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# 2023

## SUSTAINABILITY ANNUAL REPORT

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# Introduction

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The Town of Whitby (Town) is committed to sustainability and environmentally responsible practices at both the community and corporate levels.

The Community Strategic Plan provides a shared vision and objectives for how the Town Council and Staff will work together to deliver on community priorities over the next four years and beyond. Within Whitby's Community Strategic Plan are four strategic pillars with the second strategic pillar focusing on Whitby's Natural and Built Environment. The actions outlined in this report specifically align with the first objective of this pillar: Demonstrate environmental leadership in sustainability and addressing climate change.

This Annual Report follows the 10 principles of the One Living Planning Framework. The 10 principles guide the Town to meet its overall vision for Whitby to be a healthy, sustainable, and complete community.

Many sustainability projects and initiatives were accomplished in 2023. Key highlights include:

- Approval of Whitby's Climate Emergency Response Plan Phase 2: Mitigation;
- 514.4 tonnes of carbon dioxide equivalent have been reduced as part of the Zero Carbon Whitby initiatives;
- The selection of Whitby's Official Tree through a community campaign to support the Town's ongoing commitment to the urban forest; and,
- In support of action item 1.5.1 in Whitby's Climate Emergency Response Plan Phase 1: Resilience, a survey was conducted to assess the community's basic knowledge of climate change including risks, preparedness, and recovery.

Additional actions to support Whitby's sustainability journey will be undertaken in 2024 with some of the priority initiatives including:

- Begin the development of an incentive program to support the implementation of the Whitby Green Standard;
- Develop Version 2 of the Whitby Green Standard as part of continuous improvement in order to incorporate latest Green Development Standard practices;
- Implement action items identified in the Climate Emergency Response Plan;
- Completion of a Corporate Waste Management Audit & Strategy; and,
- Implementation of additional Zero Carbon Whitby projects.

# One Planet Living

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This report follows the One Planet Living Framework. This international framework consists of ten simple principles, clear goals and guidance to help ensure that the Town advances all aspects of social, environmental, and economic sustainability.

-  **Health and Happiness** Encouraging active, social, meaningful lives to promote good health and well-being.
-  **Equity and local economy** Creating safe, equitable places to live and work, which support local prosperity and international fair trade.
-  **Culture and Community** Nurturing local identity and heritage, empowering communities and promoting a culture of sustainable living.
-  **Land and Nature** Protecting and restoring land and marine systems for the benefit of people and wildlife.
-  **Sustainable Water** Using water efficiently, protecting local water resources and reducing flooding and drought.
-  **Local and Sustainable Food** Promoting sustainable, humane farming and healthy diets, which are high in local, seasonal organic food and vegetable protein.
-  **Travel and Transport** Reducing the need to travel, encouraging walking, cycling and low-carbon transport.
-  **Materials and Products** Using materials from sustainable sources and promoting products that help people reduce consumption.
-  **Zero Waste** Reducing consumption, reusing and recycling to achieve zero waste and zero pollution.
-  **Zero Carbon Energy** Making buildings and manufacturing energy efficient and supplying all energy with renewables.

Projects listed within the report that include a \$ have or are in the process of being considered for subsidization by an external funding opportunity. For more details, please view **Appendix A**.

# Health and Happiness

Encouraging active, social, meaningful lives to promote good health and well-being.

## 2023 Accomplishments

### Playground Redevelopments

To support exercise and play, several park playgrounds were redeveloped in 2023, including:

- Lazy Dolphin Park (Park name is subject to change)
- Des Newman WhitBEE Park
- Lynde Creek Park
- Philips Kozaroff Park
- Chelseahill Park (Park name is subject to change)

### New Parks

The Town oversaw the development of the following new parks:

- **Lazy Dolphin Park (Park name is subject to change)**
  - This local park located on Coronation Road just south of Taunton Road was completed in December 2023. The new park includes a playground, sand play area, shade shelter with picnic tables, a multi-use court, soccer field, walkways, and extensive tree plantings throughout.
- **Des Newman WhitBEE Park**
  - This new district park located on Des Newman Boulevard, just north of Dundas Street W., was opened to the public in September 2023. The new park includes a playground, splash pad, sand play area, shade shelter with picnic tables, work out equipment, one full size multi-use court, one half basketball court, four lit pickleball courts including a practice board, a lit multi-use field, walkways and extensive meadow and native tree plantings throughout.
- **Lynde Creek Park**
  - This new district park located on Coronation Road, just north of Rossland Road West opened to the public in August 2023. The new park includes a playground, splash pad, sand play area, shade shelters with picnic tables, one full size multi-use court, a lit soccer field, walkways and extensive meadow and native tree plantings throughout.
- **Philips Kozaroff Park**
  - This local park located within Macedonian Village neighborhood was completed in July 2023. The new playground area includes a playground, sand play area, a junior basketball court, and walkways.
- **Chelseahill Park (Park name is subject to change)**
  - This local park located on Marcel Brunelle Drive was completed in July 2023. The new park includes a playground, sand play area, shade shelter

with bench seating, two tennis courts walkways and extensive tree plantings throughout.

### **Whitby Sports Complex**

In the fall of 2023, the construction on the Whitby Sports Complex officially started to help meet our growing community's immediate and future recreational needs. In terms of sustainability, the Sports Complex will be one of the first of its kind in Canada to achieve Zero Carbon Building Design & Leadership in Energy and Environmental Design (LEED) Gold Certified.

The new complex will be located on the west side of Baldwin Street South, south of Highway 407, and will include the Town's largest park investment to date. Park facilities include a full-size lit outdoor artificial turf sports field, three (3) lit tennis courts, fourteen (14) lit pickleball courts, a skateboard park and pump track, three (3) lit multipurpose courts, a playground, open greenspace, plazas, extensive native meadow, and tree plantings.



**Figure 1. Rendering of the Proposed Park for the Whitby Sports Complex.**

### **Parks Trails and Wayfinding Signage Design Project**

The Wayfinding and Signage Study was adopted by Council in 2022. In 2023 the Town has installed parks signs using the new standard. The Town will continue installing wayfinding signage in parks and along trails in 2024, 2025, 2026 and 2027.

### **Parks and Recreation Master Plan**

The Town has begun the process of updating its Parks and Recreation Master Plan to help identify actions to support future recreational services and infrastructure. Once complete, the updated plan will present a vision, as well as long-term goals and objectives, for how the Town will continue to meet the recreational needs of our growing community well into the future. It will be an actionable strategy that addresses:

- The type and location of future park and recreational opportunities and amenities required to support Whitby's quality of life;
- Service standards, policies, and programs for recreation and parks facilities and services; and
- Required improvements to parks, trails, and open spaces.

Public consultation on the plan involved a public survey in 2023.



# Culture and Community

**Nurturing local identity and heritage, empowering communities and promoting a culture of sustainable living.**

## **2023 Accomplishments**

### **Whitby Sustainability Advisory Committee**

The Whitby Sustainability Advisory Committee (WSAC) is a community-based committee of Council, whose role is to promote sustainability, support environmental management, and respond to climate change. In 2023, WSAC achieved various initiatives, including the support of the “Help Choose the Town of Whitby’s Official Tree” campaign and the Roebuck Street Art Project event, provided feedback on the Town of Whitby’s Climate Emergency Response Plan: Phase 2 Mitigation, and developed a presentation and recommendation to Council to endorse a one-time funding request for zero carbon projects in the 2023 budget.

### **Alveole Beekeepers Presentations**

As a part of the Town’s Urban Rooftop Beehive Program sponsored by Elexicon Energy, Alveole Beekeepers delivered two hands-on educational workshops in 2023, including:

1. **Meet your Beekeeper** – During Earth Month, community members were invited to meet the Town’s Alveole Beekeeper and ask them questions about urban beekeeping. The beekeeper shared videos and photos, explained the basics of the beehive, what happens inside a colony, an overview of the beekeeping season and basics of the craft.
2. **The Wonders of Beeswax** - As a part of the Pollinator Week (June 19 to 23) celebration, the Town partnered with the Whitby Public Library, Rossland Branch, to deliver a program to make hand-dipped beeswax candles. An Alveole Beekeeper shared their knowledge on the different aspects of beeswax, from how it’s made in the hive to the ways humans have used the material throughout the ages. Every participant was guided on how to make their own pair of hand dipped beeswax candles which they got to bring home.



**Figure 2. Participants creating hand-dipped beeswax candles.**

### **Kiss the Ground Movie**

During Earth Week (April 17 – April 23), Whitby residents were invited to a free screening of the movie, *Kiss the Ground* on Tuesday, April 18, 2023, at the Whitby Central Library. This movie discussed “regenerative agriculture” including the research, practice, and the hope we need to move forward together during this climate crisis.

### **Earth Week Themed Programming**

Throughout Earth Week (April 17 – April 23), in partnership with the Whitby Public Library, several resources were available to help residents and family members learn about ways to help our Earth and to get involved, including:

- Family Maker Lab: Earth Day Seed Bombs
- Garden Club: Read, Know, Grow!
- Teen MakerLab: Woodshop (building a bird house)

### **Sustainable Neighbourhood Action Plan**

As identified in Whitby’s Climate Emergency Response Plan, Phase 1: Resilience, the Town started developing a Sustainable Neighbourhood Action Plan (SNAP) Program in partnership with the Central Lake Ontario Conservation Authority. This project is a neighbourhood-scale community resilience and engagement program involving the community in identifying and developing an action plan for neighbourhood revitalization to integrate local community interests and sustainability objectives.



## **Whitby's Community Wide Education Campaign on Climate Risks, Preparedness and Recovery**

Identified as Action 1.5 in Whitby's Climate Emergency Response Plan, Phase 1: Resilience, the Town initiated this project in the fall of 2023. More specifically, the Town conducted a survey to understand a baseline assessment of Whitby's knowledge and educational needs of climate risks, preparedness, and recovery. This information will be used to help develop a communications strategy in future.

Protecting and restoring land and aquatic systems for the benefit of people and wildlife.

## 2023 Accomplishments

### Local Enhancement & Appreciation of Forests (LEAF) Backyard Tree Planting Program (\$)

2023 was the third year of the Council approved five-year contract for the subsidized Backyard Tree Planting Program to property owners of Whitby. This program is delivered by the not-for-profit organization LEAF and is in partnership with the Region of Durham. During Year 3 (July 2022 – June 2023) of the program, 96 trees were planted in Whitby and in the first half of Year 4 of the program (July 2023 – December 2023), 24 trees were planted (Table 1). Since July 1, 2020, Whitby has the highest cumulative number of trees planted in Durham Region at 351 compared to other local municipalities.

**Table 1. By the numbers - LEAF Backyard Tree Planting Program**

	Trees Planted	Sequestered CO2 (kg)	Stormwater Mitigation (L)	Air Pollution Removed (kg)	Equivalent Gas Vehicles Taken Off the Road*
Year 3 (2022-2023)	96	293,516	36,437,021	4,858	64
Year 4 (2023-2024)	24	80,063	10,437,580	1,483	17

\* Based on an average of 4.6 metric tons of carbon dioxide produced per year.

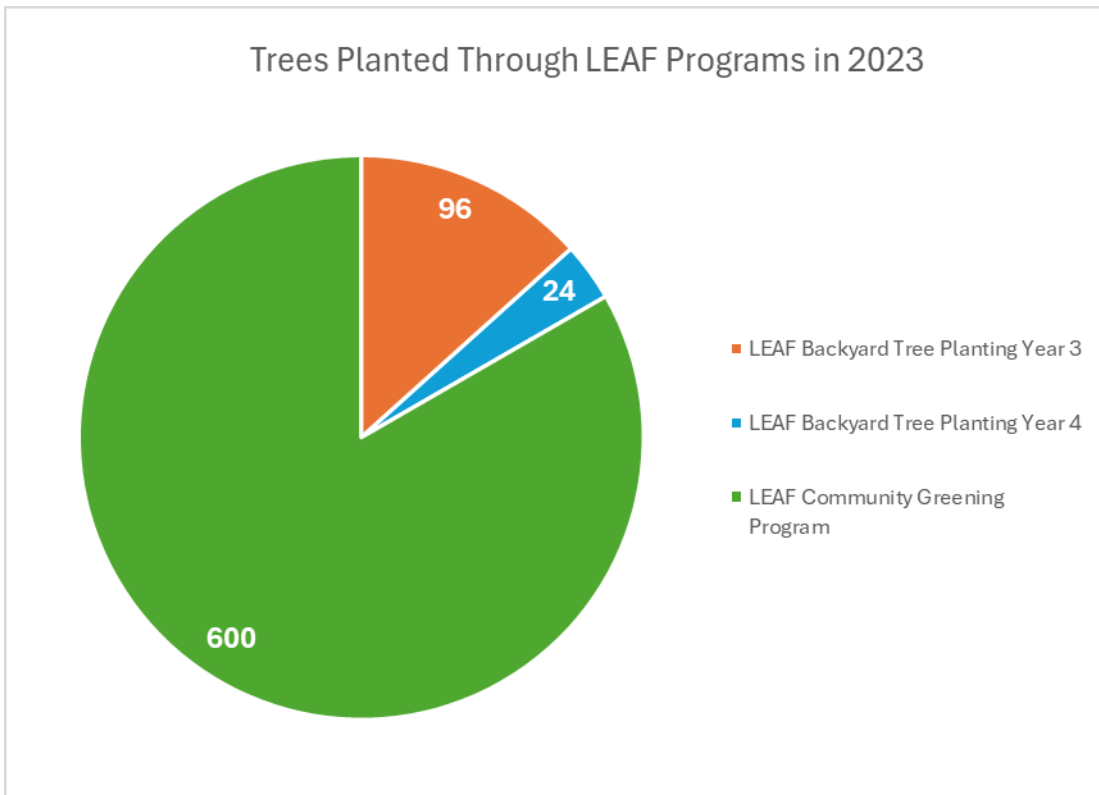
### LEAF Community Greening Program

2023 was the first year of implementing the Community Greening Program, which involved partnering with LEAF to deliver the following events:

- LEAF Earth Day Tree and Shrub Planting at D’Hillier Park on April 22, 2023, through which, 63 participants planted 300 trees and shrubs.
- LEAF Community Stewardship Maintenance event at Rosedale Park on June 24, 2023 collected 20 bags of unwanted/invasive plants and mulched ~150

trees/shrubs (using up at least three tonnes of mulch). At this event there were six (6) LEAF volunteers, six (6) community participants and three (3) staff (LEAF and Whitby combined).

- An in-person LEAF Tree Tour at Cullen Central Park was conducted on September 16, 2023, with a total of 31 participants. The attendees were led on a guided walk through the park where they were given the opportunity to learn more about native tree species, their invaluable benefits, and the ways that they can help the urban forest thrive. The tour included nine (9) different tree species and taught about the difference between native, non-native, and invasive species and how to identify them.
- The LEAF Tree and Shrub Planting event at the Whitby Civic Park on September 23, 2023, during National Forest Week included 60 participants who planted 300 trees and shrubs.



**Figure 3. A pie chart showing number of trees planted through various LEAF programs in 2023.**

The 720 trees planted as part of LEAF programs in 2023 will save approximately 2,331 tCO<sub>2</sub> through sequestration and reducing air pollution. This is equivalent to taking 507 cars off the road for one year.



Figure 4. Mulching trees at the Earth Day Tree Planting at D'Hillier Park.



Figure 5. Volunteers pulling invasive species at LEAF community maintenance event at Rosedale Park.

### **National Forest Week and National Tree Day**

The Town celebrated National Forest Week (September 17-23, 2023) by launching the Official Tree of Whitby Campaign and promoting the LEAF Tree Tour at Cullen Central Park, the LEAF Community Tree Planting Event at Whitby Civic Park and encouraging residents to plant trees in their backyard through the LEAF's Backyard Tree Planting Program.

### **Town of Whitby's Official Tree**

From September 28 to October 16<sup>th</sup> Whitby residents were invited to cast their vote for a tree that they believe represents the Town of Whitby. Four native tree species were

selected including: Tamarack, Tulip tree, Kentucky coffee tree, and Honey locust. The trees were selected based on their abundance and significance in Whitby while also taking into consideration species that are not already recognized as official trees nationally, provincially, or near neighboring communities.

### **Free Conservation Lands and Ontario Park Passes**

In partnership with CLOCA (Central Lake Ontario Conservation Authority) and Ontario Parks, the Whitby Library lends passes that grant free day-use access to the conservation areas and provincial parks. These loans encourage residents to explore and appreciate our local natural assets and sustainable outdoor activities.

### **Build a Better Bat House**

The Town partnered with the Whitby Public Library, Rossland Branch, to deliver a program to discuss the importance of creating proper bat habitat. Brian Joyce, co-founder of the Prince Edward Point Bird Observatory, shared his knowledge about bats and why bat houses are great for the environment. Bats are helpful to the environment as they are excellent pest controllers (little brown bats can eat up to 1000 mosquitos a night) and are wonderful pollinators. The biggest threat to them is white nose syndrome, which has wiped out 90 percent of the little brown bat population. Bat houses help to eliminate the threat by providing a place to roost away from larger colonies and they are better places for bats rather than your house! Through this event, 15 bat houses were given out to participants.



**Figure 6. Build a Better Bat House Program.**

### **Durham Meadoway**

The Meadoway is a regional trail network proposed to link Greater Toronto Area communities between the Don River and Oshawa. The Region of Durham Planning Division (Transportation Planning Section) is coordinating the Durham Meadoway Visioning Study in partnership with the City of Pickering, the Town of Ajax, the Town of Whitby and the City of Oshawa. One of the preliminary guiding principles of the Study is

the Natural Environment. The Meadoway will protect sensitive plant and animal habitats and seek opportunities to enhance biodiversity, provide opportunities for visitors to learn about the natural environment and encourage community stewardship. In 2023, the Durham Meadoway Visioning Study involved shaping the vision of the study, identifying a preferred route, and developing a concept plan while engaging with the community. The Visioning Study will be brought forward for final approval in 2024.

### **Pollinators**

In 2018, Whitby was designated the 10th Bee City in Canada and the first in Durham Region. The Bee City designation is awarded to municipalities that declare to protect pollinators and their habitat through action and education. In 2023, the Town undertook several measures as identified throughout this report to maintain the Bee City status including educational seminars, community plantings, and provided native wildflower seed packets.

### **Pollinator Week**

Pollinator Week (June 19-25) is a time to celebrate the vital role of pollinators like bees, birds, bats, and butterflies in our local ecosystem and support global food production. The Town is committed to protecting pollinators and their habitat through action and education as a designated Bee City. As part of that commitment, the Town planned one stewardship event in partnership with LEAF, a Wonders of Beeswax Workshop in partnership with the Whitby Public Library, Rossland Branch, and one staff event to support the Seeds to Bees program. Further information regarding these initiatives can be found throughout this Land and Nature section.

### **Tree Cities of the World**

Tree Cities of the World is an international effort through the Arbor Day Foundation, the Food and Agriculture Organization of the United Nations, alongside its Canadian partner, Tree Canada, to recognize cities and towns committed to ensuring that urban forests and trees are properly maintained, sustainably managed, and duly celebrated. When the program launched in 2019, Whitby was one of only 59 cities worldwide to receive this designation. Since then, the program has increased to 200 cities Worldwide. Whitby was successful in our 2023 Tree Cities of the World application as we continued to maintain, manage and celebrate our forest and trees through several initiatives that can be found in the Land and Nature section of this report.

### **Staff Earth Day Pollinator Planting and Clean Up**

On April 21, 2023, Town Staff were invited to participate in an Earth Day Pollinator Planting and Clean Up Event at Jeffery Park where approximately 25 staff planted 353 native plants.

### **Urban Forest Management Plan**

In 2023, the Town started developing its first Urban Forest Management Plan. This comprehensive plan will offer recommendations aimed at enhancing tree health and diversity, increasing tree cover, addressing the challenges posed by climate change, mitigating risks to public safety, and maximizing the benefits of a sustainable, healthy, and secure urban forest. As part of this process, in 2023 the consultants completed an

inventory of outstanding trees, with the majority located in parks, to be included in the Town's tree canopy analysis.



**Figure 7. Whitby Urban Forest Streetscape**

### **Seeds to Bees**

The Seed to Bees native plant nursery has been growing and as Spring 2023, there are over 80 flats of native plant species. One staff event was planned during pollinator week (June 19 to 25) to assist the Horticultural Team with the nursery:

- **Staff Native Pollinator Plant Repotting Event**
  - On June 20, 2023, Town of Whitby Staff helped repot 210 native plants. While staff repotted the plants they participated in a native plant trivia contest, to increase their knowledge of native plants. Each of the 16 staff who participated were gifted with a native plant to plant in their own garden.

### **Jeffery Park Native Plant Habitat Improvement (\$)**

In 2023, the Town received a grant of \$2,000 from Pollinator Partnership which was allocated to expand the native plant habitat in Jeffery Park to help protect pollinators. Staff were invited out to Jeffery Park in celebration of Earth Week on April 21 to assist with the planting of over 350 native plants and shrubs.



**Figure 8. Trays of native plants and shrubs.**

### **Mayors' Monarch Pledge**

The Town continued their efforts to protect pollinators through participation in the Mayors' Monarch Pledge in 2023. This is a program led by the National Wildlife Federation. Through this initiative, Whitby is committed to creating habitat for the monarch butterfly and pollinators and educating residents about how they can make a difference at home and in their community. To participate, the Town must commit to at least three action items (out of 30) that the community will initiate throughout the year. In 2023 the Town committed to the following actions:

- Launch or maintain a public communication effort to encourage residents to plant monarch gardens in their homes or neighbourhoods.
- Launch, expand, or continue an invasive species removal program to support the re-establishment of native habitats for monarch butterflies and other pollinators.
- Display educational signage at monarch gardens and pollinator habitats.
- Increase the percentage of native plants, shrubs and trees that must be used in city landscaping ordinances and encourage the use of the milkweed, where appropriate.





# **Sustainable Water**

**Using water efficiently, protecting local water resources, reducing flooding and drought.**

## **2023 Accomplishments**

### **Harbour Dredging/Flooding Mitigation**

The federally owned Whitby Harbour and provincially owned Pringle Creek are contaminated with dioxins and furans at levels above provincial and federal standards. The source of contaminants is not fully understood; however, they are believed to have entered the harbour via Pringle Creek in approximately the 1970s. The Department of Fisheries and Oceans Canada (DFO) in partnership with the Provincial Ministry of Environment, Conservation, and Parks (MECP) are advancing plans to remediate these areas. In 2023, DFO finalized developing an updated Remedial Action Plan (RAP) to guide the remediation of Whitby Harbour. The RAP is intended to reduce potential risks to the health of people, fish and wildlife, that are associated with long term exposure to the chemicals currently found in Whitby Harbour. Additionally, in March 2023 a public information session was held by Fisheries and Oceans Canada (DFO) at Port Whitby Marina to provide an additional opportunity to inform and engage with the community. The project is anticipated to begin in mid-July 2024 with a project duration of approximately 27 months.



# Local and Sustainable Food

**Promoting sustainable, humane farming and healthy diets are high in local, seasonal, organic food and vegetable protein.**

## **2023 Accomplishments**

### **King Street Cooperative Community Garden**

The King Street Cooperative Community Garden (KSCCG) in King Street Park, operated by a local community group, marked its first year in 2023. They established a food forest and constructed a garden shed in collaboration with Durham College's Carpentry students. The shed, funded by KSCCG, was built off-site and installed by students, providing storage and a message board for residents. KSCCG secured grants from the Mayor's Community Development Fund and Treemobile, receiving three fruit trees and perennials. Additional funding came from Ontario Community Changemakers microgrant. Tech company 360insights supported water supply access. With 15 high school volunteers and community donations, they had a successful 2023 growing season, donating produce to Whitby's Muslim Welfare Home.

KSCCG operates under a Cooperative Model, sharing harvest equally among members and donating to local charities. Their "food forest" design fosters biodiversity, minimizing inputs like water and fertilizer.

### **We Grow Food Cooperative Community Gardens**

We Grow Food is a grassroots organization that promotes the importance of growing food and connecting community members to each other through growing and sharing natural, fresh produce in an urban environment. The Mayor's Community Development Fund awarded two \$5,000 grants in 2023 to We Grow Food to start community gardens at Garrard Heights (123 Eric Clarke Drive) and Marigold Place (3438 Garrard Road). This funding enables community members to cultivate their own food by establishing a shared space where everyone can contribute to enhancing their own food security.

### **Whitby Public Library Seed Share**

Seed Saving is a growing movement that supports sustainable gardening practices and a healthy lifestyle by preserving genetic diversity and fostering an awareness of nature. The Whitby Public Library Seed Share provides access to locally saved seed and knowledge for anyone interested in growing food, attracting pollinators, saving their own seed and contributing to this public resource. For more information visit

[www.WhitbyLibrary.ca/seedshare](http://www.WhitbyLibrary.ca/seedshare).

### **Brooklin Whitby Garden Club**

The Town of Whitby, in partnership with the Brooklin Whitby Garden Club, presents annual events, including webinars and the speaker series. The webinars and speakers focus on horticultural, landscape and environmentally responsible projects. In 2023, several sessions were hosted including Gardening For Climate Change on March 1,

Vegetable Gardening in Containers on March 8, Gardening for Pollinators on March 15, Annual & Perennials: Growing and Maintenance on April 26 and a session titled Gardening As We Age on May 24.

### **Urban Rooftop Beehive (\$)**

The Town has an urban beehive on the rooftop of Town Hall, sponsored by Elexicon Energy and maintained by Alveole Urban Beekeepers. The Town extracts approximately 10 kilograms of honey from its rooftop beehive each year. The honey is bottled into 100 small jars and gifted to volunteers and handed out as prizes during community events.



**Figure 9. Bees on the Town's urban rooftop beehive.**



# Travel and Transport

**Reducing the need to travel, encouraging walking, cycling and low-carbon transport.**

## **2023 Accomplishments**

### **Active Transportation Plan**

The Town's Active Transportation Plan (ATP) encourages people to use transit, walk and cycle more often and strives to make our community more connected, accessible, and safer for everyone. The Town's ATP identifies the active transportation facilities to support pedestrians, cyclists, etc. The projects in the program are for roadway active transportation facilities, which include on-road bike lanes, sharrows, paved shoulders, and in-boulevard multi-use paths. In 2023, planning and design steps for each of the following projects were completed: installation of several Pedestrian Crossovers (PXO) to support pedestrians, installation of centerline, users symbols and signage on Multi-Use Paths (MUP) to separate users by direction of travel, installation of bike lanes and sharrows to support cycling on several streets and enhancing on-road cycling on Mary Street. These projects are expected to be completed in 2024.

### **Electric Vehicle Charging Stations (\$)**

The Town of Whitby currently has nineteen (19) electric vehicle (EV) charging stations that were installed in December 2021 as part of the Zero Emission Vehicle Infrastructure Program (ZEVIP), which is a grant program administered by Natural Resources Canada. Between January 1, 2023, and December 31, 2023, there have been 1,548 charging sessions between these 19 EV chargers. These sessions have resulted 16.7 tCO<sub>2</sub>e savings.

Grant Funding has been secured via Elexicon Energy Sponsorship in order to help offset the cost of operations and maintenance of the stations.



Figure 10. EV Charging Station

### Trail Construction, Improvements and Expansion

In 2023, the Town constructed new trails and made several trail improvements to Whitby's existing active transportation infrastructure projects, including:

- a. Florence Trail
- b. Lynde Creek Trail from Lynde Creek Park to Twin Streams Road and from Des Newman WhitBEE Park to Bonacord

### Greening the Town's Fleet

Fleet Services continued to electrify its fleet by purchasing 10 Plug-in Hybrid vehicles that can utilize the EV charging station installed in the Operations Yard. Through the increased use of EVs and replacement of older higher emitting vehicles in 2023, the Town was able to reduce its fleet energy and GHG emissions by 973,680 kWh and 244 tCO<sub>2</sub>e when compared to 2022.



Figure 11. Town of Whitby Plug-in hybrid vehicle.

**Water St. Environmental Assessment (EA)**

An EA has been undertaken to assess road re-alignment options, streetscape enhancement and geometric modifications to address parking and drainage issues and to promote active transportation to attract more Whitby residents to enjoy the waterfront. The EA study is anticipated to be completed by the end of 2024.



# **Zero Waste**

**Reducing consumption, reusing and recycling to achieve zero waste and zero pollution.**

## **2023 Accomplishments**

### **Provincial Day of Action on Litter**

In Ontario, the Provincial Day of Action on Litter is celebrated on the second Tuesday of May. In recognition of this day, in 2023 community members were encouraged to complete a one-time cleanup or to adopt public spaces through the Anti-litter App: [www.whitby.ca/cleanup](http://www.whitby.ca/cleanup). Additionally, Town staff participated in a 20-minute litter cleanup at lunch.

### **Waste Reduction Story and Craft Time**

The Town, in partnership with the Whitby Public Library, hosted a waste-themed story time on October 21 that focused on the importance of reducing waste, reusing items, and recycling materials. After the story time, children were provided with an opportunity to put their new knowledge to work by taking part in a reuse craft to repurpose waste materials and prevent them from going to landfills.

### **Repair Café**

The Town hosted a pop-up Repair Café at the Whitby Central Library on April 29 during Earth Month. The Repair Café consisted of volunteers who shared their repair knowledge and helped community members fix their household items such as computers, electronics, small appliances, small furniture, clothes, jewellery, books, bikes and more. This event created a platform for knowledge sharing and prevented items from ending up in landfills.

### **Waste Diversion Drop-off**

In partnership with the Rotary Club of Whitby and the Whitby Public Library, on October 21, members of the community were invited to recycle “hard-to-recyclable” items and help reduce their impact on our planet. Items such as Brita filters, printer ink cartridges, disposable razors, and pens, markers and highlighters were collected to be recycled through Terracycle.

### **Community Cleanup Online Tool**

The Town launched the Anti-Litter App in May of 2021 to support the Provincial Day of Action on litter. The app allowed residents to pre-register for a one-time community cleanup or make a longer-term commitment to adopt and clean a road, park or trail. In 2023, there were 48 parks cleaned up, 9 adopted parks cleaned up and a total of 1,747 volunteers participated.

### **Curbside Giveaway Pilot**

In September 2023, the Town worked with the Region of Durham to pilot a Curbside Giveaway/Swap Day. This community waste reduction initiative was an event where residents placed unwanted items in good condition – clearly marked FREE – on their curb for anyone to pick up. At the end of the Giveaway Day, residents were instructed to return unclaimed items to their home. This initiative was a great opportunity to have residents engage in the circular economy and keep items out of the waste stream. Based on a follow up survey, 183 residents participated in the pilot.

### **Waste Collection Calendar – Paper Reduction**

The Town of Whitby, along with neighboring municipalities, made the decision in 2023 to transition the waste collection calendar guide to be mostly digital. The printed waste calendar was significantly reduced in size and quantity – resulting in a 97% reduction of paper.

### **Preparation for Expanded Green Bin Program and Blue Box Transition to Full Extended Producer Responsibility**

The Region of Durham completed its Long-term Waste Management Plan (2022-2040), which outlines a few initiatives intended to help achieve future waste reduction targets and also meet GHG emissions reduction goals. Initiatives include moving to an expanded Green Bin Program that will introduce Pet Waste and Diapers to the Source-separated organics program as the Region transitions to new processing technologies. While this change will effectively divert significant tonnage from the disposal, it will have a significant impact on the Town's waste collection operations. Staff utilized 2023 as a year to map out changes and plan for any operational adjustments needed to maintain our level of service to residents. Similarly, the Region of Durham is scheduled to transition to a full Extended Producer Responsibility (EPR) Model for the Blue Box recycling program in 2024.

### **Electronic Procurement Process**

In 2023, the Corporate Purchasing Team posted over 80 projects on the digital e-Bidding platform to avoid the usage of paper for completing the bidding process.

### **Corporate Waste Management Strategy**

A Corporate Waste Management Strategy is being developed by the Town in 2024 to support the recommendations within the Zero Carbon Whitby Framework to target zero waste by 2040 and aligns with the goals of the Corporate Sustainability Plan. The aim of the Corporate Waste Management Strategy will be to ensure waste is diverted away from permanent disposal, directly resulting in a reduction in emissions. To support the development of a Corporate Waste Management Strategy, Corporate Waste Audits were initiated in the Fall of 2023 to understand the waste types and volumes at Town facilities. This will help inform how waste can be reduced through municipal operations.

### **Sustainability Considerations in Procurement Policy**

As of April 2023, in the Town of Whitby's new Procurement Policy, the Town will encourage sustainable practices such as incorporating recycled materials in the procurement of goods and services that reduce greenhouse gas emissions and



preserve the natural environment. Lifecycle cost analysis may be required to ensure that goods and services are financially viable and available at competitive prices.

# Zero Carbon Energy

**Making buildings and manufacturing energy-efficient and supplying all energy with renewables 2022 Initiatives.**

## **2023 Accomplishments**

### **Earth Hour**

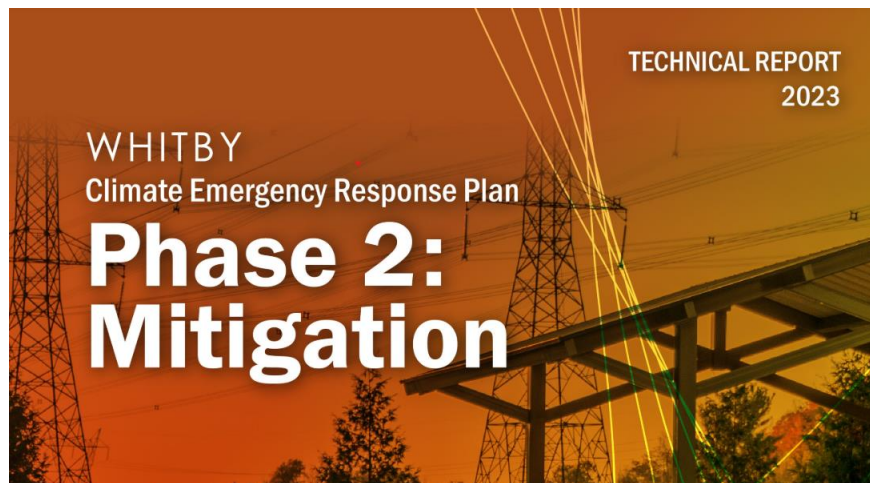
On Saturday, March 25, 2023, to celebrate Earth Hour, Town Hall staff turned off all non-essential lights from 8:00 to 9:00 p.m. to show support for the planet and to raise awareness of environmental issues. This saved approximately 1.5 kgCO<sub>2</sub>e.

### **Whitby Green Standard**

The Whitby Green Standard is an existing framework that allows for a flexible approach for addressing climate change and sustainable design criteria in all new buildings. In 2023, Sustainability reviewed 91 unique Whitby Green Standard applications at various stages in the development application process.

### **Climate Emergency Response Plan**

In December 2023, Climate Emergency Response Plan, Phase 2: Mitigation was completed and endorsed by Council. Phase 2 focuses on climate mitigation and identifies the sources of GHG emissions in Whitby, as well as the flow of energy across the community. The development of the Mitigation Plan included modelling the size of the climate challenge in Whitby. The Plan provides guidance and recommendations to meet the Town's community-wide GHG emissions reduction target of net-zero by 2045.



**Figure 12. Whitby's Climate Emergency Response Plan - Phase 2: Mitigation**

### **Durham Greener Homes Residential Retrofit Program**

Since 2022, 216 homes in Whitby have enrolled in the Durham Greener Homes Program. This program helps stimulate energy retrofits of existing residential buildings.

In 2023, 137 residents joined the program and the Town continued to promote and encourage Whitby residents to participate.

### **Race to Resilience and Race to Zero**

Race to Resilience and Race to Zero are global campaigns run by the COP26 Presidency and high-level Climate Champions. The purposes of these campaigns are to rally leadership and support from cities, regions, businesses, and investors to help frontline communities build resilience and adapt to the impacts of climate change while also reducing GHG emissions to stay within the 1.5°C global temperature increase as outlined in the 2016 Paris Agreement.

In 2021, Council endorsed joining these campaigns. By joining Race to Resilience and Race to Zero, Whitby joined cities worldwide in committing to be catalysts for change while also demonstrating the commitment to and delivery of the goals of the Paris Agreement and COP26. In 2023, to meet the requirements of this campaign, Whitby reported all its climate actions through the Carbon Disclosure Project.

### **Corporate Energy Team**

The Corporate Energy Team includes staff from multiple departments across the organization who are involved in initiatives dealing with energy management, energy efficiency, and the associated greenhouse gas (GHG) emissions. The integrated team supports the implementation of the Town's Zero Carbon Whitby Plan.

In 2023, this team supported initiatives including:

- Identification and implementation of energy efficiency and low-carbon capital projects.
- Energy and greenhouse gas emissions reporting.
- Development of the Town's first Carbon Budget.

### **Zero Carbon Whitby**

Zero Carbon Whitby was endorsed by Council in March 2021; this plan serves as the Town's Corporate Energy Management Plan and Corporate Climate Adaptation Plan.



Figure 13. Zero Carbon Whitby

Zero Carbon Whitby has been developed as a framework for implementing a low carbon decision mechanism across the organization. The Plan derives the amount of emissions that Whitby's corporate operations have to reduce to support global GHG emission reduction targets.

As part of the plan, Council approved short, medium, and long-term targets to reduce corporate GHG emissions, namely:

- 20 percent GHG emissions reduction by 2025, below 2019 levels
- 40 percent GHG emissions reduction by 2030, below 2019 levels
- 100 percent GHG emissions reduction by 2045, below 2019 levels

This target was developed to reflect the Town's contribution to limiting the global annual average temperature increase to 1.5°C.

Embedded within Zero Carbon Whitby is a Carbon Reduction Framework, an overarching framework for GHG emissions management, extending over multiple years and all aspects of municipal operations. This framework empowers staff to develop and implement actions from the bottom up to meet GHG reduction targets by aligning capital and operating budgets with GHG reduction targets.

The Zero Carbon Whitby Plan indicates Whitby's 2019 (baseline) GHG emissions were 5,525 tCO<sub>2</sub>e. Accordingly, Whitby's interim GHG reduction goal is 1,105 tCO<sub>2</sub>e (or 1,105,000 KgCO<sub>2</sub>e) by 2025. Zero Carbon Whitby projects completed in 2023 resulted in 514.4 tCO<sub>2</sub>e in GHG savings. Please refer to Table 2 - 2023 Zero Carbon Whitby Corporate Projects for details on all completed projects.

### **Zero Carbon Whitby Costing Study (\$)**

As the first step of the implementation of the Zero Carbon Whitby Framework, the Zero Carbon Whitby Costing Study was completed. The Study was one of the main recommendations of the Zero Carbon Whitby Framework. The Zero Carbon Costing Study provides a detailed implementation plan for the Town to remain within its carbon budget and reach zero emissions by 2045. The Zero Carbon Costing Study provides a schedule and incremental budget for the Zero Carbon Whitby Plan that optimizes the Town's corporate carbon budget with its existing capital budget and asset management plans. It also provides guidance on the establishment of the Zero Carbon Revolving Reserve Fund.

The estimated incremental cost of this work between 2022 and 2045 is \$63.7 million. In return, over the same period it estimated there will be \$75.3 million in total savings and avoided costs.

The Study proposes that this incremental cost could be paid for entirely from a Zero Carbon Revolving Reserve Fund, seeded with an initial \$34.8 million in funding and then utilizing cost savings from energy, carbon tax, and select capital projects to fund the balance of the program in later years.

Council endorsed the Zero Carbon Whitby Costing Study in September 2022.

Projects completed as part of the Zero Carbon Whitby Costing Study are shown in Table 2.

### Establishment of the 2023 Carbon Budget

With Council’s endorsement of the Zero Carbon Whitby Costing Study, in the Fall of 2022, the carbon budget process and the list of Zero Carbon Projects for 2023 were integrated into the 2023 capital budget planning process (Figure 14). This ensured that the Zero Carbon Whitby Framework has been embedded within the municipal fiscal budget process and helps with the ongoing implementation and monitoring of the Town’s actions, in alignment with emission reduction targets.



Figure 14. Town of Whitby Budget Cycle Incorporating the Carbon Budget.

### Zero Carbon Revolving Reserve Fund (ZCRRF)

In support of the recommendations of the Zero Carbon Costing Study, a Zero Carbon Revolving Reserve Fund was established in September 2022 to facilitate the implementation of the zero carbon projects. The Zero Carbon Revolving Reserve Fund will provide a sustainable fund to help pay for zero carbon retrofits, pilot projects and to fund incremental retrofit project costs of zero carbon options. The current balance in the ZCRRF is approximately \$625,208. This fund will continue to be used for ongoing Zero Carbon Whitby projects and initiatives.

### Global Covenant of Mayors

The Town joined the Global Covenant of Mayors (GCoM) in 2019. GCoM is a global network of more than 10,000 cities spanning 139 countries worldwide. These local governments all recognize that ambitious climate initiatives need to be taken to keep global temperatures from rising more than 1.5°C. Whitby’s participation in the Global Covenant of Mayors commits the community and Town to the following milestones:

- Develop a GHG emissions inventory;
- Assess climate risks and vulnerabilities of the Municipality;
- Define ambitious climate mitigation, resilience and energy targets; and
- Create, prioritize, complete, and monitor climate action plans.

As part of the annual Broader Public Sector (BPS) Reporting, a GHG emissions inventory has been developed and was updated in 2023. Further information about BPS reporting can be found below under Energy Star Portfolio Manager.

In 2023, the Town started the development of a Sustainable Neighbourhood Action Plan program which will help assess and respond to climate risks and vulnerabilities in a specific Whitby neighbourhood. More information on this initiative can be found in the Culture and Community section.

For more information about the Global Covenant of Mayors, please visit [globalcovenantofmayors.org](https://globalcovenantofmayors.org).

### **Energy Sub Metering**

In 2023, staff worked on projects at Iroquois Park Sports Centre, McKinney Centre, and Town Hall to install energy submeters. These submeters will provide real-time monitoring of utility consumption at equipment/system level to give an in-depth overview of energy consumption at each facility. The installation of these sub-meters will help track and monitor Zero Carbon Whitby initiatives.

### **Energy Star Portfolio Manager**

In 2022, the Town began tracking energy consumption data through Energy Star Portfolio Manager for all major Town facilities. Energy Star accounts were continually updated throughout 2023 to monitor utility consumption and flag anomalies. Energy Star Portfolio Manager is also used to report under Ontario Regulation 25/23 Broader Public Sector. This regulation helps to identify energy and greenhouse gas saving opportunities, establish benchmarks, and measure improvements over time. This platform is an interactive resource management tool that benchmarks the energy use of any building that allows you to:

- Identify underperforming buildings to target for efficiency improvements;
- Identify best practices from efficient buildings;
- Set investment priorities;
- Verify savings and prevent snapback;
- Share and report performance;
- Earn recognition; and,
- Benchmark and track water use, waste and materials, and GHG emissions.

The table below illustrates the measured GHG savings for completed Zero Carbon Projects and initiatives in 2023, resulting in 514.4 Tonnes CO<sub>2</sub> equivalent (tCO<sub>2</sub>e).

**Table 2. 2023 Zero Carbon Whitby Corporate Projects and initiatives.**

<b>Facility</b>	<b>Project</b>	<b>Measured GHG Emission Savings (tCO2e) *Annualized over a calendar year</b>
Brooklin Community Centre and Library	Recommissioning of building automation system (BAS) in order to improve energy efficiency	5.4
	Refining of Roof Top Units (RTU) schedule	1.7
Civic Recreation Complex	Variable Frequency Drives (VFDs) on filter pumps in order to make the operation of the pumps more efficient	0.8
	Non-operational savings of Combined Heat and Power (CHP) system  *The CHP system uses Natural Gas in order to generate electricity and heat for the building, resulting in a significant amount of greenhouse gas emissions.  These savings are a result of the CHP system being mostly offline in 2023.	426.2
	RTU replacement to heat pump	5.2
Fire Hall #3	Gas furnace replacement to heat pump	5.9
Iroquois Park Sports Centre	Pad 2 and 5 lighting upgrades (LED lighting)	4.1
McKinney Centre	RealICE Cold water flooding system installation  *Hot water is typically used for rink flooding, which results in greenhouse emissions as the water must be heated using a natural gas boiler. With a RealICE system, cold water can be used to flood the arenas, resulting in greenhouse gas emissions reduction.	54.9
Port Whitby Marina	Exterior lighting upgrade (LED lighting)	1.2

Whitby Central Library	Gas furnace replacement (fireplace replaced with LED screen)	4.0
117 King Street (Rental Property)	Oil furnace replacement to a heat pump	5.0
<b>Total</b>		<b>514.4</b>

In addition to the completed projects and initiatives listed above, the following Zero Carbon projects were initiated in 2023 that are currently in progress:

**Table 3. Zero Carbon Projects: Initiated in 2023, to be completed in 2024.**

<b>Facility</b>	<b>Project</b>	<b>Measured GHG Emission Savings (tCO<sub>2</sub>e) *Annualized over a calendar year</b>
Fire Hall #3	Replace rooftop unit (RTU) with air source heat pump - Materials & Installation	5.6
Fire Hall #4	Replace rooftop unit (RTU) with air source heat pump - Design & Structural Analysis	0
Fire Hall #5	Install Solar PV - design/structural analysis	0
Heydenshore Pavilion	Install washroom exhaust controls to improve energy efficiency	0.1
Lynde House Activity Centre	Replace rooftop unit (RTU) and natural gas furnace with Heat Pump - Design Analysis/Structural	0
McKinney Centre	Replace natural gas boiler with an electric boiler	3.8
Operations Centre	Replace natural gas-powered pressure washer with an electric washer	14.9



Whitby Municipal Building	Install Solar PV - design/structural analysis	0
Whitby Port Marina	Install air source heat pump - design/structural analysis	0
Whitby 55+ Recreation Centre	Install occupancy sensors	0.2
	Upgrade to LED lighting	1.8
<b>Total</b>		<b>26.4</b>

### Measurement and Verification (M&V)

Measurement and verification strategies were used to validate the accuracy of greenhouse gas emissions savings initially projected for the 2023 Zero Carbon Whitby completed projects. Due to the unique nature of each project and facility, multiple strategies were required to complete the analysis. Data was measured and analyzed using utility bills or submeters when available, and RETScreen energy modelling software was used for projects where utility analysis would not yield adequate results.

Initial estimates for GHG savings associated with each of the completed 2023 Zero Carbon Whitby Projects were gathered from the 2019 Energy Audits conducted by Efficiency Engineering (3<sup>rd</sup> party consultant) on all municipally owned properties.

Savings identified in the audits were first verified by comparing actual utility consumption and associated GHG savings to the projections. This was done in two ways: utility bill analysis and submeter data analysis.

To make an accurate comparison when analyzing utility data, the same time periods (pre and post implementation) must be compared due to the effect weather has on building performance. In the case of the 2023 Zero Carbon Whitby Projects, the period immediately following implementation was compared to the same timeframe in the prior year.

The second method involves the use of submeters on equipment. Submeters isolate the utility consumption of a specific piece of equipment or building area which makes the process of savings measurement easier and more accurate.

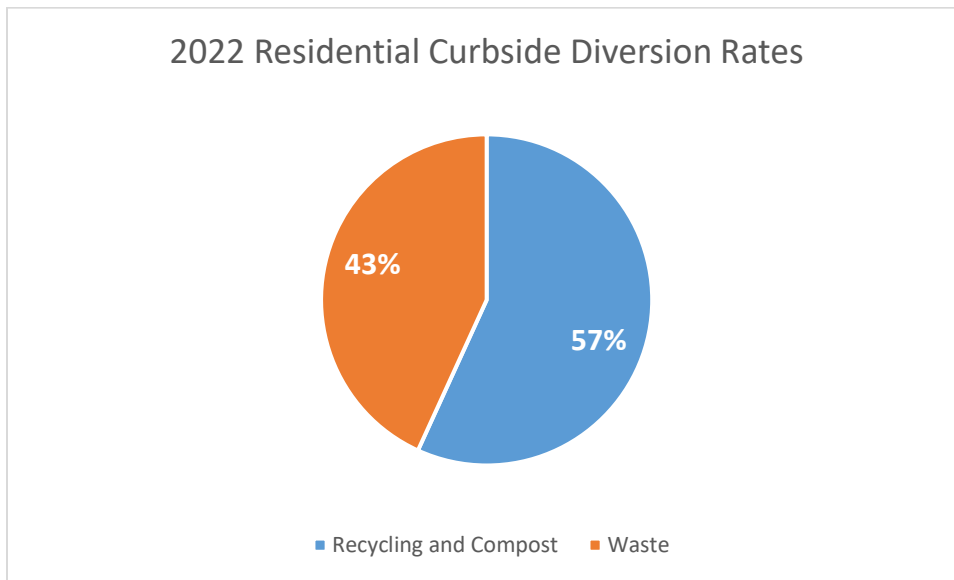
In facilities where this data was not available or would not have created applicable results, an alternate approach was used using RETScreen software, where detailed building level energy modelling was conducted. By inputting detailed building design specifications (heating/cooling systems, building envelope, lighting, etc.), the software program can accurately model energy consumption and GHG emissions. For the purposes of energy efficiency improvements, RETScreen can create a comparison between a base and a proposed case to determine the potential savings resulting from the implementation of energy conservation measures. Using this software and the

specifics of each completed 2023 Zero Carbon project, we were able to isolate specific building systems/areas that were affected by the project and a comparison was made to the previous building systems/conditions/equipment to determine actual energy savings.

# Appendix A: Funding

Grant Name	Town of Whitby Project	Grant Value Awarded	Funder Type
Elexicon Energy Sponsorship	Urban Rooftop Beehive Program (Including Alveole Beekeepers Presentation)	\$5,000	Local Distribution Company
Elexicon Energy Sponsorship	Local Enhancement & Appreciation of Forests (LEAF) Backyard Tree Planting Program	\$5,000	Local Distribution Company
Elexicon Energy Sponsorship	Operation of Existing EV Charging Stations	\$10,000	Local Distribution Company
Federation of Canadian Municipalities (FCM): Green Municipal Fund – Community Buildings Retrofit Initiative	2023 Zero Carbon Whitby Costing Study	\$128,000	Federal
Pollinator Partnership	Jeffery Park Native Plant Habitat Improvement	\$2000	Not for Profit organization
SaveOnEnergy	McKinney Centre Submetering	\$8,642.90	Not for Profit organization
ZEVIP Round 3	EV Charging Station Installation	\$160,000	Federal

# Appendix B - Residential Waste Diversion Rates



## 2014-2022 Residential Curbside Diversion Rates

Year	Total Waste Generated	Total Waste Diverted	Curbside Diversion
2014	44,610	27,854	62%
2015	40,551	23,919	59%
2016	39,398	22,915	58%
2017	39,124	22,639	58%
2018	38,247	21,740	57%
2019	37,674	21,372	57%
2020	41,489	23,894	58%
2021	41,312	23,798	58%
2022	36,894	20,964	57%

# Appendix C - Greenhouse Gas & Energy Consumption

## Town of Whitby Buildings

### Corporate Buildings - Energy Consumption\*

Energy Type	ekWh 2012	ekWh 2022	ekWh 2023	Difference between 2022 and 2023	% Difference between 2022 and 2023
Electricity	15,518,808	11,644,013	12,089,288	445,274	4%
Natural Gas	13,581,738	15,368,611	12,892,657	-2,475,954	-19%
<b>Total</b>	29,100,546	27,061,954	24,961,069	-2,100,885	-8%

### Corporate Buildings - Greenhouse Gas (GHG) Emissions

GHG (tCO <sub>2</sub> e) 2012	GHG (tCO <sub>2</sub> e) 2022	GHG (tCO <sub>2</sub> e) 2023	Change 2022-2023	% Change 2022-2023	Change 2012-2023	% Change 2012-2023
3,921	3,025	2,590	-434.66 tCO <sub>2</sub> e	-14%	-1331 tCO <sub>2</sub> e	-34%

### 2023 Corporate Waste

Waste Generated (MT)	Recycling (MT)	Organic Waste (MT)	Diversion Rate (%)	GHG (tCO <sub>2</sub> e) 2023
303	55	15	19%	99.40 tCO <sub>2</sub> e

**Corporate Fleet GHG emissions**

<b>GHG (tCO<sub>2</sub>e) 2017</b>	<b>Diesel (L) 2017</b>	<b>Gasoline (L) 2017</b>	<b>GHG (tCO<sub>2</sub>) 2023</b>	<b>Diesel (L) 2023</b>	<b>Gasoline (L) 2023</b>	<b>GHG Change 2017- 2023</b>	<b>GHG % Change 2017- 2023</b>
1,956	493,997	259,659	1,789	530,662	229,216	-167 tCO <sub>2</sub> e	-9%