2017
EDMONTON'S REPORT ON THE ENVIRONMENT

Edmonton

The purpose of Edmonton's Report on the Environment is to keep citizens informed about the larger state of the environment within the city boundaries and the City of Edmonton's corporate environmental performance. This report contributes to informed decision making amongst City administrators and citizens alike.

Check out the green measures on the Citizen Dashboard at **https://dashboard.edmonton.ca/green**

WHAT IS THE WAY WE GREEN?

The Way We Green is the City of Edmonton's environmental strategic plan. It sets out principles, goals, objectives, policies and approaches for Edmonton to live in balance with nature. The City's environmental strategic plan is a key element of City Council's 10 year strategic plan (The Way Ahead). This 10 year plan will be updated for 2019–2028 and will include 10 year strategic goals for environment. The environmental strategic plans two main focuses are:

SUSTAINABILITY our society's ability to endure over a prolonged period as an integral part of Earth's natural systems.

RESILIENCE the capacity of our city to withstand and bounce back intact from environmental disturbances.

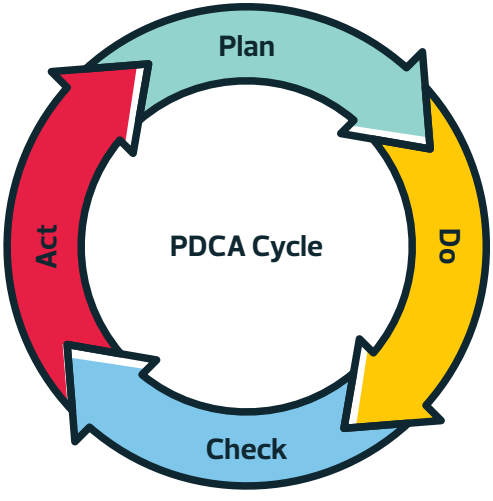
Reporting on the environment is dynamic and adaptive. What the City of Edmonton currently reports on is not final or exhaustive in character; the report needs to be regularly refined as scientific knowledge improves, programs are developed, policies shift and data availability increases. Edmonton's Report on the Environment includes both community and civic operations measures.

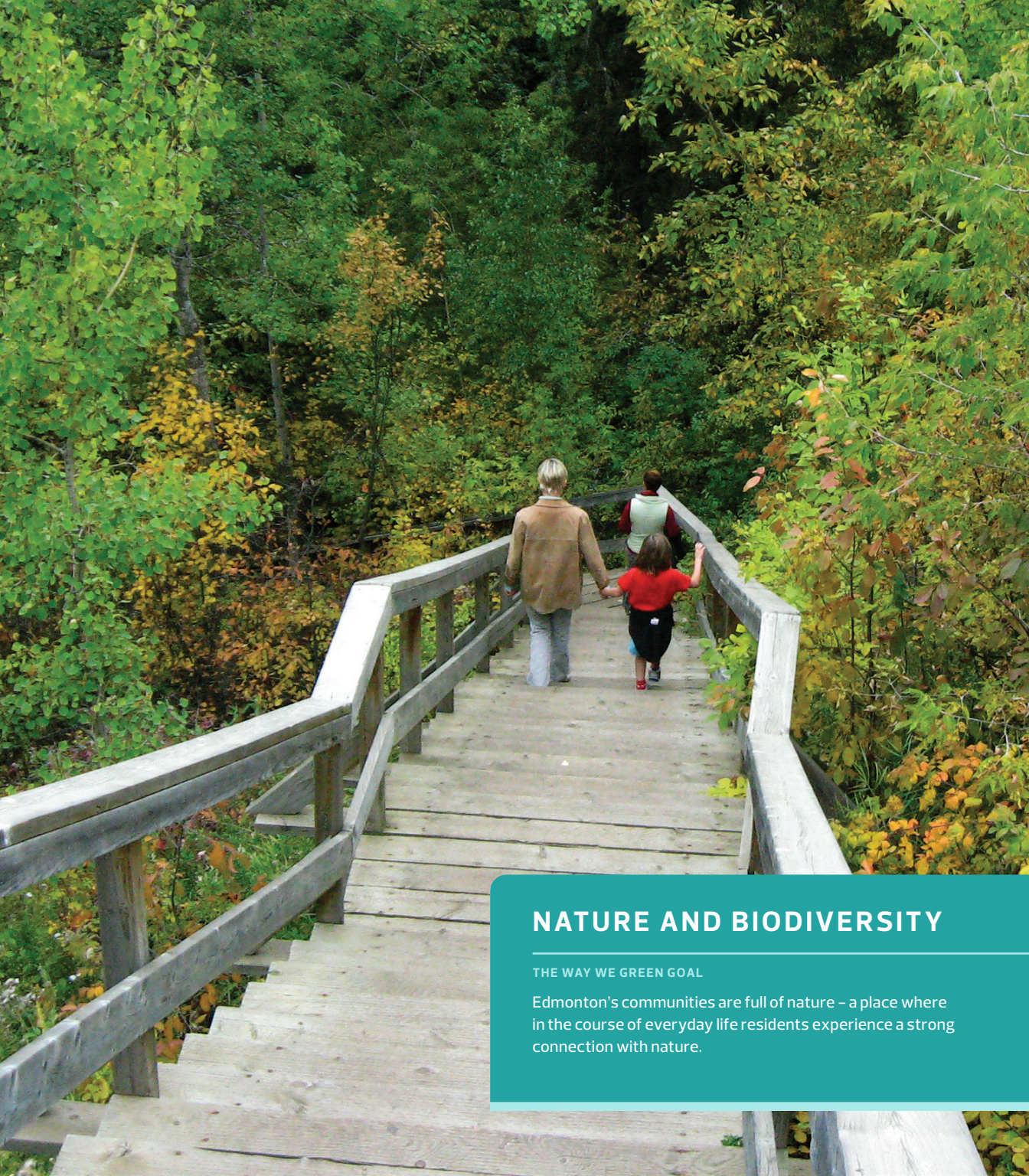
The City of Edmonton is committed to environmental sustainability and effective environmental management. Edmonton's environmental strategic plan outlines principles, goals, objectives, policies and approaches to preserve and sustain Edmonton's environment. The strategy encourages Edmontonians to understand nature's limits and live within them. This strategic plan presents a holistic approach to Edmonton's environment and includes the themes of Land, Water, Air, Energy and Climate Change, Food and Solid Waste.

Supporting the strategy are detailed initiatives and plans focused on specific environmental challenges that Edmonton faces, such as: Energy Transition Strategy; Climate Resilient Edmonton: Adaptation Strategy and Action Plan; Breathe: Edmonton's Green Network Strategy; Ribbon of Green; fresh – Edmonton's Food and Urban Agriculture Strategy; Greenhouse Gas Management Plan for Civic operations; and many more.

The work outlined in these strategies, plans and initiatives, as well as others currently being developed, is needed for effective environmental management and sustainable development in Edmonton.

The City of Edmonton has an Environmental Policy (C512) that commits the City to protect the environment; to continually improve its environmental performance; and to meet environmental compliance obligations. The City does this through Enviso, the City's ISO 14001 environmental management system. ISO 14001 is the International Standard for Environmental Management Systems. It identifies the process of building an environmental management system, that is governed by a Plan–Do–Check–Act model, in order to ensure continual improvement and adaptive management. The City has annual independent third-party audits and certification of the system. Leading the City's continual environmental improvement is the Environmental Management Steering Committee, made up of leaders from different areas of civic operations. As part of this continual improvement process, the City of Edmonton encourages citizens to provide feedback on this report. If you have any feedback or comments you would like to share, please send them to environment@edmonton.ca.



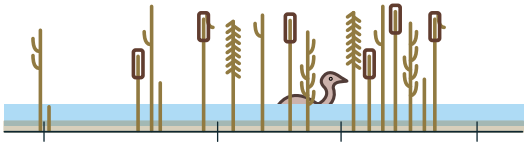


NATURE AND BIODIVERSITY

THE WAY WE GREEN GOAL

Edmonton's communities are full of nature – a place where in the course of everyday life residents experience a strong connection with nature.

LANDS SECURED FOR NATURAL AREAS AND CONSTRUCTED WETLANDS

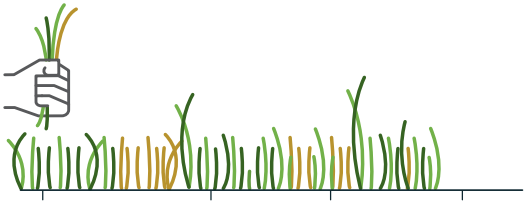


1977	2014	2015	2017
24.5 ha	446 ha	689 ha	Data unavailable for 2017

LAND SECURED FOR NATURAL AREAS AND CONSTRUCTED WETLANDS

Constructed wetlands are an integral component of Edmonton's stormwater management strategy, while also providing habitat and urban biodiversity. Increasing the connections between natural areas and constructed wetlands improves and provides ecological integrity and services.

HERBICIDE ALTERNATIVES



1996	2014	2015	2017
55%	96%	98%	Data unavailable for 2017

TURF AREAS WHERE ALTERNATIVES TO HERBICIDES WERE USED

This measure refers to the proportion of city-owned and managed turf areas where alternative integrated pest management measures such as mowing, digging and hand-pulling were used to control weeds.

NEW INTERACTIVE ONLINE LAND AND VEGETATION MAP SHOWS THE UNIQUE ECOLOGICAL AREAS OF EDMONTON

When we think about cities we usually think about cars, buildings and industry. However, a new land and vegetation map, now available for use by the public, shows that 16 per cent of Edmonton is covered by crop land and 22 per cent of our remaining natural wetlands are found in southeast Edmonton. The urban Primary Land and Vegetation Inventory (uPLVI) is a vegetation mapping inventory that can show the types of vegetation that exists around our city, as well as locate the city's unique natural spaces. "Until now, municipalities were viewed as 'black boxes' of development under our current land classification systems," says Catherine Shier, Principal Ecological Planner for the City of Edmonton. "There really was no detail about what kinds of vegetation we had in our cities. But this new mapping system allows us to see the details that will help us do an even better job of land use planning." Edmontonians can now access the raw data from the uPLVI on the City's Open Data portal or use the interactive map to find more information. "We wanted this information to be available to everyone," says Grant Pearsell, Director of Urban Analysis at the City. "We hope it will be useful for encouraging better urban-based ecological research and supporting citizen-led natural areas stewardship initiatives."

NATURALIZATION

2013	2014	2015	2017
1.5 ha	35 ha	45 ha	49 ha

TURF AREA NATURALIZED

Naturalization is a landscape management technique that allows the landscape to become more natural by planting trees, shrubs and wildflowers that are found naturally in Alberta.

This involves a three stage approach:

1) Stop mowing

2) Plant trees and shrubs native to Alberta

3) Continue planting smaller native shrubs and flowers to promote a healthy ecosystem.

This process provides economic, environmental and quality of life benefits. The end result is a beautiful, biodiverse, self-sustaining landscape.

CITY-MAINTAINED TREES

2006	2014	2015	2017
145,000	330,000	325,900	371,450

NUMBER OF TREES MAINTAINED BY THE CITY

Maintaining and increasing the urban forest is an ongoing effort for City of Edmonton staff. Although tree planting plays a significant role in maintaining the tree canopy, additional strategies are required to meet targets in the Urban Forest Management Plan. The Root for Trees program is one such program that the City continues to promote.

TOTAL PRIORITY NATURAL AREAS SECURED

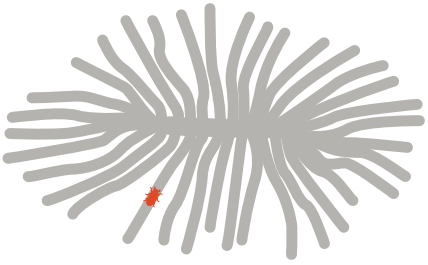
1977	2014	2015	2017
24.5 ha	446 ha	512 ha	560 ha

NATURAL AREAS SECURED

The City of Edmonton continues to make advances in securing tableland natural areas (i.e., those areas found outside of the North Saskatchewan river valley and ravine system).

MONITORING INVASIVE SPECIES IN THE URBAN FOREST

Dutch Elm Disease
(Ophiostoma ulmi & Ophiostoma novo-ulmi)

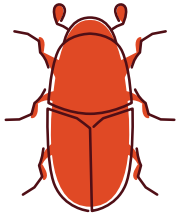


2001 0 **2010** 0 **2015** 0 **2016** 0 **2017** 0

NUMBER OF OBSERVATIONS

Edmonton has one of the world's largest stands of elm trees not infected by Dutch Elm Disease, with a value of approximately $1 billion. This fatal disease is caused by a fungus which inhibits the flow of water and nutrients in the tree, and can kill an elm in as few as three weeks.

Smaller European Elm Bark Beetle
(Scolytus multistriatus)

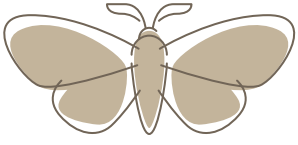


2014 28 **2015** 82 **2016** 9 **2017** 2

NUMBER OF OBSERVATIONS

Although the disease is not yet established in Alberta, the Smaller European Elm Bark Beetle *(Scolytus multistriatus)*, which carries the fungus, has been found in several Alberta locations.

Gypsy Moth *(Lymantria dispar)*



2004 2 **2005** 0 **2009** 0 **2010** 0 **2017** 1

NUMBER OF OBSERVATIONS

The caterpillars of this invasive moth are defoliators of multiple species of trees and shrubs. Outbreaks have previously occurred in other regions of Canada.

WATER

THE WAY WE GREEN GOAL

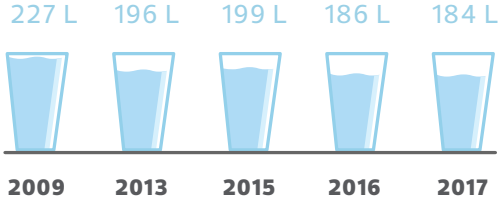
Water quality in the North Saskatchewan River sustains healthy people and healthy ecosystems.

Edmonton's water supply meets its needs.

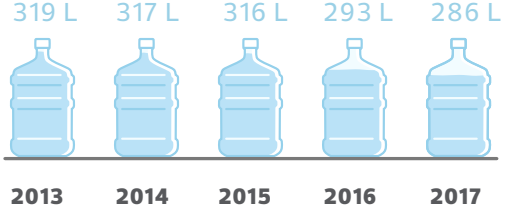
ALBERTA RIVER WATER QUALITY INDEX

The Alberta River Water Quality Index was developed as a way to summarize physical, chemical and biological data into a simple descriptor of water quality. The Index provides a snapshot of annual water quality conditions in major rivers across the province including the North Saskatchewan River. Index ratings for the North Saskatchewan River generally show a decrease in downstream values compared to upstream sites. The most recent assessment in 2015/2016 shows excellent ratings upstream and within quality standards. Downstream of Edmonton, exceedances of metals, bacteria and nutrients resulted in an overall "Good" rating of 83.

LITRES OF WATER USED PER PERSON PER DAY



EDMONTON RESIDENTIAL (RESIDENTIAL + MULTI-RESIDENTIAL) PER CAPITA WATER USE

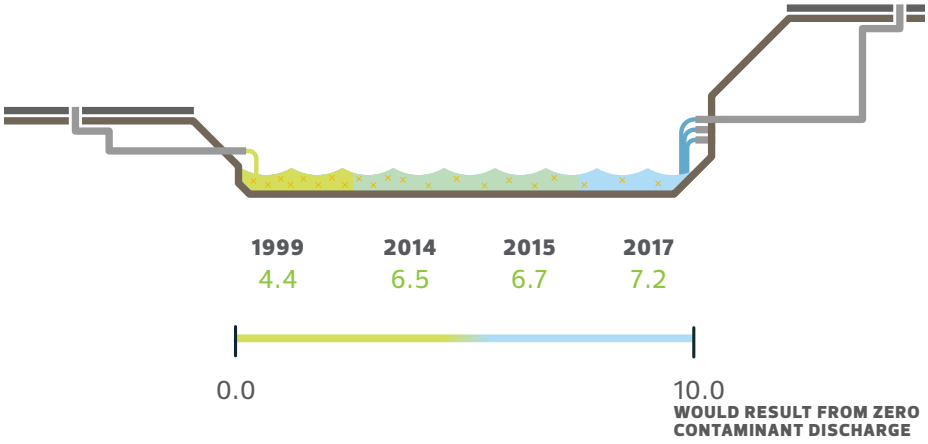


EDMONTON TOTAL PER CAPITA WATER USE

In 2017, Edmonton's total per capita water use was 286 liters per day while residential per capita water use was 184 liters per day. Both metrics were the lowest ever achieved for the city. EPCOR's well-established metering program, increased block residential rates and relatively short summers help keep Edmonton's water consumption low. Edmontonians' continued conversion to high-efficiency toilets and washing machines is projected to decrease per capita water use in the long term.

The Alberta Urban Municipality Association (AUMA) has set targets to achieve a total per capita water use of 341 liters per day and residential per capita water use of 195 liters per day by 2020. Edmonton has achieved the total per capita water use target since 2011, and first attained the residential per capita water use target in 2014.

EDMONTON'S WATERSHED CONTAMINANT REDUCTION INDEX



Edmonton's Watershed Contaminant Reduction Index (EWCRI) is an annual measure of the contaminants discharged to the North Saskatchewan River from the City of Edmonton and adjusted for population. The index is calculated using the measured amounts of sediments, nutrients and bacteria discharged into the river compared to a baseline value. Sources of contaminants from the City of Edmonton include wastewater treatment plant, combined sewer overflow sites and stormwater outfalls. An increase in the index means less contaminants are being discharged into the river. A score of 10.0 would result from zero contaminant discharge.

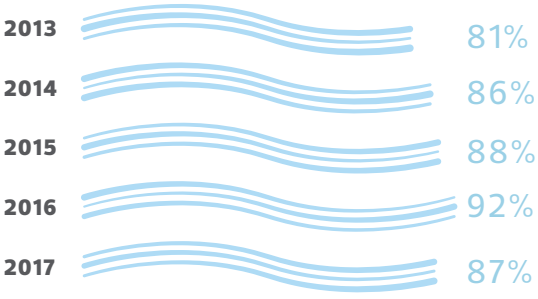
Progress is being made towards reducing contaminant loading to the river through implementation of low impact development and other management programs.

AIR QUALITY

THE WAY WE GREEN GOAL

Edmonton's air sustains healthy people and healthy ecosystems.

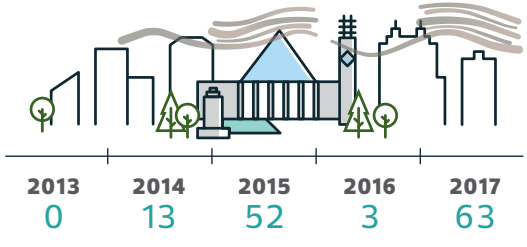
AIR QUALITY HEALTH INDEX (AQHI)



PERCENTAGE OF YEAR EDMONTON'S AQHI RATED "LOW RISK"

The Air Quality Health Index (AQHI) is an information tool for the public that relates outdoor ambient air quality to people's health on a simple 1 to 10 scale. The risk categories represent a continuum of health risk due to outdoor ambient air pollution. While this is not a measure of the overall health or state of Edmonton's airshed, it is a good tool for public information on air quality.

NUMBER OF SMOKE HOURS

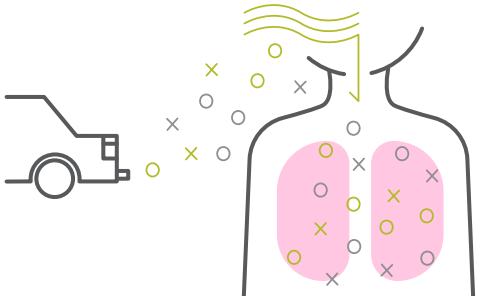


HISTORICAL AVERAGE (1981–2010) 14

Smoke Hours are the number of hours where smoke is present between May and September. No suggestions are made as to the specific source of the smoke observed in all cases. Most cases of smoke observed through this period are likely from wildfire events. Smoke hours are determined by Environment and Climate Change Canada at the Edmonton International Airport weather station.

CANADIAN AMBIENT AIR QUALITY STANDARDS

AIR QUALITY MANAGEMENT RESPONSE LEVELS



MANAGEMENT LEVEL

RED
Actions to reduce concentrations to the threshold level

ORANGE
Actions to prevent CAAQS Exceedance

YELLOW
Actions to prevent air quality deterioriation

GREEN
Actions for keeping clean areas clean

Many sources and factors impact Edmonton's air quality. There are days Edmonton's air quality has exceeded federally set limits for Fine Particulate Matter (PM2.5) – a pollutant. Exceeding these limits required the provincial government to lead the development of a plan to reduce levels below the threshold. In December 2014, the Alberta Government completed the Capital Region Fine Particulate Matter Response Plan to reduce ambient fine particulate matter concentration; implementation of this plan is ongoing. The City of Edmonton is working on 26 actions in the response plan, such as the expansion of the LRT network. In 2015 the federal government replaced the standards for PM2.5 and Ozone with the new, more stringent Canadian Ambient Air Quality Standards. The new standards have lowered short-term limits and introduced long-term exposure limits to further protect both citizen's health and the environment. In 2017, the three monitoring stations used to evaluate these trends were all in the "orange" level.

Ozone Management Response Levels

In 2017, the three monitoring stations used to evaluate ozone trends were all in the "yellow" management level.

AIRBEAM LAUNCH

On Clean Air Day (June 7, 2017) the City of Edmonton launched the "Airbeam Library Kits". These portable hand-held devices work with your non-iOS device to measure and map fine particulate matter (an air contaminant) concentrations. These kits are available in the Edmonton Public Library for residents to learn about Edmonton's outdoor air quality as they walk, bike or jog around the city. The data can be uploaded to the AirCasting public database, which can be viewed at http://aircasting.org/map.

ENERGY AND CLIMATE CHANGE

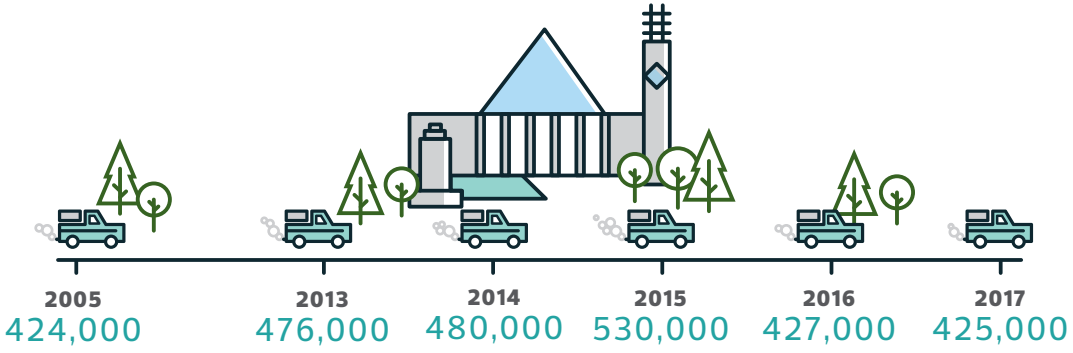
THE WAY WE GREEN GOAL

Edmonton's sources and uses of energy are sustainable.

Edmonton is a carbon-neutral city.

Edmonton is resilient to disturbances from climate change.

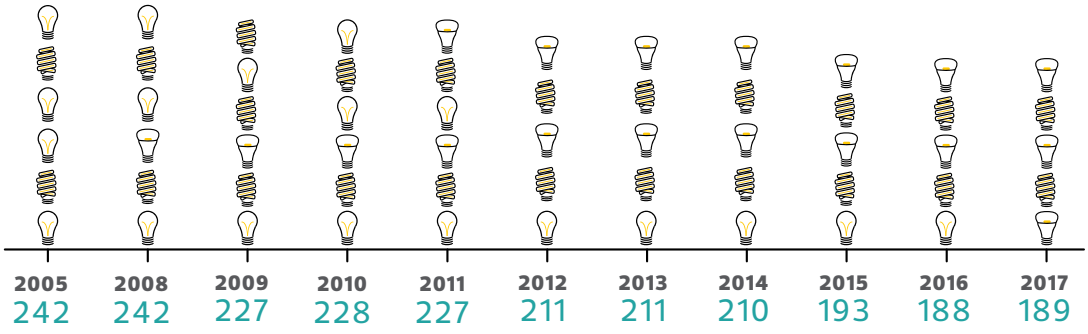
CIVIC OPERATIONS GREENHOUSE GAS EMISSIONS



TONNES OF CARBON DIOXIDE EQUIVALENT

The amount of greenhouse gases that are produced as a result of City of Edmonton operations show the City's relative contribution to Edmonton's overall carbon footprint. This measure includes emissions generated from heating and cooling City buildings, fuel used by City fleet vehicles, electricity used by City operations and methane released from City-owned landfills. In June 2018, City Council approved a target to reduce GHG emissions from civic operations by 50% relative to 2005, by 2030.

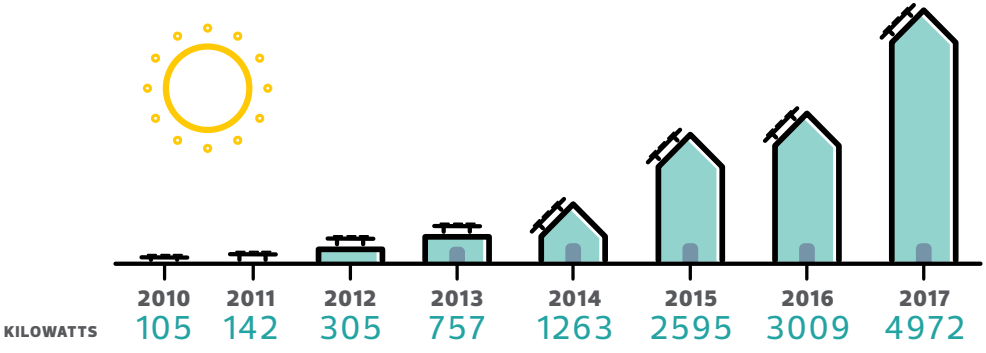
ENERGY USED PER PERSON IN EDMONTON



MEGAWATTS PER PERSON

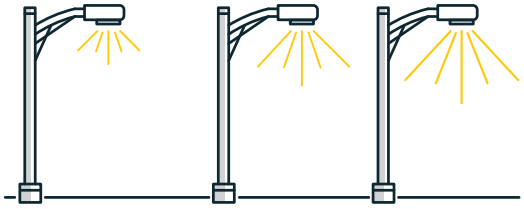
Energy used per capita is a measure of energy use efficiency within Edmonton boundaries. This measure includes vehicle fuels, natural gas and electricity. Energy used per person in Edmonton has declined significantly since 2005 primarily due to improved fuel efficiency in vehicles, furnaces and boilers, and changes to LED lighting. Edmonton has a target to improve its energy use efficiency by 25% (to 171 MW / person) relative to 2005 by 2035.

SOLAR ELECTRICITY



The amount of solar photovoltaic (PV) installed capacity is an indication of the total amount of low carbon, local electricity that is available in Edmonton each year. As solar PV continues to become more affordable, the number of solar power installations in Edmonton is rapidly increasing. Increased solar power availability diversifies Edmonton's energy base, and increases our ability to withstand the stress of expected energy shortages as climate change continues.

LED STREET LIGHTING



2015	2016	2017
29,915	39,639	44,833

ALLEY AND STREET LIGHTS REPLACED THAT YEAR

Light-emitting diode (LED) light bulbs are more energy efficient than other types of light bulbs and are designed to have a longer lifespan, lower maintenance costs, and save energy. Conversion from conventional street lighting to LED technology is reducing power consumption, contributing to the goals identified in Edmonton's Community Energy Transition Strategy.

ENERGY USED IN CIVIC OPERATIONS PER CAPITA

2014	2015	2016	2017
1.29	1.26	1.25	1.22

MEGAWATT HOURS PER PERSON

The total amount of energy used by City of Edmonton operations provides information on the relative contribution of this entity to the overall energy footprint of our community. This includes vehicle fuels (gasoline, diesel, propane, natural gas), natural gas heating for buildings, and electricity use for lighting, running the LRT, cooling buildings, etc. Per capita energy use is gradually declining as LED street lights are installed, vehicle fuel efficiency improves, and building energy retrofits are completed.

COMMUNITY GREENHOUSE GAS EMISSIONS

2005	2012	2014	2017
18.3	18.7	19.9	18.9

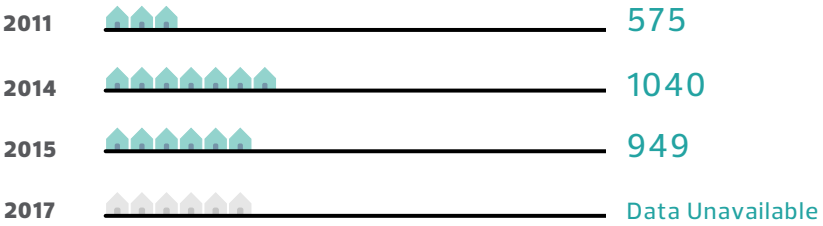
MILLION TONNES OF CARBON DIOXIDE EQUIVALENT

The City monitors greenhouse gas trends to quantify Edmonton's contribution to climate change. Climate change is currently largely being driven by human emissions of CO2 and other gases that contribute to the atmospheric greenhouse effect. The total amount of greenhouse gas emissions is calculated by adding the emissions from landfills with those from fossil fuels (natural gas and vehicle fuel) and electricity used within the City of Edmonton boundary. Edmonton continues to grow, and without lifestyle and infrastructure changes, so do the greenhouse gas emissions emitted within city boundaries.

Edmonton has a target to reduce its community GHG emissions by 35% relative to 2005 by 2035.

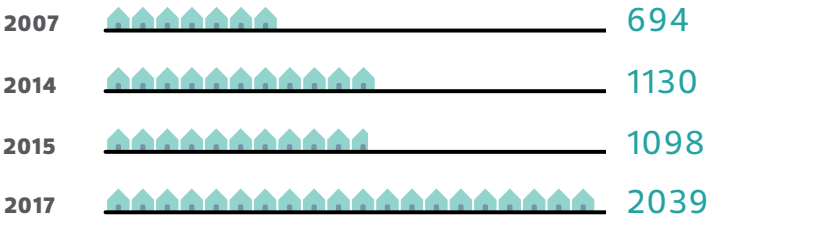
GREEN BUILDING RATING SYSTEMS

YEARLY NUMBER OF BUILT GREEN CANADA CERTIFIED HOMES



TOTAL NUMBER OF LEED CERTIFIED BUILDINGS (COMMERCIAL + RESIDENTIAL)

YEARLY NUMBER OF ENERGUIDE LABELLED HOMES



There are a number of green building rating systems currently being used in Edmonton including LEED, BuiltGreen Canada and EnerGuide. These systems are signs of a shift to a greener building stock. We are seeing increased market uptake of third party rating systems which shows people are beginning to value measurable sustainability improvements in the residential and commercial markets.

CitiesIPCC CONFERENCE

CitiesIPCC CONFERENCE IN EDMONTON

In March 2018 approximately 700 leading scientists, policy makers, and urban practitioners gathered in Edmonton to discuss the challenges and opportunities cities face in addressing climate change as part of the CitiesIPCC International Cities and Climate Change science conference. The conference was considered a great success and was the first ever IPCC Conference focused on cities and the science of climate change.

Participants formed a diverse group:

- 64 countries in attendance
- 48% of participants being women
- 34% coming from the Global South
- 46% represented the academia/research communities
- 20% were policy makers
- 21% urban practitioners
- 14% journalists and other

The conference began with a pre-conference session "A Village of Hope" which highlighted the importance of indigenous and local knowledge in preparing the research and action agenda. The conference included 7 plenary sessions, 55 parallel sessions, 10 press releases, and 76 posters. Over the course of three days, participants worked to assess the current state of academic and practice-based knowledge related to cities and climate change, identify key knowledge priorities, and chart a course forward. The gaps and recommendations identified were documented and served as input to the development of a Global Research and Action Agenda. The agenda is broken into three sections:

- Crosscutting issues and knowledge gaps for step-change knowledge generation;
- Six key topical research areas including: Informality, Uncertainty, Urban Planning & Design, Built & Green/Blue Infrastruture, Sustainable Consumption and Production and Finance; and
- Delivering on the Research and Action Agenda: Approaches to strengthen the science, practice and policy interface.

This Global Research and Action Agenda was presented at the 48th Plenary of the IPCC October 2018 in South Korea and will engage the scientific community in the next frontier of research focused on the science of cities and climate change.

One of the most important outcomes from the CitiesIPCC Conference was the Edmonton Declaration – a city-focused document that reaffirms the importance of science-based policy and decision making. It recognizes that powerful change is possible through the unified and consistent efforts of government, businesses and the scientific community.

CONFERENCE HOSTING PARTNERS AND CONTRIBUTORS

The City of Edmonton thanks the following government and private sector organizations that contributed to the conference and helped make the event a resounding success.

GOVERNMENT OF ALBERTA (Conference Host Partner)

The province's Climate Leadership Plan is a made-in-Alberta strategy designed to diversify the economy, create jobs and reduce greenhouse gas emissions that cause climate change. Key aspects of the plan include:

- Putting a price on greenhouse gas emissions
- Ending pollution from coal-generated electricity by 2030
- Developing more renewable energy
- Capping oil sands emissions to 100 megatonnes per year
- Reducing methane emissions by 45% by 2025

Revenue generated from the carbon levy supports rebates for Albertans, renewable energy projects and electricity transition supports, Indigenous climate leadership initiatives, transit and infrastructure projects, and industrial and commercial energy efficiency programs. Over the past year, Energy Efficiency Alberta – the Government of Alberta agency dedicated to helping the province save energy – has been promoting and supporting energy efficiency and community energy systems for homes, businesses and communities, supporting green jobs and helping Albertans cut costs, reduce energy use and reduce greenhouse gas emissions.

GOVERNMENT OF CANADA (Conference Host Partner)

The science is clear: human activities are driving unprecedented changes in the Earth's climate, which pose significant risks to human health, security, and economic growth. That's why the Government of Canada works in close collaboration with cities, provinces and territories and Indigenous Peoples to develop and implement climate solutions both domestically and internationally.

The Pan-Canadian Framework on Clean Growth and Climate Change is Canada's collective plan to meet our emissions reduction targets, grow the economy and build resilience to a changing climate. The Framework is built on the following four pillars:

- Pricing carbon pollution;
- Complementary measures to reduce emissions;
- Measures to adapt to the impacts of climate change and build resilience; and
- Actions to accelerate innovation, support clean technology, and create jobs.

We all have a role to play in addressing climate change and by working together, we will build healthy communities and strong and sustainable economies for future generations.

EPCOR (Platinum Sponsor)

EPCOR provides safe, reliable electricity to Edmonton's residents, and oversees Edmonton's complete water utility cycle by providing safe drinking water, treating wastewater, and managing sanitary and stormwater systems.

Across EPCOR's operations, and in all that they do, the environment is a key consideration. Here are a few ways that EPCOR is making a difference:

- Watershed protection: EPCOR's waterworks system is an EnviroVista Champion, a designation assigned by the Alberta government for our efforts to meet a higher standard of environmental excellence.
- Clean water made with clean energy: EPCOR is proposing to build a 12-megawatt solar farm to help power our drinking water treatment facilities.
- Helping customers make greener choices, through Encor by EPCOR green energy plans and smart grid technologies that enable home energy monitoring to manage consumption.
- Flood mitigation: EPCOR is developing a long-term flood mitigation plan to ensure the stormwater system can adapt to changing climate patterns.
- Innovative uses for wastewater: EPCOR is investing in technologies to extract phosphorus, reuse water for industrial operations and heat energy from Edmonton's wastewater treatment.
- Taking a stand on sustainability: In early 2018, EPCOR was lead sponsor of the international IPCC Cities and Climate Change Science Conference held in Edmonton.

GOLD LEVEL SPONSORS:

- TD Bank
- Insurance Bureau of Canada

SILVER LEVEL SPONSORS:

- EllisDon
- Graham
- Edmonton International Airport
- PCL Construction

LAND MANAGEMENT AND TRANSPORTATION

THE WAY WE GREEN GOAL

Edmonton is a carbon-neutral city

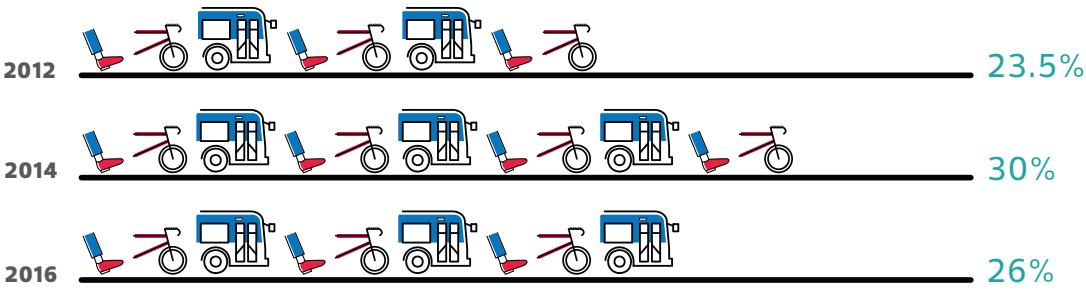
WALKING, BIKING AND ACCESSIBILITY INFRASTRUCTURE

	PAINTED BIKE LANES	PROTECTED BIKE LANES	SHARED ROADWAY	SHARED USE PATHS
				
2013	–	–	19.3 km	1.4 km
2014	–	–	8.0 km	1.0 km
2015	–	–	3.6 km	0.5 km
2016	5.4 km	0.2 km	–	–
2017	20.0 km	13.3 km	146.0 km	0.5 km

Kilometres of paths constructed each year

The City is looking at new kinds of bike lanes for Edmonton's future. Quality cycling infrastructure that connects people to the places they want to go encourages cycling as a safe and healthy mode of transportation. Studies show 31 per cent of vehicle trips taken by Edmontonians could be travelled by bike in 13 minutes or less. The City has heard from the public that they would like to see more protected bike lanes in Edmonton which is exactly the type of cycling infrastructure the City is working towards installing in its core areas. For example, protected bike lanes have been created along 102 Avenue and 83 Avenue. In 2017, the City installed 13.3 km of protected bike lanes in Edmonton's downtown core.

TRANSPORTATION MODE SPLIT

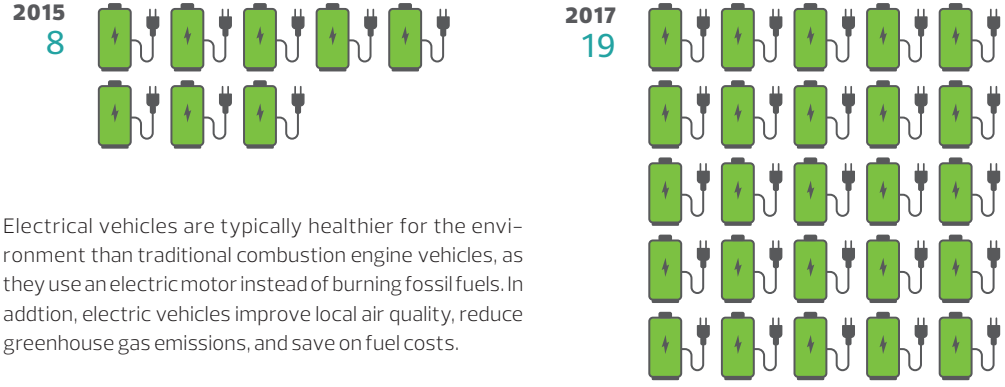


This measure tells us, based on an average day in the city of Edmonton, the percentage of people who choose to travel to work by a method of transportation other than driving a private singular passenger vehicle. This information is taken from the Municipal Census, and as this is conducted every two years, there are no results for 2015 and 2017. Although only 26 per cent of daily trips made are commute to work trips, these are the trips that set the traffic pattern for each day, resulting in the periods of vehicle traffic congestion, and therefore influencing the capacity requirements of the transportation network.

Generally we are trending favourably in this measure. Mobility shift from single passenger vehicles to public transit, cycling, and walking can contribute to reductions in greenhouse gases and conservation of non-renewable resources. Over the years, increased environmental awareness and an expanding transit network has led to an increased availability of more sustainable and active modes of transportation. In the next several years, Edmonton will continue to see significant infrastructure investments, providing citizens with more travel options in support of a change in the mode split.

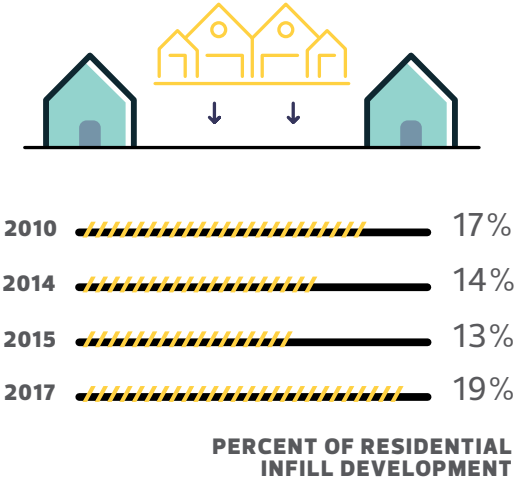
NUMBER OF PUBLIC ELECTRIC VEHICLE (EV) CHARGING STATIONS

PUBLIC CHARGING STATION LOCATIONS IN CITY LIMITS



Electrical vehicles are typically healthier for the environment than traditional combustion engine vehicles, as they use an electric motor instead of burning fossil fuels. In addtion, electric vehicles improve local air quality, reduce greenhouse gas emissions, and save on fuel costs.

INFILL

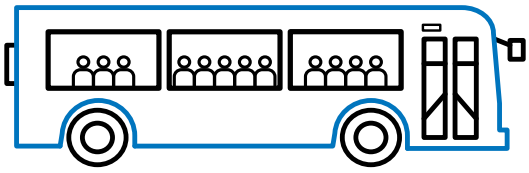


PERCENT OF RESIDENTIAL INFILL DEVELOPMENT

Residential infill is the development of new housing in established neighborhoods. This new housing may include secondary suites, garage suites, duplexes, semi-detached houses, row houses, narrow lot houses, apartments and other residential and mixed-use buildings. These types of developments use land and resources efficiently, and therefore accommodate growth and change with a lower environmental impact.

The Way We Grow targets that 25 per cent of new residential development be infill. The City of Edmonton is not currently meeting this target, but programs like Evolving Infill and the Brownfield Grant Program aim to help meet this goal. In particular, Evolving Infill is focused on neighborhoods developed before 1995.

TRANSIT RIDERSHIP PER PERSON



2005	2009	2013	2014	2015	2017
76	88	104	102	99	92

TRANSIT RIDERSHIP PER CAPITA

This measure tells us how many rides are made annually on transit (both buses and LRT) relative to Edmonton's population. Ridership per capita is an indication of the effectiveness of Edmonton's public transit, which is one of the most efficient means of transporting large numbers of people in an urban environment. Increasing transit per capita means that a greater proportion of daily trips are being made by transit.

The decreases over the past two years may be linked to two main factors:

1) Population growth has increased at a faster rate than the growth in transit services hours, particularly in the outer areas of the city where there is limited service; and

2) Unfavorable economic conditions and increased levels of unemployment resulting in fewer people taking transit.

LRT RIDERSHIP

2003	2008	2013	2014	2015	2017
41,750	53,540	100,760	98,144	108,690	112,805

TRIPS PER DAY

The City is continuing its expansion of the LRT network. The expansions include the Metro Line and the Southeast to West LRT (Valley Line) which will be a low-floor, urban- style line running from Millwoods through downtown and out to Lewis Farms. The future line runs a total length of 27 km, and construction on the southeast portion has begun.

BROWNFIELD REDEVELOPMENT

A brownfield is a site that is under utilized and where past activities on the site have caused environmental soil and/or groundwater contamination. Brownfields exhibit good potential for other uses and provide economically viable business opportunities.

The City launched a Brownfield Redevelopment Grant in 2011 to provide assistance to property owners, interested groups and developers intent on improving the use of former refueling site brownfields. Since the program's launch in 2011, more than 30 brownfield redevelopment projects have been completed or are currently in progress. In 2015 the program was the recipient of the Canadian Urban Institute's Brownie Award, the Minister's Award for Municipal Excellence and the FCM Sustainable Communities Award.

The grant funding is designed to assist in Phase I (Site assessment), Phase II (testing, analysis, delineation, remediation planning) and Phase III (remediation) costs associated with readying a brownfield for redevelopment. A Phase IV grant is available to assist with interim uses (park, solar installation, sustainable remediation techniques such as in situ approaches) for sites that will be in long term remediation. The goal of this grant program is to improve the environmental condition of these former refueling sites by supporting clean up and ideally leading to their redevelopment. In 2014, the funding model for Phase III was altered to enable tailoring that incorporates the cost of remediation and the municipal tax uplift projected specific to the site. This remediation grant funding model offers up to 100 per cent of remediation costs by meeting a performance metric of LEED Gold certified.

A few of the redevelopments that the program has supported include:

- A four story mixed use facility including below market housing;
- Two tower retail and residential condominium complex in the downtown;
- Seven story retail and residential rental complex in Strathcona;
- Ten story retail and residential rental complex on Jasper Avenue;
- Ten story mixed use building on 104 Ave near MacEwan; and
- A healing garden in McCauley.

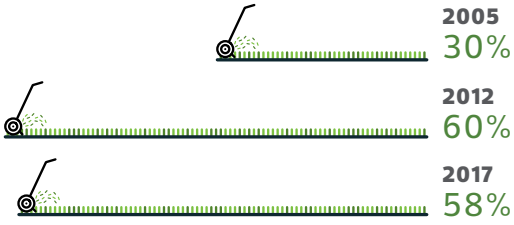
The value of the grants linked to various redevelopment projects completed or underway is more than $10,000,000 with the majority funded through new municipal tax revenue resulting from the private investments. The value to the communities of the redevelopment environmentally, economically and aesthetically is far greater than the investment.

WASTE

THE WAY WE GREEN GOAL

Edmonton generates zero waste

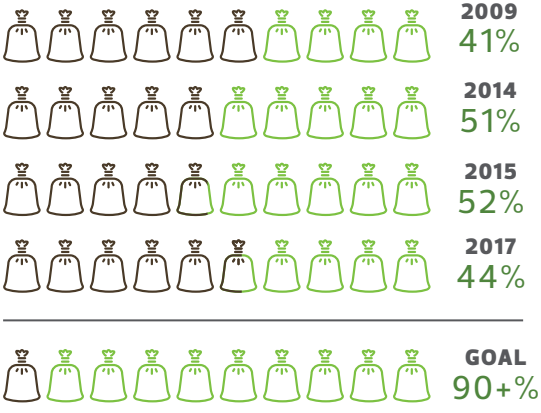
GRASSCYCLING



PERCENTAGE OF SINGLE FAMILY RESIDENCES WHO DO NOT BAG THEIR GRASS CLIPPINGS

According to the results of a 2017 Public Perception Study, 58 per cent of single family residences and 57 percent of multi-family residences who mow their lawns do not bag their grass clippings most/all of the time, keeping this material out of the landfill.

DIVERTED FROM LANDFILL



DIVERTED WASTE FROM LANDFILL

The Diverted From Landfill calculation measures the percentage of residential waste kept out of the landfill. As a result of Edmonton's waste management system and residents' participation in waste reduction, almost half of residential waste is diverted from the landfill. Diversion facilities include the recycling facility, the composting facility and the waste-to-biofuels plant.

WASTE PRODUCED PER PERSON

KILOGRAMS PER PERSON PER YEAR

2003	2014	2015	2017
335	340	334	310

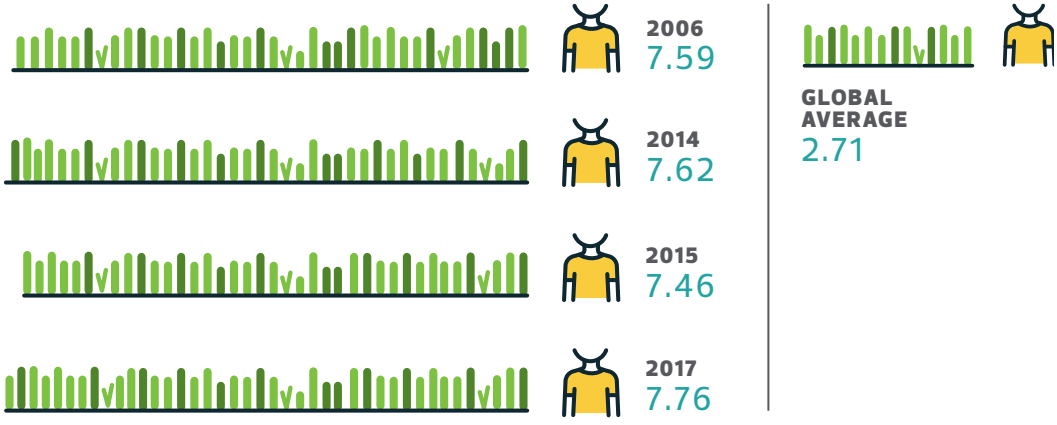
Edmontonians all produce waste. Opportunities to recover and utilize waste as a resource are increasing but the need to reduce our waste still exists if we are to advance towards becoming a zero waste city. Practices such as reusing, recycling, backyard composting and grasscycling (leaving the clippings on your lawn), as well as safe household hazardous waste disposal, all contribute to waste reduction.

SUSTAINABILITY AND FOOD

THE WAY WE GREEN GOAL

Edmonton has a resilient food and agriculture system that contributes to the local economy and the overall cultural, financial, social, and environmental sustainability of the city.

ECOLOGICAL FOOTPRINT



HECTARES PER PERSON

Ecological footprint measures the resources Edmontonians consume and the waste they produce, compared to Earth's ability to provide these resources and absorb the waste. This measure is calculated by considering all of the biological materials consumed and all of the biological waste generated nationally per person, utilizing the Global Footprint Network's calculation methods.

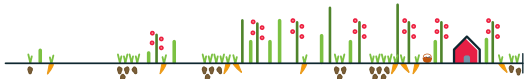
The measure is representative of the relative sustainability of Edmontonians' lifestyles. Edmontonians consume resources from outside the city boundaries, but the extraction, production, and transportation of those resources have impacts both inside and outside the city boundaries.

Living beyond ecological means will affect long-term quality of life. The ecological footprint measure puts a number on some of the environmental impacts of Edmontonians' consumption and demonstrates whether Edmontonians are living within these means.

Overall, Edmontonians ecological footprint has remained relatively constant. Edmonton's ecological footprint can be compared with national and global footprint averages, as well as the global biocapacity of Earth (what Earth can regenerate and absorb each year).

The Earth's biocapacity is 1.7 global hectares per person. Comparing global footprints to the Earth's biocapacity is a reflection of sustainability. Edmonton's ecological footprint is almost three times larger than the global average and four and a half times larger than the global biocapacity. The main drivers of Edmonton's high ecological footprint are Edmontonians' average consumption practices (which are related to wealth) and the use of fossil fuels (55 percent of Canada's ecological footprint is related to carbon). This measure is impacted by how environmentally sustainable Edmontonians' lifestyles and choices are.

COMMUNITY GARDENS

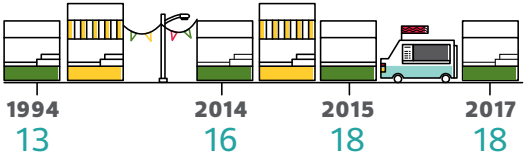


1994	2009	2013	2014	2015	2017
4	35	70	80	82	75

COMMUNITY GARDENS

A community garden is a growing space that a group of people have come together to nurture, develop and sustain. The key feature of a community garden in the Edmonton area is that they are inclusive, meaning any member of the public may join the community garden. In 2017 there were 75 community garden sites operating throughout Edmonton promoting locally grown food; healthy and active lifestyles and safer, more socially connected communities. The environmental benefits of community gardens include a reduction in food miles, improved air quality, increased species habitat and enhanced stormwater management.

FARMERS MARKETS

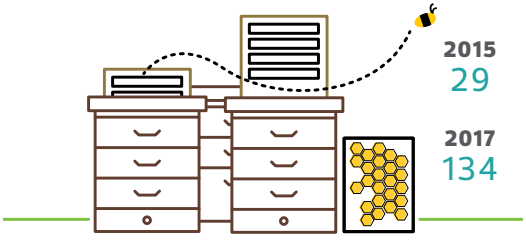


1994	2014	2015	2017
13	16	18	18

FARMERS MARKETS

Through fresh: Edmonton's Food and Urban Agriculture Strategy, the City of Edmonton has committed to strengthening farmers markets by sustaining existing markets and supporting the development of new ones. Farmers markets are valuable activities as they contribute to economic development, health and wellness of citizens, vibrancy and attractiveness of places, social connectedness and greener cities.

BEE KEEPING LICENSES



BEE KEEPING LICENSES

Bees are the most important pollinator of our fruits, vegetables and flowers. Urban beekeeping, the practice of keeping bee colonies within urban areas, helps to increase the number of these important pollinators. Bee numbers are on the decline and urban beekeeping is necessary to strengthen bee populations.

Each of us, as citizens, has a role to play to make Edmonton a sustainable city. Now that you are more aware of the State of Edmonton's environment, how will you contribute to its improvement?

If you have any feedback or comments you would like to share, please send them to environment@edmonton.ca.