other programs (i.e. social housing)
Community-Led **(Not for Profit)**	Community-owned program focusing on impacts and community needs	• Decision based approach that balances profits and needs of participants • Favours community goals (i.e. renewable energy)
Market-Based **(For Profit)**	Minimal government intervention, free-market approach	• Increased potential for profit • Requires consumer protections to protect against predatory sales tactics • Seen in programs with large scale uptake

Long-Term PDA Goals

The requirements to support significant GHG reductions in a financially sustainable manner would likely change over time as the program grows. To ensure the long-term stability of the program the following are offered for future consideration:

- Partner with other municipalities to streamline program offerings to reduce confusion and financial needs

[11] LIC retrofit loans must be managed by the City of Windsor. Ontario law requires municipalities be responsible for registering LICs and collecting payments through property taxes.

- Give consideration to other entity options that can support key areas of the project, such as marketing
- Program scaling based on technology improvements, pricing changes, and customer wants

Community Engagement and Marketing

Communication is an ongoing activity for any program that serves, depends upon, or interacts with the community. The purpose, audience, message, and communication channels may change, but the need to maintain relationships with the media and with key community stakeholders remain. As a result, a communication plan that incorporates community engagement and marketing should be considered and revised periodically based on program experience, and feedback received.

Effective program marketing and community engagement are essential to ensure any R-DEER program is reaching its target audience. Common barriers to the success of home energy retrofit programs are ineffective marketing and knowledge sharing.

Community and Engagement Marketing Plan Components

At a high level, a marketing and communications plan [19] should:

- Identify program audience or stakeholder groups
- Identify key messages
- Plan and design the message
- Consider resources
- Plan for obstacles or emergencies
- Strategies for media and identifying those who can help spread message
- Create Action Plan
- Evaluate plan effectiveness

Identify Program Audience / Stakeholder Groups

The City of Windsor engaged a consultant to conduct a Market Validation Study [2] as part of the R-DEER program development to provide assistance in identifying homeowner personas likely to participate in the program. Personas are fictional, generalized representations of an ideal participant. The personas provide insights into homeowner thoughts and motivations and help with programming, as it enables programs to create targeted marketing and communications for different segments of the population.

Each R-DEER persona developed includes a persona biography, summary of motivations, and challenges faced. This information is used to understand typical profiles of program participants. Key participant personas identified include:

- Price Conscious Homeowners, including DIYers
- Low Income Homeowners, including Seniors
- Environmentally Minded Homeowners

In addition to program participants, there may be other stakeholder groups interacting with the program and requiring program marketing and communications. Key stakeholder groups include:

- Contractors, Suppliers, Service Providers
- Realtors and Homebuilding Associations

- Financial Institutions
- Environmental Organizations
- Educational Providers (i.e. organizations, post-secondary institutions)
- Other groups as appropriate

As stakeholders have unique needs and motivations, consideration should be given to the following when completing a community engagement and marketing plan.

- Program branding. A strong brand would help in identifying the program and reinforce high quality service offerings from trusted sources.
- Program benefits. People will participate in the program for a variety of reasons.
- Program marketing and communications should touch on all the benefits and target multiple stakeholder groups. For example, some participants will take part in the program as it meets environmental targets, or because equipment needs replacement, while others will be looking for benefits to aesthetics, home comfort, cost savings, and resale value.
- Simple, concise language to communicate the program to all stakeholders.
- Education and outreach.

Identify Key Messages

To increase uptake from homeowners and service providers, these messages could be communicated effectively:

- Program benefits that are concise and appeal to key stakeholders.
    - Comfort is a more universally accepted motivator for program uptake, as compared to energy use, climate, or environmental impact
    - Home upgrades improve home comfort, not just energy efficiency
    - Efficient homes are less likely to face mold and drafts, making for healthier air quality
    - Home upgrades can future-proof a home, increasing market value. Upgraded homes are more resilient to power outages and climate change

Key messages can be communicated through coordinated and repetitive messaging using trusted sources. Engagement touchpoints with homeowners, contractors and community stakeholders are also effective in communicating key messages.

Consider Resources

The Community Engagement and Marketing Plan should consider the personnel and budgetary resources required, and detail the funds and personnel required to launch and implement an effective community engagement and marketing plan.

Strategies for Media

The Community Engagement and Marketing Plan should include strategies for establishing, building, and maintaining relationships with local media outlets, including TV, radio, and print media. These relationships would assist the program in getting the message out to the community stakeholders that R-DEER would need to reach.

Aside from traditional media, word of mouth is a low-cost way to get the message out. Contacts with local individuals, including community leaders, business leaders, community activists, etc. will each have access to members of the community that can be called upon to deliver key messages.

Create Action Plan

This step puts all the components together in a clear and concise document with roles, responsibilities, tactics and actions. Refer to **Appendix J: Tactics and Actions for Community and Engagement and Marketing Plan** for additional information.

Evaluation

The Community Engagement and Marketing Plan should undergo an evaluation to rate successes and obstacles to identify future improvements.

Program Governance

The proposed R-DEER program framework explores the potential roles of a Program Advisory Group and a Program Delivery Agent to facilitate governance and execution. These entities are envisioned to collaborate with the City of Windsor to ensure alignment with program objectives. The governance structure outlined is a preliminary concept and may evolve based on stakeholder feedback and further refinement.

The proposed governance model outlines potential roles and responsibilities for stakeholders to support transparency and accountability. Final decisions regarding ultimate governance structures would depend on further deliberations by City Council.

Upon review of several options, the project working team suggests that any municipality considering an R-DEER program could issue an Expression of Interest and invite interested entities to provide proposals to become the PDA for the implementation of R-DEER. The following groups could be called upon to provide input for program governance:

- Municipal Staff
- Program Advisory Committee
- Program Delivery Agent

Depending on the outcome of an EOI/RFP for the PDA, responsibilities could fall under a municipal department, a Municipal Services Corporation affiliated with the municipality, or a 3rd party entity. Responsibility considerations are outlined in Table 9 below.

Table 9: Key Groups in Home Retrofit Program Delivery and Associated Responsibilities

Group	Responsibilities
Municipality	• Formal decision-making authority and issuance of directives • Responsible for staffing decisions regarding PDA leadership • Work with PDA with application processing, approvals, and LIC loans • Reporting to Council, as needed
Program Advisory Group (PAG)	• No formal decision-making power and cannot issue directives • Provides recommendations, expertise, and supports program goals • Act as program ambassador • Evaluates program performance and metrics • Reviews program metrics and feedback to support program or strategy changes • Act as an independent and unbiased sounding board
Program Delivery Agent (PDA)	• Leader responsible for staff hiring and training • All aspects of program implementation • Reporting to Advisory Group and City Environmental Sustainability and Climate Change staff • Reporting to Council, as needed

Key groups should interact with each other regularly to ensure performance goals are met and to ensure transparency and accountability.

Program Advisory Group

A Program Advisory Group (PAG) is proposed that would meet monthly or bi-monthly to provide advice, feedback, and program accountability. Representatives could include:

- A citizen representative from each municipality where the program is offered, should the program be offered regionally.
- Relevant municipal staff from each municipality where the program is offered. This may be environment sustainability staff, with guest invitations to building, communications, finance, legal, planning and other relevant groups, as needed.

In addition to the criteria above, the PAG should endeavour to include individuals with different knowledge and skills. This ensures that all program areas and impacts are considered when decisions are made. PAG may include members from:

- Diverse populations (i.e. communities of colour, Indigenous peoples, social service organizations with experience with immigrants and/or low-income populations)
- Local businesses with technical expertise
- Local Homebuilding Association
- Local environmental groups
- Utilities
- Chambers of Commerce, or BIAs
- Educational institutions

Program Delivery Agent

Depending on the structure of the PDA, the ongoing relationship with the municipality could include:

- Consistent contact between PDA and municipal staff regarding program direction, feedback, and how City departments support the program.
- City serves as link to other municipalities for discussion, input, and planning for any program aggregation opportunities.
- PDA works within budget as approved by the City.
- PDA and City work together in reporting to Council, as needed.

Program Partnership Strategy

The draft framework suggests that partnerships with local contractors, financial institutions, and community organizations could enhance program delivery. The development of any formal agreements would be contingent on council approval and further negotiations to ensure alignment with municipal priorities and community needs.

Partnerships provide value by enhancing the impact and effectiveness of program actions through a combined and more efficient use of resources and funds. The enhanced value must be realized by all

partners involved. A clear understanding of the expertise, capabilities, and roles of all partners is important for partnership success. The draft framework proposes to achieve the following goals:

- Identify partners to financially support the program through long-term partnerships that are beneficial to both parties
- Collaborate with local businesses, groups, and organizations with similar interests, or end goals that could increase outreach through cross-promotion of program materials etc.
- Aggregate program delivery with neighbouring municipalities to share resources
- Identify partnerships that further incentivize participation that also benefits the partner

The partnership strategy should focus on developing objectives, strategies, and tactics through collaboration and regular communications. Table 10 outlines considerations for partnership planning.

Table 10: Outline of Recommended Suggested Steps to Developing a Partnership Plan

Step	Description
Identify type of partnership(s) desired	What purpose / goal is the partnership looking to fulfill? Is funding available? Does an outreach network exist? Strategies and tactics for engagement?
Identify partner interests	When developing the value proposition for partners, an assessment of partner interests. Outcomes may be used to identify goals, skill gaps, vision statements, and assist in reducing duplication of effort.
Donor Timing	As applicable, plan out timing for funding, understand funding cycles, and identification of key dates
Develop Value Proposition	Once partners have been selected, start building relationships based on interests and value added

The following table provides an overview of the strategic goals and priorities of the R-DEER's partnership strategy, which could also assist in the development of a financing strategy while striving to achieve the program goals.

Table 11: Partnership Strategy – Goals and Priorities

Categories	Goals	Priorities
Diverse Relationships	Ongoing In-kind support to fill program and delivery gaps	Identify how post-secondary institutions can assist in filling knowledge gaps and expand capacity
	Facilitate Sponsorship Opportunities	Establish list of local businesses, organizations, and community groups that can support education and promotion efforts
	Partnerships focusing on home comfort will be established during pre-launch	Establish volunteer network to support program
Financial Collaboration	Program launches with a single municipal partner, with plans to expand by year 5 as applicable	Identify other local municipalities that would be interested in collaborating in a regional program
	Additional financing options and partners identified by year 3 to support increased uptake	Research funding options and grants that focus on affordable housing or multi unit residential buildings
		Stakeholder outreach for third-party financing, creation of green bonds, etc.
Program Value and Impacts	Develop key performance metrics (quantitative and qualitative) for annual reporting tailored for each partner	Collaboration with partners to identify information and metrics for reporting
		Create template for partners to report annually on the impacts of their support

The strategies and priorities proposed are expected to change and evolve over time. The table below highlights tactics that could be completed in the short (1-4 year), medium (5-7 years) and long-term (8+ years). The tactics address funding (including staff resourcing), improving program uptake through marketing and outreach, and adding additional value for participants.

Table 12: Partnership Tactics to Increase Program Funding

Timeline	Tactics	Rationale	Examples
Short Term	Sponsorships	Work to reduce municipal contribution (%)	Home Builder Association, utilities, local companies, insurance groups
		Justifies interest in program	
	Program Uptake through marketing and outreach	Outreach is crucial for program uptake	Local non-profits and groups with similar programs for cross-promotion
		Partners assist in expanding reach and saving marketing dollars	
	Local Business partnership	Provide value add to business owner and participant	
Medium Term	Collaboration with additional municipality	Work to reduce municipal contribution (%)	PACE Atlantic
		Streamline processes and reduce confusion in region	
	Explore options for green bonds	Raise significant long-term funding	Green Bonds Toronto
Long Term	Incorporate private funding	Support program scaling Potential for additional business development	Municipal programs with provisions for 3rd party loans (i.e. Durham, Peterborough)

Staffing

Personnel resources would be required to oversee program delivery. The number of program personnel could be scaled by combining roles at launch and expanded as program participation increases.

A potential staffing structure outlining key staff positions and proposed program responsibilities based on lessons learned from other programs are noted below. Staffing requirements would be expected to change over time in response to program progression and may involve onboarding of additional staff with specialized skills in customer experience and education, marketing and communications, and partnership development.

Table 13: R-DEER's Staffing Proposal

Area	FTEs at Pre-Launch	FTEs at Launch	FTEs at Full Scale
R-DEER Program Administrator	0.75	1.0	1.0
Energy Coach(es)	0.0	0.5	3.0
Communications and Marketing Coordinator	0.1	0.5	1.0
Program Analysts	0.0	0.5	3.0
Legal Counsel (Contracts)	0.15	0.5	1.0
Measurement and Verification (M&V) Professional	0	0.25	1.0
Total	**1.0**	**3.25**	**10.0**

R-DEER Program Administrator

The R-DEER Program Administrator would be responsible for program oversight and day to day operations.

Energy Coaches

Energy Coaches are proposed to be the principle contact for homeowners and responsible for providing education, expert guidance and quantifying program savings.

Marketing and Communications Coordinator

A Marketing and Communications Coordinator is proposed to develop marketing and promotional materials, and program communications. Relied on heavily during program pre-launch, responsibilities may include:

- Developing media releases and promotional campaigns
- Assisting the development of program brochures
- Creating video content for You Tube and other platforms
- Assisting in the development of program logos, and branding

Program Analyst

Program Analyst positions should be allocated to provide program oversight as it relates to financing and budgetary tasks associated with program implementation, with particular focus on setting up and administering LIC accounts on behalf of participants.

Legal Counsel

Legal Counsel is another potential R-DEER role whose participation may vary depending on the number of active participants. Their primary role is to coordinate legal reviews and completion of legal documents between all participants as required.

Measurement and Verification Professional

A Measurement and Verification Professional could be secured to measure individual and program progress and report on program key performance indicators / metrics.

Program Budget

R-DEER's program budget has been projected assuming a gradual participation uptake for the first couple of years, and includes allocations for administration of the program, and grants, incentives and loans.

It is crucial to consider that, according to the Market Validation Study commissioned by the project team, substantial investments from federal and provincial governments are required to meet home energy retrofit goals. Municipalities cannot afford the long-term program costs alone.

Administrative Budget

For any R-DEER program to be successful, a robust administrative structure is required. This report outlines the budget considering the option of the City as the Program Delivery Agent with full responsibility for program delivery, although alternative program delivery agents could be secured through an Expression of Interest process. The administrative budget consists of payroll and program costs.

R-DEER's staffing proposals at launch and at full capacity, measured in Full Time Equivalents (FTEs) are outlined in Table 13. R-DEER responsibilities would likely require the creation of new roles. For example, the R-DEER Program Administrator and Energy Coach(es) positions would dedicate 100% of their time to the program.

Below is an overview of R-DEER Program costs, including highlights of cost allocations and departmental leads.

Table 14: R-DEER Program Cost Areas

Area	Description	Cost Allocations	Department Lead	Frequency
By-law pre-work	Preparing by-law and completing due diligence for LIC financing	Municipal staff time to draft by-law and complete due diligence review	Municipal legal, financing, and ESCC staff	One-time
Program set-up	Securing capital funding to issue loans, Creating administration components for program delivery	Municipal staff time to review and prepare documentation and processes Municipality staff time to complete Program Delivery Agent selection	Municipal ESCC, communications, legal, and financing staff	One-time
Web Portal Development		Purchase of platform or equipment Consultant or municipal staff time to set-up, configure, and monitor portal	Municipal IT, communications, and ESCC staff	One-time
Program Launch	Planning launch details Developing program logo and branding	Municipal staff time to develop processes and operation procedures Consultant time to develop program name, logo, and branding	Municipal ESCC Staff Marketing Consultant	One-time
Communications, Marketing, and Training	Developing promotional materials Developing training materials in collaboration with education partners	Municipal staff time to develop and review communications, marketing, and promotional material Municipal and educational partner time to develop and implement training modules	Municipal ESCC, and Communications Staff Education partner	Ongoing
Operating costs	Ongoing costs needed to deliver the program Includes equipment and supplies	All aspects of program implementation (staffing, communications, day to day costs)	Municipal ESCC Staff	Ongoing
Individual participant costs	Costs incurred to enroll participant in LIC Includes collection of Application Fees	Municipal staff time to create, review, and process LIC documents and contracts	Municipal ESCC, Legal, and Tax Staff	Ongoing

Grant / Incentive Budget

The R-DEER program offers participants one or more available grant and incentive payments. Estimates are presented below for grant and performance incentive disbursements for the program's first four years.

Table 15: Grant and Performance Incentive Disbursements (Proposed)

Grant	Expenditures ($)			
	Year 1	Year 2	Year 3	Year 4
Audit Grant	145,000	400,000	775,000	1,275,000
Low Income Grant	15,000	50,000	105,000	150,000
Grant Totals	*160,000*	*450,000*	*880,000*	*1,425,000*
Performance Incentives				
Energy Consumption / GHG Emissions	240,000	400,000	1,070,000	1,500,000
Total Grant and Incentive Budget	400,000	850,000	1,950,000	2,925,000

Loan Budget

The loan budget for R-DEER was estimated assuming that 25% of program participants would select the LIC financing option, while remaining program participants would fund their home energy retrofits through homeowner lines of credit, or personal loans. The budget presented illustrates the scope of the funding required to meet forecasted participation. Strategies and partnerships required to meet financial shortfalls would need to be explored further in R-DEER's Capital program: Home-energy upgrade financing program application.

R-DEER's program costs for the first four (4) years of program implementation, which align with FCM's CEF Capital Project Funding for Home-energy upgrade financing, are highlighted below.

The following is a list of assumptions utilized to create the program budget:

- 100% of the forecasted participants will apply to participate and make use of services and education provided by Energy Coaches.
- Participants will be accessed a $300 administrative fee which will help to offset program costs.
- The design rationale assumes 25% of total participants will use the LIC option, as the homeowner survey indicated personal funding options such as personal savings, lines of credit, banks loans etc. are the preferred payment methods for home energy retrofits.
- A portion of the budget from the BFPSP will be shared with R-DEER for properties participating in both programs simultaneously.

Table 16: R-DEER Program Budget with Four-Year Financial Support from FCM's Loan and Grant Capital Program

FCM + Municipal Support						
		Pre Launch	Year 1	Year 2	Year 3	Year 4
Number of Homes upgraded			300	500	1,050	1.500
Number of Homes Financed through LIC (25)			75	125	236	375
Expenses						
		Pre Launch	Year 1	Year 2	Year 3	Year 4
Payment Type	**Frequency**	**Amount($)**	**Amount($)**	**Amount($)**	**Amount($)**	**Amount($)**
Payroll	Annual	150,000	450,000	670,000	775,000	1,000,000
Program Costs	Annual	1,050,000	450,000	200,000	125,000	120,000
LIC Loan Disbursements	Annual	0	3,000,000	5,000,000	10,520,000	15,000,000
Rebates / Incentives	Annual	0	400,000	850,000	1,950,000	2,925,000
Total Program Expenses		**1,200,000**	**4,300,000**	**6,720,000**	**13,370,000**	**19,045,000**
Revenue						
		Pre Launch	Year 1	Year 2	Year 3	Year 4
Funding Source	**Frequency**	**Amount($)**	**Amount($)**	**Amount($)**	**Amount($)**	**Amount($)**
Customer Administration Fees	Ongoing	0	90,000	150,000	315,000	450,000
FCM Funding						
Grant	One-Time	1,050,000	12,750,000	1,200,000	750,000	250,000
Loan Loss Reserve (5% of FCM Loan)		0	125,000	125,000	125,000	125,000
FCM Loan Capital	One-Time	0	525,000	1,075,000	1,275,000	1,625,000
Total FCM Funding		***1,050,000***	***2,400,000***	***2,400,000***	***2,150,000***	***2,000,000***
Municipal Funding	Ongoing	150,000	1,900,000	4,320,000	11,220,000	17,045,000
Total Program Revenue		**1,200,000**	**4,3000,000**	**6,720,000**	**13,370,000**	**19,045,000**

The federal government provided funding to the Federation of Canadian Municipalities (FCM) that administers the Green Municipal Fund (GMF) and provides Community Efficiency Financing (CEF) grants. This fund aims to help local governments switch to sustainable practices faster by accelerating a transformation to resilient, Net-Zero communities. CEF provides funding options targeting residential retrofits, and provides resources for grants, loans, innovative financing, leveraged investments, capacity building, and strategic support.

The budget illustrated above recognizes that any financial resource allocation through the municipality or applications for FCM funding are not guaranteed. The budget outlined assumes that after the first four years, the program would no longer receive FCM funding and would likely result in the need for third-party capital providers and lenders. Third parties could include financial institutions like credit unions, investment banks or consumer banks. At this stage, the Loan Loss Reserve can be supported by FCM funding. The LLR can reduce third-party risk in exchange for improved homeowner lending terms.

The chart below details how capital could flow between actors. This would need to be confirmed as part of program set-up and in collaboration with all parties and the contracted third-party program administrators once selected.

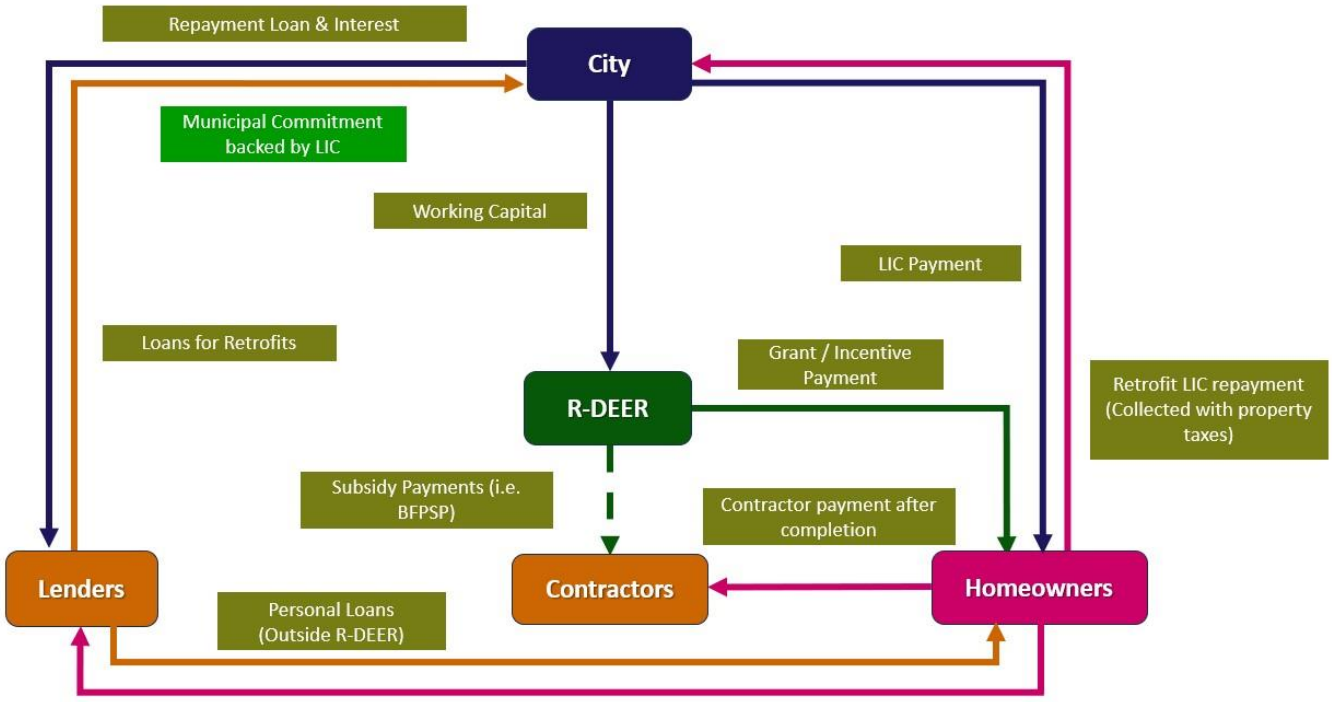

Figure 7: R-DEER Potential Capital Flow and Actors

Program Monitoring and Evaluation

As a final component of Program Governance, R-DEER would follow a monitoring and evaluation (ME) framework to assess program performance. The proposed program ME framework is meant to balance time spent on data framework and aims to be:

- Flexible - Able to be modified as program offerings evolve.
- Simple - Identify SMART goals that are incorporated into the program.

The framework will follow a basic continuous improvement loop of plan, do, check, act. Refer to **Appendix K: Program Monitoring and Evaluation** for additional details.

Conclusion

The Residential Deep Energy Efficiency Retrofit (R-DEER) program design study provides a comprehensive framework to explore how retrofitting residential properties may address local energy consumption, greenhouse gas (GHG) emissions, and energy affordability challenges. By aligning with national and global climate objectives, the proposed program presents an opportunity to foster environmental sustainability, and community well-being.

This study reflects an exploratory approach and highlights potential strategies, costs, and benefits based on local data and stakeholder engagement.

Future program discussions will most certainly consider that following the Market Validation Study uptake curve will result in Windsor missing the climate targets set out in the Community Energy Plan. The time needed to retrofit 57,200 homes by following the Market Validation Study curve is 100 years. Accelerating R-DEER's program uptake (as well as other programs across Ontario and Canada) would require substantial investments from federal and provincial governments.

While the report outlines a preliminary framework, it emphasizes that future steps will require careful consideration of funding availability, community readiness, and alignment with municipal priorities.

Next Steps

The findings of this study will be presented to Windsor City Council to provide a comprehensive overview of the Residential Deep Energy Efficiency Retrofit (R-DEER) program framework. Council will also be provided the Market Feasibility Study ensuring a comprehensive analysis of the program.

The goal of the report is to provide Council with a clear understanding of the program's potential benefits, challenges, and opportunities, while outlining the steps that would be required for further potential development as detailed in **Appendix L: Considerations for the Implementation of a Municipally Led Program**. A formal acknowledgment of the FCM grant will be included, highlighting how their funding enabled the municipality to explore innovative solutions for residential energy efficiency.

A copy of the Residential Deep Energy Efficiency Retrofit (R-DEER) program framework will be submitted to the Federation of Canadian Municipalities (FCM). The study fulfills the requirements of the FCM grant.

Any requests for supplemental information or clarifications from FCM will be addressed at our earliest opportunity.

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Residential Deep Energy Efficiency Retrofits Design Study - Appendices

February 2025

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Contents

Appendix A: Baseline Data

This section summarizes key housing, utility, and GHG emissions data to inform Windsor's program development and marketing tactics.

Windsor Demographics

Windsor's total population from the most recent Census (2021) is 229,660 with an average resident age of 42.0 years old. This is consistent with the average Canadian (41.9). As shown in Figure A-1, 59.6% (136,855) of Windsor residents are in the working age bracket of 20 to 64 years old, which correlates to a prime target market for home energy retrofits.

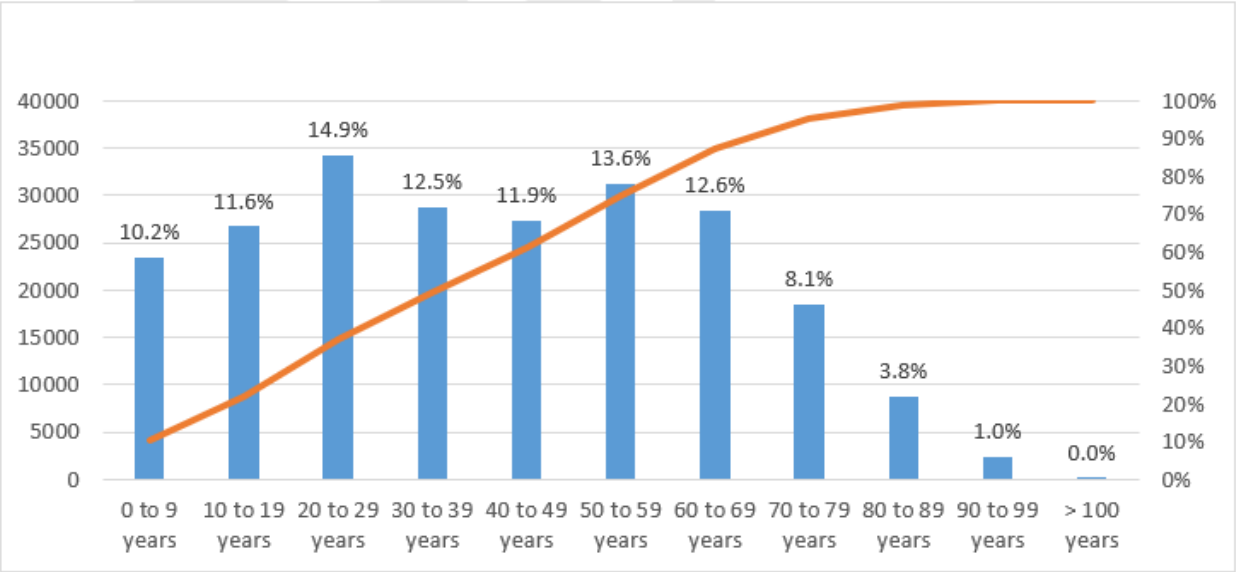

Figure A-1: Windsor Population – Age Brackets

Although the average household income in Windsor was $86,800 in 2020, the 2020 median household income in Windsor was $70,000, which is 27% lower than the 2020 Canadian median household income of $96,220 [1]. As shown in Figure A-2, household incomes vary greatly in Windsor. While 50% of households had an income below $70,000, almost 31% of households had an income above $100,000 in 2020.

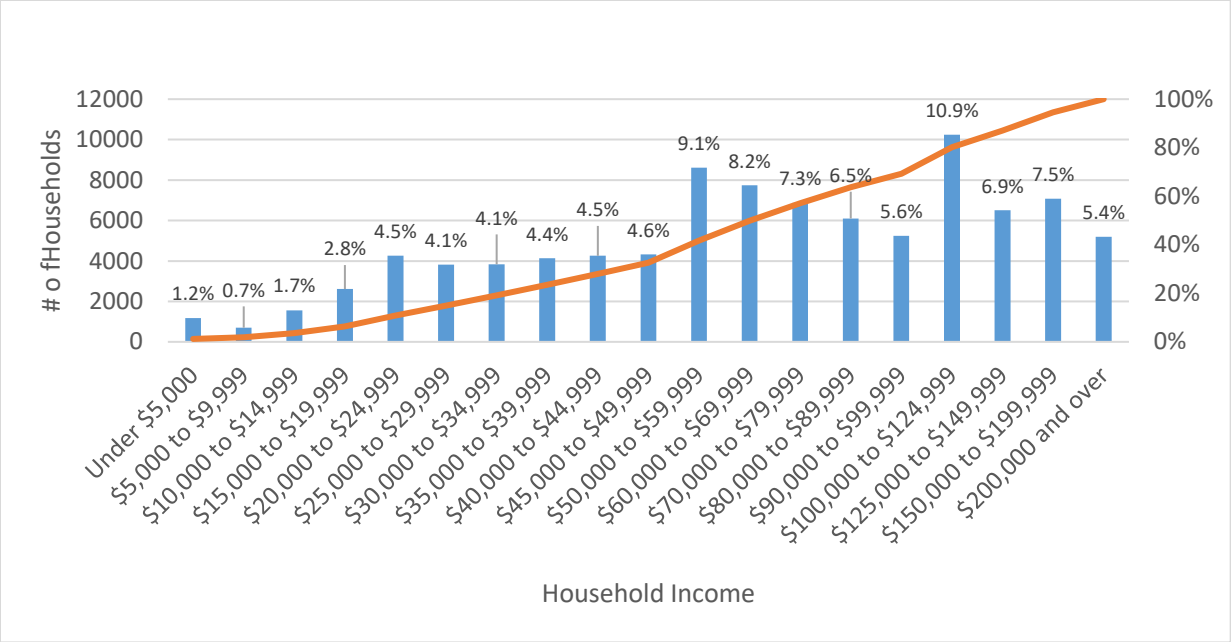

Figure A-2: Household Income – Income Bracket Distribution

Approximately 11% of Windsorites have an income below the poverty line as measured against Canada's official measure of poverty, the Market Basket Measure [2]. Many low-income programs utilize a before tax income calculation based on the number of people within a household to determine eligibility. Table Appendix A-1 illustrates the low-income cap as found on Enbridge Gas Inc's Home Winterproofing webpage [3].

Table A-1: Enbridge Gas Inc's Home Winterproofing Program Income Table to Qualify Low-Income Participants[1]

Number of people in the home	Before-tax household income
1	$45,322
2	$64,095
3	$78,499
4	$90,643
5	$101,343
6	$111,015
7	$119,910

Windsor Housing Stock

The energy efficiency and GHG emissions savings potential was determined by characterizing Windsor's housing stock. The housing market was divided into segments with similar characteristics (e.g., age, type, size, and space & water heating/cooling) to identify which measures and building types offer the greatest potential for energy efficiency improvement and GHG emissions savings. Demographic data provided by

[1] 2024 values

Census Canada was then applied to determine which households are most likely to participate in a home energy efficiency program.

Characteristics of existing dwellings

Statistics Canada's 2021 census identified 94,275 private dwellings within Windsor organized into eight housing types, five of which are eligible home types for a home upgrade program, and denoted with an asterisk (*):

- Single-detached home*
- Semi-detached home*
- Row house*
- Other single-attached house*
- Apartment in duplex*
- Apartment with 5 or more storeys
- Apartment with fewer than 5 storeys
- Movable home

Within A housing stock, 71,265 dwellings would be eligible for program participation, as they fall within the "residential" definition of detached, semi-detached, row townhomes that are no larger than triplexes, yielding a potential market of approximately 57,000 single-family homes in Windsor.

Figures A-3 and A-4 summarize key elements of Windsor's housing stock.

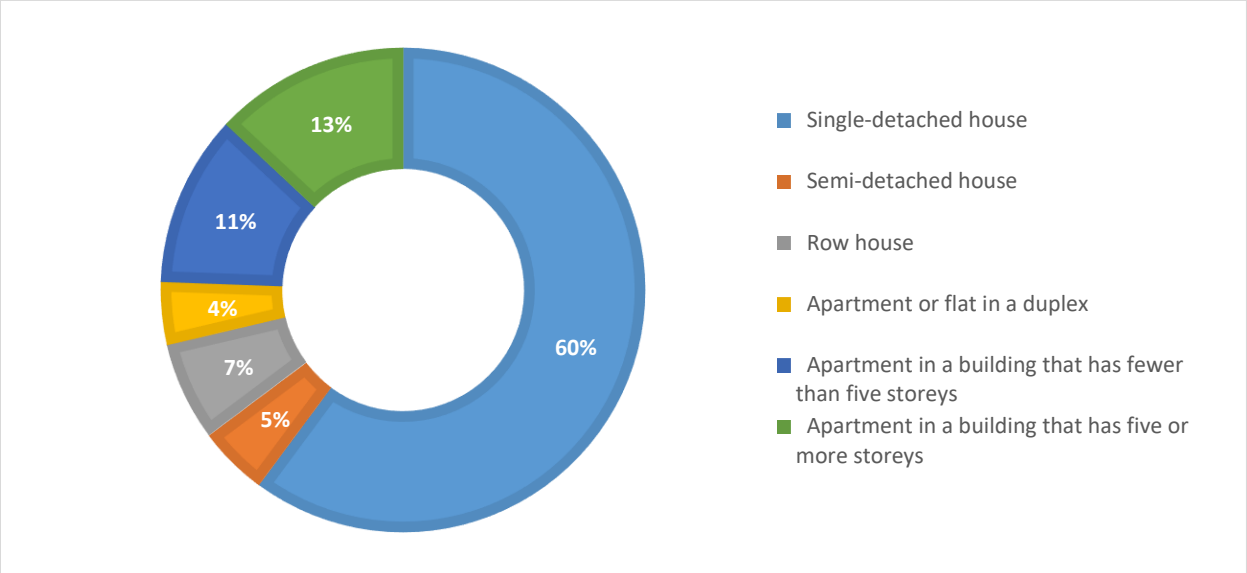

Figure A-3: Windsor Housing Stock Breakdown (per 2021 Census)

The latest Census Canada data for Windsor indicates that approximately 39% of dwellings in Windsor were constructed prior to 1960, 36% between 1961 and 1990, and 25% were constructed after 1990 [1]. While older dwellings are typically less energy efficient than newer dwellings, without further knowledge of home's renovation history, a dwelling's age alone cannot be used to assess the degree at which a dwelling could benefit from home energy efficiency retrofits.

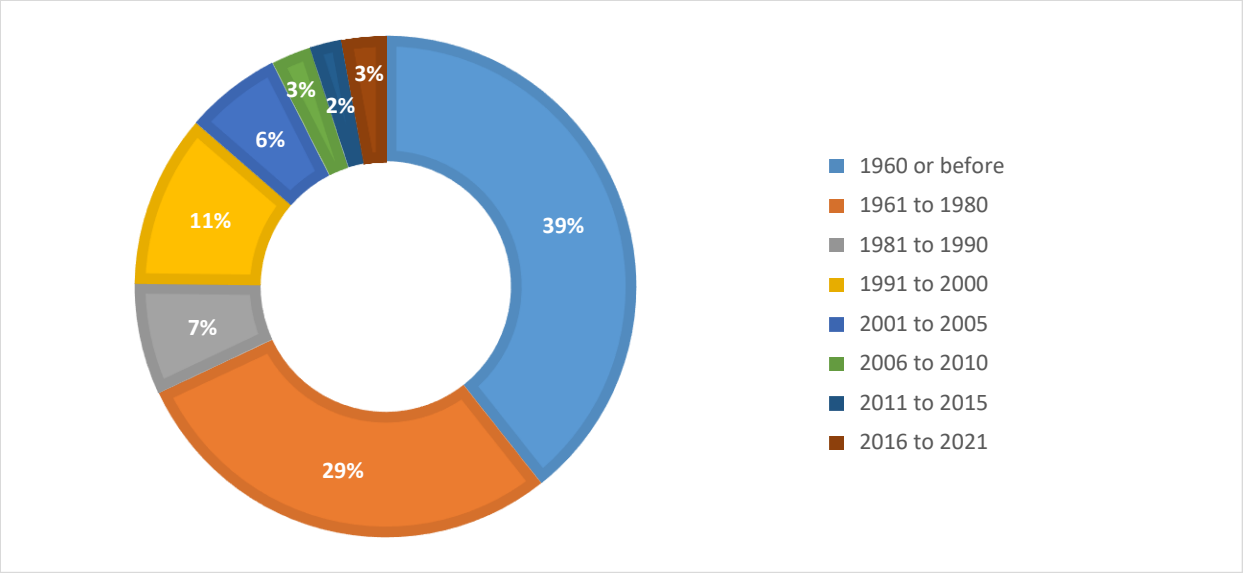

Figure A-4: Windsor Housing Stock by Construction Period (per 2021 Census)

Postal Code Breakdown

The City of Windsor is divided into thirteen Forward Sortation Areas (FSAs, i.e. the first three digits of a postal code) depicted in Figure A-5. Including FSAs, adds further detail for utility analysis, as utility data is provided by FSA, which can be linked to homeowner survey responses and drive areas of emphasis when recruiting program participants.

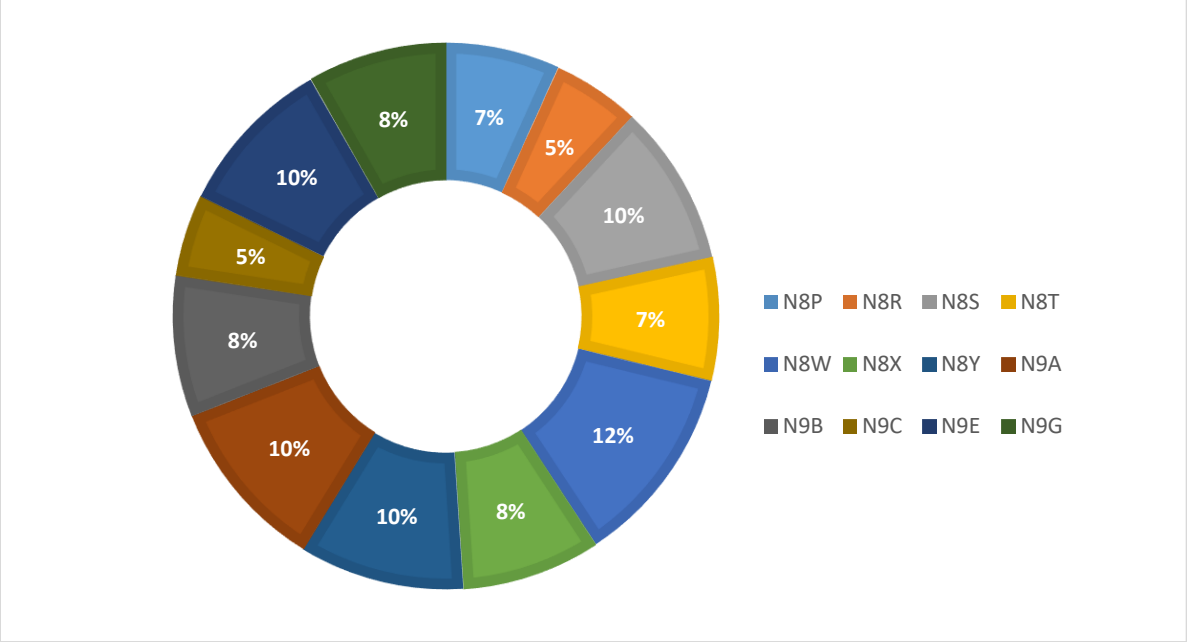

Figure A-5: Proportion of homes within each Windsor[2] [4]

[2] Note: this includes electricity consumption for all residential types (i.e. single family, apartment buildings, condominiums etc.)

Windsor's utility (electricity and natural gas) consumption was analyzed for all home types for the years of 2019 and 2021 to identify potential significant changes due to COVID-19. The analysis did not find any significant differences, therefore only 2019 data will be presented below as this is more representative of typical consumption. Utility consumption for each FSA is summarized in Figure A-6.

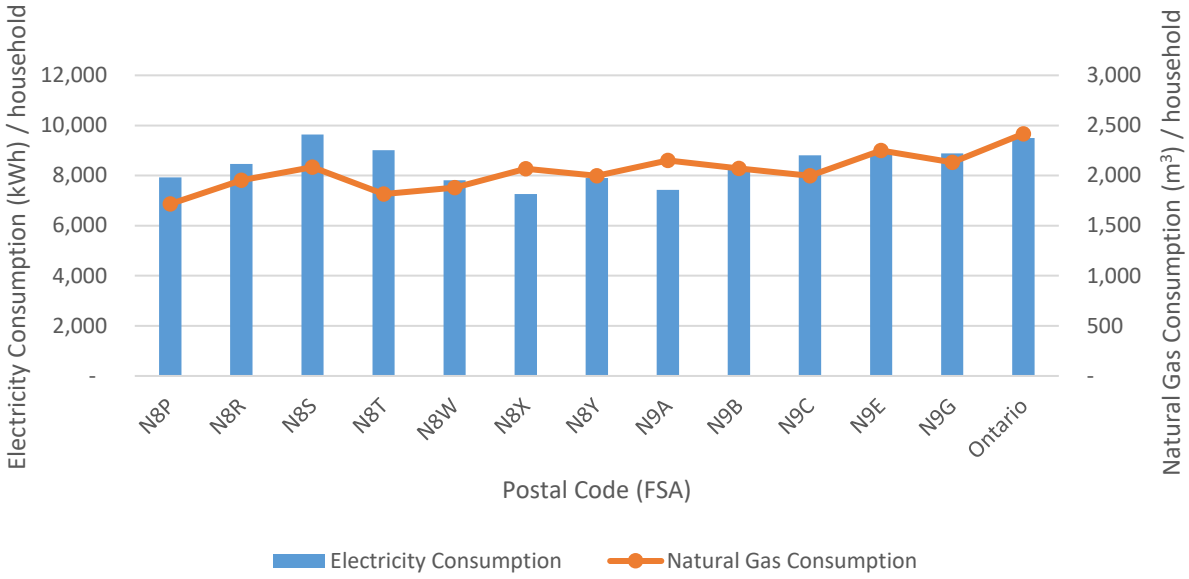

Figure A-6: Average 2022 utility use per Windsor FSA with Ontario as a comparison (Electricity and Natural Gas)

Greenhouse Gas Emissions

2022 utility data (natural gas and electricity) was used to calculate approximate GHG emission from Windsor homes. Figure A-7 illustrates that most residential emissions are generated from natural gas (94%) with electricity (6%) a distant second. On average, Windsor residents account for **4.1 tCO2e per residential unit per year**[3].

[3] Only includes GHG emissions from electricity and natural gas usage in homes. Does not include GHG emissions from transportation or industry sources.

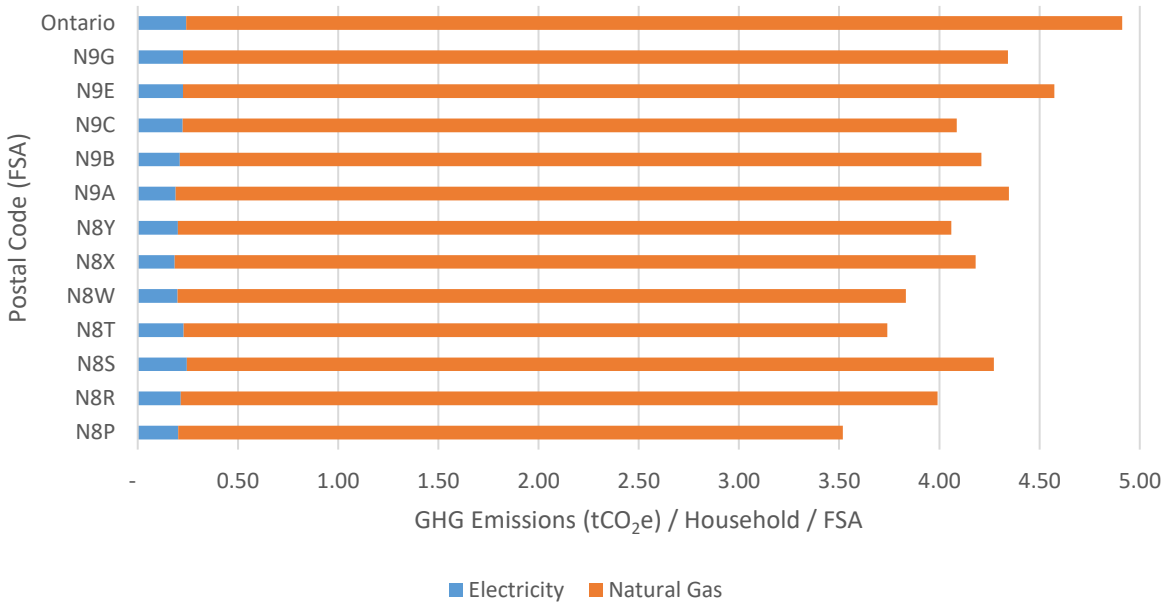

Figure A-7: Residential Emissions per Windsor FSA for Electricity and Natural Gas Consumption, with Ontario as a comparison (2022)

Electricity consumption generates less GHG emissions than natural gas. Ontario's emission factor for electricity generation is tied to its supply mix. Recent procurements coupled with increased reliance on the use of natural gas for generation to fill supply gaps (nuclear refurbishments and retirements), have increased overall GHG intensities for electricity generation, however, electricity will remain the lower carbon energy alternative.

Utility Costs and Carbon Tax

Average utility costs broken down by individual cities in Ontario is not typically reported, though the Financial Accountability Office of Ontario identified that in 2019 the average Ontario home spent 2.6% of after-tax income on home energy costs ($2,165), which is broken down in Table A-2, and excludes carbon tax payments [5].

Table A-2: Average Utility cost in Ontario (2019)

Utility	Ontario Average ($)	% Total
Electricity	1,195	55
Natural Gas	842	38
Other	128	7
TOTAL	2,165	100

According to the United Nations, fossil fuels, such as coal, oil and gas, are the largest contributor to global climate change, accounting for over 75% of global greenhouse gas (GHG) emissions and 90% of carbon dioxide emissions.

The Government of Canada has implemented a carbon tax to incentivize Canadians to use less fossil fuels and to switch to greener forms of energy, such as using heat pumps or taking public transit, to reduce greenhouse gas emissions that cause climate change. The federal carbon tax (i.e. a tax on carbon emissions), sets the minimum price on carbon in the country with every jurisdiction entitled to run its own pricing system. Jurisdictions without a carbon pricing system (including Ontario) use the federal program.

The Carbon Tax was introduced in 2019 and set the price of carbon at $20 per tonne. The price increases annually on April 1 and is currently $80 per tonne as of April 1, 2024. The carbon tax is scheduled to increase another $15 each year until it reaches $170 a tonne in 2030, as shown in Table Appendix A-3. This yearly increase is intended to help Canada reach its emissions target while giving Canadians time to make greener fuel choices [6].

Table Appendix A-3: Federal Carbon Tax

Year	Carbon Tax ($/tCO$_2$e)	Year	Carbon Tax ($/tCO$_2$e)
2019	20	**2025**	95
2020	30	**2026**	110
2021	40	**2027**	125
2022	50	**2028**	140
2023	65	**2029**	155
2024	80	**2030**	170

The average natural gas heated home in Windsor spent approximately $177 in Carbon Tax for 2022 (based on 4.1 tCO$_2$e GHG emissions) and are projected to spend an average of $623 in 2030 when the carbon tax reaches $170/tCO2e under a business-as-usual scenario (Figure A-8). Participants that complete the program are estimated to save $2,841 (70% reduction) in carbon-tax spending between 2022-2030 (Table A-4). The savings from reduced carbon emissions related to home heating will encourage homeowners to select cleaner energy sources, by reducing the pricing gap between electricity as a heating source and natural gas.

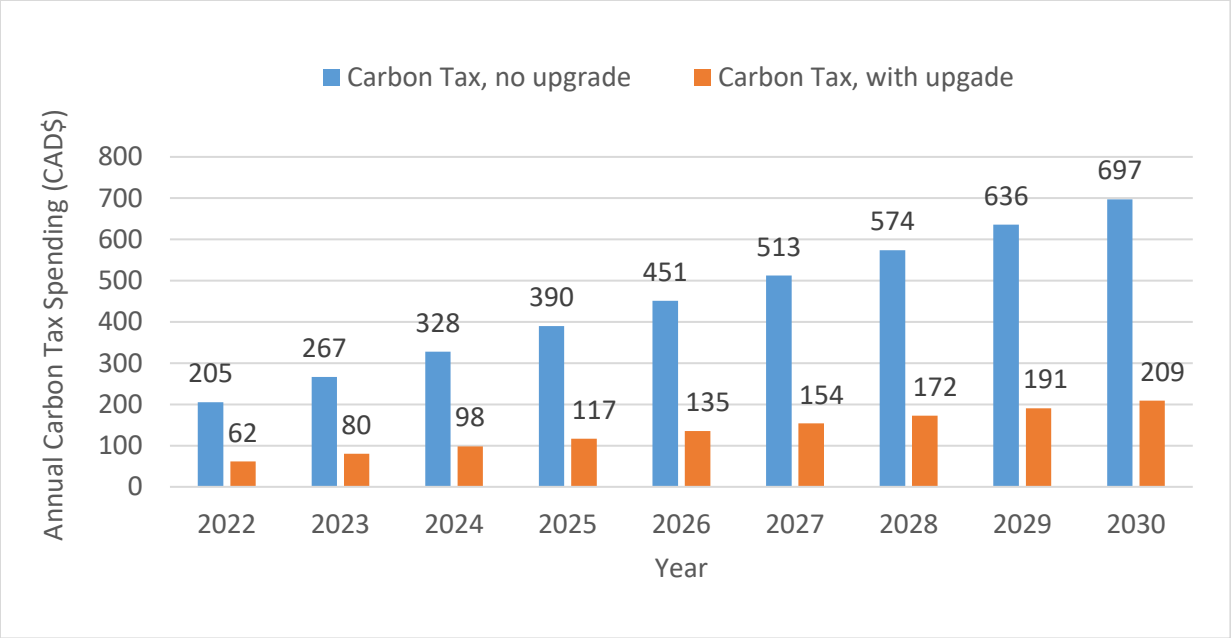

Figure A-8: Windsorite carbon tax payments over time under a business-as-usual scenario (i.e. no upgrades completed)[4]

Table A-4: 2022-2030 carbon tax spending comparison

Carbon Spending	No Upgrade (CAD $)	Upgrade Completed (CAD $)
2022	205	62
2030	697	209
Cumulative 2022-2030	$4,059	$1,218
Savings	**$2,841 (70%)**	

Note that the calculations provided in Figure A-8 and Table A-4 do not include annual payments from the Canada Carbon Rebate (CCR). The CCR (formerly known as the Climate Action Incentive Payment (CAIP)) is a tax-free amount to help eligible individuals and families offset the cost of the federal pollution pricing for home heating and transportation. It consists of a basic amount and a supplement for residents of small and rural communities. The payments made quarterly are intended to offset increases in carbon tax rates. As an example, a family of 4 in Ontario could expect annual CCR payments totalling between $1,120 and $1,344 in 2024

Available Energy Audit Data

Natural Resources Canada (NRCan) provided energy audit data for audits using the updated EnerGuide Rating System (ERS) GJ rating. Analysis was conducted on pre- and post-energy audit data collected

[4] Payments reflect carbon tax payments based on 2019 natural gas consumption and implementation of recommended home upgrades within this report

between May 2017 and December 2022. The NRCan data provided insights into housing details (home age, total windows and doors, energy efficiency, fuel sources etc.), energy use, and GHG emissions from homes. Energy audit information is first gathered and then organized into different housing categories (archetypes) that allows for a complete understanding of the type and quantity of homes within Windsor that have completed energy assessments. More specifically, PWT completed:

- A **City-Wide Analysis** outlining the number of single-family dwellings, and heating systems.
- A **GHG Analysis** of previously completed audits to determine which archetypes represent the greatest opportunity for GHG reductions.

Key findings from the analysis are listed below:

- Windsor has identified three (3) primary housing archetypes (or categories) that represent 75.6% of residential dwellings.
- Most homes are heated with natural gas, though electricity is also used.
- GHG emissions vary greatly (3.8 – 8.5 tCO_2e/home/yr.) depending on archetype.
- Capturing carbon savings by focusing on certain archetypes is an important first step in reducing GHG emission.

NRCan EnerGuide data from 5,703 pre-retrofit evaluations completed between 2017 and 2022 shows that 98% of Windsor's participating dwellings used natural gas as their primary energy source for space heating, followed by electricity (2%). These results align with information gleaned from the 2021 Census and the results from Windsor's R-DEER Homeowner Survey.

The predominance of natural gas shows opportunity for fuel-switching to electricity to drive GHG emissions reduction. All heating sources can also benefit from insulation and other thermal resistance measures which will drive down heating requirements.

Figure A-9 shows the number of NRCan Pre- and Post- Retrofit Audits performed in Windsor between 2017 and 2022. Uptake between 2017 and 2019 can be tied to programs and rebates offered for electrical (IESO's Save on Energy) or Natural Gas (Enbridge Gas Inc. or equipment manufacturers). Historically, the percentage of homes undertaking retrofits were slightly higher in Windsor (89%) than in other Canadian jurisdictions (~80%) as highlighted by the number of post-retrofit audits completed.[5]

[5] Post-Retrofit Audits are not necessarily completed in the same year as their corresponding Pre-Retrofit Audits.

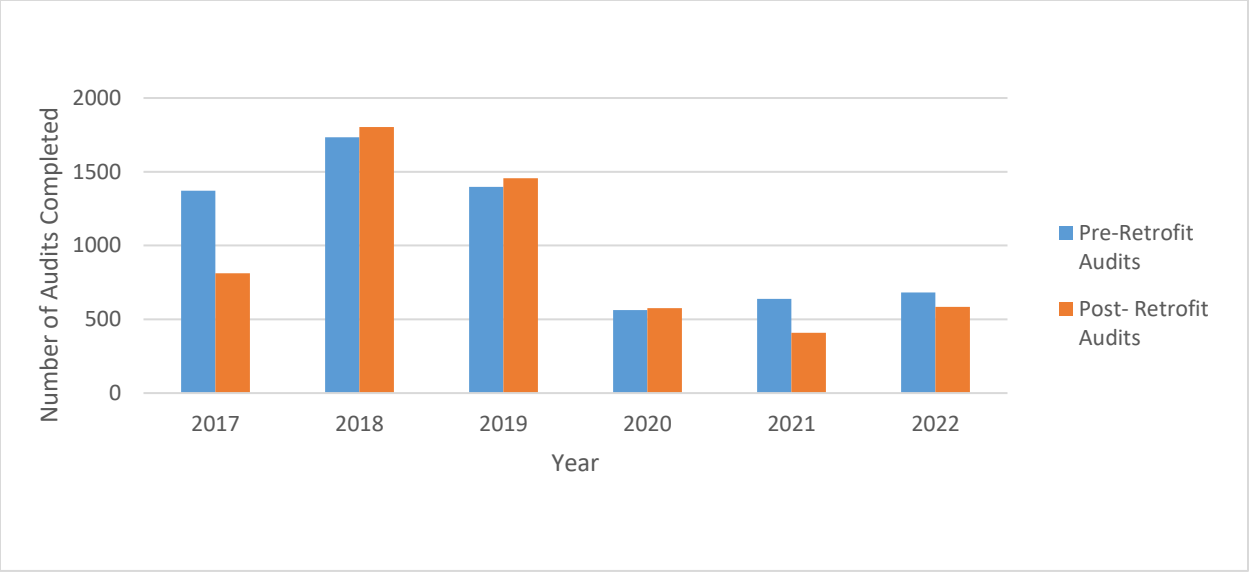

Figure A-9: EnerGuide Pre and Post Audits in Windsor (May 2017 to December 2022)

A total of 5,058 post-retrofit audits could be analyzed for the breakdown of the types of measures installed and their energy savings. From those 5,058, a total of 14,466 measures were installed with most of the projects (62%) installing 2 or more measures per dwelling. The most common measure was air sealing upgrades (99%), followed by space heating equipment upgrades (77%) Other installed measures included thermal insulation measures, including envelope insulation upgrade (walls, foundation, exposed floor, and ceiling), energy efficient windows and doors, and water heating equipment as illustrated in Figure A-10.

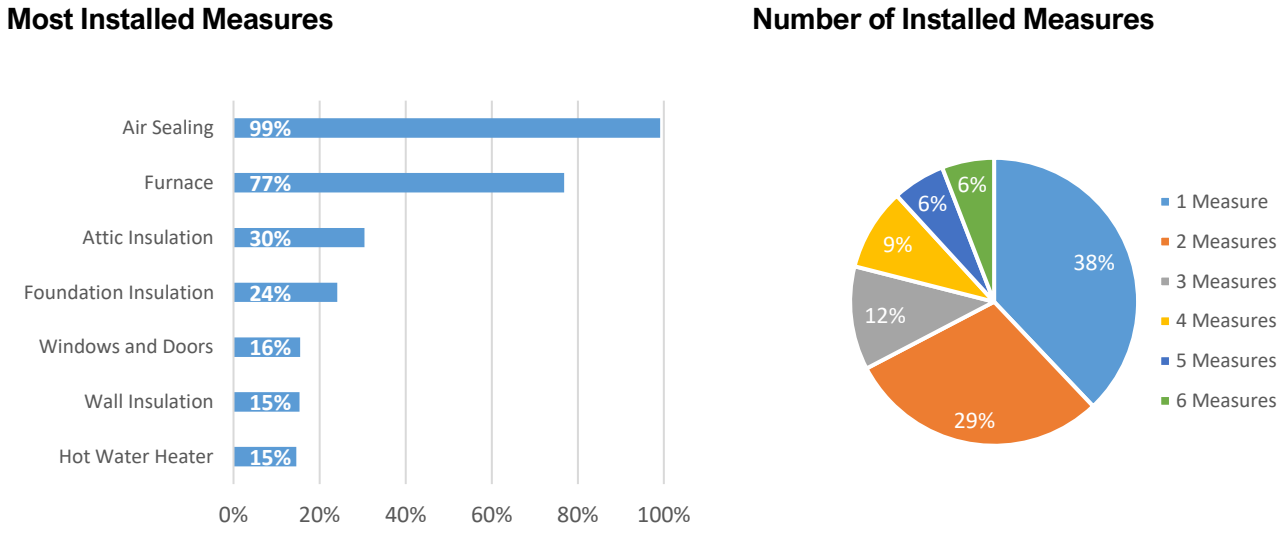

Figure A-10: Most Installed Measures and Number of Measures Installed per Home

On average, homeowners achieved 73% energy savings by retrofitting their homes. Less efficient homes (i.e. higher EnerGuide rating value) are typically older (>30 years) and have more opportunities achieve greater savings. Figure A-11 highlights the potential energy savings for homes, based on pre-retrofit ERS rating ranges.

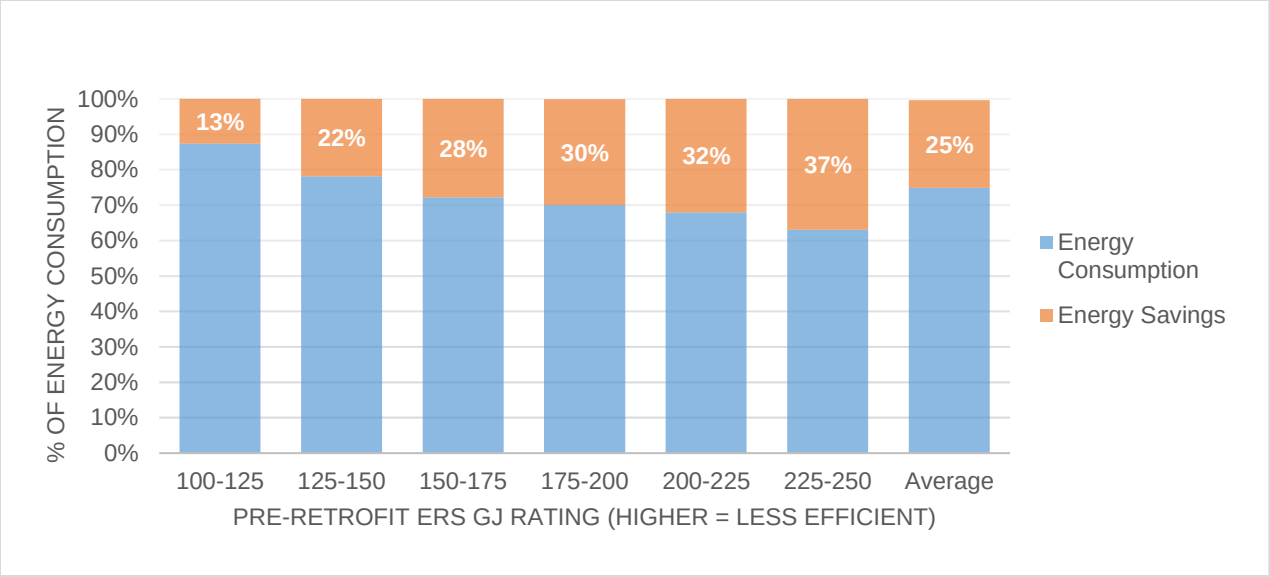

Figure A-11: Energy Savings Achieved by Windsor Homeowners, by Pre-Retrofit ERS Rating[6]

Archetypes, GHG reduction potential

Based on NRCan EnerGuide data and MPAC data, three archetypes of homes can be found in Windsor. They are illustrated in Table A-5 below.

1. **Very old and inefficient homes:** Homes built before 1950, using natural gas as their main source of energy for space heating.
2. **Old and inefficient homes:** Homes built between 1950 and 1990, using natural gas as their main source of energy for space heating.
3. **Newer homes and electrically heated:** This archetype integrate homes built after 1990 as well as homes that are heated with electricity. This categorisation of typical home archetype has been confirmed through multiple engagement opportunities, with program partners, homeowners, and contractors.

[6] ERS stands for EnerGuide Rating System, a consumption-based rating system measured in GJ/year used in EnerGuide evaluations; lower numbers are better.

Table A-5: Windsor home archetypes



	Very old and inefficient	Old and inefficient	Newer homes and electric
Type	Single family home	Single family home	Single family home
Built	Before 1950	Between 1950 and 1990	After 1990 (or heated by electricity)
Stories and area	2 stories 219 m^2	1-1.5 stories 218 m^2	1-1.5 stories 217 m^2
Space heating source	Natural gas	Natural gas	Natural gas or electricity
Annual energy consumption (% for space heating)	275 GJ (70%)	150 GJ (55%)	100 GJ (50%)
Annual GHG emissions	8.5 tCO_2e	5.6 tCO_2e	3.8 tCO_2e
Estimated annual GHG emissions reduction from cost-effective upgrades	0.4-6.2 tCO_2e	0.4-3.9 tCO_2e	0.1-1.5 tCO_2e

Appendix B: Triple Bottom Line Economic Analysis

Community facing programs like R-DEER undergo a triple bottom line economic analysis that considers social and environmental impacts of a program, in addition to traditional economic impacts. Key considerations for home energy retrofit programs include:

- Social:
  - Ensuring equitable access to retrofits for Windsor homeowners (i.e. low-income and marginalized communities).
  - Creating opportunities for job creation and training in green energy and construction sectors.
  - Enhancing residents' health and comfort through improved indoor air quality and energy efficiency.
- Environment:
  - Reducing greenhouse gas emissions by improving home energy efficiency.
  - Promoting the use of sustainable materials and / or renewable and climate resiliency measures.
  - Diverting waste from landfill through recycling and material reuse.

Achieving the goals set out in the CEP and other climate action plans requires community participation. Adapting to the changing environment through behavioural change plays a critical role in reducing energy consumption, GHG emissions and transforming the local economy to support the development of a green economy, by:

- Driving significant investment in the local economy.
- Creating demand for skilled trades workers.
- Improving housing affordability through reduced operating expenses.
- Offsetting energy infrastructure and climate change investments through energy conservation and resiliency.

Significant Investment in the Local Economy

Successful implementation of a residential home retrofit program requires significant investment in the local economy. Achieving a retrofit rate of 80% of homes, will result in increased opportunities for equipment installers, skilled trades, and energy assessment service providers to build their businesses and clientele. At its peak, R-DEER is forecasted to complete between 2,500 and 3,500 deep energy retrofits annually. Significant investment in the local economy will increase the number of:

- Skilled trades, contractors, equipment installers, and audit service providers.
- Supply chain participants (i.e. manufacturers and distributors) of energy and retrofit related products and equipment.
- Post-secondary programs focusing on skill development to grow the labour force to deliver this program.
- Local jobs created.

Creating Demand for Skilled Trades

A skilled workforce is essential to the success of a residential home retrofit program. Knowledge has been identified as a significant program barrier. The breadth and depth of knowledge required to design, educate, install, and evaluate cost effective home energy retrofits successfully requires a specialized group of skills that incorporates people and technical skills including:

- Educate homeowners on their specific home energy retrofit needs. Communicate in terms that are easily understood.
- Incorporate building science principles that evaluates the home as a system and optimizes the individual components (i.e. HVAC, insulation, building envelop) for best overall performance.
- Develop training programs (certificates, diplomas, micro credentials).

Improved Home Affordability

The purchase price of a home is one component in determining its affordability. Operational and maintenance costs also play a role. Utility costs are ongoing expenditures required to operate a home safely and comfortably. Electricity, water, and home heating (i.e. natural gas, propane, geothermal, etc.) are consumed and billed on a per unit basis with some billings based on time of use. Maintenance costs relate to the cost of repairing or replacing systems or equipment within the home. The goal of the R-DEER is to assist homeowners in:

- Reducing energy consumption and ghg emissions.
- Reducing energy costs and poverty through the reduction of the percentage of disposable income spent on energy (i.e. utility) expenses.
- Increasing homeowners' energy literacy to make more informed decisions about the costs of home ownership.

Offsetting Energy Infrastructure and Climate Change investments

Home energy retrofits are an avenue homeowners can use for energy conservation. Reducing energy consumption from existing buildings will assist in offsetting the expected growth in new construction and the electrification of home heating, transportation, and industry. There is a finite level of capacity on the utility systems that once exceeded, triggers infrastructure investments for system expansion. The costs associated with utility system expansions are typically in the magnitude of hundreds of millions of dollars and are funded through consumer rates.

System expansions may be triggered by the Independent Electricity System Operator (IESO) through their planning processes, or by utilities like Local Distribution Companies (electric utilities) or Enbridge Gas Inc. (natural gas utility).

Currently, the IESO, through its Windsor Essex Regional Planning IRRP has identified a significant increase in electrical demand over the planning horizon of 2023 to 2044. The electrification of home space and water heating, and the transition to electric vehicles are among the sectors experiencing increase in demand. Enbridge Gas Inc. has identified a significant increase in natural gas demand and is planning to expand its Panhandle System to meet the growing need for natural gas in residential, agricultural, and industrial sectors.

Aside from energy infrastructure investments, society will also contribute investment dollars related to climate resilience. Climate resilience describes what communities are doing to prepare for the impacts of climate change, many which are already happening. More specifically, the word "resilience" means preparing for issues that are multi-faceted and change over time [7]. As an example, Windsor-Essex annually experiences an increasing number of days with temperatures above 30°C. To improve resilience to changing climate changes, investments in improved building energy efficiency including investments in on-site energy storage technology can reduce impacts and costs associated with extreme weather events and associated power outages. It is important to note that without climate change mitigation strategies such as home retrofits that reduce ghg emissions, the impacts of climate change will be higher.

The Cost of Doing Nothing

The CEP projected that between 2014 and 2041 that energy costs will increase by 120 per cent at the lower risk range and by 280 per cent at the higher risk range. This would increase annual energy costs from $842 million per year to $1.8 billion and $3.1 billion per year in 2041 respectively**Error! Reference source not found.**. This poses significant cost risk for all sectors in Windsor as Figure B-1 illustrates the escalation of utility pricing over the 2018 to 2041 planning window. It does not reflect carbon pricing implemented after 2019. R-DEER is a solution to address energy costs in Windsor, by keeping more energy dollars in Windsor. This creates an economic advantage through attractive energy solutions that help to retain existing businesses and attract new ones to the community.

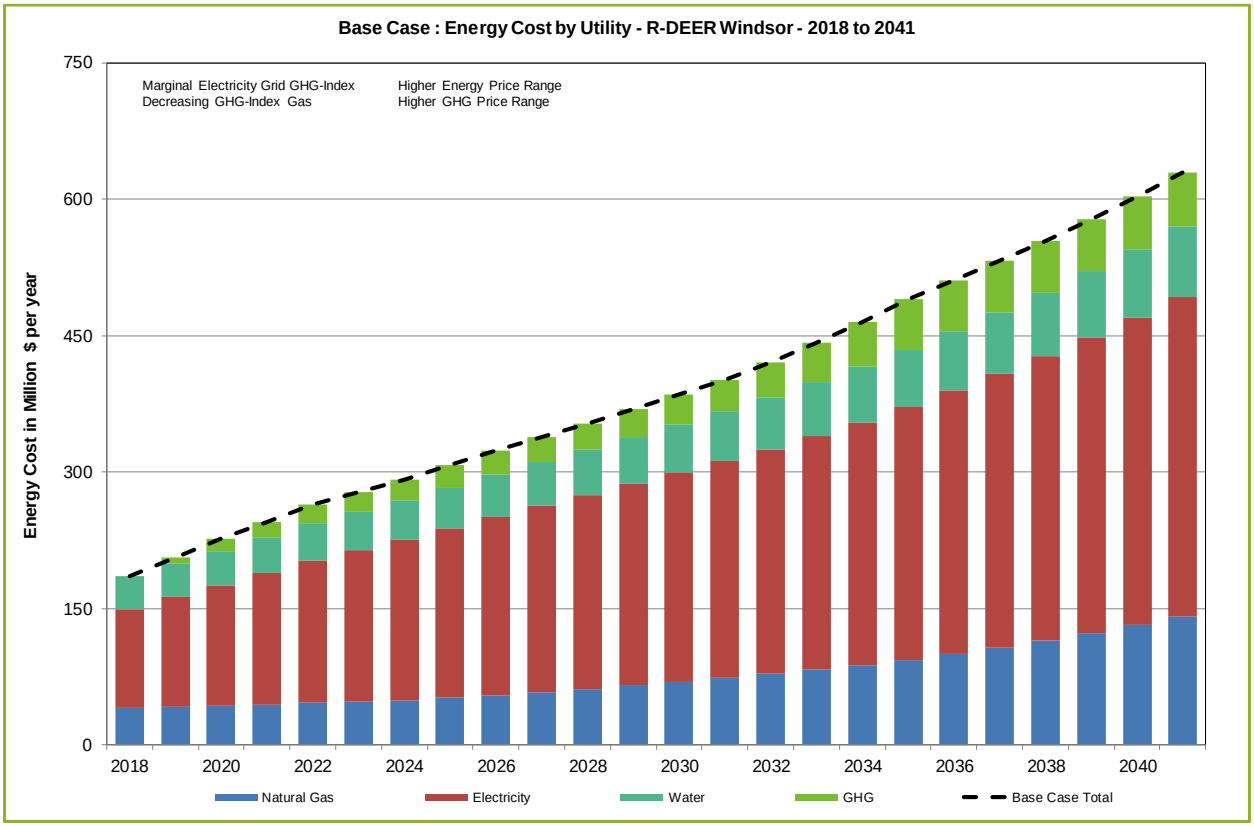

Figure B-1: Estimate of Energy Costs by Utility 2018-2041

Appendix C: Existing Energy Conservation Programs[7]

Table C-1 summarizes existing home energy programs available to Windsor residents regardless of income.

Table C-1: Existing Home Energy Programs

Program		Type	Description
ENBRIDGE	Home Efficiency Rebate Program	Incentives	• Up to $5,000 for eligible measures including $600 for EnerGuide evaluation • Minimum 2 upgrades within 120 days. • Incentives on hold until January 2025.
Canada Greener Homes Grant	Canada Greener Homes Loan	Loan	• Up to $40,000 interest free loans for energy efficiency home retrofits

Table C-2 summarizes the income-eligible programs and rebates currently available to Windsor residents.

Table C-2: Existing Income-Eligible Home Energy Programs

Program		Type	Description
ENBRIDGE	Winterproofing Program	Direct Install	• Income eligible homeowners who are Enbridge customers receive a home energy assessment and energy efficient measures at no cost
SAVE ON ENERGY POWER WHAT'S NEXT	Energy Affordability program	Direct Install	• Income eligible homeowners may receive a free EnerGuide evaluation, replacement of inefficient appliances, insulation and draft-proofing, water conservation measures, installation of cold climate air source heat pumps, OR a free energy saving kits.
ONTARIO ENERGY BOARD	Ontario Electricity Support Program (OESP)	Bill Assistance	• Provides a monthly on-bill credit to reduce their electricity bill • Monthly credit amounts by household income level increased as of March 1, 2024.
ONTARIO ENERGY BOARD	Low-income Energy Assistance Program (LEAP)	Bill Assistance	• Provides assistance to low-income customers who are in arrears and may face disconnection
Government of Canada	Oil to Heat Pump Affordability Program (OHPA)	Incentive	• Provides upfront incentive to low-income customers to switch from oil heating to new, energy-efficient heat pumps

[7] As January 21, 2025. New Program: Home Renovation Savings Program which launched on January 28, 2025 is a partnership between Save on Energy and Enbridge Gas Inc.

Table C-3 summarizes eligible measures from Enbridge's Home Efficiency Rebate Program

Table C-3: Eligible Carbon Reducing Improvement Measures

Eligible Measure	Minimum Eligibility Criteria	Enbridge Rebate
Windows, Doors, Skylights and Sliding Doors	• A minimum of 3 windows or 1 door or 1 skylight or 1 sliding door are required to be upgraded to count as one Qualified Measure • ENERGY STAR® certified	$50 per rough opening
Exposed Floor Insulation	• Insulate the entire exposed floor area (minimum area of 11 square meters or 120 square feet). • The exposed floor area may be composed of either one large, exposed floor area or multiple smaller areas. • This can include overhangs and floors above unheated spaces such as an unheated garage. • Crawl spaces are excluded as there are separate Rebates for crawl spaces. • Minimum of R20	$300
Attic Insulation (Attic/Cathedral Ceiling/Flat roof)	• Insulate a minimum 20% of the total area of your roof assembly. • You must increase the insulation value (Nominal R-value) as per the table below. • Any additional insulation must be added to the same location as the insulation present at the time of the Pre-Audit. For example, if the attic floor was insulated, add insulation to the attic floor or if the attic ceiling was insulated, add insulation to the ceiling. • Attic – minimum R50 • Cathedral – minimum R28	$312 - $1,500
Exterior Wall Insulation	• Insulate a minimum 20% of your exterior wall area, excluding foundation walls. • You must increase the insulation value (Nominal R-value) as per the table below. • Add a minimum of R7.5 worth of insulation	Prorated: Maximum rebate: $1,200 - $3,600
Basement or Crawl Space Insulation	• Insulate a minimum of 20% of the basement wall area. • Insulate a minimum 80% of your entire foundation header area. • Note: Foundation header can be a basement header, a crawl space header, or a combination of these two. • Insulate a minimum 50% of your entire basement slab area. • If you are also insulating your exterior crawl space walls, the maximum you can receive for insulating both the exterior crawl space wall and basement wall areas is $1,500.	Prorated: Maximum rebate: $300-$1,500

Eligible Measure	Minimum Eligibility Criteria	Enbridge Rebate
Air Sealing	• Audit report will provide a target to improve the airtightness of your home. Typically, the airtightness levels required for a Rebate would be achieved with the assistance of an air-sealing professional.	Achieve Target: $120 Achieve Target+10%: $180
Ground Source Heat Pump	Install a ground source heat pump—full system that meets Canada's Energy Efficiency Regulations: Energy Efficiency Regulations – technical specifications	$3,000
	Replace a ground source heat pump—heat pump unit only with one that meets Canada's Energy Efficiency Regulations: Energy Efficiency Regulations – technical specifications**Error! Reference source not found.**	$1,500
Air Source Heat Pumps (ASHP) and Cold Climate Air Source Heat Pumps (ccASHP)	• ENERGY STAR® qualified • Certified by Canadian Standards Association (CSA) • Must be on NRCan's list of eligible products • Installed by a licensed refrigeration and air conditioning mechanic	$500 - $1,500
Heat Pump Water Heaters	• ENERGY STAR® qualified • Must be on NRCan's list of eligible products • Installed by a licensed refrigeration and air conditioning mechanic	$500

Table C-4 provides examples of Climate Resilience-Related Programming available to Windsor residents.

Table C-4: Climate Resilience Programming

Program	Description
Basement Flooding Prevention Subsidy Program	This program offers financial support for residents who make the necessary improvements on their homes to prevent storm water from entering the wastewater system and to reduce the risk of flooding from sewer backup. Programs include: • Downspout disconnection. • Weeping tile disconnection and sump pump installation. • Backwater valve insulation.

Appendix D: Summary of Home Energy Retrofit Programs

Table D-1: Overview of Municipal Programs [8]

		Better Homes Burlington	Durham Greener Homes	Guelph Greener Homes	Better Homes Hamilton	Better Homes Kingston	Better Homes Ottawa	Peterborough Home Energy Efficiency Program	Toronto Home Energy Loan Program
Eligibility	Detached	Y	Y	Y	Y	Y	Y	Y	Y
	Semi-detached	Y	Y	Y	Y	Y	Y	Y	Y
	Townhomes	Y	Y	Y	Y	Y	Y	Y	Y
Offering	Single Measure	Y	N	N	N	N	N	Y	N
	Multiple Measure	N	Y	Y	Y	Y	Y	Y	Y
	Resiliency measures	N	N	N	Y	N	Y	Y	N
	Energy Coach	N	Y	N	Y	Y	Y	Y	N
	Low Income Stream	N	N	N	N	Y	Y	Y	N
	Performance Incentive / Threshold	N	Y	N	N	Y	N	N	Y

		Better Homes Burlington	Durham Greener Homes	Guelph Greener Homes	Better Homes Hamilton	Better Homes Kingston	Better Homes Ottawa	Peterborough Home Energy Efficiency Program	Toronto Home Energy Loan Program
Funding	LIC	Y	N	Y	Y	Y	Y	Y	Y
	Personal Loan	N	Y	N	N	N	N	Y	N
	Maximum loan	10k	40k	50k	20k	40k	125k	125k	125k
Program Delivery	Not-for-profit delivery agent	Y	Y	N/A	N	Y	Y	Y	N
Years of Operation		2023+	2022+	2024+	2024+	2022+	2021+	Q4 2024	2014+
Uptake (Target)		510	1,100	625	50	6,100	283,029	1,861	292,632

Appendix E – R-DEER Program Steps

The following steps outline a potential framework for R-DEER program delivery. The process is intended for illustrative purposes and would require further development prior to implementation. Table E-1 provides an overview of the program steps and identifies stakeholder groups that lead and offer support.

Table E-1: R-DEER Program Steps

Step Description	Lead	Support
1.0 Application		
Application filed online	Homeowner	Energy Coach
Application Reviewed • Could include guidance to homeowners and contractors • Options for low-income households should be reviewed and if appropriate, recommended to other programs	Energy Coach	Homeowner
2.0 Pre-Retrofit Audit		
Pre-retrofit audit would be completed and EnerGuide Report would be provided to R-DEER Program	Energy Advisor	Homeowner
3.0 Qualification & Funding Selection		
Review pre-retrofit audit report and decide on options for energy efficiency measures	Homeowner	Energy Coach Energy Advisor
Participant would engage with contractors to receive quotes for proposed work	Homeowner	Contractor Energy Coach
Participant Decides on Financing Options • Personal loan • Local Improvement Charge added to Property Tax Bill • Other options as determined should program move forward	Homeowner	Energy Coach 3rd Party Lender City of Windsor
Upgrade Approval and calculation of LIC award (if offered) • Participant provides proof of quote(s) selected • Partial disbursement of LIC as required	Energy Coach City of Windsor	Homeowner
4.0 Retrofit and Loan Disbursement		
Participants would contract work and upgrades would be installed if the program proceeds	Homeowner	Contractor Energy Coach
Participant pays for contracted services	Homeowner	Contractor

Step Description	Lead	Support
Final disbursement of LIC • Participant provides proof of completed retrofits (i.e. invoices paid)	Homeowner City of Windsor	Energy Coach
5.0 Post-Retrofit Evaluation		
Complete post-evaluation audit	Energy Advisor	Homeowner
Submit documentation to program as determined • Pre-Retrofit EnerGuide Audit report, Post-Retrofit EnerGuide Audit report	Energy Advisor	Energy Coach
Emergency Repairs (if offered) - Homeowner provides electricity, natural gas, or other energy related utility bills for measurement and verification purposes • **Up to 12 months of pre-retrofit bills** • **Up to 12 month of post-retrofit bills (from last measure installed)**	Homeowner	Energy Coach
Participants start repaying LIC loans if utilized as a financing option	Homeowner	City of Windsor
6.0 Optional: Interaction with other programs (Concurrently with Step 5)		
Submit documentation to other programs (i.e. Enbridge, Greener Homes Canada) as applicable	Energy Advisor	Administrator for other programs
Layer any incentives paid by other programs (i.e. Enbridge, Greener Homes Canada)	Administrator for other programs	Homeowner

This section expands upon the program steps.

Step 1.0: Application

At the application phase, homeowners will complete a short online application to ensure eligibility. The following information will be gathered in accordance with privacy policy:

- Name(s) of homeowners.
- Occupancy type (i.e. owner occupied or tenant occupied).
- Property type (i.e. detached, semi detached, row or townhouse, duplex, triplex).
- Address of home.
- Age of Home / Year of Construction.

The energy coach will review the submitted applications for completeness. At this stage, the energy coach will contact homeowner to start the process and provide educational information regarding energy auditor selection, low-income options, incentives and rebates available from other programs, and

financing options, including Windsor's R-DEER LIC. Homeowners interested in LIC financing will be requested to provide their property tax roll number.

Participants actively enrolling in the R-DEER will be accessed an application fee. The actual application fee will depend on the number of applications. For the purpose of the Rationale and Design Study, the application fees is estimated as $300.

Where applicable, the energy coach will assist homeowners access low-income programs, thereby providing coordination services with low-income programs. Eligible homeowners will be encouraged to access programs offering no-cost, low-cost options prior to accessing R-DEER.

Step 2.0: Pre-Retrofit Audit

The pre-retrofit audit, conducted by a Certified Energy Auditor (CEA) will establish a baseline for each home participating in the program. It will ensure that a home's "starting point" as it relates to energy usage and GHG emissions are captured. Understanding the current state of participating homes allows for the creation of baselines to assist the program administrator in evaluating program impacts and ensure program accountability and transparency.

In Canada, home retrofit programs receiving funding from the federal government, require a baseline be established through an energy audit completed by a NRCan Registered Energy Advisor. Energy audits evaluate all aspects of the home and follow a standardized process with recommendations that are independent and not aligned to a particular program or incentive offer. For consistency, R-DEER will follow NRCan requirements.

During an audit, an Energy Advisor will spend between two and three hours on site gathering specific home information such as highlighted in Table E-2.

Table E-2: Data collected during Pre-Retrofit Evaluation

		Description
Pre-Retrofit Evaluation Data	Insulation	Type, location, thickness, etc.
	HVAC	nameplate
	Window	Type and age
	Door	Type and age
	Blower door test	A blower door test is a test to determine the airtightness of a building and to help find sources of air leakage. Once all exterior openings are sealed (i.e. windows, doors, etc.), a large fan is temporarily sealed into an exterior doorway. The fan sucks air out of the building, depressurizing it, which allows the auditor to identify any air leaks so they can be sealed[Error! Reference source not found.].
	Thermographic Scan	A thermographic scan utilizes an infrared camera or video camera to measure surface temperatures on the heat spectrum. The images detail temperature variations and can be used to determine pathways for heat loss and whether additional insulation is required[Error! Reference source not found.].
	Other	As applicable

Once the relevant information is gathered, the Energy Advisor generates a report for the homeowner which outlines:

- The homes EnerGuide Rating (a measure of a home's energy performance using the home's annual energy consumption represented in Gigajoules (GJ) per year. Homes with lower ratings are more efficient homes).
- Where energy is used and lost.
- Home energy use and emissions.
- Upgrade options.
- An estimated EnerGuide Rating and GHG reductions if upgrades were completed.

Though the energy audit process is a well known and comprehensive baselining method there are drawbacks, including those highlighted in Table E-3:

Table E-3: Homeowner Challenges

	Description
Homeowner Challenges	**Cost** • Audits cost between $400-$600 for pre-evaluation audit • Programs offering rebates in Ontario have been suspended as of February 5, 2024
	Inconvenience • Challenging to schedule Energy Advisors • Long lead times may result as extended periods may occur between scheduling and completing audit (limited number of Certified Energy Advisors).
	Knowledge • Homeowners may have difficulties interpreting energy assessment report, and may find it difficult to determine next steps and retain contractors

The Energy Advisor provides the completed Pre-Retrofit Energy Audit to the homeowner.

Step 3.0: Qualification & Funding Selection

Participants will make several decisions in step 3. With the completed EnerGuide Pre-Retrofit Audit, participants will have the opportunity to:

- Review pre-retrofit audit report recommendations.
- Create a retrofit plan.
- Select measures for installation.
- Engage contractors to submit quotes.
- Determine which funding option best suits their needs.
    - LIC loan through City of Windsor.
    - Personal loan with lender.
    - Program incentives.

Throughout this step, the Energy Coach is available to provide information, guidance, and answer questions. In this step, the Energy Coach will also be responsible for:

- Engaging participants in understanding their EnerGuide Energy Assessment Report.
- Assisting participants in developing a retrofit plan.
- Determining whether selected measures meet R-DEER program requirements for energy savings and / or GHG emission reductions.
    - Prioritizing high GHG reduction retrofits with affordable upfront costs to improve accessibility and uptake.
- Reviewing existing retrofit or energy efficiency programs for requirements and incentives, as R-DEER aims to fill gaps within existing programs, not offer duplicate incentives.

- Summarizing programs offered by utilities and / or other levels of government, including incentives, and funding options for participant consideration. R-DEER aims to fill gaps within existing programs to allow for program stacking.[8]
- Reviewing and approving contractor quotes.
- Determining and communicating LIC loan award as applicable.
- Conducting stakeholder outreach and / or education sessions geared to address identified barriers to participation and to promote R-DEER as a solution.

Pre-Retrofit Audit Report Review and Measure Selection

Participants will have an opportunity to meet with an Energy Coach to review the Pre-Retrofit Audit Report to understand the current state of their homes and how recommended retrofits will improve home comfort through energy savings and GHG emissions reductions. At this stage, it is recommended that a retrofit plan be co-developed by participants and the Energy Coach. The retrofit plan will detail the measures the participant wishes to implement, including a proposed project timeline.

Participants are encouraged to consider sequencing installations involving HVAC and Solar upgrades, as these upgrades tend to rely on the integration of multiple upgrades. For example, retrofits focusing on a home's building envelope (i.e. airtightness) should be completed prior to upgrading HVAC equipment, as existing HVAC equipment may be oversized. Similarly, solar systems should be sized to final electrical demand, so electrification of space and water heating, and transportation (EV charger installation), as well as any necessary electrical upgrades, should occur first.

Participants have access to Energy Coach and resources to provide guidance in the selection of a contractor, and questions to ask.

Participant Engages with Contractors to Receive Quotes for Proposed Work

Once participants have selected the measures they wish to install, they will engage contractors to provide quotes for proposed work. The R-DEER program will have resources available to assist homeowners in scoping, reviewing, and selecting contractors.

Municipal home retrofit programs have the option to provide homeowners with a list of qualified contractors, or information regarding tips and questions for contractor selection. These materials aim to assist participants in finding a reputable contractor with the required skills, quality assurance, and experience necessary to provide home retrofits. For example, Windsor's Basement Flooding Protection Subsidy Program (BFPSP) Backflow Prevention Program, participating contractors complete declarations and agree to abide by program rules in order to qualify as a qualified contractor.

Qualified contractor lists are typically available online, providing value to contractors in attracting new customers. Registration requirements for contractors should be limited in scope to encourage program participation.

Once participants receive contractor quotes, they have the option of selecting quotes independently or with the assistance of the Energy Coach.

[8] R-DEER will not duplicate incentives from other sources.

Participant Decides on Final Retrofit Scope and Financing Options

Participants select the measures to be retrofitted from received contractor quotes in accordance with their retrofit plan. The Energy Coach can be used as a resource in the decision process. Once the measures and retrofit budget have been established, R-DEER offers financial flexibility by allowing participants to select a financing option for their upgrades, based on their individual needs. Payback terms and interest rates may vary and homeowner will need to choice the option that best meets their needs. Financing options include:

- R-DEER Rebates and incentives;
- City of Windsor LIC Loan;
- Personal Loan or use of homeowner's line of credit with financial institutions; and / or
- Rebates or loans from other programs.

Upgrade Approval and Calculation of LIC Award

The participant provides the Energy Coach with selected contractor quotes for approval prior to the start of the retrofit. The Energy Coach will review quotes for completeness and will provide approval as appropriate. The Energy Coach and Program Administrator will approve retrofit scopes of work prior to the start of work.

The Energy Coach will use the contractor costs to calculate the LIC award for the participant's work. The award is communicated to the participant. Homes utilizing the LIC loan option will be eligible for the lesser of 10% of MPAC assessed property value or $40,000 lifetime. At this stage, the participant may request up to 30% of total LIC award be disbursed to cover contractor deposits. The participant will fill out a request form that will be reviewed and approved as appropriate by the Energy Coach based on financial need. The Energy Coach is responsible for coordinating with finance to ensure the appropriate paperwork is completed to add the LIC loan to the property tax bill.

Step 4.0 Retrofit and Loan Disbursement

At this stage, the final agreement between the participant and the contractor is completed, work is scheduled, completed, and paid for. Once the work is completed, participants utilizing a LIC loan to finance retrofits will be requested to submit proof of completion in the form of paid invoices to the Energy Coach prior to receiving the final LIC loan disbursement.

Step 5.0 Post-Retrofit Evaluation

Once the retrofit is completed, the program will need to monitor and track the improved performance of the home to verify equipment installation, as well as quantify energy and GHG performance changes.

The R-DEER program will include project and program level measurement and verification (M&V) to monitor, track, and validate energy and GHG reductions that can be attributed to the program. M&V is the process of planning, measuring, collecting, and analyzing data for the purpose of verifying and reporting energy savings resulting from the implementation of energy efficiency measures. Savings are determined by comparing measured energy use or GHG emissions before and after home energy retrofits [9].

R-DEER will utilize several strategies from CIET Canada's Certified Measurement and Verification Professional (CMVP) certification. They include:

- Determining baselines and estimated savings.
- Developing an M&V plan.
- Measuring post-installation energy and GHG savings.
- Developing annual M&V reports which track and report performance savings for the portfolio.

Data collection is crucial for developing baselines, estimated savings, monitoring quality of installation or equipment performance and tracking program performance. As part of the R-DEER program, participating homeowners will be required to provide access to the following for verification purposes:

- NRCan's EnerGuide Pre-Retrofit Energy Assessment (Audit) report.
- NRCan's EnerGuide Post-Retrofit Energy Assessment (Audit) report.
- Up to seven years (where available) of Electricity, Natural Gas or other energy related utility bills (i.e. propane, district energy).
    - Up to 12 months pre-retrofit.
    - Up to 12 months post-retrofit.

Appendix F: Potential Financing Risks and Mitigation Strategies

Table F-1 highlights the Potential financing risks associated with R-DEER that will need to be managed to achieve success in meeting the R-DEER program goals and objectives. The potential impact for each of these risks are briefly examined here as well as probability where possible. Measures to decrease the probability and mitigate potential impacts are also included in summary form.

Table F-1: Potential Financing Risks and Mitigations Strategies

Potential Risk	Description	Mitigation Strategies
Financial Risks		
Loan Defaults	Homeowners may not complete their repayments, for a variety of reasons, which could lead to a default	Development of a loan repayment process for homeowners focusing on loan repayment options and the implications of delinquency and default. The process will be available in program documentation, communicated and supported by Energy Coaches, and posted for reference on the Application portal. In the case of default on an unsecured loan, a Loan Loss Reserve may be made available to make the loan whole and reduce the Financial Institution risk. In the case of default on a LIC loan, LIC loans attached to the property tax roll exercise priority liens in the case of a tax sale, but only the payments in arrears are collected, reducing the City of Windsor's financial risk.
Loan Loss Reserve (LLR)	Significant uptake from the personal loan stream could lead to insufficient funds available for the Loan Loss Reserve (based on FCM funding)	The City has the option of committing some of its own funds to increase the amount available for the LLR. The City has the option to renegotiate the LLR terms. The leverage ratio of the LLR could be revised with the financial institution to benefit homeowners.

Potential Risk	Description	Mitigation Strategies
High set-up costs	The City or the program administrator will need to either update or create software systems to manage their responsibilities in the program (e.g., property tax bill repayment, loan monitoring, one-stop window website and database, net zero pathway reporting, etc.). These costs are uncertain at this stage and will need to be refined based on features and functions selected.	Clear scoping of program software needs is required with consideration to simplify in areas, where possible, to reduce set-up costs (e.g., City may choose to issue a separate bill to collect repayments to avoid system upgrades for the beginning of the program until volume grows and/or the program expands to include multifamily and commercial properties). Project costs could include contingency budgets to further mitigate this risk.
High operating costs	LIC administration is intended to be cost-neutral; paid by participants. But that is not always the case if participation is low (i.e. Toronto HELP).	Keep fixed costs low, consider a third-party administrator to share costs and resources among program partners, and/or explore ways to collect more revenue (e.g., increasing uptake, apply or increase administration fees and/or interest rates).
Balancing relaxed underwriting with consumer protection	LIC programs are not typically the best option for lower income homeowners who are eligible for free or lower cost efficiency programs. The financing program should ensure that eligible homeowners can afford the payments and do not become over-leveraged. Further, without establishing consumer protection mechanisms, expensive loans may be pushed by aggressive contractors for projects with questionable savings.	Consumer protection must be a cornerstone of any financing program – especially in the residential sector. Impacts on potentially vulnerable participants (e.g., low-income, fixed income, heavily leveraged, underserved communities, seniors). are being considered in all design decisions. Financial literacy skills and transparency on the implications of investing in upgrades is integrated into enabling measures, balanced with the benefits of completing retrofits. The Energy Coach is also engaged to help income-eligible homeowners find appropriate programs and services. In the event of non-payment, the program offers enhanced flexibility before escalating the collections process.

Potential Risk	Description	Mitigation Strategies
Market Risks		
Lack of Program Uptake	Homeowner participation in program may lag estimates.	Build in flexibility for higher or lower uptake into program design. • Low, medium, and high City staffing allocation levels to program support. • Periodic review of program features in the event uptake is lower than expected. Connect with program administrators of active Home Retrofit Programs to monitor uptake and estimate anticipated demand for R-DEER • Municipal • Utility • Government
High upfront interest from homeowners	Municipal home retrofit programs in other cities have experienced a high number of applications from homeowners at the onset of their program, resulting in funding being quickly exhausted and/or a need to shut down the portal for new applications until existing applications could be processed.	• Proactively setting expectations and clear communication: If the program experiences very large number of applications, communicate proactively regarding timelines and potential delays. • Use number of program inquires as a market signal. Communicate pro-actively about the high number of applicants to market actors (contractors, EAs, NRCan and publicly) to foster interest in the related opportunities. • Plan ahead to scale resources: While setting up the program, engage with everyone involved in program delivery (finance department, buildings department, program administrator, financial institution, local service organisations, contractors). Develop contingency plans to allow rapid scale of the program. Identify potential pitfalls and steps to avoid them. • Pause intake: If the number of applications become unmanageable, the program can pause new intakes until the applications can be processed and the program partners can put their scale strategies in place.

Potential Risk	Description	Mitigation Strategies
Low uptake from homeowners	Low uptake of the financing program requires leveraging the enabling strategies to increase awareness and uptake. This risk could be caused by many factors, including the sunsetting of supporting rebate programs and market transformation initiatives. Risk associated with low uptake include a financial risk to the City if the loans from capital providers (FCM, other commercial loans) require interest repayment for capital that has not been disbursed to homeowners and hence, has not collected interest.	Implement other enabling strategies to support the market, including other financial incentives (rebates) and non-finance activities such as: • Linking with other rebate programs. There are existing government and utility initiatives underway that should be factored into the development (e.g., Enbridge, Canada Greener Homes Loan) • Effective education and outreach including one-stop window, energy coach, and marketing efforts to raise awareness of program benefits, financing, and other programs available to support homeowners. • Creating a positive customer experience. Make it fast, simple and engaging by offering personalized support and/or a centralized call centre to help homeowners throughout the home renovation journey. • Revising program loan terms: some loan parameters (e.g., interest rates, loan amounts, loan repayment periods, etc.) could be a barrier to participation and could be revisited, particularly in the program evaluation process. • Engaging and training contractors. Contractors must be trained and equipped to market the program while in the home at point of sale. They are key influencers and crucial to success. • Supporting policy landscape. Financing becomes more important where there are more stringent policies or requirements. Home energy labelling and disclosure policies, retrofit building codes, and building performance standards can increase demand for retrofits and, thereby, financing.

Potential Risk	Description	Mitigation Strategies
Balancing relaxed underwriting with consumer protection	LIC programs are not typically the best option for lower income homeowners who are eligible for free or lower cost efficiency programs. The financing program should ensure that eligible homeowners can afford the payments and do not become over-leveraged. Establish consumer protection mechanisms, to protect homeowners from expensive loans, aggressive contractors, and projects with questionable savings.	Consumer protection must be a cornerstone of any financing program – especially in the residential sector. Impacts on potentially vulnerable participants (e.g., low-income, fixed income, heavily leveraged, underserved communities, seniors). are being considered in all design decisions. Financial literacy skills and transparency on the implications of investing in upgrades is integrated into enabling measures, balanced with the benefits of completing retrofits. The Energy Coach is also engaged to help income-eligible homeowners find appropriate programs and services. In the event of non-payment, the program offers enhanced flexibility before escalating the collections process.
Resourcing Risks		
Lack of qualified and/or available contractors and energy auditors in the area labour pool	Contractor capacity issues (i.e. availability of good contractors) and costs (i.e. trades from centres further away increase costs) and can create barriers to implementing home energy upgrades.	Support contractor training, including program- and trade-specific training Support efforts to upgrade training for existing contractors • Provide training venues; • Provide subsidies for training registration; and • Encourage new people to enter the field (i.e., women, new Canadians, etc.).

Potential Risk	Description	Mitigation Strategies
City and Program administration capacity	City staff may encounter capacity challenges to sufficient plan, design and implement program in addition to delivering other services. Lessons learned from similar programs: • Programs in the first year or so after launch tend to experience significant uptake which can cause processing delays. • Program Administrators need to adequately staff to meet demand	Where possible, streamline processes and provide workarounds. • Budget preparation, year end, tax billing, and reporting are labour intensive activities sharing essential resources. Leverage external program partners and/or third-party administrators with financing expertise to help offset the burden placed on City of Windsor resources. FCM grant funds can be used to cover staff remuneration for existing or new employees dedicated to setting up and delivering the program. Plan for a soft launch (e.g., limit marketing, limit applications, restrict to specific groups / homeowner segments) to reduce the likelihood of long delays for early applicants.
Lack of dedicated resources assigned to lead	There is limited capacity and/or authority in leading organization to act as a program champion, gain the necessary government approvals, and to manage overall program oversight.	City of Windsor to obtain further Council support, budget and staff allocations required to lead program funding applications, set-up, delivery, and evaluation.
Other Risks		
Loss of Reputation	Financial Institution or City of Windsor receives backlash from the public due to rejected applications or delinquencies/defaults.	Have clear and transparent guidelines on eligibility, underwriting criteria, and program processes in the event of delinquencies and defaults. Have stricter underwriting criteria for LIC loans over a certain amount. Have clear guidelines for the Energy Coach to recognize and prevent service provider predatory behavior (i.e. have additional conversations with older homeowners on fixed income) Offer one point of contact (i.e. dedicated staff at City of Windsor) for all concerns from homeowners.

Potential Risk	Description	Mitigation Strategies
Go broad or go deep	Key trade-off faced by program administrators is whether to focus on broad market applicability (but minimal complexity and value added) that encourages high loan volume versus a program that supports deeper savings per project and requires a savings to investment ratio of one or greater (i.e., larger, higher-quality projects) but may have limited uptake.	• Allowing for a portion of the LIC to include non-energy related measures may be more attractive to homeowners that are planning larger home renovation projects and can incorporate Energy Efficiency. • Providing grants to homeowners to incentivize the measures that reduces GHG emissions the most, like insulation and fuel-switching.
Under Performing Contractors	Unqualified contractors performing work can create a poor participant experience and may result in energy and GHG savings not materializing if measures are not installed correctly.	• Leverage existing contractor lists and official trade directories (e.g., RenoMark, HRAI, etc.) • Establish an authorized contractor list and establish a disciplinary process that includes probation or expulsion of contractors from the program. • Manage, track, resolve and implement preventative actions in response to homeowner inquiries and complaints.

Appendix G: Local Improvement Charges

LIC Considerations

As with any financing option, several considerations need to be understood prior to deciding to offer an LIC as an available financing option. When undertaking an LIC, the following require consideration:

- Capital funding required for loans.
- A Loan Loss Reserve (LLR) to mitigate risk.
- Staff to implement the program successfully, and other operational costs.
- Homeowners will incur larger property tax payments until the loan is paid off.
- Interest rates are determined at the time of borrowing and may fluctuate due to factors outside of City's control.
- An unpaid LIC loan may be a deterrent for potential buyers. This has not been an issue with other programs to date.
- Risk of property foreclosure can be mitigated through the development of a homeowner qualification:
    - Following the necessary financial policies relating to municipal debt.

Capital Funding for Loans

A primary consideration for an LIC is determining the source of capital funding to be used to offer participants loans. Potential sources of capital funding include:

- Government grants or loans.
- Sponsorships and partnerships.
- Municipal funds.
- Program Administration fees.
- Funding partner investment.

Government grants or loans exist for home energy retrofits. Municipalities can access grants and or loans for assistance in developing and launching local programing, while homeowners may have access to grants and loans on an individual basis. In this section, we will focus on government grants or loans available to municipalities. It should be noted that grant and loan programs from provincial and federal governments are typically sporadic and provide limited funds.

Currently, municipalities are accessing funding from FCM, through its GMF. The CEF offers funding in the form of grants and loans to assist municipalities in implementing a capital project for home-energy upgrades. R-DEER proposes to apply for the Capital program: Loan or credit enhancement for local home-energy upgrade financing program. This program combines a capital loan and a grant, with a loan maximum of $10 million and grant of up to a maximum of 50% of the loan amount to support start-up and operating costs. Combined, the loan and grant can cover up to 80% of total eligible program costs, with the remaining 20% covered by the municipality or a municipal partner. GMF CEF funding is intended to get programs started and is available for the first four years of a program.

Home energy retrofit programs can also access funding through sponsorships and partnerships. Sponsorship funding may come from groups with similar interests in home energy retrofit programs, such as utilities. Partnerships may include cooperation with groups offering similar programs, box stores offering equipment, supplies, and materials, or promotional or educational providers with opportunities for shared marketing, communications, and education initiatives.

Programs receiving GMF CEF funding are expected to operate beyond the government funding, which may require the outlay of municipal funds. Municipalities can provide program funding through:

- In kind contributions (i.e. payroll contributions).
- Operational Budget line item, Climate Change levy, or reserve fund.
- Green bonds.

City Council direction is required when allocating funds to programs and initiatives. Budget line items, climate change levy, or reserve funds are managed through the budget process. Through the budget process, municipalities can also elect to create and administer green bonds, which are income investments that can be used to fund projects that have positive environmental and/or climate benefits. Both the Government of Canada and the Province of Ontario have issued green bonds to help fund projects with environmental benefits.

Additional funding may be raised through the implementation of program administrative fees. Fees can be accessed to participating homeowners, or contractors at the time of application. As upfront costs tend to be a barrier to participation, the value of the administrative fees should remain affordable and be within the range of $100 to $500.

Lastly, municipalities have the option of engaging in partnerships with utilities or 3rd party financial institutions to fund an LIC. Municipal home retrofit programs have elected to use municipal funds when programs launch then transitioning to 3rd party financing. This approach provides municipalities with flexibility and additional oversight when in the beginning stages of program rollout. Municipalities can benefit from lower interest rates, longer financing terms, higher participation rates through the removal of mortgage lender consent requirements, stigma regarding poor sales tactics.

Table G-1 provides an overview of the advantages and disadvantages of a municipality implementing an LIC for a home energy retrofit program.

Table G-1: Advantages and Disadvantages of Municipal LIC Program

LIC Provider	Advantages	Disadvantages
Municipality	• Added Control • Potential for lower interest rates and longer terms • Identified as trustworthy source • Aligns with other municipalities easier • Reduced predatory sales tactics	• Limits on total funding • Increased staff time needed • Processing LIC requests needs to be created

Loss Loan Reserve

LIC's have the option of creating a loan loss reserve as a risk mitigation tool. A loan loss reserve (LLR) is a type of credit enhancement that reduces credit risk by providing partial coverage in the event of loan

defaults. The LLR can assist municipalities in leveraging support of financial institutions or private investors.

A LLR may also facilitate program uptake by offering loans to a wider range of participants than with traditional loans (i.e. low-income), through reduced interest rates, and / or extended loan periods.

LIC and City Capacity

When accessing LIC eligibility of participants, its recommended that a balanced approval process be applied to ensure risks are reduced for participants and municipality, while not creating obstacles that impact program participation. This is key in reducing the burden that LIC requirements may have on City finance and legal staff. Development and implementation of a LIC requires the municipal following staff resources:

- Legal:
  - Review of obligations in offering LIC's.
- Tax:
  - Create and implement process to register LIC's on the municipal tax roll.
  - Issue property tax bills with LIC repayment charges.

Table G-2 outlines recommendations on key financing recommendations, with Table G-3 outlining a recommended approval process for LIC participants. Although additional follow-up with financing is recommended, overall steps include:

1. Homeowner completes short application to ensure eligibility.
2. Application is reviewed by program staff and requests any additional information from the homeowner.
3. LIC is granted and set up on tax roll.
4. LIC repayment is completed via property tax roll.

Table G-2: LIC Financing Recommendations to Increase Program Participation

Suggestion	Rationale
Offer the minimum interest rate possible	Program should aim to be cost neutral to municipality. Any rates paid by municipality are also charged to participants.
Set a project financing minimum that is high enough to justify administration costs	Programs have recommended a loan minimum between $5,000 and $10,000.
Offer a 10 or 15-year financing term	Likely the biggest selling point during time of low interest rates
Identify maximum financing amount	This can be percent of property value, a fixed amount, capped at value of equity the owner has in the property, etc.

Table G-3: Requirements and Due Diligence Recommendations for LIC Approval

Eligibility Requirement	Required by Homeowner	Additional Information
Verified by municipality (via MPAC and title search)		
Participant is the property title holder	Yes	• All other owners listed on the title must provide signatures on the application • Property is in Windsor
Property taxes are not in arrears	Yes	• Applied to previous year or go back longer
No involuntary liens on property	Yes	• No outstanding construction liens from past renovations on the property
Property value assessed	No	• Only needed if financing limited are a percent of total home value or owner equity, which is not recommended
Provided by Applicant		
Recent bankruptcy	Yes	• None in the last 3 years
Mortgage in good standing	Yes	• No recent history of defaults
Credit Check	No	• Adds extra layer of work that may not speak to current ability to pay • May make homeowners uncomfortable
Household income	No	• Not recommended to request participants to divulge annual income. • Low-income stream may require this to align with other programs in the market
Mortgage lender sign off	No	• Mortgage lender signoff has been identified as a significant barrier for program uptake

		• Highly recommended that participants inform Mortgage lender of program participation

LIC By-Law Template

Although Ontario amended O. Reg 586/06 to allow for the creation of LIC programs within Municipalities, the City must enact a bylaw to allow for energy-related home upgrades on private residential property.

Clean Air Partnership's LIC toolkit is found in **Appendix H: Accelerating Home Energy Efficiency Retrofits Through Local Improvement Charge Programs: A Toolkit for Municipalities** and includes a sample municipal-bylaw template to enable a LIC program. The toolkit also provides guidance on LIC language and key features such as permitting municipal borrowing or issuance of bonds, establishing priority lien status, and creating an annual LIC roll.

Windsor Debt Policy Alignment

Implementation of the LIC mechanism must take into considerations the City's Debt Policy to ensure responsible debt management and align with the City's long-term framework.

LIC's are not included in the determination of the city's total reported provincial debt capacity. However, the debt issued under a proposed LIC program would still be a liability for the city should any loans fall into default and would still be part of the city's overall debt obligation.

Appendix H: Accelerating Home Energy Efficiency Retrofits Through Local Improvement Charge Programs: A Toolkit for Municipalities

Sample Municipal By-Law for Enabling LIC Retrofit Program

**Please note that this is just a sample by-law. Specific program details should be added, modified, or removed based on all applicable legislation, regulations, and local context.*

A by-law to authorize the undertaking of energy efficiency and water conservation works on private residential property as local improvements under the Residential Retrofit Program.

Whereas Part III of Ontario Regulation 586/06 authorizes Council to pass a by-law to undertake works on private residential property as local improvements for the purpose of raising all or part of the cost of the work by imposing special charges on lots upon which all or some part of the local improvement is or will be located; and

Whereas such a by-law may authorize the undertaking of works which satisfy the requirements of a [MUNICIPALITY] program; and

Whereas at its meeting of [XXXX], [MUNICIPALITY] Council adopted the [Residential Retrofit Program] pursuant to authority of Ontario Regulation 586/06;

The Council of [MUNICIPALITY] enacts:

1. Council authorizes the undertaking of energy efficiency and water conservation works on private residential property as local improvements under the Residential Retrofit Program, as set out in Appendix X to this By-law, for the purpose of raising all or part of the cost of the work by imposing special charges on lots upon which all or some part of the local improvement is or will be located.

Enacted by [MUNICIPALITY] Council this XX day of XX, 20XX.

_____ _____

Mayor **[MUNICIPALITY] Clerk**

Appendix: I: Advantages and Disadvantages of Program Delivery Agent Options

	Description	Advantages	Disadvantages
Public Sector	• All program aspects administered by the municipality.	• One entity handles the program from start to finish. • Program runs as a not-for-profit offering. • Offer LIC as financing option,	• Limited resources and/or expertise in program administration. • Less flexibility due to legislative and bureaucratic requirements that may slow down program delivery • May be impacted by political decisions. • Limited to working within a municipal boundary • Challenging in entering partnerships with other municipalities or with the private sector • May require more time to set up and establish.
Municipal Services Corporation (owned by City as a subsidiary)	• Program set-up and operations administered by MSC. • LIC administration completed by municipality.	• Not limited to work within municipal boundaries and can enter partnerships with other municipalities. • Better positioned to enter partnerships with the private-sector than the municipality.	• May be subject to some legislative and bureaucratic requirements, making program delivery less flexible. • May take relatively more time to setup and establish. • May be impacted by political decisions.

	Description	Advantages	Disadvantages
Community Led	• Program setup and operations administered by Not-for-Profit. • LIC administration completed by municipality.	• May be more flexible in legislative and bureaucratic requirements than a municipality, speeding up program delivery. • Program runs as a not-for-profit offering. • Reduced conflict of interest as products and services are offered by others. • Not limited to work within municipal boundaries and can enter into partnerships with other municipalities. • Better positioned to enter partnerships with the private-sector than the municipality. • May take less time to setup and establish.	• Potential for limited expertise May take relatively more time to setup and establish.
Market-Led	• Program setup and operations administered by For-Profit. • LIC administration completed by municipality.	• May be more flexible in legislative and bureaucratic requirements than a municipality, speeding up program delivery. • Avoids impacts due to political decisions. • Not limited to work within municipal boundaries and can enter into partnerships with other municipalities. • Better positioned to enter partnerships with the private-sector than the municipality. • May take less time to setup and establish.	• Requires consumer protections to protect against predatory sales tactics • May be less trusted by participants
Utility Provider	• Program setup and operations administered by Utility • LIC administration completed by municipality.	• May be more flexible in legislative and bureaucratic requirements than a municipality, speeding up program delivery. • Avoids impacts dur to political decisions. • Not limited to work within municipal boundaries and can enter into partnerships with other municipalities. • May take less time to setup and establish.	• Potentially better positioned to enter into partnerships with the private sector than the municipality • Reduced conflict of interest as products and services are offered by others. • Potential for limited trust with business and customers.

Appendix J: Tactics and Actions for Community and Engagement and Marketing Plan

Table J-1: *Recommendation – R-DEER Tactics and Actions for Community Engagement and Marketing Plan [10]*

	Tactics	Recommended Actions
Stakeholder Outreach	**List of Stakeholders** • Develop a list of stakeholders and identify areas for engagement	• Identify list of stakeholders and collect contact information • Develop outreach strategy • Define key target audiences for programming • Identify desired outcomes for stakeholder groups • Initiate and schedule consultations
	Stakeholder Consultations • Engage stakeholders to better inform marketing actions	
	Homeowner Survey • Gather input from community to understand barriers and opportunities	• Identify desire outcomes of survey • Contract a trusted surveying consultant to deliver survey • Deploy survey online and use strategies to advise target audience
Virtual Support	**Website and Brand Identity** • Develop a website and brand identity to build credibility and awareness	• Contract marketing service to support project branding and graphic design • Engage stakeholders in brand development
	Virtual Resources and Materials • Engage community through targets social media to support project awareness	• Develop roadmap for participants with process steps, timelines, and expectations • Develop one-page documents focusing on Tips, FAQs, etc.
Build Awareness	**Social Media** • Engage stakeholders through targeted social networking channels to build program awareness and support educational activities	• Post actively on social media platforms (i.e. X, Facebook, Instagram, Linked In, etc.) • Target key market segments through partner associations • Utilize programmatic advertising to increase reach • Incorporate infographics into media content • Engage local influencer accounts (i.e. Mayor, Councillors, local media, etc.)
	Events and Outreach • Engage and educate participants and key market stakeholders through in-person events	• Utilize showrooms that offer homeowners insights into the realities of home retrofits • Host pop up information sessions at events, stores, malls, and gatherings

	Webinars • Offer virtual seminars, lectures, and engagements to educate participants on programming and options for home energy retrofits	• Work with contractors, service providers, utilities, and educational partners to offer educational sessions • Host expert panels to offer insight and tips for home energy retrofits • Partner with other municipal programs
	Print Advertising • Engage community stakeholders through printed materials to support access and awareness of programming	• Utilize existing mailout packages to include program handouts (i.e. property tax) • Offer branded material, and marketing guidelines to contractors and service providers to promote program to clients • Consider posters/billboards in community centres, libraries, recreation centres, transit hubs, etc. • Expand and display hand out material for events, information booths, public offices.
	Stakeholder Engagement Networks • Leverage existing networks to encourage referrals and word of mouth promotion	• Offer training sessions and webinars to approved contractors, service providers, and realtors to provide educational opportunities • Engage local influencers • Utilize newsletter mailing lists of local organizations • Consider internal updates through staff at large local employers, schools, etc.
	Progress Reports • Provide regular access to progress reports to ensure transparency of program progression	• Develop process for progress reporting • Publicly share key milestones, timelines, and strategies for communication • Record program progress to ensure thorough documentation and make interactions with city council available to all participants.

Appendix K: Program Monitoring and Evaluation

R-DEER will follow a monitoring and evaluation (ME) framework in assessing program performance and impact and provide an avenue for reporting program progress to achieving program goals and targets to community stakeholders. The proposed program ME framework is meant to balance time spent on data framework aims to be:

- Flexible - Able to be modified as program offerings evolve.
- Scalable - Able to be scaled throughout program changes and uptake rates.
- Simple - Identify SMART goals that are incorporated into the program.

The framework will follow a basic continuous improvement loop of plan, do, check, act (Figure K-1, Table K-1, Table K-2). It is recommended that ME activities focus on metrics associated with program goals (i.e. energy consumption and GHG emission reductions) and marketing and communications (i.e. outreach and education).

Figure K-1: *Recommended Program Monitoring & Evaluation (ME) Framework*

Table K-1: Description of ME Framework Steps

Step	Description
Objectives / Goals	Identify program goals and the "why" behind the program
Input	Identify what is needed and priorities for each area (sales, marketing, education, etc.)
Program Activities	Implement program
Impacts	Measure impacts through ME
Learning	Critically assess what is working, what is not, and why
Review and Update	Update objectives and reiterate

Table K-2: Sample Template – Framework Implementation

Metric	Definition (how is it calculated?)	Baseline	Target	Data Source (how to measure?)	Frequency (how often?)	Who Requires Information?
Homes upgraded	# of homes completing program in calendar year	Baseline number	Actuals % eligible	Total installations	Annual	Program Administrator, ESCC staff, Council
Energy Efficiency Rating Improvement	Completed by the Energy Advisor	Average Pre-audit	Actuals %change	Pre and Post Audit results	Annual	Program Administrator, ESCC staff, Council
LIC Uptake	# of LIC loans vs. total applications	Forecast	Actuals	Count of Applications and LIC loans	Quarterly	ESCC Staff, Finance, Council
Energy Coach Engagement	# of participants accessing Energy Coaching Services	Forecast	Actuals	Count of online and telephone inquiries	Monthly	Program Administrator, ESCC staff, Council
Awareness and Outreach	# of engagement activities # of education sessions hosted # of attendees	Forecast	Actuals Per capita	Count of activities, education sessions, number of attendees	Annual	Program Administrator, ESCC staff, Council

Data Gathering

Effective ME requires quantitative and qualitative data gathering. Table 13-4 outlines data that can be gathered throughout the home retrofit process.

Table K-3: Data Gathering Opportunities for ME

Step	Purpose	How is Data Gathered?
Initial Application	Collect demographic information, understanding interest in participation, marketing and communications.	Included in online application
Baseline	Identify baseline GHGs, energy consumption, energy audits, and utility costs	Directly through customer, relevant utility, or NRCan pre-audit.
Post-Installation	Number of completed projects and types of measures implemented; loans issued by municipality; Identify changes in energy consumption, GHG changes, post-energy audits and utility costs	NRCan post-audit Directly through customer and/or relevant utility.

Appendix L: Considerations for the Implementation of a Municipally Led Program

Prior to any program launch there would be a significant level of pre-launch activities that would be required.

Figure L-1: Key Steps Required Prior to Program Launch

Item	Details	Lead
Secure Approvals	• Obtain Council approval for Program Design • Assign dedicated resources to lead • Implementation • Request for City funding to match the contribution as required for the FCM funding application.	City Staff
Legal and Financial Review	• Develop forms and procedures for LIC use • Confirm source of capital dollars for LIC loans • Confirm funding for operational costs • Application and review process • LIC interest rates and loan terms	City Staff
Risk Management Assessment	Complete risk assessment on the following factors: • Financial (i.e. loan defaults, LIC liens, etc.) • Market risk (i.e. lack of program uptake) • Human resources (i.e. lack of qualified contractors and energy auditors) • Technical	City Staff
Website Development and Launch	• Launch website to engage community on the development and implementation of program	City Staff / PDA
Funding	• Submit application to FCM to support overall program and delivery centre • Explore partnerships with 3rd party lenders • Explore partnerships with organizations interested in in-kind contributions or sponsorships	City Staff
Program Branding	• Decide program name (i.e. Better Homes • Windsor, Windsor Greener Homes) • Develop program branding	City Staff
Draft Bylaw and Approval by Council	• Creating bylaws to issue LIC loans in accordance with O. Reg. 586/06, including applicable forms, templates, applications • Obtain Council Approval for LIC bylaws	City Staff

PDA Selection and Hiring	• Draft requests for proposals for anticipated services • City completed EOI or RFP process to hire PDA	City Staff
Program Setup	• Pre-work required to launch Develop launch plan	City Staff / PDA
Program Launch	• Execute launch plan	City Staff / PDA
Monitoring, Evaluation & Reporting	• Track Metrics and annual report (# of participants, # loans issues, GHG emissions reduced)	City Staff / PDA

Aside from the pre-launch steps, R-DEER would require a Launch Plan. The launch plan should include strategies, tactics, and tasks for successful program implementation. Areas of focus may include:

- Infrastructure Development
- Program Forms / Guidance Documents
- Program Scaling
- Measurement and Verification

Infrastructure Development

Infrastructure can be in the form of physical equipment or processes and frameworks that ensure R-DEER is successfully launched. The success of the program would rely on active partnerships with contractors, financial institutions, and local organizations. The framework assumes these partnerships can be established, but further engagement would be required to confirm stakeholder interest and capacity.

Using these assumptions, the following summarizes items which would require development to effectively set up and deliver the program listed by role.

General (all partners)

- Secure customer database allowing for the gathering, storing, monitoring, and reporting of program data.
- Secure file transfer services that are secure and reliable (process & infrastructure).

Program Administrator

- Website-related processes & infrastructure allowing for easy file uploads or downloads.
- Process and infrastructure for training of participants, contractors, energy advisors, and energy coaches.
- Process, data, and infrastructure to support program evaluation.
- Process to direct customers to R-DEER program features (i.e. Energy Coach).

Lender/Financial Institution

- Lender staff roles & responsibilities for the program.
- Infrastructure to monitor and report to City and/or Program Administrator on delinquencies, early payments, partial payments, or default.
- Infrastructure and process to request LLR funds.
- Efficient process and timeline to underwrite loans.
- Efficient process and accelerated timeline to underwrite loans for emergency replacement.

Municipal partner as lead

- Program capital processes & infrastructure to receive capital from FCM and other sources, disburse capital to capital holder, and file tracking.
- Capital repayment to FCM and tracking capabilities.
- Hiring and supervising the program administrator and oversight of program administrator's operation of program components (i.e., Portal Window, Energy Coach, Net Zero Roadmap)
- Process & infrastructure to review customer loan applications, including program eligibility (i.e. address, home ownership, income, existing debt).
- Process & infrastructure to assign financing stream(s) and provide customer choice of streams where applicable (i.e. processes, loan terms, loan repayment, impact in case of non-payment, etc.)
- Process & infrastructure set-up for loan approval, including review of property tax bill payment history, and process for collecting explicit homeowner permission for this review and data sharing with the program administrator and/or lender.
- Disbursement of funds
    - Process & infrastructure to disburse funds
    - Process & infrastructure to track advance, full, and partial loan disbursement
    - Process & infrastructure to allocate payments or request Loan-Loss Reserve funds in the event of delinquencies, partial payments, or default.
- Calculator or process to determine scheduled fixed lump-sum payments for homeowners
- (incorporating amount borrowed, interest rate, and term).
- Process & infrastructure to collect partial payments/delinquencies for both streams.
- Process & infrastructure to access other program rebates on behalf of eligible homeowner.
- Process and penalties to address delinquencies, partial payments, or default for both streams.

Develop Required Forms

The following forms may be needed for this program:

- Service and Privacy Agreement:
- Pre-qualification form: A simple 1-page document to confirm applicant eligibility and authorization to verify property tax bill history (to confirm in good standing).
- Pre-qualification notice to proceed: includes a Program reference number, information on available streams and terms, and offers homeowners guidance on next steps.
- Funding request form:
- Authorization to apply for other rebate programs:

- LIC agreement: The framework proposes the use of Local Improvement Charges (LICs) as a financing tool. An LIC Agreement is the funding agreement between the property owner(s) and the municipality specifying all terms and conditions. However, the implementation of LICs would require council approval, appropriate by-law amendments, and regulatory alignment, which may present additional challenges.
- Tenant Information Package:
- Participants who receive financing for an emergency replacement can apply to increase their loan to cover additional measures identified in their EnerGuide assessment. This application should be like the Funding Request Form but simplified based on the information already provided by the participant.
- Work Completion Form:
- Loan Schedule: Additional forms might be required for the unsecured personal loan stream, depending on the collaboration established with lenders.

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POSTERITY GROUP

R-DEER Market Validation Study

Final Report

Date: May 31st, 2024

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Contents

1 Introduction

The City of Windsor released its Community Energy Plan (CEP) in 2017, setting targets to reduce greenhouse gas (GHG) emissions and per-capita energy consumption by 40% below 2014 levels by 2041. The City's declaration of a Climate Change Emergency in 2019 highlighted the urgency of these efforts, prompting a call to update GHG emission targets to align with more aggressive reduction goals.

The City prioritized deep retrofitting Windsor's existing homes since approximately 20% of Windsor's community-wide emissions are from residential dwellings. In 2019, the City released the Windsor Residential Deep Energy Efficiency Retrofit (R-DEER) Business Case to explore the feasibility of this strategy, forming a Project Working Team (PWT) to oversee the process and engage stakeholders.

The R-DEER initiative will finance residential deep energy retrofits in the City of Windsor, reducing energy costs and community GHG emissions while increasing climate resilience. Supported by local improvement charge (LIC) financing, the initiative will streamline the retrofit process and make it accessible to a wide range of homeowners across all income levels. Through collaboration with local contractors, suppliers, and investors, the program will drive the retrofit market transformation and accelerate the rate of deep retrofits in the City.

The purpose of this study is to review and validate key program assumptions including forecasted uptake, methodology, expenditures, and contractor capacity. The study also provides actionable recommendations to align with other municipal retrofit programs and improve participation rates. The outcomes of this study will help the City of Windsor effectively plan, launch, and operate the R-DEER program successfully.

This report contains the following sections:

- *Section 2: R-DEER Program Review –* Summarizes the City of Windsor R-DEER Business Case and draft R-DEER Rationale and Design Study Report.
- *Section 3: Municipal Home Retrofit Program Review –* Outlines nine existing municipal home retrofit programs, highlighting key components of each initiative.
- *Section 4: Incentive Program Review –* Reviews and summarizes the complementary utility and government incentive programs currently available to Windsor's homeowners.
- *Section 5: Uptake Review –* Determines the achievability of the R-DEER uptake forecast scenarios in comparison to similar program uptake data and forecasts in other jurisdictions.
- *Section 6: R-DEER Program Methodology Assessment –* Assesses the City of Windsor R-DEER Business Case methodology and assumptions, comparing them to programs in other jurisdictions.
- *Section 7: Program Expenditure Review –* Validates the R-DEER financial expenditure assumptions for the administration of the program.
- *Section 8: Contractor Capacity Assessment –* Evaluates Windsor's contractor capacity to complete the target number of home energy retrofits.
- *Section 9: Findings –* Summarizes the findings of the study.

2 R-DEER Program Review

2.1 Background

The City of Windsor's housing stock is made up of over 94,000 private dwellings, with the average home dating back to around 1960. The predominant heating source in the region is natural gas, with fewer than 8% of homes using electricity. Windsor's homes face significant energy efficiency issues due to inadequate insulation and outdated heating systems. The Windsor Community Energy Plan reported that Windsor's homes use 35% more energy than the Ontario provincial average, resulting in high energy costs for residents. [1]

Despite a lower median household income compared to the Canadian average, surveys indicate a strong interest among homeowners in energy efficiency improvements, with many seeking support in finding contractors, financing options, and educational resources. Furthermore, a considerable proportion of homeowners are interested in low-interest loans tied to property, suggesting a potential opportunity for financing energy retrofits.

Many homeowners have been reluctant to pursue deep energy retrofits due to financial constraints and uncertainty about long-term residency, compounded by the prevalence of energy poverty affecting a substantial portion of households in the City. These barriers have prevented any substantial acceleration of deep energy retrofits in the City, presenting a need for a deep retrofit program.

2.2 Overview

The Windsor R-DEER program is a voluntary residential deep energy retrofit funding initiative designed to enhance property value, comfort, and energy efficiency in residential homes. Drawing from successful retrofit programs in other jurisdictions, the program will help homeowners understand the benefits of energy retrofits while making the administrative process as simple as possible.

When it launches, it will offer retrofit packages covering common high-energy end-uses such as space heating, water heating, insulation, lighting, doors, and windows, with optional premium upgrades including solar PV/thermal, EV charging, and energy/heat recovery ventilators (ERV/HRV). Climate resiliency measures such as the installation of a sump pump and backwater valves are also covered.

The program aims to finance retrofits in 80% of Windsor's homes by 2041, achieving an average of 30% to 50% increases in energy efficiency. The program also has several complementary goals:

- Support Windsor residents and reduce barriers to participation in other third-party energy efficient rebate and incentive programs.
- Reduce residential energy consumption and community GHG emissions.
- Increase the resiliency of Windsor's residential building stock.
- Maximize community engagement with the program.
- Accelerate residential deep retrofits and reduce retrofit costs.
- Stimulate the local retrofit economy.

2.3 Eligibility

In Windsor, around 71,000 dwellings (~76% of residential dwellings) are eligible for R-DEER program participation. Eligible residential building types include detached, semi-detached, townhomes, row homes, and multifamily buildings of three units or less which are at least 20 years old at the time of application. Homeowners may participate in the program multiple times but cannot exceed the lifetime borrowing limits. All members of the property ownership group must consent to participating in the program, and the home may be either owner or tenant occupied.

Exhibit 1 shows the eligible retrofit measures in the R-DEER program.

Exhibit 1 – Eligible R-DEER Retrofit Measures

Core Measures[1]	Resiliency Measures	Premium Measures
• Energy Audit • Windows and Doors • Weatherizing / Air Sealing • Insulation • Air Source/Ground Source Heat Pumps • Electric Water Heater • Air Source Water Heater • LED Lighting • Smart Strips • Occupancy Sensors • Low-flow Faucets / Showerheads • WC Flow Regulator	• Sump Pump and Overflow • Backwater Valves • Downspout Disconnection • Health and Safety Upgrades (i.e. electrical)	• EV Charging • Solar Photovoltaic • Solar Thermal • Battery Storage • Heat/Energy Recovery Ventilators (HRV/ERV)

Climate resiliency measures will be a mandatory component of the program if the dwelling has not previously participated in the Basement Flood Prevention Program and can receive up to 30% of project funding. Furthermore, to be eligible for the premium measures, core and resiliency measures must first be completed. The cost of each package will be dependent on the upgrade measures that are determined after the EnerGuide pre-audit.

2.4 Financing

Participants will be able to borrow between $10,000 and up to 10% of their home's MPAC assessed property value (capped at $40,000) and can cover up to 100% of the retrofit costs. The program will offer fixed-rate financing with favourable interest rates on terms of up to 10 years.[2] The program will also allow homeowners to access 50% of the estimated project value or 50% of loan value (whichever is

[1] Fossil fuel equipment is not eligible.
[2] Actual financing rate will be negotiated at the time of program launch.

lesser) in advance to cover the EnerGuide pre-audit, building permitting, and upfront contractor deposits. Homeowners will be able to stack R-DEER funding with other rebate and incentive programs (see Section 4).

The R-DEER program will offer two financing streams:

1. *Local Improvement Charge (LIC) Loan –* Participants will be eligible to receive an LIC secured loan which will be repaid on the homeowner's property tax bill. The charge remains with the property until the loan is fully repaid, regardless of property ownership.
2. *Unsecured Loan –* Participants will be able to access a personal loan administrated by a third-party financial institution where the loan is paid back over time and is tied to the homeowner.

Most municipal residential deep retrofit programs we reviewed in this study also used LICs to finance their programs (see Section 3). There are several reasons why LICs are the preferred financing method for municipalities:

- LIC loans are viewed as recoverable, avoiding municipal debt increase.
- Minimal risk for municipalities due to priority lien on property, enabling reclaiming of overdue amounts.
- Gives homeowners access to fixed-cost, long-term financing from third parties. LICs allow the municipality to pass on favourable interest rates to program participants.
- LIC model's success is proven in other Ontario jurisdictions.

While there are many benefits to LICs, there are still some drawbacks to consider:

- The homeowner will have larger property tax payments.
- The LIC may deter potential buyers of the property, although this remains unproven to date.
- There is a potentially increased risk of foreclosure if due diligence is not performed on the property prior to the loan being issued. This risk is of particular concern to mortgage lenders.
- There is an increased administrative burden for the municipality who must process LIC requests.

It is the City of Windsor's opinion that the benefits of an LIC loan program far outweigh the potential risks, which can be mitigated through public education and marketing, as well as a loan loss reserve fund. The City will create a loan loss reserve worth 5% of total loan value to mitigate loan default risk and cover potential losses. This strategy has been proven to be successful in other jurisdictions and will help to calm mortgage lender concerns (in case of default, the LIC loan takes precedent over the mortgage which presents a risk to the mortgage lender).

The choice of loan will fall on the homeowner to decide on after they apply for the program. The administration costs and LIC loan capital will initially be provided by the Federation of Canadian Municipalities' (FCM) Community Efficiency Financing (CEF) initiative over the first four years of the

program.[3] However, the program intends to transition to third-party financing after the FCM funding is exhausted. FCM's funding is intended to drive market transformation in the program's first four years and should not be considered a long-term funding source. Subsequently, creating partnerships with financial institutions is key to extending and scaling the program.

2.5 Program Delivery

The Retrofit Delivery Centre (RDC) is proposed as part of the program's administration and will be overseen by a Program Delivery Agent (PDA). The RDC's role includes various administrative tasks, such as:

- Assisting homeowners with financing incentives and applications.
- Conducting post-retrofit inspections.
- Navigating incentive programs.
- Marketing to expand the applicant base.
- Monitoring and reporting program progress.
- Providing home retrofit education.
- Screening homeowners for eligibility.
- Training and maintaining a roster of qualified contractors.

The RDC will support participants throughout the retrofit process by offering coaching services which will help with audits, contractor selection, obtaining quotes, identifying incentives and other funding sources, while developing relationships and trust within the Windsor community.

The program process has yet to be finalized, but it will likely look similar the process shown in Exhibit 2.

Exhibit 2 – R-DEER Program Process

[3] FCM's CEF program funding will cover up to 80% of eligible costs up to $10 million, with a grant up to 50% of the loan amount. The remaining 20% of program costs will be covered by either the City of Windsor or through a partnership with a third-party lender. Funding is also available for a pilot program and loan loss reserves.

3 Municipal Home Retrofit Program Review

This section explores the municipal retrofit program landscape across Ontario (and Edmonton), providing a summary of each program, with a specific focus on:

- Characterizing program design elements.
- Understanding current program status (in-development, pilot, in-market).
- Characterizing uptake projections using publicly available data.
- Understanding environmental and financial impact projections.
- Understanding program activities and strategies designed to increase participation.

3.1 Better Homes Burlington

In April 2019, Burlington declared a climate emergency, leading to the development of a Climate Action Plan (CAP) approved in April 2020. The CAP aims for net-zero carbon status by 2050 through programs like deep energy retrofits for homes, addressing 26% of the city's GHG emissions and promoting sustainability and innovation.

The Better Homes Burlington program is one of seven programs proposed in the CAP. The program is intended to incentivize home upgrade projects to drive a reduction in GHG emissions and is conducted with assistance from the FCM's GMF.

Exhibit 3 shows a summary of the Better Homes Burlington program and Exhibit 4 shows the estimated program uptake.

Exhibit 3 – Better Homes Burlington Program Summary [2]

	Summary
Offering	• Funds installation of air source heat pump and/or air sealing • Loans up to $10,000 through the municipality
Eligibility	• Detached • Semi-detached • Townhomes
Housing Stock	• 71,353 private dwellings • 53,270 (74.6%) are eligible for program participation
Financing Mechanism	• Local improvement charge (LIC) • Loan loss reserve with 5% of total loan base coverage • FCM to fund first four years, transitioning to third-party financing to fill gaps • Program offers 0% interest financing
Program Delivery	• Local not-for-profit delivery agent

	Summary
Status	• Pilot (2023-2024)
Uptake Estimates	• 20 homes upgraded in first year • Conversion rate of 15% in first year • Reach of 1000 potential participants • See Exhibit 4
Environmental Impact	• 3 tCO2e reduced per home per year
Financial Impact	• N/A
Participation Strategies	• Program provides coaching services to provide participants with application support, identify financing options, and navigate retrofit logistics

Exhibit 4 – Better Homes Burlington Program Uptake Estimates [2]

Year	Homes Upgraded per Year	Homes Upgraded	% Eligible Housing Stock	% Total Housing Stock
1	20	20	0.0%	0.0%
2	40	60	0.1%	0.1%
3	100	160	0.3%	0.2%
4	150	310	0.6%	0.4%
5	200	510	1.0%	0.7%
6	300	810	1.5%	1.1%
7	350	1160	2.2%	1.6%
8	400	1560	2.9%	2.2%

3.2 Durham Greener Homes

In January 2020, Durham Region declared a climate emergency and committed to reducing community GHG emissions to 80% below 2007 levels by 2050. To address emissions from the built environment in the Region, Durham Greener Homes was developed to help Durham homeowners finance and implement energy retrofits. [3]

The Durham Greener Homes Program pioneers a unique approach, using third-party lending instead of traditional Property Assessed Clean Energy (PACE) or LIC models. The is primarily because Durham

Region is an upper-tier municipality and has limited authority to implement LICs region-wide without cooperation from all its lower-tier municipalities.

The program partners with local credit unions to facilitate energy efficiency upgrades, renewable energy installations, and other home improvements. This innovation provides homeowners with unsecured loans at favorable rates, overcoming legislative barriers where PACE isn't permitted. [4]

Exhibit 5 shows a summary of the Durham Greener Homes program.

Exhibit 5 – Durham Greener Homes Program Summary [5] [6]

	Summary
Offering	• Loans offered from $5,000 up to $40,000, with up to 10-year terms • The loan allows financing for envelope upgrades, HVAC systems, solar PV, and EV charging infrastructure • Complementary deep retrofit and heat pump rebate programs offer up to $10,000 and $2,000, respectively
Eligibility	• Single-family owner-occupied homes (1-4 units)
Housing Stock	• 200,000 private dwellings • 92,000 (46%) are eligible for program participation
Financing Mechanism	• Initial seed funding came from FCM and the Toronto Atmospheric Fund (TAF) • Program is currently funded through third-party financiers • Loans are available from Pathwise Credit Union and Rapport Credit Union
Program Delivery	• Local not-for-profit delivery agent
Status	• In-market since 2022
Uptake Estimates	• Estimated to complete 1,066 projects from 2022-2024
Environmental Impact	• Projected to save 3,411 tCO2e from 2022-2024
Financial Impact	• $52.9 million in overall economic output • Create 244 full time equivalent jobs
Participation Strategies	• Program is operated by delivery agent and run through home energy coaches who support the participant through the entire process

3.3 Better Homes Kingston

Better Homes Kingston was initiated following Kingston's 2019-2022 Strategic Plan commitment to create a home energy retrofit program focusing on high-impact, capital-intensive improvements for

property owners. The City of Kingston is targeting 30% GHG emissions reductions below 2011 levels and carbon neutrality by 2040. [7]

Residential energy use makes up 14% of Kingston's community GHGs and residents collectively spend about $100 million annually on home energy costs, so the Better Homes Kingston program is key to tackling emissions and affordability challenges in the City. Better Homes Kingston aims to retrofit 25% to 50% of pre-1991 single-family homes by 2040, targeting a 30% average carbon reduction per home. The program is conducted with assistance from the FCM's GMF. [8]

Exhibit 6 shows a summary of the Better Homes Kingston program and Exhibit 7 shows the estimated program uptake.

Exhibit 6 – Better Homes Kingston Program Summary [9] [8]

	Summary
Offering	• Offers interest free loans up to $40,000 or 10% of the home's value (whichever is less) • Requires a minimum of 20% reduction in GHG emissions and/or equivalent reduction in energy consumption for electrically heated homes • Loan allows financing for envelope upgrades, HVAC systems, solar PV, and EV charging infrastructure • Funds health and safety measures and climate mitigation and adaptation improvements • Complementary energy audit rebate is offered for participants who do not qualify for utility or government incentive programs
Eligibility	• Detached • Semi-detached • Row houses • Primary and rental residences qualify
Housing Stock	• 54,000 private dwellings • 34,000 eligible for program participation
Financing Mechanism	• Local improvement charge (LIC) • Loan loss reserve with 5% of total loan base coverage • FCM to fund first four years, transitioning to third-party financing to fill gaps • Program offers 0% interest financing • Energy coaches can advise participants about accessing third-party financing • Will pay up to 30% of project costs upfront to cover contractor deposit fees (70% for income eligible participants)

	Summary
Program Delivery	• Local not-for-profit delivery agent
Status	• In-market since 2022
Uptake Estimates	• As of August 2023, the program has completed 85 projects with a 64 percent energy reduction on average [10] • Plan to complete 6,100 retrofits over 12-15 years • See Exhibit 7.
Environmental Impact	• 18,000 tCO2e over 12-15 years • 1350-2400 tCO2e over first four years
Financial Impact	• 200 to 375 jobs over the first four years of the program
Participation Strategies	• Program is operated by delivery agent and run through home energy coaches who support the participant through the entire process

Exhibit 7 – Better Homes Kingston Program Uptake Estimates [8]

Year	Third Party Financing	LIC Loans	Total (Range)	Total (Average)	% Eligible Housing Stock	% Total Housing Stock
1	25 - 50	50 - 100	75 - 150	113	0.3%	0.2%
2	50 - 100	100 -150	150 - 250	200	0.6%	0.4%
3	75 - 150	150 - 250	225 - 250	238	0.7%	0.4%
Totals	**150 - 300**	**300 - 500**	**450 - 800**	**625**	**1.8%**	**1.2%**

3.4 Peterborough Home Energy Efficiency Program

In 2019, the City of Peterborough declared a climate emergency and updated their community emissions reduction target to 45% below 2011 levels by 2030. Low-rise residential buildings account for 39% of Peterborough's community GHG emissions, so the City established the Home Energy Efficiency Program (HEEP) to help fund residential deep energy retrofits and reduce community GHG emissions. Other benefits of the program were to help residents reduce their energy costs, increase community engagement, reduce retrofit transaction costs, and stimulate the local economy.

Participants in the program will be able to access loans starting at $1,000 all the way up to $125,000. The program offers two financing streams to residents, who can choose either LICs or an unsecured loan from a financial institution partner. [11]

Exhibit 8 shows a summary of the Peterborough HEEP program and Exhibit 9 shows the estimated program uptake.

Exhibit 8 – Peterborough Home Energy Efficiency Program Summary [11]

	Summary
Offering	• Offers LIC loans from $15,000 to $125,000 • Offers unsecured loans from partner financial institutions starting at $1,000 • Loan allows financing for envelope upgrades, air source heat pumps, solar PV, and energy storage • Can finance non-energy related work like climate adaptation measures, health and safety, EV chargers, and cosmetic renovations up to 30% of the loan value • Program to run over four years
Eligibility	• Detached • Semi-detached • Row houses
Housing Stock	• 23,228 private dwellings • 16,492 eligible for program participation
Financing Mechanism	• Local improvement charge (LIC) • Loan loss reserve with 5% of total loan base coverage • FCM to fund first four years, transitioning to third-party financing to fill gaps • Third-party financing also available through unsecured loan with partnering financial institution • Will pay up to 50% of project costs upfront to cover contractor deposit fees • Alternative pathway to cover replacement of failed equipment
Program Delivery	• Local not-for-profit delivery agent
Status	• In-development, received funding to launch sometime in 2024
Uptake Estimates	• See Exhibit 9.
Environmental Impact	• 435-3,898 tCO2e over first four years • 3,688-18,787 tCO2e over first ten years
Financial Impact	• N/A

	Summary
Participation Strategies	• Program is operated by delivery agent and run through home energy coaches who support the participant through the entire process

Exhibit 9 – Peterborough Home Energy Efficiency Program Uptake Estimates [11]

Uptake Scenario	First 4-year Average	First 10-year Average	Cumulative Adoption Year 4	Cumulative Adoption Year 10	% Eligible Housing Stock After Year 10	% Total Housing Stock After Year 10
Low	31	43	124	432	2.6%	1.9%
Medium	85	85	340	850	5.2%	3.7%
High	213	186	853	1861	11.3%	8.0%

3.5 Better Homes Ottawa

In 2019, the City of Ottawa declared a climate emergency. In response, the City released its Climate Change Master Plan in 2020, aiming for 68% GHG reductions by 2030, 96% by 2040, and achieving carbon neutrality by 2050, using 2012 levels as a baseline. With approximately 28% of the City's GHG emissions coming from residential homes, nearly all homes in Ottawa will need to undergo a deep energy retrofit by 2040. [12] [13]

The Better Homes Ottawa program was developed to fund residential deep energy retrofits in the City. Through this program, Ottawa homeowners can access low-interest loans for energy retrofits up to $125,000 or 10% of the home's value. Financing is repaid through an LIC tied to the homeowner's property. [13]

Exhibit 10 shows a summary of the Better Homes Ottawa program.

Exhibit 10 – Better Homes Ottawa Program Summary [13] [14] [15]

	Summary
Offering	• Offers LIC loans from $10,000 up to $125,000 or 10% of the home's value • Several interest rates are available, with interest-free options available for low-income households • Loan allows financing for envelope upgrades, HVAC systems, solar PV, and energy storage • Can finance non-energy related work like climate adaptation measures, health and safety, EV chargers, and minor cosmetic renovations (paint, drywall, demolition, etc.) up to 30% of the loan value

	Summary
	• Directly incentivize air source cold climate and ground source heat pumps
Eligibility	• Detached • Semi-detached • Townhouse • Multifamily of 3 stories or less (Part 9)
Housing Stock	• 385,074 eligible private dwellings
Financing Mechanism	• Local improvement charge (LIC) • Loans are available on 20-year terms • Loan loss reserve of $1 million over first three years • Will pay up to 50% of project costs upfront to cover contractor deposit fees • Funding from FCM ($12 million) and VanCity ($30 million)
Program Delivery	• Local not-for-profit delivery agent
Status	• In-market since 2022 • Average GHG reduction of 40%
Uptake Estimates	• As of May 2023, the program has provided funding for 176 applications at an average loan of $38,086 [10] • As of May 2024, the program has completed 47 retrofits in Year 1, 108 retrofits in Year 2, and 51 in Year 3 with 150 more projected retrofits in Year 3 [15] • Targeting 77,977 by 2030 and 283,029 by 2040
Environmental Impact	• Average emissions reduction of 40% per retrofit [10]
Financial Impact	• N/A
Participation Strategies	• Program is operated by delivery agent and run through home energy coaches who support the participant through the entire process

3.6 Guelph Greener Homes

The City of Guelph has pledged to reduce community GHG emissions by 63% below 2018 levels by 2030 and reach net-zero by 2050. Guelph's residential emissions account for 22% of community GHG emissions. In response, the City launched the Guelph Greener Homes program in 2023 to help homeowners reduce emissions through deep retrofits. [16]

Exhibit 11 shows a summary of the Guelph Greener Homes program.

Exhibit 11 – Guelph Greener Homes Program Summary [17] [18]

	Summary
Offering	• Offers interest free LIC loans from $5,000 up to $50,000 • Loan allows financing for envelope upgrades, HVAC systems, controls, and solar PV
Eligibility	• Detached • Semi-detached • Townhouse • Rowhouse
Housing Stock	• 41,245 eligible private dwellings [19]
Financing Mechanism	• Local improvement charge (LIC) • Loans are available on 10-year terms • Loan loss reserve • Will pay up to 30% of project costs upfront to cover contractor deposit fees (up to $10,000) • Funding from FCM ($10 million loan and $5 million grant) and City of Guelph ($3.75 million)
Program Delivery	• N/A
Status	• In-market since 2023
Uptake Estimates	• N/A
Environmental Impact	• N/A
Financial Impact	• N/A
Participation Strategies	• There does not appear to be an energy coaching program in place.

3.7 Better Homes Hamilton

In 2019, the City of Hamilton declared a climate change emergency and committed to achieving net-zero GHG emissions by 2050. Hamilton's industry operations account for 64% of the City's GHG emissions, while residential buildings account for 8%. Subsequently, the Better Homes Hamilton program pilot was launched in late 2023 to finance residential deep retrofits and inform future program offerings. The pilot offers the community up to $1 million in interest-free loans to retrofit approximately 50 homes, with each property eligible for a maximum of $20,000. [20]

Exhibit 12 shows a summary of the Better Home Hamilton program.

Exhibit 12 – Better Homes Hamilton Program Summary [21] [20]

	Summary
Offering	• Pilot program offered to 50 participants over two years • Offers interest-free LIC loans up to $20,000, though future program offerings will unlikely be interest-free • Loan allows financing for envelope upgrades, HVAC systems (excluding domestic hot water), supporting infrastructure such as ductwork and breaker panel upgrades, and assessment costs • Does not require a home energy assessment
Eligibility	• Detached • Semi-detached • Townhouse
Housing Stock	• 222,805 private dwellings • 166,735 eligible dwellings (75%)
Financing Mechanism	• Local improvement charge (LIC) • Interest-free loans are available on 10-to-15-year terms • Loan loss reserve with 5% of total loan base coverage • Will pay up to 30% of project costs upfront to cover contractor deposit fees • $1 million in funds from municipality • Will apply for FCM funding to support next fours years after pilot, with higher interest rates
Program Delivery	• Municipality will deliver pilot
Status	• Pilot launched in late 2023 • Application closed on March 31, 2024
Uptake Estimates	• To select 50 participants for pilot • Estimate that program could scale up to performing 120 retrofits per year in the fourth year (410 retrofits total)
Environmental Impact	• GHG reductions of City-wide emissions by 243.6 kCO2e (2.8%) by 2050
Financial Impact	• 1,600 new jobs by 2050
Participation Strategies	• Program is operated by municipality and run through home energy coaches who support the participant through the entire process • Contractor registry

3.8 Toronto Home Energy Loan Program

The City of Toronto first launched its TransformTO climate action strategy in 2017. Then in 2019, the City declared a climate emergency, leading to the adoption of the Net Zero Strategy in 2021. This strategy outlines Toronto's pathway to reaching net zero emissions by 2050. As part of this strategy, the City is targeting cutting GHG emissions by 50% in all existing buildings by 2050. [22]

The Home Energy Loan Program (HELP) was initially launched in 2014 and has become a flagship program of TransformTO. The program offers low-interest LIC loans up to $125,000 to fund residential deep energy retrofits. [23]

Exhibit 13 shows the shows a summary of the Toronto HELP program and Exhibit 14 shows the estimated program uptake needed to meet Toronto's net-zero goals.

Exhibit 13 – Toronto Home Energy Loan Program Summary [23] [24]

	Summary
Offering	• Offers low-interest LIC loans up to $125,000 or 10% of the home's value (whichever is less) • Loan allows financing for envelope upgrades, HVAC systems, geothermal systems, solar PV, EV charging, and battery storage systems • Complementary deep retrofit, air-source heat pump, and solar PV incentive programs offer between $1,000 to $10,000
Eligibility	• Detached • Semi-detached • Rowhouse
Housing Stock	• 869,584 private dwellings
Financing Mechanism	• Local improvement charge (LIC) • Low-interest loans are available on 5 to 20-year terms • In 2022, 300 interest-free loans were offered using funding from FCM • Will pay up to 30% of project costs upfront to cover contractor deposit fees • Requires mortgage lenders to approve applicants before they are accepted to the program
Program Delivery	• Municipality delivers program
Status	• In-market since 2014
Uptake Estimates	• 236 retrofits completed from 2014 to 2021 ($5.7 million in loans) • 506 funding offers

	Summary
	• Need to perform 29,000 residential retrofits per year to meet net-zero targets • See Exhibit 14
Environmental Impact	• Meeting net-zero will require retrofitting 100% of existing residential buildings, making up 10% of total emissions
Financial Impact	• N/A
Participation Strategies	• Limited support for participants

Exhibit 14 – Toronto Home Energy Loan Program Uptake Estimates [25]

Period	Number of Dwellings
2021-2025	128,059
2026-2030	150,012
2031-2040	298,881
2041-2050	292,632

3.9 Edmonton Clean Energy Improvement Program

The Clean Energy Improvement Program (CEIP) pilot launched in Edmonton in March 2022 and provides participants with low-cost financing for energy efficiency retrofits and renewable energy installations. The program is structured as a Property-Assessed Clean Energy (PACE) program, in which loans are attached to the property and paid back on the borrower's property tax bill and is essentially identical in structure to Ontario's LIC funding programs. The CEIP is administered by Alberta Municipalities and similar programs are currently available in 19 municipalities.

Edmonton's pilot program included residential and commercial CEIP streams, both of which support the City of Edmonton's broader Community Energy Transition Strategy. The next iteration of the CEIP program is a $20M initiative which is due to launch in late 2024 and run until at least 2027.

Exhibit 15 shows a summary of Edmonton's CEIP.

Exhibit 15 – Edmonton Clean Energy Improvement Program Summary [26] [10]

	Summary
Offering	• Offers low-interest loans from $3,000 up to $50,000 • Loan allows financing for envelope upgrades, HVAC systems, lighting, solar PV, and battery storage systems • Must perform three or more eligible upgrades

	Summary
Eligibility	• Detached • Semi-detached • Rowhouse • Townhouse • Multi-unit residential building of four units or less
Housing Stock	• N/A
Financing Mechanism	• Property assessment clean energy (PACE) financing • Low-interest loans (<3.5%) are available on up to 20-year terms
Program Delivery	• Program is co-delivered by Alberta Municipalities and the City of Edmonton
Status	• In-market since 2022
Uptake Estimates	• As of May 2023, of the 125 applications submitted 43 remained open, 0 were wait-listed, 11 were declined by the program, 7 expired, and 59 applications were cancelled by applicants
Environmental Impact	• N/A
Financial Impact	• N/A
Participation Strategies	• Edmonton performed a study evaluating the need for a home energy coaching program and determined a coaching program was needed to improve uptake

4 Incentive Program Review

This section presents an overview of the rebate and incentive programs currently available in the City of Windsor.

The following programs are already fully subscribed and will not be explored as a result:

- Canada Greener Homes Grant
- Enbridge Home Efficiency Rebate Plus

4.1 Enbridge Home Winterproofing Program

The Enbridge Low Income Home Winterproofing Program finances energy savings upgrades for qualifying homeowners at no cost to the homeowner. To qualify, homeowners must have an Enbridge Gas account, have a home that is heated with a natural gas furnace or boiler, and meet low-income requirements.[4] Homeowners who qualify are then given a home energy assessment, which is used to evaluate the existing condition of the home and assess the energy savings potential.

Eligible homes qualify for the following free energy efficiency upgrades: [27]

- Wall, attic, and/or basement insulation
- Air sealing
- Smart thermostats

The program participants follow the process shown in Exhibit 16.

Exhibit 16 – Home Winterproofing Program Process Chart

The program is delivered by authorized delivery agents who oversee screening potential participants and homes. Homes which pass the screen are then eligible for energy efficiency upgrades. The entire project is financed and delivered on behalf of Enbridge, with limited homeowner involvement.

Homes are screened out under the following conditions: [28]

- Insulation is already code compliant.
- The measures required by the home are not offered by program.
- There are health and safety concerns which fall out of scope of the program.
- There is unfinished construction, hoarding, and/or infestation.

[4] HWP requirements and low-income levels can be found here.

Exhibit 17 shows the province-wide program participation levels and cumulative gas savings from 2016 to 2021.

Exhibit 17 – Enbridge Home Winterproofing Program Participation and Gas Savings [29]

Year	Participation	Annual Gas Savings (m^3)
2016	1512	28,814,754
2017	1023	19,598,357
2018	692	15,978,390
2019	1425	27,618,723
2020	912	26,642,997
2021	1040	26,443,935

4.2 IESO Energy Affordability Program

The IESO Energy Affordability Program assists income-eligible electricity consumers in Ontario by reducing monthly electricity costs and improving home comfort. Eligibility is based on household income from the previous year or receipt of qualifying government benefits. Homeowners, renters, and social housing residents may qualify for advice and free energy-saving upgrades. The program is delivered through authorized Save on Energy delivery agents.

The program offers two types of support which depend on the income level of the applicant:

1. Comprehensive Support
2. Energy Saving Kits

Each level of support is explored in the following subsections. [30]

4.2.1 Comprehensive Support

Participants who qualify for comprehensive support receive a free energy needs assessment to help them find opportunities for saving energy. Measures such as insulation and smart thermostats are only available for homes heated by electricity.

Eligible free energy saving measures include: [30]

- Cold climate air source heat pump
- Window air conditioner
- LED lighting upgrades
- Basement and/or attic insulation
- Energy-efficient refrigerator
- Smart thermostats

- Weatherstripping
- Low-flow faucets and showerheads
- Clothesline
- Power strip

4.2.2 Energy Saving Kits

Participants who do not qualify for comprehensive support may still qualify for a free energy saving kit which contains energy savings products which can be installed by the participant.

The free energy saving kit includes: [30]

- LED light bulbs and night light
- Weatherstripping
- Low-flow faucets and showerheads
- Clothesline

4.2.3 Summary

Exhibit 18 shows the EAP participation levels and electricity savings for homes which underwent weatherization measures. Prior to the launch of the EAP in 2021, the IESO's Home Assistance Program (HAP) had a similar offering. Consequently, Exhibit 19 shows the HAP participation levels and electricity savings for homes which underwent weatherization measures.

Exhibit 18 – IESO Energy Affordability Program Participation and Electricity Savings [31]

Year	Participation	Electricity Savings (kWh)
2021	20	82,800
2022	117	213,800

Exhibit 19 – IESO Home Assistance Program Participation and Electricity Savings[5] [31]

Year	Participation	Electricity Savings (kWh)
2019	70	226,800
2020	278	1,011,000
2021	220	953,300

[5] The HAP was launched 2011 but public data was limited prior to 2019.

4.3 Canada Greener Homes Loan

The Canada Greener Homes Loan program was launched in 2022 and offers interest-free unsecured loans from $5,000 up to $40,000 on 10-year terms. The program is available Canada-wide to homeowners with good credit histories and who use their home as their primary residence. The program is available to homeowners in residential and low-rise multifamily buildings.

The following retrofit measures are eligible:

- Building envelope (insulation, air sealing, windows, and doors)
- Heat pumps
- Heat pump water heaters
- Smart thermostat
- Solar PV
- Resiliency measures

Exhibit 20 shows the applicant's journey through the Green Homes Loan Program.

Exhibit 20 – Canada Greener Homes Loan Program Process Chart

The program also has contingencies for Indigenous and Northern communities:

- *Indigenous group applicants* – Indigenous applicants can register multiple homes, if each home is occupied by an Indigenous household.
- *Northern and off-grid communities* – Homeowners in these communities are eligible for 30% higher retrofit amounts, replacement of fossil-fuel burning equipment, and additional insulation measures. [32]

As of January 2024, the program has approved over 53,000 in loans valued at approximately $24,000 per loan. The most popular measures have been for heat pumps, followed by windows and solar PV. [33]

4.4 Other Programs

There are three other residential energy efficiency programs which are available to Windsor residents:

- *Enbridge Smart Thermostat Program* – Enbridge customers are eligible to receive a $75 rebate on smart thermostats for their home. [34]
- *IESO Peak Perks* – Ontario homeowners with air conditioners and smart thermostats can receive $75 to enroll in this demand response program. [35]
- *Oil to Heat Pump Affordability Program* – This program provides incentives between $10,000 to $15,000 to eligible Canadians to replace their oil heating equipment with a heat

pump. It is available to Canadian homeowners who use at least 500 L of oil per year and meet income eligibility requirements. [36]

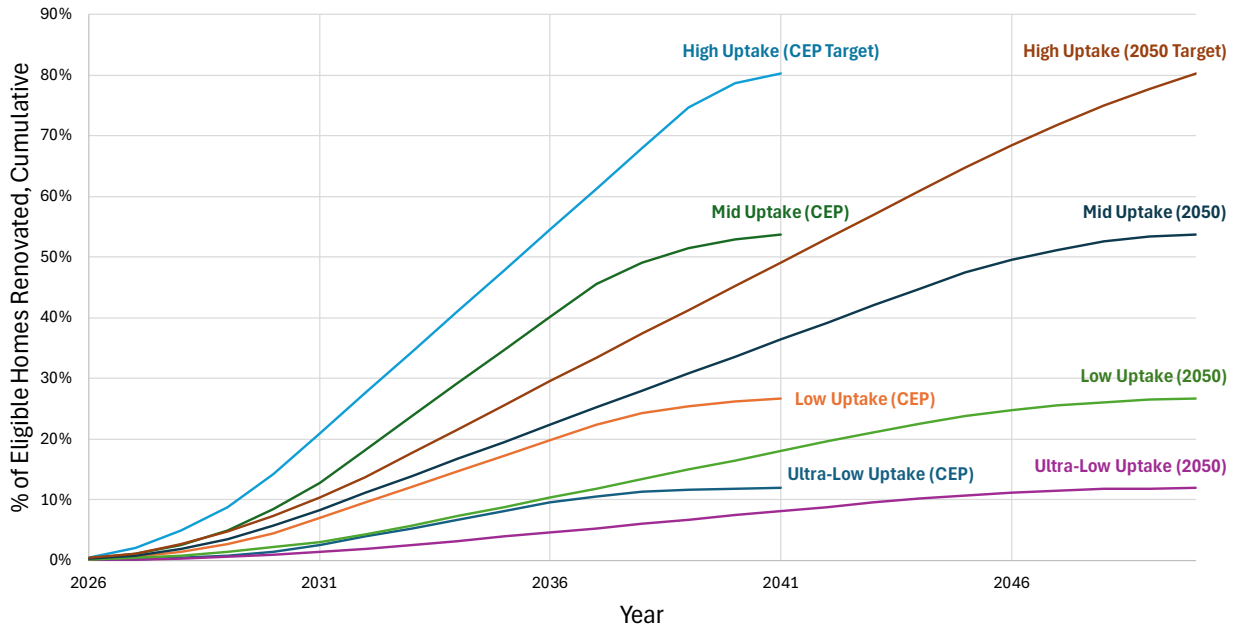
5 Uptake Review

The following section outlines our evaluation of the estimated project uptake and benefits potential included in the R-DEER program business case.

5.1 R-DEER Program Uptake Scenarios

The R-DEER program business case includes eight forecast uptake scenarios, shown in Exhibit 21.[6] Four of the uptake scenarios align with the program timeline outlined by the CEP (2026-2041), and four scenarios align with the extended program timeline (2026-2050).

Exhibit 21 – R-DEER Program Uptake Scenarios



The City of Windsor specified the High Uptake (CEP Target) scenario as the preferred scenario because it is aligned with meeting the City's emissions reduction target.

5.2 Uptake Review Methodology

We have undertaken a review of the forecast uptake scenarios presented in Exhibit 21 to evaluate their reasonableness in comparison to uptake for similar residential deep retrofit programs.

[6] The tabular uptake scenario forecast is included in Appendix A.

We conducted a jurisdictional scan of publicly available uptake and benefits data from retrofit programs in Canada, separating programs into the following categories:

1. Utility programs in Ontario (Enbridge and the IESO)
2. Canadian municipal programs
3. Canadian utility/government programs

We normalized each jurisdiction's uptake and benefits data on a per-eligible-home basis and compared these results to the City of Windsor's uptake forecast scenarios. We considered program nuances that could explain differences in program uptake and benefits and have provided recommendations to the City of Windsor regarding key program elements that may increase uptake and benefits.

Most publicly available uptake and benefits assumptions are projections and the underlying assumptions that inform these forecasts are subject to high levels of uncertainty. We have conducted an evaluation of the potential variables influencing residential deep retrofit program uptake and their potential impact and have recommended strategies to improve future uptake in the City of Windsor's R-DEER program.

5.3 Uptake Review Results

The following section outlines the results of the program uptake review for the three jurisdictional program categories listed in Section 5.2 and the associated sensitivity analysis.

5.3.1 Ontario Residential Deep Retrofit Programs

The programs included in the Ontario-specific uptake and benefits review are:

- *Enbridge Gas Inc.* – Low-Income Home Winterproofing Program (HWP)
- *IESO* – Energy Affordability Program
- *IESO* – Home Assistance Program

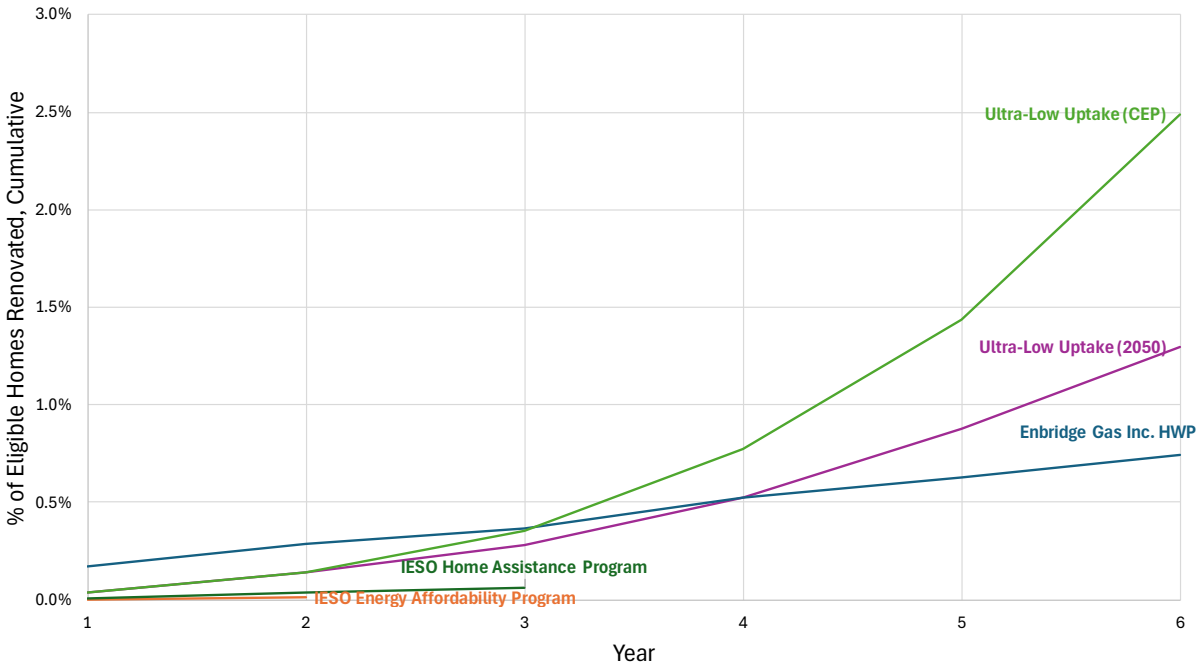
Exhibit 17 to Exhibit 19 in Section 4 presented the raw uptake data and energy savings benefits for these programs.[7] Exhibit 22 summarizes the programs' eligible dwellings and environmental benefits, and Exhibit 23 illustrates how the cumulative percentage of eligible homes that are retrofitted compares to Windsor's R-DEER Ultra-Low Uptake scenarios.

[7] All uptake data for these programs are real, not forecast.

Exhibit 22 – Ontario Residential Deep Retrofit Program Summary

Program Name	Eligible Dwellings	Environmental Benefit
Enbridge Home Winterproofing Program (HWP)	887,121	Average of 24,182,859 m^3 of natural gas saved per year (over 6 years). Average savings of 46,455 tCO_{2e} per year (over 6 years).
IESO Energy Affordability Program	1,621,559	Average of 148,300 kWh of electricity saved per year (over 2 years). Average savings of 4 tCO_{2e} per year (over 2 years).
IESO Home Assistance Program	1,621,559	Average of 730,367 kWh of electricity saved per year (over 2 years). Average savings of 18 tCO_{2e} per year (over 2 years).

Exhibit 23 – Ontario Residential Deep Retrofit Programs Uptake versus R-DEER Uptake Forecast



The IESO programs have significantly lower participation rates than the other scenarios shown in Exhibit 23. The Enbridge HWP has higher participation rates than the IESO programs, but after six years the participation rate is still lower than both R-DEER Ultra-Low Uptake scenarios. Both the IESO and Enbridge programs offer fully financed retrofits to low-income participants, optimizing program participation rates within low-income communities. The Windsor R-DEER program will involve significantly more homeowner involvement with limited funding, which will negatively impact program participation rates compared to these three low-income programs. Therefore, we expect that the

Windsor program would struggle to achieve similar uptake results to the utility programs shown above, which form the upper bound of potential participation.

5.3.2 Canadian Municipal Residential Deep Retrofit Programs

The programs included in the Canadian municipality uptake and benefits review are:

- *The City of Burlington* – Better Homes Burlington Program
- *The City of Kingston* – Better Homes Kingston Program
- *The City of Peterborough* – Peterborough Home Energy Efficiency Program
- *The City of Ottawa* – Better Homes Ottawa

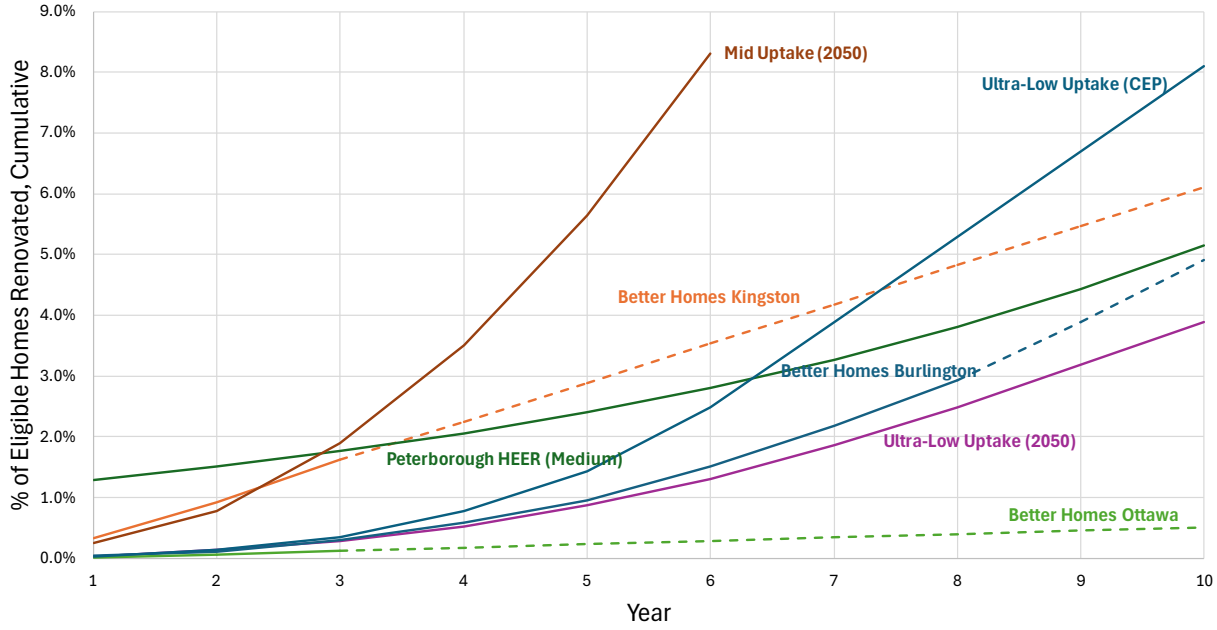
Section 3 presented the raw uptake data and energy savings benefits for these programs.[8] Exhibit 24 summarizes the programs' eligible dwellings and environmental benefits, and Exhibit 25 illustrates how the cumulative percentage of eligible homes that are retrofitted compares to a less aggressive subset of the R-DEER program uptake forecast scenarios.

Exhibit 24 – Municipal Residential Deep Retrofit Program Summary

Program Name	Eligible Dwellings	Environmental Benefit
Better Homes Burlington	53,270	Estimated average savings of 1,700 tCO_{2e} per year (over 8 years). This is calculated from 3 tCO_{2e} per retrofitted home per year.
Better Homes Kingston	34,000	Estimated savings of 1,350 to 2,400 tCO_{2e} over the first four years.
Peterborough Home Energy Efficiency Program	16,492	Estimated savings of 435 to 3,989 tCO_{2e} over the first four years and 3,688 to 18,787 tCO_{2e} over the first ten years.
Better Homes Ottawa	278,480	Estimated average of 40% emissions reduction per renovated home.

[8] The City of Burlington and the City of Kingston have verified their Year 1 uptake results, with forecast uptake for subsequent years. The City of Ottawa has verified their Year 1 and 2 uptake results and has forecast Year 3 uptake. The City of Peterborough has forecast all uptake estimates.

Exhibit 25 – Municipal Residential Deep Retrofit Programs Uptake versus R-DEER Uptake Forecast[9]



The R-DEER Mid Uptake (2050) forecast is aligned with Better Homes Kingston over the first three years of the program. After the third year, the Mid-Uptake forecast accelerates rapidly and appears to deviate drastically from Better Homes Kingston's trajectory. The R-DEER Ultra-Low Uptake (2050) forecast is aligned with Better Homes Ottawa (three years of forecast data) and Better Homes Burlington (eight years of forecast data), while the Ultra-Low Uptake (CEP) forecast deviates from those programs after the third year. The Peterborough HEER participation forecast is higher than the other municipal programs shown in Exhibit 25, however, forecasted participation is still lower than the Ultra-Low Uptake (CEP) forecast after the sixth year.

For three out of the four municipal programs depicted above, only one or two years of uptake data are verified results, with the remaining years being estimated.[10] Of the municipal programs with verified first year uptake data, Better Homes Kingston has the highest percentage of eligible buildings retrofitted in the first year of the program at 0.3% of eligible homes, versus 0.04% for Better Homes Burlington and 0.02% for Better Homes Ottawa. As outlined in Exhibit 6, this program offers interest free loans which allow financing for several retrofit activities and a complementary energy audit rebate for participants who do not qualify for other utility/government incentive programs. In contrast, Better Homes Ottawa only offers interest free loans to low-income participants which could be responsible for lower participation rates compared to Better Homes Kingston and would be more comparable to the R-DEER program.

[9] Cumulative uptake for the Peterborough HEER program was estimated for Year 4 and Year 10. We calibrated these two data points to an adoption S-curve to model expected uptake for all ten years. [43] Dotted lines represent PG's extension of program forecast data out to Year 10 for comparison purposes.
[10] The Peterborough HEER Program data is forecasted.

5.3.3 Canadian Utility/Government Residential Deep Retrofit Programs

The programs included in the Canadian utility/government uptake and benefits review are:

- *FortisBC Energy Inc. (FEI)* – 2024-2027 Demand Side Management Plan (Residential Whole Home Performance Measure) [37]
- *Government of Canada* – Canada Greener Homes [38]

Exhibit 26 and Exhibit 27 summarize the programs' eligible dwellings, environmental benefits, and uptake estimates/actuals. Exhibit 28 illustrates how the cumulative percentage of eligible homes that are retrofitted compares to a less aggressive subset of the R-DEER program uptake forecast scenarios.

Exhibit 26 – FEI Residential Whole Home Performance, Summary and Uptake Estimate

Program Name	Residential Whole Home Performance
Eligible Dwellings	854,218
Environmental Benefit	Estimated 32.8 GJ natural gas savings per year (for four years). Estimated savings of 1.7 tCO_{2e} per year (for four years).

Year	Renovations in Year	Cumulative Renovations	% of Eligible Housing Stock
1	0	0	0.000%
2	40	40	0.005%
3	45	85	0.010%
4	50	135	0.016%

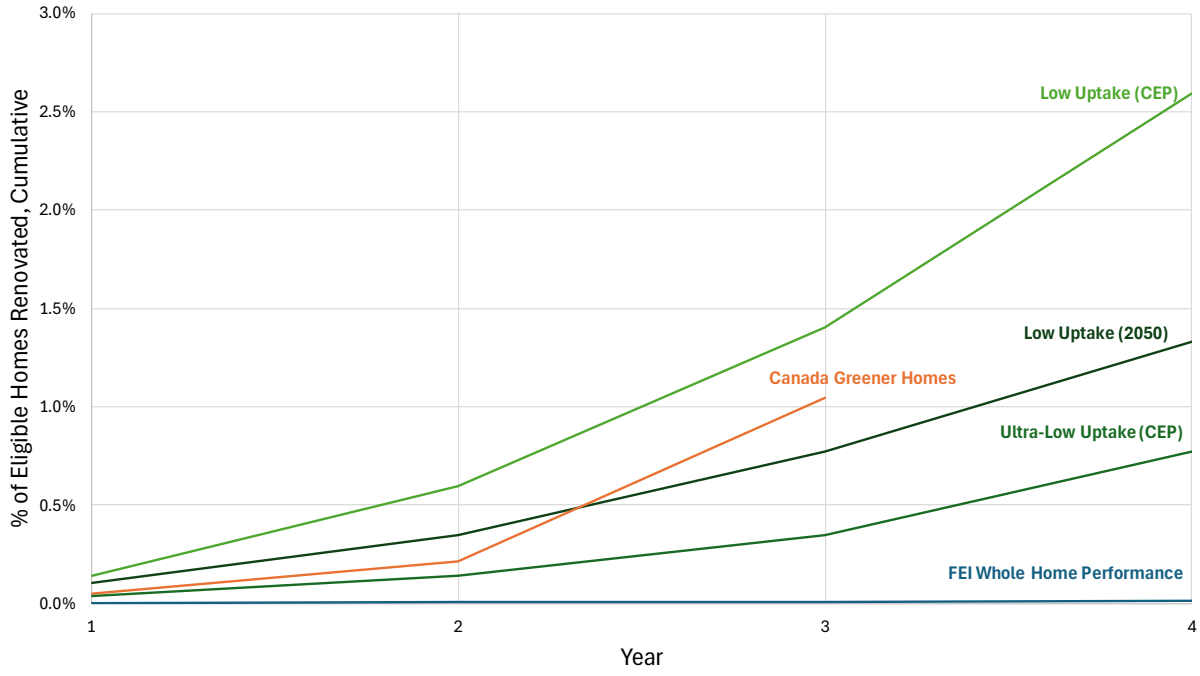
Exhibit 27 – Canada Greener Homes, Summary and Uptake Data[11]

Program Name	Canada Greener Homes
Eligible Dwellings	11,092,323
Environmental Benefit	An average of 61% GHG savings for deep retrofit projects (across three years of verified program results).

[11] Uptake data for this program are real, not forecast. Uptake data only include participants who undertook deep energy retrofits.

Year	Renovations in Year	Cumulative Renovations	% of Eligible Housing Stock
1	425	425	0.050%
2	1,399	1,824	0.214%
3	7,096	8,920	1.044%

Exhibit 28 – Utility/Government Residential Deep Retrofit Programs Uptake versus R-DEER Uptake Forecast



The FEI Whole Home Performance program's estimated uptake is much lower than the least aggressive R-DEER program uptake forecasts. However, this program's uptake forecast is from a DSM plan, which favours underestimated uptake to avoid claiming unrealized energy savings. This contrasts the methodology for developing the R-DEER uptake forecasts, which used energy and emissions reduction targets as the starting point.

The Canada Greener Homes program uptake (actuals) for the first three years of the program are within the same order of magnitude as the R-DEER Ultra-Low and Low Uptake forecast scenarios. However, the Canada Greener Homes program provided substantial incentives to program participants, which led to higher levels of participation. Therefore, it is unlikely that the R-DEER program would achieve the participation levels shown for the Canada Greener Homes program in Exhibit 28.

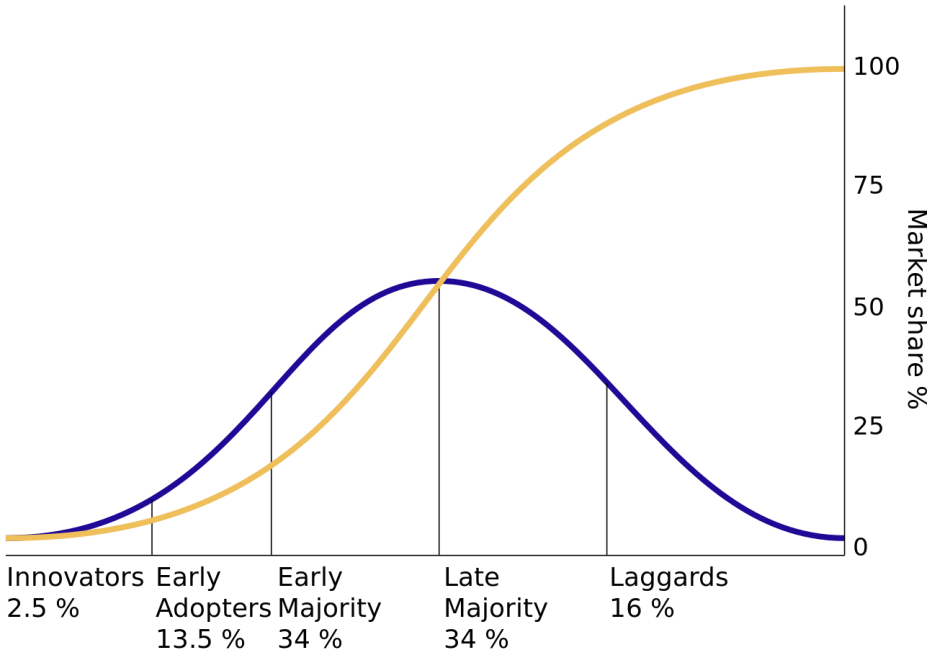
5.4 Proposed Uptake Model

The uptake scenario comparisons in Section 5.3 demonstrate that the R-DEER Ultra-Low (2050) Uptake forecast is the most reasonable estimate of program uptake rates compared to the other R-DEER uptake

scenarios, but overestimates participation when compared to utility and government retrofit programs. The Ultra-Low Uptake scenario is better aligned with other municipal retrofit programs, notably the Better Homes Ottawa program.

To improve alignment with utility and government retrofit programs, we developed a forecast that follows the diffusion of innovation model shown in Exhibit 29. The diffusion of innovation model explains how new ideas and technologies spread through populations over time, categorizing adopters into groups such as innovators, early adopters, early majority, late majority, and laggards. [39]

Exhibit 29 – Diffusion of Innovation Model [40]



The following assumptions inform our proposed model: [12]

1. *Year 1* – Start with the Year 1 uptake assumption in the R-DEER Ultra-Low Uptake (2050) forecast. This uptake assumption is comparable to the Better Homes Kingston and Better Homes Ottawa programs' Year 1 uptake.
2. *Year 2 to Year 15* – Program participation rate accelerates from Year 1 to Year 15 at the same rate as the Enbridge HWP, forming the "Innovators" phase.
3. *Year 16 to Year 25* – Program participation rate accelerates slightly from Year 16 to Year 25, forming the "Early Adopters" phase.

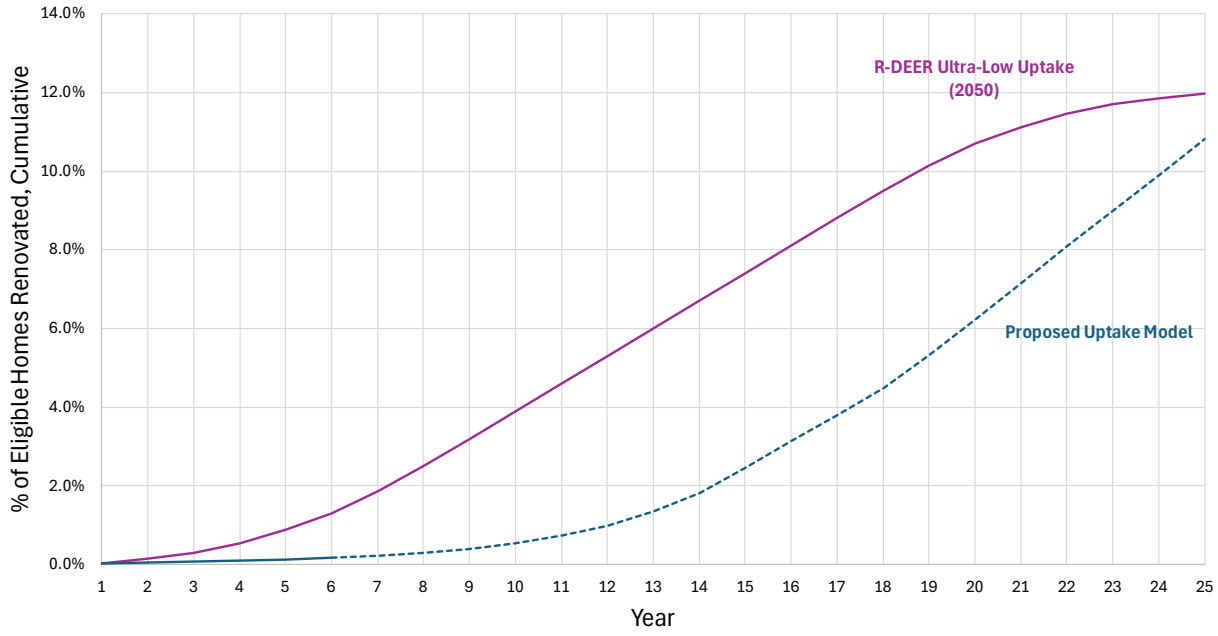
The R-DEER Ultra-Low Uptake scenario follows an adoption curve that concludes in Year 25 after having retrofitted 12% of eligible homes. This model is unrealistic, as it assumes that no more homes would be retrofitted after Year 25. The Proposed Uptake scenario uses a similarly shaped model (over a longer

[12] A more detailed methodology is included in Appendix B.

timeline) and assumes the program continues to grow after Year 25, achieving retrofits in 100% of eligible homes after around 100 years.

Exhibit 30 presents the Proposed Uptake scenario for the R-DEER program, with the R-DEER Ultra-Low Uptake forecast for reference. The Proposed Uptake scenario represents a "business as usual" approach, which assumes market conditions, incentive programs, and policies remain constant over time. Actual uptake is unpredictable and will vary as the market changes.

Exhibit 30 – Proposed Uptake Scenario[13]



The Proposed Uptake scenario achieves similar retrofit levels as the Ultra-Low Uptake scenario by Year 25 but follows the diffusion of innovation model. After Year 25, we predict that the demand for deep retrofits will continue to increase and eventually slow as the percentage of eligible renovated dwellings approaches 100%.

The Proposed Uptake scenario does not align with climate targets set by the City of Windsor. Based on program uptake achieved by similar programs in other jurisdictions, we believe that the proposed model represents a more achievable retrofit target.

5.5 Sensitivity Assessment

We performed a high-level assessment of the variables that may impact R-DEER program uptake. presents a list of those variables and our recommendations for overcoming the associated barriers and increasing program uptake.

[13] The dotted line represents future uncertainty.

Exhibit 31 presents a list of those variables and our recommendations for overcoming the associated barriers and increasing program uptake.[14]

[14] Due to data availability constraints, we were unable to verifiably quantify the impact of the above sensitivity variables.

Exhibit 31 – Sensitivity Assessment and Recommendations

Rank	Sensitivity Variable	Description	Recommendations
1	**Incentive Availability**	Availability of deep retrofit and energy efficiency incentives can significantly reduce retrofit costs and increase program participation.	• Align and coordinate R-DEER offering with existing incentive program offerings (e.g., Enbridge HWP). • Consider leveraging FCM funding to create an R-DEER incentive program.
2	**Retrofit Costs**	Costs for residential deep retrofits will change over time as the market undergoes transformation. As costs decrease, program participation is expected to increase.	• Monitor retrofit costs to determine if they are decreasing. • Consider adjusting marketing strategies to reflect the increased accessibility of specific retrofit activities.
3	**Community Engagement, Education, and Trust Building**	Effectively marketing the program to the community and disseminating educational material will foster trust, improve retrofit performance outcomes[15], and increase participation rates.	• Implement an energy coaching program to educate and guide homeowners through the retrofit and R-DEER program process. • Develop marketing material that focuses on the non-energy benefits of deep retrofits such as improved comfort, healthier homes, and increased property values. • Engage with community organizations to spread awareness.
4	**Climate Change**	Extreme weather stemming from climate change may lead to increased program participation, particularly for measures	• Coordinate disaster recovery efforts and financing with the R-DEER program. • Leverage disaster recovery to also make energy efficiency improvements to the home.

[15] Homeowners may pursue deeper retrofits given more information and support.

Rank	Sensitivity Variable	Description	Recommendations
		relevant to climate resiliency (e.g., mechanical cooling, flood proofing, etc.).	
5	**Population Demographics**	Changing demographics such as increased rates of poverty can impact program participation rates.	• Target the low-income community through the R-DEER program or through collaboration with existing low-income programs. • Provide additional assistance and support for low-income homeowners such as more favourable interest rates, incentives, and full-service retrofit planning (see Section 6.2).
6	**Contractor Capacity**	Contractor capacity and expertise are needed to meet retrofit demand. If there are insufficient contractors available to meet demand, program participation growth will be stalled.	• Maintain active relationships with Windsor-Essex area contractors to monitor capacity conditions. • Develop educational material to engage and inform contractors on the R-DEER program and its benefits (i.e., increased revenue). [41]

6 R-DEER Program Methodology Assessment

The Windsor R-DEER methodology was compared against other municipal residential retrofit programs presented in Section 3. The findings of this assessment are presented in this section.

6.1 Methodology Assessment

Exhibit 32 gives a comparison of the City of Windsor R-DEER program to other municipal retrofit offerings, and makes recommendations based our findings.

Exhibit 32 – Methodology Assessment and Recommendations

	Windsor R-DEER	Other Programs	Recommendations
Offering	• Participants will be able to borrow between $10,000 up to 10% of the property value of their home (capped at $40,000). • Climate resiliency measures will be a mandatory component of the program. • To be eligible for the premium measures (i.e., solar PV, EV charging, etc.), core and resiliency measures must first be completed.	• Climate resiliency measures are offered by several jurisdictions but are not mandatory. • Solar PV is usually part of the core program offering. • Several jurisdictions offer up to 30% of the loan value for non-energy related work. • Programs like the Canada Greener Homes Grant and Enbridge's HER+ had a large impact on program offerings and participation rates. • Better Homes Ottawa program offers $200/ton per heat pump, resulting in incentives between $600-$1,000 per	• Creating measure buckets (i.e., core, resiliency, premium) adds unnecessary complexity to the program and may negatively impact participation rates, as seen in the Edmonton CEIP program.[16] [10] • If measure buckets cannot be dissolved, solar PV should be added to the core measures list. • Remove mandatory requirement for climate resiliency measures as it will create a barrier to participation. Strongly recommended for homes in which resiliency measures have not yet been completed.

[16] The Edmonton CEIP program requires participants to install a minimum of three eligible measures. Homeowners reported this as a significant barrier to participation in the program.

	Windsor R-DEER	Other Programs	Recommendations
		home. Durham Greener Homes offers up to $2,000 per heat pump and $10,000 per retrofit. • Incentives are sometimes tied to minimum GHG reduction targets that must be achieved to receive funding and incentives, such as in Kingston and Durham.	• Homes which undergo air sealing will require mechanical ventilation to maintain good indoor air quality. Consequently, the HRV/ERV measures should also be included in the program's core measure group. • Instead of restrictive and complex measure bundling, implementing performance based GHG reduction targets can ensure community retrofit targets are met while allowing homeowners more flexibility. • Designating a proportion of the loan value for non-energy related work may increase participation, as homeowners could bundle energy efficiency measures with home improvement projects.[17]
Eligibility	• Detached, semi-detached, townhomes, row homes, and multifamily buildings of three units or less which are at least 20 years old at the time of application will be eligible.	• Some programs exclude MURBs to align with the Canada Greener Homes Grant eligibility. • MURBs have special certification requirements for energy auditors.	• Exclude MURBs at launch due to added retrofit and program complexity. • Maintain program alignment with future incentive programs to improve participation rates.

[17] Combine with resiliency measure funding up to 30% of loan value.

	Windsor R-DEER	Other Programs	Recommendations
Financing Mechanism	• The homeowner will have the option of receiving an LIC loan or unsecured loan through a third-party financial institution. • The program will offer fixed-rate financing at favourable interest rate on terms of up to 10 years. • Will offer 50% of the loan value in advance to cover contractor deposits and EnerGuide pre-audit. • FCM will provide LIC loan capital for the first four years of the program. Program will transition to third-party financing after FCM funding is exhausted.	• The market scan indicated that loans provided by other jurisdictions range from $5,000 - $125,000. • 20-year loan terms are common in other programs. • Many Toronto HELP participants repaid their LIC loan prior to selling their homes, eliminating the benefit of having an LIC loan attached to the property. • Most programs require a mortgage lender notification, but the Toronto HELP program requires mortgage lender approval, resulting in lower uptake but less default risk. • Durham Greener Homes allocated FCM funding towards incentives, energy coaching and administrative support, with all loans routed through third-party credit unions. Loans are issued upfront, and applicants do not need to wait for disbursement.	• Windsor may choose to increase loan amounts if homeowners struggle to achieve deep retrofits under $40,000. • Windsor should consider extending the loan repayment term to align with other programs and enable homeowners to pursue deeper retrofits. • Develop procedures to ensure a smooth transition during property transfer periods. Realtors will need to be educated on LIC loans. • Consider mortgage lender approval, as this can reduce risk for the City. • Windsor should prioritize the early involvement of third-party financial partners to grow and develop the program. • Establishing a similar loan program to Durham Greener Homes would reduce the cost and administrative burden on the City and homeowner.
Program Delivery	• Program will be delivered by a third-party delivery agent. • Certain administrative aspects of the program will be managed by the City. • Energy coaching services will be offered.	• Municipal retrofit programs are often delivered through third party delivery agents. • EnerGuide audits are conducted by Registered Energy Advisors (REAs) that	• Ensure there is sufficient REA capacity as program scales up. • Windsor may create mechanisms for the collection of additional data that is outside of the scope of a typical

	Windsor R-DEER	Other Programs	Recommendations
		are registered with NRCan (NRCan maintains a directory). • Energy coaching is usually performed by external consultants.	EnerGuide evaluation (i.e., resiliency measures). • Energy coaching should be performed by an organization with proven knowledge of municipal and utility energy efficiency programs (see Section 6.2 for more details).

6.2 Energy Coaching Review

Energy coaching services are an integral part of any residential deep retrofit program. Energy coaches simplify the program experience by diminishing the need for extensive technical knowledge and assisting participants in navigating the program's administrative procedures. Our work with the City of Edmonton's CEIP program identified three main barriers to participating and completing deep retrofit programs: [10]

- *Procedural Complexity* – Administrative complexities can leave participants feeling confused and overwhelmed. Addressing these complexities can improve participant confidence and completion rate.
- *Lack of Technical Knowledge* – The lack of technical knowledge among homeowners is a significant barrier to participation. Understanding EnerGuide audits and contractor quotes can be challenging for those without a background in the field, and participants need support to navigate these complexities and make informed choices.
- *Inconsistent Messaging* – Participants rely heavily on market actors such as contractors and energy advisors for information about the program. However, these market actors are sometimes unable to provide clear, accurate, consistent program information, resulting in confusion and mistrust.

To address these challenges, retrofit programs have integrated energy coaching services into their offerings. There are four primary energy coaching service options: [10]

- *Email Coaching* – Offering participants personalized guidance through email exchanges, this method provides flexibility and convenience, allowing participants to progress at their own pace.
- *Group Coaching Sessions* – Facilitating collaborative workshops for participants with similar energy efficiency upgrade goals, these sessions encourage collective problem-solving, peer learning, and community support.
- *One-on-One Coaching* – Delivering personalized guidance through virtual or in-person meetings, this approach fosters direct interactions, real-time Q&A, and hands-on demonstrations.
- *Full-Service Retrofit Planning* – A comprehensive approach that streamlines the entire process, including energy assessment, contractor selection, and incentive applications, simplifying decision-making for participants.

Energy coaching leads to higher participation rates and improved deep retrofit performance outcomes, as homeowners are more likely to pursue deeper retrofits. Subsequently, we recommend that the City of Windsor incorporate energy coaching into their program. The following tasks can be undertaken by the energy coach:

- Screening homeowners for eligibility.
- Helping or advising on administrative tasks such as selecting contractors, requesting quotes, and other paperwork.
- Navigating incentive programs.
- Providing unbiased home retrofit education.
- Assisting homeowners with financing incentives and applications.

- Marketing to expand the applicant base in collaboration with the municipality.
- Monitoring and reporting program progress.
    - Specialized software tools can significantly reduce the time needed to complete this task.
- Training and maintaining a roster of qualified contractors.
    - For Better Homes Kingston, an external contractor developed training webinars for onboarding contractors.

7 Program Expenditure Review

This section presents our assessment of the R-DEER program expenditure assumptions outlined in its updated business case assumptions.

The R-DEER program payroll expenses at launch for the Low (2050) scenario are shown in Exhibit 33.

Exhibit 33 – R-DEER Program Payroll Expenses (Low 2050)[18]

Position	Full Time Equivalent at Launch (FTE)	Salary (2024 Base)	Equivalent Salary (2024 Base)
Energy Coaches	0.5	$101,368	$50,684
Contractor Coordinator	0.5	$84,542	$42,271
Program Administrator	1	$110,998	$110,998
Measurement and Verification Professional	0.25	$101,368	$25,342
Communications / Marketing	0.5	$101,368	$50,684
Financial Analyst	0.25	$77,207	$19,302
Tax Analyst	0.25	$84,542	$21,135
Legal Counsel (Contracts)	0.5	$110,998	$55,499
Total	**3.75**	-	**$375,915**
Total (inflation adjusted with safety factor)	-	-	**$515,079**

The proposed payroll expenditures include 3.75 full-time equivalent (FTE) positions. This is comparable to other municipal programs who have two to three FTE with support from external service organizations for energy coaching, auditing, etc. [42]

[18] Alternative budget for High CEP scenario is shown in Appendix C.

Exhibit 34, Exhibit 35, and Exhibit 36 compares the projected program costs for the R-DEER and other Ontario municipal retrofit programs.

Exhibit 34 – First Year Program Payroll Cost Comparison

Program	Payroll Expenses
Better Homes Burlington [2]	$335,000
Durham Greener Homes [6]	$350,000
Better Homes Kingston [8]	$318,750
Peterborough Home Energy Efficiency Program [11]	$330,000
Average	$333,438
Windsor R-DEER	$375,915

Exhibit 35 – Program Marketing and Outreach Cost Comparison

Year	Windsor R-DEER	Better Homes Burlington [2]	Peterborough Home Energy Efficiency Program [11]
1	$50,000	$58,000	$60,000
2	$50,000	$52,000	$40,000
3	$50,000	$82,000	$30,000
4	$50,000	$82,000	$30,000

Exhibit 36 – Program Start-up and Administration Cost Comparison

Year	Windsor R-DEER	Peterborough Home Energy Efficiency Program [11]
1	$1,000,000	$1,437,000
2	$150,000	$197,000
3	$50,000	$97,000
4	$30,000	$162,000

In each case, the cost assumptions made for the R-DEER business case are in the same order of magnitude as other Ontario retrofit programs. This confirms that the cost assumptions used in the R-DEER business case are valid.

8 Contractor Capacity Assessment

In this section we evaluated the capacity of the City of Windsor's contractor network to assess their ability to perform deep retrofits at scale.

8.1 Review of the City of Windsor Contractor Survey

A review of the *City of Windsor Contractor Survey* presented the following findings:

- Over half of the contractors surveyed believe that there is sufficient contractor capacity to support the program's initial goal of 300-500 retrofits per year. However, nearly three quarters believe that there is currently insufficient capacity to support the program's peak goal of 2,000-2,500 retrofits per year.
    - Contractors indicated that supply chains will create bottlenecks in accelerating the rate of retrofits.
- Air sealing and attic insulation were identified as some of the easier retrofits to deliver with wall insulation/siding upgrades and heat pump installations being more difficult.
    - Insulation and air sealing can be grouped together and offered as a standard package.
- Contractors said they spend between one and five hours per project educating homeowners on deep retrofits, incentive programs, and other related retrofit topics.
- Contractors do not provide turnkey retrofit services, though some surveyed contractors offer retrofit planning services.
- Incentive and grant programs are inconsistent, which makes capacity planning difficult for contractors.
- Respondents said that access to the following were most important to homeowners:
    - Information about the retrofit process.
    - Technical support to explain the benefits and costs of efficiency upgrades.
    - Support to answer questions and provide help throughout the process.
    - Assistance in selecting equipment for the retrofit.
- Contractors indicated that an energy coaching program would have several benefits:
    - Help educate homeowners on building science and how to manage a home retrofit.
    - Connect homeowners to reputable contractors and help them select qualifying equipment and review contractor quotes.
    - Provide a single point of contact for help and questions throughout the process.

8.2 Contractor Engagement Findings

We conducted virtual and in-person interviews with contractors (insulation, HVAC, and solar) to supplement the findings from the contractor survey. A summary of the findings from the contractor engagement are presented below: [19]

- *Ambitious Retrofit Targets –* Many doubt the feasibility of reaching 2,000 home retrofits per year given the current market conditions. They suggested lowering targets and setting more realistic expectations, especially in the first year of the program.
- *Scaling Up –* Contractors are confident in their ability to scale up their operations to meet increased retrofit demand and have had experience doing this for other grant and incentive programs.
- *Contractor Mistrust –* Homeowners distrust contractors due to a conflict of interest.
    - When offering technical advice and support, contractors also stand to profit from their recommendations.
- *Energy Coaching Services –* Contractors support the implementation of an energy coaching service because it will save them time and alleviates mistrust in the contractor and homeowner relationship.

Contractors had several suggestions for R-DEER program parameters:

- Design a performance-based program because it gives homeowners more flexibility.
- Emphasize air tightness improvements and mechanical ventilation.
- Mandate R-DEER education for all qualified contactors.

8.3 Contractor Capacity Review

A review of publicly available sources of contractor capacity information was conducted. We reviewed the NRCan database of licensed service organizations who provide EnerGuide home energy evaluations, and the Windsor-Essex members of the Canadian Home Builder's Association (CHBA).

- Appendix D provides a summary of the NRCan licensed service organizations operating in the Windsor-Essex region.
- Appendix E provides a summary of the members of the Windsor-Essex chapter of the Canadian Home Builder's Association (CHBA).

We found that there were 21 NRCan licensed service organizations and 80 members of the CHBA in the Windsor-Essex region. The contractor survey and engagements indicated that this number of contractors is sufficient to meet short term R-DEER retrofit goals but will need to grow to continue to serve the program over time.

[19] Detailed notes from each interview can be found in 0.

9 Findings

The R-DEER initiative will finance residential deep energy retrofits in the City of Windsor, reducing energy costs and community GHG emissions while increasing climate resilience. Deep retrofits can have significant non-energy benefits to the public:

- *Property Value* – Buildings which undergo deep retrofits are expected to experience a 4-14% increase in property value. Improved quality and durability of the home will also lead to reduced maintenance and replacement costs over the lifetime of the building. [43]
- *Health and Safety* – Deep retrofits help to address health and safety concerns such as poor indoor air quality, pest damage, asbestos, and more. [44]
- *Resilience and Durability* – Retrofitted homes have better resilience to extreme weather events such as heat waves, floods, and tornadoes. [45]
- *Economic* – Municipal retrofit programs create high quality jobs and generate millions of dollars in economic benefits. For every million dollars spent on energy efficiency, Windsor can expect to generate between 16-30 FTE jobs. [46]

This study reviewed and validated key R-DEER program assumptions including uptake forecasts, methodology, expenditures, and local contractor capacity. These assumptions were compared with municipal, utility, and government home retrofit programs.

An in-depth revision of the R-DEER program uptake forecasts determined that the R-DEER Ultra-Low (2050) Uptake forecast was the most reasonable estimate of program uptake rates compared to the other R-DEER uptake scenarios but overestimated participation when compared with utility and government retrofit programs. Subsequently, we developed a new business-as-usual forecast model which better aligns with the findings of our review given the current levels of investment in deep retrofit incentive programs (see Section 5.4).

Our findings suggest that accelerating the rate of deep retrofits in Windsor (and Canada) will require substantial investments from federal and provincial governments. Windsor is currently on track to miss the climate targets set out in its Community Energy Plan and will struggle to meet them without further investment in residential deep retrofit incentive programs like Canada Greener Homes. Increased federal, provincial, and utility investment in energy efficiency programs would help the City meet its climate targets faster.

The City of Windsor should pursue the following recommendations to improve program outcomes:

- Continue to allow homeowners to participate in the program multiple times, as it creates flexibility for participants pursuing deeper retrofits.
- Re-assess program uptake in three to four years to develop more accurate projections based on Windsor specific data.
- Continue to evolve and develop the program to align with the City's climate targets and adapt to the changing retrofit market.
- Maintain focus on low-income participants and continue collaboration with other low-income retrofit programs.

- Simplify program rules to reduce barriers to participation and improve retrofit outcomes by implementing performance-based program requirements.
- Exclude MURBs from program participation upon initial launch.
- Extend the loan repayment term to 20 years to align with other programs and enable homeowners to afford deeper retrofits.
- Prioritize the early involvement of third-party financial partners to grow and develop the program. Consider using a portion of the FCM funding to incentivize retrofits.
- Incorporate an energy coaching program to support program participants and increase uptake.

Our review of the R-DEER program expenditure assumptions revealed that they are aligned with other municipal programs. We also reviewed the capacity of contractors in the Windsor-Essex region and found that it is sufficient to meet short term R-DEER retrofit goals but will need to grow to continue to serve the program over time. Qualified contractors should have the appropriate accreditation for their trade, and we recommend that the City check all contractor quotes for valid license numbers.

The City of Windsor may launch the R-DEER program as soon as is feasible.

10 References

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3]

Appendix A R-DEER Uptake Scenario Assumptions

Exhibit 37 – Ultra Low Uptake (CEP)

Year	Renovations in Year	Cumulative Renovations	% of Eligible, Cumulative
2026	25	25	0.0%
2027	75	100	0.1%
2028	150	250	0.4%
2029	300	550	0.8%
2030	475	1,025	1.4%
2031	750	1,775	2.5%
2032	1,000	2,775	3.9%
2033	1,000	3,775	5.3%
2034	1,000	4,775	6.7%
2035	1,000	5,775	8.1%
2036	1,000	6,775	9.5%
2037	750	7,525	10.6%
2038	475	8,000	11.2%
2039	300	8,300	11.6%
2040	150	8,450	11.9%
2041	75	8,525	12.0%

Exhibit 38 – Low Uptake (CEP)

Year	Renovations in Year	Cumulative Renovations	% of Eligible, Cumulative
2026	100	100	0.1%
2027	325	425	0.6%
2028	575	1,000	1.4%
2029	850	1,850	2.6%
2030	1,325	3,175	4.5%
2031	1,825	5,000	7.0%
2032	1,825	6,825	9.6%
2033	1,825	8,650	12.1%
2034	1,825	10,475	14.7%
2035	1,825	12,300	17.3%
2036	1,825	14,125	19.8%
2037	1,825	15,950	22.4%
2038	1,325	17,275	24.2%
2039	850	18,125	25.4%
2040	575	18,700	26.2%
2041	325	19,025	26.7%

Exhibit 39 – Mid Uptake (CEP)

Year	Renovations in Year	Cumulative Renovations	% of Eligible, Cumulative
2026	200	200	0.3%
2027	600	800	1.1%
2028	1,000	1,800	2.5%
2029	1,700	3,500	4.9%
2030	2,500	6,000	8.4%
2031	3,100	9,100	12.8%
2032	3,900	13,000	18.2%
2033	3,900	16,900	23.7%
2034	3,900	20,800	29.2%
2035	3,900	24,700	34.7%
2036	3,900	28,600	40.1%
2037	3,900	32,500	45.6%
2038	2,500	35,000	49.1%
2039	1,700	36,700	51.5%
2040	1,000	37,700	52.9%
2041	600	38,300	53.7%

Exhibit 40 – High Uptake (CEP Target)

Year	Renovations in Year	Cumulative Renovations	% of Eligible, Cumulative
2026	300	300	0.4%
2027	1,150	1,450	2.0%
2028	2,000	3,450	4.8%
2029	2,800	6,250	8.8%
2030	3,800	10,050	14.1%
2031	4,800	14,850	20.8%
2032	4,800	19,650	27.6%
2033	4,800	24,450	34.3%
2034	4,800	29,250	41.0%
2035	4,800	34,050	47.8%
2036	4,800	38,850	54.5%
2037	4,800	43,650	61.3%
2038	4,800	48,450	68.0%
2039	4,800	53,250	74.7%
2040	2,800	56,050	78.7%
2041	1,150	57,200	80.3%

Exhibit 41 – Ultra Low Uptake (2050)

Year	Renovations in Year	Cumulative Renovations	% of Eligible, Cumulative
2026	25	25	0.0%
2027	75	100	0.1%
2028	100	200	0.3%
2029	175	375	0.5%
2030	250	625	0.9%
2031	300	925	1.3%
2032	400	1,325	1.9%
2033	450	1,775	2.5%
2034	500	2,275	3.2%
2035	500	2,775	3.9%
2036	500	3,275	4.6%
2037	500	3,775	5.3%
2038	500	4,275	6.0%
2039	500	4,775	6.7%
2040	500	5,275	7.4%
2041	500	5,775	8.1%
2042	500	6,275	8.8%
2043	500	6,775	9.5%
2044	450	7,225	10.1%
2045	400	7,625	10.7%
2046	300	7,925	11.1%
2047	250	8,175	11.5%
2048	175	8,350	11.7%
2049	100	8,450	11.9%
2050	75	8,525	12.0%

Exhibit 42 – Low Uptake (2050)

Year	Renovations in Year	Cumulative Renovations	% of Eligible, Cumulative
2026	75	75	0.1%
2027	175	250	0.4%
2028	300	550	0.8%
2029	400	950	1.3%
2030	550	1,500	2.1%
2031	650	2,150	3.0%
2032	900	3,050	4.3%
2033	1,000	4,050	5.7%
2034	1,100	5,150	7.2%
2035	1,100	6,250	8.8%
2036	1,100	7,350	10.3%
2037	1,100	8,450	11.9%
2038	1,100	9,550	13.4%
2039	1,100	10,650	14.9%
2040	1,100	11,750	16.5%
2041	1,100	12,850	18.0%
2042	1,100	13,950	19.6%
2043	1,100	15,050	21.1%
2044	1,000	16,050	22.5%
2045	900	16,950	23.8%
2046	650	17,600	24.7%
2047	550	18,150	25.5%
2048	400	18,550	26.0%
2049	300	18,850	26.5%
2050	175	19,025	26.7%

Exhibit 43 – Mid Uptake (2050)

Year	Renovations in Year	Cumulative Renovations	% of Eligible, Cumulative
2026	175	175	0.2%
2027	375	550	0.8%
2028	800	1,350	1.9%
2029	1,150	2,500	3.5%
2030	1,525	4,025	5.6%
2031	1,900	5,925	8.3%
2032	2,000	7,925	11.1%
2033	2,000	9,925	13.9%
2034	2,000	11,925	16.7%
2035	2,000	13,925	19.5%
2036	2,000	15,925	22.3%
2037	2,000	17,925	25.2%
2038	2,000	19,925	28.0%
2039	2,000	21,925	30.8%
2040	2,000	23,925	33.6%
2041	2,000	25,925	36.4%
2042	2,000	27,925	39.2%
2043	2,000	29,925	42.0%
2044	2,000	31,925	44.8%
2045	1,900	33,825	47.5%
2046	1,525	35,350	49.6%
2047	1,150	36,500	51.2%
2048	1,000	37,500	52.6%
2049	500	38,000	53.3%
2050	300	38,300	53.7%

Exhibit 44 – High Uptake (2050 Target)

Year	Renovations in Year	Cumulative Renovations	% of Eligible, Cumulative
2026	300	300	0.4%
2027	500	800	1.1%
2028	1,050	1,850	2.6%
2029	1,500	3,350	4.7%
2030	1,800	5,150	7.2%
2031	2,200	7,350	10.3%
2032	2,450	9,800	13.8%
2033	2,800	12,600	17.7%
2034	2,800	15,400	21.6%
2035	2,800	18,200	25.5%
2036	2,800	21,000	29.5%
2037	2,800	23,800	33.4%
2038	2,800	26,600	37.3%
2039	2,800	29,400	41.3%
2040	2,800	32,200	45.2%
2041	2,800	35,000	49.1%
2042	2,800	37,800	53.0%
2043	2,800	40,600	57.0%
2044	2,800	43,400	60.9%
2045	2,800	46,200	64.8%
2046	2,600	48,800	68.5%
2047	2,400	51,200	71.8%
2048	2,200	53,400	74.9%
2049	2,000	55,400	77.7%
2050	1,800	57,200	80.3%

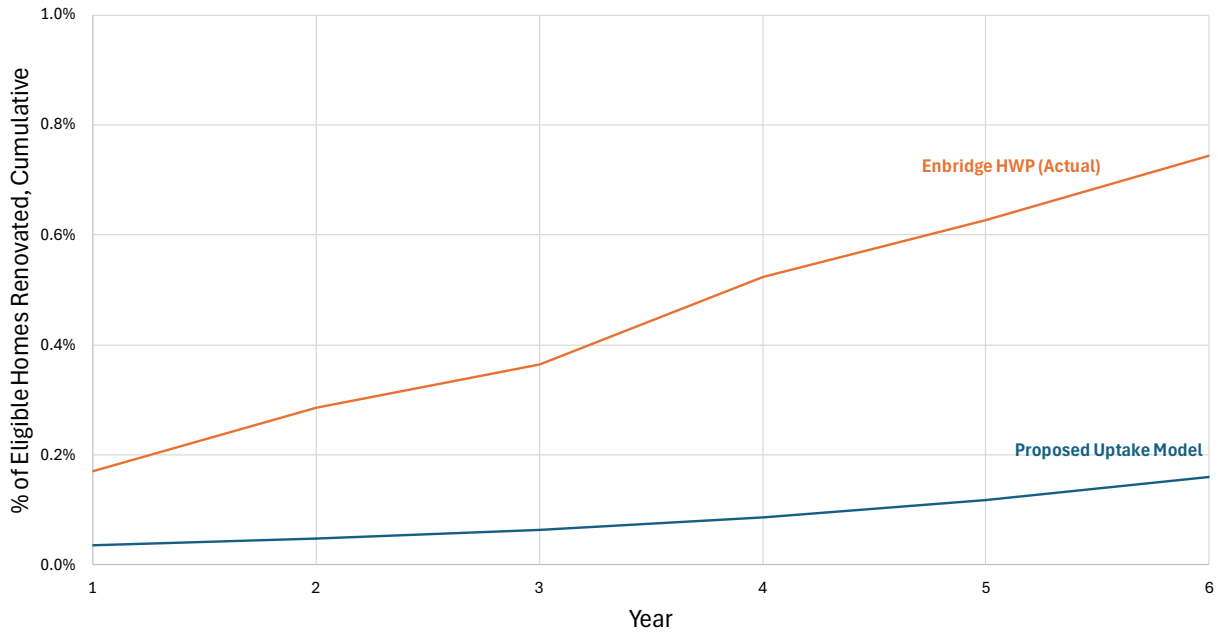
Appendix B Proposed Uptake Model Methodology

The following assumptions inform our proposed model:

4. *Year 1 –* Start with the Year 1 uptake assumption in the R-DEER Ultra-Low Uptake (2050) forecast. This uptake assumption is comparable to the Better Homes Kingston and Better Homes Ottawa programs' Year 1 uptake.
5. *Year 2 to Year 15 –* Program participation accelerates from Year 1 to Year 15 at the same rate as the Enbridge HWP. This program has been in the market for over a decade and has shown relatively linear cumulative uptake (see Exhibit 17).
6. *Year 16 to Year 25 –* Program participation grows at a constant rate from Year 16 to Year 25 (i.e., similar number of retrofits performed year over year).

Exhibit 45 shows the actual cumulative uptake for the Enbridge HWP program, alongside the first six years of the Proposed Uptake Model. The Proposed Ultra-Low Uptake forecast applies the same annual growth rate as the Enbridge HWP program, starting from a lower Year 1 uptake value (based on the R-DEER Ultra Low forecast).

Exhibit 45 – Proposed Ultra-Low Uptake Forecast versus Enbridge HWP



After applying this growth rate for Year 2 through Year 15, we used the Microsoft Excel built-in Solver function to fit the uptake rate for Year 16 to Year 25 to meet the Year 25 target outlined in the R-DEER Ultra Low forecast, assuming that uptake growth will slow after Year 15, as per the diffusion of innovations model. This fit method and curve smoothing produced an uptake model that achieves 11% of eligible dwellings uptake by Year 25.[20]

[20] The full 25-year model is shown in Exhibit 30 in Section 5.4.

Exhibit 46 below shows the annual rate of completed renovations through 2050.

Exhibit 46 – Proposed Uptake Model

Year	Renovations in Year	Cumulative Renovations	% of Eligible, Cumulative
2026	25	25	0.04%
2027	9	34	0.05%
2028	12	46	0.06%
2029	16	62	0.09%
2030	22	84	0.12%
2031	30	114	0.16%
2032	40	155	0.22%
2033	55	209	0.29%
2034	74	284	0.40%
2035	101	384	0.54%
2036	136	520	0.73%
2037	185	705	0.99%
2038	250	955	1.34%
2039	339	1,294	1.82%
2040	459	1,753	2.46%
2041	489	2,242	3.15%
2042	456	2,698	3.79%
2043	493	3,191	4.48%
2044	591	3,782	5.31%
2045	657	4,439	6.23%
2046	657	5,096	7.15%
2047	655	5,752	8.07%
2048	650	6,402	8.98%
2049	650	7,052	9.90%
2050	657	7,709	10.82%

Appendix C R-DEER Program Administration (High 2050)

Exhibit 47 – R-DEER Program Administration Costs (High 2050)

Position	Full Time Equivalent at Launch (FTE)	Salary (2024 Base)	Equivalent Salary (2024 Base)
Energy Coaches	1	$101,368	$101,368
Contractor Coordinator	1	$84,542	$84,542
Program Administrator	1	$110,998	$110,998
Measurement and Verification Professional	0.5	$101,368	$50,684
Communications / Marketing	0.5	$101,368	$50,684
Financial Analyst	0.25	$77,207	$19,302
Tax Analyst	0.5	$84,542	$42,271
Legal Counsel (Contracts)	0.5	$110,998	$55,499
Total	**5.25**	-	**$515,347**
Total (inflation adjusted with safety factor)	-	-	**$706,129**

Appendix D NRCan Service Organizations In Windsor

Exhibit 48 – NRCan Service Organizations Serving Windsor[21]

Service Organization	Contact	Website
A1 NRGwise Consulting	519-914-5472	Link
Acadia Engineering Ltd.	416-402-5230	Link
All Season Inspection Inc.	416-276-1346	Link
AmeriSpec of Canada	519-739-1010	Link
Canada Energy Audit Ltd.	1-888-298-9458	Link
Clean Energy Solutions Inc.	647-425-4842	Link
Eco Advantage Energy Advisors Inc.	905-349-2387	Link
EcoLogic Energy Advisors	1-866-517-5530	Link
ecoPlus Services	413-623-4332	Link
Energuy Holdings Ltd.	1-888-442-9577	Link
Energy Werx Corp	844-820-3361	Link
Enerhome Consulting Ltd.	1-778-744-5295	Link
EnerSolution Inc.	1-800-203-4395	Link
EnviroCentre	613-656-0100	Link
ER Energy Solutions	844-835-2593	Link
Greenbrain Inc.	1-866-848-4998	Link
Homesol Building Solutions	613-466-0664	Link
MAP Energy Inc.	1-855-397-9116	
Method Engineering and Building Services Ltd.	250-590-1999	Link
The Home Inspectors Group Inc.	866-907-9206	Link
Next Level Consulting	416-402-5230	Link

[21] The most up to date list can be found on NRCan's website.

Appendix E Windsor-Essex Home Builders Association Members (WEHBA)

Exhibit 49 – Windsor-Essex Home Builders Association Members (WEHBA)[22]

Organization	Category	Contact	Website
Orion Homes Inc.	Developer, Builder	(519) 970-9279	Link
Owen Flooring Design Centre	Supplier	(519) 437-9663	Link
Dimanti Countertops	Trade Contractor	(519) 737-1155	Link
Everjonge Homes	Developer, Builder	(519) 727-5832	Link
LFX Supply Centre	Supplier	(519) 739-1454	Link
Geml Construction Inc.	Developer, Builder	(519) 981-4365	Link
Custom Quality Built IHOMES Inc.	Builder	(519) 818-2709	
Enercare Inc.	Supplier	(647) 473-6671	Link
Eco Insulation Inc.	Supplier	(519) 809-2586	Link
Cremasco Fine Cabinetry	Trade Contractor	(519) 734-8289	Link
Success Seekers: Realstone Systems	Supplier	(519) 257-0304	Link
VLC Custom Homes	Developer, Builder	(519) 977-3557	Link
Ives Insurance Brokers Ltd.	Financial/Insurance	(519) 776-7371	Link
Federated Insurance	Financial/Insurance	(519) 796-3681	Link
EMCO Corporation	Supplier	(519) 948-8131	Link
Greenwood Contracting	Renovator	(519) 259-9058	Link
Eagle Heating and Cooling	Trade Contractor	(519) 737-7778	Link
Torreon Land Design + Build Inc.	Developer, Builder	(519) 647-7481	Link
J. Rauti Custom Homes	Developer, Builder	(519) 978-9562	Link
Coulson Design Build	Developer, Builder	519-818-6601	Link
The Corporation of the Town of Lakeshore	Professional Services	(519) 728-2818	Link

[22] The most up to date list can be found on WEHBA's website.

Organization	Category	Contact	Website
Rose City Tile Inc.	Supplier	(519) 734-7911	Link
GS Engineering Consultants	Professional Services	(519) 737-9162	Link
Lakepoint Homes	Developer, Builder	(519) 735-1720	
Nor-Built Construction	Developer, Builder	(519) 736-1892	Link
Tac Group	Developer, Builder	(519) 816-1876	Link
Felix Culpa Architecture	Professional Services	(519) 890-5773	Link
James Hardie	Supplier	(519) 661-8597	Link
Valente Contracting Inc.	Developer, Builder	(519) 735-4476	Link
Bell Canada	Professional Services	(226) 378-9042	Link
Libro Credit Union	Financial/Insurance	(519) 329-4423	Link
Coco Group	Developer, Builder	(519) 948-7133	Link
Windsor Factory Supply Ltd.	Supplier	(519) 966-2202	Link
Summerfield Construction Ltd.	Developer, Builder	(226) 347-6687	Link
Evola Builders	Developer, Builder	(519) 978-0408	Link
Syles Mechanical Services	Trade Contractor	(519) 979-2090	Link
ANR Concrete Studio Inc.	Supplier	(519) 981-6610	Link
Metal Roof Outlet	Supplier	(519) 688-2512	Link
Noah Homes	Developer, Builder	(519) 733-3332	Link
Farhat & Associates Law Firm	Professional Services	(519) 255-4382	Link
Wayne's Custom Woodcraft Ltd.	Supplier, Trade Contractor	(519) 723-4141	Link
SS Fine Homes Ltd.	Developer, Builder	(519) 566-8587	Link
Mastercraft Homes Windsor	Developer, Builder	(519) 966-8100	Link
Windmill Cabinet Shop Ltd.	Professional Services, Trade Contractor	(519) 354-4649	Link
Alpine Construction	Developer, Builder	(519) 737-0500	Link
Philip Fernandes Designs Inc.	Professional Services	(519) 254-4949	Link
Yvon Building Supply	Supplier	(519) 737-2127	Link

Organization	Category	Contact	Website
Sunset Luxury Homes	Developer, Builder	(519) 962-6045	Link
Pollard Windows & Doors	Supplier	(905) 634-2365	Link
Dayus Roofing	Renovator	(519) 737-1920	Link
Great Floors	Supplier	(519) 735-7530	Link
Kimball Lumber	Supplier	(519) 776-6404	Link
SBT Construction	Developer, Builder	(519) 727-5551	Link
Encore Mechanical & Building Services Inc.	Trade Contractor	(519) 979-3572	Link
South West Piling Inc.	Professional Services	(519) 551-5581	Link
Arriscraft/Canada brick	Supplier	(519) 494-0381	Link
Azar Homes Ltd.	Developer, Builder	(519) 735-2144	Link
Distinctive Homes & Real Estate Ltd. Brokerage	Professional Services	(519) 259-5800	Link
Valente Home Develpment Corporation	Developer, Builder	(519) 966-7777	Link
BK Cornerstone Design Build Ltd.	Developer, Builder	(519) 728-3664	Link
Timberland Homes	Developer, Builder	(519) 978-3877	Link
Target Building Materials	Supplier	(519) 966-6000	Link
Bart Digiovanni Construction Ltd.	Developer, Builder	(519) 726-5263	Link
The Planning Centre	Supplier	(519) 737-9011	Link
Gintar Homes	Developer, Builder	(519) 252-0419	Link
Reliance Home Comfort	Professional Services, Trade Contractor	(289) 230-6492	Link
Habitat for Humanity, Windsor-Essex	Developer, Builder	(519) 969-3762	Link
Pulito Services	Professional Services	(519) 992-3998	Link
Santerra Stonecraft	Supplier	(519) 796-2526	Link
Dor-Co Garage Doors Sales & Service	Trade Contractor	(519) 737-6915	Link

Organization	Category	Contact	Website
WFCU Credit Union	Financial/Insurance	(519) 890-7716	Link
RBC	Financial/Insurance	(519) 255-0155	Link
Windsor-Essex County Association of Realtors	Professional Services	(519) 966-6432	Link
Index Design Studio	Professional Services	(519) 351-4661	Link
Create Rental Solutions Inc.	Professional Services	(888) 533-3309	Link
Surveyors on Site	Professional Services	(519) 258-4166	Link
Portable Storage.ca	Supplier	(519) 692-9696	Link
PC Homes	Developer, Builder	(519) 796-4944	Link
Enbridge Gas Inc.: Operating as Union Gas Ltd.	Professional Services	(519) 564-7943	Link
Cutting Edge Insulation	Trade Contractor	(519) 890-4715	Link

Appendix F Contractor Interviews

Exhibit 50 – Takeaways from Contractor Interviews

Interviewee	Company	Role	Takeaways
Bob Tellier	All Green Energy Consultants Inc.	Registered Energy Advisor (REA)	• Concerned about trust issues between homeowners and contractors. ○ Suggested mandatory training for contractors in the R-DEER program to improve communication and trust. • Advocated for more homeowner support, such as a central body for consultation and coordination. • Language barriers could present issues for residents who speak English as a second language.
Rick Miller	EnergyWerx	VP and Service Organization Manager	• Highlighted the importance of an energy coach in verifying equipment eligibility for various programs in the planning phase. • Placed an emphasis on use-friendly designs to address barriers, particularly for elderly homeowners. ○ This includes encouraging smaller, more effective measures over retrofits that are more costly and complex. • Concerned about contractors' profit motivation potentially leading to misinformation.
James Knehler	Various	Owner	• Expressed frustration with current rebate programs, saying they are not use-friendly and lack support for homeowners. • Called for an impartial third party to validate REA and contractor findings to ensure that homeowners are not exploited. • Recommended using dedicated auditors and identifying reputable service providers to maintain integrity.
Tom Grochmal	Trim Tab Energy Retrofit	Owner	• Highlighted that homeowners currently receive little support or guidance when applying for energy efficiency rebate or loan programs. • Noted that existing programs often fail to address homeowners' primary concerns, such as home comfort and air quality. • Stressed the need to have knowledgeable support to help guide homeowners through the process.

Interviewee	Company	Role	Takeaways
			○ While also acknowledging that this extensive support could affect the program's ability to scale up the number of retrofits performed per year.
Robert Iseppi	Amerispec Inspections	Franchise Owner	• Raised concerns about potential conflicts of interest in contractor payments. ○ Suggested controlled payment methods like other city programs and requiring multiple contractor quotes to prevent bias. • Suggested creating a tailored data collection form for audits, specifically designed to ensure accurate energy savings predictions. • Emphasized the need for measurement & verification and projected that pre- and post-retrofit energy audits would be possible due to a high availability of REAs in Windsor.
Sean Zim		REA	
Klaus Dohring	Green Sun Rising		• Emphasized the role of solar retrofits in keeping retrofits affordable as electricity costs continuing to rise. • Suggested a policy supporting Virtual Net-Metering to expand access to solar benefits and simplify operational costs for the City. • Recommended combining solar installations with heat pumps to mitigate the increased cost of fuel switching.
Andrew Hazzard	Absolute Comfort		• Suggested additional verification measures for REAs to ensure correct equipment installation and tuning. • Noted that contractors often set the changeover temperature too high, which reduces GHG reductions, and highlights that modern Cold Climate Heat Pumps can operate efficiently at temperatures below -20°C. • Recommended that quoting requirements be shared with contractors for feedback before program launch. ○ Advocated for requiring heat pump sizing calculations in quotes.
Michelle Bergeron	Bryant Heating & Air Conditioning		• Pointed to the company's existing loan, incentive, and competitive financing programs. • Unwilling to share information about operations and capacity.