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Halifax, Nova Scotia
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Item No. 13.1.1
Environment & Sustainability Standing Committee
December 7, 2023

TO: Chair and Members of Environment & Sustainability Standing Committee

SUBMITTED BY: Original Signed
Brad Anguish, Acting Chief Administrative Officer

DATE: November 30, 2023

SUBJECT: **HalifACT Annual Progress Report: 2022-2023**

ORIGIN

On June 23, 2020, the following motion of Regional Council was put and passed:

“MOVED by Councillor Austin, seconded by Councillor Mason that Halifax Regional Council:

1. *Authorize the direction contained in the HalifACT 2050: Acting on Climate Together plan, as contained in Attachment A of the staff report dated May 4, 2020;*
2. *Direct the Chief Administrative Officer to carry out the actions contained in the HalifACT 2050: Acting on Climate Together plan as part of the multi-year budgeting and business planning process, including establishing a target of net-zero municipal operations by the year 2030.*
3. *Direct the Chief Administrative Officer to prioritize efforts in the following critical core areas:*
 - a. *Create new retrofit, resilience, and renewable energy programming;*
 - b. *Develop a detailed and costed plan for retrofitting existing municipal buildings to be net-zero ready and climate resilient;*
 - c. *Develop an electric vehicle strategy, increase charging infrastructure and replace fleet vehicles with electric vehicles;*
 - d. *Explore opportunities to require net-zero standards for new buildings in the municipality;*
 - e. *Develop a framework for assessing and protecting critical infrastructure;*
 - f. *Support communities for climate adaptation and climate-related emergencies; and*
 - g. *Develop a financing strategy to operationalize the HalifACT 2050 plan over 30 years.*
4. *Accept in principle the need to resource the plan and direct the CAO to return to Council with a resource plan for consideration in the 2021/2022 budget; and*

RECOMMENDATION ON PAGE TWO

5. *Request that the Chief Administrative Officer provide annual progress reports on the implementation of the HalifACT 2050: Acting on Climate Together plan, to Regional Council through the Environment and Sustainability Standing Committee.”*

LEGISLATIVE AUTHORITY

Halifax Regional Municipality Charter, SNS 2008 c 39:

7A The purposes of the Municipality are to (a) provide good government; (b) provide services, facilities and other things that, in the opinion of the Council, are necessary or desirable for all or part of the Municipality; and (c) develop and maintain safe and viable communities.

79A (1) Subject to subsections (2) to (4), the Municipality may only spend money for municipal purposes if (a) the expenditure is included in the Municipality's operating budget or capital budget or is otherwise authorized by the Municipality; (b) the expenditure is in respect of an emergency under the Emergency Management Act; or (c) the expenditure is legally required to be paid.

RECOMMENDATION

It is recommended that the Environment and Sustainability Standing Committee forward the HalifACT Annual Progress Report: 2022-2023 to Halifax Regional Council for information, discussion and a presentation.

EXECUTIVE SUMMARY

- HalifACT's third Annual Progress Report outlines progress from April 1, 2022 to March 31, 2023.
- Since the baseline year of 2016, corporate and community emissions have decreased approximately 22.7% and 10.7% respectively.
- As of March 31, 2023, 14 (36%) of actions were considered on-track. Not included in this percentage are future year actions that have not yet started.
- Highlights of progress for actions focused on **Decarbonized and Resilient Infrastructure** include:
 - **Decarbonizing Halifax Transit:** 60 battery electric buses and the required charging infrastructure have been ordered. To accommodate the chargers, the Ragged Lake Transit Centre has undergone a full net-zero expansion design.
 - **Shore Road Green Shores Natural Infrastructure Project:** Funding for this project was secured through Infrastructure Canada's Natural Infrastructure Fund. This project will use nature-based infrastructure to protect against erosion and sea level rise associated with climate change while providing habitat for native species.
 - **Net-Zero New Construction:** As per Administrative Order 2021-002-OP, notable net-zero or net-zero ready buildings this fiscal includes the new Mackintosh Depot, Grahams Grove Community Building and the Halifax Common pool.
- Highlights of progress for actions focused on **Prepared and Connected Communities** include:
 - **Regional All Ages and Abilities (AAA) Bike Network:** In 2022-23, HRM added a total of 2 kilometers of new infrastructure to reach 45% of the total targeted network distance.
 - **Storm Kits for Newcomers:** HRM purchased 750 storm kits to be disseminated through various organizations and events. These included an emergency contact table and a 3-sheet extreme weather package that covers winter storms, extreme heat and hurricanes and were made available in five languages.

- Highlights of progress for actions focused on **Governance and Leadership** include:
 - **CEO Climate Action Charter:** Developed through collaboration between business and municipal leaders, the CEO Climate Action Charter was established to encourage climate action in the private sector and in public institutions.
 - **HalifACT Network Engagement:** In partnership with Halifax Public Libraries, public engagement activities were held between February and April 2023 to gather feedback on climate action in communities.
- As outlined in the approved [2022/23 Budget](#), a Climate Action Tax was approved to directly support the **first four** years of HalifACT implementation. These funds are used primarily for acquiring electric vehicles and buses, constructing net-zero buildings and leading projects that improve the resiliency of communities and infrastructure. This fund is also used to leverage climate action funding from the private sector and other levels of government. Although the implementation of the Climate Action Tax in 22/23 increased the average property tax bill by 3%, for the 2023/24 Budget and onward, the Climate Action Tax is a part of the base budget and does not factor into any further tax increases that may be needed to balance the budget.
- Collective progress and action towards the targets of HalifACT has resulted in the Municipality being recognized across various platforms. In 2022-23 the Municipality was a member of the 2022 Carbon Disclosure Project Cities A list, ranked 11th among 70 cities in the 2023 Corporate Knights Sustainable Cities Index, received A Climate Change Leaders Award from the Nova Scotia Federation of Municipalities for the Electric Vehicle Strategy and was awarded Canada's 2023 Clean50 Top Project of the year! In addition, the municipality was represented at COP27 in Egypt in November 2022 by Mayor Mike Savage and two members of the ECC team.
- The successful implementation of HalifACT requires collective action from across the organization and with key external partners. This report summarizes highlights from several partners including governments, utilities, academia, and non-profit organizations.
- Although this update report strictly spans the Municipality's 2022/23 fiscal year, the recent extreme weather events experienced in HRM and Nova Scotia cannot be ignored or understated. Staff are looking at ways to move some key climate adaptation and resilience actions forward faster than had been planned or anticipated. Staff continue to improve metrics and KPIs for HalifACT and began tracking the costs of extreme weather events through the municipal accounting system. The current tracked costs to the Municipality from Hurricane Fiona are 4.4 million dollars and counting.

BACKGROUND

HalifACT: Acting on Climate Together (HalifACT) is the Municipality's long-term climate action plan to reduce emissions and enhance resiliency to a changing climate, while also promoting social equity and economic development. It was approved unanimously by Council on June 23rd, 2020 and is one of Canada's most ambitious climate action plans.

HalifACT contains three themes of action; Decarbonized and Resilient Infrastructure, Prepared and Connected Communities, and Governance and Leadership. Within these, there are 17 subareas and 46 actions that are necessary to meet the targets established in the plan. HalifACT addresses the Municipality's climate emergency declaration put forward by Council in January 2019 and aligns with the 1.5°C pathway recommended by the Intergovernmental Panel on Climate Change (IPCC).

Acting quickly and effectively to address the climate emergency is complex and cannot be accomplished in isolation. HalifACT is a community plan, requiring not only Halifax Regional Municipality, but all major stakeholders and residents of the Halifax Region to collaborate and take collective action.

HalifACT Targets

The HalifACT targets, which rely on collective action by HRM and community partners, are summarized in Table 1 below. Full details can be found in the [HalifACT Plan](#).

Table 1: HalifACT Targets

| HalifACT Theme | Targets |
|---|--|
| Decarbonized and Resilient Infrastructure | <ul style="list-style-type: none"> • Net-zero new construction by 2030 • Retrofit all existing buildings by 2040 • Improve industrial process efficiency by 75% by 2040 • Install 1,300 MW of rooftop solar with storage by 2030 • Significantly expand local community-scale renewable energy generation • Achieve the 2030 mode share targets in the Integrated Mobility Plan • All new vehicle sales are electric by 2030 • Achieve net-zero municipal operations by 2030 • Achieve net-zero water and wastewater operations by 2030 • Future proof water systems and supply • Reduce risk to critical infrastructure • Protect, restore, maintain and expand natural areas and green infrastructure assets • Plan and build a low carbon resilient region • Better prepare for climate related coastal changes and impacts |
| Prepared and Connected Communities | <ul style="list-style-type: none"> • Better prepare for increased climate-related emergencies • Enhance the capacity of neighbourhoods to prepare for and recover from climate events • Improve food security and food systems resilience |
| Governance and Leadership | <ul style="list-style-type: none"> • Prepare and leverage business for the transition • Integrate climate thinking into municipal decision-making and governance |

DISCUSSION

HalifACT is a community-wide and multi-organizational commitment for ambitious, yet critical climate action. The sheer scale of action required to meet our targets means that action cannot only occur at the municipal level, but must also take place across businesses, other levels of government, non-profits, academia, the community and at the individual level. At its core, HalifACT truly is about Acting on Climate Together. The state of the Municipality’s progress on HalifACT actions over the 2022-2023 fiscal year is detailed in Attachment A. Highlights from key external partners and stakeholders that contribute to HalifACT’s community-wide targets can be found in Attachment B.

Corporate and Community Emissions¹

HalifACT establishes a corporate target of net-zero emissions by 2030, a community-wide target of a 75% emission reduction from the baseline year of 2016 by 2030, and net-zero community-wide emissions by 2050. Figures 1 and 2 summarize the progress to date for corporate and community targets, respectively.

¹ Previously published emission totals have been updated to reflect revised industrial sector data released by StatsCan.

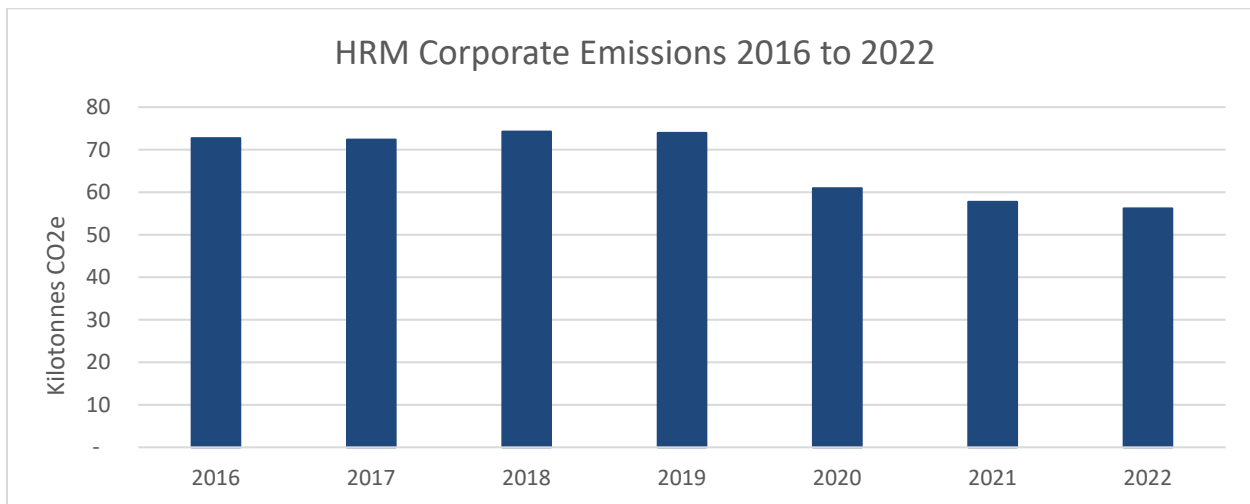


Figure 1 - Corporate Emissions in kilotonnes of CO₂ equivalent

Corporate emissions are a direct result of energy use related to buildings, street lighting, and vehicles (public works, fleet, rentals), owned and operated by the Municipality. It excludes Public Transit and Solid Waste emissions associated with collection. From 2021 to 2022, corporate emissions have decreased approximately 2.7%. Since the baseline year of 2016, emissions have decreased approximately 22.7%.

This decrease is attributed to several factors and initiatives including reduced municipal office operating hours during the COVID-19 pandemic, replacing almost all streetlights with LEDs, adding solar to municipal buildings, performing energy efficiency retrofits in partnership with Efficiency Nova Scotia, and a cleaner electricity grid.

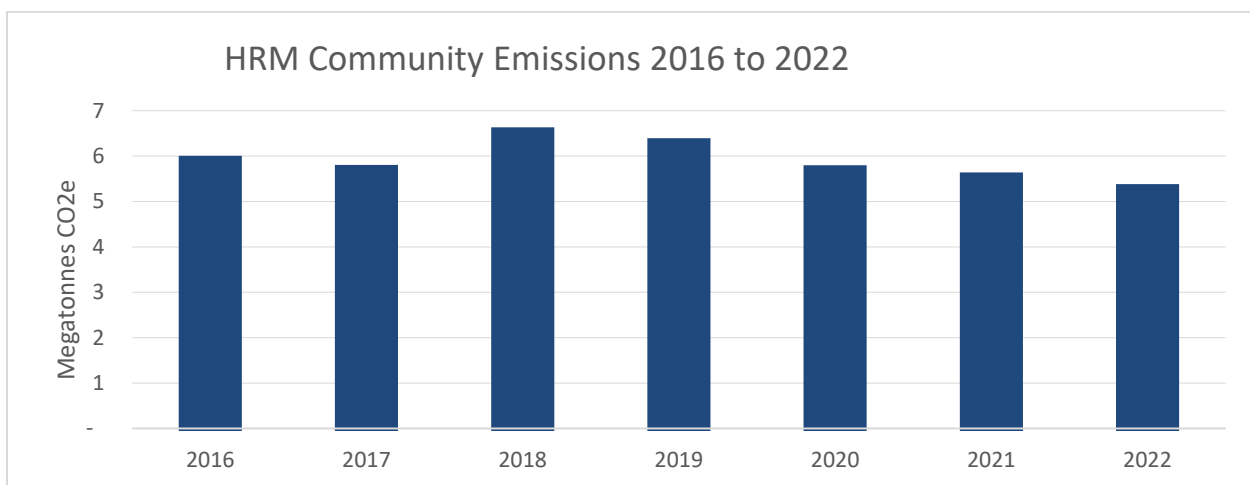


Figure 2 - Community Emissions in megatonnes of CO₂ equivalent

Community emissions are a direct result of all energy use within the boundaries of the Halifax Regional Municipality. This includes all corporate emissions, public transportation, private commuter vehicles, heavy transport, energy generation and buildings. Like corporate emissions, community emissions are trending downward, primarily from the continued decarbonization of the provincial electricity grid, the reduction of electricity consumption in the industrial sector and an overall reduction of light fuel oil consumption. Since the baseline year of 2016, emissions have decreased approximately 10.7%. Since the population of the Halifax Region has increased by over 65,000 since the baseline year of 2016, the per capita emissions have decreased from 14.13 tonnes of CO₂ equivalent to 10.88 tonnes of CO₂ equivalent.

Of note is the higher actual emission levels in 2022 when compared to the forecast business-as-usual (BAU) scenario. As presented in the HalifACT Low-Carbon Technical Report², the BAU scenario illustrates the anticipated emissions associated with population and employment growth projections for HRM if no additional policies, actions or strategies to address emissions are implemented between 2019 and 2050. Currently, actual emissions exceed that of the BAU scenario largely attributable to a higher population growth than was forecasted, and a higher electricity emission intensity factor than was forecasted. While total emissions have decreased since the baseline of 2016, they are not reducing at the pace and scale required.

Progress on HalifACT – Overview

As of March 31, 2023, 36 out of 51 actions in the plan had been initiated; the number of funded positions dedicated to HalifACT increased by 8 fulltime positions, and a Climate Action Tax was established to support implementation.

Table 2 summarizes progress on actions as **progressing**; **some progress**; **minimal to no progress**; and **contingent on action from other stakeholders**.

Table 2: 2022-23 Progress Rating Description and Summary

| Rating | Description | Rating | 2022-23 Total |
|-----------------------|--|----------------------|-----------------------|
| Progressing | Progress was made on this action in 2022-23 and the work is tracking towards associated HalifACT target(s). | | 14 out of 51* actions |
| Some progress | Some progress was made on this action in 2022-23, and the action is at risk of falling behind in its associated HalifACT target(s). | | 16 out of 51 actions |
| Minimal / no progress | Minimal to no progress was made on this action in 2022-23 and the action is falling behind in its associated HalifACT target(s). | | 6 out of 51 actions |
| Contingent on others | Progress in 2022-23 was contingent on/awaiting policy development from the Government of Canada or from the Government of Nova Scotia. | | 3 out of 51 actions |
| Future Action | Implementation of action is slated for a later date and has not yet begun. | Future Action | 12 out of 51 actions |

** Though HalifACT has 46 actions, 7 of these were subdivided for clarity as part of the changes to shared accountability that took place in the 2021-22 year, resulting in 51 total actions.*

The percentage of actions that are progressing as required to meet the targets of HalifACT from this fiscal year is shown in Figure 3 below. Actions rated as “progressing” are considered on track, and all others are considered off-track (rated some progress, minimal progress, no progress, and contingent on others). In the HalifACT 2021-22 Annual Progress Report, 30% of the actions were considered on track. This number has increased to 36% in 2022-23.

² Halifax Regional Municipality, Low-Carbon Technical Report.
<https://cdn.halifax.ca/sites/default/files/documents/about-the-city/energy-environment/Technical%20Report.pdf>

In **2022-23**, **36%** of HalifACT Actions were **ON TRACK**

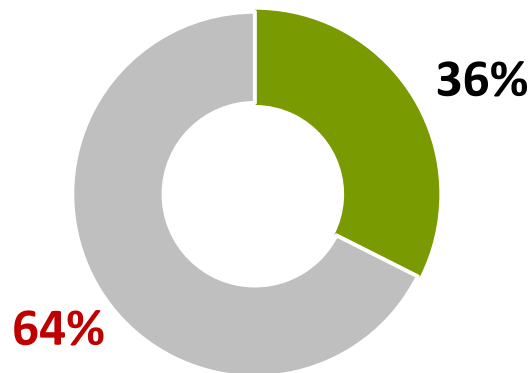


Figure 3: HalifACT Action Progress 2022-23

Climate Action Tax

As outlined in the [2022/23 Budget](#), a Climate Action Tax was approved to directly support the **first four** years of HalifACT implementation. This will be used primarily for acquiring electric vehicles and buses, constructing net-zero buildings and leading projects that improve the resiliency of communities and infrastructure. This fund will also be used to leverage climate action funding from the private sector, federal and provincial governments.

Table 3: 2022/23 Project Budget available (in thousands).

| | Available | Spent | Committed | Total Actual & Committed |
|-----------------------------------|------------------|----------------|------------------|--------------------------|
| EBuses Phase 1 | 64,313.00 | 117.20 | 64,195.80 | 64,313.00 |
| Municipal Building Retrofits | 2,810.00 | 56.50 | 2,753.50 | 2,810.00 |
| Public Charging Infrastructure | 2,050.00 | 9.90 | 2,040.10 | 2,050.00 |
| Fleet Electrification | 3,500.00 | 88.30 | 3,047.10 | 3,135.40 |
| Shore Rd. Resilience Improvements | 260.00 | 93.30 | 6.10 | 99.30 |
| Flood Mitigation | 176.50 | 7.60 | 95.00 | 102.60 |
| Critical Infrastructure Projects | 588.50 | 399.70 | 188.80 | 588.50 |
| Small Projects Bundle | 2,379.20 | 718.90 | 566.90 | 1,285.80 |
| Total | 76,077.20 | 1,491.4 | 72,893.30 | 74,384.60 |

EBus Phase 1

This supports the transition to a zero-emissions public transit fleet. Work includes the purchase of 60 electric buses and the expansion of the Ragged Lake Transit Centre. The expansion will include charging infrastructure, 1,000 kW of rooftop solar, air-to-water heat pumps, variable frequency drives for heat recovery ventilators, and demand-controlled ventilation.

When integrated into the fleet, each electric bus is expected to see a reduction in fuel costs when compared to diesel. When the facility expansion is complete, the energy usage will be 70% less compared to a baseline building.

Municipal Building Retrofits

Municipal buildings are the largest source of corporate emissions. To achieve net-zero municipal operations by 2030, deep energy retrofits on all existing municipal buildings (approximately 1.6 million ft² of corporate floorspace) is required. This work will include fuel switching, heat recovery systems, enhanced building controls, envelope upgrades, LED lighting, demand-controlled ventilation and 5.5 MW of rooftop solar. The Municipality is leveraging funding from all levels of government and Efficiency Nova Scotia to support these retrofits.

One notable example of a municipal building retrofit, completed before the Climate Action Tax was established, is the Dartmouth North Community Centre. This retrofit was completed in fiscal 2022/23 and included electrification of the heating system using air to water heat pumps, increasing the insulation of the building envelope, upgrading the building controls, adding energy efficient ventilation, switching to LED lighting and installing 70 kW of solar. Solar PV system. With these retrofits, the energy usage of the building will be reduced by over 70%, resulting in \$30,000 of avoided operating costs each year.

Public Charging Infrastructure

This supports the implementation of the Municipal Electric Vehicle Strategy that will position the Halifax Region as an EV-ready municipality. Work includes the design, deployment and operation of public charging infrastructure that will ease range anxiety, fill gaps in the current charging network and stimulate EV adoption. While it is anticipated that the utility and private investors will support public charging deployment as the adoption of EVs increases across the province, the Municipality has the responsibility to lead in the short term.

A standard charging package has been designed that consists of one fast charger of approximately 175 kilowatts (kW) and two dual port level 2 units (maximum capacity of 19.2 kW). Through a public, multi-year request for proposals a vendor has been selected to supply and install this charging package at up to 18 locations throughout the municipality. While electric vehicles come at a premium cost, the average driver can expect to avoid \$2,000 in annual fuel and maintenance costs when compared to a conventional gas vehicle.

Fleet Electrification

As of 2020, the corporate fleet consisted of 541 light-duty vehicles. To achieve net-zero municipal operations by 2030, all vehicles must be transitioned to fully electric. Guided by the Municipal Electric Vehicle Strategy, this work includes replacing existing fleet vehicles near their end of life with a suitable electric option and installing charging infrastructure at fleet depots. As of March 31, 2023, 49 battery electric or plug-in hybrid electric vehicles were ordered. In total, six fully electric and four plug-in hybrid electric vehicles are in service. With respect to charging infrastructure, a consultant was hired to perform design work at four major depots. While there is a cost premium associated with purchasing electric vehicles, the life cycle operation costs are lower than that of gas vehicles.

Shore Road Resilience Improvements

This supports the implementation of natural infrastructure along Shore Road in Eastern Passage. Shore Road is a bus route, community access corridor, emergency evacuation route, and plays a critical role in ensuring the safety and well-being of the Eastern Passage community. A coastal analysis was completed to evaluate potential nature-based measures for the mitigation of overtopping and erosion risks at the site.

Detailed design is expected to be in the fall of 2023 with an estimated construction completion date in 2025. This work is cost-shared with Infrastructure Canada's Natural Infrastructure Fund and has an estimated cost-benefit ratio of 1:7 when accounting for protection from erosion and flooding.

Flood Mitigation

This funding will support hydrologic and hydraulic modeling to determine flood extents and mechanisms, as well as the development of conceptual design options for flood mitigation. Two locations have been completed at this time, Highway 2 in Fall River, and Pleasant Street in Dartmouth.

Pleasant Street, Dartmouth - three conceptual design options for flood mitigation were developed, with one option recommended for implementation. Hwy 2, Fall River - three conceptual design options for flood mitigation were developed. These studies represent the first phase of work to be completed in these areas. Recommended design options for implementation are currently under consideration. When constructed, this work will reduce the impacts of flooding in these areas.

Critical Infrastructure

This funding supports the protection and strengthening of critical infrastructure to withstand more serious and frequent extreme weather events to increase the safety of people and property, and to decrease disruptions of essential services. Work includes baseline climate hazard exposure maps and a review of extreme water levels to enable strategic, data-informed, and climate-aligned decision-making around critical infrastructure prioritization, emergency management, and planning. Work has also begun to create a spatial inventory of municipally owned and operated critical infrastructure within HRM. Upcoming projects include completing the Pluvial, Fluvial, and Coastal Flood Hazard Maps for HRM; conducting a multi-criteria evaluation to determine the priority of municipally owned and operated assets for critical infrastructure resiliency funding; and funding 'building back better' after disaster events to incorporate resilience measures in repair and replacement work. Mitigation of climate impacts will result in reduced costs for maintenance and repair, from both chronic and acute climate events. Investments in resilient infrastructure have an estimated return on investment of \$15 in future averted losses for every \$1 spent proactively.

Small Initiatives Bundle

This bundled account supports general climate action across the municipality including solar installations, green infrastructure projects, and demonstration projects. It also enables HRM to capitalize on relevant funding opportunities and to pilot innovative technologies.

Notable projects include the HRM Tree Giveaway, several municipal solar installations, a third-party financing study for community deep energy retrofits, plantings at Common Roots Urban Farm to reduce urban heat, buffer traffic noise and enhance stormwater management, and a refrigerated truck to increase food security in climate-vulnerable communities during power outages.

Achievements and Awards

Collective progress and action towards the targets of HalifACT has resulted in the Municipality being recognized across various platforms.

Clean50 Awards

The municipality received three national awards at the Clean50 Summit for leadership in sustainability. HalifACT was among 26 winning projects in the category of [Canada's 2023 Clean50 Top Projects](#), a group selected annually based on their innovation and ability to inform and inspire other Canadians. HalifACT also won [Canada's 2023 Clean50 Top Project of the Year](#). Finally, Shannon Miedema, Director, Environment & Climate Change, was named one of [Canada's Clean50 list of 2023 honourees](#) and was

awarded the [Clean16 Award, Leader for the Cities Category](#) recognizing stewardship and work as a sustainability professional and top contributor in the fight against climate change.

Nova Scotia Federation of Municipalities Climate Change Leaders Award

HalifACT received a [Climate Change Leaders Award](#) for the municipality's Electric Vehicle Strategy at the Nova Scotia Federation of Municipalities fall 2022 conference. The award honours municipalities that demonstrate exemplary leadership in climate change adaptation and/or mitigation through the implementation of initiatives and creation of awareness of climate-related issues.

2023 Corporate Knight's Sustainable Cities Index

Halifax ranked 11th among 70 cities in the [2023 Corporate Knights' Sustainable Cities Index](#) (CKSCI). The CKSCI measures and evaluates environmental sustainability performance in 70 cities around the globe. Cities are evaluated based on data collected from public sources or directly from the cities themselves. There are 12 CKSCI indicators, including public spaces, air pollution, water quality, energy systems, the efficiency of buildings and solid waste generation.

2022 Carbon Disclosures Project Cities A List

Halifax was recognized as one of 122 cities worldwide to receive the highest score possible (an A) for environmental action and transparency by Carbon Disclosure Project (CDP) 2022 reporting. Cities receiving an A score demonstrate climate leadership through concerted and effective action and take three times as many mitigation and adaptation measures as non-A List cities. CDP is [a global, non-profit charity](#) that runs the world's disclosure system for investors, companies, cities, states and regions to assess their environmental impact and drive the urgent action needed to reduce greenhouse gas emissions, safeguard water resources and protect forests. CDP reporting is a commitment of Regional Council through HalifACT.

FINANCIAL IMPLICATIONS

There are no financial implications associated with this recommendation report.

RISK CONSIDERATION

No risk considerations were identified.

COMMUNITY ENGAGEMENT

Significant community engagement was completed during the development of the HalifACT plan and there has been ongoing stakeholder engagement during the early implementation of the plan. Stakeholders were asked to contribute updates on their respective actions for HalifACT implementation, which are included in this report.

ENVIRONMENTAL IMPLICATIONS

There are significant positive environmental implications associated with the implementation of HalifACT.

ALTERNATIVES

That Environment and Sustainability Standing Committee refuse to forward the report to Halifax Regional Council. This is not recommended as a presentation and discussion with Halifax Regional Council offers increased transparency and understanding with respect to the implementation of HalifACT.

ATTACHMENTS

| | |
|--------------|--------------------------------|
| Attachment A | HalifACT Report Card - 2022-23 |
| Attachment B | Community Updates - 2022-23 |

A copy of this report can be obtained online at halifax.ca or by contacting the Office of the Municipal Clerk at 902.490.4210.

Report Prepared by: Kevin Boutilier, Clean Energy Manager, Property, Fleet & Environment 902.719.8567

Attachment A

HalifACT Progress Report Card 2022-23

Progress in this Report Card is assessed in terms of HRM’s responsibilities and does not include progress made by external stakeholders. The state of progress is defined according to the following:

- **Green:** Progress was made on this action in 2022-23 and the work is tracking towards associated HalifACT targets.
- **Yellow:** Little to some progress was made on this action in 2022-23, and the action is at risk of falling behind in its associated HalifACT targets.
- **Red:** Minimal to no progress was made on this action in 2022-23 and the action is falling behind in its associated HalifACT targets.
- **Blue:** Action progress in 2022-23 was contingent on/awaiting action from other stakeholders like the Government of Canada or the Province of Nova Scotia.
- **Future Action:** Implementation of action is slated for a later date and has not yet begun.

Note that the score reflects the progress that was made during the period of April 1, 2022 to March 31, 2023, and does not reflect the progress that has been made since this period. A summary of the work that took place in 2022-23 is described under each action below.

Efficient Buildings

| HalifACT Actions | Intended Start Date | Core Area | Action Lead | Actively Supporting | Progress 2022-2023 |
|--|---------------------|-----------|------------------------------------|---------------------|--------------------|
| EFFICIENT BUILDINGS | | | | | |
| 1. Net-zero & climate resilient new construction | 2020 | 4 | P&D – Buildings and Compliance | PFE-ECC | Blue |
| 2. Residential and non-residential deep retrofit program | 2020 | 1 | PFE – Environment & Climate Change | -- | Yellow |
| 3. Industrial coalition and support program | 2026 | -- | PFE – Environment & Climate Change | CAO-GREA | Future Action |

Action 1 – Net Zero and Climate Resilient New Construction – Contingent on action from other stakeholders

Starting in 2020, develop, adopt and apply a net-zero and climate resilient program for new construction that:

- Sets standards and requirements for energy efficiency, renewable energy generation, climate resilience, EV charging, indoor air quality, and solid waste for new residential and non-residential construction so that by 2030, all new construction is net-zero and is designed and built to withstand future climate conditions; and
- Is applied to all new residential and non-residential development and is applied to new construction of municipal buildings.

Administrative Order for Net-Zero Construction: In November 2021, HRM adopted [Administrative Order 2021-002-OP Respecting Net-Zero Construction of New Municipal Facilities Within The Halifax Regional](#)

Municipality to address net-zero requirements in our corporate buildings. This AO mandates that all new corporate buildings be designed and constructed to either a net-zero or net-zero ready standard. HRM's corporate buildings make up about 1% of community-wide emissions; while this is low, the Municipality has the responsibility to lead and demonstrate practices that will encourage broader emission reductions and help spur economic development. Notable net-zero or net-zero ready buildings for this fiscal include the new Mackintosh Depot, Grahams Grove which is expected to reach substantial completion in the Spring of 2023 and the Commons pool.

Federal Tiered Energy Code: As per the Nova Scotia *Environmental Goals and Climate Change Reduction Act*, which passed in November 2021, the Province committed to adopt the new Federal Tiered Code within 18 months of its publishing date, meaning by late Summer 2023. Based on discussion with the Province, a workforce and market-ready assessment has been completed and a specific tier of the code will be enforced. There is no indication that the Province will allow individual municipalities to mandate higher tiers of the code at this time. Staff are investigating planning policies that could be recommended to Halifax Regional Council to encourage higher efficiency building construction.

Action 2 – Residential and Non-Residential Deep Retrofit Program – Some progress

Starting in 2020, develop a retrofit program to enable and fast-track energy and climate resilience retrofits in the residential and non-residential sector, so that by 2040, 100% of existing buildings undergo deep retrofits.

Action 2 is rated as “some progress” because the program is still under development with several pilots underway.

Community Deep Energy Retrofit Program: To achieve a 50% reduction in energy demand for all residential and non-residential buildings in HRM by 2040, as outlined in HalifACT, a Deep Energy Retrofit pilot program was approved by Halifax Regional Council in July 2021.¹ The pilot uses the same financing mechanism as the Solar City Program, but participants are offered a ‘navigator’. The navigator acts as a project manager and the key point of contact for advice and education, and will be responsible for coordinating all subtrades, financing and rebate approvals. HRM is working with both Efficiency Nova Scotia and Thinkwell Shift to administer the pilot and gather data needed to inform a full program.

A third-party financing study was completed by Dunsky Energy + Climate Advisors and offers recommendations of financing options and support needed to expand deep energy retrofits. The intention of the study was to enable broad participation and outline high-level requirements for suitable financing mechanisms for the full Deep Energy Retrofit program. A weekly working group with Finance and Asset Management has been established to work through the recommendations outlined in the study.

Industry Support: HRM is a foundational partner in the development of the Building to Zero Exchange (BTZx). The mandate of BTZx is to engage stakeholders throughout the building sector including builders, designers, architects, engineers, industry associations, governments, trades programs, suppliers and others who are committed to energy efficiency, low-carbon, net-zero market transformation. BTZx will amplify the work in the sector, encourage innovation and fill gaps that might include, research, training, demonstration projects and stakeholder dialogue and engagement. This collaborative model will support the building industry on its path to net zero.

¹ Halifax Solar City Program Update and Future Program Recommendation, Halifax Regional Council Recommendation Report <https://www.halifax.ca/sites/default/files/documents/city-hall/regional-council/210720rc1121.pdf>

Resilient Retrofit Initiative: In partnership with Partners for Action at the University of Waterloo, a thorough review of resilient retrofits for eight hazards was completed on five building archetypes. The hazards included wildfires, extreme heat, extreme wind, extreme precipitation, drought, coastal and overland flooding, ice, snow and ice.

Resiliency Retrofit Pilot: In partnership and with financial support from Halifax Regional Municipality and the Town of New Glasgow, the Clean Foundation is piloting a climate resiliency retrofit program for 20 homeowners (ten in each region). The pilot is designed to increase the homes' resiliency to flooding events, build knowledge of flooding and insurance, and address capacity and financial barriers. The pilot will provide free no-hassle flood prevention retrofits and empower them with the skills to maintain the completed retrofits. This will include a public education component to help communities understand and plan for localized flood risk. The prospective completion date of the pilot project is December 2024.

Renewable Energy

| HalifACT Actions | Intended Start Date | Core Area | Action Lead | Actively Supporting | Progress 2022-2023 |
|---|---------------------|-----------|--|---------------------|----------------------|
| RENEWABLE ENERGY | | | | | |
| 4. Rooftop solar PV and energy storage program | 2020 | 1 | PFE – Environment and Climate Change | -- | |
| 5. Community scale solar PV and wind generation | 2020 | -- | PFE – Environment and Climate Change | -- | |
| 6. Create Coalition to expand and decarbonize district energy systems | 2026 | -- | PFE – Corporate Facility Design & Construction | PFE-ECC, CAO-GREA | Future Action |
| 7. Advocate and support provincial electricity grid decarbonization | 2022 | -- | PFE – Environment and Climate Change | CAO-GREA | |

Action 4 – Rooftop Solar PV and Energy Storage Program - **Some progress**

Significantly scale up or revamp the existing Solar City program to fast-track rooftop solar PV installations and energy storage with the target of installing 1,300 MW solar PV by 2030.

Solar City Program: As of December 31, 2022, 757 Solar City Participant Agreements have been executed, totalling \$20 million in financing committed to the installation of solar energy technologies as of December 31st, 2022. These systems are expected to save property owners a total of \$1.43 million annually in utility costs and reduce annual greenhouse gas (GHG) emissions in the community by approximately 6,080 tonnes of carbon dioxide equivalent (tCO2e). To date, the Solar City Program has enabled the installation of 7.30 megawatts (MW) of renewable energy in the municipality.

Action 5 – Community-Scale Solar PV and Wind Generation - **Contingent on action from other stakeholders**

With partners, develop and/or participate in local community renewable energy initiative that coordinates and advances the development of utility-scale renewable energy generation.

The Shared Solar Program: Passed in 2021, Bill 97 amended the N.S. Electricity Act to allow the development of a “shared Solar Program”. This program would permit any resident the ability to purchase solar energy from a solar garden developed by a Municipality, First Nation, Co-op or not-for-profit group. The province intends to launch the program later this year.

In August 2022, HRM conducted a preliminary investigation of a large scale solar electric system at the closed Highway 101 Landfill. Among other findings, the results of the investigation found that the landfill site could support up to a 4.8MW DC solar electric system (approximately 8,200 panels). A conceptual cost estimate for a system of this size is \$5,600,000. Based on the financial and performance assumptions listed in the report, the proposed system would generate 3.4 GWh annually, resulting in a levelized cost of electricity of 8.8 cents/kWh. HRM is considering its options for next steps.

The Green Choice Program: In Winter of 2023, HRM resubmitted its expression of interest to the Nova Scotia Green Choice Program (GCP) to procure 100% of Halifax’s electricity needs (75GWh). The GCP offers large-scale electricity consumers the option of purchasing 100% of their annual electricity need through new, local renewable sources. An RFP will be issued shortly by the province to procure 350 MW of wind which is expected to be online in 2027/28. HRM is waiting for the GCP application to open to formally apply to the program.

Action 7 – Advocate and support decarbonization of the provincial electricity grid – Progressing

As outlined in the Act, the Government’s targets for greenhouse gas emissions reductions include having 80% of electricity in Nova Scotia supplied by renewable energy by 2030. HRM will continue to work with NSP on achieving this target. Environment and Climate Change staff regularly collaborate and strategize with the provincial departments of Environment & Climate Change, and Natural Resources & Renewables.

Decarbonizing Transportation

| HalifACT Actions | Intended Start Date | Core Area | Action Lead | Actively Supporting | Progress 2022-2023 |
|---|---------------------|-----------|--|-------------------------|--------------------|
| DECARBONIZING TRANSPORTATION | | | | | |
| 8A. Expand transit infrastructure | 2020 | 3 | Halifax Transit – Planning & Customer Engagement | P&D-IP, PW-DCS, PFE-CRE | |
| 8B. Expand active transportation infrastructure | 2020 | 3 | PW – Project Planning & Asset Management | P&D-IP, PW-DCS | |
| 9. Community-wide EV strategy | 2024 | 3 | PFE – Environment and Climate Change | PFE-CF, PW-PS | |
| 10. EV planning and policy | 2020 | 3 | P&D – Regional Planning | PFE-ECC | |

Time of Day Demand Based Parking: A new time of day demand-based parking pricing model was introduced along with a 25% increase in parking rates. Ideally, this should see cost increases to be competitive with or higher than off-street parking costs therefore disincentivizing single car use in the core. In addition, a policy was implemented to allow for car-share vehicles to park anywhere for free in

the downtown. Staff will continue to monitor trends and return to Council with recommendations on rates. Studies have shown that competitive rate structures influence decisions about transit and active transportation.

Action 8.A – Build out transit infrastructure according to Integrated Mobility Plan – Some progress

By 2030, build out the transit infrastructure needed to achieve the 2030 mode share targets set out in the Integrated Mobility Plan.

Action 8.A is rated as “some progress” as there have been project delivery challenges like land acquisition and increased capital costs.

Action 8.A links to the implementation of the Integrated Mobility Plan (IMP), which was adopted in 2017 to direct investment in transportation demand management, transit, active transportation, and the roadway network. The IMP lays out a roadmap for achieving mode share targets set in the 2014 Regional Plan, which are to achieve at least 30% of all trips made by walking, rolling or transit and no more than 70% of trips made by private vehicle.

Priority Transit Corridors: Halifax Transit has been implementing transit priority lanes in key corridors to improve the reliability of transit services. In 2022-23, an interim outbound transit priority lane was successfully implemented and saw improvements to transit service in the Bayers Road area, including the reinstatement of Route 1 on this section of Bayers Road. The Robie Street transit corridor project is continuing, which includes work to build bus-dedicated lanes in both directions in the corridor between Quinpool Road and Windsor Street. Both projects will continue into 2023-24, including land acquisition.

Transit Priority Measures: Work continues on the Windsor Street Exchange Redevelopment, the Water Street and Herring Cove Road Functional Plans, the Spring Garden Road streetscaping project and the Rainie/Brunswick and Dutch Village Road Complete Streets projects. This work includes analysis of transit gaps, and looking into ways that transit corridors can be created or improved as part of these major infrastructure projects.

Action 8.B – Build out active transportation infrastructure according to Integrated Mobility Plan - Some progress

By 2030, build out the transit infrastructure needed to achieve the 2030 mode share targets set out in the Integrated Mobility Plan.

Action 8.B links to the implementation of the IMP, as detailed above in 8.A.

Regional All Ages and Abilities (AAA) Bike Network: The Regional Centre AAA Bike Network is a project to implement safer, more accessible and multi-modal connected pathways in the regional center. In 2022-23, HRM added a total of 2 kilometers of new AAA infrastructure and reached 45% of the targeted network total distance. This included Exit 0/Joseph Howe intersection upgrades; Chain of Lakes Trail to Bayers Road Local Street Bikeway (Elliott Steet to Ralston Avenue tactical installation); Dahlia Local Street Bikeway Phase 2; Cogswell District multi-use pathway (tactical installation), among other projects. HRM continued with the success of the “Get There By Bike” marketing campaign to increase public awareness of this new infrastructure through in person events and online resources.

Action 9 – Community-wide Electric Vehicle Strategy – Progressing

Starting in 2020, establish an electric vehicle joint venture with partners to significantly increase the uptake of personal and commercial EVs in Halifax.

Halifax Regional Council committed \$4.5 million to support the Municipal Electric Vehicle Strategy (the Strategy) and in August, an FTE was hired to lead its implementation. Managed by this FTE, WSP has completed 66% drawings for a fast-charging package (175kW) at 8 sites identified in the Strategy as ideal for public charging. Using this design, a multi-year RFP has been issued for the supply and install of public charging infrastructure at up to 18 sites in HRM over three years. In consultation with Nova Scotia Power, academia, and industry experts, user fees for public charging have been determined and will be recommended to Halifax Regional Council this spring.

Action 10 – Electric Vehicle Planning and Policy – Progressing

Prepare for and catalyze EV uptake through HRM planning and policy.

As per direction of Halifax Regional Council, two letters were sent from the Mayor to the Province regarding EV policy. The first requests that the Province establish a strong Zero Emission Vehicle Mandate to ensure Nova Scotians have fair and equal access to electric vehicles. The second was to request authority to mandate EV Ready parking stalls in new construction. At the suggestion of the province, HRM will be relying on its existing by-law making authority to mandate EV ready parking stalls in parking areas. Through the ongoing Regional Plan Review project, Planning & Development staff are preparing amendments to the Regional Plan and all land use by-laws requiring EV Ready parking stalls in new construction.

Greening Government Operations

| HalifACT Actions | Intended Start Date | Core Area | Action Lead | Actively Supporting | Progress 2022-2023 |
|--|---------------------|-----------|---|---------------------|--------------------|
| GREENING GOVERNMENT OPERATIONS | | | | | |
| 11.A Net-zero municipal operations – municipal buildings and fleet | 2022 | 2 | PFE – Facility Design & Construction, Corporate Fleet | PFE-ECC | |
| 11.B Net-zero municipal operations – transit | 2022 | 2 | Halifax Transit- Planning & Customer Engagement | PFE-ECC | |
| 11.C Net-zero municipal operations – solid waste | 2022 | 2 | PW – Solid Waste | PFE-ECC | |

Action 11.A - Net-zero municipal operations (Municipal buildings and fleet) – Progressing

Adopt a commitment, develop a costed plan and implement net-zero municipal operations by 2030, including net-zero and climate resilient new buildings; retrofitting existing buildings by 2030; electrification of municipal fleets; and renewable energy generation and purchase.

Net-Zero New Construction: As per the Administrative Order 2021-002-OP mentioned above, notable net-zero or net-zero ready buildings for this fiscal include the new Mackintosh Depot, Grahams Grove

which is expected to reach substantial completion in the Spring of 2023 and the Commons pool which has a target to open in July 2023.

Deep Energy Retrofits: Staff continue to track energy consumption data in ENERGY STAR Portfolio Manager which has now been made publicly available through HRMs Open Data portal.

Notable deep energy retrofits underway include the Keshen Goodman Library, Acadia Centre, Bi-Centennial Theatre, MacPhee House and the Blackpoint Fire Station. The latter four buildings will see fuel conversions away from oil. The following facilities are currently in the design stage: Sackville Sports Stadium, Cole Harbour Place, Alderney Gate, North Preston, East Preston, Upper Hammonds Plains, Wallace Lucas and Chocolate Lake community centres. Tenders for design have been issued for Sackville Transit Terminal and the Eastern Shore Arena.

Notable solar installations completed this fiscal include 70kW at the Dartmouth North Community Centre, 80kW at the new Mackintosh Depot and 35kW at the Acadia Centre. Solar design work is currently at the Sackville Terminal, East Preston Community Centre, Wallace Lucas Community Centre, Ragged Lake Transit Centre and the Keshen Goodman Library.

HRM Fleet Transition: During this fiscal year, 49 battery electric (BEV) or plug-in hybrid electric vehicles (PHEV) were ordered with 6 being delivered and put into service. In total, six fully electric and four plug-in hybrid electric vehicles are in service. To ensure adequate charging infrastructure is in place for these vehicles, CBCL was hired to perform design work at the following depots: Cowie Hill, Eric Spicer, Garland and Alderney Landing. When the designs are complete, a tender for the supply and install will be issued.

Action 11.B - Net-zero municipal operations (Transit) – Some progress

Adopt a commitment, develop a costed plan and implement net-zero municipal operations by 2030, including the electrification of HRM transit and other transit fleet vehicles, including ferries, by 2030.

Action 11.B is rated as “some progress” because there is currently no plan for transitioning the entire transit fleet to zero emitting by 2030.

Electric Buses: In 2021, HRM secured services to supply and deliver 60 battery electric buses and chargers for HRM’s Transit Fleet. In anticipation of delivery of electric buses, the vendor loaned a demo bus for HRM staff to test and train with. Pre-build activities related to the vehicle procurement took place, including discussions on delivery timelines, bus branding, and technical specifications. This included a pilot charger being installed onsite at the Ragged Lake Transit Centre for testing purposes.

Ragged Lake Transit Centre: The Ragged Lake Transit Centre project includes a 4,600 square meter net-zero energy expansion of the existing Operations Centre, as well as installation of equipment to service 60 new battery-electric buses. The building expansion design for the facility was completed in 2022-23 and the TRP for construction will be awarded early in the next fiscal.

Mill Cove Electric Ferry: In June 2021, Halifax Transit commissioned a study to explore technology options for a new ferry from Mill Cove in Bedford to downtown Halifax. The study found that to align with HalifACT, five electric ferry vessels would be the most feasible option. A preliminary design for the new ferry terminal and the retrofit of the Halifax terminal was completed and a funding application to the Investing in Canada Infrastructure Program (ICIP) for the implementation of Mill Cove Ferry Service is being submitted.

Action 11.C - Net-zero municipal operations (Solid waste) – Progressing

Adopt a commitment, develop a costed plan and implement net-zero municipal operations by 2030, including the reduction of emissions from waste.

Strategy Review: A terms of reference document for the Solid Waste Strategy Review was approved by Regional Council on February 7, 2023. This work will improve waste diversion and align Halifax's Solid Waste Strategy with HalifACT.

Organics Management: To replace aging infrastructure, the design, construction, and commissioning of a new 60,000 tonne per year composting facility is underway. The site is planned to be operational by 2024.

Diversion at HRM Facilities: To facilitate diversion and best practices, an assessment of waste management practices in all municipal facilities has been completed. Staff completed improvements to waste management practices at HRM facilities identified in 2021-22. In addition, diversion improvements were made at 37 HRM facilities, including adding source separation bins (e.g., recycling, organics), improved signage, and ensuring waste materials were being appropriately managed. Also, curbside collection services were provided to 10 eligible HRM-owned properties in rural areas of the municipality (i.e., included in residential collection program).

Diversion of Pet Waste: In collaboration with Parks and Recreation, a pilot project was successfully delivered that evaluated diverting pet waste generated in parks from landfill disposal. The use of in ground dog waste receptacles were used and was favorably viewed by the public and staff.

Multi-unit Residential Diversion: To support diversion, Solid Waste Resources offered a course to Property Managers to review solid waste and diversion fundamentals in multi-residential properties. CapREIT and Killiam Property Management Groups completed the Waste Management Certification, with twenty Property Managers attending the two sessions, most of whom oversee multiple multi-residential properties. Solid Waste Resources will continue to offer the course in future years and proactively engage property management companies to participate.

Carbon Footprint Assessment: Staff retained a consultant to develop a greenhouse gas model of HRM's solid waste system. The model, including final report, have been finalized and accepted by staff. The computer model can be used by staff to track and update annual greenhouse gas emissions and assess impacts of new initiatives that may be considered to mitigate emissions. Additionally, staff retained a consultant to review the condition of the landfill gas collection field and options for a landfill gas treatment system at the Highway 101 Landfill. The consultant's report identified several options including costing. In addition, the report identified data gaps that need to be addressed before a preferred option can be selected.

Water

| HalifACT Actions | Intended Start Date | Core Area | Action Lead | Actively Supporting | Progress 2022-2023 |
|--|---------------------|-----------|--------------------------------------|------------------------|----------------------|
| WATER | | | | | |
| 12. Net-zero water and wastewater operations | 2024 | -- | Halifax Water | P&D-IP | |
| 13.a Climate-informed water supply strategy – municipal service boundary | 2024 | -- | Halifax Water | PFE-ECC | |
| 13.b Climate-informed water supply strategy - outside service boundary | 2024 | -- | PFE – Environment and Climate Change | -- | Future Action |
| 14. Climate-informed stormwater management plan and program | 2020 | 5 | P&D – Infrastructure Planning | PFE-ECC, Halifax Water | |

Action 12 – Net-zero water and wastewater operations – Progressing

Adopt a commitment and develop a plan to achieve net-zero water and wastewater operations by 2030.

Community Solar PV and Renewable Energy: Halifax Water has continued to progress in their construction of on-site renewable energy as well as the purchase of clean electricity. The Aerotech Waste Water Treatment Facility Solar PV - Construction & Commissioning was completed in May 2022.

Cogswell District Energy System: Halifax Water continued to advance the Cogswell District Energy project within the Cogswell Redevelopment Area in downtown Halifax. Initial regulatory approval was received in Fall 2022, with ongoing utility development activities occurring. Construction is ongoing and initial regulatory approval was received in Fall 2022, with ongoing utility development activities occurring.

Aerotech Biosolids Processing Facility: The existing Aerotech Best Practices Framework will be upgraded by 2026 to enhance resource recovery through Renewable Natural Gas generation via anaerobic digestion, which will be produced at a rate of 80,000 GJ annually increasing to 140,000 GJ annually by 2046. To advance this, a request for proposal and purchase agreement document are currently in development.

Action 13.A – Climate informed water supply strategy in the municipal boundary – Progressing

Develop a holistic water supply strategy with climate as its core focus.

Water Supply and Dams Risk and Vulnerability Assessment: In alignment with Halifax Water's Climate Change Management Framework, this pilot program is the first climate change risk and vulnerability assessment to be conducted by Halifax Water. The key objectives of the pilot involved developing a climate change risk assessment methodology and testing this methodology through application on two target asset classes. The Risk Assessment report was reviewed and finalized in 2022-23, with plans to proceed to other asset classes.

Water Safety Plan: Halifax Water is developing a Water Safety Plan which will be a comprehensive and adaptive risk assessment and risk management approach to water quality from source to tap. In 2022-23, system assessment reports were completed for seven water supply systems. A water safety plan governance document and risk tracking process have been initiated.

Safe Yield Study: Halifax Water is seeking a better understanding of the safe yield of each water source for planning purposes. In 2022-23, Halifax Water completed field investigations for feasibility and instrumentation siting.

Action 14 - Climate informed stormwater management plan and program – Some progress

Develop a holistic integrated stormwater management plan and program with climate as its core focus.

Action 14 is rated as “some progress” because there is currently no policy in place for stormwater management, nor have all identified projects been fully financed or implemented.

Development of a Climate Action Plan for Halifax Water: A climate action plan is being developed to guide planning and investment decisions and ensure long-term resiliency of its infrastructure. It will also allow Halifax Water to establish targets and track the progress of mitigative measures and adaptation strategies.

Stormwater Management Best Practices: Staff completed a jurisdictional review of standard details for stormwater best management practices including bioretention, bioswales, integrated tree-cells and naturalized stormwater ponds. Additionally, Halifax Water, Transportation & Public Works, Planning & Development, and Environment & Climate Change are working to develop and maintain Stormwater Best Management Practice standards for use in the public right-of-way. Specifically, HRM is working with partners to identify additional pilot project sites to showcase best management practices, and is developing a public education campaign focused on actions that homeowners can take to reduce the impact of stormwater on their property (e.g. rain gardens, rain barrels, etc.).

Critical Infrastructure and Services

| HalifACT Actions | Intended Start Date | Core Area | Action Lead | Actively Supporting | Progress 2022-2023 |
|---|---------------------|-----------|--|---|----------------------|
| CRITICAL INFRASTRUCTURE AND SERVICES | | | | | |
| 15. HLRA for critical infrastructure in the municipality | 2020 | 5 | PFE – Environment and Climate Change | HRFE-EM, Halifax Water | |
| 16. Risk and vulnerability analysis for critical infrastructure owned and operated by HRM | 2020 | 5 | PFE – Environment and Climate Change | HRFE-EM, P&D-IP, PFE-FDC, PW-PPAM, PW-DCS, FAM-AM | |
| 17. Zero emissions back-up power in critical infrastructure | 2026 | -- | PFE – Facility Design & Construction | -- | Future Action |
| 18.a Develop inspection procedures for high-risk | 2026 | -- | PW – Infrastructure Maintenance & Operations | -- | Future Action |

| HalifACT Actions | Intended Start Date | Core Area | Action Lead | Actively Supporting | Progress 2022-2023 |
|--|---------------------|-----------|--|---------------------|--------------------|
| infrastructure - transportation | | | | | |
| 18.b Develop inspection procedures for high-risk infrastructure - buildings | 2026 | -- | PFE – Facility Design and Construction | -- | Future Action |
| 19.a Updated and climate-informed design standards for new infrastructure - transportation | 2022 | 1 | PW – Design & Construction Services | PFE-ECC, P&D-IP | |
| 19.b Updated and climate-informed design standards for new infrastructure – buildings | 2022 | 1 | PFE – Facility Design and Construction | PFE-ECC, P&D-IP | |

Action 15 - High-Level Risk Assessment for critical infrastructure in the municipality – Minimal progress

Conduct a High-Level Risk Assessment, with internal and external stakeholders, to assess the ability of critical infrastructure systems in the municipality to operate and withstand future climate and extreme weather.

Action 15 is rated “minimal progress” for 2022-23 as other critical infrastructure owners have yet to be engaged.

Hazard, Risk and Vulnerability Analysis: The Hazard, Risk and Vulnerability Analysis assesses known potential hazards, and how the geographic exposure and community socioeconomic situation can impact a community’s resiliency. A two-year contract was resourced by HalifACT to support and develop the HRVA with support from a consultant. This work is to be completed by the end of fiscal year 2023-24.

Action 16 – Risk and Vulnerability Analysis for critical infrastructure owned and operated by HRM – Minimal progress

Conduct a spatially-based risk and vulnerability analysis of HRM owned and operated critical infrastructure at the asset class and system level.

Action 16 is rated “minimal progress” for 2022-23 as the inventory of municipally-owned critical infrastructure is still underway.

Critical Infrastructure Prioritization Project: To assess the risk and vulnerability of HRM’s owned and operated critical infrastructure and prioritize and increase resilience of infrastructure at greatest risk to current and future climate impacts, a hazard mapping project was initiated. These hazards include changing winter temperatures, flooding, extreme heat, wind, snowfall, rainfall, and drought.

Shore Road Green Shores Natural Infrastructure Project: This project was approved for 60% matching funding under Infrastructure Canada’s Natural Infrastructure Fund. Initial assessments were completed

including a Species at Risk Assessment, an Archeological Resource Impact Assessment, Underwater Benthic Habitat Survey, and Coastal Assessment. Concept plans for this project are in the draft stages.

Action 19.a – Updated and climate-informed design standards for new infrastructure – transportation – Some progress

Update standards for both new municipal and private infrastructure that incorporates forward-looking climatic information to ensure infrastructure is built to be low/zero-carbon and climate resilient. Work with external standard-setting organizations to advance this work.

Update Standards: To reflect climate change adaptation as it relates to the cross section of roadways, the Transportation Association of Canada Geometric Design Guide Cross Sections Chapter requires updating. This work is being done through the Transportation Association of Canada (TAC), with Halifax as the lead agency. The project has received full funding and was launched by TAC in the fall of 2023. We currently design our new and replacement bridge structures to include climate change factors relating to storm water, specific to bridge locations. In addition, there is currently a study underway to identify flooding risk across the municipality.

Action 19.b – Updated and climate-informed design standards for new infrastructure – buildings – Contingent on action from other stakeholders

Update Standards: To reflect climate change adaptation considerations in the design of new buildings infrastructure, Infrastructure Canada is currently computing climate design values that take future climatic changes into account. This work, combined with research and guidance by the National Research Council, will help ensure that designing for climate resilience is integrated into the engineering and design processes. Concurrently, Environment & Climate Change and Facility Design & Construction are collaborating to integrate climate resiliency considerations in new and retrofit building projects. One example is the Design Consulting Services for the new Eastern Shore Lifestyle Centre. The design work will include a Climate Change Resilience Assessment and a return-on-investment assessment to consider climate resilience structural options, best practices options, and value through the long-term life span of the proposed infrastructure.

Natural Areas and Green Infrastructure

| HalifACT Actions | Intended Start Date | Core Area | Action Lead | Actively Supporting | Progress 2022-2023 |
|---|---------------------|-----------|--|-------------------------------------|--------------------|
| NATURAL AREAS AND GREEN INFRASTRUCTURE | | | | | |
| 20.a Fund and implement Green Network Plan | 2020 | 6 | P&D – Regional Planning | PFE-ECC, P&R-SPD | |
| 20.b Fund and implement Urban Forest Master Plan | 2020 | 6 | PW – Infrastructure Maintenance & Operations | -- | |
| 21. Implement region-wide naturalization program | 2020 | 6 | P&R – Parks | PFE-ECC, PW-PPAM, PW-DCS, P&D-RP | |
| 22. Implement region-wide tree planting and re-greening program | 2020 | 6 | PW – Infrastructure Maintenance & Operations | PFE-ECC, PW-PPAM, PW-DCS, P&R-Parks | |

Action 20.a – Fund and implement the Green Network Plan – Some progress

Draft Regional Plan: Approved in October 2022, Phase 3 of the Regional Plan Review, included amendments to the Regional Plan to include policy requiring discretionary applications to consider the actions of the Green Network Plan. Phase 4 of the Regional Plan Review is ongoing, with the Draft Regional Plan written to introduce policy to further work in defining wildlife corridors and develop policy triggers to protected and implement these connections. In 2023-24 funding for a Green Network Coordinator position will be included in the budget to advance the Green Network Plan and coordinate between various Business Units. Work will be ongoing into Phase 5 to continue refining the wildlife corridors and work on partnerships.

Park Planning: To support the Green Network Plan in 2022-23, the West Bedford Park Facilities Plan was completed, and the Rehab Lands Park Plan was presented to Halifax Regional Council. Additionally, background studies for Blue Mountain Birch Cove Lakes, as part of the National Urban Park initiative with Parks Canada, were finalized and consultation for the Halifax Common Master Plan and Indigo Shores Park Plan was completed. These will both be presented to Regional Council in 2023-24.

Action 20.b – Fund and implement the Urban Forest Master Plan – Some progress

Urban Forest Master Plan Update: In 2023, a proponent was hired to update the plan. The objectives of update are to:

- Understand how the community values the urban forest to better guide management and investment accordingly.
- Include measurable targets and indicators to enable monitoring of success.
- Incorporate modern best practices in urban forestry and consider technologies that can maximize the value to community of Halifax's urban forest.
- Provide an overview of current approaches to urban forest management in HRM, and a prioritized series of actions/ policies to undertake going forward.
- Provide a practical long-term plan to achieve a sustainable, healthy, and equitable urban forest in Halifax.

The plan update is scheduled to be completed by the end of March 2024.

Street Tree Planting and Maintenance: This season saw the successful planting of 2,007 caliper street trees under the UFMP planting program, falling short of the 3,100-tree planting goal. Since the adoption of the UFMP, 62% of the target planting has occurred. Into the 2023-24-year, capital funding for tree planting was reduced. However, a carryforward of unused amounts from the 2022/23 season means that planting targets remain 3,100 for the 2023/24 season.

To properly inventory municipally-owned street trees, a procedure was created to incorporate imagery-based data capture technology. An inventory of districts 5 and 6 was successfully completed, with districts 4 and 16 planned for completion in 2023/24. To support the inventory, a co-op student position for 2023-24 has been included in the budget.

With respect to cyclical pruning of ornamental trees, the 2022/23 year saw a focus on areas outside of the urban core. In total, 2,479 mature trees were pruned under the cyclical program in 2022/23. To

improve the resiliency of high value trees, trees most susceptible to hurricane damage will be prioritized for corrective pruning in 2023/24.

Red Book “Tree Chapter”: As part of the Municipal Design Guidelines “Red Book” updates, a new chapter was developed specific to supporting and maintaining street trees throughout the Halifax Region. Capital and development related construction in the Municipality continue to be guided by the “Tree Chapter” of the Municipal Design Guidelines, ensuring best management practices for establishment and protection of urban tree canopy and associated natural infrastructure.

Dalhousie University Research & Monitoring: Initiated when the UFMP was approved, this partnership leverages resources and students to assist with monitoring of the street tree planting program as well as assisting with public education, outreach, and various other research initiatives related to the urban forest and naturalization. A total of ten Tree Tours (in collaboration with Halifax Tree Project and hosted by Councillors in their respective Districts) ran during the spring and fall season. A Pilot Tree Planting Project on Lawrence Street was led by the Dal Research & Monitoring team, which saw the planting of smaller caliper trees. The goal is to assess the performance of smaller, less expensive trees that may be considered in future planting projects. In collaboration with Halifax Tree Project, HRM cohosted a Trees and Climate Change Workshop. Including external and internal stakeholders, the workshop sought to solicit opinions on the role of urban forestry in climate change mitigation and adaptation to support the update to the Urban Forest Master Plan.

Action 21 – Region-wide naturalization program – Some Progress

Continue the naturalization program through pilot projects, public education and awareness to support the development of region-wide naturalization programming.

Naturalization Strategy: On July 7, 2022, Halifax Regional Council approved an expansion of the naturalization pilot to a municipal-wide program and to include resources in the 2023/24 operating budget to support the program.

Naturalization Pilot Program: As a step in the development of a broader naturalization program, algae control measures at Griffins Pond, that have been ongoing since 2021, are beginning to see positive effects with browning vegetation. To increase the reduction in pond weeds and improve water flow, the pond pump was re-commissioned. This project outlines to the timelines on how to view successful implementation of biobased solutions and the need for long term follow up reviews.

Community Garden Support: The Community Garden Handbook was updated in February 2023, which sets out the rules and procedures for establishing a community garden on municipal property. HRM has funded the Hope Blooms Green Labs, which is an education program for children and youth. The program offers workshops to schools to teach experiential science, environmental stewardship, renewable energies, and health in an outdoor setting. The Neighborhood Seed Kit program saw the distribution of seed kits to 20 neighbourhoods. These kits will be used to grow vegetables and build stronger social connections amongst communities. Finally, the George Dixon Community Garden Community group has worked toward identifying leaders and will be applying to be a garden under the Community Garden Program in following fiscal year. In the interim, HRM has approved providing fruit trees for the location.

Action 22 – Implement region-wide tree planting program – Minimal progress

With partners, develop and implement a region-wide tree planting and re-greening program.

Actions 22 is rated “minimal progress” for 2022-23 as no such program has been designed. This will be incorporated into the Urban Forest Master Plan Update.

Public Tree Planting: Approximately 1,000 trees at two locations in HRM were offered on a first come, first served basis. A selection of tree varieties was available, including a limited number of edible fruit trees. In Partnership with Environment & Climate Change and Just Food Halifax, two more giveaways are planned for the fall of 2023.

Planning

| HalifACT Actions | Intended Start Date | Core Area | Action Lead | Actively Supporting | Progress 2022-2023 |
|--|---------------------|-----------|-------------------------|---------------------|----------------------|
| PLANNING | | | | | |
| 23. Integrate climate into land-use planning | 2022 | E | P&D – Regional Planning | PFE-ECC, P&R-SPD | |
| 24. Planning policy to enable district energy and microgrids | 2024 | -- | P&D – Regional Planning | PFE-ECC, PFE-FCD | Future Action |
| 25. Land protection and conservation on private lands | 2020 | 6 | P&D – Regional Planning | PFE-ECC, P&R-SPD | |
| 26. Preservation of natural areas | 2020 | 6 | P&D – Regional Planning | PFE-ECC, P&R-SPD | |

Action 23 – Integrate climate into land-use planning – Progressing

Integrate climate into land use planning policies and processes to reduce the upward trend of emissions associated with growth, and ensure it is more resilient to the impacts of climate change.

Draft Regional Plan: The Regional Plan will revise policy for environmental protection and climate change impacts in planning. This includes increasing watercourse buffers, increasing wetland protection, enabling large scale solar and EV charging infrastructure, enabling tools for donating land for conservation, advancing work in naturalization and natural assets management, watershed planning and management, and implementing essential wildlife corridors.

Action 25 – Land protection and conservation on private lands – Some progress

Increase land protection and conservation on private lands through partnerships, collaboration, and municipal planning requirements.

Action 25 is linked to the Green Network Plan, which will be integrated into secondary planning and bylaw amendment processes during Phase 4 of the Regional Plan Review. HRM was in Phase 3 during the 2022-23 fiscal year. See Action 20.A for more details.

Draft Regional Plan: The Regional Plan will revise policy to provide further guidance on environmental considerations during discretionary approval and secondary planning and develop an approach to

protection of natural corridors. As part of the draft plan, essential wildlife corridors will be mapped as overlays to trigger policy approaches for varying levels of intervention at a policy and regulatory level.

Land Acquisition: HRM continues to work with land trust partners to identify priority greenspace for conservation, however no land acquisitions took place in the 2022-23 fiscal year. Land acquisitions in future years will be guided by the Draft Regional Plan.

Action 26 – Preservation of natural areas and green space planning – Some progress

Prioritize the protection and expansion of green spaces through land use planning policies and mechanisms.

Draft Regional Plan: The Regional Plan will be amended to enable the Municipality to consider accepting or acquiring lands for conservation purposes and enable exemptions to allow land donations for conservation purposes.

Municipal Natural Assets Inventory (MNAI) Project: This inventory is the foundation for embarking on natural asset management, which includes valuations, modelling, planning, and implementation. Staff met with NAI (formerly MNAI) to scope objectives and goals for a pilot project in the Nine Mile River watershed. The project kicked off in February 2023. The goal of the project is to identify which natural assets are delivering key ecosystem services, particularly stormwater management, and co-benefits such as wilderness recreation and climate resilience.

Low-Impact Development Training: In March 2023, the municipality held a Low-Impact Development training session through the Sustainable Technologies Education Program (STEP). More than 100 municipal employees learned about green infrastructure and the importance of nature-based solutions for sustainable development. The STEP introductory course is a great way for key players to learn about the benefits of low-impact development for climate action.

Coastal Preparedness

| HalifACT Actions | Intended Start Date | Core Area | Action Lead | Actively Supporting | Progress 2022-2023 |
|--|---------------------|-----------|--------------------------------------|---------------------|----------------------|
| COASTAL PREPAREDNESS | | | | | |
| 27. Detailed coastal risk and vulnerability analysis | 2020 | 5 | PFE – Environment and Climate Change | -- | |
| 28. Develop coastal adaptation strategy | 2024 | -- | PFE – Environment and Climate Change | HRFE-EM | Future Action |

Action 27 – Detailed costal risk and vulnerability analysis – Progressing

Conduct a detailed spatially-based risk and vulnerability analysis of Halifax’s coastal, waterfront and shoreline areas.

Coastal Extreme Water Level and Flood Hazard Mapping: With federal funding through the National Disaster Mitigation Program, Halifax acquired high-resolution LiDAR and associated digital elevation models for the entire municipality in 2018-2020. In 2022-23 HRM worked with CBCL to update the Extreme Water Level projections for the whole region based on the 2021 Intergovernmental Panel on Climate Change report. Based on this study, a coastal setback for new development has been incorporated into the Draft Regional Plan. This information will also inform a Flood Hazard Mapping project to be

completed in fall 2023. The Flood Hazard Mapping project will result in the creation of bespoke and robust pluvial, fluvial, and coastal spatial flood hazard maps for HRM under multiple climate scenarios, recurrence interval, and time frame combinations.

Emergency Management

| HalifACT Actions | Intended Start Date | Core Area | Action Lead | Actively Supporting | Progress 2022-2023 |
|---|---------------------|-----------|--|-----------------------------|--------------------|
| EMERGENCY MANAGEMENT | | | | | |
| 29. Integrate climate into emergency planning | 2020 | 7 | HRFE – Emergency Management ² | -- | |
| 30. Improve emergency management communication and coordination | 2020 | 7 | HRFE – Emergency Management | CAO-GREA, CAO-Public Safety | |

Action 29 – Integrate climate into emergency management planning – Minimal progress

Integrate climate into emergency management planning, including:

- Systematic, transparent and up-to-date plans for emergency management that incorporate climate considerations;
- Integration of climate risk and vulnerability mapping;
- Development of a registration system for individuals who need help;
- Development of a heat response plan
- Development of evacuation plans for flooding, wildfire and coastal storm surge;
- Review of HRM’s ability to provide for the needs of extreme event evacuees;
- Update Community Emergency Response Training to incorporate climate-change hazards.

Action 29 is rated “minimal progress” for 2022-23 due to lack of capacity and the need for other actions to be completed to inform this work.

Action 30 – Improve emergency management communication and coordination - Some progress

Improve emergency management communication and coordination, including:

- Convening a coalition of emergency, social service and health agencies to identify gaps and needs for service delivery and improve communications and coordination
- Develop new internal and external institutional alliances to increase resiliency;
- Improve communications with general public around extreme weather events;
- Ensure back-up for communication systems.

Incident Command System and Emergency Management Training: In 2022-23, training was provided to elected officials and Senior Management in all Business Units.

SATURN (Situational Awareness software): This software will be used for emergency responses and as a planning tool for emergency preparedness including location of critical infrastructure, comfort centres,

² In March 2023, the Emergency Management division was moved to the newly created Community Safety Business Unit. The lead BU for these actions will be updated in future reports.

road closures, and more. All internal BUs and external stakeholders, including Halifax Water, have been interviewed and datasets from each have been collected with best use established. The next steps are to determine recommendations on the path forward.

Storm Kits for Newcomers: The pilot was expanded to include an emergency contact table and a 3-sheet extreme weather package that covers winter storms, extreme heat and hurricanes for newcomers and other residents. These are available in English, French, Arabic, Ukrainian and Swahili. These were created through consultation with Diversity & Inclusion, the YMCA Newcomer Program, ECC and Emergency Management. The YMCA hosted focus groups with staff and clients to ensure the information was clear and useful. HRM purchased 750 storm kits to be disseminated through various organizations and events, and they will include these printed resources.

Community Capacity

| HalifACT Actions | Intended Start Date | Core Area | Action Lead | Actively Supporting | Progress 2022-2023 |
|--|---------------------|-----------|--------------------------------------|---------------------|----------------------|
| COMMUNITY CAPACITY | | | | | |
| 31. Neighbourhood resilience and disaster support hubs | 2020 | 7 | HRFE – Emergency Management | PFE-ECC | |
| 32. Widely available emergency management training | 2020 | 7 | HRFE – Emergency Management | -- | |
| 33. Undertake neighbourhood climate planning | 2024 | -- | PFE – Environment and Climate Change | HRFE-EM, CAO-DI | Future Action |
| 34. Broad, deep, and collaborative engagement | 2020 | E | PFE – Environment and Climate Change | --- | |

Action 31 – Neighborhood resilience and disaster support hubs - **Minimal progress**

Create Disaster Support Hubs or Community Resilience Hubs for community self-sufficiency.

Action 31 is rated “minimal progress” for 2022-23 due to capacity limitations, however early-stage work has begun in supporting communities in extreme weather events. Additionally, community risk profiles have been created to inform future work.

Joint Energy Management Team Reinvigoration: In 2022-23, The Joint Energy Management (JEM) teams grew from 5 to 12 which allowed for a redevelopment of coverage areas. The JEM policy was completed and reviewed by all teams. This included the development of a communications plan and recruitment materials like updated posters and banners. The first pilot community meeting proved to be a success and the Spring Home Show was an effective recruiting opportunity with engagement reaching over 200 people each day. The first stages of building a team in the Bedford-Sackville area was completed.

Action 32 – Widely available emergency management training - **Minimal progress**

Train local residents to plan for and respond to emergencies through making emergency management and CERT training widely available to residents and businesses.

Action 32 is rated “minimal progress” for 2022-23 as no formal Emergency Management training has been offered to residents or businesses.

Action 34 – Broad, deep and collaborative engagement - Progressing

Work purposefully, meaningfully and collaboratively with residents, including Mi'kmaq and Indigenous community leaders, African Nova Scotian communities, and marginalized communities on the continued development and implementation of HalifACT.

HalifACT Network Engagement: A listening tour was completed with 28 climate leaders across the industry to inform the direction of collective impact and engagement work and build relations that are critical for moving climate action forward. In partnership with Halifax Public Libraries, public engagement activities were held between February and April 2023 to gather feedback on climate action in our communities. Residents attended pop-up engagement sessions hosted by municipal staff at all 16 library locations across the municipality and shared their thoughts through a Shape Your City online idea board.

Residents had the opportunity to engage in conversation about climate change and share their thoughts, questions, concerns and solutions to local climate impacts and actions. Feedback collected will be used to inform how we act on climate together and implement HalifACT.

Dalhousie Lecture Series: The Dalhousie Faculty of Architecture and Planning, in collaboration with Clean Foundation and HRM, hosted an engagement series that brought together experts, interested members of the public and practitioners to find new ways forward on climate action. There were four engagement sessions spanning the following topics:

- Session 1: Engaging Climate with Netukulimk- Mi'kmaq Partnerships and Wisdom
- Session 2: The Human Element of Climate - How We Change
- Session 3: Climate and The Built Environment - Planning a net zero and climate resilient future
- Session 4: Unsticking Our Systems to Respond to a Climate Emergency

Climate Action Challenge: In partnership with the Halifax Innovation Outpost, a grant program was developed to develop and test solutions to accelerate climate action in Halifax.

The second Climate Action Challenge launched in October 2022 asked for trailblazing projects related to resilient building technology, renewable energy, clean transportation, green jobs, and food security.

The three projects that stood out among all the impressive applications were Laure Nolte and Habit Studio's investigation of mycelium insulation as a low-carbon building material, Navigate Energy's efforts to help businesses get to net zero and Greenii's upcycling program that takes newspapers and makes them into handcrafted bags.

CEO Climate Action Charter: In March 2023, HalifACT and the Halifax Partnership launched a collaboration between business and municipal leaders devoted to meeting climate objectives that culminated in the development of the [CEO Climate Action Charter](#). Several notable organizations have signed on and the Charter is central to the Halifax Partnership's economic strategy, People. Planet. Prosperity.

HalifACT Presentations: As part of broad engagement, the Environment & Climate Change division has developed and delivered many presentations and lectures to academia, professional organizations, non-profits, different levels of government, community organizations and youth, in an effort to educate on HalifACT and the associated targets.

Food

| HalifACT Actions | Intended Start Date | Core Area | Action Lead | Actively Supporting | Progress 2022-2023 |
|---|---------------------|-----------|----------------------------|---------------------|--------------------|
| FOOD | | | | | |
| 35. Improve food security and food-systems resilience | 2020 | 7 | CAO – Government Relations | -- | |

Action 35 – Improve food security and food-systems resilience - **Progressing**

Fund and implement a Food Action Plan, including climate as a core component.

JustFOOD Project: On March 7th, 2023, Halifax Regional Council endorsed [Part A](#) of the JustFOOD Halifax Action Plan and the strategy to develop Part B. Part A includes 56 recommendations that will achieve a healthy, just and sustainable food system. The Action Plan recognizes the interplay between food and climate change.

In addition to approving Part A, Halifax Regional Council approved becoming a signatory to the Milan Urban Food Policy Pact. This is an international protocol aimed at tackling urban food-related issues, including climate change adaptation & mitigation. The Municipality has joined over 250 cities to share best practices, access strategies to increase food security, network with global experts, and performance measures for food action.

Mainstreaming Climate into Municipal Operations

| HalifACT Actions | Intended Start Date | Core Area | Action Lead | Actively Supporting | Progress 2022-2023 |
|---|---------------------|-----------|-----------------------------------|---------------------|--------------------|
| MAINSTREAMING CLIMATE INTO MUNICIPAL OPERATIONS | | | | | |
| 38. Integrate climate into financial decision-making | 2020 | E | FAM – Financial Policy & Planning | PFE-ECC | |
| 39. Establish new mechanisms for financing climate action | 2020 | E | FAM – Financial Policy & Planning | PFE-ECC | |
| 40. Green municipal investments | 2020 | E | FAM – Financial Policy & Planning | PFE-ECC | |

Action 38 – Integrate climate into financial decision-making - **Some progress**

Integrate climate into municipal financial decision-making through:

- *Climate-related financial disclosures;*
- *Cost of carbon and social cost of carbon in financial analysis, capital and business planning;*
- *Municipal carbon budget;*
- *Climate lens on capital planning;*
- *Financial impacts of climate risks and emissions in asset management and service delivery.*

Climate Related Financial Disclosures: Guidelines and standards are being monitored as they evolve to potentially incorporate more climate-based reporting. A scan of other jurisdictions was completed to understand how other municipalities are reporting.

Financial impacts of climate risks and emissions in asset management and service delivery: Management of the Enterprise Risk Register has transitioned to Risk & Insurance within Legal & Legislative Services. There are two enterprise risks that align to the Climate Action Plan (Severe Weather Impacts (ER10) and Environmental Stewardship (ER19)). HalifACT has actions that are intended to mitigate the impact of these risks, and the likelihood that they will have implications on service delivery. The municipal Strategic Priorities Plan and business unit plans have initiatives and deliverables to support HalifACT and mitigate these enterprise risks.

Action 39 – New mechanisms for financing climate action - Progressing

Explore and establish new mechanisms for financing climate action, including private sources of finance.

Climate Action Tax: As outlined in the approved [2022/23 Budget](#), a Climate Action Tax was established to directly support HalifACT in acquiring electric vehicles and buses, constructing net-zero buildings and leading projects that improve the resiliency of communities and infrastructure. The tax is also being used to leverage climate action funding from the private sector, federal and provincial governments, providing the necessary investment for the success of HalifACT in the years to come. Moving forward, these funds will be part of the base budget and does not factor into the tax increase required to balance the budget.

Private Sector Financing Opportunities: HRM staff are looking into alternative methods of funding HalifACT. In 2021-22, discussions with private lenders began around the innovative financing study awarded to Dunsky Consulting for the full-suite R3 residential retrofit program development (Action #2). The financing study was completed in 2022-23 and HRM staff has continued these conversations with CMHC and various large financial institutions.

Action 40 – Green municipal investments - Progressing

Incorporate Environmental, Social, Governance (ESG) principles, specifically as they relate to climate, into management of HRM's municipal funds.

ESG Monitoring & Reporting: Staff performed a counterparty review on December 9, 2022 and determined that all eligible counterparties' ESG scores were well above the industry average. A review has been conducted each quarter since and reported in the Investment Activities Report (Treasurer's Report) that is reviewed by the Investment Policy Advisory Committee (IPAC) and forwarded to A&F for review and to Council as an information item. The quarterly reviews have shown that our counterparties meet or exceed the guidelines set in the Investment Policy.

HRM Pension Plan: The Pension Plan initiated a workstream meant to formalize the approach to managing the Plan Asset's ESG issues, challenges and opportunities. This led to the development and approval of the [Responsible Investment Policy](#) which will form part of the Pension Plan Committee's governance structure. It will also outline a plan to action on important ESG focus areas in future years.

Governance and Capacity

| HalifACT Actions | Intended Start Date | Core Area | Action Lead | Actively Supporting | Progress 2022-2023 |
|--|---------------------|-----------|----------------------------|---------------------|--------------------|
| GOVERNANCE AND CAPACITY | | | | | |
| 41. Establish a central Climate Change Office | 2020 | E | CAO – Government Relations | | |
| 42. Increase staff capacity for implementation | 2020 | E | CAO – Government Relations | PFE-ECC, HRCC | |

Action 41 – Establish a central Climate Change Office - **Some progress**

Establish a central Climate Office, that reports directly to the CAO, with a distributed network of coordinated support.

Action 41 is rated “some Progress” as the Environment & Climate Change division is not part of the Executive Leadership Team and staff are in the early stages of implementing the HalifACT Governance model.

On April 1, 2022, the Environment & Climate Change team became its own division, reporting to the Executive Director of the newly created Property, Fleet & Environment Business Unit. The Manager of Environment & Climate Change was promoted to Director and four new sub-divisions were created to drive implementation of HalifACT.

Action 42 – Increase staff capacity for implementation - **Progressing**

Significantly increase staff capacity for implementation.

Through the 2022-23 Budget, eight full time equivalent (FTE) resources were approved to support the implementation of HalifACT.

Monitoring and Reporting

| HalifACT Actions | Intended Start Date | Core Area | Action Lead | Actively Supporting | Progress 2022-2023 |
|---------------------------------|---------------------|-----------|--------------------------------------|---------------------|--------------------|
| MONITORING AND REPORTING | | | | | |
| 43. Annual Indicators Report | 2020 | E | PFE – Environment and Climate Change | All BUs | |

Action 43 – Annual Indicators Report – **Some progress**

Develop an Annual Indicators Report and report annually.

The second HalifACT Annual Progress Report was presented to Council in November 2022. Some metrics have been incorporated into and presented in the Strategic Performance Snapshot & Corporate Performance Dashboard. Staff are working with both Information Technology and Corporate Communications to develop an external facing dashboard to share environment and climate change progress. A full-time resource will be hired in 2023-24 fiscal to help develop a robust reporting and tracking procedure.

Carbon Accounting

| HalifACT Actions | Intended Start Date | Core Area | Action Lead | Actively Supporting | Progress 2022-2023 |
|---|---------------------|-----------|--------------------------------------|---------------------|--------------------|
| CARBON ACCOUNTING | | | | | |
| 44. Carbon offsets framework | 2024 | -- | PFE – Environment and Climate Change | FAM | Future Action |
| 45. Consumption-based emissions inventory | 2026 | -- | PFE – Environment and Climate Change | FAM | Future Action |
| 46. Include embodied carbon in new construction standards | 2026 | -- | P&D – Buildings and Compliance | -- | Future Action |

Attachment B

HalifACT Community Updates 2022-23

The Halifax Regional Municipality has been working collaboratively with stakeholders to implement HalifACT with a sense of urgency and innovation. External partnerships and leveraged funding are crucial for success. With over 400 stakeholders, it is difficult to adequately capture all the great work being done in the Halifax Region. This section showcases a selection of highlights from some of the external partners who are making huge strides in climate action and are instrumental in the work to reach our collective HalifACT targets.

Government Agencies

Government of Canada

Carbon Pollution Pricing: Effective January 1, 2023, the federal carbon tax implemented under the Greenhouse Gas Pollution Pricing Act (GGPPA), will increase from \$50 to \$65 per tonne of greenhouse gas (GHG) emissions. Annual increases thereafter will take the tax to \$170 per tonne by 2030. Unlike the carbon tax applied to individuals and businesses (which is assessed on 100% of their emissions) the tax is only applied to part of the emissions of large industrial emitters, tied to their industrial output or production.

Greener Homes Loan: In June 2022, the federal government launched the Canada Greener Homes Loan to help Canadians undertake deep energy retrofits in their homes with interest-free loans of up to \$40,000. Together, the previously launched Greener Homes Grant of up to \$5,000 and the Loans programs make up the Canada Greener Homes Initiative.

Green Tax credits:

The most recent budget introduced a 15% refundable tax credit for investments in non-emitting electrical generation like solar, wind, hydro, wave and nuclear, as well as for abatement of gas-fired generation. The tax credit is expected to be worth approximately \$1.6 billion per year for the next four years, before rising to \$3.2 billion annually through 2034–35. Also announced was a 30% tax credit for investments in manufacturing machinery and equipment used in a broad range of production, extraction, processing, and recycling activities. The total cost will be roughly \$1 billion per year for the next 10 years. There are additional tax credits for business investments in air-source heat pumps and carbon capture, utilization and storage projects. Finally, The Canadian Infrastructure Bank has also been directed to invest \$20 billion to support the building of clean growth infrastructure.

Government of Nova Scotia

The province has legislated an overall goal of cutting GHG emissions to 53% per cent below 2005 levels by 2030 and achieving net-zero emissions by 2050. The plan *Our Climate, Our Future: Nova Scotia's Climate Change Plan for Clean Growth* outlines 68 measures, including a new pledge to reduce GHG emissions from electricity by 90 per cent by 2035 and to reduce home heating oil use by at least 20 per cent by 2030.

Renewable Energy: In 2022/23, 651MW of wind projects were approved or proposed. One new green hydrogen project was also approved. In addition, the Green Choice Program is being developed, which

will allow large industrial and institutional energy consumers to reduce their emissions by purchasing 100% renewable electricity. The program will open for applications at the end of 2023. Finally, changes to the Electricity Act were made to create more storage solutions for renewable electricity. This will spur energy storage in Nova Scotia and will progress renewable energy goals.

Energy Efficiency: Low-income Nova Scotians are eligible for free heat pumps and other home upgrades through a \$140-million provincial investment in energy efficiency programs over four years. When combined with federal contributions, the funding will help about 13,500 low-income households and about 30,000 middle-income households.

Carbon Pricing: On January 1st 2023, an output-based pricing system (OBPS) was introduced as a replacement for the previous cap-and-trade system, which will end after the compliance deadline in December 2023. The Nova Scotia OBPS, as laid out in the amendments to the Nova Scotia Environment Act, sets facility-level performance standards for electricity generators and large industrial emitters, with mandatory participation for facilities emitting $\geq 50,000$ tCO₂e/year. The system applies to the province's largest emitters, such as Nova Scotia Power and Lafarge cement. Other facilities, with emissions below the threshold, have the option to either join the system or face a federal fuel charge as of July 2023.

Protecting Nature: In the past year, plans were announced to create six new nature reserves, expand seven wilderness areas, and protect an additional 9,300 hectares of Crown land. This will bring Nova Scotia closer to its goal of protecting 20% of land and water by 2030. In addition, \$20 million in funding was provided to the Nova Scotia Crown Share Land Legacy Trust to help private conservation groups acquire additional land for protection.

Investing in a Sustainable Future: In April 2022, the Sustainable Communities Challenge Fund was launched and is administered by the Nova Scotia Federation of Municipalities. This fund will help communities implement a wide range of climate change mitigation and adaptation projects. Over 100 applications were received from municipalities, non-profits, post-secondary institutions, and First Nation bands during the first round of applications.

Halifax Port Authority

Environmental Incentives: On April 1, 2022, the Halifax Port Authority (HPA) began offering incentives to container and roll-on/roll-off vessels that voluntarily register and meet Environmental Ship Index's requirements in reducing greenhouse gas emissions. The HPA will administer, and rebate annually, an ESI Harbor Dues Incentive of \$500 for vessels with an ESI-assigned Index score between 20 and 49.99, and \$1,000 for vessels with an ESI-assigned Index score of 50 or higher per port call.

Green Hydrogen: The Halifax port authority has begun the work to integrate green hydrogen into its operations. They have agreed to a lease agreement with Canadian company Charbone and signed a memorandum of understanding with the port of Hamburg to create a decarbonized shipping corridor with Germany.

Utilities

Nova Scotia Power Inc.

Nova Scotia Power Inc. (NSPI) is a key partner in the development of HalifACT and plays a critical role in ensuring it is implemented successfully. The company is focused on new technologies to continue to improve and enhance customer service and reliability, continue to reduce emissions, and add more

renewable energy. Since 2005, Nova Scotia Power has more than tripled its renewable energy from 9% to 40% and reduced use of coal from 55% to 33%.

NSPI continues to work toward 80% renewable energy by 2030 as legislated by the provincial government and to meet the federal policy of getting off coal in the same timeframe, transforming how they make, deliver and store electricity.

Specific to HalifACT, NSPI has worked closely with the Municipality on electrification of transit (including ferries) and the Municipal Electric Vehicle Strategy (including the planning of new electric vehicle charging infrastructure across HRM). Other highlights include support for the E-Bus Terminal project at Ragged Lake; the Halifax Commons Pool project; and cost sharing for the Cogswell Redevelopment project. NSPI is also in the early stages of planning for a potential grid-scale battery installation in the Halifax Region, and will continue to work closely with the Municipality, HalifACT and other local stakeholders on next steps for this exciting project

Heritage Gas

Halifax Hydrogen Deployment (H2D) Project: Eastward Energy has advanced the design and planning for a proposed 5-megawatt green hydrogen electrolysis project that will produce 2 tonnes of low-carbon hydrogen per day, equivalent to 100,000 gigajoules of green energy per year. This is enough to fuel about 50-60 transit buses or to heat 1,000 homes. Some of the hydrogen will be blended with natural gas in Eastward Energy's gas distribution system, and the rest is proposed to be used in hydrogen fuel cell vehicles for heavy transportation applications including vehicles operating at the Port of Halifax, heavy freight trucking, or transit buses. This project would contribute to the decarbonization of heavy transportation and high temperature industrial processes. In 2022 the Province passed several legislative amendments to support the production and use of green hydrogen in Nova Scotia.

Natural Gas Absorption Heat Pump Trial: Eastward Energy completed the first year of a pilot project to test a 140-kW natural gas absorption heat pump to provide space heat and domestic hot water for a large multi-unit residential building in HRM.

Renewable Natural Gas (RNG): Eastward Energy is supporting two proponents that are developing RNG projects in Nova Scotia. Some of the RNG from these facilities could be purchased by natural gas customers in HRM to displace some or all of their conventional natural gas use.

Efficiency Nova Scotia

Efficiency Nova Scotia's (ENS) energy saving programs and rebates have been contributing to energy bill savings and emission reductions in HRM and in Nova Scotia for over ten years. Efficiency Nova Scotia (ENS) reported that their programs have collectively contributed to 22% of Nova Scotia's overall GHG emissions reductions and \$1 billion in energy bill savings since 2011. In 2022, EfficiencyOne achieved 121.87 GWh of electricity savings and 31.25 MW of demand savings. The total investment to achieve these savings was \$42.7 million.

In large part due to the contributions of ENS programs, Efficiency Canada ranked Nova Scotia second in their 2022 Provincial Energy Efficiency Scorecard. This moves Nova Scotia up from third place last year.

Deep Energy Retrofit White Paper: In partnership with HRM, ENS authored a Deep Energy Retrofit technical paper which will be released in 2023. It outlines the challenges and opportunities with building

stock and the surrounding energy efficiency, partnerships, collaboration, financing, equity, and capacity building.

EfficiencyOne continues to support HRM staff with implementation of HalifACT with the assistance of an embedded, on-site Energy Manager.

Halifax Climate Investment, Innovation and Impact Fund

The Halifax Climate Investment, Innovation and Impact (HCi3) fund was established as a subsidiary of EfficiencyOne at the end of 2020 and moved into full operations during 2022 and 2023. HCi3 is a member of the Low Carbon Cities Canada (LC3) network, a collaboration among seven local centres and the Federation of Canadian Municipalities' Green Municipal Fund, established through an endowment from the Government of Canada. LC3 works with local municipalities and community partners to demonstrate, de-risk and scale up local climate solutions that both reduce key emissions sources and create valuable and equitable community benefits.

HCi3 developed its first three-year strategic plan this year, which defined its purpose and mission. HCi3 seeks to invest in a net-zero Halifax for everyone. With partners, it will accelerate and enable the uptake of measurable, equitable, and meaningful climate solutions by financing scalable projects. Its action will focus on partnering to advance climate action, building local capacity, mobilizing capital, and investing in impactful and equitable solutions.

In service of these objectives, HCi3 completed its first round of grants in June 2022, awarding \$500,000 to eleven local projects, and launched its second public call for grants in March 2023. The program supports innovative projects that seek to reduce GHG emissions and advance a just and equitable low carbon transition in support of the HalifACT climate plan. HCi3's programs are supported by contributions from the Province of Nova Scotia and the McConnell Foundation, which awarded the LC3 Network a five-year, \$5 million grant to advance climate, equity and reconciliation.

HCi3 also launched a direct investing program in 2022 with the purpose of providing innovative financing mechanisms to projects with significant GHG reduction potential and community benefits.

In addition, HCi3 collaborated on multiple initiatives and events locally and nationally, including efforts to advance the green building sector in Nova Scotia, the Atlantic Solar Summit, and national work on electric vehicle adoption.

Non-Profit Organizations

Clean Foundation

Residential Energy Audits: Clean is a delivery agent for Efficiency Nova Scotia's Home Energy Assessment and HomeWarming programs, which connect homeowners with Certified Energy Advisors to assess their homes, identify energy retrofits and either connect them to rebates or offers free upgrades. Clean conducted 420 initial energy assessments and 593 final energy assessments within HRM in the 2022/23 fiscal year. Initial assessments are the visits to determine potential energy efficiency measures, and final visits are those where the measures have been implemented.

Workforce Development: As part of their workforce development programming, Clean Foundation delivers the Clean Leader Internship Program, which provides youth and students with summer placements focused on the environment and climate change. In the summer of 2022, the program

placed 45 interns at 28 different Halifax-based organizations for four-month placements from May - August. Additionally, there were two interns placed through our national professional internship programs, Science Horizons and Green Jobs. In these programs, interns had the opportunity to work with organizations located in Halifax focused on finding solutions for climate change challenges and supporting the natural resources sector.

Clean Transportation: The provincially funded Electrify Electric Vehicle Rebate program has issued more than \$5 million in rebates to Nova Scotia residents since its inception in February 2021. In the Halifax Region, there were 1,325 e-bike and 327 EV rebates issued this fiscal.

Next Ride hosted 65 unique events in HRM, including the annual Electric Avenue that took place in September at the Canada Games Centre. Through these events 3,400 individuals were engaged with 32 test driving an e-bike, 606 test driving an EV and 403 riding along as a passenger.

Clean Coasts: This year 280 Reef Balls were installed at Point Pleasant Park and McNabs Island. The reef balls are designed to restore marine habitat by fostering the growth of an ecosystem that supports fish and shellfish populations.

Ecology Action Centre

The Ecology Action Centre (EAC) is one of the largest environmental charities in the province, advocating for issues of climate change, biodiversity, and environmental justice. Representing more than 5,000 members, their work and mandate covers many areas that are directly impacted and aligned with climate action.

Decarbonizing Buildings: In 2022-23, the EAC continued to deliver on several programs and advocate for building decarbonization. This work included:

- Hosting the popular Better Building Speaker Series promoting deep-energy retrofit techniques, technologies, and science to property owners and building professionals
- Hosting a series of in-person workshops in Mi'kmaq communities and working with diverse partners to deliver information on building science and efficiency.
- Working with VIDA Living and Zzap Architecture & Planning to scope the potential of a panelized retrofit approach for multi-unit residential buildings, with a case study in Dartmouth, which will become a toolkit for property managers.
- Working with the Affordable Energy Coalition to advocate for increased investment in energy efficiency programming for Nova Scotians living on low income.

Green Jobs for Newcomers: In 2022-23, the EAC concluded the Green Jobs for All project with Nova Scotia Community College International, engaging immigrant and newcomer youth to equip them with the tools they need to advocate for a just transition, while also identifying opportunities that allow them access to the green economy. More than 100 newcomers participated in related events, including a 'speed-dating' networking night with 15 environmental employers.

Zero Emissions Vehicles: With partners across Canada, EAC is participating in a national effort to increase the adoption of electric school buses. As a steering committee member, they participated in the foundation of the Canadian Electric School Bus Alliance and hosted a series of roundtables with partners throughout the province. They also engaged with the Province to advocate for the inclusion of an electric

school bus procurement target, recommending that all new school bus purchases after 2025 be zero-emissions, 75% of all school buses on the road be electric by 2030, and that Nova's Scotia's school bus fleet go all-electric by 2035. Additional advocacy efforts relating to electromobility include:

- Engagement in Environment and Climate Change Canada's (ECCC) Light-Duty Vehicle ZEV and GHG Regulations Technical Working Group from December 2021-April 2023. Activities including written and oral submissions advocating for higher regulated ZEV sales targets at the federal level. Outcomes included the adoption of a target of 60% new sales by 2030 (representing an increase from a proposed 50% target) within draft regulations released on December 31, 2022.
- Engagement with ECCC on the adoption of measures to ensure equitable ZEV supply distribution to meet demand for EVs in Atlantic Canada and lower wait times. These efforts included the publication of a report in May 2023 entitled *Ensuring ZEV Adoption in Nova Scotia: Analysis of Policy Options and Possible Adoption Outcomes* which was submitted to ECCC as part of the public comment period on ECCC's "Regulations Amending the Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations" in March of 2023.
- Continued engagement with the Province of Nova Scotia on the implementation of a provincial ZEV mandate under EGCCRA.
- Created connections between officials working to decarbonize transit in the HRM and officials at the Halifax Regional Centre for Education (HRCE) on the topic battery-electric buses. Organized an electric school bus showcase in June 2023 to promote electric school bus technology to officials working in provincial procurement and school boards engaging private companies for the purposes of student transportation.
- Facilitated communication and the sharing of operational data between provinces and organizations operating electric school buses and student transportation logistics and procurement officials in Nova Scotia. Also facilitated conversations between successful applicants to the Zero Emissions Transit Fund (ZETF) and the Council of Atlantic Ministers of Education and Training (CAMET) on the topic of best practices for the submission of planning and capital applications.

Academic Institutions

Dalhousie University

Dalhousie created a [new sustainability portal](#) to highlight progress in meeting sustainable development goals. A quick click on each goal, such as climate change, highlights recent activity in research, teaching and operations. Several key awards were provided to the university research community and partners including the municipality to understand and tackle complex issues of transportation, clean energy, and ocean systems. In 2022-2023, all six Sustainability operational plans, and the University Sustainability Policy were refreshed to align with changing targets and need to accelerate climate work. An \$18.8 million dollar deep retrofit of the Killam library was approved and study and approach for decarbonization of the Halifax district energy system was finalized.

Nova Scotia Community College

Nova Scotia Community College (NSCC) prioritizes sustainability in its operations, teaching, and research. In the 2022-23 fiscal year, NSCC installed 14 electric vehicle chargers, purchased five e-bikes for use by students living on campus, and are well underway with construction of a 300,000 square foot

new campus on the Sydney Waterfront that will use geothermal energy for its heating and cooling. NSCC is proud to have four solar photovoltaic installations totaling 339kW. NSCC Applied Research team has worked with startup companies, community organizations, and academic partners to develop and test new solar energy, energy storage, and demand response systems. NSCC also continues to train solar installers, heat pump technicians, and energy advisors to respond to the need for skilled workers in the energy transition.