



2012/2013

# EDMONTON'S REPORT ON THE ENVIRONMENT

**SUPPORTING THE WAY WE GREEN**







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# 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 Way We Green's* two main focuses are: (a) **sustainability**: our society's ability to endure over a prolonged period as an integral part of Earth's natural systems and (b) **resilience**: the capacity of our city to withstand and bounce back intact from environmental disturbances.


The purpose of this report 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. It is hoped that this report will contribute to informed decision making amongst City administrators and citizens alike.


### City of Edmonton's Environmental Evaluation and Reporting Framework

The environmental evaluation and reporting framework of the City of Edmonton is based on the foundational principles of the pressure-state-response model first pioneered by the Organisation for Economic Co-operation and Development (OECD). This conceptual framework provides a pragmatic approach of reporting on the condition of the environment and linking measurement of the factors that are influencing that condition. Whenever possible, the City of Edmonton is trying to report on both the overall condition of the environment, through the evaluation and reporting of **condition indicators**, as well as **measures** of the City of Edmonton's activities and/or community contributions that are influencing the condition indicator.

### More Information Online

The City of Edmonton is committed to providing data through its open portal data catalogue. For more comprehensive data sets and trends, please visit [www.edmonton.ca/GreenAnnualReport](http://www.edmonton.ca/GreenAnnualReport).

 This symbol refers to measures that belong to the City of Edmonton and relate to City Operations.

 This symbol refers to community measures, those that broadly measure the state of the environment within Edmonton and which all citizens have an impact on.

**CONDITION INDICATOR:** A characteristic of the environment, expressed as a single value that provides a quantitative estimate of the state of the ecological resources (air, water, land, consumption, etc.)

**MEASURES:** A measure is a quantification of the success of a management action or the contribution of a contributing factor that can directly or indirectly impact the condition indicator. It is acknowledged that data is not always available to effectively quantify the measure; therefore, some of the measures may be qualitative or semi-quantitative in nature.

**DYNAMIC AND ADAPTIVE:** The City of Edmonton Condition Indicators and Measures are not final or exhaustive in character; they need to be regularly refined as scientific knowledge improves, programs are developed, policies shift and data availability increases.

## A message from the City Manager

Most human activities have the potential to adversely impact the environment. Everything from industrial development to energy use to urban growth and transportation may affect air, land, water and biodiversity in negative ways. The environmental impacts of these activities must all be measured, evaluated and reported if they are to be effectively managed. Understanding the condition of our environment helps us make choices to lessen our impact and implement systems and programs to mitigate adverse effects. A healthy urban environment contributes to a rich quality of life for all Edmontonians.

In *The Way Ahead*, Edmonton's ten-year strategic plan, City Council has set the goal of being the nation's leader in setting and achieving the highest standards of environmental preservation and sustainability both in its own practices, and by encouraging and enabling the practices of its partners. Monitoring the overall environmental condition of Edmonton and measuring the successes of City programs that have been designed to protect and preserve the environment are crucial to becoming a sustainable community.

The purpose of this report is to keep citizens and decision makers informed about the larger state of the environment within the city boundaries and the City of Edmonton's corporate environmental performance as it relates to environmental management. We hope that this report will not only contribute to informed decision making amongst City administrators and Council but also engage citizens to take action to improve Edmonton's environment and reduce their own ecological footprint.

## Environmental Advisory Committee

The Environmental Advisory Committee (EAC) was formed 1995 and meets monthly to provide insight and advice to the City on environmental issues. The EAC represents a community voice in City decision-making and is comprised of citizens and local key representatives of environmental groups.

Over the past four years the EAC has advised the City on:

- The design of a neighbourhood oriented environmental action program;
- Green Building Policy;
- Energy Transition Plan;
- Horse Hills Area Structure Plan;
- Renewable Energy Plan; and
- Brownfield Grant Program.

The EAC considers environmental performance monitoring and transparent reporting of outcomes as keys to moving the City towards sustainability. Reporting on the overall environmental condition of Edmonton, informing citizens on the status of the city's sustainability performance and also enabling them to have a better understanding of how their own lifestyles and choices influence the environment and in turn, inspiring them to take individual action to reduce their ecological footprint.

The EAC is concerned that the City is not on track to meet its city operations greenhouse gas emissions target in 2020. In the coming year, we expect the adoption of concrete targets and firm action plans around important issues like energy transition and climate change. The EAC believes that more concerted effort around energy efficiency and the implementation of renewable energy will be needed if those targets are to be met in the future.

# 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.

**STORY:****Root for Trees**

Root for Trees is an enhanced tree planting initiative which intends to increase tree planting within the city through continued partnerships with corporations, individual residents and community groups. The target of this initiative is to plant an additional 16,000 trees annually on public and private land. The initiative is owned and spearheaded by staff in the Neighbourhood, Parks and Community Recreation branch - Forestry, Beautification and Environmental Management section. Root for Trees programs are implemented and managed by the Community Greening Team (Naturalization and Beautification). In 2013, Root for Trees exceeded its goal by planting 21,422 trees.



**WHAT IS A TABLELAND?**

Tableland natural areas are the upland areas above the North Saskatchewan River Valley and Ravine System. Natural areas consist of land or water that is dominated by native vegetation in naturally occurring patterns. Such areas could include grasslands, forests, wetlands, peatlands or riparian areas. Areas such as groomed parks, sports fields and schoolyards are not natural areas.

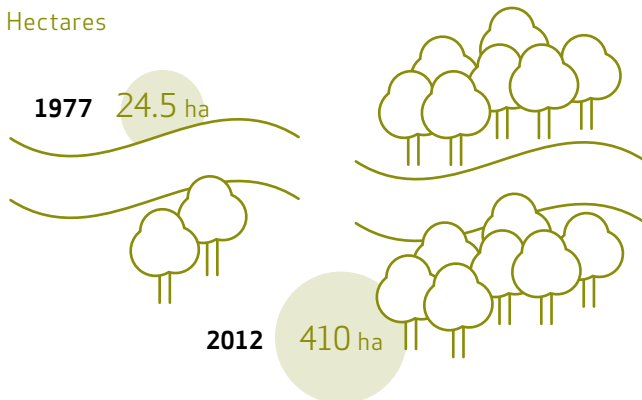
**CONDITION INDICATOR:** 

**TOTAL PRIORITY 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). As of the end of 2012, 409.5 hectares of tableland natural areas have been secured. However, this accomplishment is tempered by the loss of 105 ha in the last four years due to rapid growth of the City.

**LAND SECURED FOR NATURAL AREAS**

Hectares



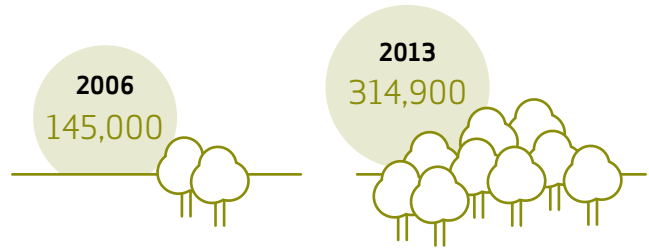
**MEASURE 1:** 

**City-Maintained Trees**

The inventory of City-maintained trees continues to grow each year. Although current tree planting endeavours play a significant role in maintaining the tree canopy, additional strategies are required to increase the canopy to meet targets in the Urban Forest Management Plan. To that end, the City has launched an enhanced tree planting initiative called Root for Trees. (See story on previous page.)

**NUMBER OF TREES MAINTAINED BY THE CITY**

Trees

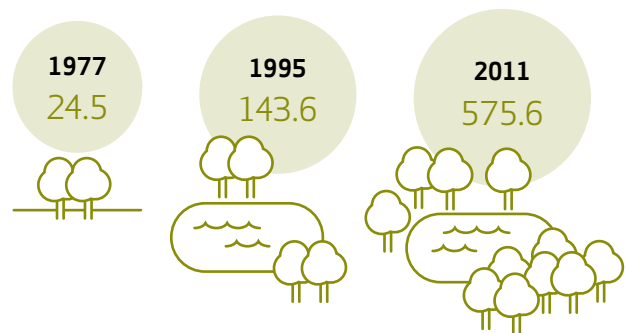


**WHAT IS A CONSTRUCTED WETLAND?**

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

**LAND SECURED FOR NATURAL AREAS & CONSTRUCTED WETLANDS**

Hectares



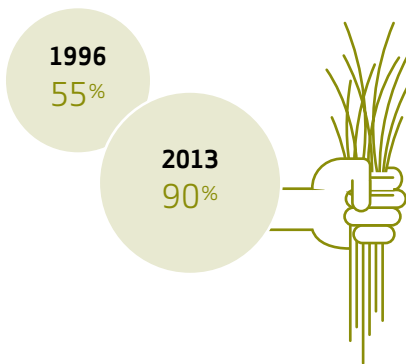
**WHAT IS INTEGRATED PEST MANAGEMENT (IPM)?**

All forms of pest management activities on City property follow the principles of Integrated Pest Management (IPM). This means a variety of preventive and non-chemical pest management strategies are used or considered before using the least toxic approved pesticide. A common IPM strategy used by the City includes invasive weed pulls.

**MEASURE 2:**  **Pesticide Alternatives**

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 utilized to control weeds.

**TURF AREAS WHERE ALTERNATIVES TO HERBICIDES WERE USED**  
Percentage



**MEASURE 3:**  **Naturalization**

In 2013, the City continued the process of allowing some turf areas to become more natural. Key elements of naturalization are restricting mowing and planting trees and shrubs that are found naturally in Alberta.

**TURF AREA NATURALIZED**  
Hectares



# WATER

**THE WAY WE GREEN GOAL:**

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

**THE WAY WE GREEN GOAL:**

Edmonton's water supply meets its needs.

**STORY:**

## Advancing Low Impact Development in Edmonton


Understanding the role of Low Impact Development (LID) in providing alternate forms of surface drainage and protecting water quality is vital to encouraging LID best management practices throughout Edmonton. LID is a land development approach that works with nature to manage stormwater close to the source while improving water quality. In 2012 and 2013, Drainage Services began monitoring three city bioswales (open channels with dense vegetation designed to reduce, treat and convey stormwater runoff). Drainage Services works with Parks to measure water flow, soil composition and the types of vegetation species in the bioswale. This information will contribute to ensuring that future LID projects use the appropriate soil and vegetation for our cold climate and are built in the proper form to flourish in a neighbourhood. This should help with the adoption of sustainable LID principles in new neighbourhoods. Read more about LID on page 12.

**WHAT IS LOW IMPACT DEVELOPMENT (LID)?**

As Edmonton grows and more land is developed in the city and surrounding areas, function of the natural water cycle is altered. Low impact development (LID) mimics natural hydrology (movement of water) by managing stormwater close to its source. Wherever possible, natural landscape features that contribute to local hydrology are preserved and incorporated into urban design.

**Benefits:**

- Improves watershed health by decreasing pollutants from urban development to surrounding watercourses
- Provides green spaces that contribute to wildlife habitat and ecological corridors
- Decreases urban heat island effects (urban areas that are warmer than rural areas)
- Reduces heating and cooling energy requirements

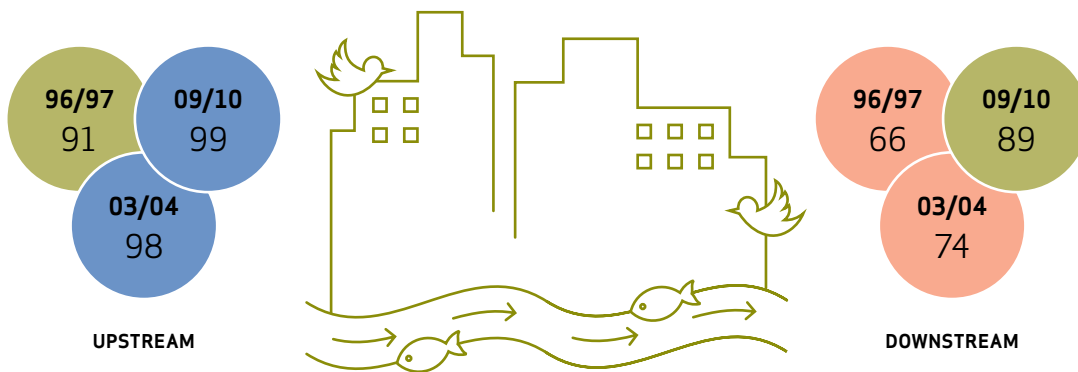
**CONDITION INDICATOR (WATER QUALITY):** 

**THE 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 simple snapshot of annual water quality conditions in major rivers of the province, such as the North Saskatchewan River. The Index is being evaluated and the Province is in the process of developing a more relevant measure that will better capture seasonality associated with changes in water quality. As such, the most recent data for the measure is from 2009/10.

In 2010, the River Water Quality Index showed that the quality of the water coming into Edmonton was excellent and the downstream river water quality in the North Saskatchewan was also good. The overall trend seen over the years is improved downstream water quality from Edmonton.

**RIVER WATER QUALITY IN THE NORTH SASKATCHEWAN RIVER**



<b>EXCELLENT</b> 96 - 100	<b>GOOD</b> 81 - 95	<b>FAIR</b> 66 - 80	<b>MARGINAL</b> 46 - 65	<b>POOR</b> 0 - 45
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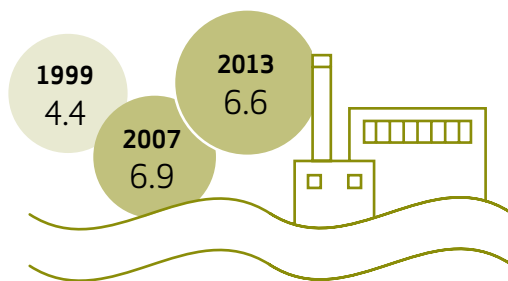
**MEASURE 1:** 

**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, adjusted for population. The index is calculated using the measured amounts of sediments, nutrients and bacteria discharged to the river, referenced to a baseline. Sources of contaminants from the City of Edmonton include wastewater treatment plant, combined sewer overflow sites and stormwater outfalls. An increase in the index is good and means less contaminants are being discharged to the river. A score of 10.0 would result from zero contaminant discharge.

The trend with EWCRI has leveled off in recent years but progress is being made towards reducing contaminant loading to the river through implementation of low impact development and other management programs.

**EWCRI FOR THE NORTH SASKATCHEWAN RIVER**



GOOD	FAIR	POOR
> 7.45	5.45 - 7.45	< 5.45

**CONDITION INDICATOR (WATER QUANTITY):** 

**LITRES USED PER PERSON PER DAY**

Domestic water use in Edmonton, on a per person basis, has historically been lower than the Canadian average due to a city-wide metering program, public education, rate setting methods and relatively short summers. Over 60% of residential water is used for showers, baths and toilet flushing. Water use per person in Edmonton continues to decrease steadily with the introduction of low flow toilets and shower heads.

**WATER USED PER PERSON PER DAY**

Litres



# AIR QUALITY

**THE WAY WE GREEN GOAL:**

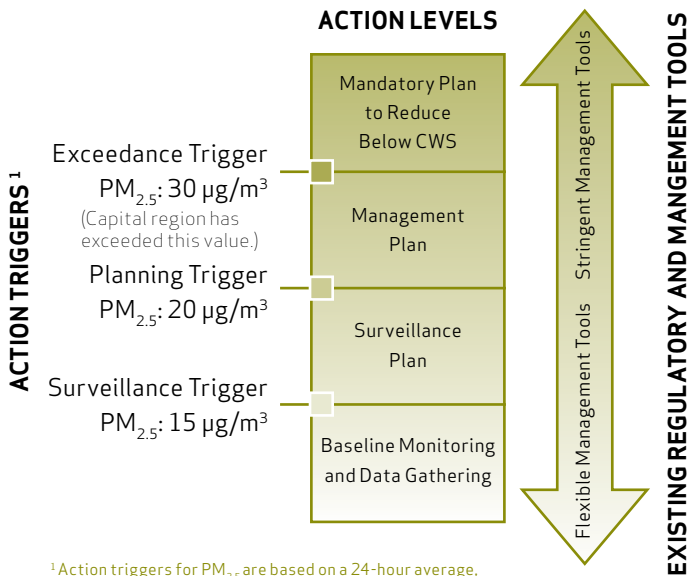
Edmonton's air sustains healthy people and healthy ecosystems.

**STORY:**

## Edmonton's Air Quality Challenge: Particulate Matter

The Capital Region is currently not attaining standards set by the federal government for fine particulate matter (PM<sub>2.5</sub>). Since 2010, two monitoring stations in the Edmonton Capital Region have consistently reported PM<sub>2.5</sub> levels above the national standard. Exposure to PM<sub>2.5</sub> is responsible for both acute and long-term health effects. On October 17, 2013, the World Health Organization for the first time classified outdoor air pollution in general as carcinogenic (cancer causing) to humans. The World Health Organization has also classified particulate matter alone as carcinogenic. To address this significant issue, the Province of Alberta has convened regional stakeholders to prepare an action plan to reduce PM<sub>2.5</sub>. The plan will be completed in the fall of 2014. Taking action now will help to protect the health of Edmontonians by reducing smog events while making room for continued economic growth in the Capital Region.

**ACTION LEVELS OF PARTICULATE MATTER**



<sup>1</sup> Action triggers for PM<sub>2.5</sub> are based on a 24-hour average, and achievement is based on 98th percentile ambient measured annually, averaged over three consecutive years.

**CONDITION INDICATOR:** 👤

PERCENTAGE OF DAYS WHERE AIR QUALITY HEALTH RISK IS LOW

The Air Quality Health Index is an information tool for the public, to relate air quality to people's health on a simple 1 to 10 scale. The risk categories and numbers are to imply a continuum of health risk due to outdoor air pollution.

**DAYS WHERE AIR QUALITY HEALTH RISK IS LOW**

Percentage



**CITY OF EDMONTON INITIATIVES THAT IMPROVE AIR QUALITY**

The City is taking many actions that are expected to improve Edmonton's air quality; for example:

- promoting active transportation
- increasing transit ridership
- pursuing transit oriented development

What is transit oriented development (TOD)? Transit oriented development principles include concentrating housing, shopping and employment along a network of walkable and bikeable streets within a five-minute walk in any direction of a transit station (or 400 metres). TOD was born in the US to reduce negative environmental impacts, such as smog, on cities.

How TOD can benefit residents:

- Increased transportation choices
- Fewer and shorter auto trips
- Lower personal transportation costs
- Easy access to daily needs
- Improved health through increased physical activity

How TOD can transform the city:

- Increased transit ridership and revenue
- More efficient use of infrastructure like LRT, sewers and other services
- Reduced air pollution and energy use
- Revitalization of neighbourhoods

# ENERGY AND CLIMATE CHANGE

**THE WAY WE GREEN GOAL:**

Edmonton's sources and uses of energy are sustainable.

**THE WAY WE GREEN GOAL:**

Edmonton is a carbon-neutral city.

**THE WAY WE GREEN GOAL:**

Edmonton is resilient to disturbances from climate change.

**STORY:**

## Energy Transition Plan

Currently, Edmonton is dependent on non-renewable energy (mainly coal for electricity, natural gas for heating and gasoline and diesel for transportation fuel). While there is a movement towards energy conservation and efficiency and a growing awareness of a need to transition to alternative energy sources, significant effort is required to take action on a community scale.

How will Edmonton transition to more renewable and reliable energy sources? The City of Edmonton is currently working on an Energy Transition Plan, in consultation with citizens and industry stakeholders, to help answer these questions and create strategies for transition. A discussion paper on energy transition and public involvement initiatives to date are found at [www.edmonton.ca/energy](http://www.edmonton.ca/energy).

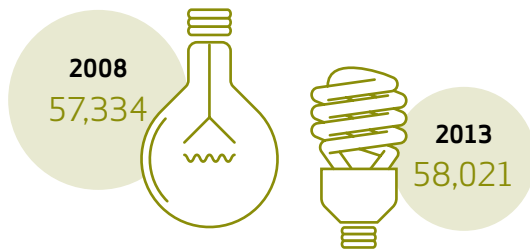


**CONDITION INDICATOR:** 

## ENERGY USED PER PERSON IN EDMONTON

The total amount of energy used per capita within the boundary of the City of Edmonton is a measure of the efficiency of energy used. This measure includes vehicle fuel, natural gas and electricity. Energy used per person in Edmonton has increased since 2008.

**ENERGY USED PER PERSON PER YEAR**  
Kilowatt hours equivalent

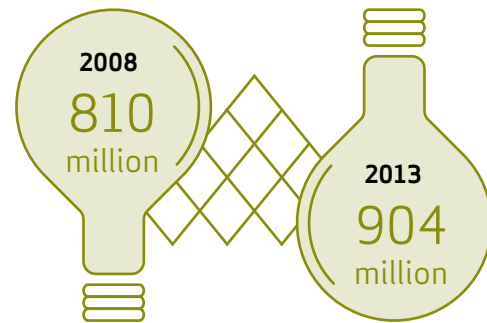


**MEASURE 1:** 

## Total Annual Energy Used in City Operations

The total amount of energy used by all departments of the City of Edmonton provides information on the relative contribution of City operations to the overall energy footprint of the community. This includes vehicle fuel, heating and electricity use. Energy use in City operations has increased in response to unprecedented growth.

**CITY OPERATIONS ENERGY USED**  
Kilowatt hours equivalent



**MEASURE 2:** 

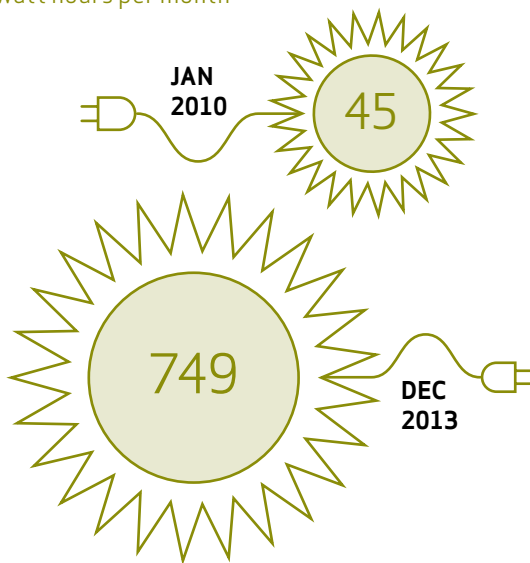
## City Operations Green Power Purchase

Annual purchases of green power (from renewable energy sources) will assist the City of Edmonton in achieving a 50% reduction in its greenhouse gases, a target set out in the City Operations Greenhouse Gas Management Plan (approved in June 2013). The amount of green power purchased will increase proportionally from 2013 to 2020, contributing to a goal of 150,000 tonne reduction by 2020. Our 2013 green power purchase resulted in 15% of our electricity coming from green sources.

**MEASURE 3:**  **Solar Electricity**

The amount of solar photovoltaic (PV) installed provides an indication of the amount of low carbon and local electricity that is being added to the Edmonton area annually. Increasing solar energy generation is a goal of *The Way We Green* and can be an indicator of the increasing diversity of our energy system. As solar PV becomes more affordable, installations are increasing at an accelerated rate.

**INSTALLED CAPACITY OF SOLAR ENERGY GENERATED (PER MONTH)**  
Kilowatt hours per month



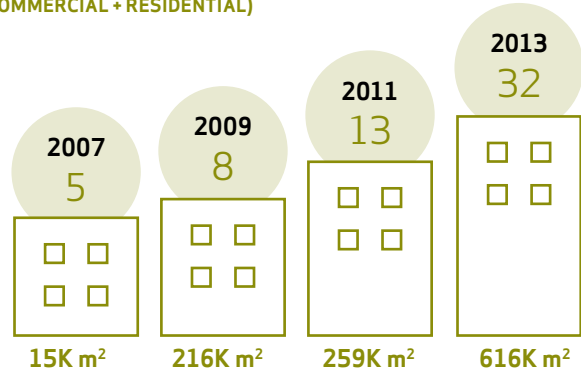
**MEASURE 4:**  **Green Building Rating Systems**

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

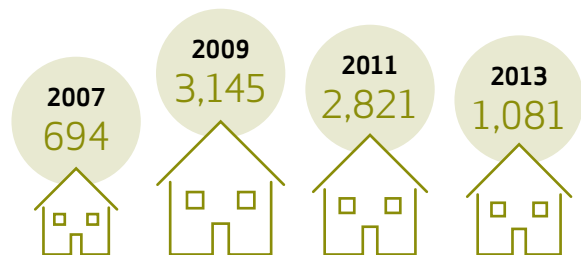
**YEARLY NUMBER OF BUILTGREEN CANADA CERTIFIED HOMES**



**TOTAL NUMBER OF LEED CERTIFIED BUILDINGS (COMMERCIAL + RESIDENTIAL)**



**YEARLY NUMBER OF ENERGUIDE LABELLED HOMES**



**WHAT ARE GREENHOUSE GASES (GHGs)?:**

Greenhouse gases (GHGs) are gases that absorb and trap heat in the atmosphere. Carbon dioxide (CO<sub>2</sub>) is the main naturally-occurring GHG. The most common human-produced GHGs are CO<sub>2</sub>, methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O). GHG emissions result from the burning of fossil fuels for residential and industrial purposes (producing mainly CO<sub>2</sub>), from agricultural and oilfield activities (mainly CH<sub>4</sub>) and from vehicle emissions (mainly CO<sub>2</sub> and N<sub>2</sub>O).

GHGs are also emitted from natural sources such as volcanoes and forest fires. Water vapour is another important GHG. All GHGs released to the atmosphere contribute to the greenhouse effect, regardless of where in the world they are emitted.

**CONDITION INDICATOR:** 

# COMMUNITY GREENHOUSE GAS EMISSIONS

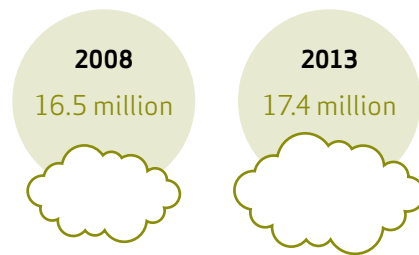
The City monitors greenhouse gas trends to know Edmonton's relative contribution to climate change. Climate change is currently largely being driven by human emissions or CO<sub>2</sub> and other gases that contribute to the atmospheric greenhouse effect.

The total amount of greenhouse gas emissions is derived from the emissions from landfills and the use of fossil fuels (natural gas, grid electricity and vehicle fuels) within

the City of Edmonton boundary. Edmonton continues to grow and so do the greenhouse gas emissions emitted within city boundaries.

**COMMUNITY GREEN HOUSE GAS EMISSIONS**

Tonnes of carbon dioxide equivalent



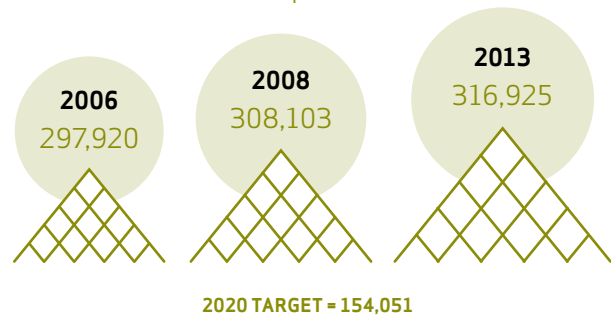
**MEASURE 1:** 

## City Operations Greenhouse Gas Emissions

The amount of greenhouse gases that are produced as a result of City of Edmonton operations from every department show the city's relative contribution in Edmonton's overall carbon footprint. This includes emissions generated from the use of vehicle fuel, natural gas and electricity. The continued development of the city has required an increased level of City services in urban growth areas, which has resulted in an increasing trend of greenhouse gas emissions for City operations.

**CITY OPERATIONS GREENHOUSE GAS EMISSIONS**

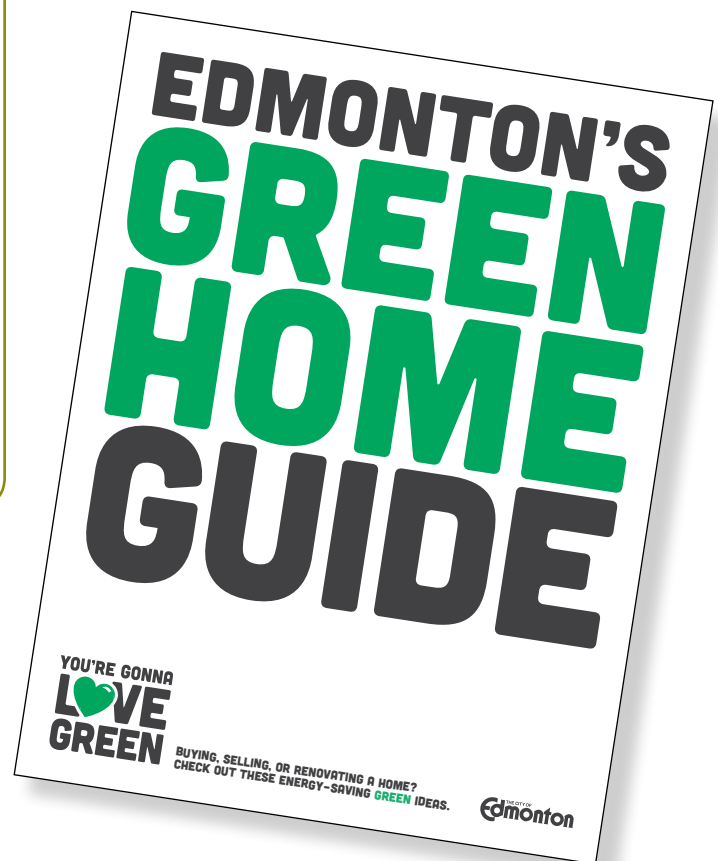
Tonnes of carbon dioxide equivalent



**GREEN HOME GUIDE STORY:**

Launched in the fall of 2013, the Green Home Guide is an education and awareness component of the City of Edmonton's Green Building Plan. The Guide provides easy-to-read background information on various energy efficiency improvements and green features that are possible in Edmonton's residential market (both new and resale). Through a series of quick text descriptions and the use of infographics, the guide assists consumers in obtaining a better understanding of what defines a green home. Important concepts such as location efficiency, payback and operational costs are also highlighted.

The intent of the guide is to convey the value and benefits of green, above and beyond saving the environment, focusing on things like comfort, cost savings, aesthetics and the cool factor. The guide also underlines the message that various levels of green can be attainable at any budget and it is not an 'all or nothing' game. The desired outcome of the guide and associated marketing program is better informed consumer choice which, in turn, is expected to build greater demand for greener homes.





# LAND MANAGEMENT & TRANSPORTATION



**THE WAY WE GREEN GOAL:**

Edmonton is a carbon-neutral city.

Sustainable land management policies such as encouraging density, brownfield redevelopment, complete communities and integrated land use and transportation planning, can result in significant sustainability gains in terms of reduced energy use, emissions and conservation of natural lands.

**STORY:**

Let's Get There Together.  
It's Time We Got Along.

The City ran a well received and far reaching education and awareness campaign titled Let's Get There Together. It's Time We Got Along. Six new Lego™ bicycle education and awareness videos were released in 2013. The videos look to educate both motorists and cyclists, covering topics such as how to turn left on a bike, what the dashed markings on a reserved bike lane means, the different types of shared-use lanes and how motorist and cyclists operate in them, as well as what a bike box is and how it works.

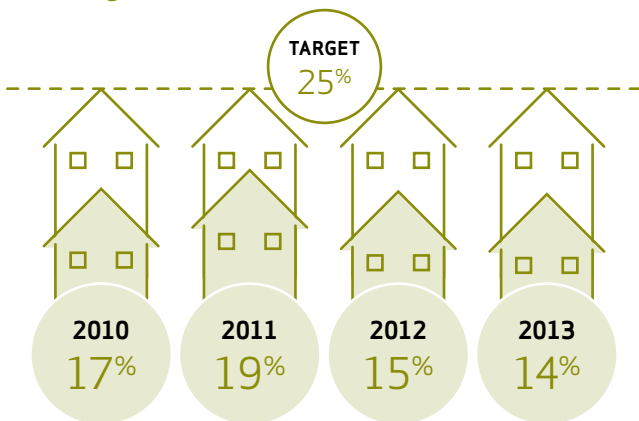
Increasing active transportation helps to reduce Edmonton's carbon footprint. Share the Road initiatives help to make Edmonton more bike friendly.

**CONDITION INDICATOR (LAND MANAGEMENT):**    
**INFILL MEASURE**

Residential infill is the development of new housing in established neighbourhoods. This new housing may include secondary suites, garage suites, duplexes, semi-detached houses, row houses, apartments and other residential and mixed-use buildings. These types of developments use land and resources efficiently, which lowers the environmental impact.

Edmonton set a target in The Way We Grow to have 25% of new residential development be infill. This target is not currently being achieved but programs like Evolving Infill and the Brownfield Grant Program are aiming to increase this number in the future.

**NUMBER OF RESIDENTIAL INFILL DEVELOPMENTS**  
 Percentage



**MEASURE 1:**   
**Brownfield Redevelopment**


A brownfield is a site that is underutilized 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.

**STORY:**  
**Brownfield Grant**

The City launched a Brownfield Grant in 2011 to provide assistance to property owners, interested groups and developers intent on improving the use of former refuelling site brownfields. The grant funds available are designed to refund testing and remediation costs associated with readying a brownfield for redevelopment.

The goal of this grant program is to improve the environmental condition of these former refuelling sites by promoting clean up and ideally leading to their redevelopment.

The program has met with much success. In the three years since its launch, 10 successful applicants have reserved/received grant funding. The grant awards have been used for both testing and remediation. Some of the brownfield redevelopment projects include a multi-storey, mixed-use facility including below-market housing; a condominium complex in the downtown area; and a mixed-use facility on the south side, to name just a few. The total value of the grants linked to these 10 projects is just over \$660,000. The value to the communities of the redevelopment is far greater than that investment.

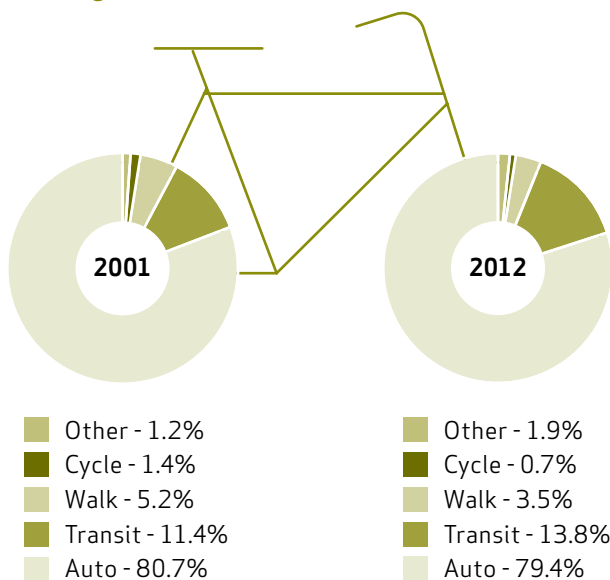
**CONDITION INDICATOR (TRANSPORTATION):** 

# TRANSPORTATION MODE SPLIT

This measure tells us, based on an average day in the city of Edmonton, the proportions of commute to work trips that are made by the various modes of transportation. Although only 26% 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, thus influencing the capacity requirements of the transportation network.

Generally we are trending favourably in this measure. Prior to 2012, the data on the commute to work was updated every five years using the Federal Census and National Household Survey. Data is now available more frequently through the Edmonton Municipal Census.

**MODE OF TRANSPORTATION FOR COMMUTE TO WORK**  
Percentage\*



\* The 2001 commute to work data was obtained from the Federal Census while the 2012 data was obtained from the Edmonton Municipal Census. Direct comparisons are not recommended given the different data collection methods used.

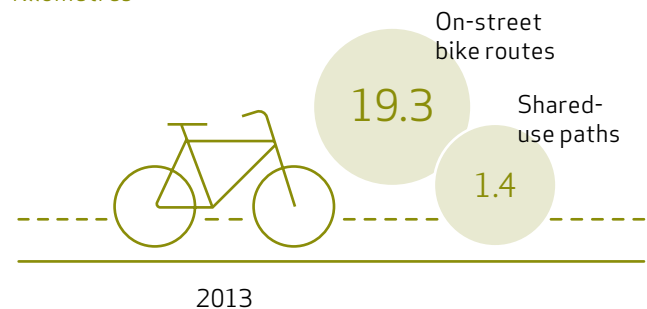
**MEASURE 1:** 


## Bike Infrastructure

The City of Edmonton seeks to decrease the proportion of missing links of shared-used paths constructed in existing areas of the City and increase the proportion of total planned kilometres of on-street cycling facilities constructed.

Bike infrastructure encourages cyclists to take to the streets, with 14% of Edmontonians already reporting more bike usage to nearby destination points because of the bike lanes that have been installed in their neighbourhoods. Cycling is a great way to travel more sustainably. It also provides the perfect opportunity to stay active and adopt a healthy living lifestyle.

**TOTAL ON-STREET BIKE + SHARED-USE PATHS CONSTRUCTED**  
Kilometres

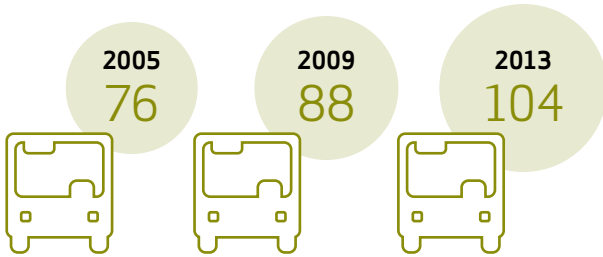


**MEASURE 2:**  **Transit Ridership**

This measure tells us how many rides are made annually on transit (both buses and LRT) as a rate proportional 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 ridership per capita means that more people are taking transit and implies that a greater proportion of daily trips are being made by transit.

In 2013, transit ridership was 104 rides annually per capita. Through a mode shift to transit and an increase in travel activity over 10 years, the City’s target is to increase transit ridership to 107 rides per capita annually by 2020.

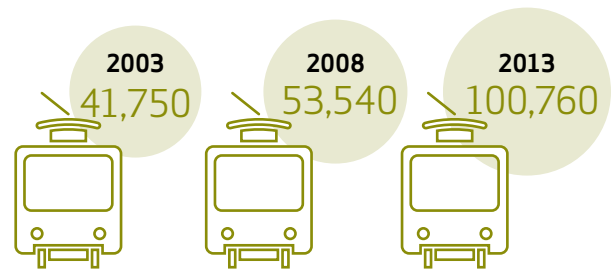
**TRANSIT RIDERSHIP**  
Per capita



**MEASURE 3:**  **LRT Ridership**

The City aims to continue its expansion of the LRT network. The Southeast to West LRT (Valley Line) will be a low-floor urban line that will run from Mill Woods to Lewis Farms, crossing through downtown. Over the past 10 years, LRT boardings have grown by 132.5%.

**LRT PASSANGERS DAILY**  
Trips per day



For information on transit oriented development (TOD), see page 15.



# WASTE

**THE WAY WE GREEN GOAL:**

Edmonton generates zero waste.

**STORY:**

## Grasscycling

Grasscycling – leaving the clippings on the lawn – is one of the most effective and easiest methods of reducing household waste volumes. Grasscycling participation among single family households in Edmonton has increased from 30% in 2005 to 60% in 2012. Waste Management Services uses a social marketing approach that focuses on the benefits of this type of waste reduction. Combining an understanding of the misconceptions and benefits of grasscycling with various behaviour change tools helps to engage thousands of Edmontonians in making personal pledges to start grasscycling. Working with residents to overcome obstacles to waste reduction is central to the City of Edmonton's public education efforts and key to achieving the long term goal of zero waste.

**CONDITION INDICATOR:** 👤

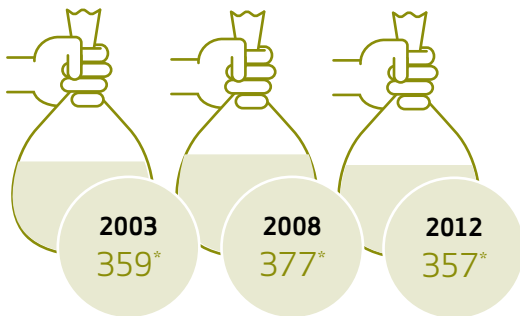
# WASTE PRODUCED PER PERSON WITHIN EDMONTON

Edmontonians all produce waste. Opportunities to recover and utilize waste as a resource are increasing but the need to reduce our waste at home still exists if we are to advance towards zero waste.

As a result of Edmonton’s world class waste management system, a high percentage of the residential waste collected is never landfilled. Diversion facilities include the recycling facility, composter and the soon to open waste-to-biofuels plant.

**RESIDENTIAL WASTE COLLECTED PER PERSON**

Kilograms per person per year



\*This includes recyclables and household waste

**MEASURE 1:** 👤 🏠

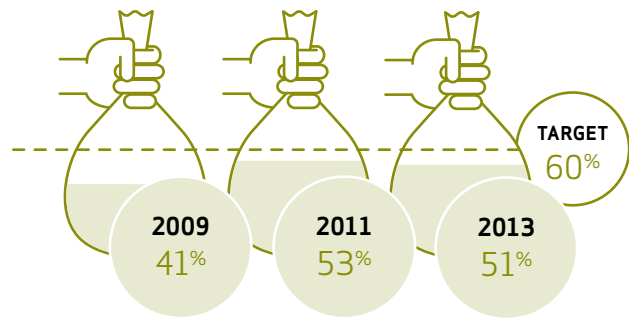
## Diversion of Waste From Landfill

Residential Waste Diversion measures the percentage of residential waste diverted through source reduction and recycling, composting and future waste conversion technologies.

Waste reduction practices such as reuse, recycling, composting and grasscycling (leaving the clippings on your lawn when you mow), as well as safe household hazardous waste disposal, all contribute to waste diversion. In 2013, Edmonton achieved a 51% diversion rate for residential waste.

**DIVERSION OF WASTE FROM THE LANDFILL**

Percentage



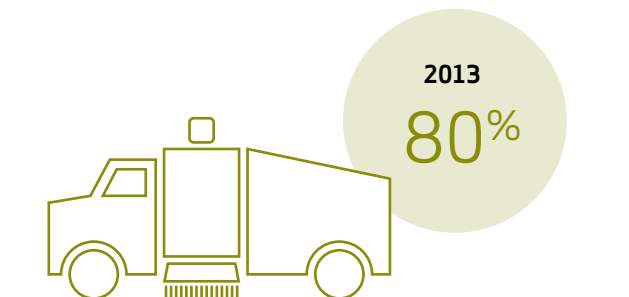
**MEASURE 2:** 🏠

## Road Sand Recycled per Year

Each year the City of Edmonton uses a tremendous amount of winter road traction material, including sand, salt and limestone chip, to ensure our roadways are safe. In recent years, the City of Edmonton has been able to recover and reuse around 80% of the sand collected in the Spring Sweep program.

**ROAD SAND RECYCLED PER YEAR**

Percentage



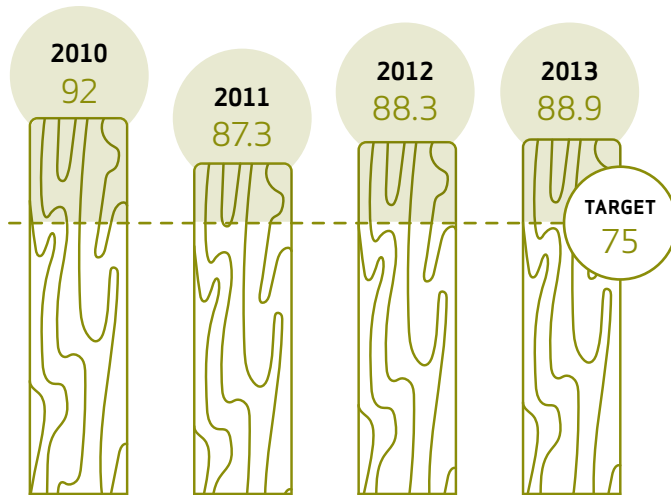


**MEASURE 3:** 

**Construction Waste Recycled From LEED City Buildings**

In 2013, the City exceeded its target of 75% of construction waste being recycled from City of Edmonton building projects that are striving for LEED certification. Construction Waste Recycled is calculated by dividing the tonnes of construction waste that is taken to recycling or reuse facilities by the total tonnes of construction waste produced during the construction of the City project.

**CONSTRUCTION WASTE RECYCLED FROM LEED CITY BUILDINGS**  
Percentage



# SUSTAINABLE LIVING & FOOD



## THE WAY WE GREEN GOAL:

The City of Edmonton strives for sustainability and resilience in all it does.

## THE WAY WE GREEN GOAL:

Lifestyles of Edmontonians contribute significantly to the city's sustainability and resilience.

## 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.

## STORY:

### FRESH

In 2012, Edmonton City Council passed *fresh: Edmonton's Food and Urban Agriculture Strategy*. One of the first successful initiatives undertaken as a result of *fresh* was the formation of the Edmonton Food Council. The Food Council will be looked to for their expertise, experience and extensive networks in the food and agriculture community. As a committee of administration, they will advise City staff on food and urban agriculture matters and support the implementation of *fresh*. In time, it is hoped that they will also become a key resource to the community at large. As momentum builds, the Food Council may evolve to take on other roles as needed, such as connecting and coordinating efforts across the food system, providing public engagement and educational opportunities and undertaking research projects that may help monitor the progress of *fresh*.

**CONDITION INDICATOR:** 

## ECOLOGICAL FOOTPRINT

The most overarching measure of our sustainability as citizens within Edmonton’s boundaries is called ecological footprint. Ecological footprint analysis compares human demands on nature with the biosphere’s ability to regenerate resources and provide services.

The amount of resources Edmontonians use to support their lifestyles are well beyond the one planet living target of 1.8 hectares per capita.

In 2012, Edmonton’s average ecological footprint was 7.67 hectares per capita which represents a total footprint area of 6.27 million hectares for Edmonton’s population of 817,498. Edmonton’s total ecological footprint area is 91 times larger than the geographic area of Edmonton (68,437 hectares).

The leveling off of Edmonton’s ecological footprint in recent years may be due to decreases in residential energy use and reductions in household waste. Edmonton’s total GHG emissions per capita have been declining since their peak in 2000 along with decreasing per capita natural gas and electricity consumption.

**AVERAGE ECOLOGICAL FOOTPRINT**

Hectares per capita



**WHAT IS ECOLOGICAL FOOTPRINT?**

Ecological footprint analysis provides a useful tool for assessing whether a community is living in harmony with nature’s capital goods and services or is incurring an ecological deficit.

This measure is calculated by considering all of the biological materials consumed and all of the biological wastes generated by a person or household in a given year. The data used to calculate the ecological footprint is a combination of household expenditure data on food, shelter, transportation, goods and services and government services, in addition to physical energy use data that can be drawn from municipal government data sources. Household expenditure data is then translated into an equivalent number of global hectares so that the footprint can be reported in terms of the land and sea area required to meet annual household food, material and energy needs. The ratio of the ecological footprint per capita compared to the available biological capacity (land and sea) available per capita within a region or nation provides a proxy for the relative sustainability of lifestyles. At present the total world ecological footprint of the human population averages 2.71 global hectares per capita, exceeding the available global biocapacity of the earth (1.8 ha/capita) by 33 percent.

**MEASURE 1:**  **Farmers Markets**

Through *fresh: Edmonton's Food and Urban Agriculture Strategy*, the City of Edmonton has committed to strengthening farmers markets by supporting the development of new markets as well as sustaining existing markets. Farmers markets are incredibly valuable activities that simultaneously contribute to a number of key goals, including local economic development, healthier residents, vibrant and attractive places, social connectedness and greener cities. At present there are 13 markets in Edmonton, a number that has grown steadily in recent years.

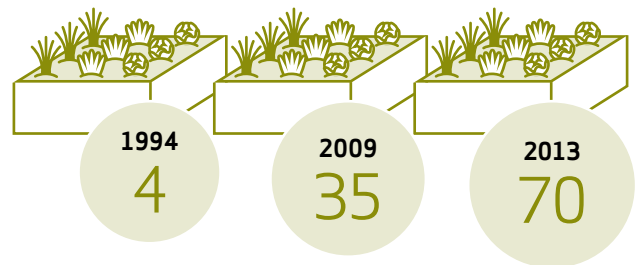
**EDMONTON'S FARMERS MARKETS**  
Markets



**MEASURE 2:**  **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. There are over 70 community garden sites now 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 stormwater management.

**EDMONTON'S COMMUNITY GARDENS**  
Gardens

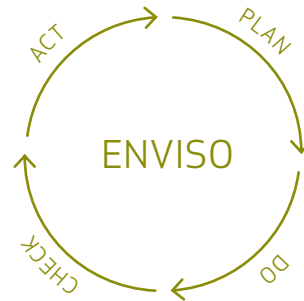


**MEASURE 3:**  **Environmental Spills**

Whenever a spill occurs, one that adversely affects the environment, the City is required to report the incident to Alberta Environment and Sustainable Resource Development. The City actively tries to minimize the negative impacts that spills can cause to the environment, human health and safety or property. The City of Edmonton attempts to exceed these requirements by encouraging employees and contractors to report all releases, no matter the size or extent of impact, to a City 24/7 operated call center.

**A New Approach to Environmental Monitoring and Performance Evaluation Arrives in Alberta**

In 2014, the Alberta Environmental Monitoring, Evaluation and Reporting Agency (AEMERA) began operating in Alberta. The agency is an arms length group that was established to provide open and transparent access to credible and relevant scientific data and information on the condition of Alberta's environment to inform policymakers, regulators, planners, researchers, communities, stakeholder groups, industries and the general public of Alberta and internationally. Although AEMERA is initially focusing its efforts in the oil sands region, as it grows, it is expected to set the direction for urban environmental monitoring and performance tracking. Future versions of this report will strive to align with directions coming out of this agency.



The City of Edmonton is committed to strong environmental management of the operations and services it provides to Edmontonians. One way the City makes these differences every day is through Enviso. Enviso is the name given to the City's ISO 14001 environmental management systems.

Achieving ISO 14001 certification is an impressive accomplishment. As of 2013, the following 11 branches have received and maintained ISO 14001 certification: Community and Recreation Facilities; Fire Rescue Services; Neighbourhoods, Parks and Community Recreation; Fleet Services; Drainage Services; Waste Management Services; LRT Design and Construction; Roads Design and Construction; Transportation Operations; and Transportation Planning.



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[www.edmonton.ca/Green Annual Report](http://www.edmonton.ca/Green%20Annual%20Report)

