City of Saskatoon

OUR ENVIRONMENT

THE CITY OF SASKATOON'S 2014 ENVIRONMENTAL LEADERSHIP REPORT

Environmental Leadership

Growing in harmony with nature

SASKATOON GROWS IN HARMONY WITH NATURE.

Saskatoon thrives in harmony with its natural environment, conserves resources and consistently demonstrates environmental leadership.

Our city's air and water are clean. We reduced our consumption of water and energy. We rely on renewable energy sources and green technology where it makes sense to do so. We construct energy-efficient buildings. And, we are a leader in operating an energy-efficient city in our cold weather climate.

People routinely take transit, walk or cycle to get around, and our neighbourhoods are more compact. We produce less garbage and recycle or compost most of it. We grow more food in the city.

The South Saskatchewan River Valley is Saskatoon's natural showpiece and supports biodiversity in its many forms. Our natural assets are protected, enhanced and linked. And, there is more green space per resident, thanks to a commitment to urban and grassland parks and an urban forest that is healthy and growing.

Strategic Plan 2013-2023, City of Saskatoon

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INTRODUCTION

Saskatoon is a thriving prairie city built around the South Saskatchewan River. The city is home to a vast urban forest, kilometers of riverbank trails and an abundance of wildlife. It boasts over 120 hectares of riverbank parklands and is surrounded by streams, wetlands and a thriving agricultural sector. Keeping our air and water clean, providing green space for both citizens and wildlife, and enhancing the health of our scenic river valley have all been key to upholding Saskatoon's vibrant community.

Maintaining a high quality of life, in which citizens of Saskatoon live and grow in harmony with nature, requires us to prepare for the changes that lie ahead and invest in what matters. Over the past 100 years, our environment has changed substantially. Over 80% of the local native prairie landscape in Saskatoon and its surrounding area has been transformed by urban development and natural resource industries. In the next 100 years, our environment will continue to change. Most climate change scenarios for the Prairie provinces predict that there will be an increase in temperature, a reduction in soil moisture and a higher frequency of extreme weather events such as droughts, floods and extreme temperatures. As a city that values the natural environment and wishes to remain healthy, vibrant and sustainable, reducing our environmental impact has never been more important.

This first edition of *Our Environment: The City of Saskatoon's Environmental Leadership Report* is a snapshot of our environmental performance related to land, air, water and waste. It looks at the impacts of the City of Saskatoon (City) as a municipal government, and Saskatoon as a whole, including businesses and individuals. The report highlights the actions and plans of the City, both to demonstrate environmental leadership in facilities and operations as well as foster environmental action by businesses and individuals.

The City of Saskatoon and the community are making progress in many areas, including waste reduction, green buildings, active and public transportation, community gardens, water quality, energy efficiency, renewable energy and the list goes on. As we grow, continuing on this path of environmental protection will help make Saskatoon a place where we are proud to live, work, learn and play.

LAND

The ways we interact with the land can have profound impacts on the health of our environment. These interactions include city-wide choices, such as how our community grows, where we build and how we protect the natural environment. The decisions we make today can last for generations. These decisions include the types, sizes and locations of the homes we build, how long it takes to get to amenities, services and parks, and the natural areas that are protected or restored. The impacts include how much energy we use, how long it takes us to travel between destinations and how well our ecosystems are able to function. Our interactions with the land also extend to the choices we make in our neighbourhoods and homes, such as how we use and take care of our yards, parks and green spaces.

This chapter covers:

- Ecological Footprint
- The Built Environment
- The Natural Environment
- Neighbourhood Greenspace

ECOLOGICAL FOOTPRINT

The large scale, city-wide decisions we make as the City and the day-to-day decisions we make as residents have significant impacts on our environment. Our economy is global, meaning many of the items we buy or use come from around the world. The Ecological Footprint is a tool that looks at the total environmental impact of our consumption in Saskatoon, regardless of where in the world the impact occurs.

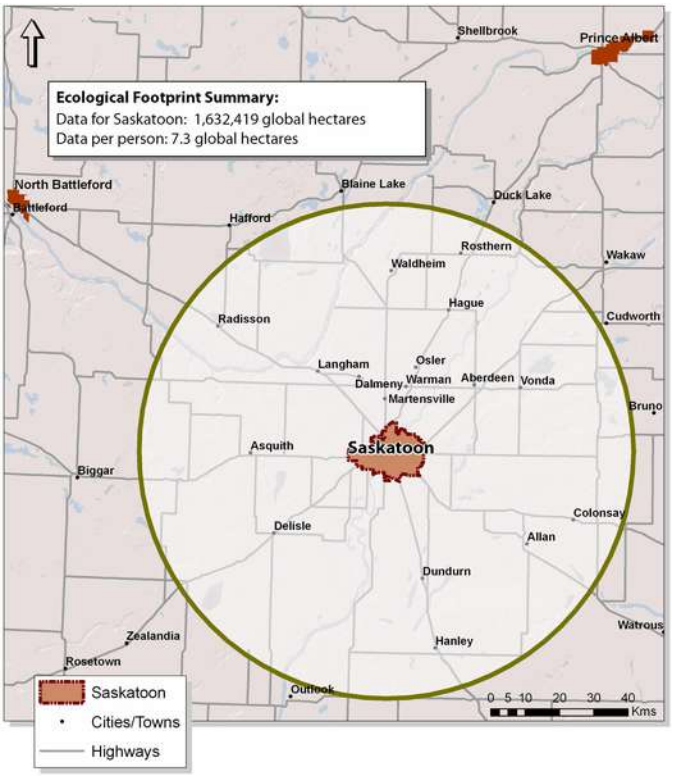
What are we measuring?

Saskatoon's Ecological Footprint accounts for our population's consumption of food, transportation, housing, goods and services. The findings are converted to the total land area (global hectares) needed to support our populations' consumption demands to make it easier to compare the impacts of different types of consumption.

Where are we now?

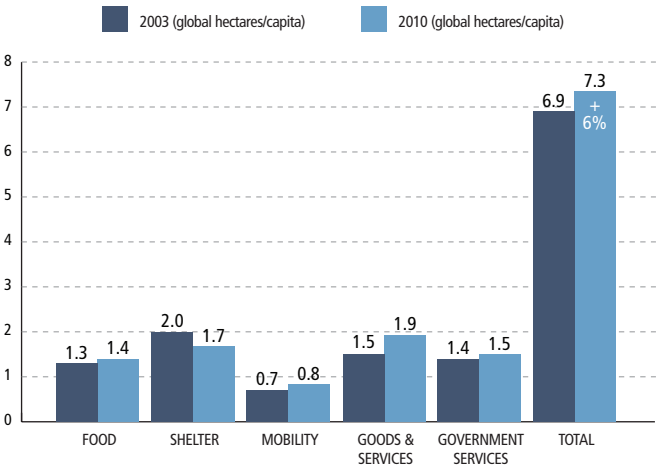
Saskatoon's current Ecological Footprint is 75 times larger than the city's total land area.

CITY OF SASKATOON'S ECOLOGICAL FOOTPRINT



Source: Anielski Management Inc., 2011

Saskatoon's Ecological Footprint per capita is growing.



Source: Anielski Management Inc., 2011

What are we doing?

The City's ***Strategic Plan 2013-2023*** identifies Environmental Leadership as a goal and includes Saskatoon's Ecological Footprint as a success indicator.

The City is committed to reducing its consumption and environmental impact. Some of the ways the City is doing this are through:

- **Environmental Implications Reporting**, a section required in all reports going to City Council and Committees. The environmental implications of each recommendation to Council or Committees are identified, and if possible quantified, so City decision makers and citizens are better informed.
- Membership in the **Municipal Collaboration for Sustainable Purchasing** and incorporation of an environmental 'checklist' as part of the City's purchasing policies.
- A commitment to the **Strategic Goal of Continuous Improvement**, which is looking for efficiencies across the organization that save money and protect the environment, such as increased use of online tools and reducing paper use.

The City supports several programs that help businesses and residents reduce their overall environmental impact.

- The **Environmental Cash Grant** program awards funds to local non-profit organizations that protect the environment, conserve natural resources, provide environmental communications and education, or undertake environmental research.

- The **Student Action for a Sustainable Future** program is coordinated by the City of Saskatoon and a number of local partners. Classes from the Public and Catholic school systems pursue action projects that reduce greenhouse gas emissions and result in positive sustainability benefits. In 2014, approximately 300 students were involved in over 40 action projects related to water, waste, food, transportation and/or energy.
- **Green Stem** is a City-supported pledge based program run by Tourism Saskatoon. It recognizes businesses for their commitment to sustainability, such as energy efficiency, renewable energy, water conservation, waste elimination and diversion, and responsible land use.

Did you know?

As part of the ***Student Action for a Sustainable Future*** program, a group of grade 8 students from Brownell School took on a number of home water conservation projects. Their families made several changes, such as installing displacement devices in toilet tanks, shortening shower time, installing faucet aerators and reducing outdoor watering. Collectively, these actions led to an annual savings of 256,000 litres of water.

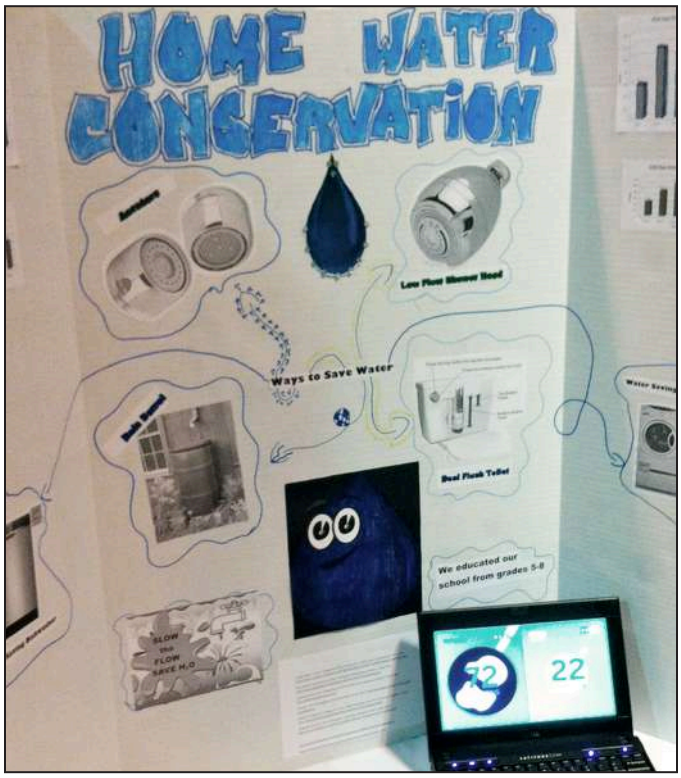


Photo courtesy: Shannon Dyck

THE BUILT ENVIRONMENT

As Saskatoon's population grows, how we choose to build will have both immediate and long-term environmental impacts. In the past, Saskatoon – like many cities across North America – grew outward onto "greenfield" land that had not previously been developed. This resulted in the loss of natural and agricultural lands in addition to other environmental, social and economic impacts such as longer commuting times to get around, larger homes consuming more energy and water, and the costs of building new infrastructure like roads, water and sewer lines.

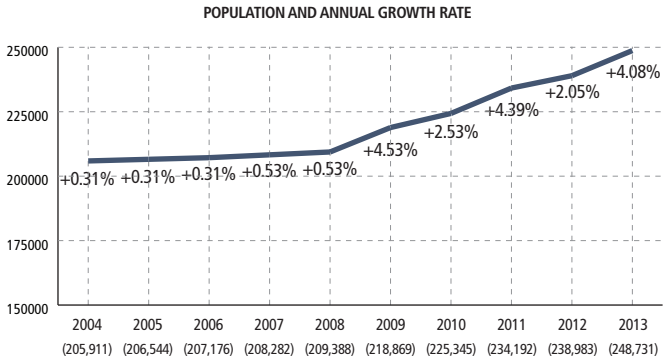
The City is shifting the way we build by balancing lower-impact "greenfield" development at the city's edges with "sensitive infill" development in existing neighbourhoods and on vacant lots. This type of development can improve citizens' quality of life and community well-being while supporting local businesses and reducing environmental impacts.

What are we measuring?

To better understand the impacts of current development patterns, we are monitoring population growth, new lands required for growth, overall population density of developed areas, the share of development that is built in already developed areas and the number of certified green buildings.

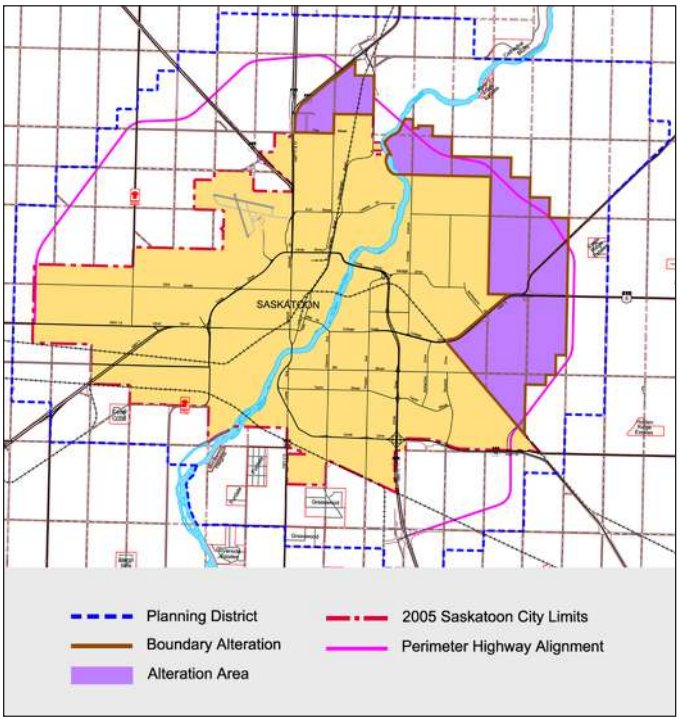
Where are we now?

Saskatoon's population grew and borders expanded over the past decade.



Source: City of Saskatoon - Planning & Development, Year-End Estimates

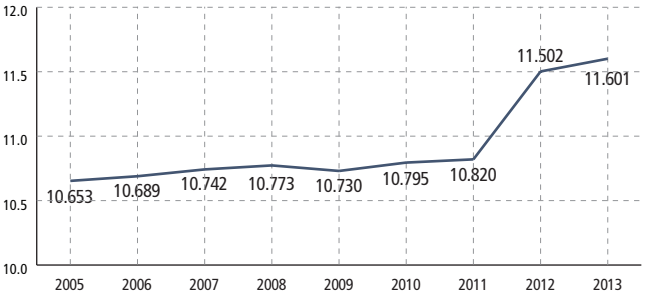
2010 BOUNDARY ALTERATION AREA



Source: City of Saskatoon - Planning & Development

Saskatoon's residential density is increasing.

DENSITY* (DWELLING UNITS / HECTARE)



**achieved residential density for complete neighbourhoods*
Source: City of Saskatoon - Planning & Development, Year-End Estimates

Infill homes are being built in existing neighbourhoods, and totals vary year to year.

2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Number of Infill Homes Built									
597	150	189	440	383	170	393	488	504	412
Percentage that is Infill (vs. Greenfield)									
43.76	21.06	17.50	24.71	28.84	12.59	16.51	17.14	17.03	14.08

Source: City of Saskatoon - Planning & Development, Year-End Estimates

Saskatoon is building greener with LEED® certified and registered buildings.

	LEED® Certified	LEED® Registered	LEED® minimum requirements met
City of Saskatoon	0	5	2
Community	8	32	unknown

Source: Canadian Green Building Council, LEED Project Profiles online database (accessed April 23, 2014)

What are we doing?

The City's ***Strategic Plan 2013-2023*** has Sustainable Growth as a goal, meaning the City will aim to balance environment, economy and quality of life. It includes strategies to build up downtown, renew and revitalize established neighbourhoods, make sure new neighbourhoods are walkable and well-planned, and encourage LEED® or other accredited facilities.

Growing Forward! Shaping Saskatoon is the City's growth plan to half a million people. It will include a core bridge strategy, rapid transit business case, a nodes, corridors and infill plan, an employment area study, a water, wastewater and utilities servicing plan, and a financing future growth study. By coordinating these studies and integrating environmental goals, the City will set a course for a more sustainable future.

The City is encouraging building in existing neighbourhoods through a **Neighbourhood Level Infill Development Strategy**. The strategy will encourage infill development and increased density while making sure the distinctive development patterns and historic characteristics of pre- and post-war neighbourhoods are maintained.

The City has five registered **LEED® facilities**: Access Transit Storage Garage, Fire Hall #8, the new Police Headquarters, the Remai Modern Art Gallery of Saskatchewan and the Landfill Gas Power Generation Facility.

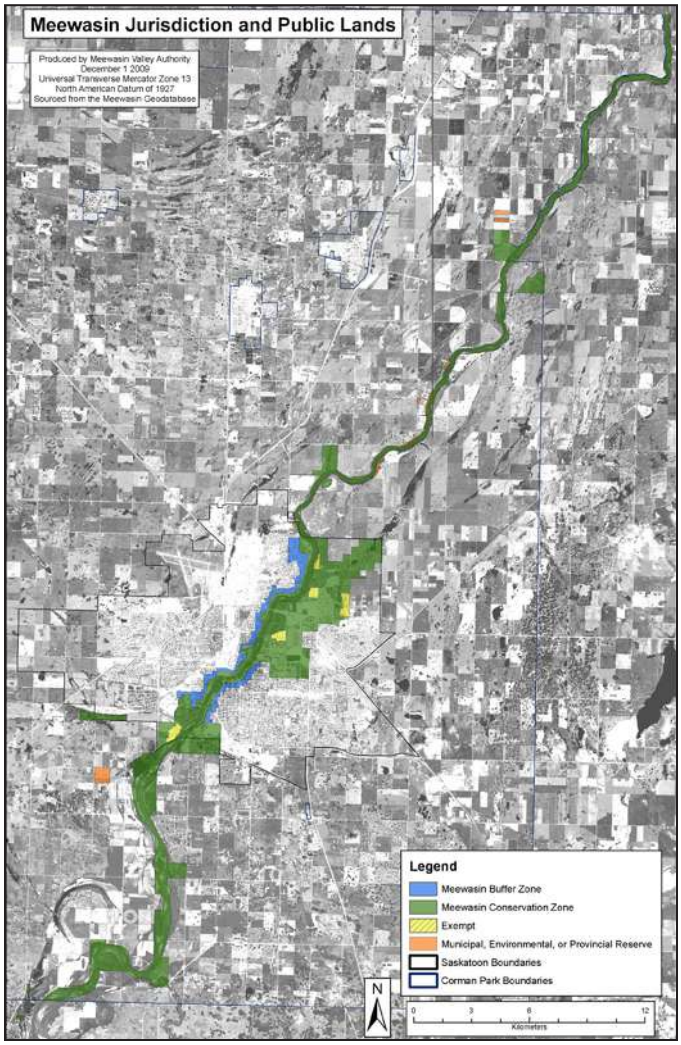
Fire Station #8 (Lakewood Suburban Centre)

Get Involved!

Shaping Saskatoon (www.shapingsaskatoon.ca) is a new online tool that helps you learn about what is being planned in Saskatoon and provides a forum to share your thoughts.

THE NATURAL ENVIRONMENT

The natural, undeveloped areas within our city play an important role in our overall well-being and environmental health. Natural areas not only support a diversity of plants and wildlife, they also perform "ecological functions" such as reducing and filtering storm water, storing greenhouse gases and removing harmful pollutants from the air. Access to natural areas is also good for us. Studies have shown residents living in neighbourhoods and cities with access to natural areas are less likely to suffer from "Nature Deficit Disorder". (Louv, 2005)



Source: Meewasin Valley Authority, 2008

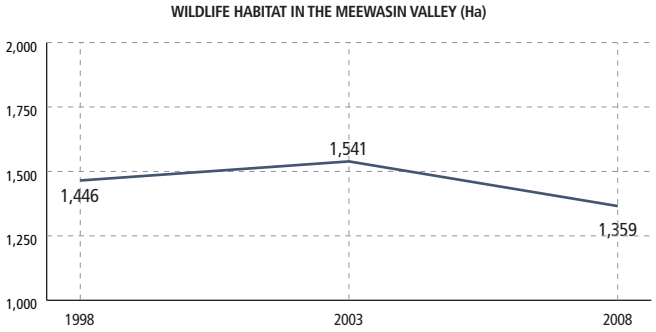
What are we measuring?

The City recognizes the importance of the natural environment, which can be understood by looking at the amount and types of natural areas within the city as well as their overall health. In this report, wildlife habitat and protected lands are measured to show the amount of land and types of natural areas. Studying biodiversity in select natural areas helps to assess the health of these areas. A more comprehensive inventory is being developed and will be available for future reports.

Where are we now?

The river valley represents a significant area of habitat in Saskatoon.

There was a net-loss of habitat (hectares) between 1998 and 2008 in Meewasin Valley Authority's jurisdiction.



Sources: Meewasin Valley Authority, 2003 and 2009

Species inventories have been recorded in two of Saskatoon's most ecologically important areas, Saskatoon Natural Grasslands and the Northeast Swale. These inventories provide us with a glimpse into the diversity of species present; Meewasin Valley Authority (Meewasin) and the University of Saskatchewan continue to study the biodiversity of these two areas.

Year	Total Species	Mammals	Butterflies	Insects	Birds	Amphibians	Reptiles
Saskatoon Natural Grasslands							
2008	150	10	23	not inventoried	117	none observed	none observed
Northeast Swale							
2008	207	16	7	not inventoried	181	3	none observed
2012	141	11	8	14	103	4	1

Sources: Meewasin Valley Authority, 2009 and 2012

Protected lands in Meewasin's jurisdiction increased by 227 hectares between 2003 and 2008.

Year	Protected Land Under Meewasin Jurisdiction	Protected Land Under Public Protection*
2003	6,051 hectares	N/A
2008	6,278 hectares	28 hectares (70 acres)

**outside Meewasin's jurisdiction*
Source: Meewasin Valley Authority, 2009

The City of Saskatoon continues to plant trees to maintain and improve the urban forest.

	2010	2011	2012	2013
Trees Planted*	743	899	835	836

**not including capital parks construction*
Source: City of Saskatoon - Parks

What are we doing?

The City's ***Strategic Plan 2013-2023*** includes the long-term strategy to improve access to ecological systems and spaces, both natural and naturalized. The City is currently looking at options for biodiversity and natural areas network planning.

For new neighbourhoods, the City has implemented policies and practices to minimize impacts and preserve significant natural areas. Screening occurs before development to identify important natural areas and features, which are then researched to determine if a **Municipal Reserve, Environmental Reserve or Meewasin Valley Authority Conservation Area** is appropriate. A **Wetland Policy** has been adopted to guide development in a manner sensitive to the ecological integrity of wetlands and integrate as many of the benefits and functions of wetlands as possible within the urban context.

The City is responsible for a **public tree inventory** which is estimated at 100,000 trees and a tree nursery of approximately 7,000 trees planted in city parks, boulevards, buffer strips, medians, streetscapes and other civic open spaces. The City is also involved with monitoring and preventing diseases in trees such as Dutch Elm Disease and Black Knot, and facilitates the SPLIT program (Schools Providing Legacy in Trees) – an educational tree planting program for elementary schools in the city.

The City works with partners to maintain and improve the natural environment. **Meewasin**, in partnership with the City and University of Saskatchewan, has established conservation management zones to protect wildlife habit and encourage healthy and biologically diverse ecosystems. Examples include Saskatoon Natural Grasslands and Northeast Swale, zones in the city's northeast sector that are surrounded by residential development.

Did you know?

Meewasin prepares a **State of the Valley Report** every five years. Look for the latest version in the fall of 2014. It will provide up to date information on habitat, protected lands, biodiversity and more.

Northeast Swale

Saskatoon's **Northeast Swale** is an ancient river channel beginning at Peturrson's Ravine that carves a 26 km long path adjacent to the South Saskatchewan River. It is one of the largest pieces of unbroken natural habitat in the Saskatoon region. The swale contains considerable areas of native prairie grasslands as well as wetland complexes and riparian forest. It offers high quality biodiversity, proximity to urban areas, economic benefits for recreation and education, and other ecosystem services such as acting as a natural filter for our air and water. Meewasin has collaborated with the City and a wide variety of stakeholders throughout the community to develop a plan to integrate this sensitive natural area into an urban context. You can learn more about the Northeast Swale by visiting www.meewasin.com/conservation/northeast-swale or by calling Meewasin Valley Authority at 306-665-6887.

NEIGHBOURHOOD GREENSPACE

In our neighbourhoods we make decisions about how to maintain our shared and private lands. The City owns and maintains parks, sports fields and other greenspaces such as rights-of-way, in all neighbourhoods in Saskatoon. Available space, how it is maintained and the types of activities that the spaces encourage can have an impact on the health of residents and the environment. Individual land owners – whether businesses, institutions or individuals – make decisions about their land. These decisions include how to landscape and maintain their property, which can impact biodiversity, pesticide use and water requirements.

What are we measuring?

The City measures the area of the various types of public greenspace in neighbourhoods and the amounts of pesticides and herbicides used to maintain these spaces. At this time there is no reliable pesticide use information available for private greenspaces, such as residential gardens and yards.

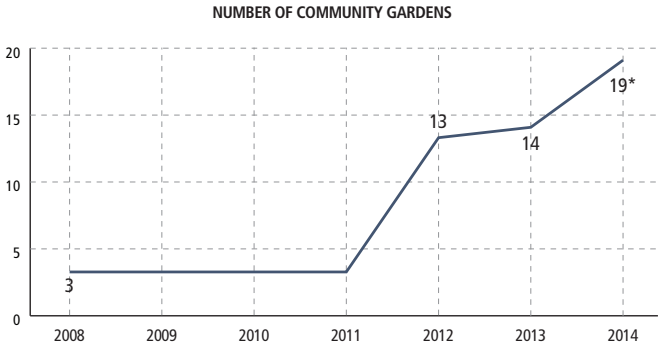
Where are we now?

Saskatoon has increased park space and kept park space per capita consistent.

Type of Park	2001 (Hectares)	2006 (Hectares)	2010 (Hectares)	2013 (Hectares)
Neighbourhood	320.1	356.8	472.2	515.4
District	126.0	147.4	210.3	175.8
Multi-District	59.1	47.8	83.0	127.9
Special Use	336.3	238.7	294.0	275.6
Industrial	-	-	8.3	6.3
TOTAL AREA (HA)	**841.5**	**790.8**	**1067.8**	**1101.0**
GREEN SPACE (HA) / CAPITA	**0.0043**	**0.0039**	**0.0047**	**0.0044**

Source: City of Saskatoon - Planning & Development

The number of community gardens is increasing.



**number of gardens approved as of April 1, 2014*
Source: City of Saskatoon - Community Development

Westmount/Leif Erickson Community Garden

Herbicides and pesticides used by the City are limited to certain applications and vary year-to-year based on the weather, the land area covered and the resources available for alternative maintenance.

Type	2009	2010	2011	2012	2013
Herbicide for roadway weed control	21 L (Concentrated)	18 L	12 L	34 L	55 L
Herbicide for pathway/shrub bed weed control	130 L (Concentrated)	168 L	146 L	275 L	313 L
Herbicide for turf	0 L	0 L	0 L	0 L	0 L
Pesticide – Vectobac (mosquito control)	n/a	n/a	7,130 kg	9,411 kg	11,933 kg
Pesticide – Rozol (rodenticide – baited wheat to control gophers)	n/a	n/a	274 kg	116 kg	270 kg
Pesticide - Giant Destroyers (sulphur bomb to control gophers)	n/a	n/a	236	213	46

Source: City of Saskatoon - Parks

What are we doing?

The City's ***Strategic Plan 2013-2023*** includes the long-term strategy to address soil-quality issues on City-owned properties and to monitor Saskatoon's ecological footprint, the amount of green space per capita, and community and backyard gardens.

The City is reducing the environmental impact of maintaining its greenspaces.

- **Integrated Pest Management** is used to reduce pesticides and herbicides. Pest damage is managed by balancing the most economical options with the least possible impact to people, property and the environment.

- All of the City's turf has been **herbicide free** since 2005.
- The **Naturalization Program** for parks creates valuable habitat in neighbourhoods and has reduced costs of installing and maintaining irrigation systems, reduced energy use and GHG emissions by not mowing, and reduced fertilizer application.

The City supports **Community and Allotment Gardens** as well as vacant lot garden licensing for local food production on City-owned land. In cooperation with CHEP Good Food Inc., the City assists interested groups to locate, plan and develop suitable open spaces into community garden space. The City is also a partner in the **Saskatoon Regional Food System Assessment and Action Plan** and a founding member of the **Saskatoon Food Council**.

The City offers education and programs on **composting, water conservation and pesticide reduction** to help make environmentally friendly choices in yards and home gardens easier for residents, including:

- subscriptions to the **Green Cart** program (curbside leaves and grass collection);
- free **leaves, grass and non-elm wood drop-off** at our compost depots;
- **Compost Sale Saturdays** to sell City-produced compost and mulch to residents at the Highway 7 Compost Depot;
- a **rebate program** for home compost bins and rain barrels;
- compost training through the **Master Composter** program;
- the **Be Water Wise** campaign offers tips on how to effectively use water in your yard and garden by using low-water plants, changing watering habits and storing rainwater; and
- **pesticide reduction** tips at www.BePesticideFree.ca.

Did you know?

In a 2014 survey, 40% of Saskatoon residents stated they have not used pesticides in the last 12 months. Primary reasons for going pesticide-free included concerns for human and environmental health, contamination of our water supply and safety. Common pesticide-free alternatives include: effective lawn and garden care through appropriate mowing and watering; use of compost, mulch and non-toxic home remedies; and maintaining healthy soil and plants.

Get Involved!

Interested in reducing the environmental impact of your lawn or garden but not sure where to start? Visit www.saskatoon.ca for more information on our annual programs including lawn and garden tips, rebates and more.

AIR

Canadians are among the top energy users in the world. Per capita we use more than two times more energy than Europeans and six times more than the world average. While energy use is important to our prosperity from electricity to heating to transportation, the type and amount of energy we are currently using can reduce local air quality and contribute to global climate change. The combination of energy conservation and the generation of green and alternative energy will ensure that we continue to thrive in our northern climate.

This section covers:

- Greenhouse Gas Emissions
- City of Saskatoon Energy Use
- Transportation
- Air Quality

GREENHOUSE GAS EMISSIONS

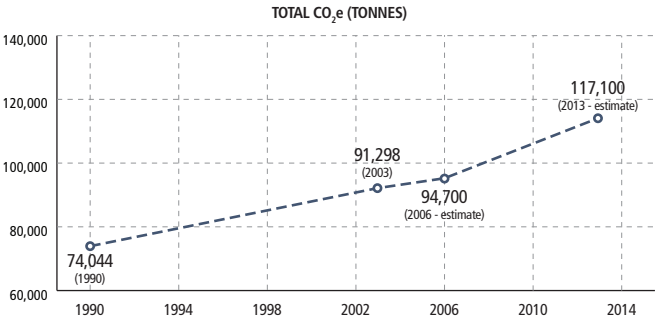
Over the past 250 years, human activities such as burning fossil fuels and clearing native vegetation have increased the concentration of greenhouse gases (GHGs) in the atmosphere. These gases include carbon dioxide, methane, nitrous oxide and ozone. GHGs are linked to climate change, which is predicted to increase the frequency and intensity of extreme weather events such as droughts, floods and storms. As a result, cities will need to prepare for the resulting stresses on infrastructure and financial services, in addition to ensuring the health and safety of residents and the environment. The City has a role to play in reducing this impact, both by improvements to our buildings and operations and working with the community to reduce overall GHG emissions.

What are we measuring?

The City has prepared inventories for corporate (municipal government) and community GHGs. The corporate inventory includes GHG emissions associated with the City of Saskatoon's facilities and operations; the community inventory includes GHG emissions associated with Saskatoon as a whole. The emissions are presented as carbon dioxide equivalent values (CO_2e), which allows the various sources of GHG emissions to be compared in relative terms. This makes it easier to compare the impacts of different emission sources and understand the total emissions.

Where are we now?

The City of Saskatoon's corporate GHG emissions have increased since the 2003 GHG inventory was completed; 2006 is expected to be used as the baseline year for corporate GHG emissions target setting.



Sources: ICLEI Energy Services, 2005; City of Saskatoon - Environmental & Corporate Initiatives

The largest increase in GHG emissions was in the Water and Sewage sector, while GHG emissions reductions were made in the Streetlights, Corporate Waste and Vehicle Fleet sectors.

Sector	1990 Total CO_2e (tonnes)	2003 Total CO_2e (tonnes)	2006 Total CO_2e (tonnes)	Estimate 2013 Total CO_2e (tonnes)	Estimate 2020 Target
Buildings	29,291	36,270	37,700	46,600	30,200
Vehicle Fleet	6,353	6,047	5,900	7,300	4,700
Streetlights	19,605	16,925	16,000	19,800	12,800
Water and Sewage	16,495	30,437	33,700	41,700	27,000
Corporate Waste	2,300	1,619	1,400	1,700	1,100
TOTAL	74,044	91,298	94,700	117,100	75,800

Sources: ICLEI Energy Services, 2005; City of Saskatoon - Environmental & Corporate Initiatives

The community's GHG emissions have increased since the 2003 GHG inventory was completed; 2006 is expected to be used as the baseline year for community GHG emissions target setting.

	1990 Total CO_2e (tonnes)	2003 Total CO_2e (tonnes)	2006 Total CO_2e (tonnes)	Estimate 2013 Total CO_2e (tonnes)	Estimate 2020 Target
TOTAL	**2,466,239**	**3,583,339**	**3,835,648**	**5,039,944**	**3,068,518**
PER CAPITA*	**13.0**	**17.4**	**18.5**	**20.3**	**11.0**

**per capita figures based on population estimates of 190,108 (1990), 206,505 (2003), 207,176 (2006), 248,731 (2013) and 278,956 (2020)*
Sources: ICLEI Energy Services, 2005; City of Saskatoon - Environmental & Corporate Initiatives

The largest increase in GHG emissions was in the Industrial sector, while GHG emissions reductions were made in the Commercial and Community Waste sectors.

Sector	1990 Total CO_2e (tonnes)	Per capita*	2003 Total CO_2e (tonnes)	Per capita*
Residential	632,958	3.329	659,433	3.193
Commercial	736,807	n/a	671,365	n/a
Industrial	618,179	n/a	1,641,199	n/a
Transportation	429,053	2.257	562,285	2.723
Community Waste	49,242	0.259	49,057	0.238
TOTAL	2,466,239	n/a	3,583,339	n/a

**per capita figures based on population estimates of 190,108 (1990) and 206,505 (2003)*
Source: ICLEI Energy Services, 2005

What are we doing?

The City's ***Strategic Plan 2013-2023*** includes the long-term strategy to reduce GHG emissions tied to City operations and continue to implement the Energy & Greenhouse Gas Management Plan. GHG emissions tied to City operations and facilities will be monitored as a success indicator.

The **Energy & Greenhouse Gas Management Plan** was adopted in 2009 and outlines the City's role in managing GHG emissions and reducing energy consumption, both within City operations and the community as a whole. The Plan provides the vision and goals developed through a comprehensive community process; the process provided the context to develop actions and programs to meet energy and GHG emissions targets. While the Plan has been extremely useful in guiding local actions and programs to meet the original GHG emissions targets, the City has established an updated target for corporate GHG emissions of 30% below 2006 levels by 2020. An updated target for community GHG emissions is currently being considered.

The City is a member of the **Partners for Climate Protection (PCP)** program, a network of over 240 Canadian municipalities committed to reducing GHGs and acting on climate change. The City has completed three out of five of PCP's program milestones to date: 1) create a GHG emissions inventory and forecast, 2) set an emissions reductions target, and 3) develop a local action plan (**Energy & Greenhouse Gas Management Plan**). Milestone 4 (implementing the action plan) and Milestone 5 (monitor progress and report results) are in progress.

Did you know?

Even small changes can add up to big savings. The Water Meter Shop's 2011 lighting retrofit has not only improved the quality of lighting, it has resulted in annual energy and GHG emissions reductions of 2,021 kWh and 2 tonnes CO_2e, respectively, as well as financial savings of approximately $252 per year.

CITY OF SASKATOON ENERGY USE

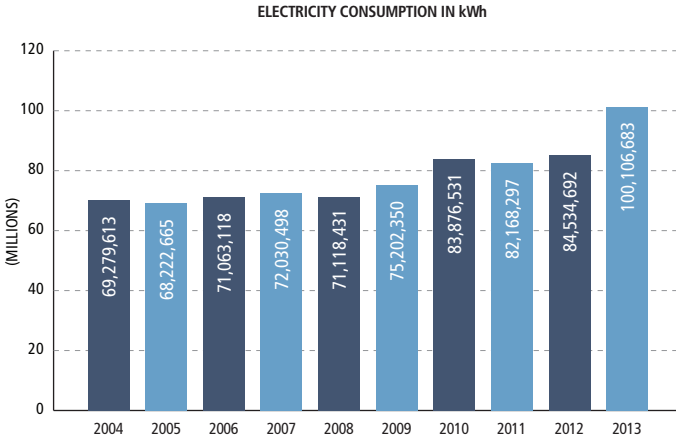
The energy the City uses in its facilities and operations has financial and environmental implications. The majority of electricity in Saskatchewan is produced through burning fossil fuels such as coal. The City also uses natural gas in its operations, and gasoline and diesel fuel for their vehicle and equipment fleet. The extraction, refinement, distribution and combustion of fossil fuels are directly linked to GHGs such as carbon dioxide, methane and nitrous oxide. In addition to the environmental implications of conventional energy sources on air quality and climate change, there are financial implications both as the City continues to grow and the price of these fuels is predicted to increase. Alternative forms of energy generation, such as solar, wind and biogas, are becoming more reliable and common and will help Saskatoon reduce GHG emissions, air pollution and energy costs.

What are we measuring?

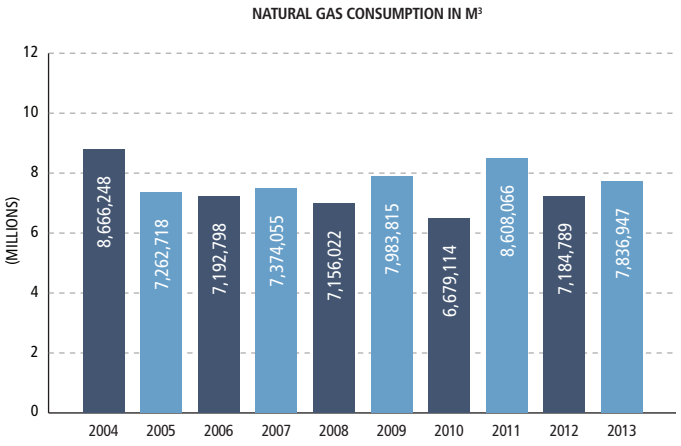
The City's main sources of energy are derived from fossil fuels, and are used to generate electricity, natural gas and motor fuel. The City has a number of initiatives underway to generate energy from alternative sources, which offsets the use of fossil fuels and reduces GHG emissions.

Where are we now?

The City is tracking overall energy consumption associated with its facilities and operations, and installing additional monitoring equipment to target future utility reductions.



Source: City of Saskatoon - Finance & Supply



Source: City of Saskatoon - Finance & Supply

The City's fuel consumption by its vehicle and equipment fleet reached a peak in 2013.

Vehicles and Equipment			
	2011	2012	2013
Diesel (L)	1,565,540	1,548,047	1,596,553
Gasoline (L)	1,818,190	1,779,383	1,919,122
TOTAL FUEL USE (L)	**3,383,731**	**3,327,430**	**3,515,675**
GHG Emissions (tonnes CO_2e)	8,546	8,406	8,868

Source: City of Saskatoon - Facilities & Fleet Management

Saskatoon Transit's fuel use has increased with more vehicle kilometers traveled, but overall vehicle fuel efficiency is improving.

Transit Vehicles					
	2009	2010	2011	2012	2013
Kilometers	8,063,369	8,292,385	8,227,341	8,286,348	8,375,830
Fuel Use (L)	4,291,216	4,376,061	4,294,322	4,255,517	4,350,880
L/100km	53.2	52.8	52.2	51.4	51.9
GHG Emissions (tonnes CO_2e)	11,667	11,897	11,675	11,570	11,829

Source: City of Saskatoon - Transit

The City has a growing number of green and alternative energy projects that will reduce the City's GHG emissions.

	2009	2011	2014	2015
Total number of green/ alternative energy projects	1	3	4	7
Total annual GHG emissions savings (tonnes CO_2e)	6	106	45,106*	49,621*

**projected savings*
Source: City of Saskatoon - Environmental & Corporate Initiatives

What are we doing?

The City's ***Strategic Plan 2013-2023*** includes long-term strategies to conserve energy and generate green energy for City facilities and operations. For conservation, these strategies include implementing energy-efficient practices in City buildings, transportation and operations, and becoming a recognized leader in Cold Climate Energy Efficiency. For green energy generation, these strategies include identifying opportunities to replace conventional energy sources with green energy technologies, creating new sources of green energy, increasing the use of renewable energy and increasing self-reliance on green energy for City operations.

Energy conservation is included in the City's new projects and existing facilities. Examples of projects significantly increasing energy conservation include conversion of traffic signals and holiday light fixtures to LED technology, retrofits to facility HVAC systems, and designing and building new civic facilities to more energy efficient standards.

The City continues to look for **vehicle fleet efficiencies**. This includes alternative fuel types, such as compressed natural gas which is both less expensive and generates fewer emissions, as well as using vehicles more effectively such as GPS-enabled routing and real-time tracking for garbage collection.

Green energy generation is underway at City facilities and continues to be expanded.

- **Solar hot water systems** have been installed on Saskatoon Light & Power's main facility (2009), as well as at Lawson Civic Centre and Harry Bailey Aquatic Centre (2011).
- The **Landfill Gas Project** (2014) captures methane from decomposing organic waste in the Landfill and combusts it in engine generators; heat from these generators will be used to produce energy in the **Turboexpander Project** (2015).
- **Combined heat and power generators** will be installed at Lakewood Civic Centre and Shaw Centre (2015).
- Other projects under development include an **incentive program** to encourage residential and commercial solar power and energy efficiency, and a **biomass to energy pilot** project that could use organic waste like kitchen scraps to generate energy.

Solar Panels at Lawson Civic Centre

TRANSPORTATION

How we choose to travel between destinations impacts our environment and health. Cars are the main method of transportation across North America and they primarily use fossil fuels which contribute to GHG emissions and reduced air quality. As well, growing numbers of cars require more land for road networks and reduce surface water quality through car-related contaminants such as oil and heavy metals. Transit, cycling and walking have fewer environmental impacts and improve our health and the safety of our neighbourhoods.

What are we measuring?

The City of Saskatoon encourages travel between destinations that is efficient, safe and environmentally friendly. The City monitors the types of transportation (modes) chosen to travel to work and the distances travelled. As well, the City tracks public transit use and the available active transportation network to ensure there are opportunities for residents to have choices.

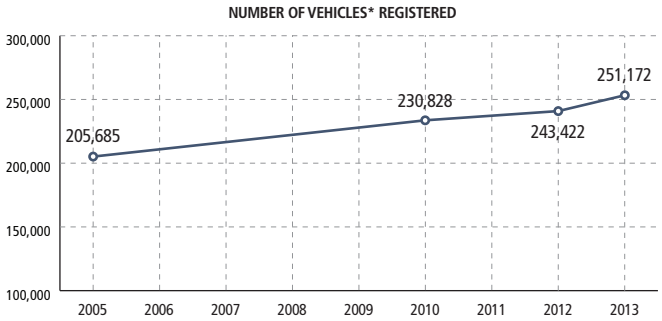
Where are we now?

More commuters are choosing to drive to work alone, while other modes of travelling to work fluctuate.

MODE	1996	2001	2006	2011
Motor Vehicle Driver	76.8%	79.7%	78.7%	80.5%
Motor Vehicle Passenger	7.3%	6.6%	7.5%	6.0%
Public Transit	5.7%	4.1%	3.7%	4.4%
Pedestrian	6.5%	5.8%	6.2%	5.1%
Cyclist	2.2%	2.5%	2.4%	2.0%
Other[1]	1.4%	1.4%	1.6%	2.0%

[1] includes motorcycles and taxis
Source: Statistics Canada

The number of vehicles registered in Saskatoon is growing.



**vehicle counts include private automobiles, motorcycles, recreational vehicles and trailers (semi, transport, utility, etc.)*
Source: Saskatchewan Government Insurance

Transit ridership is steadily increasing.

Year	Population	Ridership (formula-based)	Ridership (electronic or actual)	Trips/Capita
2006	207,176	9,046,858	–	43.7
2007	208,282	10,598,353	–	50.9
2008	209,388	11,141,672	–	53.2
2009	218,869	11,579,606	–	52.9
2010	224,345	11,564,858	–	51.5
2011	234,192	12,329,979	8,972,666	52.6
2012	238,983	12,770,458	9,364,010	53.4

Source: City of Saskatoon - Transit

Saskatoon has a growing cycling network that includes on-road and off-road options (2013 data presented below).

Cycling Facilities	KM	%
Paved off-road multi-use trail	64.8	–
Walkway or park path	69.4	–
Gravel or crushed dust off-road multi-use trail	6.6	–
TOTAL OFF-ROAD	**140.8**	**12.26**
TOTAL ON-ROAD BIKE LANES	**15.1**	**1.31**
TOTAL ON-ROAD SHARROWS	**10.8**	**0.94**
Shared-use on-road (Novice)	66.9	–
Shared use on-road (Intermediate)	100.9	–
Shared use on-road (Expert)	102.2	–
Local street - low traffic	711.8	–
TOTAL SHARED-USE ON-ROAD	**981.8**	**85.49**
TOTAL ALL	**1148.5**	**100**

Source: City of Saskatoon - Transportation

80% of Saskatoon's cycling facilities have been ranked as suitable for novice cyclists (2013 data presented below).

Cycling Facilities	KM	%
Novice	919.5	80.06
Intermediate	126.8	11.04
Expert	102.2	8.90

Source: City of Saskatoon - Transportation

Bike Sharrow

What are we doing?

The City's ***Strategic Plan 2013-2023*** identifies Moving Around as another Strategic Goal. The City will aim to expand transit, develop a comprehensive cycling network and plan neighbourhoods that encourage walking. This corporate goal includes strategies to increase transit ridership, establish rapid transit corridors and improve sidewalks, in addition to expanding and maintaining the road network.

Saskatoon Transit has undertaken a number of initiatives to increase ridership including:

- **Direct Access Rapid Transit (DART)** system that follows major routes, has limited stops and increased frequency of service;
- **Eco Pass** program that provides a monthly discount of at least 40% off the cost of a regular adult monthly pass to employees of participating businesses;
- **U-Pass** program in partnership with the University of Saskatchewan and SIAST - Kelsey Campus;
- **Rack & Roll** program that has over 100 buses equipped with bike racks;
- Improvements to accessibility through the use of **low-floor buses** making it easier for those with mobility challenges to use transit; and
- Making route information available through today's technology, including the **Click and Go**, **Phone and Go**, and **Google Transit** trip planning options.

The Cycling Guide is a resource available free of charge. It rates every road in Saskatoon from novice to intermediate to expert and provides suggested routes and facilities that have been identified by experienced local cyclists and City staff.

The City is in the planning stage of developing an **Active Transportation Plan** - to be completed in 2015 - which will encourage residents to live a more active lifestyle while reducing reliance on the automobile. One of the first steps in the development of a transportation plan is the completion of a household travel survey. The **2013 City of Saskatoon Household Travel Survey** revealed the following transportation choices with respect to all trips taken by residents: motor vehicle driver (65%), motor vehicle passenger (17%), public transit (4%), pedestrian (8%), cyclist (4%), other (2%).

Did you know?

If you were to take public transit instead of driving your vehicle to and from work, you could reduce your GHG emissions by approximately 470kg CO_2e per year, as well as reduce fuel and maintenance expenses related to private vehicle use.

AIR QUALITY

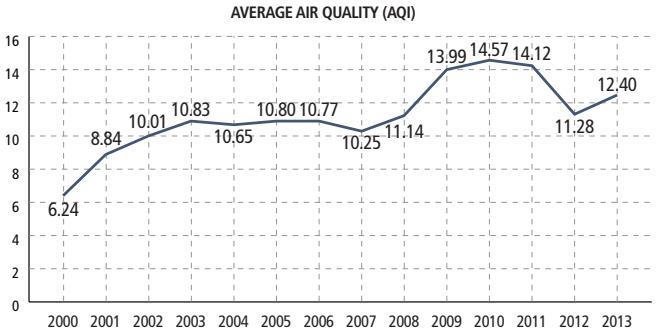
Air is important to our health and environment. Poor air quality can lead to a range of health issues, from eye and nose irritation to severe respiratory problems, as well as environmental issues such as smog and acid rain. Saskatchewan has many favourable features for good air quality: low humidity, a smaller population and few geographical features that trap and accumulate pollutants. However, there are many sources of air pollution including power generation, transportation, industry and chemical pesticide applications which make ongoing monitoring important.

What are we measuring?

Air quality is monitored by the Province of Saskatchewan using the Air Quality Index (AQI). AQI assigns air quality rankings from Good (0) to Very Poor (>100). AQI considers a number of air pollutants, including carbon monoxide, fine particulate matter, nitrogen dioxide, ground level ozone and sulphur dioxide.

Where are we now?

Saskatoon's average Air Quality is ranked as Good by the Air Quality Index, but it has been showing a trend of slow decline.



AIR QUALITY INDEX			
GOOD	FAIR	POOR	VERY POOR
0 - 25	26 - 50	51 - 100	> 100

Source: Government of Saskatchewan, Ministry of Environment

In 2013, Saskatoon had 17 days where the Air Quality Index ranked "Fair", all caused by elevated ground level ozone concentrations.

Month	# of Days when AQI ranked "Fair" (26-50)	# of Days when AQI ranked "Poor" or "Very Poor" (>50)
January	0	0
February	0	0
March	4	0
April	6	0
May	0	0
June	2	0
July	0	0
August	3	0
September	1	0
October	0	0
November	0	0
December	0	0
TOTAL	**17**	**0**

Source: Government of Saskatchewan, Ministry of Environment

What are we doing?

The City serves in an **advisory and educational capacity** because the regulatory authority for air pollution is with the provincial and federal governments.

The City is part of the **West Yellowhead Air Management Zone (WYAMZ)** that manages the airshed in which Saskatoon is located. It is the second official air management zone in the province and will result in continuous, real-time air quality monitoring, including monitors located in Saskatoon.

Did you know?

Ground level ozone is caused by the interaction of nitrogen oxides (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. Emissions from industry, electrical utilities, vehicle exhaust, gasoline vapours and chemical solvents are the major sources.

Air Pollution from Vehicle Use

WATER

Saskatoon is fortunate to be situated on the South Saskatchewan River. The river provides an abundant source of fresh water that starts in the Bow and Oldman rivers in Alberta. It flows through Lake Diefenbaker where the Gardiner Dam, one of the largest earth-filled dams in the world, regulates the river flow through Saskatoon. We benefit from a more consistent flow of water and an improved water quality, as nutrients and other suspended particles in the water can settle out. However, Saskatoon is the largest city on the South Saskatchewan River, so how we use and treat water, as well as manage storm water and wetlands, will have an impact on our water as well as that of our downstream neighbours.

This section covers:

- Watershed Health
- Drinking Water and Wastewater
- City of Saskatoon Water Use

WATERSHED HEALTH

In Saskatoon, what happens to surface water from rain and melting snow and ice depends on how we choose to grow and build our city. Urban development can create many hard surfaces, such as roofs, roads and sidewalks, where water can cause localized flooding or run quickly into streams or storm drains while picking up pollutants. Wetlands and storm water management ponds can hold water from seasonal melting and storms, absorbing pollutants such as phosphorous, nitrogen, heavy meals and pesticides. The water can then be slowly released into the river or recharge groundwater. At the same time, wetlands and storm water management ponds can provide valuable habitat to wildlife and natural areas for trails and recreation.

What are we measuring?

Saskatoon's overall impact on the watershed can be assessed by comparing the upstream and downstream Water Quality Index (WQI) measurements from the South Saskatchewan River. WQI ranks water quality from Excellent (95-100) to Poor (<45). To understand the extent of wetlands in Saskatoon, the number of wetlands and the area they cover were inventoried. The City is currently in the process of developing a system to measure the quality and quantity of storm water runoff.

Where are we now?

The South Saskatchewan River upstream and downstream of Saskatoon has consistently averaged Good water quality (based on three-year average Water Quality Index values and ratings).

	Upstream of the City of Saskatoon (near Outlook)	Downstream of the City of Saskatoon (west Clarkboro)
2006-08 WQI	94.8	91.0
2006-08 Rating	Good	Good
2007-09 WQI	83.3	91.7
2007-09 Rating	Good	Good
2008-10 WQI	83.2	91.7
2008-10 Rating	Good	Good
2009-11 WQI	83.2	91.7
2009-11 Rating	Good	Good

Source: Government of Saskatchewan, Water Security Agency, 2012-2013 Annual Report, State of Drinking Water Quality in Saskatchewan

Water Quality Index:

Rating	Value	Description
Excellent	95-100	Water quality is protected with a virtual absence of threat or impairment; conditions very close to desirable levels. These index values can only be obtained if all measurements are within objectives virtually all of the time.
Good	80-94	Water quality is protected with only a minor degree of threat or impairment; conditions rarely depart from desirable levels.
Fair	60-79	Water quality is usually protected, but occasionally threatened or impaired; conditions sometimes depart from desirable levels.
Marginal	45-59	Water quality is frequently threatened or impaired; conditions often depart from desirable levels.
Poor	0-44	Water quality is almost always threatened or impaired; conditions usually depart from desirable levels.

Source: Government of Saskatchewan, Water Security Agency, 2012-2013 Annual Report, State of Drinking Water Quality in Saskatchewan

Saskatoon has completed its first wetlands inventory.

Year	Number of Wetlands	Area of Wetlands
2009	1,129	960 hectares

Source: City of Saskatoon - Planning & Design

South-East Stormwater Management Area

What are we doing?

The City's ***Strategic Plan 2013-2023*** has the long-term strategy to improve the quality and reduce the quantity of storm water run-off going into the river.

The City's **Wetland Policy** guides new development to integrate in as many of the benefits and functions of wetlands as possible. The policy includes a city-wide inventory

of wetlands, a wetland mitigation plan for any development that has the potential to impact wetlands, and wetland development and management guidelines to sensitively integrate wetlands into development and ensure they are maintained over the long-term.

The City is an active member of the **South Saskatchewan River Watershed Stewards Inc.**, a grassroots, community driven, non-profit organization working within the watershed to implement programs and initiatives that will protect the water resource.

Storm water quality monitoring is being developed by the City to reduce the contaminants flowing to the river from the storm water system. By better understanding the water quality at key points, targeted plans and programs can be developed. A **storm water quality and quantity monitoring** plan is also being developed for the Northeast Swale as part of an effort to protect this sensitive area from adverse impacts that may arise from development of the adjacent Aspen Ridge neighbourhood.

The City has implemented **spill control equipment** on its waste collection fleet as a way to prevent accidental spills of harmful substances from reaching the South Saskatchewan River.

DRINKING WATER AND WASTEWATER

The City operates both a water treatment plant that provides drinking water to residents, businesses and neighbouring communities, and a wastewater treatment plant that processes raw sewage making it safe to return to the environment. Both facilities meet or exceed the high standards of provincial and federal government regulation. While the South Saskatchewan River provides us with an abundance of water, the amount of water we use still has environmental and financial implications, including requiring energy and chemical inputs during the treatment processes and if demand grows, existing facilities need to be expanded or new ones built.

What are we measuring?

The City has comprehensive drinking water and wastewater testing programs to ensure the City meets if not exceeds the Permits to Operate. To understand drinking water use, the City monitors water consumption by sector and by season. As Saskatoon grows, looking at both overall residential water consumption and the per capita residential water consumption help show how individuals and households in our city are using water.

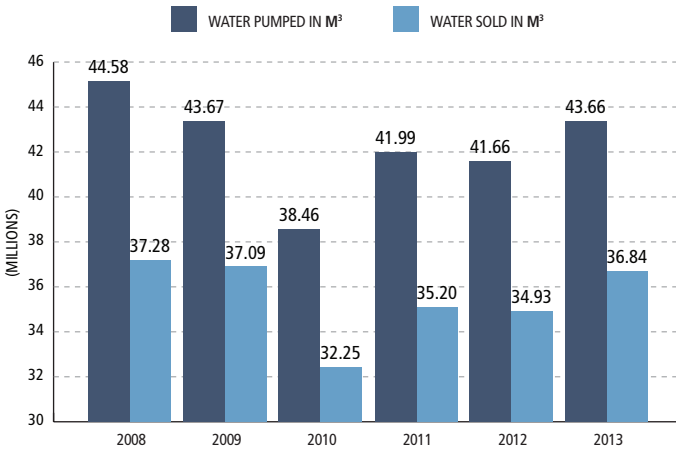
Where are we now?

Saskatoon's tap water is safe and healthy.

Water Quality Characteristic	Reported As	Treated Water (2013)	Regulatory Limit	% of Regulatory Limit
E. Coli	CFU/100ml	0	<1	0%
Lead	mg Pb/L	<0.00101	0.01	10.1%
Fluoride	mg F/L	0.25	1.5	16.6%
Sodium	mg Na/L	27	300	9%

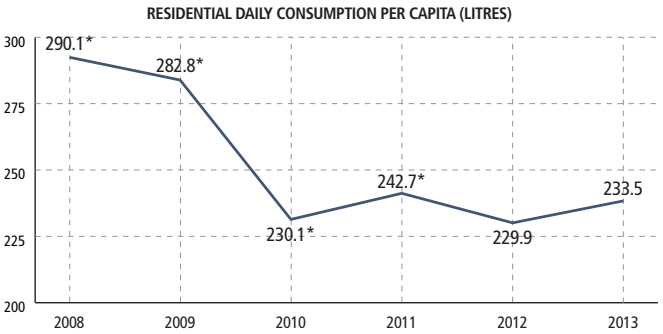
Source: City of Saskatoon - Saskatoon Water

Overall water treatment and sales vary from year to year.



Source: City of Saskatoon - Saskatoon Water

Per capital residential use is decreasing.



**values prior to 2012 have been adjusted to include multi-unit dwellings with >4 units ; values for 2012 and 2013 are actuals*
Source: City of Saskatoon - Saskatoon Water

Water consumption is the highest during the summer months (2013 data indicated below).

Month	Total Flow (million litres)	Average Flow (million litres per day)
January	3081.39	99.40
February	2769.04	98.89
March	3097.90	99.93
April	3087.98	102.93
May	3969.81	128.06
June	3974.32	132.48
July	4667.71	150.57
August	5199.02	167.71
September	4409.07	146.97
October	3320.51	107.11
November	3060.34	102.01
December	3024.47	97.56
Total	43661.55	119.62

Source: City of Saskatoon - Saskatoon Water

Automatic Sprinklers

The treated wastewater that is released into the river is safe and meets all regulatory requirements.

Water Quality Characteristic	Reported As	Treated Water (2011)	Regulatory Limit	% of Regulatory Limit
Total Phosphorous	mg/L treated wastewater discharged to the river	0.30	1.0	30%
E. coli	organisms/ 100 ml of treated wastewater discharged to the river	10.3	200	5.2%
Biochemical Oxygen Demand	mg/L treated wastewater discharged to the river	8	25	32%
Total Suspended Solids	mg/L treated wastewater discharged to the river	10	25	40%

Source: City of Saskatoon - Saskatoon Water

What are we doing?

The City's ***Strategic Plan 2013-2023*** calls for the responsible use of our natural resources and has the success indicators of measuring total, per capita and by sector water consumption.

The City's water treatment plant and wastewater treatment plant undergo strict monitoring as part of the **Permits to Operate** and are required to meet provincial and federal standards. This ensures the safety of drinking water and protection of the people, property and environment downstream of Saskatoon. An **ultraviolet (UV) disinfection system** has been operating at the wastewater treatment plant since 2009, eliminating the use of chlorine to disinfect water (treated effluent) released to the river. A similar system is being constructed at the water treatment plant, as an extra barrier of protection against disease-causing viruses, bacteria and protozoa.

The City is providing residents, businesses and institutions the education and tools to reduce their water consumption through the **Be Water Wise** campaign. The City is also investigating **Advanced Metering Infrastructure**, also known as smart meters, which will provide more accurate water use information to residents.

The City is developing a **Sewer Use Bylaw**, which will monitor the industrial sector and restrict what and how much can be discharged into the sanitary sewer. The goal is to reduce sanitary sewer system maintenance and operating costs and at the same time improve the quality of discharge to the river from the wastewater treatment plant.

Did you know?

The City of Saskatoon conducts over 55,000 tests per year at the water treatment plant, reservoirs and distribution system to keep your drinking water safe, and an additional 22,000 tests per year at the wastewater treatment plant to ensure the final effluent meets permit requirements and is safe to re-enter the river.

CITY OF SASKATOON WATER USE

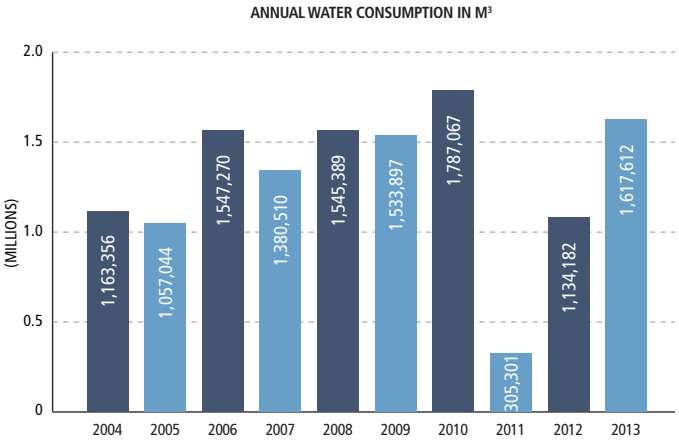
The City uses water in its facilities and operations, and in the delivery of services to the community. Common uses include irrigation for parks, sports fields and other greenspaces, and water associated with recreational facilities such as ice rinks, swimming pools and spray parks. Most of this water is potable water that has been treated before being distributed; however, the City also uses raw water pumped directly from the South Saskatchewan River for irrigation purposes.

What are we measuring?

Water consumption tracked by the City provides a starting point for comparing annual water requirements for City-based operations and services. However, year-to-year fluctuations may simply be the result of climate variables rather than reflecting changes in behaviour or technology.

Where are we now?

Annual water consumption by the City can vary year-to-year depending on a number of factors including intensity, duration, frequency and timing of precipitation events.



Source: City of Saskatoon - Corporate Revenue

What are we doing?

The City's ***Strategic Plan 2013-2023*** calls for the responsible use of our natural resources and has the success indicators of measuring total, per capita and by sector water consumption. Water conservation and efficiency practices by the City also link directly to the success indicators of energy consumption and corporate GHG emissions associated with withdrawal, treatment and distribution of potable water.

The **Naturalization Program** for parks creates valuable habitat in neighbourhoods and has reduced costs of installing and maintaining irrigation systems, reduced energy use and GHG emissions by not mowing, and reduced fertilizer application. Naturalized areas provide additional environmental benefits including erosion control, wildlife habitat, groundwater recharge and carbon sequestration.

The **Access Transit Storage Garage** is very water efficient, using approximately two-thirds less water than a conventional building. This is achieved by installing high efficiency water fixtures and using harvested rainwater for the bus wash, toilets and irrigation. Plants selected for landscaping around the building are all drought tolerant species and therefore require very little water.

In 2011, the City implemented an **Automated Irrigation Management System (AIMS)** to reduce the overall water used for irrigation on City property through a system capable of detecting soil moisture conditions and adjusting irrigation schedules.

Raw water from the river is used for irrigation at several City golf courses resulting in cost, energy and GHG emissions savings by not using treated water from the water treatment plant.

Did you know?

Phase One of Donna Birkmaier Park, a 12 hectare naturalized park, saved $480,000 initially by not installing an irrigation system and is expected to realize annual savings associated with irrigation maintenance ($10,464), meter and water utility ($52,044), and mowing (GHG savings of 340 kg CO_2e), as well as avoiding 3,600 kg of fertilizer application.

WASTE

The amount of stuff we buy and use is linked to the amount of waste we generate. Raw materials from around the world are harvested, processed and transported as part of a global trade network before they are sold and eventually disposed of here in Saskatoon. Items that we use every day, from groceries to the latest electronics have improved our quality of life; but they have also increased and changed the type of waste that the City receives through its waste collection and disposal services. In order to reduce the environmental impacts of this waste, the City has adopted programs aimed at reducing waste and diverting what we can from the Saskatoon Waste Management Facility (Landfill).

This section covers:

- Waste Generation
- Waste Diversion

WASTE GENERATION

The City is responsible for providing waste collection and disposal services to residents as well as offering contracted services to some businesses, institutions and industry. As our population grows and the amount of waste we are generating increases and changes, the need to reduce the materials going to the Landfill has become a priority for the City and residents. The current Landfill has a lifespan of approximately 40 years based on waste generation projections and availability of space. The construction of a new landfill would be both costly and controversial. The environmental impacts of landfilling waste include risk of groundwater and surface water contamination, as well as atmospheric emissions of methane, a greenhouse gas that has 25 times greater impact than carbon dioxide in the atmosphere.

What are we measuring?

The City tracks the total amount (by weight) and type of waste brought to the Landfill and collected through various diversion programs.

Where are we now?

The total amount of materials received at the City's Landfill and compost depots, and through the City's recycling programs increased in the last year.

	2009	2010	2011	2012	2013
Municipal Landfill[1]	183,789	198,071	175,840	147,588	160,788
Compost Depots	16,712	25,979	20,487	19,023	21,920
Recycling Depots[2]	7,222	7,768	7,239	6,557	3,773
Curbside Recycling[3]	n/a	n/a	n/a	n/a	8,040
TOTAL	**207,723 tonnes**	**231,818 tonnes**	**203,566 tonnes**	**173,168 tonnes**	**194,521 tonnes**

[1]includes clean fill and outbound recyclables
[2]includes only fiber (paper, cardboard, etc.) collected from City of Saskatoon Recycling Depots
[3]Includes only materials collected through the Residential Curbside Recycling Program
Source: City of Saskatoon - Environmental & Corporate Initiatives and Public Works

The waste stream is characterized through periodic waste audits. The following table presents the findings from the **2012 Waste Characterization Study**.

2012 Waste Audit		
Material Type	**%**	**Change from 2006**
Industrial, Commercial, Institutional (ICI) Waste Composition		
All Paper	24.4%	+3.4%
Food Waste	21.7%	+13.7%
Plastics	18.8%	+6.8%
Diapers	6.5%	-1.5%
Textiles & Fabric	5.9%	
Tissue Paper	4.4%	+0.4%
Ferrous Metal	4.3%	-2.7%
Wood (painted or pallets)	3.1%	-19.9%
Beverage Containers	2.0%	+1.0%
Yard Waste	1.6%	-3.4%
Glass	0.8%	-0.2%
HHW	0.5%	-1.8%
Other	5.7%	+5.1%
Residential Waste Composition		
Food Waste	32.0%	+19.0%
Yard Waste	8.4%	-19.6%
All Paper	18.5%	-3.5%
Plastics	12.3%	-2.7%
Textiles & Fabric	6.4%	+0.4%
Tissue Paper	3.8%	+1.8%
Ferrous Metal	3.4%	+0.4%
Diapers	4.6%	+2.6%
Glass	1.7%	+0.7%
Wood (painted)	1.5%	-3.5%
Beverage Containers	1.1%	+0.1%
HHW	0.5%	-0.5%
Other	5.7%	+4.7%

Source: HDR Corporation

Saskatoon Waste Management Facility (Landfill)

What are we doing?

The City's S***trategic Plan 2013-2023*** includes the priority of eliminating the need for a new landfill by minimizing waste and diverting waste for re-use in other projects.

The City's Landfill requires a **Permit to Operate** provided by the Province's Ministry of Environment. The City carefully manages municipal waste to reduce negative impacts on natural habitats, surface and ground water, and air, soil and water quality to meet the regulatory requirements of the permit.

The City's **Landfill Gas Power Generation Facility** has been generating power using methane emissions from the Landfill since March 2014. While the project leads to significant reductions in GHG emissions associated with City operations, the City's long term priority is to increase the overall amount of waste diverted through actions such as composting and recycling.

The **Saskatoon Waste and Recycling Plan** is the City's comprehensive 20-year plan with a vision to minimize waste that is landfilled. The plan focuses on the "5 Rs" hierarchy of waste management: reduce, reuse, recycle, resource recovery and residual management.

Recovery Park is a recycling facility for construction materials the City is developing. It will divert shingles, asphalt, glass, porcelain, waste wood, metals, concrete, rubble and drywall from the Landfill.

WASTE DIVERSION

The amount of materials diverted from the Landfill can reduce the environmental effects of landfilled waste and extend the operating life of the current Landfill. Options for waste diversion include recycling, composting and household hazardous waste collection programs, as well as creating opportunities to reduce and reuse materials within our community. There is usually significantly less environmental impact and less energy needed to recycle materials than to harvest and process raw materials. Composting, whether through the City's composting programs or at home, reduces the amount of organic waste that is landfilled – organic waste is the main source of the methane gas produced in landfills. Collection of household hazardous waste materials protects soil and water quality around the Landfill and the safety of staff and the public at the Landfill. Beyond City-operated programs, we have the opportunity to reduce and reuse items before we dispose of them through our purchasing decisions and by choosing to borrow, trade, or donate items.

What are we measuring?

Waste diversion is the total percentage of materials by weight diverted from the Landfill by City-operated programs, including recycling, composting and household hazardous waste collection. It does not include diversion by programs operated by other levels of government, the amounts of waste disposed of at non-City landfills or diversion by private recycling contracts.

Where are we now?

The amount and percentage of waste being diverted from the Landfill increased over the past year.

	2012	2013
Waste Landfilled (tonnes)[1]	117,523	117,759
Waste Diverted (tonnes)[2]	26,520	34,539
Diversion Rate[2]	18.41%	22.68%
Diversion Rate (including clean fill)	32.15%	39.45%

[1]does not include clean fill (used as cover material) or outgoing recyclables from the Landfill
[2]includes recycling, composting and household hazardous waste collection from City of Saskatoon programs; does not include clean fill
Source: City of Saskatoon - Environmental & Corporate Initiatives and Public Works

The diversion rate includes materials recycled through City of Saskatoon programs.

Recycling Source	2012 (Tonnes)	2013 (Tonnes)
Fibre from Public Depots	6,557	3,773
Public Space Recycling	13	14
Single Family Recycling	n/a	8,040
Recyclable Material (outgoing from Landfill)	887	840
TOTAL	**7,457**	**12,667**

Source: City of Saskatoon - Environmental & Corporate Initiatives and Public Works

The diversion rate also includes materials composted at the City's compost depots.

	2012	2013
Compost	(Tonnes)	(Tonnes)
TOTAL	**19,023**	**21,920**

Source: City of Saskatoon - Environmental & Corporate Initiatives and Public Works

The Household Hazardous Waste Collection Days Program is keeping more unsafe items out of landfills.

	2012	2013
Amount Collected (Tonnes)	40.04	51.60

Source: City of Saskatoon - Environmental & Corporate Initiatives

What are we doing?

The City's ***Strategic Plan 2013-2023*** includes a short-term priority to promote and facilitate city-wide composting and recycling to reduce the rate and volume of waste sent to the Landfill.

The **Residential Curbside Recycling Program** was launched in Saskatoon in January 2013 to complement our **Recycling Depot Program** and increase the convenience and availability of recycling. Paper, cardboard, plastics numbered 1 through 7, tin cans, milk jugs and cartons, legislated beverage containers, and glass are recycled through this program. A similar program is being developed for multi-unit residences.

The City encourages residents to compost through a number of programs. The City offers a rebate to residents who purchase a compost bin and the **Master Composter Program** provides free training to volunteers who in turn provide education and assistance to home composters. The City operates two compost depots that receive leaves and grass through the **Green Cart** subscription program as well as accepts yard waste free of charge from Saskatoon residents; the depots are also accessible to commercial haulers for an annual fee. The City is investigating options for a curbside organics collection program that would include food waste.

Household Hazardous Waste Collection Days offer Saskatoon residents a way to safely dispose of items that are dangerous for waste collectors and can harm the environment. Items that are collected include adhesives, aerosols, automotive fluids, batteries, cleaners, corrosives, fuels, mercury, oxidizers, poisons, pharmaceuticals, propane cylinders and solvents.

Through the anticipated **Saskatoon Curbside Swap** program, the City will support Community Associations in running local swaps in their neighbourhoods providing the opportunity to extend the life of goods that still have some usefulness left in them. A pilot program is anticipated to be launched in 2014.

Residential Curbside Recycling Program

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