Climate Actions

The City of Edmonton has been taking climate action as a corporation, and helping community members to take climate action as well. The following are some examples of the way that the City of Edmonton and the community are taking action.

Renewable and Resilient Energy Transition

Solar Installations

The Change for Climate Solar Program has committed $6 million in rebates to Edmontonians since 2019, with approximately 1,927 residents participating to date. The Solar Incentive program was re-opened in 2023, and was fully allocated within 2 months. This incentive supported Edmontonians to add solar panels on their rooftops to generate local renewable energy at home, reduce greenhouse gas emissions, and move Edmonton towards a net zero future. Thanks to the program's support, the funded solar photovoltaic (PV) systems collectively add an impressive local renewable energy generation capacity of over 16 Megawatts in Edmonton, with an estimated reduction of over 305,000 tonnes in greenhouse gas emissions over the lifetime of these community installations.

Further to the Change for Climate Solar Program, 23 community leagues have installed solar systems for a total capacity of 390 kilowatts on community league buildings.

Additionally 480 kilowatts (kW) of installed solar PV capacity was added to City owned buildings and facilities. These systems have already reduced 617 tonnes of carbon dioxide equivalent (CO2e) from City facilities.

Solar PV Installations on City Facilities in Operation

- Blatchford District Energy Sharing System
- Davies Garage
- Edmonton Convention Centre
- Edmonton EXPO Centre
- Engineering Services Building
- Fire Station No. 4 Jasper Place
- Fire Station No. 26 Meadows
- Fire Station No. 27 Ellerslie
- Fire Station No. 29 Lewis Farms
- Fire Station No. 30 Pilot Sound

- Fire Station No. 31 Windermere
- Queen Elizabeth Pool

Solar Panels Currently Being Installed on City Facilities

- Blatchford LRT Stations
- Centennial Transit Vehicle Repair/Storage Garage
- Clareview Community Recreation Center
- Commonwealth Recreation Centre
- Fire Station No. 28 Heritage Valley
- Kennedale Eco Station
- North East Transportation Services Garage
- North East Traffic Operations Facility
- Valley Line West LRT - Lewis Farms and Gerry Wright LRV Storage Facilities

Future City Sites for Solar in Planning and Design

- Commonwealth Recreation Centre
- Coronation Park Sports and Recreation Centre
- D.L. MacDonald Right of Way Building
- Ellerslie Fleet Services Building
- Kathleen Andrews Transit Garage
- Terwillegar Community Recreation Centre
- The Meadows Community Recreation Centre

District Energy

Activities around the implementation of District Energy focuses on three distinct initiatives.

Blatchford Renewable Energy, the City-owned utility supporting the Blatchford development, has been operating the District Energy Sharing System since 2018 and is currently providing sustainable heat and cooling energy to the residents and businesses in the community. The utility is also planning infrastructure and operational needs for the growing development and customer base.

The Downtown District Energy Initiative is currently in design with the central district energy plant nearing construction completion. The first phase of the project includes a connection to the Winspear completion project, Century Place and Chancery Hall. The first phase, in a partnership with EPCOR, is expected to be operational in the second quarter of 2025.

In addition, the implementation of Edmonton's first District Energy Strategy supports the Renewable and Resilient pathway of the Community Energy

Transition Strategy. The immediate work concentrates on the development of tools to activate district energy readiness and/or connection, completing techno-economic feasibility studies in priority district energy nodes (e.g. Downtown, Exhibition Lands, River Crossing), as well as exploring private partnership opportunities for shared investment space.

Low Carbon Energy and Offsets for City of Edmonton Operations

The City of Edmonton has been successful in purchasing renewable energy credits to offset greenhouse gas emissions as a result of City of Edmonton operations. Additionally, the City of Edmonton has secured renewable energy contracts that will support running our civic operations on renewable energy.

Emissions Neutral Buildings

Home Upgrading Program

The Alberta EcoTrust Home Upgrade Program began operations in Edmonton in May and provides education and home upgrades for up to 100 lower-income households by the end of 2024 to help lower-income households to reduce energy costs. The City of Edmonton's funding contribution will total $800,000. Energy efficiency upgrades result in lifetime carbon emissions reductions and utility bill savings for these homeowners, among the many other co-benefits experienced by those living in higher quality, cleaner and greener homes. To support diverse applicants, Kambo Energy Group will train diverse community members to be Mentors in delivering energy education without cost.

Clean Energy Improvement Program (CEIP)

The CEIP provides residents access to low cost financing to make a minimum of three energy efficiency and renewable energy upgrades to residential homes. The financing is repaid over a period of up to 20 years through a local improvement levy placed on the property tax account and outstanding payments are transferred to the new homeowner should the home be sold during the payback period. This program has supported 40 homeowners and 1 commercial building owner so far to help with climate change by reducing carbon emissions. CEIP scale-up was funded in the 2023-2026 budget, and work is underway to activate that scale-up.

Windermere Fire Station

The newly constructed Windermere Fire Station 31 is the City's first net zero energy fire station. Fire Station 8, to be located in the Blatchford Development, is

currently in the schematic design phase and will be an emissions neutral building, as will all new City facilities per the Climate Resilience Policy C627.

Salvation Army Grace Village Site

The Salvation Army's Grace Village site opened in June 2023 and provides transitional and bridge housing as well as supportive housing to up to 175 people. Administration provided $2.5 million in grant funding through its Affordable Housing Investment Program in August 2020 to assist with construction of Grace Village. The project was designed to utilize 40 per cent less energy and emit 28 per cent less greenhouse gases compared to the 2015 National Energy Code for Buildings, which exceeded the minimum grant requirements, and the project is now net-zero ready. The energy efficiency standards will also save the Salvation Army $6 million dollars in operating costs over 25 years.

Supporting Emissions Neutral Building Capacity in the Industry

Funding was provided to Alberta EcoTrust to develop the Emissions Neutral Building Information Exchange (ENBIX), in partnership with the City of Calgary, to support industry in the transition to emission neutral buildings. This program is a collaborative platform that brings industry partners together to build shared knowledge and capacity for emissions neutral building and renovation practices across Alberta. ENBIX will host educational and networking events; partner with the construction industry to help share case studies and stories; support research and collaboration; and help facilitate the sharing of knowledge throughout the industry. Additionally, the City of Edmonton continues ongoing engagement with the Emissions Neutral Building Industry Advisory Group to better understand industry challenges and barriers.

Low Carbon City and Transportation

Electric and Hydrogen Vehicle Expo

Electric vehicles (EV) and hybrids in Edmonton are growing. In 2022 2.1 per cent of vehicles registered in Edmonton were electric or hybrid, up from 1.2 per cent in 2020. However, this is still a low market share, and to help encourage higher EV and hybrid ownership, the City of Edmonton hosted an Electric and Hydrogen Vehicle Expo in 2022. The Electric and Hydrogen Vehicle Expo was a free two-day public event to experience zero-emission vehicles. The event featured interactive exhibitor booths, electric and hydrogen buses, an education stage, electric vehicle test drives, a micro-mobility test track and a family zone activity area. The City partnered with Kambo Energy Group's Empower Me program to hold 14

multilingual and multicultural “EV 101” workshops and provided translation services at the Expo. The City also collaborated with the Electric Vehicle Association of Alberta, ATCO and EPCOR. The Expo featured 40 exhibitors, 20 speakers and attracted nearly 6,000 participants across all ages and backgrounds. This event was named winner of the 2023 Transportation Association of Canada Educational Achievement Award.

Electric Buses, Hydrogen Buses and Hydrogen Fueling Station

Edmonton Transit Services (ETS) continues to be at the forefront of electric buses in Canada. With 60 electric buses currently in its fleet, ETS remains highly committed to reducing greenhouse gas emissions, providing more sustainable transportation and improving the customer experience.The goal is for electric buses to provide a clean, quiet and comfortable ride for Edmontonians.

The City is also exploring new sustainable transportation technology by purchasing and testing new bus technology, powered by hydrogen, through the Alberta Zero Emission Hydrogen Transit (AZEHT) initiative. This initiative involves testing two hydrogen buses in real world conditions in Alberta. The City of Edmonton is the first in Canada to run both hydrogen fuel cell electric buses and battery electric buses. The City of Edmonton will also have the first hydrogen maintenance facility in Alberta.

The City of Edmonton is part of a pilot project that will see four city vehicles integrate hydrogen as an additional fuel source into their diesel engines, which is another step in the City’s commitment to transition to a low-carbon future. As part of the Guardian Hydrogen Diesel System (HDS) pilot program with Diesel Tech Industries (DTI), the engines in two City transit buses and two waste collection trucks will be modified to incorporate hydrogen.

LED streetlight conversion

Traffic Operations implemented LED streetlight conversion to the streetlighting system based on prior approved budgets. Along with other city projects, to date the total number of the LED streetlights contribute to 80% of the streetlight inventory which contributes towards a reduction in the GHG emissions as indicated in Attachment 3.

Public Transit Ridership

In addition to switching the fleet of buses to lower emissions vehicles, Edmonton Transit Service has been successful in getting bus ridership back to pre-pandemic levels. Transportation emissions account for approximately 30 per cent of Edmonton’s community greenhouse gas emissions. Getting more people

to take trips using active or public transportation modes is critical to reducing these emissions, and increasing transit ridership levels is a big step towards meeting these goals.

Metro Line Northwest Phase 1

Metro Line Northwest Phase 1 Project is a 1.6 kilometre extension to Edmonton's LRT network that will increase connectivity for the future residents of Blatchford and the student and faculty population of NAIT.

The Metro Line Northwest Phase 1 LRT extension is also undertaking renewable energy initiatives. This work includes the installation of solar panels on the two new LRT stations in Blatchford that will provide power for the heated shelters, mechanical components and lighting at each of the stations. The Blatchford utility building will also be connected to the Blatchford community's district energy sharing system, which uses renewable energy sources for heating, cooling and producing hot water. Not only is this project helping to expand the public transportation network, but it is incorporating energy efficiency into its design.

Active Transportation (as part of Neighborhood Renewal)

Administration integrates the construction of the active transportation network as part of Neighborhood Renewal projects. Active transportation infrastructure plays a role in addressing climate change by increasing modal shift to less carbon intensive forms of transportation such as biking, walking and rolling. The following infrastructure has been constructed as part of Neighborhood Renewal projects over the past four years (2019-2022):

- Over 8 km of bike lanes
- 22 km of missing sidewalk links
- Over 23 km of shared pathways

Active Transportation

Administration plans, designs, and constructs transportation projects across the city that contribute to the renewal and growth of the mobility network, including the expansion of the active transportation network. The following infrastructure was planned, designed, and constructed during the 2019-2022 budget cycle as part of the arterial renewal, bridge renewal, and collector renewal programs, in addition to dedicated growth projects.

- Approximately 1 kilometre of dedicated bike lanes
- Over 12 kilometres of missing sidewalk links

- More than 11 kilometres of shared pathways

Single-use Item Reduction Bylaw (20117)

On July 1, 2023, the City of Edmonton's Single-use Item Reduction Bylaw came into effect. This bylaw helps reduce waste by targeting items that can easily be avoided or replaced with reusable options. This bylaw will reduce emissions from the production, shipping and disposal of these single-use items, further contributing to a low carbon city.

Three-stream Waste Collection for Multi-Unit Residents

Under the Waste Services Bylaw (20363) the City of Edmonton is phasing in three-stream collection (garbage, recycling, and food scraps) at all apartments and condos over a four-year period. This will help multi-unit residents sort waste more effectively in their homes, divert waste from landfill and reduce landfill emissions, which will contribute even more to a low carbon city.

Renewable Natural Gas Project

Waste Services is moving forward with upgrades for the Clover Bar Landfill gas collection system, as well as the construction of a landfill gas upgrader facility, that will allow the City to convert landfill gas to renewable natural gas, while also reducing the amount of escaped methane. The plant is expected to be operational in 2024 and is estimated to produce approximately 325,500 GJ of renewable natural gas annually and will further reduce GHGs by limiting the methane produced by landfill material.

Cigarette Butt Recycling

Capital City Clean Up is working with a company that takes cigarette butts from City ashtrays and uses that product to make outdoor furniture and handles for all kinds of tools. This innovative work is supporting a reduction of hazardous cigarette material being placed into the landfills while also reducing the need for additional oil based products and items to be used for these products.

Carbon Capture and Nature Based Solutions/Changing Ecosystems

Edmonton Valley Zoo Little Rays Conservation Education Signs and Live Animal Presentation

As part of the Tourism Relief Grant awarded to the Valley Zoo Development Society, the Edmonton Valley Zoo developed and placed signs around the Zoo,

focusing on species conservation and nature based climate solutions. The themes of these signs include:

- Parkland Natural Region (natural heritage)
- People and the Parkland Natural Region
- The North Saskatchewan River Valley and the role the City of Edmonton and the Valley Zoo play to protect it
- Backyard Biodiversity
- Alberta Animals of Concern
- Northern Leopard Frog Conservation story
- Edmonton Valley Zoo's role as a Polar Bears International Arctic Ambassador Center
- Winter life in Alberta
- How zoos are changing
- Alberta's Pollinators

Additionally, exotic species were brought on site to animate the amphitheatre with animals and conservation messaging, and an Educator Guide was developed and published to help spread the conservation message further.

John Janzen Nature Centre

From 2021 until 2023, the John Janzen Nature Centre has undergone a significant refresh with the funding support from the Edmonton Nature Centre's Foundation (ENCF). The Tegler Indoor Playground has been enhanced with larger than life pollinators, interactive nature themed wall panels, and a new indoor bee hive. The ENCF was the recipient of a provincial climate change grant, and using those funds the facility was able to install a wall panel themed to climate change and how residents can make climate smart decisions in their everyday life using examples such as taking an ETS bus, growing vegetable gardens, and more. With funding from the ENFC, the John Janzen Nature Centre received a full exhibit room renovation. The new exhibit is titled "Edmonton's Urban Ecology" and highlights five key themes: invasive species; backyard education and conservation; citizen science; common species of Edmonton, and "our biophilic city" i.e. how Edmontonians interact or associate with other forms of life in nature. Other features include live animals with the support of the Valley Zoo and an Urban Heat Island display which shows the impact that a strong tree canopy has on temperature, and examples of bird and bat houses. Highlights of this project include floor decals that show the journey up the trunk of a tree to the canopy. Along the way, there are creative displays of local species, a treehouse play area and wall interactive panels.

The goal of the John Janzen Nature Centre is to inspire Edmontonians to embrace and learn about the nature that is right out of their back door. The facility hosts approximately 300 school programs and 250 birthday parties per year. Each program has elements of environmental and nature education, mixed in with play and outdoor fun.

Wildlife Monitoring Project

Using computer vision to automatically identify and remove images of people accidentally taken during the City of Edmonton's wildlife monitoring program, this project has processed and analyzed over 1.3 million images to date. Removing people inadvertently captured by the wildlife cameras allows the City of Edmonton to distribute the images of wildlife to partners like the University of Alberta. This collaboration has allowed the City of Edmonton to collectively track the movement of wildlife through our urban forests, ensuring that we preserve their natural habitats as Edmonton grows.

Trees/Naturalization

Over two years (2021-2022), the City has increased the urban canopy by planting a total of 5,164 new boulevard and open space trees and replacing 4,659 boulevard and open space trees. Approximately 33 hectares of naturalization was completed - planting 119,987 tree seedlings, 118,089 shrubs and 13,321 wildflowers.

The City continues to advance tree planting and naturalization through the capital planning for the Greener as we Grow project. At this time, the carbon budget estimates new tree plantings proposed in recommended profiles will result in a net reduction of 500 tonnes of CO2e/year by 2026.

Organics Processing Program

In 2021, the City introduced the Edmonton Cart Rollout to residents, providing three-stream (food scraps, recycling, garbage) waste collection to Edmontonians with curbside collection. The City also moved to a seasonal yard waste collection system, collecting unlimited amounts of yard waste four times per year from single-unit homes. Free yard waste drop-off is also available year-round at the City's four Eco Stations. Food scraps and yard waste are then composted at City and contractor facilities.

By improving how organic waste is sorted, collected and processed, the City can reduce GHG emissions from landfill and improve the quality of compost produced. City of Edmonton compost enriches planting mixes, builds soil quality and enhances the growth of grass, ornamental plants, vegetables and fruit trees.

The City of Edmonton gives away free compost at Ambleside and Kennedale Eco Stations from spring to fall while supplies last, turning waste into climate solutions.

Climate Solutions Leadership

Digital File Management

In 2023, Administration is implementing a digital file management system which will eliminate the need for printed documents and physical file storage. As legal files will be opened and closed online, the use of cardboard boxes and storage facilities which require energy to maintain, will be phased out.

Fleet Transition

Administration is exploring using fully electric and hydrogen-modified vehicles as part of the fleet for Parking Enforcement. This will contribute to the commitment to reduce fossil fuel use.

Changing Temperatures

Outdoor Water Stations

The number of available outdoor water stations has been expanded, to help people during extreme heat events.

Changing Precipitation

Low Impact Development

The City of Edmonton continues to advance the implementation of low impact development (LID) through capital projects and new development. LID facilities contribute to the City's climate resilience goals by reducing local flooding, increasing carbon capture, having cleaner stormwater discharge and reducing heat island effects. A large number of these projects have been undertaken in partnership with EPCOR where over $25 million worth of LID projects have been completed or are planned to be completed by the end of 2023. While LID facilities have been designed and/or constructed as part of dozens of City of Edmonton capital projects, some notable projects include:

- 124 Street Renewal
- 132 Avenue Renewal
- Coronation Rec Center
- Imagine Jasper Avenue (109 Street to 114 Street)
- Jasper Avenue New Vision (97 Street to 100 Street)

- Strathcona Backstreet
- Valley Line Southeast LRT
- Neighborhood Renewal Projects across Edmonton

Changing Weather Extremes

Neighbouring for Climate

The Neighbouring for Climate program encourages neighbours to identify community assets and climate risks, and act together to adapt their blocks to a changing climate, while also mitigating emissions. The program provides a toolkit of action cards to help make climate resilience action as easy as possible. Designed to align with Abundant Community Edmonton's (ACE) "Keep Neighbouring" program (recently renamed from its former "Get Neighbouring"), this taps into Block Connectors that are already active in ACE and invites new Block Connectors. The program is being launched as a pilot and aims to be open to the general public in 2024 so that communities can be strengthened, and Edmontonians can become confident that they can act on climate change.

Air Quality Awareness and Education

Administration successfully relaunched an artistic lamp at City Hall that promotes air quality awareness. This lamp is a smart, colour-changing LED bulb system that visually represents Edmonton's Air Quality Health Index (AQHI) using newly developed computer code. By improving air quality data and connecting it to a smart LED bulb through an app, the code enables the bulbs to display different colours indicating the local air quality, ranging from blue for good air quality to dark red for poor air quality. The Community Programs Change for Climate Team published a guide for Edmontonians to create their own air quality indicator at home, work, or school using the newly developed code.