



**PUBLIC AGENDA
STANDING POLICY COMMITTEE
ON ENVIRONMENT, UTILITIES
AND CORPORATE SERVICES**

Tuesday, December 6, 2016, 2:00 p.m.

Council Chamber, City Hall

Committee Members:

**Councillor A. Iwanchuk , Councillor Z. Jeffries (Vice-Chair), His Worship, Mayor C. Clark (Ex-Officio),
Councillor M. Loewen (Chair), Councillor S. Gersher, Councillor H. Gough**

Pages

1. CALL TO ORDER

2. CONFIRMATION OF AGENDA

Recommendation

That the agenda be confirmed as presented.

3. DECLARATION OF CONFLICT OF INTEREST

4. ADOPTION OF MINUTES

Recommendation

That the minutes of Regular Meeting of the Standing Policy Committee on Environment, Utilities and Corporate Services held on November 14, 2016 be adopted.

5. UNFINISHED BUSINESS

6. COMMUNICATIONS (requiring the direction of the Committee)

6.1 Delegated Authority Matters

6.2 Matters Requiring Direction

6.3 Requests to Speak (new matters)

7. REPORTS FROM ADMINISTRATION

7.1 Delegated Authority Matters

- 7.1.1 Landfill Diversion Pilot Project - Bicycles [CK. 7830-1 and PW. 7832-1]** 6 - 7
- Recommendation**
- That the report of the General Manager, Transportation & Utilities Department, dated December 6, 2016, be received as information.
- 7.1.2 2016 Update to Our Environment: The City of Saskatoon's Environmental Leadership Report [CK. 7550-1, x 430-78 and CP. 7545-001]** 8 - 48
- Recommendation**
- That the report of the General Manager, Corporate Performance Department, dated December 6, 2016, be received as information.
- 7.1.3 Ecological Footprint Report 2014 [CK. 7550-1 and CP. 7542-002]** 49 - 79
- Recommendation**
- That the report of the General Manager, Corporate Performance Department, dated December 6, 2016, be received as information.
- 7.1.4 Environmental Protection Annual Report 2015 [CK. 430-78, x 7550-1 and CP. 7556-007]** 80 - 110
- Recommendation**
- That the report of the General Manager, Corporate Performance Department, dated December 6, 2016, be received as information.
- 7.2 Matters Requiring Direction**
- 7.2.1 Environmental Sustainability Plan [CK. 7550-1 and 7540-002]** 111 - 119
- Recommendation**
- That the Standing Policy Committee on Environment, Utilities and Corporate Services submit a report to City Council recommending:
- That the Administration proceed to develop an Environmental Sustainability Plan utilizing the process as described in this

report.

7.2.2 Saskatoon Greenhouse Gas Inventory and Update on Compact of Mayors [CK. 375-4 and CP. 7542-004] 120 - 132

A PowerPoint presentation will be provided.

Recommendation

That the Standing Policy Committee on Environment, Utilities and Corporate Services submit a report to City Council recommending:

1. That the Saskatoon Environmental Advisory Committee be asked to assist in developing a Community Greenhouse Gas Reduction Target;
2. That the Administration bring forward a report on an inclusive strategy for reducing greenhouse gas emissions in the community; and
3. That the City of Saskatoon apply for membership in the International Council for Local Environmental Initiatives, including appointing a Sponsor from City Council.

7.2.3 Corporate IT Update [CK. 430-78, x 115-1 and CP. 0260-001] 133 - 145

Recommendation

That the report of the General Manager, Corporate Performance Department, dated December 6, 2016, be forwarded to City Council for information.

7.2.4 Award of Request for Proposals - Leisure Guide Production and Distribution [CK. 368-1 and CP. 5500-001] 146 - 162

Recommendation

That the Standing Policy Committee on Environment, Utilities and Corporate Services submit a report to City Council recommending:

1. That the proposal submitted by the Saskatoon StarPhoenix for the administration, production, and distribution of the seasonal Leisure Guide publication be approved; and
2. That the City Solicitor be requested to prepare the appropriate agreement and that His Worship the Mayor and the City Clerk be authorized to execute the agreement under the Corporate Seal.

- 7.2.5 Capital Project No. 1617 - Inspection and Condition Assessment of Primary Water Mains - Award of Engineering Services [CK. 7820-6 and TS. 7820-1]** 163 - 166

Recommendation

That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

1. That the proposal submitted by Pure Technologies Ltd. for construction of access points, installation of permanent monitoring equipment, inspection, and condition assessment of primary water mains at an estimated cost of \$2,173,572.45 (including GST and PST) be accepted; and
2. That the City Solicitor be requested to prepare the appropriate agreement and that His Worship the Mayor and the City Clerk be authorized to execute the agreement under the Corporate Seal.

- 7.2.6 Combined Heat and Power Partnership with Saskatoon Health Region for St. Paul's Hospital [CK. 2000-1 and SLP. 2000-12-4]** 167 - 169

Recommendation

That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

1. That the City of Saskatoon enter into a Memorandum of Understanding with the Saskatoon Health Region for the purpose of studying the feasibility of a Combined Heat and Power plant at St. Paul's Hospital;
2. That the Office of the City Solicitor prepare the Memorandum of Understanding in accordance with the broad terms set out in this report, and that the Mayor and City Clerk execute the Memorandum of Understanding on behalf of the City of Saskatoon; and
3. That the Administration, in conjunction with the Saskatoon Health Region, issue a Request for Proposal to conduct a detailed feasibility study of the project economics and report the findings of the same to City Council.

- 7.2.7 Capital Project No. 2225 - WWT - Heavy Grit Groundwater Monitoring Program - Award of Engineering Services [CK. 7990-91]** 170 - 172

Recommendation

That the Standing Policy Committee on Environment, Utilities

and Corporate Services recommend to City Council:

1. That the proposal submitted by Advisian WorleyParsons Group Canada for engineering services for the Heavy Grit Burial Site Groundwater Monitoring Program, for a total upset fee of \$137,835 (including GST), be accepted; and
2. That the City Solicitor be requested to prepare the appropriate agreement and that His Worship the Mayor and the City Clerk be authorized to execute the agreement under the Corporate Seal.

8. MOTIONS (NOTICE PREVIOUSLY GIVEN)

9. GIVING NOTICE

10. URGENT BUSINESS

11. IN CAMERA SESSION (OPTIONAL)

12. ADJOURNMENT

Landfill Diversion Pilot Project - Bicycles

Recommendation

That the report of the General Manager, Transportation & Utilities Department dated December 6, 2016, be received as information.

Topic and Purpose

The purpose of this report is to communicate the implementation of a diversion strategy for bicycles disposed at the Saskatoon Regional Waste Management Centre (Landfill).

Report Highlights

1. Bicycles brought to the Landfill for disposal will now be diverted for reuse within the community.
2. Bridge City Bicycle Co-op has entered into a contract with the City as the service provider responsible for refurbishing and distributing used bicycles.

Strategic Goal

The Bicycle Diversion Pilot Project supports the Strategic Goal of Environmental Leadership. This project responds directly to the four-year priorities to promote and facilitate city-wide recycling and to divert waste for re-use in other projects. The Bicycle Diversion Pilot Project aligns with the target of 70% waste diversion.

Background

The Proposed Performance Measures approved on April 20, 2015 were integrated into the 2016 Business Plan. One of these Proposed Performance measures identifies a 70% waste diversion target.

Report

Bicycle Diversion for Reuse within the Community

The Saskatoon Landfill receives approximately 2,000 bicycles for disposal each year. Many of the bicycles brought to the Landfill are in poor condition and not recoverable; however, some of the bicycles are recoverable for either their parts or for complete refurbishment. Prior to this pilot project, bicycles brought to the Landfill were included in the Scrap Metal Recycling program. The Bicycle Diversion Pilot Project will divert the bicycles from the scrap metal waste stream and direct them for reuse and distribution within the City.

With the assistance of the City Solicitor's Office, a zero-dollar contract with the Bridge City Bicycle Co-op, a local, non-profit organization, has been executed. This contract was modeled after a similar contract between the City of Winnipeg and The WRENCH, a non-profit organization dedicated to bicycle education and repair.

Partnership with Bridge City Bicycle Co-op

Bridge City Bicycle Co-op was selected to be the service provider for this pilot project as they have demonstrated ability and capacity to refurbish and distribute used bicycles within the community. A non-profit organization was one of the selection requirements in order to ensure the greatest possible benefit to the residents of Saskatoon.

Under the conditions of the contract, Bridge City Bicycle Co-op is responsible for removal, refurbishment and distribution of bicycles that are deemed recoverable. The contract also addresses safety and liability considerations. If the initial stages of the pilot project are successful, the program may be expanded to include other interested service providers or other divertible materials. Existing recycling and/or diversion opportunities at the Landfill already include scrap metal, white goods, used oil and antifreeze, batteries and propane tanks.

Ideally, this pilot project will establish a template for future City waste diversion agreements, notably, those that will be included in the operations of Recovery Park.

Communication Plan

The Bicycle Diversion Pilot will be promoted on the website. In addition, residents disposing bicycles at the Landfill will be informed of the new bicycle segregation area by the Landfill scale attendant and through on-site signage. Bicycle shops will be requested to encourage customers to recycle bikes they cannot sell. A Public Service Announcement will also be released to inform the public of this new initiative.

Financial Implications

There will be a small reduction of revenue in the Landfill Operating Budget resulting from reduced volumes of scrap metal. The annual loss of revenue is estimated at \$1,000.

Other Considerations/Implications

There are no public and/or stakeholder involvement, policy, environmental, privacy, or CPTED implications or considerations.

Due Date for Follow-up and/or Project Completion

Highlights related to this pilot project will be included in the Integrated Waste Management Annual Report.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Report Approval

Written by: Patrick Schmidt, Project Engineer, Transportation & Utilities
Reviewed by: Russ Munro, Director of Water & Waste Stream
Approved by: Jeff Jorgenson, General Manager of Transportation & Utilities

2016 Update to Our Environment: The City of Saskatoon's Environmental Leadership Report

Recommendation

That the report of the General Manager, Corporate Performance Department dated December 6, 2016, be received as information.

Topic and Purpose

The purpose of this report is to provide the 2016 update to *Our Environment: The City of Saskatoon's Environmental Leadership Report*.

Report Highlights

1. The 2016 update to the City of Saskatoon's (City's) *Our Environment* report is provided in the form of an online reporting tool highlighting the status of 16 selected indicators representing the key components of the state of Saskatoon's environmental health – air, land, water and waste.
2. New indicators added to the 2016 update are: bird population count, corporate alternative energy projects, maximum daily demand for water, and total waste disposal and diversion.
3. Key findings include:
 - Saskatoon's 2014 Ecological Footprint was 7.38 global hectares per person, which is an increase of 1.4% from 2010 and 7% from 2003.
 - The waste diversion rate for 2015 of 21.0% was a small decrease from the 2014 rate of 22.5%, and needs improvement to meet the target of 70%.
 - The total amount of waste accepted by City disposal programs has decreased faster than diversion programs, showing a general trend of improvement in overall amount of waste generated in the community between 2014 and 2015.
 - The residential water consumption per capita has increased slightly between 2014 and 2015, but continues to remain relatively stable since 2010.
 - The amount and distribution of new development investment illustrates that investment in development activities are balanced across the city.
 - Over the past decade, the number of Western Meadowlarks counted have decreased over time, while both the Merlin and Peregrine Falcon counts have improved.
 - There are currently six completed alternative energy projects by the City of Saskatoon, reducing corporate GHG emissions by 51,557 tonnes CO_{2e} per year.
 - The maximum daily demand at the Water Treatment Plant has increased between 2010 and 2015, but remains below the levels seen in 2006 and 2007.

Strategic Goal

The 2016 update addresses the Strategic Goal of Environmental Leadership. It includes the following success indicators from the Strategic Plan: waste diversion, water consumption, corporate greenhouse gas (GHG) emissions, the ecological footprint of

Saskatoon, and community gardens. It further addresses the vision, priorities and strategies of the Strategic Plan in the areas of sustainable growth and transportation, protected lands, water quality, and reducing landfilled waste.

Background

On October 13, 2015, the Standing Policy Committee on Environment, Utilities & Corporate Services received the 2015 update to *Our Environment*.

Report

The first *Our Environment* report was released in 2014 based on the City’s Strategic Plan Goals and success indicators. The report established baseline data for 44 environmental indicators in Saskatoon.

In 2015, the first online update was provided for 12 selected indicators that represent key components of environmental health where data is available and highlight recently set Corporate Targets.

The 2016 online update has added four new indicators: bird population count, corporate alternative energy projects, maximum daily demand for water, and total waste disposal and diversion. Additional indicators will be added in future online updates and new data posted when it is made available. The update can be found at saskatoon.ca/ourenvironment.

The 2016 online update continues to use the same format as the 2015 update.

- The “Where are we now?” section includes maps and charts to visually display the data in an easy-to-read and web-friendly format. The update compares the most recent data with the baselines published in the 2014 report and, where applicable, the targets adopted by the City.
- The “What are we doing?” section shows how the City is taking action to maintain or improve the environment. This section highlights current initiatives, provides a brief summary and provides a link to where more information can be found.
- The “What can you do?” section provides residents with opportunities to take action and get involved, highlighting simple things people can do in their homes, schools and workplaces, and ways to participate in city-led initiatives.

The 16 selected indicators and their trends are:

| | |
|---------------------------------------|-------------------|
| Ecological Footprint | Needs Improvement |
| New Development Investment | Stable |
| Protected Lands | Stable |
| Bird Population Count | Stable |
| Community Gardens | Improving |
| Corporate Greenhouse Gas Emissions | Needs Improvement |
| Community Greenhouse Gas Emissions | Needs Improvement |
| Corporate Alternative Energy Projects | Improving |
| Transportation Choices | Needs Improvement |
| Air Quality | Needs Improvement |

| | |
|------------------------------------|-------------------|
| Water Quality | Stable |
| Water Consumption | Stable |
| Maximum Daily Demand for Water | Needs Improvement |
| Landfilled Waste | Improving |
| Waste Diversion | Stable |
| Total Waste Disposal and Diversion | Improving |

Communication Plan

Communications include the news media and the City’s social media accounts along with the City’s website, which has been updated to reflect the performance of key indicators for the *Our Environment* report.

Environmental Implications

As a report focused on environmental health, *Our Environment* provides an overview of key performance indicators relating directly to the City’s Strategic Goal of Environmental Leadership. Where applicable, the implications associated with the indicators have been identified in the report.

Other Considerations/Implications

There are no policy, financial, privacy, or CPTED implications or considerations.

Due Date for Follow-up and/or Project Completion

Updates and the introduction of additional indicators are anticipated to be communicated annually. In early 2017, the data from this report will be included in a higher level document representing the four pillars of an Environmental Sustainability Plan. The data and related analysis will provide the context for discussions on issues and options facing our community and will be submitted to the Standing Policy Committee on Environment, Utilities and Corporate Services.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Attachment

1. Summary of Updated Indicators

Report Approval

Written by: Matt Regier, Environmental Coordinator, Environmental and Corporate Initiatives
 Reviewed by: Amber Weckworth, Manager of Education and Environmental Performance
 Brenda Wallace, Director, Environment and Corporate Initiatives
 Approved by: Catherine Gryba, General Manager, Corporate Performance Department

Summary of Updated Indicators

Our Environment



Saskatoon is a thriving, prairie city built around the South Saskatchewan River. The City of Saskatoon (City) is home to a vast urban forest, kilometers of riverbank trails and an abundance of wildlife.

Maintaining a high quality of life where the citizens of Saskatoon can live and grow in harmony with nature requires us to work together and invest in what matters. Our Environment is a tool to help us do this by providing the most recent information on 12 areas related to our land, air, water and waste.

[Our Environment: The City of Saskatoon's 2014 Environmental Leadership Report](#) was the first report of its kind and established a baseline of information indicating the health of our environment and what the City is doing to maintain and improve it. This webpage provides the most recent information on 12 of 44 indicators currently tracked by the City related to our land, air, water and waste. The next full report is anticipated in 2018.

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 and choices we make in our neighbourhoods and homes, such as how we use and take care for our yards, parks and green spaces.

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 affect local air quality and contribute to global climate change.

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. Saskatoon is the largest city on the South Saskatchewan River, so how we use and treat water, as well as manage storm water and protect our wetlands, will have an impact locally on our water as well as that of our downstream neighbours.

Waste

The amount of stuff we buy and use is linked to the amount of waste we generate. Items that we use every day, from groceries to the latest electronics have improved our quality of life; however they have also increased and changed the type of waste the City receives through its collection, disposal and recycling services.

Land

Ecological Footprint



Status: Needs Improvement

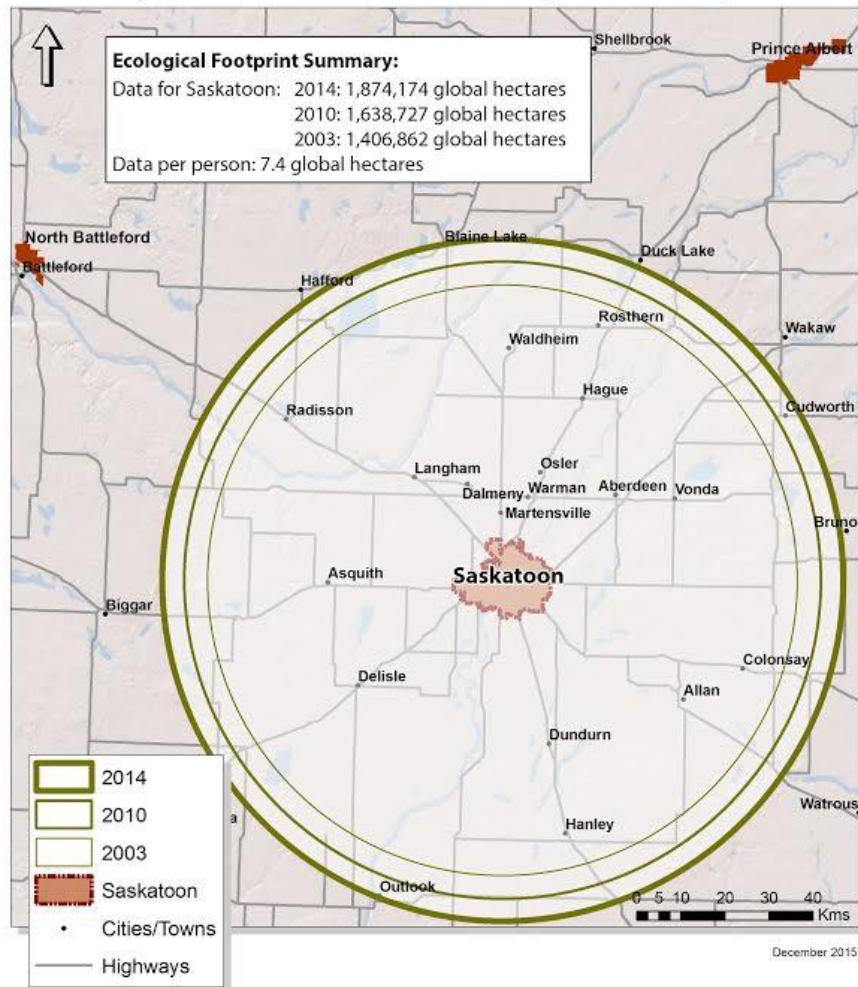
Why is it important?

The Ecological Footprint is a tool that compares the total resources consumed by a community to the amount of land it would take to support that consumption. The Ecological Footprint is a success indicator in the City's Strategic Plan.

Where are we now?

In 2014 Saskatoon's Ecological Footprint was 78 times larger than the city's total land area. The average ecological footprint per resident was 7.4 global hectares which was 5% higher than the national average in Canada.

City of Saskatoon's Ecological Footprint



Source: City of Saskatoon Ecological Footprint Report 2014, prepared for the City of Saskatoon by Anielski Management Inc., December 2015.

What are we doing?

Strategic Plan

The City of Saskatoon has environmental, economic, social and cultural objectives and is tracking progress towards targets.

Continuous Improvement

The City is committed to growing in sustainable ways while improving services and increasing savings. The latest achievements are published in Saskatoon Strides 2015: Our Report on Service, Savings and Sustainability.

Environmental Policy

The City updated its Environmental Policy in 2015. All City employees and contractors are encouraged and expected to be environmentally responsible. As well, the City has the responsibility to facilitate the community at large moving towards sustainability through providing programs and services.

Supporting Community Action

The City has led and partnered on a number of programs to encourage environmental action in the community, including: The Environmental Cash Grant, Student Action for a Sustainable Future, Green Stem, and the Living Green Expo.

What can you do?

Get involved in your city's future by joining a board or committee, sharing your ideas on Shaping Saskatoon, or participating in your neighbourhood Community Association.

Choose products and services that are local, eco-certified or fair trade to reduce your own ecological footprint.

Help green your school or workplace by starting a green team that finds ways to improve environmental performance and save money.

Did you know?

Half of Saskatoon's Ecological Footprint is from the consumption of goods and services (27%) and government services (23%).

New Development Investment



Status: Stable

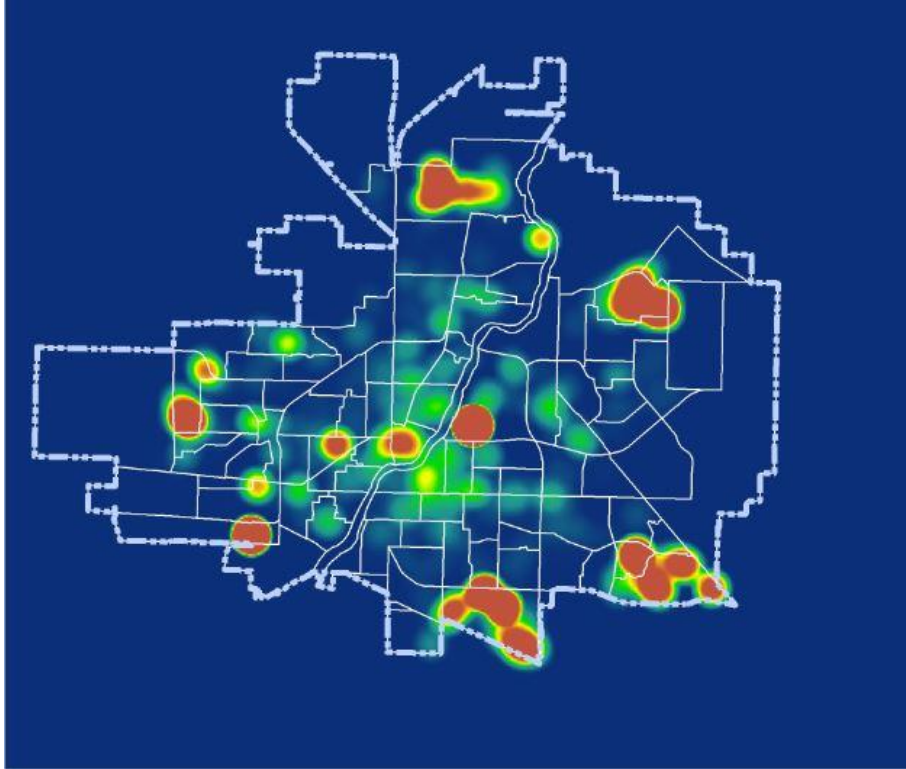
Why is it important?

Saskatoon is growing. The location of new development and the amount that is being invested shows how the City's planning policies are being put into action. A sustainable community experiences growth that is balanced; with new investment in the city centre and strategic infill areas, within established neighbourhoods, and in new neighbourhoods. Balanced growth will conserve natural and agricultural lands, conserve water and energy, and reduce the cost of building new infrastructure like roads, water and sewer lines.

The City's Strategic Goals of Environmental Leadership and Sustainable Growth guide how we grow, and include energy efficiency, responsible land use, orderly and sustainable growth, and balanced land use.

Where are we now?

Investment in new developments is spread throughout the city, with the greatest concentrations in the downtown and new Greenfield communities. In 2015, there were 4,315 building permits with a total value of \$1,018,883,000; \$3,252,000 of this value was for demolition permits. The total value of permits is higher in the red areas and the dark blue area has no values.



Source: City of Saskatoon – Planning & Development

What are we doing?

Growth Plan to Half a Million

The City has completed a plan that will guide future infrastructure investment so that residents will have more choices for how they live and move around as Saskatoon grows over the next 30 to 40 years.

Neighbourhood Level Infill Strategy

Neighbourhood infill describes new homes that are built in established neighbourhoods. The Neighbourhood Level Infill Strategy makes sure that, as these new homes are built, the characteristics of neighbourhoods are maintained.

Garden and Garage Suite Regulations

As part of the Neighbourhood Level Infill Development Strategy, regulations have been developed for small, stand-alone dwelling units that can be constructed on their own or in combination with a detached garage.

River Landing

Construction of new housing is underway by the riverfront edge of downtown and will continue as the City sells additional parcels of land.

New Neighbourhood Development

New neighbourhoods including Evergreen and Aspen Ridge are designed to be less vehicle dependent, align with the sun's rays to be ready for solar power, and include medium-density, mixed-use development.

What can you do?

As the Growth Plan is implemented, there will continue to be communications and engagement. Visit <http://www.growingfwd.ca/> to subscribe for updates.

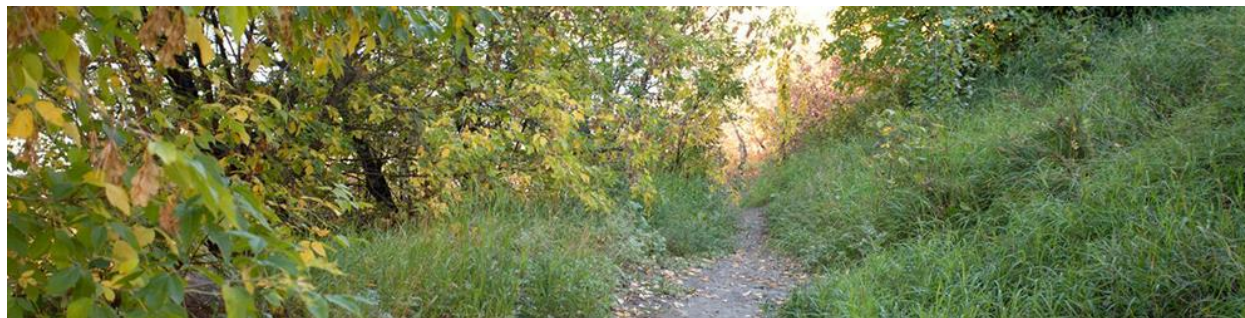
Use Shaping Saskatoon, Saskatoon's online engagement tool, to learn about current projects and join discussions on the future of our City.

Consider the downtown and strategic growth areas when making your next property investment decision.

Did you know?

Saskatoon's population estimate for July 2015 was 258,068 – an increase of 8.2% since 2012.

Protected Lands



Status: Stable

Why is it important?

The natural, undeveloped areas within our city support a diversity of plants and wildlife, perform “ecological functions” such as reducing and filtering storm water, storing greenhouse gases, removing harmful pollutants from the air, and contribute to our overall well-being and health.

Protected lands are an important part of our natural areas network and help meet the long-term Environmental Leadership strategy in the Strategic Plan to improve access to ecological systems.

Where are we now?

The amount of protected lands in the Meewasin Valley Authority jurisdiction has remained unchanged between 2008 and 2015.

Data Table: Protected Lands

| | 2003 | 2008 | 2014 | 2015 |
|--|-------|-------|-------|-------|
| Hectares of Land in MVA Jurisdiction | 6,051 | 6,278 | 6,278 | 6,278 |
| Source: <u>Meewasin Valley Authority</u> . | | | | |

What are we doing?

Natural Area Screening

For suburban development areas the City prepares Sector Plans, which includes a screening study to identify areas with ecological or natural heritage significance. The study is used to reduce the environmental impact of the development’s design and could result in designating land as a Municipal Reserve, an Environmental Reserve or a Meewasin Valley Conservation Area.

Northeast Swale

Saskatoon's Northeast Swale is an ancient river channel and one of the largest pieces of unbroken natural habitat in the Saskatoon region. The City has collaborated with Meewasin Valley Authority to develop a plan to protect this sensitive natural area within the urban context.

Wetland Policy

Saskatoon is located in the Prairie Pothole region and wetlands are found within the city and its surroundings. The City has adopted a policy so that wetlands are inventoried and assessed and that minimizes the impact of development.

Natural Areas

The City has started work on a Natural Area Strategy that will develop an overall vision for natural areas along with a strategy, policy and procedures to conserve and integrate natural areas into urban development.

What can you do?

Enjoy and support the riverside trails, conservation areas, and programs offered by Meewasin Valley Authority.

Help expand the natural areas in your neighbourhood by including native plants in your home garden.

Become a Master Naturalist. The Native Plant Society and the City of Saskatoon have partnered to provide training to for volunteers to work on conservation projects.

Look for volunteer opportunities that support and enhance our natural environment.

Did you know?

The City of Saskatoon has a Naturalization Program for parks that creates valuable habitat in neighbourhoods and reduces costs of irrigation, mowing or fertilizers. The parks with natural areas include Gabriel Dumont, Lakewood, Hyde and Donna Birkmaier Parks.

Community Gardens



Status: Improving

Why is it important?

Growing food in our neighbourhoods provides fresh, healthy food that has a lower environmental impact. Community gardens on public land provide opportunities to grow food for residents that do not otherwise have access to land suitable for gardening.

The number of community gardens is one of the success indicators in the Strategic Plan.

Where are we now?

The number of community gardens on city-owned land is increasing.

Data Table: Community Gardens

| | 2008 | 2012 | 2013 | 2014 | 2015 |
|---|------|------|------|------|------|
| Number of Community Gardens on City of Saskatoon Land | 3 | 13 | 14 | 19 | 23 |
| Source: City of Saskatoon – Community Development | | | | | |

What are we doing?

Allotment, Community and Vacant Lot Gardening

There are three ways to access City-owned land for growing food. Residents can rent plots in allotment gardens, community volunteers can form a collective that organizes and maintains a community garden, and non-profit community organizations can apply to use vacant City-owned property to grow food.

Healthy Yards Demonstration Garden

The City has partnered with the Saskatoon Food Bank & Learning Centre and the University of Saskatchewan Master Gardeners to set up a garden located at the 900 block of 3rd Avenue North to demonstrate a range of healthy and sustainable gardening techniques.

Saskatoon Food Council

The City is a member of the Saskatoon Food Council, a network of organizations and individuals whose work supports the food system in Saskatoon and the surrounding region. The Council collaborates on food initiatives, provides policy recommendations, and works with citizens of Saskatoon towards the creation of a healthy and sustainable food system.

Saskatoon City Council endorsed the 11 City-related recommendations from the Saskatoon Regional Food System Assessment and Action Plan in 2014 and adopted a Food Charter (in principle) in 2002.

Boulevard Gardens

Boulevard gardens can create beautiful and diverse streetscapes, add character to neighbourhoods, and increase feelings of community pride and safety. They also increase ecological diversity and create habitat for insects and birds.

Gardening on boulevards adjacent to your home is acceptable, providing you read the City of Saskatoon's Boulevard Gardening & Maintenance Guidelines and complete the Boulevard Garden Agreement.

What can you do?

Find your local community garden on the City's webpage.

If your neighbourhood doesn't have a community garden, find out how to start a new garden on City land.

If a community garden isn't right for you, learn about the other opportunities to grow food in your community, such as the Saskatoon Food Bank and Learning Centre's Garden Patch or CHEP's Backyard Gardening Program.

Before installing a boulevard garden, please fill out the City of Saskatoon's Boulevard Garden Agreement. This information will be used to track the number of boulevard gardens that are enriching our city.

Did you know?

Community gardens have been shown to increase neighbourhood property value, reduce crime rates, and reduce the cost of maintaining parkland.

NEW INDICATOR: Bird Population Count

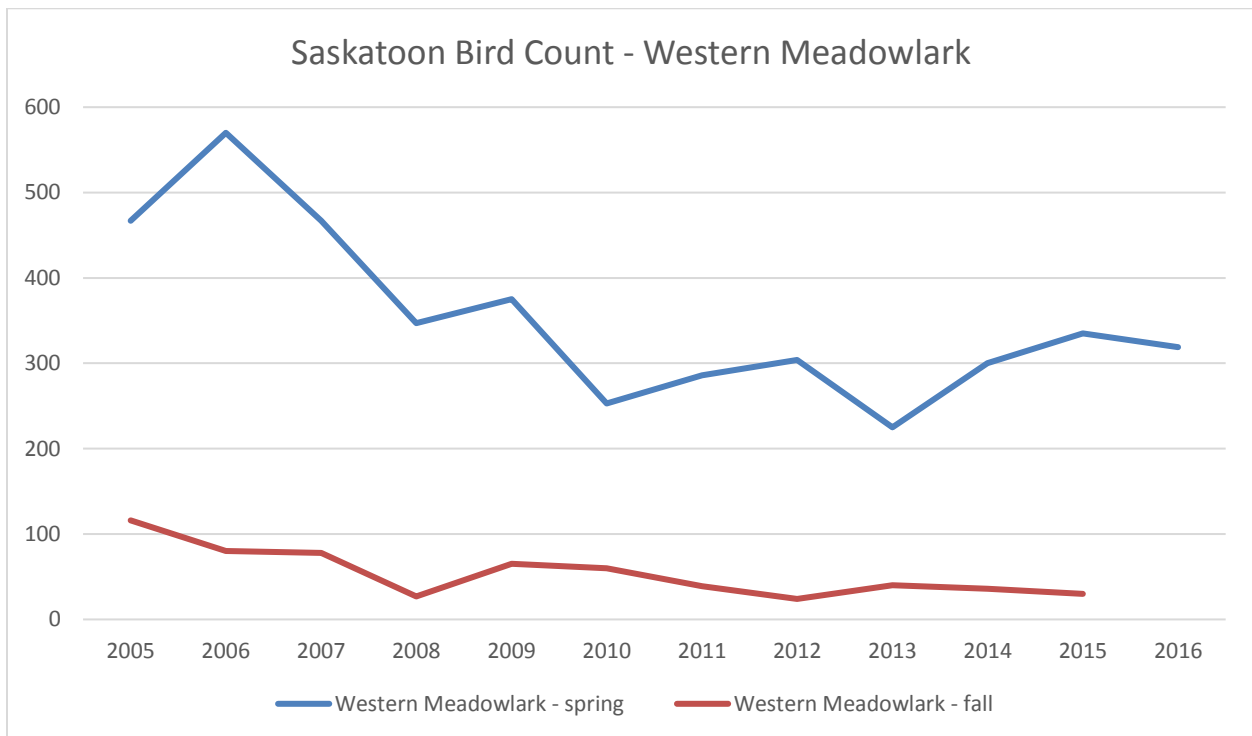
Status: Stable

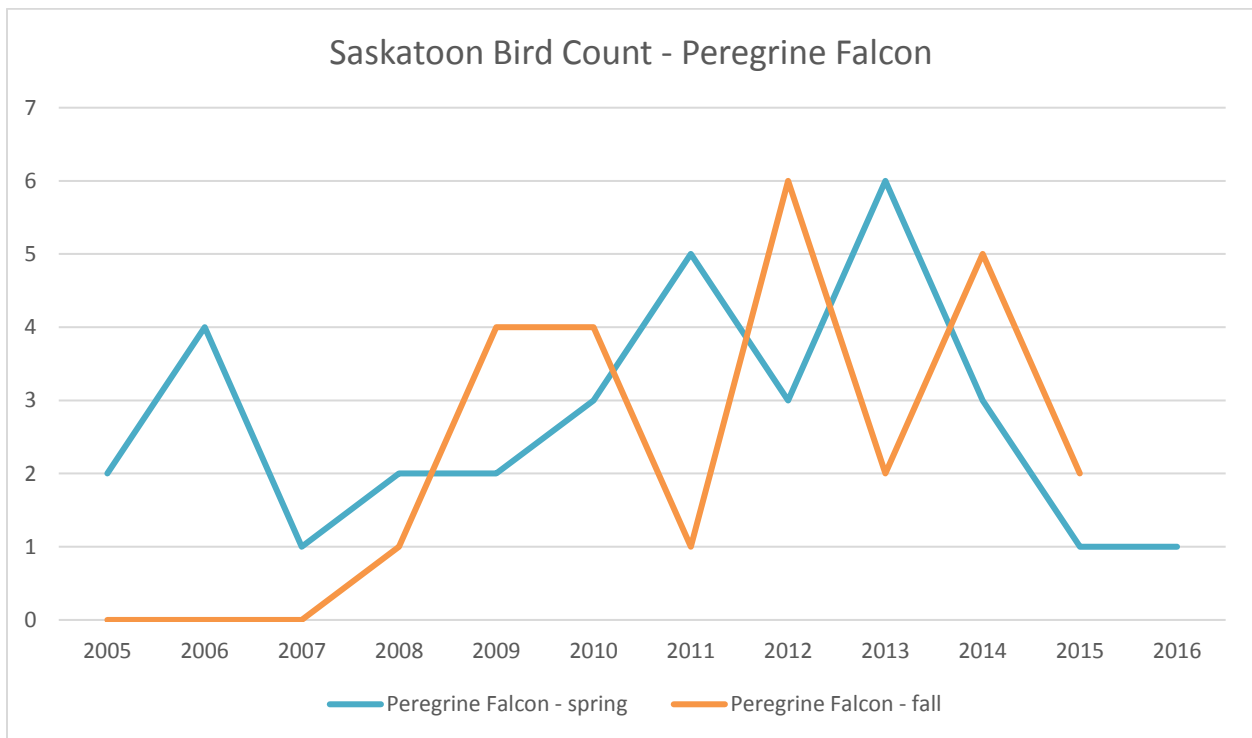
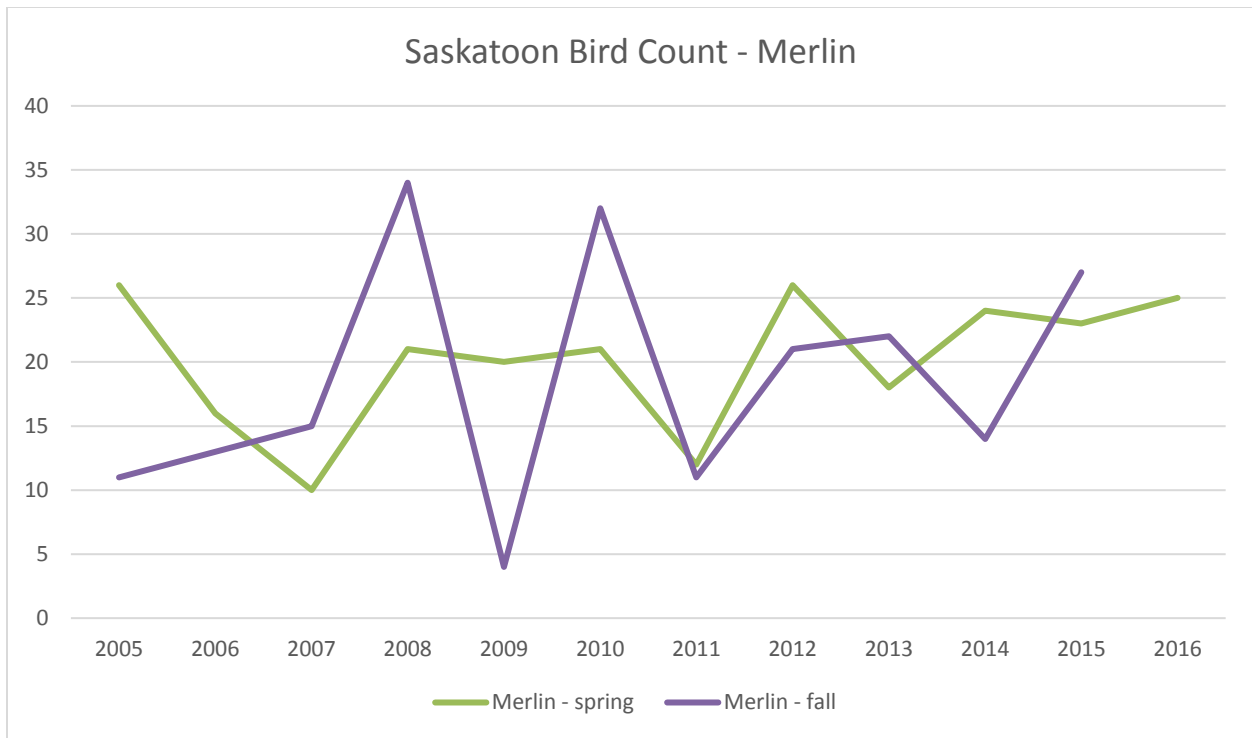
Why is it important?

The animals and plants that live within our city are impacted by the decisions we make on how we develop and manage natural and urban areas of our city. Birds play an important role in our urban ecosystem and monitoring their numbers over time can help us to understand the impact we are having on our environment.

Where are we now?

Three bird species have been identified to monitor for changes over time. The number of Western Meadowlarks counted have decreased over time, while both the Merlin and Peregrine Falcon counts have improved.





Source: Saskatoon Nature Society, September 2015 Bird Count Report, <http://www.saskatoonnaturesociety.sk.ca/fieldnotes/birdcount-150912.html> and May 2016 Bird Count Report, <http://www.saskatoonnaturesociety.sk.ca/fieldnotes/birdcount-160528.html>.

What are we doing?

Wildlife Habitat

The City of Saskatoon maintains an urban forest with over 105,000 trees located on boulevards, centre medians and parks, providing habitat for wildlife including birds. Grasslands and wetlands also provide important areas of habitat for wildlife within the city.

The Meewasin Valley Authority manages over 2,500 hectares of native grasslands and green spaces within Saskatoon city limits, providing critical habitat for grassland birds.

There are also over 1,000 wetlands within the city, providing critical habitat for birds and various other wildlife. The Wetland Policy guides land use and development decisions related to wetland and riparian areas in a manner that is sensitive to the ecological integrity of these areas.

Wildlife Management

The City of Saskatoon offers wildlife services primarily to trapped, injured and diseased animals as well as contact information for other organizations that can provide assistance.

Natural Area Screening

As part of developing Sector Plans for Suburban Development Areas and Industrial Growth Areas, Natural Area Screening Studies are completed and include an assessment of wildlife and habitat to be considered during future development.

What you can do?

Home owners in new or established neighbourhoods and business owners located in industrial neighbourhoods can request a tree for the City-owned portion of their front and/or side yard.

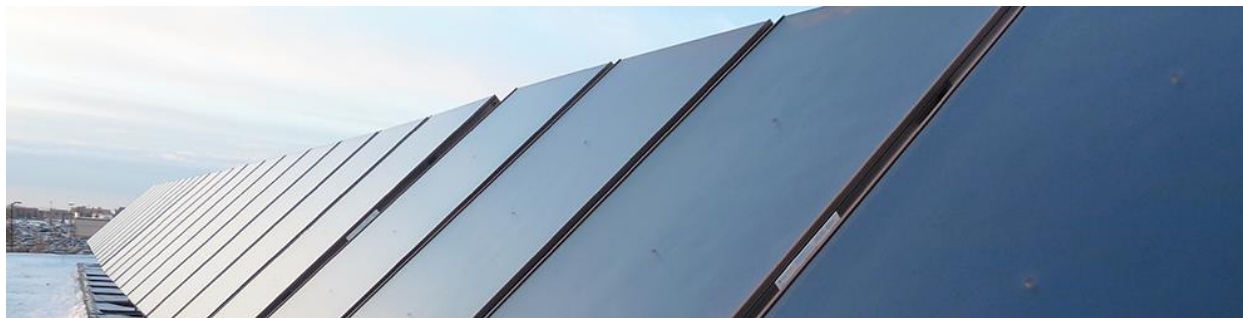
Volunteer with local groups that are monitoring species and protecting habitat, such as the Saskatoon Nature Society and Meewasin Valley Authority.

Make your property more bird friendly by planting native plants and eliminating the use of pesticides.

Install dark sky compliant light fixtures on your property. Studies have shown that artificial light at night has numerous negative effects on wildlife such as birds, amphibians, insects and mammals.

Air

Corporate Greenhouse Gas Emissions



Status: Needs Improvement

Why is it important?

Greenhouse gases (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. The City of Saskatoon has a role to play in reducing GHGs from its own operations and showing leadership in our community.

The City of Saskatoon has adopted the target to reduce the City's corporate (municipal government) greenhouse gas emissions by 30% from 2006 levels by 2023.

Where are we now?

The City's corporate GHG emissions have increased since 2003. A new inventory is being compiled for 2014 emissions.

Data Table: Corporate Greenhouse Gas Emissions

| | 1990 | 2003 | 2006 (est.) | 2013 (est.) | 2023 |
|--|--------|--------|----------------|----------------|--------|
| Greenhouse Gas Emissions (tonnes CO _{2e}) | 74,044 | 91,928 | 94,700 | 117,100 | |
| Target | | | | | 75,000 |
| Source: ICLEI Energy Services, 2005; City of Saskatoon Environmental & Corporate Initiatives | | | | | |

What are we doing?

Energy & GHG Management Plan

As a member of the Partners for Climate Protection Program the City of Saskatoon has completed a greenhouse gas emissions inventory, set an emissions reduction target and developed a local action plan. The City is currently updating its corporate GHG emissions inventory.

Vehicle Fleet Efficiencies

On-board global positioning systems (GPS) have been installed on garbage trucks to reduce the number of vehicle kilometers travelled through new routings.

Green Energy Generation

The City's projects include solar hot water systems, landfill gas capture and combustion, and combined heat and power generators.

Greenhouse Gas Inventory and Reduction Business Plan

The City is in the process of updating its Greenhouse Gas Inventory and developing a plan to reduce emissions from its facilities and operations.

What can you do?

When visiting City facilities, do your part to save energy and water, as well as putting waste and recycling in proper bins.

Share your ideas on the best ways to reduce waste and save energy and water as the City consults on its current and upcoming major projects.

Did you know?

75% of the City's corporate GHG emissions in the 2013 estimate were generated by City owned buildings and the Water and Wastewater Utilities.

Community Greenhouse Gas Emissions



Status: Needs Improvement

Why is it important?

Greenhouse gases (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. The emissions from the community as a whole show the combined impact of businesses, institutions and residents.

The City of Saskatoon is in the process of adopting a target for community GHG emissions.

Where are we now?

The community's GHGs have increased since 2003. A new inventory is being compiled and the Saskatoon Environmental Advisory Committee is selecting a reduction target.

Data Table: Community Greenhouse Gas Emissions

| | 1990 | 2003 | 2006 (est.) | 2013 (est.) | 2023 |
|--|-----------|-----------|----------------|----------------|-------------------|
| Greenhouse Gas Emissions (tonnes CO ₂ e) | 2,466,239 | 3,583,339 | 3,835,648 | 5,039,944 | Target Pending |
| Source: ICLEI Energy Services, 2005; City of Saskatoon Environmental & Corporate Initiatives | | | | | |

What are we doing?

Energy & Greenhouse Gas Management Plan

The City of Saskatoon's local action plan includes many community-wide programs and actions, including the role of the City to support active transportation, build more sustainable neighbourhoods, and promote energy and water conservation.

Smart Meters

The new Advanced Metering System installed in the Saskatoon Light & Power service area and by Saskatoon Water will record actual power and water usage by time intervals throughout the day, helping residents track their usage and reduce consumption.

Customer-Based Generation Programs

Saskatoon Light & Power offers a net metering program that allows residents to generate their own electricity and use the electrical grid to manage use of that power.

What can you do?

Save money while reducing your GHG emissions by conserving energy and water at home.

When making a purchase, consider energy and water use, which could end up saving you money over the long term.

Recycling and composting result in fewer GHGs than burying that waste in the landfill. Take advantage of the many programs available to Saskatoon residents.

Did You Know?

Climate change scenarios for the Prairie Provinces predict 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. The City of Saskatoon is considering adaptation strategies.

Transportation Choices



Status: Needs Improvement

Why is it important?

Transportation impacts the environment, with vehicles generating more GHG emissions and requiring more land for road infrastructure than public transportation, cycling and walking.

Where are we now?

The percentage of residents using cycling, walking or transit to get to work has been relatively stable since 2001, and needs significant improvement to meet the targets adopted by City Council.

Data Table: Transportation Choices

| | 1996 | 2001 | 2006 | 2011 | 2013 ¹ | 2023 |
|--|-------|-------|-------|------|-------------------|------|
| % of Residents Commuting via Cycling, Walking and Public Transit | 14.4% | 12.4% | 12.3% | 11.5 | 14%* | 20% |
| ¹ Household Travel Survey includes all trips for all purposes (vs. commute to work only). | | | | | | |
| Sources: Statistics Canada and Household Travel Survey (2013) | | | | | | |

What are we doing?

Five-Year Transit Plan

The City has a [new transit plan](#) that will improve customer service, move towards Bus Rapid Transit (BRT), and develop a Control Centre to monitor the entire system and instantly reroute around traffic congestion and detours.

Protected Bike Lane Demonstration Project

Two protected bike lanes are now installed on 23rd Street East and 4th Avenue in Saskatoon's downtown. Lanes are physically separated from vehicles and pedestrians by parked vehicles, a painted buffer and flexible posts.

Sidewalk Inventory

The City of Saskatoon completed a sidewalk inventory in 2015 which will prioritize the repair and replacement of sidewalks throughout the entire city, improving pedestrian safety.

Active Transportation Plan

The City approved the Active Transportation Plan (ATP) in 2016 as part of the Growth Plan to Half a Million. The ATP will help provide more choices for moving around Saskatoon by addressing community infrastructure needs for cycling, walking and other modes of active transportation. The targets set through the Active Transportation Plan expand on the City's initial targets, by doubling the proportion of cycling, walking and transit users to 32% of all daily trips by 2045 (8% cycling, 16% walking and 8% transit).

What can you do?

Visit Saskatoon Transit's route planner to find the best way to get you to work or school.

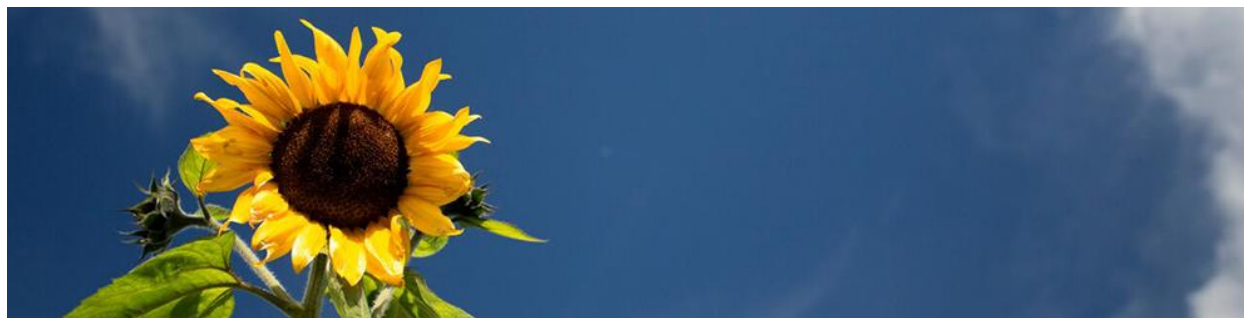
Find bicycle routes and safety tips using the Saskatoon cycling guide.

Find out if your workplace has a ride share program to promote carpooling and if not consider starting a simple one with a message board or map.

Did You Know?

You can reduce your GHGs by approximately 470kg CO₂e if you take public transit rather than driving to work, plus you will save on car expenses like fuel, maintenance and parking.

Air Quality



Status: Needs Improvement

Why is it important?

Good air quality is important to our health and the environment. While Saskatoon has many favourable features for good air quality, sources of pollution make ongoing monitoring important.

The Strategic Plan vision statement for Environmental Leadership includes clean air.

Where are we now?

Saskatoon's average Air Quality was ranked as Good by the Air Quality Index in 2014, and has been showing a slow downward trend over the past decade. This means that on average residents with severe respiratory ailments now may notice minor effects, when prior to 2009 the air quality was ranked Excellent and there were no known health impacts.

Data Table: Air Quality Index for Saskatoon

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|------|------|------|------|------|------|------|------|------|------|
| Average Air Quality Index | 14 | 14 | 15 | 14 | 15 | 18 | 17 | 16 | 17 | 18 |
| Source: Government of Saskatchewan: 2015 State of the Environment Report. | | | | | | | | | | |

What are we doing?

Advisory and Education Role

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

Western Yellowhead Air Management Zone (WYAMZ)

The City of Saskatoon assists with managing 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 in Saskatoon.

What can you do?

Environment Canada recommends monitoring the Air Quality Health Index if you have a respiratory or cardiovascular condition, have young children, are elderly or are active outdoors. This index tracks the pollutants that cause symptoms like eye irritation, coughing and difficulty breathing.

Consider ways to reduce your air pollution such as taking transit, turning your car off instead of idling and planting a lawn that does not require mowing.

Did You Know?

One of the main pollutants that impact Saskatoon's air quality is ground level ozone. It is caused by the reaction of pollutants from industry, electricity generation, and vehicle exhaust with sunlight. The same pollution sources are responsible for greenhouse gas emissions.

NEW INDICATOR: Corporate Alternative Energy Projects



Status: Improving

Why is it important?

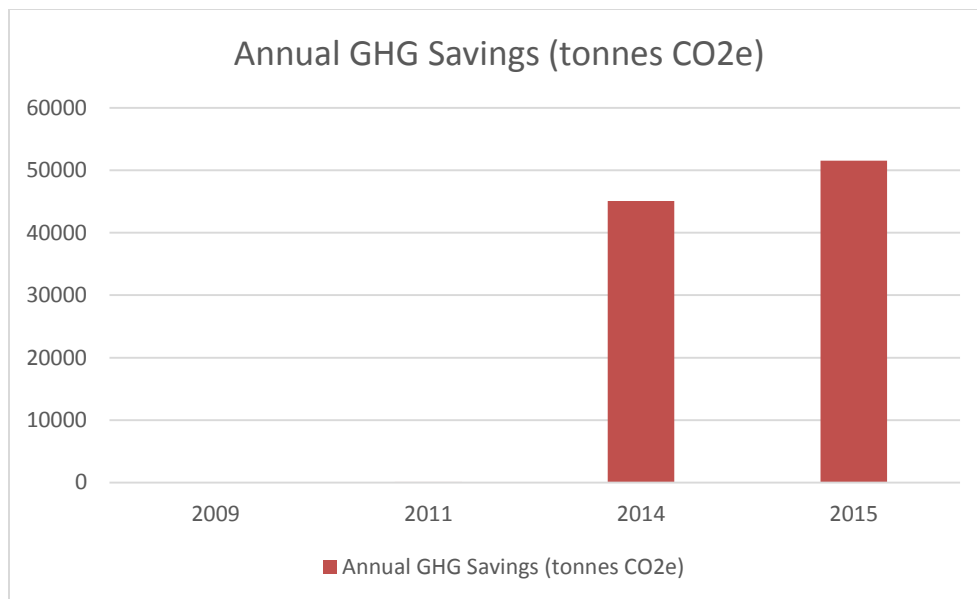
Much of the energy used by the City of Saskatoon in its facilities and operations generate greenhouse gas emissions and air pollution. Developing alternative energy projects can reduce these negative environmental impacts, save money over the long term, and demonstrate leadership in our community.

Where are we now?

There are currently six completed projects that are using or generating 'greener' energy and offsetting fossil fuel use.

Data Table: Corporate Alternative Energy Projects

| Year | # of Projects | Annual GHG Savings (tonnes CO _{2e}) |
|---|---------------|---|
| 2009 | 1 | 6 |
| 2011 | 3 | 106 |
| 2014 | 4 | 45,106 |
| 2015 | 6 | 51,557 |
| Source: Environmental & Corporate Initiatives, City of Saskatoon. | | |



Source: Environmental and Corporate Initiatives, City of Saskatoon.

What are we doing?

Greenhouse Gas Business Plan

The City of Saskatoon is developing a plan to reduce GHG emissions in city operations and facilities as well as in the broader community. The plan will include additional projects to reduce GHG emissions.

Solar PV Demonstration Site

Saskatoon Light & Power is partnering with the [Saskatchewan Environmental Society Solar Co-operative](#) – the first power generation co-operative in the province – and [Saskatchewan Polytechnic](#) to create a Solar Photovoltaic (PV) demonstration site.

Proposed Hydropower Generation at the Weir

Saskatoon Light & Power is exploring the viability of hydropower generation at the Saskatoon Weir that could generate power for up to 4,800 homes.

What you can do?

Consider alternative energy for your home or business. For example, solar energy systems generate clean, reliable power using FREE fuel (i.e., the Sun) – without producing pollution or CO₂ emissions.

Water

Water Quality



Status: Stable

Why is it important?

Water is essential for our health and for our community to prosper. As water passes through our community, the impact can be determined through comparing upstream and downstream water quality.

The Strategic Plan has the long term strategy to reduce the impact of storm water run-off that is going into the river.

Where are we now?

The South Saskatchewan River upstream and downstream of Saskatoon has consistently averaged Good water quality.

Data Table: Water Quality Index – Upstream and Downstream of Saskatoon

| | 2005-07 | 2006-08 | 2007-09 | 2008-10 | 2009-11 | 2010-12 | 2011-13 | 2012-14 |
|-----------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| WQI (upstream - Outlook) | 94.5 | 94.8 | 83.3 | 83.2 | 83.2 | 95.2 | 91.1 | 90.6 |
| WQI (downstream – West Clarkboro) | 90.9 | 91 | 91.7 | 91.7 | 91.7 | 84.8 | 81.8 | 100 |

Source: Government of Saskatchewan, Water Security Agency, Annual Report for 2015-16: State of Drinking Water Quality in Saskatchewan

What are we doing?

Stormwater Management Plan

The City is in the early stages of developing a plan to protect and monitor water quality and will include the integration of stormwater management with land use planning.

South Saskatchewan River Watershed Stewards Inc.

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.

Wetlands Policy

The City has adopted development guidelines to integrate many benefits and functions of wetlands, and meet the strategic goal of reducing the quantity and improving the quality of storm water entering the river.

Nutrient Recovery Facility

The City of Saskatoon Wastewater Treatment Plant treats liquids coming from our household plumbing and from businesses across the community. Many pollutants are removed through the sophisticated processes at the plant, including recovering Phosphorus and Magnesium to make a valuable fertilizer.

Soil Handling Strategy

The City manages contaminated and clean soils from city construction projects, which helps prevent pollutants from reaching the river.

What can you do?

Don't pour harmful household chemicals down the drain. Bring household hazardous waste to a City drop off event.

Use a car wash rather than washing your vehicle at home. Car washes use less water and are designed to keep soapy runoff out of the storm water system that drains directly to our river, harming plant and animal life.

Did You Know?

Saskatoon's tap water is safe and healthy with over 55,000 tests per year monitoring quality.

Water Consumption



Status: Stable

Why is it important?

Saskatoon benefits from an abundance of water from the South Saskatchewan River. The treatment of water and waste water, however, use significant energy and chemical inputs, generating environmental and financial concerns as the city grows.

Measuring the per capita water consumption is a success indicator in the Strategic Plan.

Where are we now?

Per capita residential water use improved when new conservation-based water rates were introduced in 2010 and have remained fairly stable over the past 6 years.

Data Table: Residential Water Consumption

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|------|------|------|------|------|------|------|------|
| Residential Water Use (L/capita/day) | 290 | 283 | 230 | 243 | 230 | 234 | 215 | 223 |
| Source: City of Saskatoon – Saskatoon Water | | | | | | | | |

What are we doing?

Be Water Wise

The City is providing residents, businesses and institutions the education and tools to reduce their water consumption.

Smart Meters

The City is installing an Advanced Metering Infrastructure system that will provide more accurate water use information to residents and help them find ways to conserve.

Rain Barrel Rebate

Residents can qualify for a \$20 rebate on a newly purchased rain barrel to help save water and reduce their utility bills.

What can you do?

Find out how to use less water on your yard and garden with tips from the Be Water Wise campaign and Healthy Yards.

Consider upgrading your showerhead, toilets, and taps. New water efficient models have been engineered to deliver high performance at the same time as saving you money.

Check your home for leaks. Toilets are the most common cause of wasted water and high water bills.

Did You Know?

Replacing older model toilets with low-flow, low-capacity models can reduce the amount 'flushed' away by up to 65%.

NEW INDICATOR: Maximum Daily Demand for Water



Status: Needs Improvement

Why is it important?

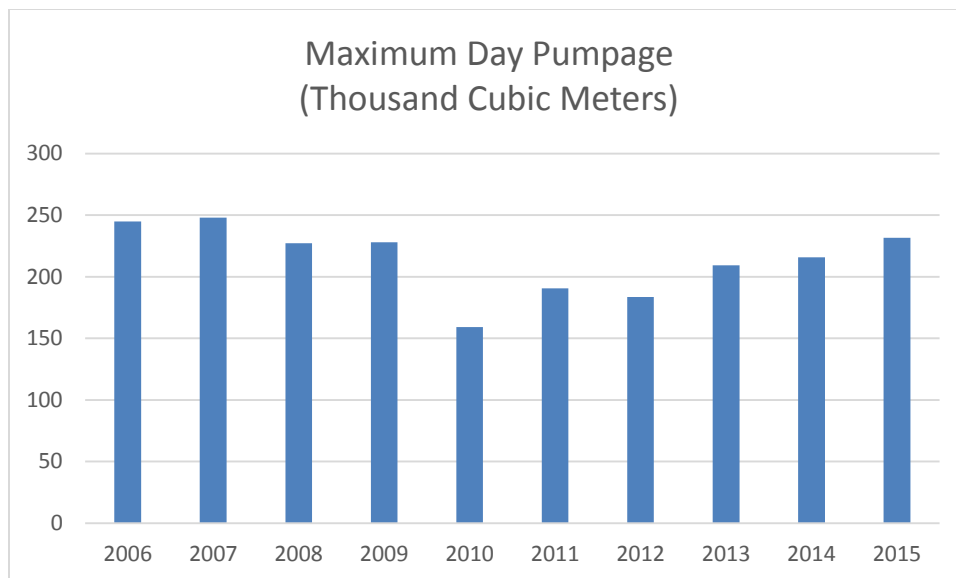
Maximum Day Demand is the largest amount of water pumped by Saskatoon Water on a single day. It has implications for how much water is drawn from the river, the amount of energy used to treat and deliver water to customers, and the future need to build a second Water Treatment Plan. Hot and dry summers and population growth impact how much water needs to be treated and distributed. Daily demand can increase by over 50% in the summer compared to the winter.

Where are we now?

Maximum day pumpage has been trending upwards since 2010, but remains below levels seen in 2006 and 2007.

Data Table: Maximum Day Pumpage

| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|--|------|------|------|------|------|------|------|------|------|------|
| Maximum Day Pumpage (Thousand Cubic Metres) | 245 | 248 | 227 | 228 | 159 | 191 | 183 | 209 | 216 | 232 |
| Source: City of Saskatoon – Saskatoon Water, 2015 Annual Report. | | | | | | | | | | |



Source: City of Saskatoon – Saskatoon Water, 2015 Annual Report.

What are we doing?

Water and Wastewater Utility Rates

The City of Saskatoon has conservation-oriented rates to reduce peak water use. For residents this means that higher water use results in paying higher rates. For commercial customers a flat rate is applied based on water use, without a bulk water use discount.

Be Water Wise

The City's water conservation education program helps educate residents on how to reduce outdoor water use in the summer, which can increase by as much as 50%.

Leading by Example Strategy

The City of Saskatoon is in the process of developing a strategy to reduce water use in city owned facilities and operations, which includes ways to reduce demands associated with hot, dry summer weather such as irrigation and recreation.

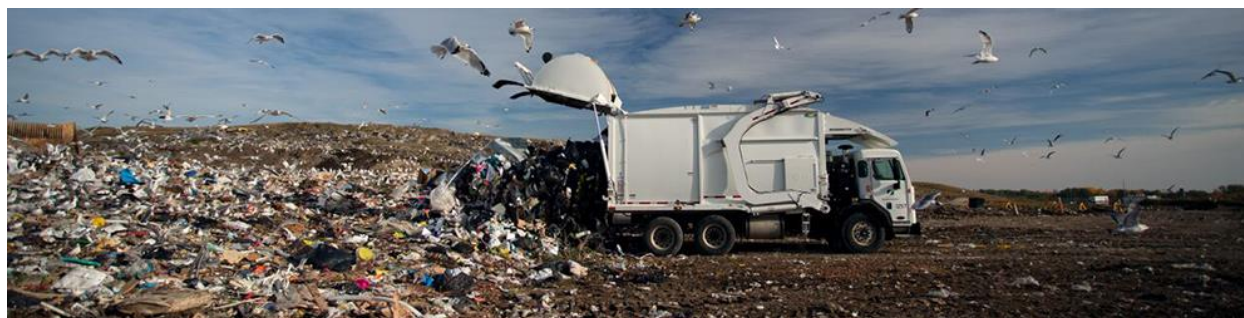
What you can do?

Use the most effective outdoor watering and gardening methods to grow a healthy yard.

Check your home for leaks. Some of the most common source of leaks are toilets, faucets, irrigation systems, and pools.

Waste

Landfilled Waste



Status: Improving

Why is it important?

As our population grows the amount of waste we are generating increases and changes. The current landfill has a lifespan of 40 years and the construction of a new landfill would be costly.

Reducing the waste that is landfilled is a priority in the Strategic Plan.

Where are we now?

The amount of waste each resident sends to the landfill is decreasing.

Data Table: Landfilled Waste

| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|--|------|------|------|------|------|------|------|------|------|
| Residential Garbage Collection (kg/capita) | 340 | 323 | 308 | 284 | 269 | 265 | 252 | 249 | 242 |
| Source: City of Saskatoon – Environmental & Corporate Initiatives and Public Works | | | | | | | | | |

What are we doing?

Saskatoon Waste and Recycling Plan

The City has a 20-year plan to minimize the waste that is landfilled. It focuses on the “5Rs” hierarchy of waste management: reduce, reuse, recycle, resource recovery and residual waste management. The Plan will be updated based on the results of a year-long waste characterization study.

National Zero Waste Council

The City has made a commitment to eliminate waste from the landfill by joining the National Zero Waste Council.

Curbside Swap

The City supports reuse in the community with Curbside Swap events.

Recovery Park

The City is in the process of re-imagining the landfill to include a wider range of options for materials to be reused and recycled.

What can you do?

Reduce the amount of packaging you bring home by buying bulk when possible and using reusable shopping bags.

Reuse items that still have a useful life by buying or selling items second hand, donating items to charity or taking part in a curbside swap.

Repair when possible rather than buying something new.

Did You Know?

Saskatoon has one of the highest rates of residential garbage self-hauled to the landfill in Canada.

Waste Diversion



Status: Stable

Why is it important?

The amount of material diverted from the landfill can reduce environmental impacts and extend the operating life of the current landfill.

The diversion rate is a success indicator in the Strategic Plan.

Where are we now?

The percentage of waste being diverted from the landfill has remained relatively stable over the past three years; however, improvement is needed to meet City Council’s 2023 target of 70%.

Data Table:

| | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2023 |
|--|------|------|------|------|------|------|------|------|
| Diversion Rate (%) | 15% | 20% | 17% | 18% | 23% | 23% | 21% | 70% |
| Source: City of Saskatoon – Environmental & Corporate Initiatives and Public Works | | | | | | | | |

What are we doing?

Residential Recycling

Every resident in Saskatoon can now recycle at home with the curbside recycling program and the multi-unit residential recycling program. The City’s four Recycle Depots are also available for extra or oversized recycling.

Household Hazardous Waste Days

The City hosts a series of events that offers residents a way to safely dispose of household items that are dangerous for waste collectors and can harm the environment.

Composting Programs

The City offers a number of ways for residents to compost, including two compost depots with free drop off, a subscription Green Cart collection program, and a Home Composting Education Program.

What can you do?

Sign up for collection reminders for your black, blue and green carts.

Take advantage of the City's composting programs, including the compost depots and the subscription green cart program that now accepts food waste.

Call a Compost Coach for information on how to compost at home, or train to become a compost coach yourself. Each year the City trains 10-12 new volunteers that help others master the art of composting.

Check to see if something can be recycled before throwing it out by checking the City's Waste Wizard searchable database or the Saskatchewan Waste Reduction Council's "Where do I recycle my..." page. Many common household items such as batteries, lightbulbs, paint, and electronics can be diverted from the landfill.

Did You Know?

In 2015, 29,623 tonnes of materials were diverted through the City's recycling and compost programs.

NEW INDICATOR: Total Waste Disposal and Diversion



Status: Improving

Why is it important?

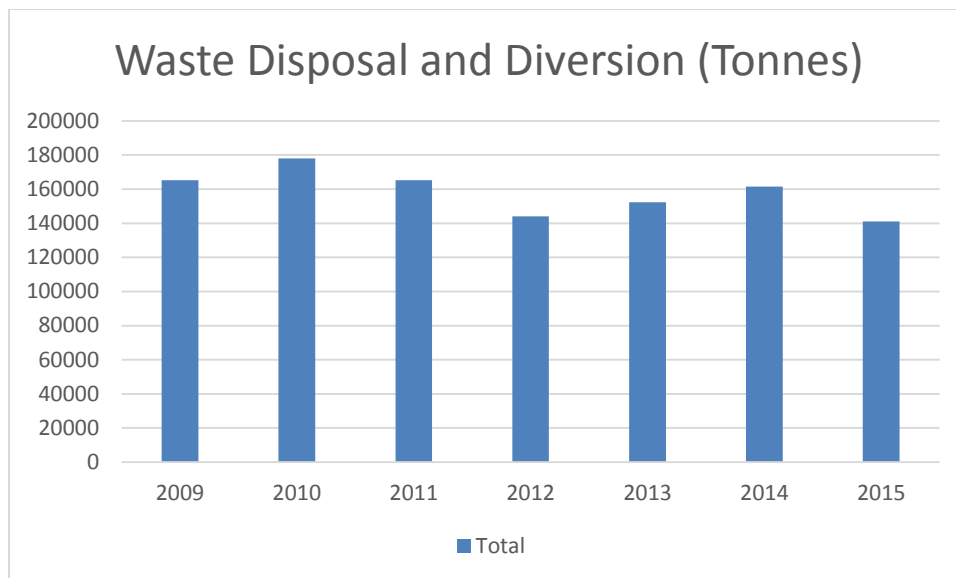
The most environmentally friendly and cost effective way to manage waste is to eliminate it through reduction or reuse.

Where are we now?

The total amount of waste accepted by both the City's diversion and disposal programs was lower in 2015 than 2014.

Data Table: Waste Disposal and Diversion (tonnes)

| | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|--|---------|---------|---------|---------|---------|---------|---------|
| Waste Diverted | 24,782 | 34,833 | 28,557 | 26,520 | 34,533 | 36,338 | 29,623 |
| Waste Disposed | 140,440 | 143,241 | 136,735 | 117,523 | 117,759 | 125,238 | 111,507 |
| Total | 165,222 | 178,073 | 165,292 | 144,043 | 152,292 | 161,575 | 141,130 |
| Source: Integrated Waste Management Annual Report, 2015. | | | | | | | |



Source: Integrated Waste Management Annual Report, 2015.

What are we doing?

Home Composting Education Program

Composting is the process of breaking down organic waste (such as food scraps, grass clippings, and dried leaves) into a rich soil amendment that your lawn and garden will love!

Have a composting question? Simply dial (306) 931-3249 or email compost@saskwastereduction.ca. Please allow 1 business day for one of our Compost Coaches to respond to your inquiry.

Curbside Swap

The City supports reuse in the community with Curbside Swap events.

What you can do?

When making a purchase, consider the packaging, how easy a product is to repair, and what disposal options are available.

Find out what your composting style is by taking an [online quiz](#). Compost coaches are available for a home visit if you have questions, need help setting up your home compost system or are troubleshooting an issue.

Donate lightly used items to charities. Charity bins for Canadian Diabetes Association, Community Living, and The Salvation Army are located at three of four City-run recycle depots as well as other locations throughout the city.

Green Cart Program

NEW in 2016: food waste is accepted with yard waste in the Green Cart program.

Did you know?

Yard and food waste make up over 40% of the waste from an average home. Composting these materials diverts waste from the landfill and reduces greenhouse gas emissions.

Ecological Footprint Report 2014

Recommendation

That the report of the General Manager, Corporate Performance Department, dated December 6, 2016, be received as information.

Topic and Purpose

The purpose of this report is to provide the results of the City of Saskatoon Ecological Footprint Report 2014.

Report Highlights

1. The 2014 Ecological Footprint for Saskatoon was 7.38 global hectares per person (or 1.88 million global hectares of land), which was an increase from 7.28 global hectares per person in 2010 and 6.90 global hectares per person in 2003.
2. The Saskatoon's 2014 Ecological Footprint was 78 times larger than the geographic area of the city, indicating our consumption demands far exceeded the community's ability or capacity to produce the materials we used and to absorb the waste we generated.
3. The city's per capita Ecological Footprint grew 1.4% between 2010 and 2014. The areas with increased footprints were Transportation, Goods and Services, and Government Services, while the footprints of the Food and Shelter areas decreased.
4. While the Ecological Footprint grew since 2010, the increase is substantially less than the growth observed in the city's population and economy over the same period.
5. A number of civic plans are expected to help reduce Saskatoon's Ecological Footprint in the future.

Strategic Goal

The 2014 report addresses the Strategic Goal of Environmental Leadership – Saskatoon Grows in Harmony with Nature. The percentage change in the Ecological Footprint of Saskatoon is a success indicator in the Strategic Plan and provides the aggregate impact of the community in the areas of energy, waste and land use.

Background

There have been two previous ecological footprint analyses completed for Saskatoon. An analysis based on 2003 data was completed as part of a Canada-wide study prepared by the Federation of Canadian Municipalities. The second ecological footprint analysis was based on 2010 data and was completed by the Planning and Development Division.

Report

The ecological footprint (EF) is a tool that measures the environmental impact of human consumption. The findings are expressed in terms of the land area needed to support

the consumption behaviours of the population. The methodology for preparing the ecological footprint analysis has remained consistent for all three Saskatoon reports. The report can be found as Attachment 1.

Saskatoon 2014 Ecological Footprint

The overall ecological footprint and ecological footprint per capita have both increased for Saskatoon between 2003 and 2014. Saskatoon’s overall EF in 2014 was 1.88 million global hectares of land; this is 78 times larger than the geographical area of the city and 33% larger than the overall EF measured in 2003. A map to visualize the ecological footprint is included in Attachment 1.

Saskatoon 2014 per Capita Ecological Footprint

The per capita EF in 2014 was 7.38 global hectares per person, comparable to other ‘cold climate’ cities in developed nations, which was an increase of 1% since 2010 and 7% since 2003. Saskatoon’s EF per person is 5.3% higher than the Canadian average EF of 7.01 global hectares per person. This value is substantially larger than the global average EF of 2.7 global hectares per person and significantly greater than the global available biocapacity (the capacity of an ecosystem to produce biological materials used by people and to absorb waste materials generated by people, under current management schemes and extraction technologies) of 1.8 global hectares per person.

Modest Increases

It may also be noted that while the city’s EF grew since 2010 (+1.4%), the increase is modest when compared to growth observed in the City’s population (+9.7%) and economic indicators such as gross domestic product (+11.6%) and employment (+20%).

The following is a summary of the per capita results showing increases in resource intensity for all categories except Food and Shelter.

| Ecological Footprint (Global Hectares per Person) | Goods and Services (entertainment, recreation, charitable giving, etc.) | Food (includes impacts from production through consumption) | Shelter (household energy consumption) | Transportation (private vehicle use, public transit, air and rail travel) | Government Services (roads, snow removal, schools, health care, waste collection, etc.) | Total |
|---|---|---|--|---|---|-------|
| Saskatoon (2014) | 1.95 | 1.35 | 1.49 | 0.91 | 1.68 | 7.38 |
| Saskatoon (2010) | 1.87 | 1.39 | 1.67 | 0.80 | 1.54 | 7.28 |
| Saskatoon (2003) | 1.51 | 1.35 | 2.01 | 0.65 | 1.38 | 6.90 |

It is relevant to note that per household energy consumption decreased by 9.1% (electricity) and 15.5% (natural gas), relative to 2010, suggesting increasing energy conservation/efficiency at the community level.

Saskatoon's Growth

The EF is a consumption analysis. Consumption in an urban context has two forms: (1) direct consumption by households; and (2) consumption by governments and other service providers to provide for that consumption. Residents and businesses necessarily consume goods and services and a growing population necessarily puts pressure on increasing consumption. Therefore, the EF is achieved through increasing efficiency of consumption and or actual reduction in consumption.

The EF's calculated for Saskatoon for 2010 and 2014 occurred during a period of significant growth. The 2010 – 2014 period in particular, has been characterized by rapid population growth and the infrastructure investment required to accommodate that growth. Table 1 in the City of Saskatoon Ecological Footprint 2014 report summarises key indicators of the population during the period. The following points provide further context for the growth that the City experienced during the period:

- 10,191 acres of land was annexed to the City of Saskatoon in 2010. This was about a 19% increase in the physical size of the city's jurisdiction.
- 15,639 dwelling units were built in the period, about an 11% increase in the housing stock.
- 2 neighbourhoods substantively built out, three new neighbourhoods were started and concept plans for two more were approved.
- Almost 20,000 (11.7%) more people (CMA) were employed.

Saskatoon grew rapidly over the period between the 2010 and 2014 Ecological Footprint measurements. The measures of the population, economy, and physical size of the city grew by 10% or more during the period while the per capita ecological footprint grew by 1.4%.

Plans for Reducing the Ecological Footprint

To increase the efficiency of consumption and to provide citizens with choice in terms of the amount each must necessarily consume, the City is working on the development and implementation of a number of important initiatives:

- Growth Plan to Half a Million outlines strategies to increase opportunities for greater choice in terms of housing form and location, transportation options, and mix of land uses that make it possible to live, work, play and shop all within closer proximity.
- Waste Diversion Plan will outline strategies for increasing the amount of waste that is reused or recycled for other valuable purposes to 70% and potentially leading to a zero-waste culture thus creating increased local economic opportunity.
- Community Energy Plan will outline strategies for reducing community and corporate greenhouse gas emissions through greater efficiency and the generation of energy from renewable resources.
- Green Infrastructure Strategy will identify strategies for utilizing the ecosystem services of nature and reducing the need to replicate these services through resource-intensive built infrastructure.

These plans form the basis for a comprehensive sustainable community plan that can be expected to reduce Saskatoon's EF.

Communication Plan

The results of Saskatoon's 2014 Ecological Footprint will be communicated through the Performance Dashboard section of the City's website and through annual updates to *Our Environment: The City of Saskatoon's Environmental Leadership Report*. Additional communications to support Our Environment may include the news media, social media, and the City's website.

Other Considerations/Implications

As an information report there are no policy, financial, environmental, privacy, or CPTED implications or considerations.

Due Date for Follow-up and/or Project Completion

The Administration intends to update Saskatoon's ecological footprint at five-year intervals and communicate results within updates to *Our Environment*. In early 2017, the data from this report will be included in a higher level document representing the four pillars of an Environmental Sustainability Plan. The data and related analysis will provide the context for discussions on issues and options facing our community and will be submitted to the Standing Policy Committee on Environment, Utilities and Corporate Services.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Attachment

1. City of Saskatoon Ecological Footprint Report

Report Approval

Written by: Katie Burns, Environmental Coordinator, Environmental and Corporate Initiatives
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Approved by: Catherine Gryba, General Manager, Corporate Performance

Ecological Footprint Report 2014.docx



City of Saskatoon Ecological Footprint Report 2014

A report prepared for The City of Saskatoon

Community Services Department, Planning and Development
Division

Corporate Performance Department, Environmental and
Corporate Initiatives Division

Prepared by Anielski Management Inc.
(Jeff Wilson and Mark Anielski)

December 2015

City of Saskatoon Ecological Footprint Report 2014

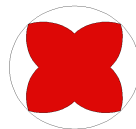
A report on the ecological footprint and other select household consumption indicators

Prepared for

City of Saskatoon

Community Services Department: Planning and Development Division
Corporate Performance Department: Environmental and Corporate Initiatives Division

by Jeff Wilson and Mark Anielski of



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Executive Summary

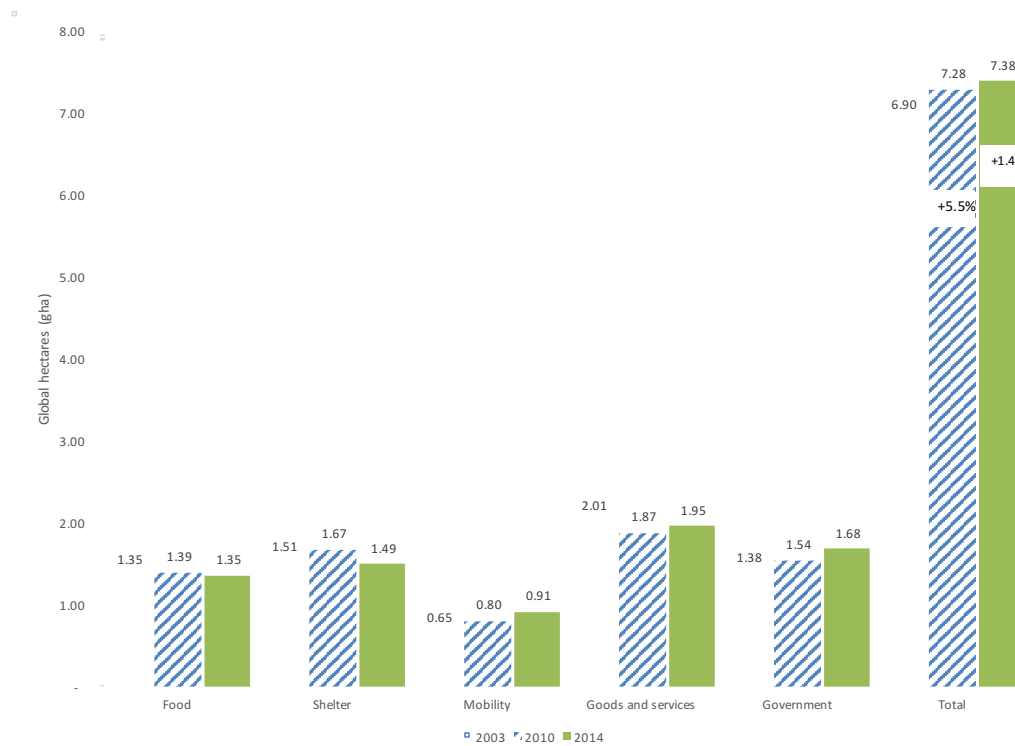
The City of Saskatoon has committed to reporting the ecological footprint as part of a larger indicator framework to track and measure progress towards sustainability and quality of life objectives. The ecological footprint is a sustainability accounting tool that measures the environmental impact of human consumption. Saskatoon's ecological footprint accounts for our population's consumption of food, transportation, housing, goods and services, and government services and expresses the findings in terms of the land area needed to support that level of consumption.

The ecological footprint inverts the traditional concept of 'carrying capacity' (the population a given region could support) and instead seeks to determine the total land area required, regardless of where that land is located, to sustain a given population. The ecological footprint is unique in that it accounts for the environmental impacts of consumption regardless of where the burden of that consumption falls in terms of production costs and pollution (Rees and Wackernagel, 1996). ***The Saskatoon ecological footprint, therefore, is the sum environmental impact of all Saskatoon residents' consumption no matter where in the world the environmental impact occurs.*** The ecological footprint expresses results in global hectares. A global hectare is a standardized hectare to account for the fact that different land types and different land categories have different productivity or biocapacity potentials.

In 2014, the average per capita Saskatoon ecological footprint was 7.38 global hectares per person or a total area of 1.88 million global hectares of land. The ecological footprint total area for Saskatoon is 78 times larger than the geographic area of the City. Saskatoon's ecological footprint per person grew by 1.4% between 2010 and 2014 (Figure 1).

Three footprint components contributed to the overall increase: goods and services (+3.8%), government services (+8.8%) and transportation (+13.9%). Increases in these components were offset by a 10.9% decrease in the shelter component. The rise in the goods and services component and government services component reflect higher levels of household and government spending per person (in constant dollars). The rise in the transportation component reflects an increase in air travel and an increase in fuel consumption.

Figure 1: Saskatoon ecological footprint 2003, 2010, 2014 (summary)



The rise in ecological footprint between 2010 and 2014 coincided with a period of rapid economic development in Saskatoon as reflected in key socio-economic indicators. Gross domestic product (GDP) per person, household income, and household spending for example all increased by over 10% (Table 1).

Table 1: Key socio-economic indicators

| | % change 2010 to 2014 |
|---------------------------------|--------------------------|
| GDP per person (Saskatoon CMA) | + 11.6% |
| Employment (Saskatoon CMA) | +20.0% |
| Household median income | + 12.7% |
| Household spending | + 10.6% |
| Average home price | +17.7% |
| Population | + 9.7% |
| Ecological Footprint per person | +1.4% |

In comparison, the increase in the ecological footprint per person was considerably less than changes in other key socio-economic indicators. In addition to these indicators, two key ecological footprint components decreased, the shelter footprint (-11%) and the food footprint (- 3%).

The good news was reflected in other indicators of environmental performance as well (Table 2). For example, household electricity use, natural gas use, household waste going to landfill and greenhouse gas emissions (GHG) associated with public transit all decreased while public transit ridership increased.

Table 2: Environmental performance indicators (change 2010-2014)

| | % change 2010 to 2014 |
|-------------------------------|----------------------------------|
| Electricity use per household | - 9.1% |
| Natural gas use per household | -15.5% |
| Household waste to landfills | - 13.4% |
| Public transit GHG emissions | -6.7% |
| Public transit ridership | + 0.2% |

Overall, environmental performance by Saskatoon households in 2014 is summarized as follows:

Table 3: Household environmental performance indicators (summary)

| Average Saskatoon Environmental Performance | |
|--|----------------------------------|
| Ecological footprint per household | 17.5 gha |
| Direct GHG emissions | 17.3 tonnes of CO ₂ e |
| Shelter emissions | 9.4 tonnes of CO ₂ e |
| Transportation emissions | 9.4 tonnes of CO ₂ e |
| Water use | 560 liters |
| Waste to landfills | 771 kg |
| Waste diverted from landfills | 338 kg |

Introduction

The City of Saskatoon has committed to reporting the ecological footprint as part of a larger indicator framework to track and measure progress towards sustainability and quality of life objectives. Saskatoon's ecological footprint accounts for our population's consumption of food, transportation, housing, goods and services, and government services. The findings are converted to the total land area (global hectares) needed to support our population's consumption demands to make it easier to compare the impacts of different types of consumption.

This report updates Saskatoon's ecological footprint for the year 2014; the previous ecological footprint was calculated in year 2010. In addition to reporting an ecological footprint, the 2014 update reports a series of household consumption indicators. Expanding the suite of indicators offers a more complete understanding of household environmental impact and complements the ecological footprint as a broad measure of household sustainability. Further, it offers a more robust framework to track progress of sustainability efforts targeting households over time.

Household consumption indicators reported in 2014 update include:

- Ecological footprint
- Ecological footprint by consumption category (food, shelter, goods and services, transportation, government services)
- Direct greenhouse gas emissions – shelter (electricity and natural gas)
- Direct greenhouse gas emissions – transportation (personal transportation, transit)
- Residential waste (landfill, recycling, compost)
- Residential water use

The selected suite of indicators offers community leaders, policy makers and city planners useful information to help develop sustainability strategies targeting the household sector. Further, the findings can be used to raise awareness and educate citizens about the sustainability impacts of lifestyle choices and inspire and promote dialogue to encourage household behaviour change.

While the focus of the report is to update the 2010 ecological footprint, time series data points are presented for the additional indicators as well.

Household consumption indicators are discussed in terms of broader progress toward reducing household environmental impacts.

The Average Saskatoon Household Environmental Performance

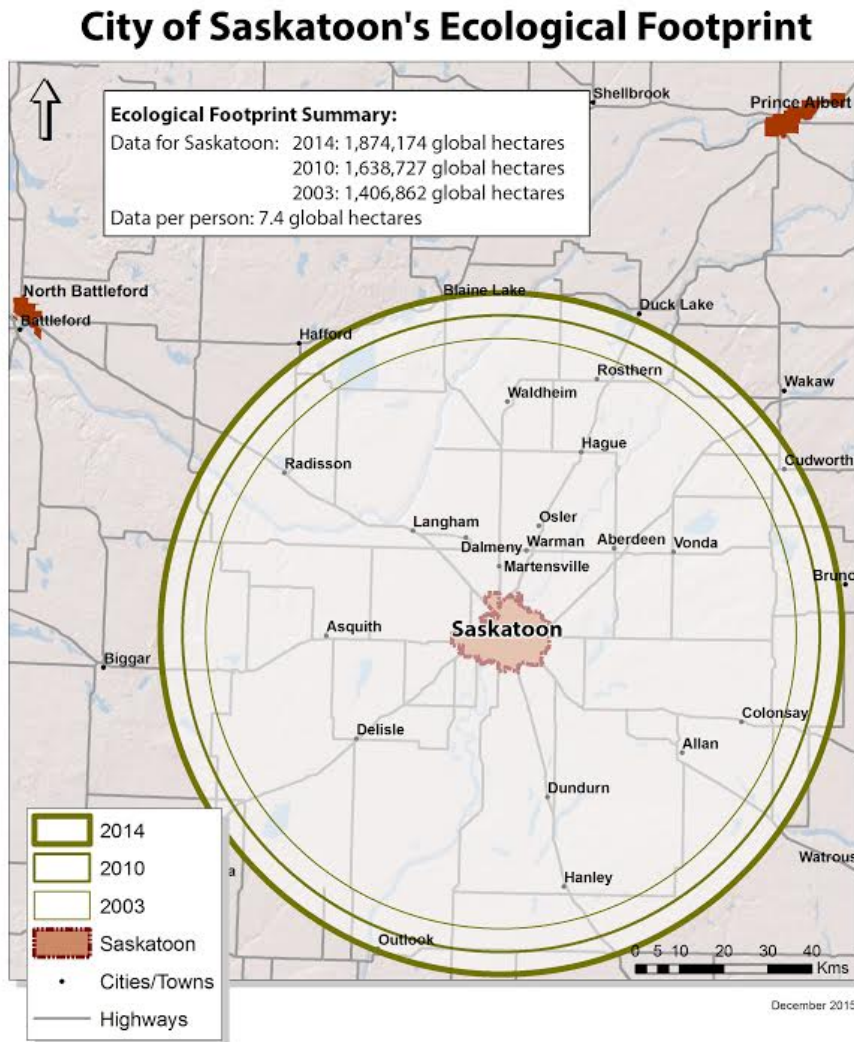
- Ecological footprint: 17.5 gha
- Direct GHG: 17.3 tonnes of CO₂e
 - Shelter - 9.4 tonnes of CO₂e
 - Transportation - 7.9 tonnes of CO₂e
- Water use: 560 liters
- Waste to landfills: 771 kg
- Waste diverted from landfills: 338 kg

Saskatoon Ecological Footprint

- The average Saskatoon household used 17.5 global hectares (43.2 acres) of land in 2014 which is the equivalent of 27% of a quarter section of farm land.

The average ecological footprint of a Saskatoon resident in 2014 was 7.4 global hectares per person (gha/person) or 17.5 gha per household. In terms of total area, the city's ecological footprint of Saskatoon's 107,424 households far exceeds its geographic area. Saskatoon's total ecological footprint occupied almost 1.9 million global hectares. This is more than 78 times larger than the city's total land area (23,637 hectares). Figure 2 depicts how Saskatoon's ecological footprint has grown between 2003 and 2014 in relation to City boundaries.

Figure 2: Saskatoon's ecological footprint



The Saskatoon ecological footprint is able to exceed the political boundaries of the city as it is a measure of total household consumption of Saskatoon residents. The indicator accounts for the consumption of materials and energy of a given population regardless of where the extraction, production, and manufacturing occur. In fact, the majority of Saskatoon's ecological footprint falls outside its borders. Because of trade the impacts associated with resource extraction, food production, manufacturing and distribution, for example, do not necessarily occur within Saskatoon, Saskatchewan or Canada for that matter. As an indicator, the ecological footprint accounts for the impacts of consumption regardless of where in the world they take place.

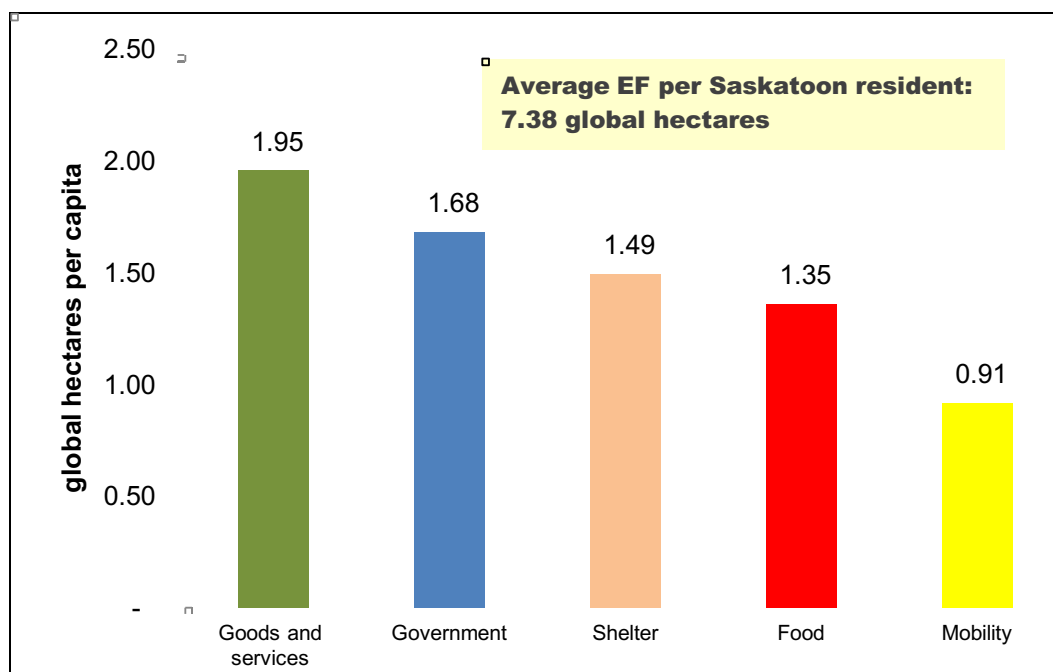
Global Sustainability Perspective

Similar to other Canadian cities, Saskatoon's ecological footprint remains substantially higher than the global sustainability threshold of 1.7 hectares per capita (Living Planet Report, 2014). The global sustainability threshold is determined by taking the total amount of bioproductive space in the world and dividing it by the total population. Assuming an equal distribution of bioproductive space among the global population, Saskatoon residents, on average, are using over four times more than their 1.7 hectare share of the global bioproductive space.

Ecological footprint by consumption category

The Saskatoon ecological footprint can be broken down by consumption category (Figures 3, 4). Consumption categories include food, shelter, personal transportation, goods and services, and government.

Figure 3: Saskatoon ecological footprint by consumption category



The consumption of goods and services makes up 26% of the total ecological footprint, the largest of the footprint categories (Figure 4). The goods and services component has contributed most to the increase in ecological footprint since the year 2003 (Table 4) increasing 29% between 2003 and 2014. Since 2010, the goods and services component has increased by 4%. The goods and services category accounts for all the stuff we buy and the services we use other than those directly related to food, housing and transportation. These include recreation expenditures, entertainment, computer equipment, education supplies, legal and financial services, gambling, tobacco and alcohol products, insurance, pension fund contributions and charitable giving. Expenditure data are from the Statistics Canada Survey of Household Spending. To compare results between years, expenditures are adjusted by the Consumer Price Index to ensure constant dollars. The increase in this component of the footprint correlates with the rise in household incomes and wealth in Saskatoon.

Government services makes up 23% of the total ecological footprint. Government services would include such things as roads, schools, health care, garbage collection, and snow removal. The government services component of the footprint is estimated based on government expenditures from City and Provincial accounts. To compare results between years, government expenditures are adjusted by the Consumer Price Index to ensure constant dollars. Similar to the goods and services component, the strong economy between 2003 and 2014 has contributed to the 21% rise in the government services component of the ecological footprint; the government services footprint increased by 9% between 2010 and 2014.

Shelter, which includes household energy consumption as well as the materials and energy used to maintain the shelter, makes up 20% of the total ecological footprint. The shelter footprint component has been steadily declining since 2003 falling by 26%. Between 2010 and 2014 the shelter footprint fell by 11%. The steady decline in the shelter footprint category has played a critical role in offsetting increases in the other footprint categories such as transportation and household goods and services. The energy component is calculated directly using electricity data and natural gas data provided by the City of Saskatoon from the utility companies. The non-energy component of the shelter footprint is based on household square footage data provided by the City of Saskatoon.

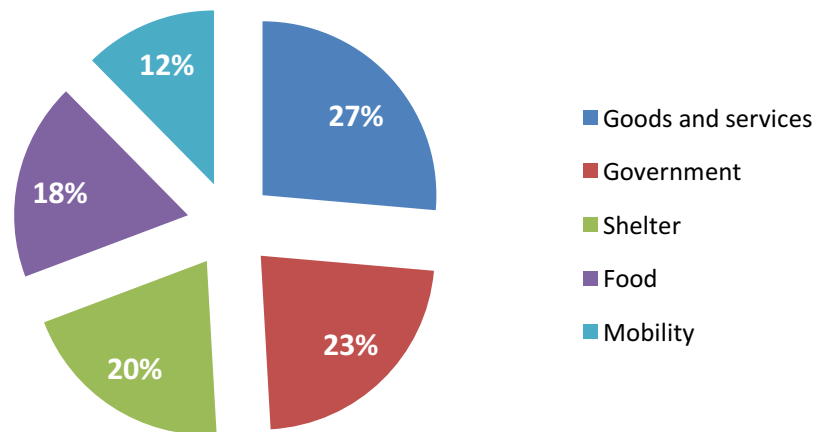
The food category makes up 18% of the ecological footprint and includes the impacts from the production phase through to consumption. The food footprint has been mostly unchanged since 2003. The food footprint is based on expenditures on food from the Survey of Household Spending. To compare results between years, food expenditures are adjusted by the Consumer Price Index to ensure constant dollars.

Personal transportation accounts for 12% of the ecological footprint. The transportation footprint has increased by 14% between 2010 and 2014. Since 2003 it has increased by 40%. The category accounts for private vehicle use, public transit, air travel and rail travel. Private vehicle use contributes most to the respective category (54%) followed by air travel (40%). The transportation footprint is estimated based on a combination of expenditure data from the Survey of Household Spending and fuel

consumption provided by the City of Saskatoon. For a description of consumption categories, ecological footprint calculation approach and source references, see Appendix A.

Figure 4: Saskatoon ecological footprint by component

□



Historical Comparisons, 2003, 2010, 2014

Saskatoon's ecological footprint per person increased by 0.10 gha between 2010 and 2014 (Tables 4, 5 and Figure 5). Three categories increased: government services (0.14 gha/ person), transportation (0.11 gha/person), and goods and services (0.08 gha/person). The food component (0.04 gha/ person) and shelter components (0.18 gha/person) decreased. Since the initial Saskatoon ecological footprint estimate for 2003, Saskatoon's ecological footprint per person has increased by 7% (Wilson and Anielski, 2004).

Table 4: Saskatoon ecological footprint - 2003, 2010, 2014

| EF (gha/person) | Goods and services | Food | Shelter | Transportation | Govt. | Total |
|-------------------------|--------------------|------|---------|----------------|-------|-------------|
| Saskatoon (2014) | 1.95 | 1.35 | 1.49 | 0.91 | 1.68 | 7.38 |
| Saskatoon (2010) | 1.87 | 1.39 | 1.67 | 0.80 | 1.54 | 7.28 |
| Saskatoon (2003) | 1.51 | 1.35 | 2.01 | 0.65 | 1.38 | 6.90 |

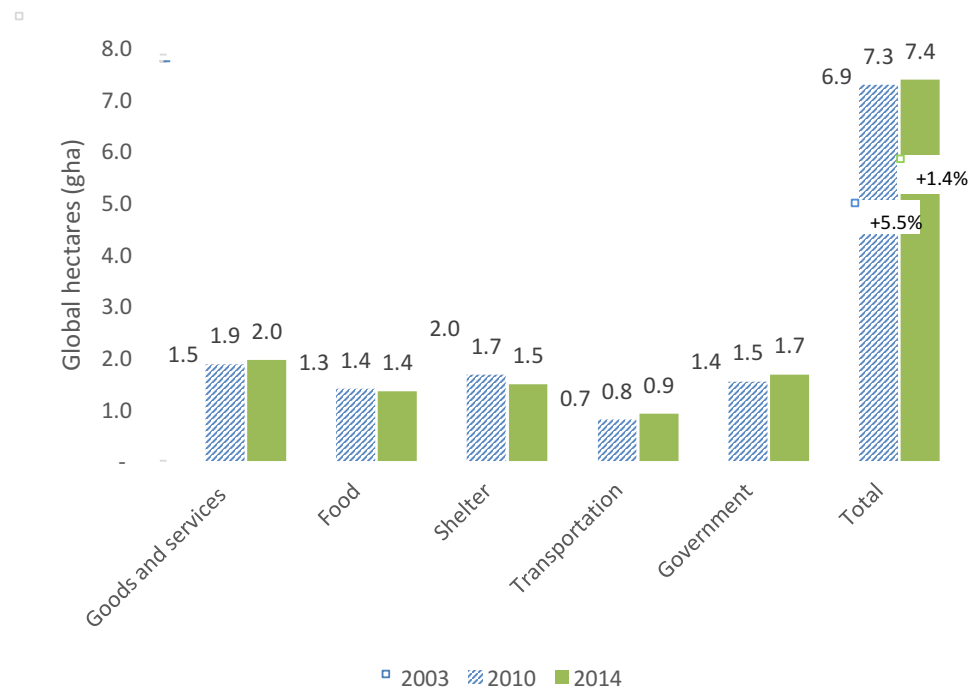
Table 5 shows the percentage changes in the ecological footprint components by consumption category between 2010 and 2014 and between 2003 and 2014. Since 2003, in percentage terms, the transportation category has increased the most (+40%). In terms of overall impact, however, the good and services category has risen the most (0.44 gha/person).

Table 5: Ecological footprint per capita – percentage change

| | 2010-2014 | 2003-2014 |
|-----------------------------|-----------|-----------|
| Goods and services | + 4% | + 29% |
| Food | - 3% | unchanged |
| Shelter | - 11% | - 26% |
| Transportation | + 14% | + 40% |
| Government | + 9% | + 21% |
| Ecological footprint | + 1% | + 7% |

Between 2010 and 2014, the transportation (+14%), government services (+9%) and goods and services (+4%) components contributed to the rise in ecological footprint. A decrease in the shelter component by 11% helped offset the increases in terms of total ecological footprint. Similar to the 2010-2014 period, the rise in the transportation, goods and services and government services components largely explain the 7% increase in ecological footprint per person between 2003 and 2014. In terms of total contribution to the footprint, transportation represents 12% whereas the goods and services component represents 27%. The shelter component (which includes household energy use) has declined substantially (down 26%) while the food component has remained relatively unchanged since 2003. Figure 5 compares the Saskatoon ecological footprint by component for the years 2003, 2010 and 2014.

Figure 5: Saskatoon ecological footprint 2003, 2010, 2014



Ecological footprint comparisons – total footprint

In terms of total land area, Saskatoon's ecological footprint has increased by 34% since 2003, from 1,406,862 global hectares (3,474,948 acres) in 2003 to 1,878,174 global hectares (4,641,069 acres) in 2014 (Table 3). To put this growth into context, the net growth of 471,312 global hectares (1,164,637 acres) in total ecological footprint area since 2003 is the equivalent of 691 Saskatchewan farms (which average 1,688 acres per farm). Over the same period, Saskatoon's population grew by 24.9% from 203,893 in 2003 to 254,569 in 2014. The rise in Saskatoon's total ecological footprint reflects an increase in population size (+25%) and an increase in ecological footprint per person (+7%).

Table 6: Saskatoon, total ecological footprint area (2003, 2010, 2014)

| EF (Global hectares) | Goods and services | Food | Shelter | Transportation | Govt. | Total |
|----------------------|--------------------|---------|---------|----------------|---------|-----------|
| Saskatoon (2014) | 495,456 | 344,866 | 378,799 | 232,440 | 426,613 | 1,878,174 |
| Saskatoon (2010) | 422,008 | 313,485 | 375,979 | 180,410 | 346,844 | 1,638,727 |
| Saskatoon (2003) | 307,408 | 274,936 | 409,975 | 133,340 | 280,923 | 1,406,581 |

Consumption in relation to biocapacity

Saskatoon's total ecological footprint area is 1.9 million hectares (4.6 million acres), the equivalent of 2,750 average sized farms in Saskatchewan (1,688 acres average farm size). The consumption demands of Saskatoon households alone dramatically exceed the available biocapacity in the region. Populations are able to exceed local biocapacity by importing goods and services from other regions of the country and the world.¹ Taking a regional lens, however, offers a more relevant context given that cities by their very nature depend on resources from outside their borders. If we assume a regional context to be a 100 mile radius² around the city, the region has an available biocapacity of 8.8 million hectares or roughly 40 hectares per Saskatoon citizen (Table 7 and Figure 6 map showing biocapacity by land type). Given the large amount of cropland and relative small population (254,569 in 2014) of Saskatoon and surrounding area, the region, in theory, has sufficient biocapacity to support the population. With a total ecological footprint area of 1,878,174 hectares in 2014, Saskatoon's households would require 21% of a 100-mile radius of available biocapacity.

¹ In a global economy, the impact of consumption falls not just in your own backyard but all over the planet. The ecological footprint is a useful indicator because it aggregates the impact of consumption and attributes it to consumer.

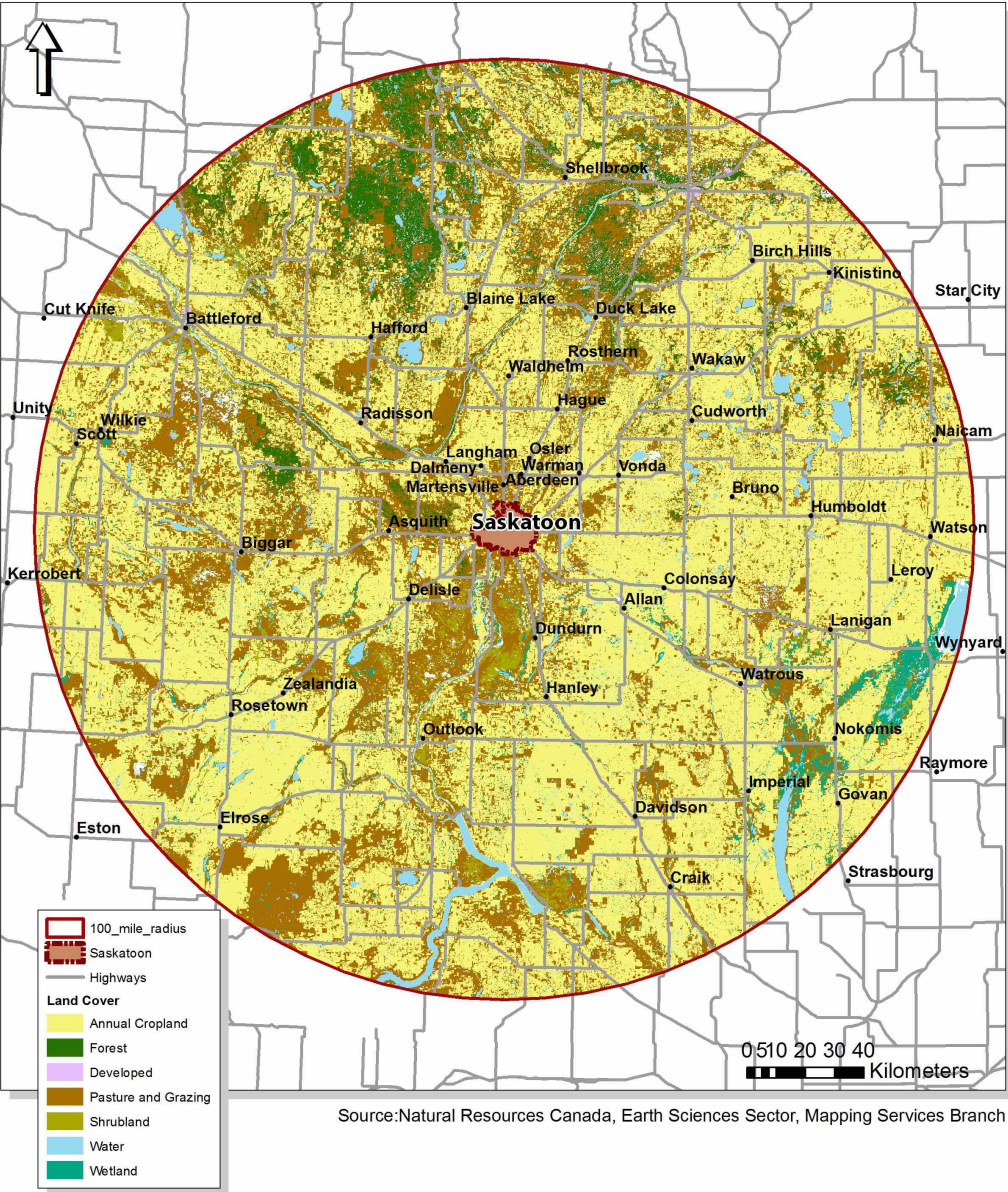
² A 100 mile radius was selected for illustration purposes and has no scientific basis.

Table 7: Available biocapacity within a 100 mile radius of Saskatoon

| Land type | Biocapacity (hectares) |
|--------------|------------------------|
| Cropland | 5,628,411 |
| Grazing land | 2,391,659 |
| Mixed wood | 139,787 |
| Forest | 294,580 |
| Water | 216,832 |
| Wetland | 142,815 |
| Total | 8,814,083 |

Figure 6: Biocapacity within 100 miles of Saskatoon

Land Use - 100 Mile Buffer



Household Consumption Indicators

The ecological footprint is presented alongside a series of household consumption indicators in the context of understanding the broader environmental impacts of households. Indicators focus on three aspects of household consumption: direct greenhouse gas emissions, residential waste and water use.

Direct greenhouse gas emissions

Our analysis focused exclusively on direct GHG emissions associated with the household sector (shelter and transportation). Direct GHG emissions refer to Scope 1 and Scope 2 emissions as defined by the World Resources Institute (WRI). Related to shelter, we report emissions for electricity consumption and natural gas consumption for home heating. We do not include other forms of home heating sources such as wood or oil. The focus is exclusively direct GHG emissions. We did not include indirect GHG emissions associated with energy production, distribution and trade, electricity and heating infrastructure, construction and maintenance, and operation of energy services. Our analysis also did not include the indirect emissions associated with physical shelter, such as construction, maintenance, and waste removal. For transportation, we report emissions for personal vehicle use and transit only. We did not include GHG emissions associated with air travel, rail or other forms of travel. We did not include the indirect emissions associated with transportation energy production, distribution and trade, emissions related to the manufacture, maintenance and disposal of private vehicles, as well as their transportation infrastructure, construction and maintenance, and operation of the transport business. Table 8 reports direct greenhouse gas emissions attributed to the average Saskatoon household.

Table 8: Direct greenhouse gas emission – households (tonnes of CO₂e/household)

| Shelter - electricity | Shelter - natural gas | Personal transportation – vehicle use | Personal transportation – transit | Direct GHG emissions |
|-----------------------|-----------------------|---------------------------------------|-----------------------------------|----------------------|
| 4.24 | 5.16 | 7.83 | 0.05 | 17.28 |

Shelter

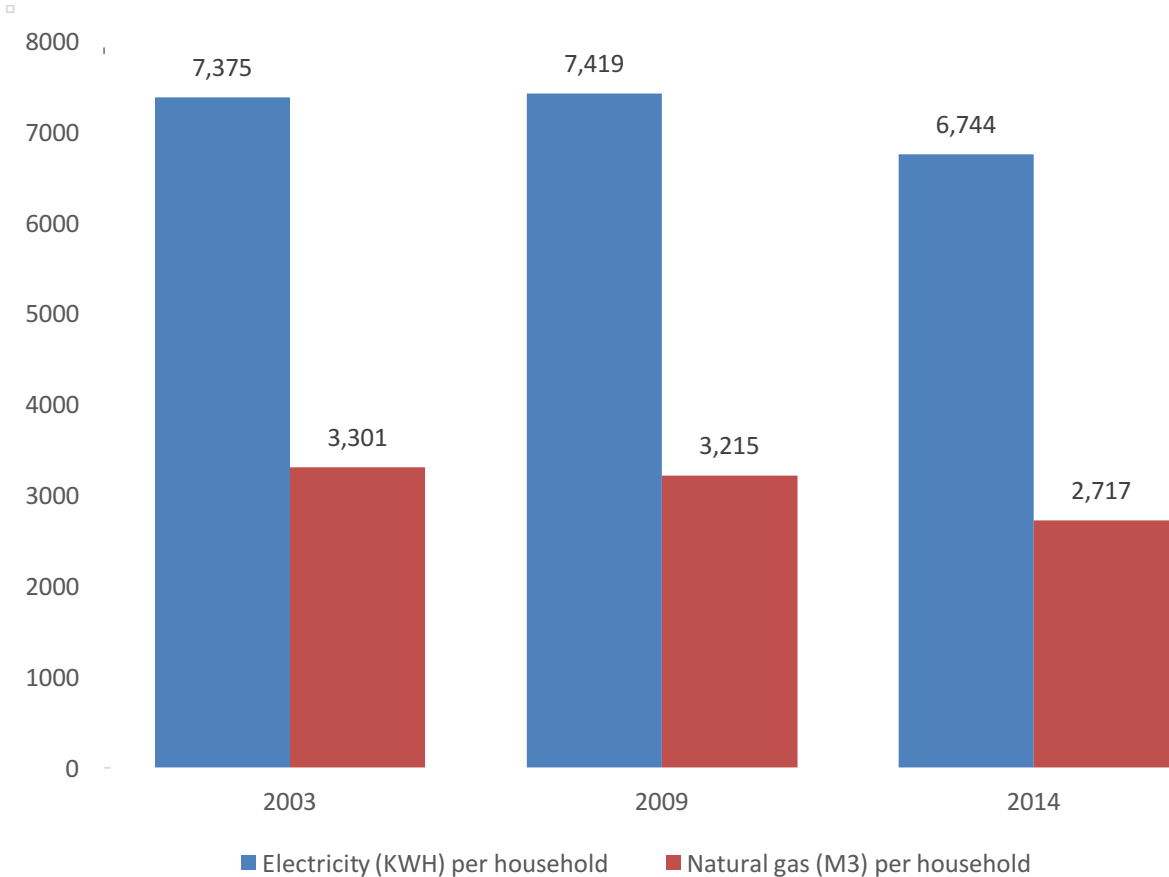
Electricity and natural gas consumption data were converted to GHG emissions using the conversion factors provided by the City of Saskatoon (2015a). In 2014, emissions attributed to household electricity use and home heating (natural gas only) totaled 9.4 tonnes of CO₂e per household. Energy consumption affiliated with Saskatoon homes (0.97 gha/person) in 2014 accounted for 13.2% of the total ecological footprint. Approximately 55% of that amount can be attributed to natural gas use for space heating and 45% for electricity use.

Table 9: Shelter energy use (gha/person) for electricity and natural gas, 2014

| Electricity | Natural gas | Shelter - energy |
|-------------|-------------|------------------|
| 0.44 | 0.53 | 0.97 |

Figure 6 shows that electricity use per household decreased from 7,375 kwh per customer in 2003 to 6,744 kwh per customer in 2014; an 8.5% decrease. The decrease between 2009 and 2014 was 9.1%. Natural gas use per customer decreased by 17.7% between 2003 and 2014 from 3,301 m³ per household in 2003 to 2,717 m³ per household in 2014. Between 2009 and 2014 natural gas use per household declined 15.5%. These household energy use decreases indicate that Saskatoon households have become more energy efficient reducing total energy consumption and thus their respective direct greenhouse gas emissions footprint.

Figure 7: Saskatoon energy use, 2003, 2009, 2014



Personal transportation

In 2014, direct GHG emissions associated with personal transportation use (personal vehicle use and transit use) totaled 7.87 tonnes of CO₂e per household (Table 8). Personal vehicle use (7.83 tonnes of CO₂e) accounts for over 98% of GHG emissions associated with personal transportation, while transit use accounts for less than 2% (0.04).

Personal vehicle use

Greenhouse gas emissions associated with personal vehicle use are based on liters of gasoline consumed per vehicle from the Canada Vehicle Use Study for Saskatoon (Transport Canada, 2015). The per vehicle value is multiplied by the number of registered vehicles to determine a total value for the city (City of Saskatoon, 2015b). Liters of gasoline are converted to GHG emissions using the conversion factors provided by the City of Saskatoon (2015a). As the Canada Vehicle Use Study estimated fuel use using on-board technology as opposed to a recall survey, historical comparisons are not possible. Fuel use data based on litres sold in Saskatoon is available (Kent Group Ltd., 2015). The totals, however, do not distinguish between commercial use and private use. Between 2010 and 2014, GHG emissions based on total litres of fuel sold in Saskatoon increased by 11%.

Transit use

Greenhouse gas emissions associated with transit use are from the City of Saskatoon's Environmental Leadership Report (2014). Public transit ridership has increased by only 0.2% between 2009 and 2014. However, between 2009-2013 transit ridership increased 13.9% from 11,579,606 rides in 2009 to 13,188,586 in 2013 reaching 53.4 trips per capita in 2013.³ Unfortunately, in 2014 ridership fell sharply by 12.1% to 11,596,982 or only 45.6 rides per capita. On a positive note, total GHG emissions associated with transit use⁴ declined 6.7% between 2009 and 2014 reaching 10,881 tonnes of CO₂e in 2014 or an average of 0.043 tonnes of CO₂e per person.

Household waste

Household waste refers to the direct waste generated by the residential sector. Household waste offers a proxy for household material consumption and throughput. Figure 8 shows trends in total residential/household waste produced, which includes waste to landfills and waste diverted from

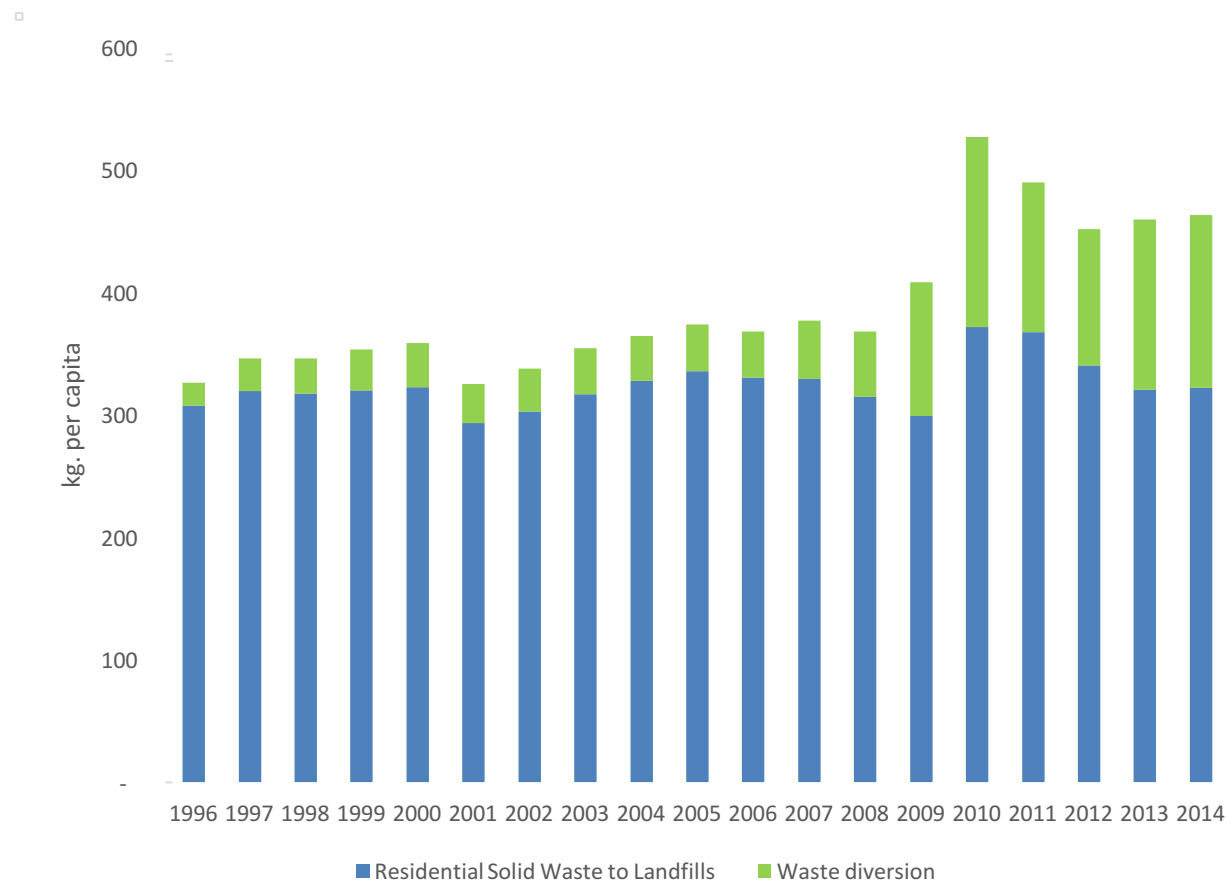
³ City of Saskatoon, Transit. Figures reported from *Our Environment: The City of Saskatoon's 2014 Environmental Leadership Report*.

⁴ Greenhouse gas emissions are estimated by the City of Saskatoon Transit using fuel data.

landfills through recycling between 1996-2014. The total residential waste per capita (including waste recycled) remained relatively steady from 1996 to 2008 then jumped in 2010 to a peak of 527 kg per person and since moderated at 463 kg per person in 2014. Between 2010-2014 household waste to landfills decreased by 13.4% while waste diverted from the landfill through recycling declined marginally by 9.0% from the peak waste diversion volumes achieved in 2010 (155 kg/ person).

In 2014, the total waste produced by households was 463 kg per person which included waste to landfills (322 kg/person) and waste diverted from landfill through recycling (141 kg/person). The good news is that residential waste to landfills grew by only 1.5% from 2003 to 2014, while the volume diverted from landfills grew by 278.4%. The bad news is that the total amount of waste produced (including recycled waste) by households remains higher than it was in the late 1990s in spite of recycling efforts.

Figure 8: Saskatoon residential waste and waste diversion, 1996-2014



Residential water use

Households on average used 560 liters of water or an average of 234 liters of water per household member in the year 2014. Residential water use refers to direct water use only and does not include the indirect water use associated with food production, production of goods and services or any other upstream water use. It also does not include water consumed outside the home; for example, in the workplace, school or other commercial or institutional establishments.

National and International Ecological Footprint Comparisons

From a global perspective, the 2014 Saskatoon ecological footprint of 7.4 gha per person remains substantially larger than the global average ecological footprint of 2.7 gha per person and greater than the global available biocapacity of 1.8 gha per person. Saskatoon's ecological footprint in 2014 is 5.3% larger than Canada's ecological footprint (last estimated in 2007) at 7.0 gha per person. Comparing the Saskatoon ecological footprint in 2014 with other benchmark countries (Table 10) shows that Saskatoon would rank 7th largest in the world, however, smaller than Edmonton's ecological footprint of 7.7 gha per person (2012 estimates). Saskatoon's ecological footprint is larger than Nordic countries like Sweden, Finland and Norway who have similar climates.

Table 10: Countries with the largest ecological footprints (based on 2007 data other than Edmonton which is 2010 data)

| Largest ecological footprints by Nation | Ecological footprint per person | GDP per capita (PPP) | Ave. Annual Temperature °C |
|---|---------------------------------|----------------------|----------------------------|
| United Arab Emirates (#1) | 10.7 | \$66,300 | 26.8 |
| Qatar (#2) | 10.5 | \$137,200 | 26.8 |
| Denmark (#3) | 8.3 | \$44,600 | 7.5 |
| Belgium (#4) | 8.0 | \$43,100 | 9.0 |
| United States (#5) | 8.0 | \$54,400 | 11.6 |
| Estonia (#6) | 7.9 | \$27,900 | 5.5 |
| Edmonton (2012) | 7.7 | \$62,832 | 2.6 |
| Saskatoon (2014) | 7.4 | \$53,461 | 3.3 |
| Canada (#7) | 7.0 | \$45,000 | 3.6 |
| Australia (#8) | 6.8 | \$46,600 | 17.3 |
| Iceland (#9) | 6.5 | \$44,000 | 4.6 |
| Kuwait (#10) | 6.3 | \$70,700 | 24.7 |
| Finland (#13) | 6.2 | \$40,700 | 2.7 |
| Sweden (#14) | 5.9 | \$46,200 | 4.7 |
| Norway (#18) | 5.6 | \$67,200 | 4.3 |
| World | 2.7 | | |

Sources:

1. Global Footprint Network, 2010, based on 2007 data
http://www.footprintnetwork.org/images/uploads/Ecological_Footprint_Atlas_2010.pdf.
2. Edmonton's Ecological Footprint 2014 (Anielski Management Inc. May 2014).
3. GDP per capita figures in PPP per capita are 2014 estimates from World Fact Book
<https://www.cia.gov/library/publications/the-world-factbook/rankorder/2004rank.html>.
4. Average World Temperatures are from Weatherbase <http://www.weatherbase.com/weather/countryall.php3>.
5. Saskatoon GDP per capita (PPP) is estimated based on conversion of C\$65,915 per capita in 2014, converted to US dollars (\$59,681/capita) and then to PPP using a conversion ratio of 1.1163.
6. Edmonton GDP per capita (PPP) is from Brookings Institute, Global Metro Monitor.

It is sometimes argued that it is unrealistic for Canada or regions within Canada to attain a dramatically smaller footprint. The assumption is that Canadians would have to give up their high quality of life, security, or that geography and climate make it impossible for Canada to have a substantially lower footprint. There is evidence, however, to suggest that other countries are able to enjoy high quality of lives, experience happiness, and be financially well off on smaller ecological footprints. Similarly, there are countries with cold climates, resource based economies, and similar values that have ecological footprints much smaller than Saskatoon and Canada.

Canada's cold climate is often cited as a reason explaining our relatively large ecological footprint. Compared with Nordic benchmark countries, Saskatoon's ecological footprint is 33% greater than Norway, 25% larger than Sweden and 20% larger than Finland.

In terms of Western countries with the largest economies, if we compare the ecological footprints of the G8 nations (G7 + Russia), with the exception of the United States and Canada, the remaining countries have ecological footprints around a third less than the value of Saskatoon's ecological footprint.

Conclusion

The City of Saskatoon's average ecological footprint per person increased by 1.4% between 2010 and 2014. The overall increase is consistent with a rise in household incomes, household spending and GDP growth. A rise in the goods and services, transportation, and government services components explain the higher ecological footprint. On a positive note, an 11% decrease in the shelter footprint offset the increases in the respective categories. The decline in a period of rapid economic development provides an example of where technology changes, rising household awareness and progressive policy decisions have made a positive impact. The good news was reflected in other indicators of household environmental performance as well. For example, household electricity use, natural gas use, household waste going to landfill and greenhouse gas emissions (GHG) associated with public transit all decreased.

Substantial reductions in Saskatoon's ecological footprint will take time and are a key component of a long-term sustainability vision. An important take away for community leaders, planners and policy makers is that large-scale footprint reductions require rethinking urban form, infrastructure, and

entrenched consumption and production patterns. While past decisions regarding major infrastructure and production systems lock a community into consumption patterns, current decisions can foster a lower impact future (Rees, 1999). Government policies, investments, and programs can support opportunities for households to lighten their ecological footprint and reduce household environmental impacts.

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Appendix A – Methodological Background

Background

The ecological footprint is an accounting tool that measures the environmental impact of human consumption. The tool accounts for a populations' consumption of food, transportation, housing, goods and services and expresses the findings in terms of the land area needed to support that populations' consumption demands. The ecological footprint inverts the traditional concept of 'carrying capacity' (the population a given region could support) and instead seeks to determine the total land area required, regardless of where that land is located, to sustain a given population. The ecological footprint is unique in that it accounts for the environmental impacts of consumption regardless of where the burden of that consumption falls in terms of production costs and pollution (Rees and Wackernagel, 1996).

The Saskatoon ecological footprint, therefore, is the sum environmental impact of all Saskatoon residents' consumption no matter where in the world the environmental impact occurs.

The ecological footprint tool makes it possible to estimate the area of land needed to support the consumption demands of Saskatoon residents. In more technical terms, the ecological footprint provides a snapshot in time and the trajectory over time of how much nature, expressed in a common unit of bioproductive space, is used exclusively for producing all the resources (food, energy, materials) a given population consumes and absorbing the CO₂e emissions they produce, using prevailing technologies (Chambers et al. 2000). In essence, the ecological footprint is an accounting tool to measure the impact of human activity on the planet. At the macro level, if the human footprint exceeds the productive capacity of the biosphere then consumption patterns are clearly not sustainable. The ecological footprint directly acknowledges that there are limits constraining the function of ecological systems and services and assesses where we are in relation to those limits.

Ecological Footprint Metaphor

The metaphor of the ecological footprint conveys very clearly that we have a finite amount of ecological productivity or natural capital to support human activity. More so, the metaphor evokes some very powerful messages. If we only have so much space and I over-consume, how does that impact ecological sustainability? What does that mean for future generations? What does that mean for other people living on the planet now? Does overconsumption in one region necessitate poverty elsewhere?

While the ecological footprint is an indicator of sustainable consumption, important factors other than consumption habits influence the ecological footprint. These include population size, technology, and gains or losses in eco-efficiency. For example, new technologies such as zero-emission vehicles, or a reduction in population are factors which could lower Saskatoon's overall ecological footprint.

Global hectares

The ecological footprint expresses results in global hectares. A global hectare is a standardized unit to account for the fact that different land types and different land categories have different productivity or biocapacity potentials. A common unit allows for the meaningful summation of different land types and categories and also allows for meaningful comparisons of footprint results between regions and countries. Land types are adjusted, reflecting the fact that land types (for example, agriculture land) have different productivity potentials depending on the region. Productivity potential can vary both within a country and across countries. The productivity potential of the different land categories are also converted to global hectares so the different land categories can be summed into a total ecological footprint value. For example, cropland in the ecological footprint methodology is considered to be more productive than pasture land. The land category conversion factors are based on global scientific data and updated by the Global Footprint Network (Ewing et al., 2010).⁵

Calculation methodology

The 2014 Saskatoon ecological footprint update adopts a top-down/ bottom-up approach to estimate the ecological footprint. The portion of the ecological footprint associated with direct household energy use and personal transportation is calculated directly based on data specific to the City of Saskatoon. The remaining footprint categories are estimated following the sub-national ecological footprint calculation proposed by Wilson and Grant as a consistent calculation strategy for Canadian communities (2009). The approach adjusts the Canadian National Accounts developed by the Global Footprint Network (2010) using the consumption expenditure model developed to assess the ecological footprint of Canadian municipalities by Wilson and Anielski (2004) and refined by Wilson and Grant (2009) and Wilson, Tyedmers and Grant (2013). The sub-national footprint calculation strategy estimates ecological footprint categories based on proxies for the major consumption categories of the ecological footprint: food, shelter, mobility, goods, services, and government. The respective categories are described here. For detailed calculations, please refer to The Saskatoon Ecological Footprint Calculation Spreadsheets. The spreadsheet file is available upon request.

Consumption categories

Goods and services

The goods and services category is adjusted using household expenditure data on goods and services from the Statistics Canada Survey on Household Spending. Expenditure data is adjusted by the Consumer Price Index to ensure constant dollars. Expenditures on goods and services as reported in the Survey of Household Spending include: household operation, household furnishing and equipment,

⁵ The Global Footprint Network (GFN) is the global authority on the ecological footprint. GFN coordinated the development of and maintains the ecological footprint calculation and reporting standards. In addition, GFN reports the National Ecological Footprint Accounts annually. Their website, www.globalfootprintnetwork.org, is an excellent clearinghouse for ecological footprint information.

clothing, health care, personal care, recreation, reading materials and other printed matter, education, tobacco products and alcoholic beverages, games of chance (net), miscellaneous expenditures.

Shelter – energy

The shelter energy footprint refers to the direct energy demands associated with electricity consumption and home heating. Electricity and natural gas consumption data were converted to greenhouse gas (GHG) emissions using conversion factors provided the City of Saskatoon (2015a). Greenhouse gas emissions were converted to global hectares using the footprint intensity of carbon conversion factor from the Global Footprint Network calculation standard (2009). Historic city level electricity and natural gas consumption data were provided by the City of Saskatoon.

Shelter – non energy

The non-energy component of the shelter footprint refers to the construction, maintenance, and other material inputs to support shelter. To adjust the shelter-non energy component we compare the dwelling space occupied per person by dividing the number of rooms per dwelling by the number of household members. Rooms per dwelling data are from the Statistics Canada Census.

Transportation

The portion of the transportation footprint attributed to private transportation was updated based on expenditure on gasoline and other fuels. Prices were adjusted using the Consumer Price Index for gasoline to ensure constant dollars. Greenhouse gas emissions associated with transit were provided directly by the City of Saskatoon. Greenhouse gas emissions were converted to global hectares using the Global Footprint Network standard conversion factor (GFN 2009). Emissions associated with air travel were adjusted based on expenditure on airlines from the Survey of Household Spending. Prices were adjusted using the Consumer Price Index for airplane to ensure constant dollars. The ecological footprint associated with rail is assumed to be consistent with that of Canada.

Food

To adjust the food footprint we use expenditure on food as a proxy of food consumption. Food expenditure data is adjusted by the Consumer Price Index to ensure constant dollars.

Government

To adjust the government component of the ecological footprint we use expenditure on municipal and provincial government services as a proxy. Federal government expenditures would be consistent across the country. While government expenditures may vary by region within a province and a city, government services such as roads, schools, health care, garbage collection, and snow removal serve all citizens of the city.

Environmental Protection Annual Report 2015

Recommendation

That the report of the General Manager, Corporate Performance Department, dated December 6, 2016, be received as information.

Topic and Purpose

Corporate environmental protection activities have been summarized in this inaugural Environmental Protection Annual Report for 2015.

Report Highlights

1. An inaugural Environmental Protection Annual Report for 2015 has been prepared. The report provides a description of the corporate-level environmental protection activities that were undertaken in that year and key outcomes of these initiatives.
2. Environmental Protection staff within the Environmental and Corporate Initiatives Division are proactive in promoting corporate regulatory compliance and implementation of best practices for soil, water, and air quality management in the City of Saskatoon (City).
3. Projects, programs, and services delivered by Environmental Protection are relevant to all operations and projects of the corporation.

Strategic Goal

Environmental Protection activities support the strategic goal of Environmental Leadership by working toward compliance with environmental regulation, stimulating collaboration among civic staff, and encouraging implementation of good operating practices. The 10-year strategies to improve the quality and reduce the quantity of storm runoff, and to address soil quality issues on city-owned properties are specifically addressed. Work also aligns with the four-year priority of waste diversion for beneficial reuse within City projects.

Environmental Protection initiatives also support the strategic goal of Asset and Financial Stability by ensuring that our assets are well managed and maintained. The goal of Continuous Improvement is addressed by modernizing policy and operations to reflect best practices and changing demands.

Background

This is the first annual report of Environmental Protection activities that has been produced by the Administration.

Report

Inaugural Report

Attachment 1 is an inaugural Environmental Protection Annual Report for 2015. The report provides a description of the corporate-level environmental protection activities that were undertaken in that year and key outcomes of these initiatives. Projects, programs, and services delivered by Environmental Protection are relevant to all operations and projects of the corporation, specifically when environmental issues regulated by other levels of government are involved.

Environmental Protection services are provided via two main activities:

- Providing support to city operations and projects that deal with contaminated soils, street sweepings, spills, solid waste, sanitary waste, snow, groundwater, stormwater, wetlands, migratory birds, and natural resource management.
- Developing programs and projects that address corporate liability/due diligence regarding compliance with current and future environmental regulation.

Support Services

Support services provide the corporation with central access to specialized environmental knowledge and expertise. This increases corporate environmental knowledge, reduces corporate risk, promotes consistency in the city's approach to environmental issues, and reduces reliance on external consultants.

Support services provided in 2015 are described in Attachment 1.

Projects and Programs

Projects and programs are also developed by Environmental Protection staff to integrate, coordinate, and create up-to-date approaches to municipal operations that have an environmental component. As such, projects and programs intentionally create opportunities for cross-corporate collaboration on environmental and public health issues.

Protection of the soil, water, and air quality within our watershed is key to the health of our environment and the quality of life of our citizens. Environmental Protection projects and programs that were under development in 2015 are shown in the table below and described in Attachment 1.

| Water | Soil | Air |
|--|------------------------|------------------------|
| Corrosion Control Program: Lead Service Lines | Soil Handling Strategy | Air Quality Management |
| Sewer Use Bylaw | | |
| Source Control Programs for the Sanitary Sewer | | |

| Water | Soil | Air |
|----------------------------|------|-----|
| Corporate Spill Response | | |
| Stormwater Management Plan | | |
| Watershed Protection | | |

Communication Plan

The Environmental Protection Annual Report for 2015 will be available for viewing on the City’s website.

Environmental Implications

Environmental protection implications are included in the annual report.

Other Considerations/Implications

There are no policy, financial, privacy, or CPTED implications or considerations.

Due Date for Follow-up and/or Project Completion

An Environmental Protection Annual Report will continue to be produced each year. In early 2017, the data from this report will be included in a higher level document representing the four pillars of an Environmental Sustainability Plan. The data and related analysis will provide the context for discussions on issues and options facing our community and will be submitted to the Standing Policy Committee on Environment, Utilities and Corporate Services.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Attachment

1. Environmental Protection Annual Report 2015

Report Approval

Written by: Twyla Yobb, Environmental and Corporate Initiatives
 Reviewed by: Brenda Wallace, Director of Environmental and Corporate Initiatives
 Approved by: Catherine Gryba, General Manager, Corporate Performance Department

Environmental Protection Annual Report 2015



1 Introduction

Clean water, soil, and air are crucial to the health of the environment we live in and, ultimately, to the long term health of our residents and community. As time passes and our city grows, our understanding of how to maintain a good quality environment changes, and this is reflected in changes to the way we manage our city.

1.1 What is Environmental Protection?

Environmental Protection activities preserve the quality of our water, soil, and air now and for future generations by safeguarding our community from the impacts of pollution. The minimum standard for effective environmental protection is compliance with federal and provincial environmental regulation. City of Saskatoon (City) programs and projects must all consider how to best integrate with current and future environmental regulation while remaining cost effective and practical to implement.

1.2 Purpose

The purpose of this report is to provide information about corporate-level Environmental Protection initiatives that:

- Ensure civic operations maintain compliance with changing environmental standards;
- Monitor best practices in managing risks that have environmental implications;
- Incorporate best-practice approaches into future plans; and
- Attempt to respond to some of the environmental trends reported in the 'Our Environment' report.

1.3 Delivering Environmental Protection Services

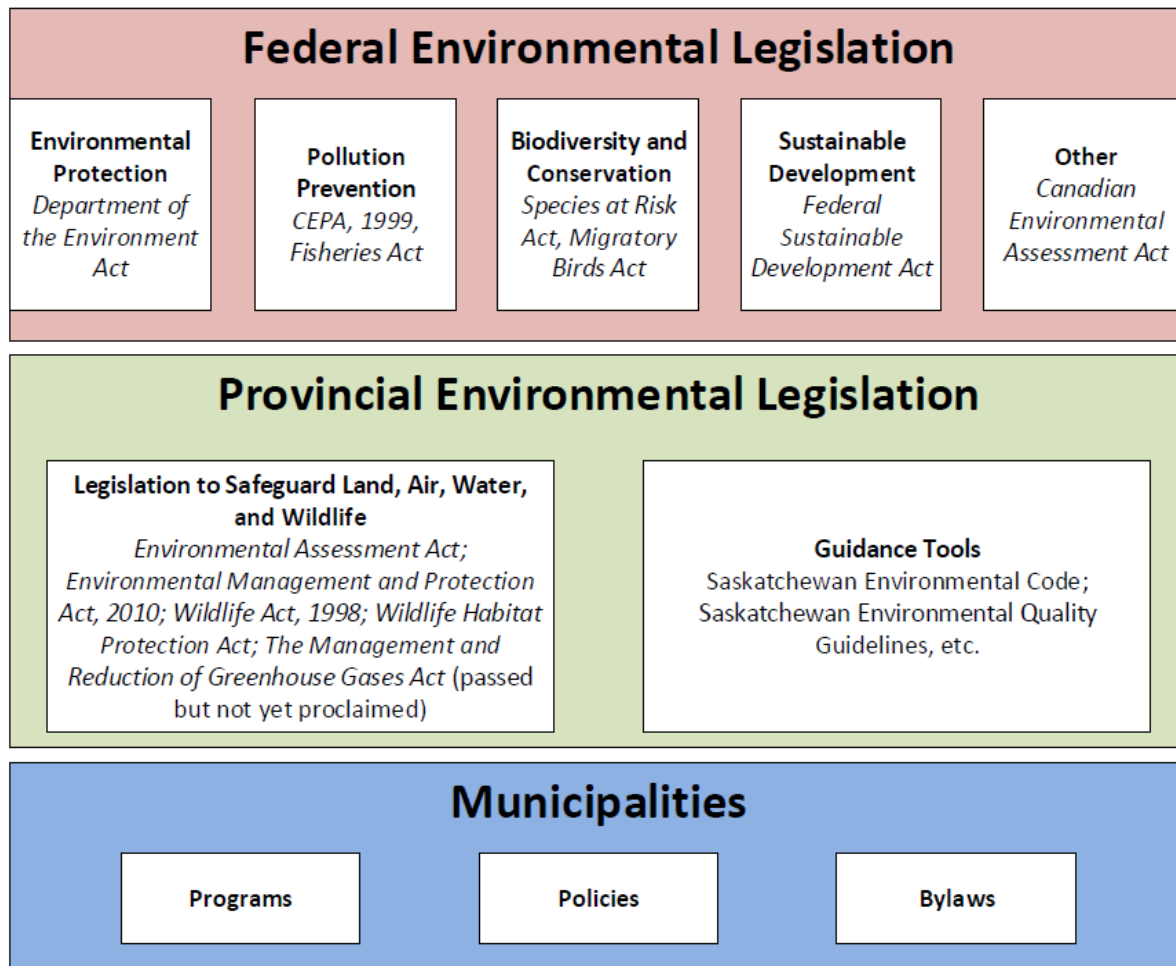
Environmental Protection is a shared responsibility and is led by the Environmental & Corporate Initiatives (E&CI) Division with resourcing through the Environmental Health Business Line. Operational groups such as Parks, Water & Waste Stream (previously Public Works), the Fire Department, and the Utilities also protect natural assets, water, soil, and air quality in their daily operations and report environmental protection-related activities in various documents prepared by each operation.

The Environmental Protection Section includes a Manager, two Project Engineers, and one Environmental Protection Officer; supported by Business Administration and Communications staff.

Environmental Protection work is undertaken in a consultative, collaborative fashion. Environmental expertise is available to all divisions, civic projects and operations through advisory services, liaising/coordinating with consultants and regulators, participation in steering or review committees, and some project management services.

2 Environmental Regulation in Canada

The full suite of environmental legislation in Canada is illustrated in the diagram below.



The *Canadian Environmental Protection Act, 1999* (CEPA) is the backbone of the federal legislative framework for protection of the environment and public health. CEPA focuses on the prevention and management of risks posed to water, soil, and air quality by harmful substances. The Minister of the Environment and the Minister of Health jointly administer the assessment of substances for toxicity and the subsequent development of risk management strategies.

Work carried out under CEPA is complemented by other acts that focus on protection of wildlife (e.g. fish, migratory birds, etc.) and natural assets that contribute to our overall well-being.

The *Environmental Management and Protection Act, 2010* (EMPA) is the main provincial legislation for protecting the water, land, and air resources of the province.

Other acts and regulations address protection of natural assets and sensitive environments. The City has a number of programs within Saskatoon Water and the Parks Division to respond directly to these requirements.

Municipal policy and bylaws influence day-to-day human behaviour. Municipalities therefore play a key role in regulating and delivering programs to reduce and eliminate toxic substances and generally protect the environment. The City works to align its programs with federal and provincial initiatives to provide a consistent and coordinated approach to the management of harmful substances and sensitive environments.

2.1 The Canadian Council of Ministers of the Environment (CCME)

The CCME is an intergovernmental organization that includes environment ministers from the federal, provincial, and territorial governments. These ministers set strategic direction for action on environmental issues of national and international concern. Based on the broad outcomes defined by the Ministers, CCME working groups collaborate to accomplish specific goals. These working groups include experts from relevant government departments and may also include expertise from the private sector, academia, aboriginal groups, and environmental and public health interest groups.

Current CCME working groups are:

- Water Management Committee
- Waste Management Task Group
- Soil Quality Guidelines Task Group
- Climate Change Committee
- Air Management Committee

The guidelines established by the CCME are used by the City to inform decisions about environmental protection.



Wetland.

2.2 Taking Action

The Environmental Protection Section acts as a forward-looking conduit for corporate regulatory compliance and implementation of best practices for soil, water, and air quality management in the City of Saskatoon.

Projects, programs, and services delivered by Environmental Protection are relevant to all operations and projects within the corporation that deal with environmental issues regulated by other levels of government.

In 2015, Environmental Protection services were provided via two main activities:

- Providing support to civic operations and projects that deal with contaminated soils, street sweepings, spills, solid waste, sanitary waste, snow, groundwater, stormwater, wetlands, migratory birds, and natural resource management.
- Developing programs and projects that address corporate liability/ due diligence regarding compliance with current and future environmental regulation.

Support services are intended to provide the corporation with central access to specialized environmental knowledge and expertise. This increases corporate environmental knowledge, reduces corporate risk, promotes consistency in the city's approach to environmental issues, and reduces reliance on external consultants.

The intent of the **projects and programs** undertaken by Environmental Protection staff is to develop integrated, coordinated, and up-to-date approaches to municipal operations that have an environmental component. As such, projects and programs intentionally create opportunities for cross-corporate collaboration on environmental and public health issues.

2.3 Key Outcomes

Environmental protection initiatives are developed to achieve the following three key outcomes:

- Ensure the City of Saskatoon plans for regulatory compliance and avoids compliance orders.
- Minimize costs by maximizing coordination and management in the handling of substances of concern to environmental and health regulators.
- Build capacity of civic staff through education and collaboration.

3 Support Services

In 2015, Environmental Protection activities included the following support services:

- Internal Education and Training
- Civic Project Advisory and Review
- City Regulatory Reporting
- Landfill Soil Acceptance
- Spill Response
- Sanitary Sewer Use
- Environmental Records Search
- Public Enquiries and Complaints
- Civic Program and Project Development

3.1 Internal Education and Training

Environmental Protection staff stay updated on environmental regulations and current environmental best practices and then share this knowledge with civic staff through training and information sessions on these topics. Sessions currently available include:

- The Environmental Assessment Process (corporate-wide)
- Discharge and Discovery Reporting (corporate-wide)
- Spill Response (for fleet operations)
- Landfill Soil Acceptance (for landfill operations)

| Service Provided | Metric | 2014 | 2015 |
|------------------------|---------------------|------|------|
| Education and Training | Number of attendees | 24 | 66 |

Service Status: In 2015, these sessions were provided in advance of the declaration of the provincial Environmental Code, and/or upon request by specific work groups. Future plans for this service include incorporating the two corporate-wide sessions into the annual corporate training calendar.

3.2 Civic Advisory, Review, and Management

General environmental advisory services are available for document and report review, participation in steering or review committees, and liaison with consultants and regulators. Project advisory services have been provided for the following major initiatives:

- **North Commuter Bridge:** Environmental Protection staff sat on a Division Coordination Committee during the planning of the North Commuter Parkway project. This included reviewing and providing any feedback regarding

environmental matters that arose during the planning process. Interpretation of consultant reports was also provided to the project manager.

- **Saskatoon Transit Facility** (Caswell Hill Bus Barns): An environmental assessment was completed on the Saskatoon Transit Facility in anticipation of its future redevelopment following the transfer of operations to the new Civic Operations Centre in 2017. Phase I and Phase II Environmental Site Assessments were completed on the site. Environmental Protection staff reviewed all pertinent consultant reports and interpreted the information for Planning and Development in order to ensure that the involved staff clearly and thoroughly understood the content and implications of the environmental results so they could communicate effectively and confidently to the affected community.



Contaminated soil at a construction site.

- **Saskatoon Land:** Environmental requirements are common when dealing with land acquisition, sales, and transfers. Environmental Protection staff have provided environmental advisory and services to Saskatoon Land to help facilitate these requirements. The main support that Environmental Protection staff provided in 2015 included developing documents to achieve site closure from the Ministry of Environment (thus enabling land to be sold or developed), liaising with regulatory officials, working with external consultants to achieve project goals and to ensure that the City is provided with accurate information, and data interpretation.
- **Nature Conservancy Canada/Meewasin Valley-Wide Resource Plan:** The Meewasin Valley Authority and the Nature Conservancy of Canada partnered in 2015 to create a management plan for the conservation of biodiversity along the river valley and in proximity to Saskatoon. Environmental Protection staff

participated in initial workshops to scope the plan, and sat on the Technical Advisory Committee for the project.



*Saskatchewan biodiversity.
Photos courtesy of the South Saskatchewan River Watershed Stewards, Inc.*

| Service Provided | Metric | 2014 | 2015 |
|-----------------------------|--------------------|------|------|
| Project Advisory and Review | Number of projects | 15 | 31 |
| Project Management | Number of projects | 0 | 1 |

Service Status: The success of this service is partly attributable to the fact that resourcing was available to various civic operations and projects ‘free of charge’ and fully-resourced through capital project 2052 – Contaminated Soils Handling in 2015. The service is now provided to each internal work group on a cost recovery basis utilizing temporary staff resources and this may have a negative impact on both service utilization and environmental implications.

3.3 City Regulatory Reporting

Environmental Protection staff act as the City’s account administrator for federal and provincial web-based reporting:

Federal: Environment Canada’s Single Window Information Management (SWIM)

- **Wastewater Effluent System Effluent Regulations (WSER):** This is a federal wastewater regulation which came into effect in 2012 under *The Fisheries Act* to establish minimum effluent quality standards that can be achieved through secondary wastewater treatment. Requirements in the regulation include monitoring, record-keeping, reporting and toxicity testing. The wastewater treatment plant reports to the WSER quarterly.
- **National Pollutant Release Inventory (NPRI):** The NPRI was established under *The Canadian Environmental Protection Act, 1999 (CEPA)* which allows the Minister of Environment and Climate Change to require the reporting of substances released by industrial, institutional, and commercial sectors into the air, land, and water of their communities. The program facilitates the identification of where regulatory or other action is needed. Reporting to the NPRI is due annually; in 2015 three civic

facilities reported to the NPRI (water treatment plant, waste water treatment plant, biosolids handling facility).

- **Greenhouse Gas Reporting Program (GHGRP):** The GHGRP was also developed under CEPA to require operators of facilities that meet specified criteria to report greenhouse gas emissions based on their global warming potential. Reports are due annually; in 2015 the landfill reported to the GHGRP.

Provincial: Ministry of Environment Online Portal

- The Saskatchewan Ministry of Environment has established an online service that includes a web portal. The portal makes it easier to provide information to the province in a digital format, and allows clients to apply on-line for permits, approvals, and track the progress of their applications. The account is mainly used for discharge and discovery reporting, environmental report submissions, and freedom of information requests to the Ministry.

Service Status: These reporting obligations are not expected to change in the near future.

3.4 Landfill Soil Acceptance

The landfill accepts soil materials categorized as “clean fill” for use as daily and intermediate waste cover. Covering waste layers with soil is part of standard waste management operations and is a regulated activity under the Ministry of Environment.

Under the regulations and for operational efficiency and safety, the clean fill used for waste cover must meet a standard soil quality. Clean fill cannot contain any foreign debris (such as, but not limited to, wood, stumps, branches, concrete, asphalt, metal, plastics, ceramics and masonry materials, rocks greater than 2 inches in diameter, and refuse), and must have chemical concentrations of regulated substances below applicable provincial criteria.

In order to maintain this quality standard for soil that is delivered to the landfill, Environmental Protection staff review and approve commercial soil delivery applications as requested by landfill staff, and provide training as needed.

| Service Provided | Metric | 2014 | 2015 |
|--------------------------|------------------------|------|------|
| Landfill Soil Acceptance | Number of applications | 50 | 26 |



Saskatoon landfill operations.

Service Status: Demand for this service varies with the number of construction projects taking place during the year, and with the availability of alternative disposal options. In 2015, there were fewer applications for commercial soil delivery. In addition, landfill staff had received training and were able to process some applications without support from Environmental Protection staff.

3.5 Spill Response

Environmental Protection has taken the lead role in coordinating City departments to develop levels of service for spill response that may impact sensitive environments and water bodies. The description of the Corporate Spill Response project, found later in this document, provides additional information on this initiative.

Environmental Protection staff provide advice and training to internal staff on reporting spills appropriately, assistance with the development of spill response procedures, and assistance with procurement of spill response equipment.

In addition, the Environmental Protection Officer is able to conduct site investigations and coordinate soil and water sampling when appropriate.



Above: Example of a spill from a collections vehicle.

Left: Example of a spill kit.

| Service Provided | Metric | 2014 | 2015 |
|------------------|----------------------------|------|------|
| Spills | Number reported to Section | 24 | 21 |

Service Status: A Task Force for Corporate Spill Response was formed at the end of 2014 to help coordinate response to spills that may impact sensitive environments and water bodies. The Task Force determined that the appropriate first contact for the public was either Saskatoon Fire (via 911) or Public Works Dispatch. As a result, the number of calls reported to the E&CI Division decreased in 2015, and is expected to continue to decrease in future.

3.6 Sanitary Sewer Use

Section staff oversee processes related to the existing sanitary sewer use bylaw including billing for the Industrial Monitoring Program, review, approval and monitoring of Special Discharge Permits, review and approval of Discharge Management Plans for mobile food trucks, and development of source control programs for the sanitary sewer.

| Service Provided | Metric | 2014 | 2015 |
|-------------------------------|-----------------------------|------|------|
| Industrial Monitoring Program | Number of surcharges levied | 10 | 10 |
| Special Discharge Requests | Number of applications | 7 | 7 |
| Mobile Food Trucks | Number of applications | 4 | 4 |

Service Status: These services are provided by Environmental Protection staff on a temporary basis until the new Sewer Use Bylaw and associated Source Control Programs, which are discussed later in this document, are operationalized within the Community Standards Division.

3.7 Environmental Record Searches

Environmental Protection staff conduct searches of City environmental and property records at the request of external consultants and land owners. Most search requests are made as part of an Environmental Site Assessment process that involves making three (3) separate requests to the City. There is an opportunity to coordinate these requests and associated fees to improve service to customers that will be investigated in 2016.



Historical site use at River Landing.

| Service Provided | Metric | 2014 | 2015 |
|--------------------------------|------------------------|------|------|
| Environmental Records Searches | Number of applications | 24 | 37 |

Service Status: This service is currently provided free of charge to the public and to civic staff. In future, the opportunity to coordinate the public portion of this service through other operating groups who perform similar searches in the corporation will be examined along with the potential to implement a fee.

3.8 Public Inquiries and Complaints

Private citizens and businesses make inquiries and complaints to the City about environmental protection matters that Section staff respond to.

| Service Provided | Metric | 2014 | 2015 |
|--|--|------|------|
| Public Inquiries (general environmental) | Number of inquiries (telephone, webmail, e-mail) | 74 | 36 |

Service Status: Public inquiries about environmental protection matters are used to identify gaps in existing corporate environmental protection activities. Support services, projects, and programs are then developed to help increase corporate capacity for environmental protection and to close the gap. The number of public inquiries is therefore expected to decrease over time. For example, the number of inquiries decreased significantly from 2014 to 2015 as operations capacity developed elsewhere, via education and training, and the provision of advisory services, to handle these types of inquiries.



Improper storm sewer use.

4 Civic Programs and Projects

Protection of the soil, water, and air quality within our watershed is key to the health of our environment and the quality of life of our citizens. Environmental Protection projects and programs that were under development in 2015 are shown in the table below.

| Water | Soil | Air |
|--|------------------------|------------------------|
| Corrosion Control Program: Lead Service Lines | Soil Handling Strategy | Air Quality Management |
| Sewer Use Bylaw | | |
| Source Control Programs for the Sanitary Sewer | | |
| Corporate Spill Response | | |
| Stormwater Management Plan | | |
| Watershed Protection | | |

Watershed

A watershed is an area of land that is linked by a common connection to one watercourse. All the storm runoff and snow melt in this area is carried or “shed” to this common watercourse. Water moving within the watershed is affected by everything it comes into contact with including soil, vegetation, wildlife, and people.

4.1 Watershed Protection

Goal: To engage in environmental protection on a watershed scale.

The South Saskatchewan River connects us to our up and downstream neighbours via our common concerns about the quantity and quality of water that is available to support and nourish our communities. The river is our source of drinking water as well as the recipient of our storm water and treated waste water.

Saskatoon participates in watershed protection initiatives through membership in a non-profit organization called the South Saskatchewan River Watershed Stewards Inc. (SSRWSI). A City Councillor and the Manager of the Environmental Protection Section sit on the Board of the SSRWSI.

In 2015, projects that were participated in via SSRWSI membership included:

- Promotion of watershed awareness and the Farm Stewardship Program through the Ministry of Agriculture's Growing Forward 2. The program provides cost-shared funding for agricultural producers who wish to enact best management practices for environmental protection and farm stewardship on their farms.
- Awareness and monitoring for aquatic and terrestrial invasive species.
- Source water protection planning for Pike Lake and Beardy's/Okemasis First Nation.
- Fish habitat monitoring.
- Youth education, including participation in the Caring for Our Watersheds program, which is led by Partners FOR the Saskatchewan River Basin (PFSRA). SSRWSI staff provide advice to students on their projects, and Board members participate as judges for the program.
- Participation in the development of a province-wide Master Naturalist program. This program is being led by the provincial Native Plant Society (NPS). SSRWSI provides program development advice and staff support in delivery of the training modules.

Program Status: Overall, the Stewards received over \$240,000 in 2015 project funding to support these initiatives, in addition to core funding from the province and membership fees. The City pays a \$20,000 annual fee for membership in the SSRWSI.



*The South Saskatchewan River Watershed.
Map courtesy of the SSRWSI.*

Water

Saskatoon is fortunate to be situated on the South Saskatchewan River. The river provides an abundant source of fresh water that originates 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.

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 community health as well as that of our downstream neighbours.

4.2 Corrosion Control Program: Lead Service Lines

Goal: To coordinate activities linked to lead service lines in Saskatoon.

Lead service lines are a public health risk because long-term exposure to lead in drinking water can impact human health, especially in young children, infants, and pregnant women.

The program was initiated in 2013 by bringing together all internal partners who worked with lead service lines in some capacity. Partners included: Saskatoon Water, Public Works, Construction & Design, Major Projects, Communications, and Environmental & Corporate Initiatives (E&CI).

Key Outcomes:

- Improvements and updates to the lead service line database (Major Projects).
- Implementation of an annual water quality monitoring program for lead service lines (Saskatoon Water).
- Level of service, with dedicated annual funding of \$1.5 million, developed for replacement of lead service lines (Major Projects, Construction & Design).
- Development of a Communication Plan and information materials for an annual mailing to residents with lead service lines (Saskatoon Water, E&CI).
- Transfer of customer service response from multiple points of contact to a single point of contact (Public Works).
- Development of a template for annual reporting of program activities to the Ministry of Environment (E&CI).

Program Status: Responsibility for program coordination and regulatory reporting has now been made a part of regular operations for Saskatoon Water as this has become a requirement within the Permit to Operate for the water treatment plant.

4.3 Sewer Use Bylaw

Goal: To update the existing 1971 sanitary sewer use bylaw and integrate this municipal bylaw with the national Waste Water Effluent Strategy.

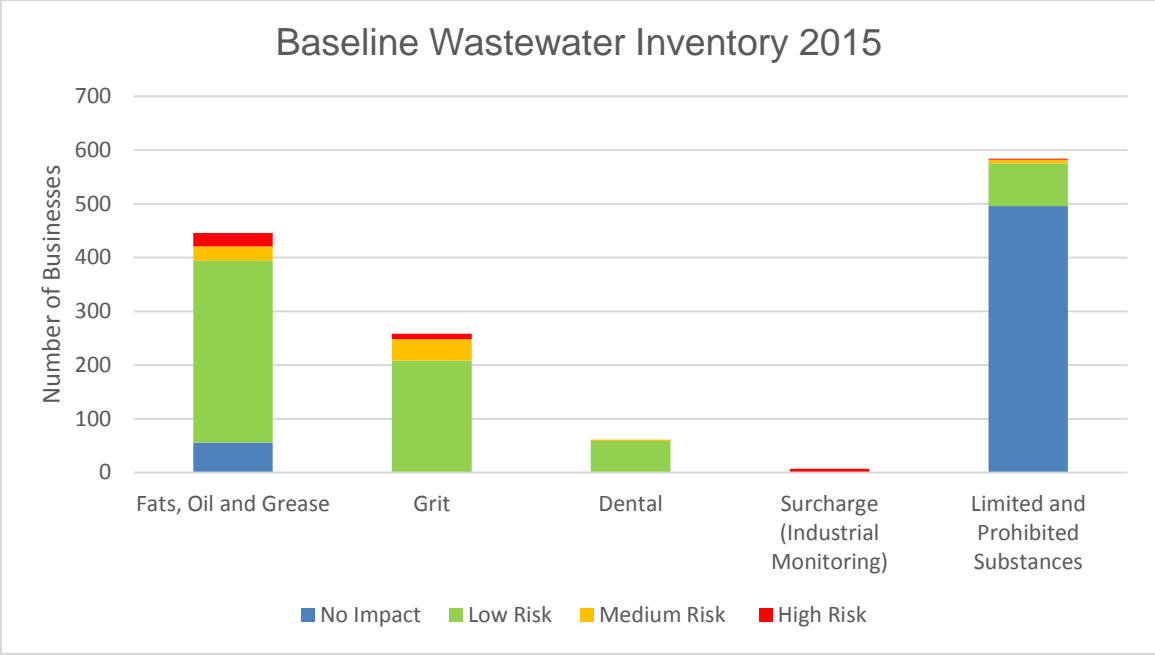
Communication was a key focus in 2015 for the Sewer Use Bylaw. Council had approved, in principle, the creation of a bylaw based on the principle of source control. Plans for amending the bylaw were put on hold to allow for greater communications and engagement with affected businesses on what this means. In addition, evaluation of the work on the bylaw to date revealed that there were changes that could be made to reduce potential impacts to businesses by taking a risk-management approach while still maintaining strong environmental protection outcomes.

Project Status: The risk-management approach to bylaw updates has been thoroughly communicated with internal work groups that will be impacted by the changes. In 2017, a report will go to City Council to explain the new direction for the bylaw and to request direction to proceed with updates.

4.4 Source Control Programs for the Sanitary Sewer

Goal: To develop a public education and compliance framework for implementation of a new sewer use bylaw.

A baseline wastewater discharge inventory was developed via site visits that were conducted throughout 2015. These site visits allowed the city to evaluate the actual risk related to the discharge by a variety of types of businesses. For each business, the level of risk was evaluated and the business was assigned to one or more of the source control programs for further follow up once the new bylaw comes into effect.



Nine (9) **source control programs** were identified; each program will focus on a particular class of substances, or a particular method of discharge, that presents a risk to the sanitary sewer system. Development of these programs continued throughout 2015 via consultations with operating groups that would be impacted by each program, development of an operations plan for implementation of the programs, and preparation of guidance documents for each program to support implementation of an updated Sewer Use Bylaw.

| Program | Substance or Discharge Method of Concern |
|-----------------------------------|--|
| Limited and Prohibited Substances | All substances prohibited by the bylaw or allowed only in limited amounts. |
| Fats, Oils, and Grease | Cooking oils, salad dressings, etc. that solidify in pipes. |
| Grit | Sand, gravel, etc. that settles in pipes. |
| Dental Amalgam | Plaster, etc. that solidifies in pipes. |
| Surcharge | Treatable substances that are discharged in large volumes. |
| Trucked Liquid Waste | Wastewater that is delivered to the treatment system by trucks. |
| Mobile Food Trucks | Wastewater that is discharged by mobile food service businesses. |
| Septic Dumps | Wastewater that is discharged in unmonitored connections to the sanitary sewer system. |

| Program | Substance or Discharge Method of Concern |
|--------------------|--|
| Special Discharges | Requests for temporary discharges to the sanitary sewer. |

Civic services that will benefit from these programs include the sanitary sewer collection system, the wastewater treatment plant, and plumbing inspection services. The new risk-management approach that is embodied in these source control programs is anticipated to reduce annual operating costs by \$150,000 from previous estimates.

Project Status: Going forward, administration of the source control programs and enforcement of the new bylaw is intended to be brought under the new Community Standards Division. The baseline wastewater discharge inventory and guidance documents will be completed in 2016, and a communications plan will be initiated so that businesses can be informed of the coming changes well in advance of the effective date of the new bylaw.

Soil

The health of our soil impacts the quality of the groundwater and surface water that we rely on as a drinking water source and affects the safety of the food that we grow. Citizens expect that they are protected from exposure to hazardous substances in soil as they live, play, and work. The decisions we make today about how we manage our soil can last for generations.

4.5 Soil Handling Strategy

Goal: To develop a corporate-wide strategy for dealing with contaminated soils that are discovered on City property during operational activities and construction projects.

Common contaminants that are encountered during civic construction projects include: hydrocarbons, dry-cleaning fluid, fly ash, and various organics. These contaminants can be linked to a variety of health impacts including respiratory illnesses and cancer.

Prior to the initiation of the Strategy, project managers and operations staff were individually responsible for compliance with environmental regulations related to contaminated soil management. As a result, implementation of appropriate risk management and safe handling measures was inconsistent and sometimes missing altogether.

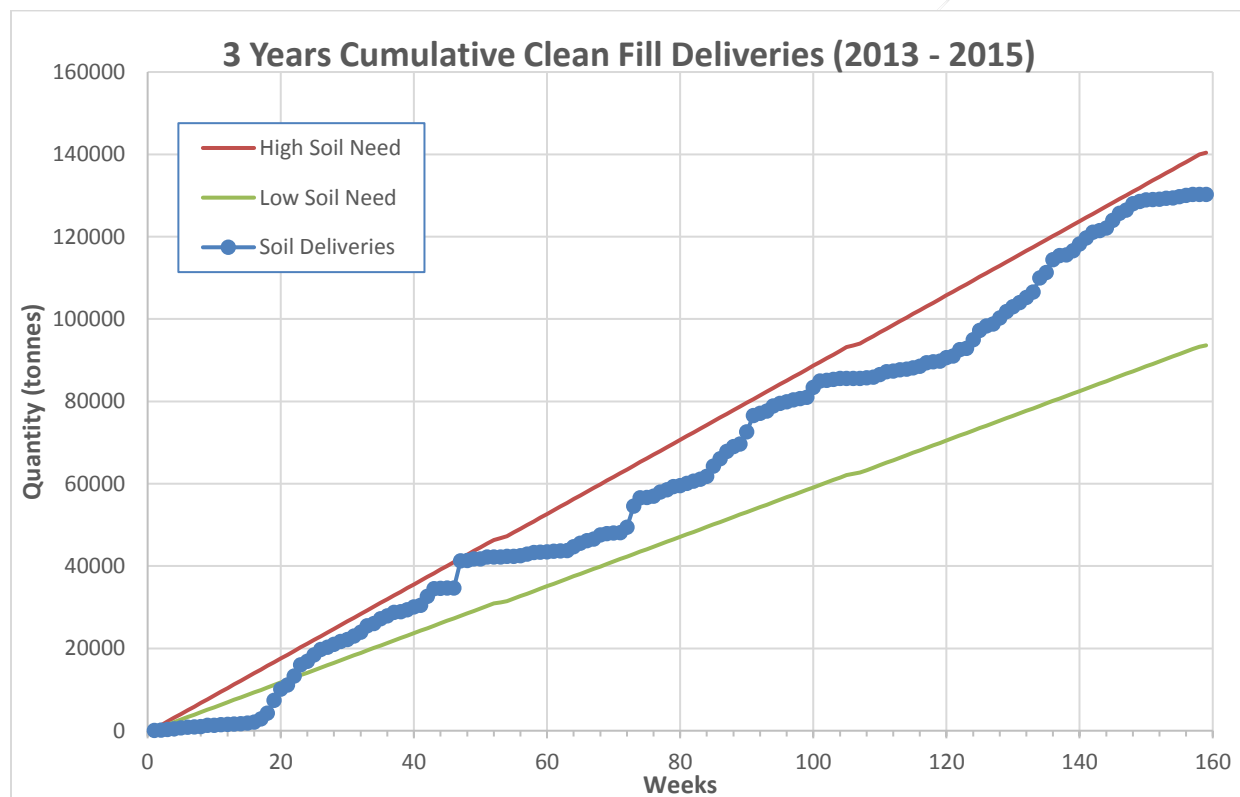
New provincial environmental legislation regarding contaminated soils came into effect on June 1, 2015. Regulators require a system for tracking and reporting impacted soil

discoveries, and promote risk management of impacted sites as well as beneficial soil reuse.

The Soil Handling Strategy has led to the development of tools to improve corporate-wide management practices for contaminated materials that is in compliance with the provincial Environmental Code.

Key Outcomes for 2015:

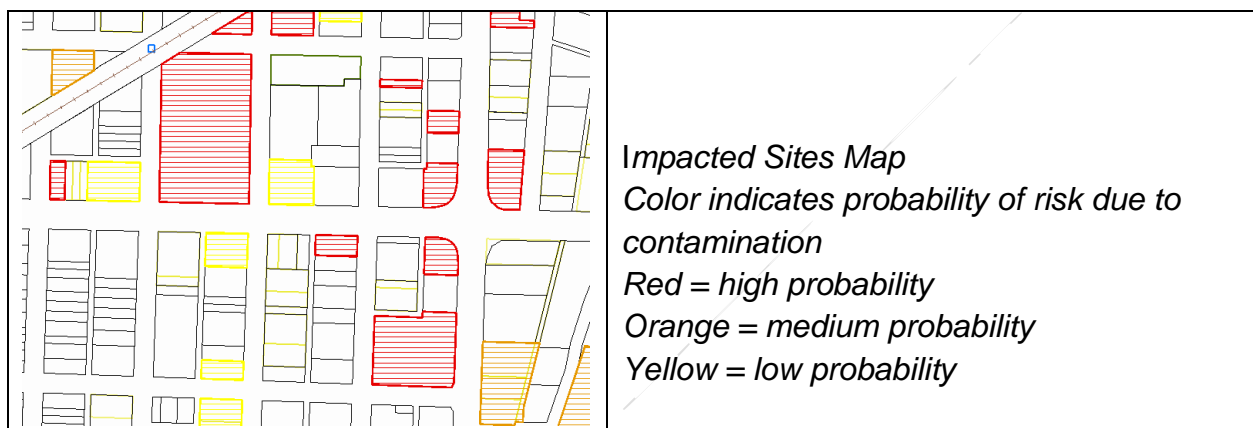
- Provision of free advisory services regarding risk management and regulatory compliance to all civic project managers and operations staff that encounter contaminated materials.
- Development of soil acceptance procedures for impacted soils that can be used as clean cover at the landfill.



Since 2010, more than **62,000 m³** (about 8,850 dump trucks) of impacted soil has been beneficially reused as clean fill at the landfill instead of being disposed of as waste. This has saved city projects approximately **\$7.3 million** in disposal costs.

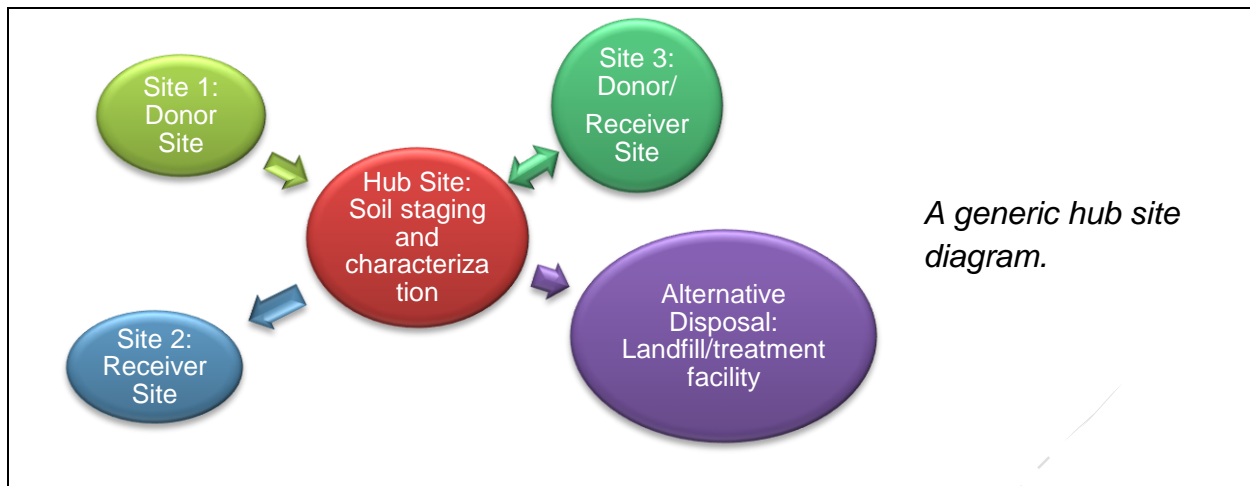
- Access to information and reporting tools on the Ministry of Environment's web portal made available through a civic account.

- Development of training sessions for civic project managers and operations staff about compliance with the new Environmental Code.
- Creation of safe handling procedures for workers handling contaminated soils.
- Pilot of a centralized communication centre for tracking clean and contaminated soils for civic projects.
- Draft of a generic Environmental Protection Plan that will streamline regulatory compliance and reduce costs for smaller projects that encounter contaminated soils.
- Development of a digital mapping tool in the City's Geographic Information System identifying the potential location of contaminated sites in Saskatoon, as well as the probable risks associated with each site.



There are over **450** potentially impacted sites in Saskatoon. In 2015, three projects managed risks related to **33,000 m³** (4,710 dump trucks) of impacted soil.

- Development of a hub site concept plan. A hub site is a temporary storage area for impacted soil or other materials until they can be properly characterized and a final reuse or disposal location can be determined.



A generic hub site diagram.

Project Status: Development of the soil handling strategy is now complete. It has been funded from capital, and the project will be closed. Ongoing support services and maintenance of the management tools developed under the strategy are not currently funded and therefore rely on cost recovery from operations and projects that use the tools and services. This may have a negative impact on both service utilization and environmental implications. Implementation of the strategy is also currently reliant on temporary staff resources.

4.6 Corporate Spill Response

Goal: To develop a corporate wide approach to spills that may impact sensitive environments.

Under the *Discharge and Discovery Reporting Chapter* of the new *Environmental Code*, municipal employees are responsible, in the event of a spill, to ensure public safety and the protection of the environment.

The City already has robust response protocols for spills that are directly related to public safety; however there is less capacity to respond to spills that may have only environmental impacts. For example, spills can enter the river via storm water infrastructure. City operations do not currently have the equipment or training to respond to these spills and must focus on prevention measures and/or rely on third-party services.

Spill response is a service that is provided on demand by civic operations when a spill occurs on or is moving toward public property. The media profile of a spill, as well as the costs of containment and clean up, can be high. As such, it is beneficial for operating groups to cooperate in developing an integrated approach to spill response.

Key Outcomes for 2015:

- Creation of spill response procedures and training for garbage collection fleet operations.
- Procurement of containment and clean-up equipment for landfill and public works (water and sewer) fleet vehicles.
- Development of draft staged Activation Scenarios that mesh with the civic Emergency Management Plan.
- Development of a draft communication plan with a focus on better training for customer service representatives regarding who to contact in the event of a spill report.
- Formation of a Joint Task Force to clearly define levels of service for spill response, to evaluate the costs of spill response at the corporate level, and to develop measures to facilitate operational responses.



Spill of tar-like substance into the South Saskatchewan River.

Project Status: Moving forward, the Environmental Protection section will lead the Task Force in examining the costs of service related to spills. This will include research into the practices of other municipalities, collection and analysis of data from Saskatoon Fire and Public Works on the costs associated with spill response, and investigation of how the polluter pays principle can be applied to cost recovery for spills in Saskatoon.

4.7 Stormwater Management Plan

Goal: To integrate stormwater management and land use planning through a climate change adaptation lens.

Responsibility for stormwater systems has, historically, been scattered across multiple work groups and is chronically underfunded in municipalities across Canada. In Saskatoon, a Stormwater Utility was recently created to centralize management of this utility, and to collect fees to support maintenance and expansion of the system.

In the North American context, there has been a fundamental shift in the way that stormwater is regarded. In the past, runoff has been classified as waste, and the intent of a municipal stormwater system was to convey this waste as quickly as possible to a receiving body, such as our river. Today, stormwater is considered to be a resource, and large and medium-size Canadian municipalities are designing their cities to mimic pre-development rainwater absorption and runoff rates as closely as possible.

For the most part, modern stormwater management is being driven by a commitment to undertake climate change adaptation measures. Stormwater-related issues represent some of the biggest climate related risks that are under the jurisdiction of municipalities, and the need to address these issues adequately and cost-effectively has driven integration of land use planning with design and construction of both traditional grey infrastructure (pipes, catch basins, etc.) and newer green infrastructure (incorporating **natural elements**).

Saskatoon is currently in the process of developing a business plan for the stormwater utility. The Stormwater Management Plan project is intended to incorporate land use planning and utilization of environmental resources into the longer term management framework for the utility.

Key Outcomes for 2015:

- Continued implementation of a baseline sampling program for stormwater outfalls.
- Creation of tender documents for the purchase of a laboratory information management system (LIMS) to increase corporate capacity to store and analyze water quality data.
- Development of scope and deliverables for the project in partnership with Planning and Development and Stormwater Utility management.



Stormwater outfall.

Project Status: In 2016 the focus for this project will be to develop a project charter and engage stakeholders from across the corporation in the project. Research on practices in other provinces and municipalities will also be initiated.

Air

Air quality 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.

4.8 Air Quality Management

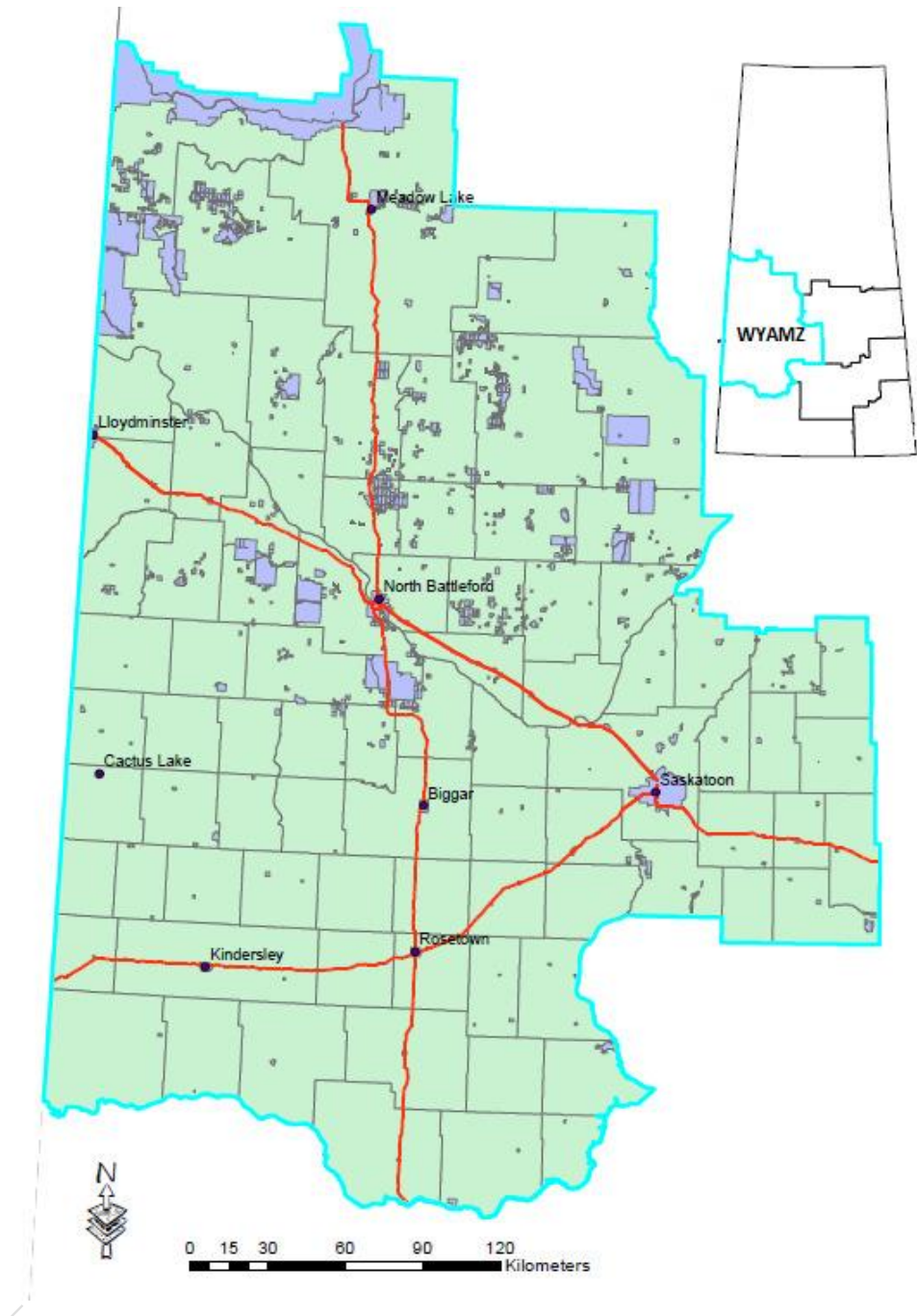
Goal: To engage in environmental protection at a regional scale (air zone).

Saskatoon belongs to the Western Yellowhead Air Management Zone (WYAMZ), a non-profit organization that represents public, industry, government, and non-government groups in the management of the air zone. Through WYAMZ, Saskatoon has a voice in the management of our air zone.

Monitoring stations are located in North Battleford, Meadow Lake, Unity, Kindersley, and Maidstone. Real-time and historic information is available for factors such as Nitric Oxide (NO), Nitrogen Dioxide (NO₂), Oxides of Nitrogen (NO_x), ground level ozone (O₃), and fine particulate matter (PM_{2.5}).

Saskatoon is required to track air pollutants emissions from several civic facilities, including the water treatment plant, the wastewater treatment plant, and the biosolids dewatering facility. These emissions are reported to Environment Canada's National Pollutant Release Inventory (NPRI).

Project Status: In 2015, the province of Saskatchewan carried out an urban air quality monitoring study in Saskatoon. Results of the study are anticipated in 2016 and will be communicated to the Saskatoon Environmental Advisory Committee when they become available.



*The Western Yellowhead Air Management Zone.
Map courtesy of WYAMZ, 2013 Annual Report.*

Environmental Sustainability Plan

Recommendation

That a report be submitted to City Council recommending:

1. That the Administration proceed to develop an Environmental Sustainability Plan utilizing the process as described in this report.

Topic and Purpose

The purpose of this report is to outline a process for developing a long term, integrated plan for Environmental Sustainability.

Report Highlights

1. The City of Saskatoon (City) has a wide variety of environmental initiatives but no comprehensive plan that connects them into a broader strategy. There is an opportunity to develop a sustainable community plan utilizing four pillars: Sustainable Land-Use & Transportation, Waste Diversion, Energy & Climate, and Environmental Protection.
2. A number of environmental performance reports have been prepared and highlight that more can be done to improve environmental outcomes in Saskatoon.
3. There is an opportunity to engage the public in the planning process on each of the four pillars. This could be achieved by hosting an Environmental Summit to kick-start a coordinated engagement on:
 - Implementing the Growth Plan to Half A Million
 - Preparing strategies to achieve the Waste Diversion Performance Target
 - Plan for Mitigating Climate Change
 - Renewable Energy Strategy
 - Green Infrastructure Strategy, including regional studies.
4. The input from the public, and the priorities identified by City Council would drive the development of the Environmental Sustainability Plan, and it would be implemented through the Business Plan and Budget process.

Strategic Goals

Civic plans for protecting our environment respond directly to the Strategic Goal of Environmental Leadership. The various environmental initiatives planned by the City also make a positive contribution to the achievement of other goals such as Continuous Improvement. These initiatives contribute toward the Vision for Saskatoon as a great place to live, where sustainable growth enables the community to invest for the benefit of all.

Background

On September 15, 2014, the Standing Policy Committee on Environment, Utilities and Corporate Services received a report outlining the City's Environmental Performance Plan. This Plan categorized current and planned environmental initiatives into the categories of waste diversion, energy efficiency, green energy generation, and environmental protection.

The Growth Plan to Half a Million was adopted in principle by City Council on April 25, 2016. This Plan outlines sustainable land-use and transportation strategies that will also significantly reduce environmental impact.

Report

The Administration is recommending a three phased approach on developing the Environmental Sustainability Plan:

1. What is the data telling us
2. What are the issues and options
3. Recommendations that would formulate the Environmental Sustainability Plan

Data

A number of important environmental performance reports are being tabled with this report:

- Our Environment – 2016 Update
- City of Saskatoon Ecological Footprint 2014 Report
- Annual Report on Environmental Protection
- Saskatoon Greenhouse Gas Inventory and Update on Compact of Mayors

A comprehensive Community Waste Characterization Study will be provided in the next couple of months and the 2015 Integrated Waste Management Annual Report was also tabled in May of this year.

This data supports all four pillars, but is currently in a format that is quite detailed and very comprehensive.

In early 2017, this data will be reported at a higher level and organized under each pillar. The data and related analysis will provide the context for the discussions on the issues and options facing our community.

Issues and Options

These various reports highlight that Saskatoon's environmental performance is declining as demonstrated by (among other trends):

- As outlined in the 2014 Saskatoon Ecological Footprint report, the City's per capita Ecological Footprint grew 1.4% between 2010 and 2014 and is now 78 times larger than the geographic area of the city, indicating our consumption demands far exceeded the City's ability or capacity to produce the materials we used and to absorb the waste we generated.

- In the 2015 Integrated Waste Management Annual Report, it was highlighted that Saskatonians continue to dispose less waste than the national average (which includes rural areas), but at a rate higher than most Canadian cities at 242 kilograms per person. The 2015 rate is 21%, below the national average (2012) of 33.7% and down from the 2013 rate of 22.7%

In addition, Saskatoon is experiencing rising community expectations with regards to environmental performance as demonstrated by:

- Delegation from the Saskatchewan Citizens' Hearing on Climate Change
- Saskatchewan Environmental Society (SES) presented a Municipal Greenhouse Gas Emissions Reduction Strategy to the City.
- Saskatoon Environmental Advisory Committee (SEAC) recommended that a Community Emissions Reduction Performance Target be established.
- Various presentations from individuals.

Federal and Provincial governments are also focusing on stronger environmental protection measures as demonstrated by:

- Sections of a new Saskatchewan Environmental Code came into force in June 2015 including new requirements for addressing contaminated soil, testing drinking water, dealing with specific chemicals, and identified qualifications required among those working in certain positions within the environmental field.
- The Federal Government has made greenhouse gas emissions a focus of a new \$75M fund through the Federation of Canadian Municipalities (FCM) and has suggested they will mandate the pricing of carbon across the country to ensure international commitments to emissions reductions are achieved.
- The Provincial Government has committed that SaskPower will utilize 50% renewable energy by 2030 and intends to issue a call for proposals for community power projects in late 2017/early 2018 (with consultations expected in early 2017).

Responding With Action - Environmental Sustainability Plan

The analysis of the data, and consideration of issues and options will provide the context for the Environmental Sustainable Plan. This will be a comprehensive and integrated plan that will outline the course of action required to address the issues and achieve the performance targets.

A wide variety of environmental initiatives are currently underway. Attachment 1 illustrates how these initiatives fit into four pillars that could become part of the future Environmental Sustainability Plan.

Public and/or Stakeholder Involvement

Environmental Summit

Given the vast array of initiatives and large volume of information available to give context to future community conversations, the Administration is proposing to host an Environmental Summit in association with Earth Day (April) in 2017.

Environmental Sustainability Plan

The Summit format will include information stations related to the four pillars, a provocative keynote speaker, and opportunities for citizens to discuss and share ideas using a world café format. The Summit could be held at a community location such as a high school to encourage people of all ages to take part.

Citizens will have an opportunity to make presentations and share ideas that may be used in the development of the Environmental Sustainability Plan.

Opportunities for public and stakeholder engagement throughout 2017 will be outlined in an Engagement and Awareness Plan to coordinate efforts under the four pillars from a strategic perspective and moves Saskatoon towards an integrated Environmental Sustainability Plan.

In 2017, a number of environmental planning initiatives that include community engagement have been built into the City's work program. Attachment 2 highlights these plans. Together, these planning initiatives will help form the basis of a comprehensive sustainable community plan.

Communication Plan

A comprehensive environmental sustainability awareness campaign will be developed as part of the Engagement and Awareness Plan to support environmental planning initiatives. A webpage will also be developed on the City's website to provide ongoing information support to engagement activities leading up to and following the Summit

A background document that summarizes key environmental trends and indicators will be prepared based on the various information reports tabled over the last year. An Engagement and Awareness Plan will be developed to ensure the planning initiatives listed in Attachment 2 are coordinated and supported by information that is broadly available. The goal is to provide citizens with a voice in identifying options based on trends and engage to share feedback on which options are turned into recommendations for action.

Other Considerations/Implications

There are no policy, financial, privacy or CPTED implications or considerations.

Due Date for Follow-up and/or Project Completion

The Administration will table the results of the Community Waste Characterization Study in February 2017. If the recommendations of this report are approved, Administration will also provide a summary data report, further details on the Environmental Summit, and an Engagement and Awareness Plan to support environmental planning in 2017 to the Standing Policy Committee on Environment, Utilities and Corporate Services at that time.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Attachments

1. Current Environmental Initiatives
2. Environmental Planning Initiatives

Report Approval

Written by: Brenda Wallace, Director of Environmental and Corporate Initiatives

Reviewed by: Lesley Anderson, Director of Planning and Development

Approved by: Catherine Gryba, General Manager of Corporate Performance Department

Environmental Sustainability Plan.docx

Current Environmental Initiatives

Sustainable Land-Use and Transportation Initiatives

- Growth Plan to Half a Million
 - Strategic Infill plans for North Downtown, University lands, City Centre, and River Landing
 - Corridor Growth (includes Complete Streets policy, plans for 8th Street, Preston Avenue, 22nd Street, Idylwyld Drive, Holmwood Suburban Centre and Confederation Suburban Centre)
 - Bus Rapid Transit plan, Transit service enhancements (including customer service and priority treatments)
 - Road Network enhancements including a core area bridge
- Neighbourhood Infill Development Strategy
- Employment Areas Study
- Active Transportation Plan
- Transportation Demand Management Plan
- Community Gardens and Regional Food Strategy
- Local Area Plan recommendations

Waste Diversion (Integrated Waste Management) Initiatives

- Saskatoon Waste Characterization Study
- Waste Diversion Plan
- Curbside Recycling (delivered by Loraas Recycle)
- Multi-Unit Recycling (delivered by Cosmopolitan Industries Ltd.)
- Recycling Depots
- Public Space Recycling
- Drop-off Compost Depot sites
- Green Cart program
- Household Hazardous Waste Days program
- Recovery Park
- Mandatory Paper and Cardboard recycling (landfill ban)
- Civic recycling
- Waste Education (includes annual Collection Calendar, Rolling Education Unit, Home Compost education program, and marketing initiatives with recycling contractors)
- Saskatoon Curbside Swap

Energy and Climate Initiatives

- Climate Change Adaptation Plan
- Saskatoon Greenhouse Gas Emissions Inventory
- Climate Change Mitigation Plan
- Solar Strategy

- Civic water and energy reduction initiatives (includes Energy Performance Contracting, Water Conservation, Energy Management program, and advisory services in planning new facilities)
- Civic green energy initiatives (includes Green Energy Park, solar panels on pools, and Combined Heat and Power (CHP) installations)

Environmental Protection Initiatives

- Source Control Programs and regulation of sanitary sewer use
- Lead Service Line replacements and Corrosion Control program
- Brownfield Renewal Strategy and Soils Handling Strategy
- Green Infrastructure Strategy (includes Wetlands Policy implementation, Natural Area Strategy, Stormwater Management Plan, and Natural Capital Asset Valuation)
- Participation in regional air quality management through Air Zone
- Participation in regional water management through Watershed
- Civic spill response
- Sustainable Procurement and contractor guidelines
- Civic advisory services (includes education and training of civic staff, project advisory and review, City regulatory reporting, Landfill soil acceptance, and environmental records management)
- Environmental Education initiatives (includes Student Action for a Sustainable Future program, Healthy Yards campaign, etc.)
- Environmental Cash Grant

Environmental Planning Initiatives

In 2017, the following planning initiatives, including community engagement, have been built into the City's work program:

- Sustainable Land-Use/Transportation
 - Plans for implementing Bus Rapid Transit and Corridor Growth will be developed under the Growth Plan to Half a Million. This work presents a significant opportunity to reduce the Ecological Footprint of the community as well as greenhouse gas emissions.
- Waste Diversion
 - A comprehensive study of all waste generated in Saskatoon is nearing completion and will form the basis for a complete review of the City's Waste Services including the development of a Waste Diversion Plan that will identify the most efficient and cost-effective methods for achieving the Performance Target to increase waste diversion to 70% by 2023. Methods may include expanded organics programs, material bans from the landfill, expanded recycling options (e.g. Styrofoam), and increasing the use of utility fees for other aspects of waste management. Community engagement will inform the implementation plan to provide residents, businesses and waste industry stakeholders an opportunity to influence the order and timing for introducing new policies and programs.
- Community Energy
 - The City is a signatory to the Compact of Mayors, committing to complete a greenhouse gas inventory within one year, to set a community emissions reduction target and identify local climate change hazards within two years, and to adopt plans to reduce greenhouse gas emissions and adapt to climate change risks within three years. A Community Greenhouse Gas Emissions Inventory is now complete. Administration will consult with the Saskatoon Environmental Advisory Committee (SEAC) and the Saskatchewan Environmental Society to recommend a Performance Target for Community Emissions Reduction.
 - The role of the City to facilitate community greenhouse gas emissions reduction will be identified in a business plan (Climate Change Mitigation Plan) that outlines the plans, policies, programs, pilot projects and infrastructure investments that will achieve the Performance Target. The development of the Plan will involve community and stakeholder engagement.
 - A Renewable Energy Opportunities discussion paper is being prepared stakeholders from solar industries (in particular) will be consulted.
- Environmental Protection
 - A Green Infrastructure Strategy that considers the value and utility of a network of natural areas in the context of biodiversity and watershed protection, storm water management and adaptation to climate change is underway. A series of workshops are planned.
 - The Saskatoon North Partnership for Growth Regional Plan, currently in preparation, has also identified a Green Network Study Area that includes

connected areas of wetlands, river corridors, and swales that provide stormwater conveyance, storage and assist in groundwater recharge. This area will help manage regional stormwater and minimize property damage during flooding events.

Saskatoon Greenhouse Gas Inventory and Update on Compact of Mayors

Recommendation

That a report be submitted to the Standing Policy Committee on Environment, Utilities and Corporate Services recommending:

1. That the Saskatoon Environmental Advisory Committee be asked to assist in developing a Community Greenhouse Gas Reduction Target;
3. That the Administration bring forward a report on an inclusive strategy for reducing greenhouse gas emissions in the community; and
2. That the City of Saskatoon apply for membership in the International Council for Local Environmental Initiatives, including appointing a Sponsor from City Council.

Topic and Purpose

The purpose of this report is to table and summarize the 2014 Greenhouse Gas Emissions for the City of Saskatoon (City), and to demonstrate completion of the first requirement under the Compact of Mayors. The implications of the federal government's announcement regarding implementing a price for carbon in 2018 is also described.

Report Highlights

1. Overall emissions in Saskatoon are on the rise. Emissions in the community increased approximately 12% between 2003 and 2014 while the City's corporate emissions rose 39%.
2. Now that the Inventory is complete, Saskatoon's next commitments under the Compact of Mayors includes setting emissions targets and developing a plan for reducing emissions in both the community and for the corporation.
3. The federal government has announced that carbon will be subject to a pricing model in 2018.

Strategic Goals

The recommendation in this report supports the priority to implement the Energy and Greenhouse Gas Reduction Plan under the Strategic Goal of Environmental Leadership.

Background

An Emissions inventory was last completed for the City for the 2003 year. This provided a platform for an Energy and Greenhouse Gas Management plan completed in 2009, which outlined six Energy and Emissions Management goals.

In 2015, the Saskatoon Environmental Advisory Committee recommended that the City complete a greenhouse gas emissions inventory. The Saskatchewan Environmental

Society also submitted a letter to City Council that listed 21 recommendations for reducing emissions in Saskatoon with the first step being the completion of a community emissions inventory. In November 2015, the City became a signatory to the Compact of Mayors, committing to address climate change by reducing greenhouse gas emissions. The 2014 Saskatoon Greenhouse Gas Emissions Inventory is the first step in complying with the Compact of Mayors.

Report

Results of Emissions Inventory

Based on availability of data from external sources, the Administration completed the 2014 inventory of gas emissions. Due to the amount of data involved in this inventory, a report is only completed periodically. As highlighted in the complete Inventory report (available on the City's web-site), the overall measure of greenhouse gas emissions in Saskatoon for 2014 from all sectors was 3,852 kilotons of carbon dioxide equivalents (CO_{2e}). This is an increase of 12.6% from the prior inventory completed in 2003. Additional sectors were analyzed to complete the 2014 inventory, accounting for 5% of emissions. The population increase from 2003 to 2014 was 26%. The acres of land developed in suburban areas reached 883.12 acres in 2014, an increase of 27% since 2010. Growth in housing units was 18%.

Within the community, the largest emissions produced are from energy consumed in residential dwellings and business buildings, which constitutes 24% and 34% respectively. Transportation is the second highest emissions sector in the city at 31% overall. This sector includes vehicle emissions from personal vehicles and business use, public transportation, air travel, rail travel and marine. Attachment 1 summarizes the total emissions for each sector analyzed for the 2014 community emissions inventory.

The City of Saskatoon as a corporation realized an increase of emissions since the 2003 inventory of 39% at 106 kilotons of CO_{2e}. Buildings are the largest emitters at 44% of the total corporate emissions. The 2014 emissions inventory analyzed additional sources than those reported in the 2003 inventory. If the additional sectors are eliminated, the emissions per sector are very similar between 2003 and 2014. Attachment 2 summarizes the emissions produced by the corporation.

Next Steps Under the Compact of Mayors

To be environmentally sustainable, a corporation must operate in a manner that mitigates or reduces emissions and adapts to climate change, such as creating infrastructure that could withstand a flash flood. The City demonstrated a commitment to environmental sustainability by signing the Compact of Mayors, a joint voluntary agreement launched at the 2014 United Nations Summit on Climate Action and initiated by C40 and ICLEI – Local Governments for Sustainability. Under the Compact, the City is required to report on climate change mitigation and adaptation. The 2014 Saskatoon Greenhouse Gas Emissions Inventory is the first of four phases the City is required to deliver. Prior to 2018, compliance requires the City to set and report on targets to reduce emissions and to create a model to reach these targets. The Compact of Mayors requires adaptation milestones to be met simultaneously, which is currently

being delivered and reported. An update on adaptation will be provided in the first quarter of 2017. Detail on the timelines and reporting requirements are summarized in Attachment 3.

The Saskatoon Environmental Advisory Committee (SEAC) has demonstrated interest and expertise in the area of greenhouse gas emissions. The Administration recommends that SEAC be asked to assist in developing a Community Greenhouse Gas Reduction Target and that this target form the basis for engaging stakeholders and the community on strategies for reducing emissions.

Developing a Strategy to Reduce Emissions

A 30% reduction target for the corporation was set by the City in 2013, to be realized by 2023 from 2006 levels. The 2014 inventory shows a 12% increase from the 2006 estimate meaning there is much work still to be done.

In September 2016, the federal government announced a plan to implement a price for carbon effective in 2018. The price will be set at an estimated \$10 per tonne of CO₂e on corporate emissions. No announcement has been made on whether the price plan would be a corporate tax or a cap and trade system. The tax has the potential to affect emissions, exports, and the corporation's tax obligations. A detailed discussion is provided in Attachment 4.

As a reporting requirement to the Compact of Mayors and in an effort to aid local business as Canada transitions to a low carbon economy, the Administration will develop a strategy and business plan that identifies tactics for reducing community and corporate emissions and includes stakeholder and community engagement to determine the role each sector can play to achieve emissions targets.

International Council for Local Environmental Initiatives (ICLEI) Membership

ICLEI – Local Governments for Sustainability is a network of local governments working together to advance sustainability. Membership in ICLEI will connect the City with the most ambitious and committed local governments across Canada and around the world, enabling the City to share best practices and access resources to help achieve sustainability goals. To become a member of ICLEI, the City must name a Sponsor from City Council. There are no specific requirements of a Sponsor; however, through the named Councillor, the City of Saskatoon will have access to a network of other communities (both through elected officials and administration) having similar issues and initiatives. Attachment 5 summarizes some of the benefits of joining ICLEI.

Options to the Recommendation

City Council may choose to forgo joining ICLEI at this time.

Financial Implications

The next steps in meeting the City's commitments under the Compact of Mayors, target setting, and developing a reduction strategy will be completed utilizing internal resources. A community engagement strategy will be developed utilizing funds remaining in the Greenhouse Gas Reduction Capital Project #2183.

The cost of ICLEI membership is approximately \$3,000. These funds are available in the existing operating budget.

Environmental Implications

A positive impact on greenhouse gas emissions is anticipated as a result of implementation of recommendations provided by an emissions reduction business plan. Additional reductions are expected as a result of energy efficiency projects underway such as the Energy Performance Contracts and route optimization with the garbage collection system.

Communications Implications

The 2014 GHG Inventory will be posted on the City website, and a media event will be coordinated to share reasons for completing the inventory, key findings and implications, and how the inventory will be used. A Communications and Engagement Plan would be developed to support a strategy for reducing greenhouse gas emissions in our community and in the City of Saskatoon.

Other Considerations/Implications

There are no policy, privacy or CPTED implications or considerations.

Due Date for Follow-up and/or Project Completion

Specific to next steps under the Compact of Mayors, the Standing Policy Committee on Environment, Utilities and Corporate Services will receive the following reports in 2017:

1. Update on the City of Saskatoon Adaptation Strategy (March 2017)
2. Update on the City of Saskatoon Emissions Reduction Targets (timing dependent on the Saskatoon Environmental Advisory Committee to prepare a recommendation)

In early 2017, the data from the Inventory report will be included in a higher level document representing the four pillars of an Environmental Sustainability Plan. The data and related analysis will provide the context for discussions on issues and options facing our community and will also be submitted to the Standing Policy Committee on Environment, Utilities and Corporate Services.

Public Notice

Public Notice, pursuant to Section 3 of Public Notice Policy No. C01-021, is not required.

Attachments

1. Saskatoon Community Emissions
2. Saskatoon Corporate Emissions
3. Compact of Mayors Commitments
4. Canada and Carbon Tax
5. ICLEI Membership
6. GHG Inventory Report Executive Summary (full report online)

Report Approval

Written by: Nasha Spence, Environmental Accounting Manager

Saskatoon Greenhouse Gas Emissions Inventory and Update on Compact of Mayors

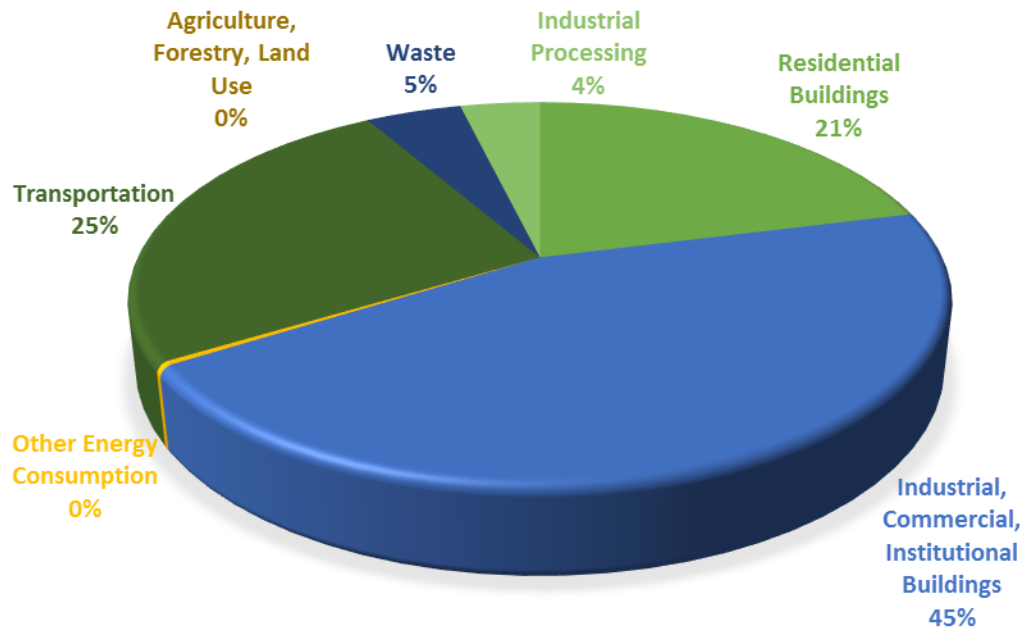
Reviewed by: Matthew Regier, Environmental Coordinator
Bibian Rajakumar, Project Engineer
Brenda Wallace, Director of Environmental and Corporate
Initiatives
Jason Turnbull, Director of Business Administration
Mike Jordan, Director of Government Relations

Approved by: Catherine Gryba, General Manager, Corporate Performance
Department

GHG Inventory.docx

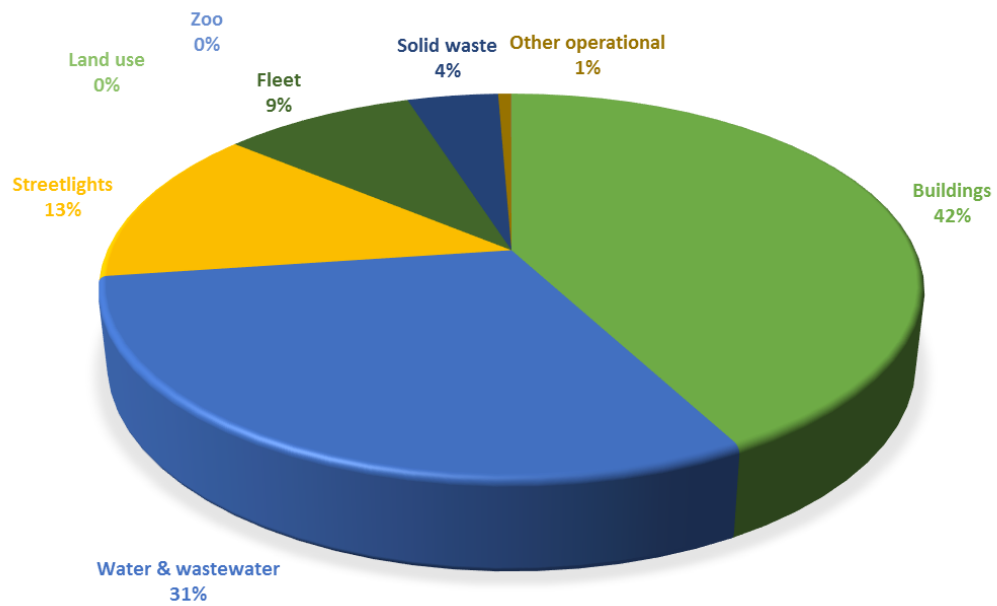
Community Emissions

| Sector | GHG (tonnes of CO ₂ e) | | |
|---|-----------------------------------|------------------|-----------------------|
| | 2003 new standards | 2014 | % Increase 2014 |
| Residential Buildings | 604,686 | 932,215 | 54.2% |
| Industrial, Commercial, Institutional Buildings | 2,135,152 | 1,992,404 | -6.7% |
| Other Energy Consumption | NR | 14,129 | |
| Transportation | 632,414 | 1,121,430 | 77.3% |
| Waste | 49,057 | 201,357 | 310.5% |
| Agriculture, Forestry, Land Use | NR | 290 | |
| Industrial Processing | NR | 167,550 | |
| Total | 3,421,309 | 4,429,375 | 29.5% |



Saskatoon Corporate Emissions

| Sector | GHG (t of CO ₂ e) | | | |
|--------------------|------------------------------|-----------------------|----------------|--------------------|
| | 2003 | 2003 new standards | 2014 | % Increase 2014 |
| Buildings | 36,270 | 31,246 | 45,022 | 44.1% |
| Water & wastewater | 30,437 | 24,608 | 32,702 | 32.9% |
| Streetlights | 16,925 | 13,311 | 14,129 | 6.1% |
| Fleet | 6,047 | 6,022 | 9,640 | 60.1% |
| Solid waste | 1,619 | 4,576 | 4,576 | 0.0% |
| Other operational | NR | NR | 656 | NA |
| Land use | NR | NR | NR | NA |
| Zoo | NR | NR | 13 | NA |
| TOTAL | 91,298 | 79,763 | 106,738 | 33.82% |



Compact of Mayors Commitments



At each phase, the committed city is required to report the results to the Compact of Mayors through an approved method in order to receive acknowledgement and verification of the phase.

| Phase | Mitigation | Adaptation |
|---------------------------------|---|--|
| 1 – Commitment November 2015 | Cities commit to: <ul style="list-style-type: none"> • Reduce local GHG's • Measure community emissions using GPC • Set data-based targets for the future • Develop climate action plan | Cities commit to: <ul style="list-style-type: none"> • Address impacts of climate change • Identify climate hazards • Assess vulnerabilities • Develop climate adaptation plan |
| 2 – Inventory December 2016 | Complete a community-wide emissions inventory using the GPC standard | Identify climate hazards |
| 3 – Target December 2017 | Update emissions inventory & set emissions reduction target | Assess climate change vulnerability |
| 4 – Plan December 2018 | Develop climate action plan demonstrating how the city will deliver on its commitment to reduce greenhouse gas emissions | Develop a climate change adaptation plan demonstrating how the city will adjust to actual or expected climate change impacts |

Once the Compliance phase has been reached, the city is required to report their inventories, targets, updates, reductions on an annual basis in order to maintain the Compliance rating.

Carbon Pricing Policies in Canada

ISSUE:

- On October 2, 2016, the Prime Minister of Canada announced that the Federal Government will implement a pan-Canada approach to pricing carbon pollution in order to help Canada meet its greenhouse gas emission targets.
- Under this approach, all Canadian jurisdictions—meaning provinces—will be required to have carbon pricing in place by 2018.
- The price floor will be set at \$10 per tonne of Carbon Dioxide (CO₂) emissions 2018 and rising by \$10 each year to \$50 a tonne by 2022.
- The Government of Canada will allow the provinces to choose from two options to implement carbon pricing: (1) a direct price (e.g., carbon tax) and (2) cap-and-trade-system.
- In Canada, the provinces of British Columbia (BC) and Alberta (AB) price carbon by using carbon taxes, while Ontario and Quebec are using a cap-and-trade system. All other provinces are considering various approaches.
- However, the Government of Saskatchewan is vociferously opposed to carbon pricing. Saskatchewan's approach to date is to use technology (i.e., Carbon Capture and Sequestration) to reduce emissions.
- According to Environment Canada data, Saskatchewan has the highest greenhouse gas emissions per capita in the country.
- It is too early to say what impact the Government of Canada's announcement may have on the City of Saskatoon. This will depend on the pricing option that Saskatchewan will choose, the implementation of it, and any potential offsets that the policy will include.

BACKGROUND

- In 2008, the Government of British Columbia implemented a revenue neutral carbon tax, meaning the government's total tax revenues did not change because of the carbon tax as it reduced other taxes, like personal incomes taxes.
- The BC government phased-in the carbon tax over a period of four years, being fully implemented in 2012 at \$30 per tonne of CO₂ equivalent emissions.
- In 2013, the Government of Quebec introduced a cap-and-trade system which covers business emitting 25,000 metric tonnes or more of CO₂e per year and fuel distributors selling more than 200 litres of fuel. The system covers about 85 per cent of Quebec's GHG emissions.
- Since January 1, 2014, Quebec's cap-and-trade system has been linked to California through the Western Climate Initiative (WCI).
- In 2016, the Ontario government introduced legislation to adopt a cap-and-trade system, which takes effect on January 1, 2017. Ontario's approach is very similar to Quebec's and it will link with Quebec and California in the WCI.
- In May 2016, the Government of Alberta announced that it will be implementing a new carbon tax on transportation and heating fuels, including diesel, gasoline, natural gas and propane. The levy will apply as of January 1, 2017 at a rate of \$20 per tonne, and will increase to \$30 per tonne on January 1, 2018

- In March 2016, Canada's First Ministers committed to putting Canada on a credible path to meet or exceed a national target of reducing greenhouse gas (GHG) emissions by 30 percent below 2005 levels by 2030.
- The First Ministers agreed that this will require transitioning to a low-carbon economy by adopting a range of measures, including carbon pricing, adapted to the specific circumstances of each province and territory.
- In October 2016, in response to the Prime Minister's announcement, the Government of Saskatchewan released a "White Paper" on its approach to reducing emissions, which rejects broad based carbon pricing and places the focus on technology and innovation.

ANALYSIS/DISUCSSION/NEXT STEPS

- Carbon pricing is essentially a financial instrument that national and subnational governments around the world are using to help reduce carbon emissions.
- They are intended to place a price on carbon pollution so as to induce behavioural changes by individuals and firms.
- As indicated by the Prime Minister's announcement, there are two common methods of carbon pricing: (1) cap-and-trade system and (2) carbon taxation.
- In a Cap-and-Trade System:
 - governments cap total carbon emissions and then give or sell companies carbon permits that add up to the cap.
 - Companies can then trade permits with each other.
 - Those who can reduce emissions cheaply and easily sell permits to those who cannot.
 - The price of the permits is variable, depending on the market, but generally, the lower the cap, the higher the price.
- In a Carbon Taxation regime:
 - governments impose a fee on carbon:
 - the more a company emits, the more they pay.
 - The price determines how effective the policy will be at lowering emissions—the higher the price, the greater the reductions.
- The table below illustrates the advantages and disadvantages of each carbon pricing mechanism at a very high level.

Table 1: The Advantages and Disadvantages of Carbon Pricing Mechanisms

| Mechanism | Potential Advantages | Potential Disadvantages |
|------------------------|---|--|
| Cap-and-Trade | <ul style="list-style-type: none"> • Drives cost effective emissions reductions • Emissions are capped: amount of carbon emitted is set by policy • Creates opportunities to link with other systems, broadening scope and harmonizing systems | <ul style="list-style-type: none"> • More administratively complex to implement & manage • Allows for price volatility because the price fluctuates • Reduces scope for revenue recycling |
| Carbon Taxation | <ul style="list-style-type: none"> • Drives cost effective emissions reductions • Provides price certainty • Simple, transparent, easy to administer as it functions within existing tax regime | <ul style="list-style-type: none"> • Typically has large public opposition • Does not provide certainty as to the quantity of emissions reductions to be achieved • Emissions reductions depend on consumer sensitivity to prices |

- In terms of a carbon tax, the British Columbia experience suggest that GHG emissions were initially reduced following the implementation of the carbon tax, but then started to increase, albeit at a slower annual pace than it had previous to the implementation of the carbon tax.
- This suggests that the carbon price was not set high enough to elicit more significant behavioral changes.
- The cap-and-trade systems have to be fully implemented in Canada so there are no measureable results to its efficacy in reducing emissions in Canada.
- So what are the implications to municipalities in jurisdictions with carbon pricing?
- In BC, the government incented local governments to better manage their emissions by allowing those that commit to carbon neutrality by 2012 to access the Climate Action Revenue Incentive, a grant that offsets 100 percent of the carbon tax local government's pay.
- The Government of Saskatchewan's recently released Climate Change "White Paper" provides 13 recommendations that outlines the province's plan to address climate change and reduce emissions.
- However, in terms of carbon pricing the Governments positon is: "*Saskatchewan calls on the federal government to abandon plans for a national carbon tax,*" and "*Saskatchewan calls on Canada to reject a national cap and trade system as an option.*"

ICLEI Membership

ICLEI – Local Governments for Sustainability (International Council for Local Environmental Initiatives) is a network of local governments working together to advance sustainability. Membership in ICLEI will connect the City with the most ambitious and committed local governments across Canada and around the world, enabling us to share best practices and access resources to help us reach our sustainability goals.

The following table outlines the primary benefits associated with being an ICLEI member:

| Benefit | Overview |
|---|--|
| Exclusive Access to ICLEI Resources | Access to resources on local sustainable development, including climate change response, biodiversity, water management, sustainability management and sustainable procurement. |
| Priority Access to New ICLEI Campaigns and Projects | Opportunity to pilot new campaigns, initiatives and projects; discount to participate in ICLEI programs, including Adaptation Initiative. |
| Access to Events and International Networking Opportunities | Opportunity to participate in national and international conferences, events, delegations and study tours that provide important opportunities to learn and exchange ideas, best practices and other innovations with the global sustainability community. |
| National and International Profiling | Initiatives and programs of ICLEI members are regularly featured in a variety of publications, including ICLEI's international newsletter and website. |

Source:

http://www.icleicanada.org/images/icleicanada/pdfs/Benefits_of_Membership.pdf

2014 Saskatoon Greenhouse Gas Emissions Inventory - Executive Summary

The 2014 Saskatoon Greenhouse Gas Emissions Inventory supports federal and international reporting standards. The inventory is meant to provide a representation of Saskatoon's total emissions as well as emissions by sector to support the exploration of emissions abatement strategies in the community, and efficiencies within City of Saskatoon operations.

Saskatoon joined the Compact of Mayors in 2015 to demonstrate a commitment to respond to climate change and acknowledge that local action can have significant global impact. As a result, the City is required to engage in mitigation and adaptation reporting, target setting and implementation of a climate change plan, to be completed and maintained in 2018. This coincides with the timing of the federal government announcement to implement a price on carbon in 2018. The carbon price comes as a result of the Canadian government commitment by way of the Paris Climate Agreement to reduce emissions and engage in activities to keep global temperatures within 2 degrees Celsius above pre-industrial levels.

Saskatoon conducted an emissions inventory in 2003, and has produced estimates for 2006 and 2013. During this time, an emissions reductions target for the City of Saskatoon Corporation was set to 30% below 2006 levels by 2023.

Overall, the Saskatoon community emissions have increased 12% since the 2003 inventory. Additional sectors were analyzed for the 2014 inventory to report a more comprehensive emissions inventory. Eliminating these additional sectors continues to produce an 8% increase since the 2003 emissions inventory. Industrial, commercial and institutional energy consumption in buildings is the highest emitter, but has realized a 38% decline in emissions since the 2003 inventory, whereas emissions associated with residential buildings increased by 54%.

The City of Saskatoon corporate emissions increased 39% since the 2003 inventory. The highest emitting sector is realized in building energy, with administrative and operational buildings consuming a greater share than recreational facilities and emergency services.

The full report is available on-line.

Corporate IT Update

Recommendation

That the report of the General Manager, Corporate Performance Department, dated December 6, 2016, be forwarded to City Council for information.

Topic and Purpose

This report provides a status update on IT initiatives over the past year that support the City of Saskatoon's (City) goal of leveraging technology to improve service to citizens and efficiencies in our operations.

Report Highlights

1. The IT Division is focusing on providing citizen-centric services, contributing leadership and services to support being the Best Managed City in Canada, and is a strategic business partner in delivering IT solutions.
2. The report provides an overview of the IT Governance model that has been established to prioritize and manage the Corporation's projects.
3. The report will provide a highlight of IT accomplishments during 2016 and the impact to staff efficiencies and operating budgets for the Corporation.

Strategic Goal

This report supports the Strategic Goal of a Culture of Continuous Improvement, leveraging technology and emerging trends to reach our goals, serve citizens and connect meaningfully with our stakeholders.

Background

On December 7, 2015, IT presented a report to City Council articulating how Corporate IT will support the City's vision and goals and recommended IT develop a multi-year corporate strategy to deliver on its vision. This report provides an update on IT activities during the last year that brings the Corporation closer to achieving this vision.

Report

Vision, Strategy and Mandate of Corporate IT

The IT Division is focusing on providing citizen-centric services, contributing leadership and services to support being the Best Managed City in Canada, and is a strategic business partner in delivering IT solutions.

The plan for 2016 was to focus on delivering value for money and service excellence. Providing training for staff in the areas of project management, business analysis and IT service excellence was completed for the majority of the staff. The Division went through a reorganization that supported the introduction of business relationship management and steering committees for each division of the Corporation. During 2016, other foundational work was completed as outlined in the 2015 vision document that is attached to this report. The effort invested in building a solid foundation based

on best practice for delivering IT services will provide the Corporation the ability to focus on value added activities and prepare for the next phase of the vision, enterprise level applications, integrated solutions, business intelligence and data analytics.

Attachment 1 provides details of IT vision, strategy and mandate.

IT Governance and Portfolio Management

IT Governance is the process and structure that informs, directs, manages, and monitors how the organization makes the best and most effective use of technology. The demand for IT continues to grow as IT penetrates all aspects of business in the Corporation. As well, implementing IT systems requires a significant financial and resource investment from IT and the divisions. A strong IT Governance structure ensures that finite resources are utilized to maximise impact to the organization.

IT Governance Goals

- Establish a clear mandate and authority for all IT decisions
- Define a clear set of IT principles and outcomes that the City is seeking from its technology investments
- Engage stakeholders directly in technology decision making
- Establish a more rigorous evaluation of IT projects – to ensure a focus upon ‘high value’ projects
- Better coordinate Corporate IT initiatives for which wider benefit can be derived
- Ensure more effective IT and business resource utilization by focusing upon the corporate direction.

An IT Project Governance Committee has been established that consists of Directors from across the Corporation. It provides guidance to all IT related issues and recommends prioritized projects that will have the most impact to the organisation.

In addition to the Governance Committee, IT has introduced Business Unit Steering Committees and relationship management. These committees are responsible for understanding the needs of the business and ensuring IT is aligned and delivering on the priorities of the business units.

Corporate IT Accomplishments

During the last 12 months, Corporate IT has delivered a number of projects that support the City’s strategic goals. This has resulted in 6,000 hours of staff efficiencies across the Corporation in addition to over \$230,000 in direct savings.

Attachment 2 outlines in detail the continuous improvement efforts where we are finding efficiencies within various different business line operations while providing an improved service both internally and for citizens. This is another example of our continuous improvement efforts where we are finding efficiencies within our operations while providing an improved service – this time it is to our internal customers. The savings will occur over time, and we will reduce the staff through attrition and re-assignments. At this point, we have not determined where the FTE’s will be re-deployed to – that will be determined through a corporate process where we will

allocate the FTE's based on corporate priorities that add value to citizens. This re-deployment will follow our practice of reducing the overall request for new FTE's for civic operations and utilizing existing resources efficiently and effectively prior to requesting new resources, thereby reducing our increase to the property tax.

A full list of these projects can be found in Attachment 2.

Public and/or Stakeholder Involvement

Consultations have transpired with the leadership of the respective bargaining units and associations, as well as the Human Resources Division to review and solicit feedback and support of the changes impacting staff.

Communication Plan

A critical component to change management is communication to ensure City staff are aware of and understand the purpose and function of the new IT Division and how it affects them; particularly how the new structure will improve customer service. The vision for IT is to provide the best possible citizen-centered services and contribute to higher customer satisfaction and the new structure will help us meet that vision by further developing in the key areas or domains that IT can bring value to the corporation.

The introduction of business relationship management and steering committees provides the necessary on going contact with each business line to better understand their business requirements and allows Corporate IT the opportunity to identify technology solutions that will improve service to our citizens.

Ongoing communications will continue to bridge the gap and support the role of Corporate IT as a strategic business partner to foster innovation and improve service delivery to citizens and the Corporation. As each initiative is rolled out, different training tools and tactics are deployed based on the audience and impact to our citizens and staff. As an example, the new e-Greenbook was launched using a self-help video to guide staff through the functionality. SharePoint training is being delivered in two different formats, lunch and learn sessions are being held for staff and formal training is being provided by an external contractor. Changes to programs, services impacting our citizens are also communicated utilizing a variety of tools and tactics.

Financial Implications

The justification of technology investments is considered a strategic corporate objective to continue innovation and utilize resources effectively. Standardization and corporate alignment will increase efficiencies and provide opportunities to reduce operating costs of the Divisions in the future.

Other Considerations/Implications

There are no policy, environmental, privacy or CPTED implications or considerations.

Due Date for Follow-up and/or Project Completion

Progress reports from Corporate IT will be submitted on a semi-annually basis.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Attachments

1. IT Vision and Strategies
2. Successful Projects in the Past Year – Period Ending October 2016

Report Approval

Written by: Paul Ottmann, Director of Information Technology
Reviewed by: Paul Ottmann, Director of Information Technology
Approved by: Catherine Gryba, General Manager, Corporate Performance
Department

Corporate IT Update.docx

IT Vision and Strategies

An effective IT Division is central to achieving the Vision and Goals of the City's Strategic Plan 2013-2023. This appendix provides details of IT's vision, strategy and mandate to support the City's Strategic Plan.

1. **Our Mission**

Empowering our citizens and the corporation in the effective use of technology to access information in our world class city.

We excel at providing collaborative leadership and support in technology, information, and services; enabling our business partners to achieve their desired outcomes.

Vision of Corporate IT

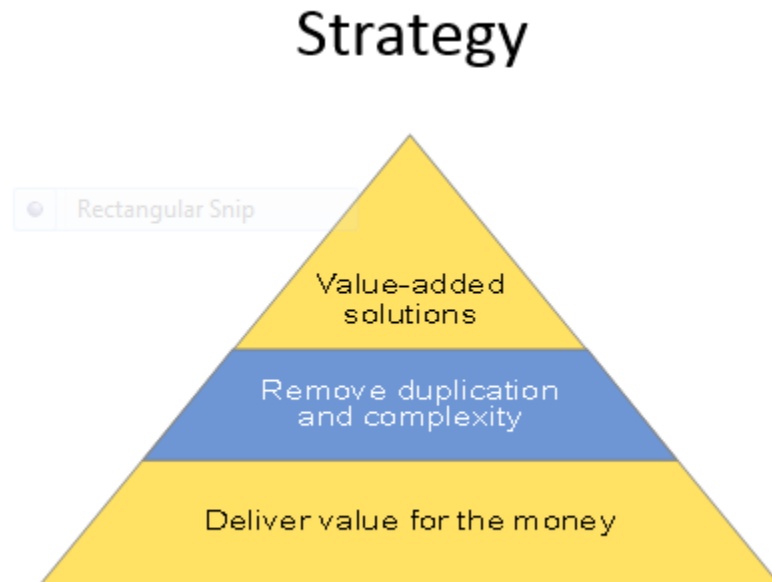
Citizen-Centered Services: Utilizing current technology makes it easy for citizens and business to access services and to interact with the City of Saskatoon. The City's Information Technology Division is central to providing the best possible citizen-centered services and contributing to higher customer satisfaction and improved service to citizens.

Best Managed City: Information Technology contributes to the city's vision of being the best managed city by providing IT leadership and the reliable services necessary for a high performing organization. IT will make effective and efficient use of the Corporation's resources and will provide reliable and efficient IT solutions as the strategic business partner for the City's business units.

Strategic Business Partners: The Corporate IT Division for the City of Saskatoon is a strategic business partner empowering our citizens and the Corporation in utilizing technology. We excel at providing collaborative leadership and support in technology, information, and services, enabling our business partners to achieve their desired outcomes. The IT Division enables other divisions to achieve City priorities by researching, recommending and operating technology to facilitate a quantum leap in business capability. We will lead by providing innovative business solutions for our business partners.

Strategies

To support this vision, three layers of strategies have been defined.



1. Deliver value for money

The bottom layer of the triangle focuses on internal IT processes to deliver value for money and service excellence. To achieve this, IT has introduced formal processes based on industry best practices. Particular attention was paid in 2015 and 2016 to this foundational layer.

- IT is in the process of implementing project portfolio intact and prioritization process.
- IT has introduced formal project management practices to deliver projects on time and schedule.
- IT has deployed the new service manage tool that includes a self-service portal. The tool is based on ITIL (Information Technology Infrastructure Library), which is recognised as an industry standard for managing processes for delivering reliable IT services across an organisation.
- IT has been restructured along the line of businesses and introduced Business Relationship Managers who will work closely with businesses to fulfil their IT needs. This will establish a clear and concise line of communication with all the business partners.
- All staff have been training on achieving IT service excellence to ensure that we provide the highest level of service.
- Business analysis training has been provided to 50% of staff as a formal methodology for requirement gathering and to assist the businesses re-engineer their processes.
- IT is rolling out SharePoint for document management and collaboration.

2. Remove duplication and complexity

The second layer focuses primarily in supporting the businesses to gain operational efficiencies.

A fundamental problem that the City faces today is that its systems – the processes and the software that supports them – were never explicitly designed. The systems have evolved in a piecemeal, ad-hoc way as the City has grown and because of the piecemeal approach, often solutions that are designed to simplify processes in one department add complexity and overhead for staff in other departments. Enterprise Architecture—a design, or target state, for the City’s technology environment—will help the City pursue a more coordinated, designed, and corporate approach to systems. This will streamline the applications and processes to align with core business functions of the City, an approach that focuses more upon standardization of technologies and business processes.

Enterprise Architecture provides the blueprint to guide the City as it makes decisions about technology with the objective of One City, One Corporation, One Team.

In part of developing this Enterprise Architecture strategies, IT will develop standardization of applications and proliferation of Enterprise Resource Planning (ERP) and Enterprise Asset Management (EAM) strategies.

3. Deliver value-added solutions

A matured IT organization delivers innovative value-added solutions to support the strategic intent of the Corporation. In this top layer, IT will lead and foster innovation and provide support to businesses to meet their long-term strategic intent.

- Innovations like Internet of Things (IoT) will be explored to bring new emerging technologies and provide efficiencies to the City’s operations and value to the Citizens.
- Business Intelligence (turn raw data into information required for planning, monitoring and decision making) will be further expanded beyond the pilot projects in Fire and HR, to strategically manage and provide the basis of sound decision making.
- Customer Relationship Management (CRM) will form the cornerstone of citizen engagement.
- The citizens will have single sign-on to access city services.
- The City will strive toward improved processes and reducing paper consumption to develop workflow and approval processes in SharePoint.
- IT will take an active role in defining the business continuity plan.
- IT will focus on core business and outsource non-core business to a third-party. An RFP for managed print is already in progress.

IT Guiding Principles

This provides a set of guiding principles and defines how IT will support the Corporation to be the best managed city and provide citizen-centric services. It will form the basis for all our decisions. The guiding principle are:

1. Our business needs drive our technology needs.
2. Business efficiency, cost savings and customer service improvements are the expected outcomes of our technology investments.
3. Transformation and improvement of business processes will be planned for and central to the utilization of technology.
4. Technology is used to drive customer service improvements internally and externally through self-service and improved access to information and services at the customer's convenience.
5. A mobilized workforce, using integrated solutions, is key to delivering end to end customer service.
6. Technology needs are identified and planned for as part of long range technology planning. This supports our Corporate Strategic and Business plans.
7. Technology will support decision making and decision makers through the provision of access to real-time, reliable and integrated data/information – a single version of the truth.
8. Technology is relied upon as a core part of our regular business because it is effective and usable.
9. Our use of technology embodies the “Corporate First” principle and makes use of standardized architectures to build reliable infrastructure and to maximize efficiency.
10. The technology that we have invested in is fully leveraged and reused throughout the organization wherever possible, reasonable and feasible.

Successful Projects in the Past Year Period ending October 2016

This appendix provides a high-level overview of projects that were completed in the past 12 months. These projects can be divided into two categories:

1. Change-the-Business: Projects that impact how the Corporation conducts its business.
2. Run-the-Business: Operational projects that are required to keep the lights on. These projects are either projects that run on a regular basis or projects that are required to keep IT in a stable and supported environment.

This attachment provides details of the Change-the-Business projects and a summary of operational projects. Each project represents a combination of improved service to citizens, reduction to operating budgets and cycle time savings through automation to our staff. In some cases, the impacts of projects to our operating budgets and staff have not been fully determined.

CHANGE-THE-BUSINESS PROJECTS

The projects have been categorised along the strategic goals of the City.

1. Continuous Improvements

- i. CIS Overnight Processes Automation: CIS application used for Utility billing required two shifts to run overnight processes. This project automated the processes, thereby eliminating the need for one nightly shift. The automation of processes represents a savings of 1,500 hours of FTE time to be redeployed to other value added activity.
- ii. My Payroll Advice Online: The process of distributing the bi-weekly pay advice has been paper driven and, therefore, very manual. This project provided access to online pay advice to all employees of the City and included ancillary support data that provide a detailed breakdown related to how the pay is determined. T4 and T4A are ready for implementation. The use of online pay advice reduced distribution cost and the effort to print. The automation of payroll represents a savings of 1,100 hours of FTE time and a reduction in the operating budget of approximately \$13,000 for paper.
- iii. Consolidated servers and virtualization of servers: Consolidating servers into fewer chassis to reduce total chassis and racks that are in use and running. Savings include maintenance for the decommissioned chassis and blades, and reduced electrical demand. The implementation of newer equipment represents a reduction in the operating budget of \$28,890.
- iv. BI Pilot Projects – HR and Fire Data: Built proof-of-concept views of HR and Fire Incident data. This will provide both HR and Fire timely/accurate access

- to key statistics for planning and decision making. This project is demonstrating the 'art of the possible' for the business and as a result the impacts have not been fully quantified. As an example, HR is able to run reports in a matter of minutes instead of days.
- v. Power Outage Resilience: Critical systems were prone to effects of power outages. The systems were redesigned so that they now run on the second data center, which is protected by a UPS and generator. The critical systems included the City's website, resulting in better service to the Citizens. This project represents the start of our business continuity strategy and provides seamless service to citizens in the event of a power failure.
 - vi. Online booking system AMI project: This allowed the Citizens to schedule an appointment to connect the smart utility meters to AMI. This project provides citizen services allowing citizens to book conveniently on line 24/7.
 - vii. Corporate Directory (eGreenBook): An electronic system replaced the Corporate paper directory. The first release contained a people search functionality with organizational chart views and allows employees to have an organizational view of employees. Additionally, a general phone number list brings together a list of commonly needed numbers in one place. The automation of our corporate directory impacts are estimated at 300 hours of FTE time and \$7,000 in paper costs. A total of \$22,000 in savings.
 - viii. Service Manager (ITSM): Deployed new ITSM tool that includes a self-service portal. It provides the ability to deliver significant enhancements to IT's service delivery capabilities and efficiencies. It has the added feature to build workflows that directly benefit our business partners. The direct savings and impact to the business lines is estimated at approximately 1,500 hours of FTE time per year.
 - ix. SharePoint - Learning and Development Sign-Up: The formerly manual process of signing staff up for training has been automated. What was once a paper form is now digital and an automatic approval is sent to the staff member's manager. Efficiencies gain include the time for the Business and Strategic planning administrator to compile attendance lists and track registrations, resulting in improvements to an inherent manual process, as well as savings of the hard paper costs for the forms which were previously printed. The automation of signing up for training has an impact of approximately 100 hours of FTE time and \$1,000 reduction in operating budgets for paper.
 - x. SharePoint - Quarterly Updates: Previously, quarterly project updates were done via an excel spreadsheet. Project managers were required to complete the update, have their director approve it, and submit it to Business and Strategic Planning to compile into a report. The new system is an automated

list and workflow that allows all Project Managers to edit their project updates simultaneously. This enables approvals to be handled digitally and allows for easy tracking of what project updates are outstanding. The savings is largely in the time it takes for compiling the reports into a single report, as well as the ease of tracking and ease of use for a project manager. This project represents approximately 80 hours of FTE time savings per year.

- xi. TMA Implementation: Implementation of new preventative maintenance and asset management application for Parks and Facilities. Completion of this project added new functionality and removed reliance of an old, unsupported system. The impacts of this implementation are still to be determined by the business line.
- xii. Fire sick/fit tracking: Moved tracking of sick/fit information from manual processes into the FDM records management system resulting in efficiency gains for Fire dispatch and administration. This automation represents a time savings of 75 hours per year.

2. Asset and Financial Sustainability

- i. The development and maintenance support of saskatoon.ca and transit.saskatoon.ca in-house: Support of the two websites that was provided by a third-party will now be provide by IT. In addition to supporting the websites, there was new capacity for additional work that would have otherwise be contracted out. Providing this service in house we are able to delivery service to the business at a lower cost. Based on the projects completed to date the net savings to the Corporation is in excessive \$162,000.
- ii. AMI - Advanced Metering Infrastructure (Phase 1): The IT portion of the AMI project was a sub-set of a larger project to automate reading of electric and water meters. IT integrated the reads from the AMI system with the utility billing system resulting in improved citizen service by providing accurate monthly bills and eliminating large discrepancies in estimates vs. actual billing.

3. Quality of Life

- i. Escribe - Electronic Agenda: Gained improved services and processes by enabling agendas, meeting, minutes and live broadcast meetings to be shown on saskatoon.ca. This allows citizens who are mobility challenged to "attend" meetings, as well as offers complete transparency into council and committee meetings.
- ii. MASAS - Multi Agency Situational Awareness: MASAS is an EMO application that IT provides real-time road construction and restriction data to be used for routing (Fire trucks, bus, emergency vehicles).

- iii. Service Saskatoon Temporary CRM: New temporary CRM software built using a GIS mapping interface that allows the Customer Service Center at Roadways and Operations to pilot the concept of Customer Relationship Management for some of their services. The unique number given for each customer interaction allows citizens to track the status of their incident. There is additional gain of efficiencies by decreasing duplication of work orders.

4. Moving Around

- i. Imap Traffic Reporting Application: This provides a web application for citizens to report traffic issues that allows the transportation group to monitor, resolve and respond to these issues. Tracking was previously a manual intensive process that has now been automated to reduce effort involved in collecting, responding and monitoring traffic issues. This project represents a savings of 300 hours of staff time.
- ii. Transit real-time open data: This service is in two parts: an application that publishes data real-time information about transit services such as bus locations and service alerts to the internet, and third-party applications that take this data and make it available to citizens through a variety of web sites and mobile apps. This service will make real-time Transit information available to citizens so they can track the location of buses and better plan their trips. Google Transit utilises this data to provide real-time bus data to the public and is a popular application for Transit users.
- iii. Drivermate for Access Transit: Replacement of old MDT-based system with new software and hardware that is more cost-effective. It will remove reliance on the old, unsupported system and replace it with hardware that is much less expensive to operate and replace. It provides additional functionality including GPS location.

RUNNING THE BUSINESS

The following is a summary of operational projects and service that is required to keep the City's business running:

- i. Utility Bills: Approximately a million utility bills are processed every year.
- ii. 2016 TIPPS and Assessment Notices: This is an annual regulatory project and approximately 53,000 notices were sent out.
- iii. 2016 Property Tax Notices: This is annual regulatory project and approximately 92,000 notices were processed, in addition to approximately 3,000 Supplementary Property Tax notices.
- iv. Commercial Storm Water Billing: Approximately 3,500 statements were processed.

- v. Microsoft Office Upgrade from 2010 to Office 2013: Upgraded the Office suite on all desktops (includes Microsoft Word and Excel).
- vi. AutoCAD Upgrade: Upgraded AutoCAD suite to the latest version. The new software has added functionality that will reduce some design and creation effort.
- vii. Geocortex (GE) Upgrade: Upgraded GeoCortex suite to the latest version. The new software has added functionality that has reduced development effort.
- viii. Fleet M5 Upgrade: Upgrade to current version. New functionality better supports business activities.
- ix. TMA Upgrade: Upgrade TMA to supported version.
- x. SCCM Upgrade: Upgrade of our Corporate maintenance and application deployment tool. Required upgrade to support Windows 10 and improve delivery capabilities.
- xi. In addition, approximately 25,000 service desk calls were fielded in this 12 month period.

Award of Request for Proposals – Leisure Guide Production and Distribution

Recommendation

That a report be submitted to City Council recommending:

1. That the proposal submitted by the Saskatoon StarPhoenix for the administration, production, and distribution of the seasonal Leisure Guide publication be approved; and
2. That the City Solicitor be requested to prepare the appropriate agreement and that His Worship the Mayor and the City Clerk be authorized to execute the agreement under the Corporate Seal.

Topic and Purpose

The purpose of this report is to request approval to award the contract for the administration, production, and distribution of the seasonal Leisure Guide publication to the Saskatoon StarPhoenix (StarPhoenix) for a two-year period with an option to extend for two additional one-year periods.

Report Highlights

1. A Request for Proposals (RFP) for the administration, production, and distribution of the City of Saskatoon's (City) seasonal Leisure Guide publication was released to the public on October 18, 2016, and closed on November 7, 2016.
2. The StarPhoenix was the only submission received in response to the RFP and met all evaluation criteria.
3. Highlights of the StarPhoenix proposal are provided in this report including the rates for 2017 and 2018, as well as additional print and online advertising support at no additional cost.
4. The term of the agreement will be for a two-year period (January 1, 2017 to December 31, 2018) with the option to extend for two additional one-year periods.
5. Feedback from the Citizen Advisory Panel confirms that 52% of respondents keep the guide to reference information. The Administration will conduct additional Leisure Guide research in 2017 to evaluate how residents use the guide and what changes they wish to see made to the format and distribution.

Strategic Goal

The City's seasonal Leisure Guide publication supports the Strategic Goal of Quality of Life by providing access to facilities and programs that promote active living.

Background

The City's seasonal Leisure Guide publication is the primary communication tool used to promote registered and drop-in leisure program information to the general public. The 100 -120 page Leisure Guide is distributed three times per year: Fall (August),

Winter (December), Spring/Summer (March), with a smaller 24-page Mini Guide publication distributed in the Summer (June).

Each Leisure Guide publication, with the exception of the Summer Mini Guide, includes an 'Advertisers' Index' section where community-based sport, culture and recreational organizations can promote their programs and classes in the Guide.

The Leisure Guide is distributed to approximately 100,000 Saskatoon and area households each season, with an overrun distribution going to all leisure facilities and libraries. An interactive pdf version of the Guide is also available on the City's website a few days prior to delivery.

Through the years, research has been conducted in a variety of different ways to evaluate the format, public perception, and use of the Leisure Guide. This research has indicated the guide is valuable to residents; home delivery is the preferred way residents wish to receive the guide; and residents appreciate having an advertising section as part of the publication.

In addition, research of 9 municipalities completed by the City of Calgary from March 2016 shows:

- all 9 municipalities surveyed have a printed Leisure Guide
- 8 out of 9 use a hybrid of online and printed versions (including Saskatoon)
- a strong and universal feeling there is still value in a printed Leisure Guide
- 4 out of 9 municipalities deliver their Leisure Guides door to door

Report

RFP Process and Evaluation Criteria

On October 18, 2016, an RFP was issued for the administration, production, and distribution of the City's seasonal Leisure Guide publication. The RFP closed on November 7, 2016, with the StarPhoenix being the sole proposal received.

The proposal was evaluated based on the following criteria:

- a) project management approach and related experience;
- b) ability to meet production and distribution specifications and deadlines;
- c) ability to administer the sales and production of the Leisure Guide's 'Advertisers' Index';
- d) promotion of the Leisure Guide leading up to delivery; and,
- e) cost

An evaluation committee met on November 10, 2016, to review the StarPhoenix proposal and determined it met all the evaluation criteria.

Highlights of Proposal

As part of their proposal, the StarPhoenix will provide enhanced Leisure Guide promotions to advertisers and the general public at no additional charge to the City.

This includes a mix of print and digital ads leading up to and during distribution/registration week.

The StarPhoenix will also convert every issue of the Leisure Guide into an interactive and user-friendly online PDF for the City to post on saskatoon.ca a few days prior to delivery.

The cost of the Leisure Guide is calculated by taking the total cost to produce the guide based on the City's discounted line rate and reducing it by the amount of advertising revenue sold into the guide. This formula reduces the City's cost of publishing the Leisure Guide.

The StarPhoenix is extending the City's 2016 discounted line rate, as well as the 2016 advertising rates, for the Leisure Guide over the two-year term. The cost to produce the Summer Mini Guide publication will also remain the same as 2016.

The quoted rates include all costs associated with the administration, production, and distribution of the seasonal Leisure Guide publication. A full copy of the rates is provided in Attachment 1.

Terms of Agreement

The Administration is recommending City Council approve the award of the Leisure Guide contract to the StarPhoenix. The term of the agreement will be for a two-year period (January 1, 2017 to December 31, 2018), with the option to extend for two additional one-year periods, subject to the two parties reaching an agreement on pricing. Should there be substantive changes to the quantities or scope of work, the City will reissue a competitive RFP after the initial two-year agreement is complete.

Options to the Recommendation

An option to the recommendation is to award the contract for a two-year period with no option to extend for two additional one-year periods.

Another option is to not award this contract. This is not recommended by the Administration as the current contract expires December 31, 2016. This would jeopardize the production and distribution schedules of upcoming Leisure Guides. A delay in sending the Leisure Guide out to the public would have a negative impact on revenue generated by City programs, as well as compromise the City's ability to meet the needs of Saskatoon residents.

Public and/or Stakeholder Involvement

With consumer behavior rapidly changing, Administration plans to conduct a new round of Leisure Guide research in 2017 to evaluate how residents use the guide and what changes, if any, they wish to see made to its format, distribution, etc.

In order to help guide the direction of this research, a short survey was sent out to the City's Citizen Advisory Panel in November 2016, with 501 panelists responding. The results of the survey are included in Attachment 2. Highlights include:

- 86% of respondents are familiar with the Leisure Guide
- 82% look through the guide when it is delivered to their household
- 52% look through the guide and keep it for future reference
- 69% find the guide valuable
- When asked if the Leisure Guide was no longer delivered to their home, a majority of respondents said they would either pick one up or view it online or on their mobile phone/tablet. This will be explored further in the 2017 research.

Communication Plan

If approved, additional advertising will not be required to inform residents and stakeholders.

Currently, residents are informed of the Leisure Guide each season through a comprehensive communication plan that includes complimentary advertisements in the StarPhoenix online and print publications, local radio and TV commercials, updates on the City's website and Leisure Online, Facebook and Twitter posts, public service announcements, and onsite promotions.

Financial Implications

If City Council approves the recommendation, the total estimated cost to produce the Spring/Summer, Summer Mini, Fall and Winter Leisure Guides in 2017 and 2018 is \$288,744. This expenditure has been incorporated in the proposed 2017 operating budget.

Other Considerations/Implications

There are no policy, environmental, privacy, or CPTED implications or considerations.

Due Date for Follow-up and/or Project Completion

Subject to City Council's acceptance of the recommendation as listed in this report, a contract for the administration, production, and distribution of the City's seasonal Leisure Guide publication between the StarPhoenix and the City will be set in place, commencing January 1, 2017, and expiring December 31, 2018.

Public Notice

Public notice, pursuant to Section 3 of Public Notice Policy No. C01-021, Public Notice Policy, is not required.

Attachments

1. The StarPhoenix Leisure Guide Rate Schedule
2. Citizen Advisory Panel – Leisure Guide Survey Results

Report Approval

Written by: Jennifer Pesenti, Marketing and Communications Manager
Reviewed by: Carla Blumers, Director of Communications
Catherine Gryba, General Manager, Corporate Performance Department.

Award of Request for Proposals – Leisure Guide Production and Distribution

Approved by: Murray Totland, City Manager

Award of RFP – Leisure Guide Production and Distribution.docx

The StarPhoenix Leisure Guide Rate Schedule

Proposed rates for the two-year term of the agreement:

| Year | Leisure Guide Line Rates |
|-------------|-------------------------------------|
| 2017 | \$1.40* |
| 2018 | \$1.40* |

| Year | Leisure Guide Overrun Rates per/copy |
|-------------|---|
| 2017 | \$0.36* |
| 2018 | \$0.36* |

| Year | Summer Leisure Mini Guide Rates |
|-------------|--|
| 2017 | \$16,622.00* |
| 2018 | \$16,622.00* |

| Year | Leisure Guide Advertiser Rates |
|-------------|--|
| 2017 | Full Page: \$1,623.00* 2/3 Page: \$1,082.00* 1/2 Page: \$811.00* 1/3 Page: \$541.00* 1/6 Page: \$271.00* |
| 2018 | Same as above* |

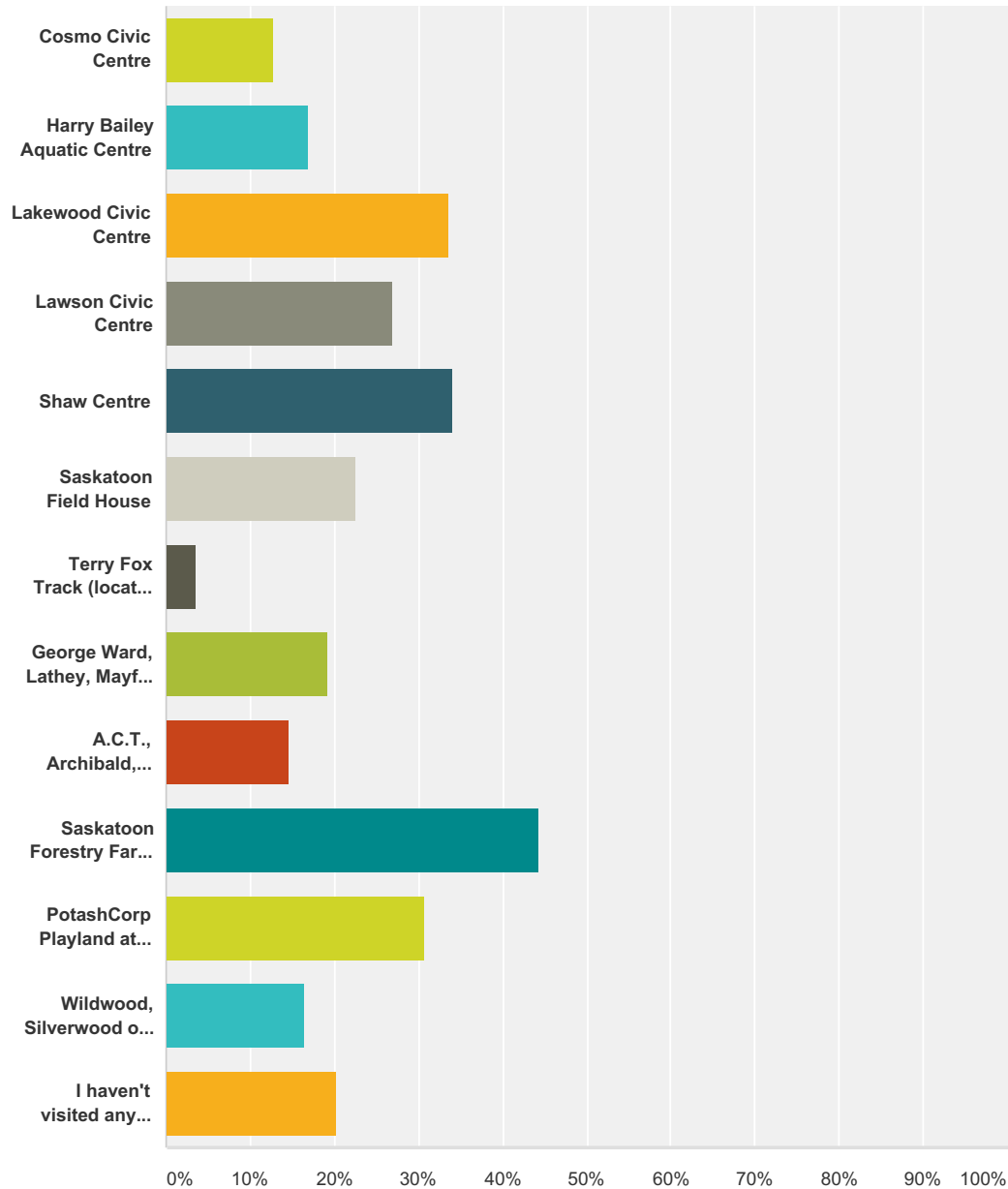
*same as 2016 rates

Value-Adds at No Additional Cost to the City of Saskatoon:

- Print and online promotional campaigns to advertisers and general public totalling approximately \$65,010; and
- Every issue of the Leisure Guide will be converted into an interactive and user-friendly online PDF through the StarPhoenix's Issuu account.

Q1 The City of Saskatoon operates a number of leisure facilities in the city. Thinking back over the past 12 months, did you or anyone in your household visit or use any of the following City of Saskatoon facilities? (select all that apply)

Answered: 501 Skipped: 0



| Answer Choices | Responses |
|-----------------------------|-----------|
| Cosmo Civic Centre | 12.77% 64 |
| Harry Bailey Aquatic Centre | 16.97% 85 |

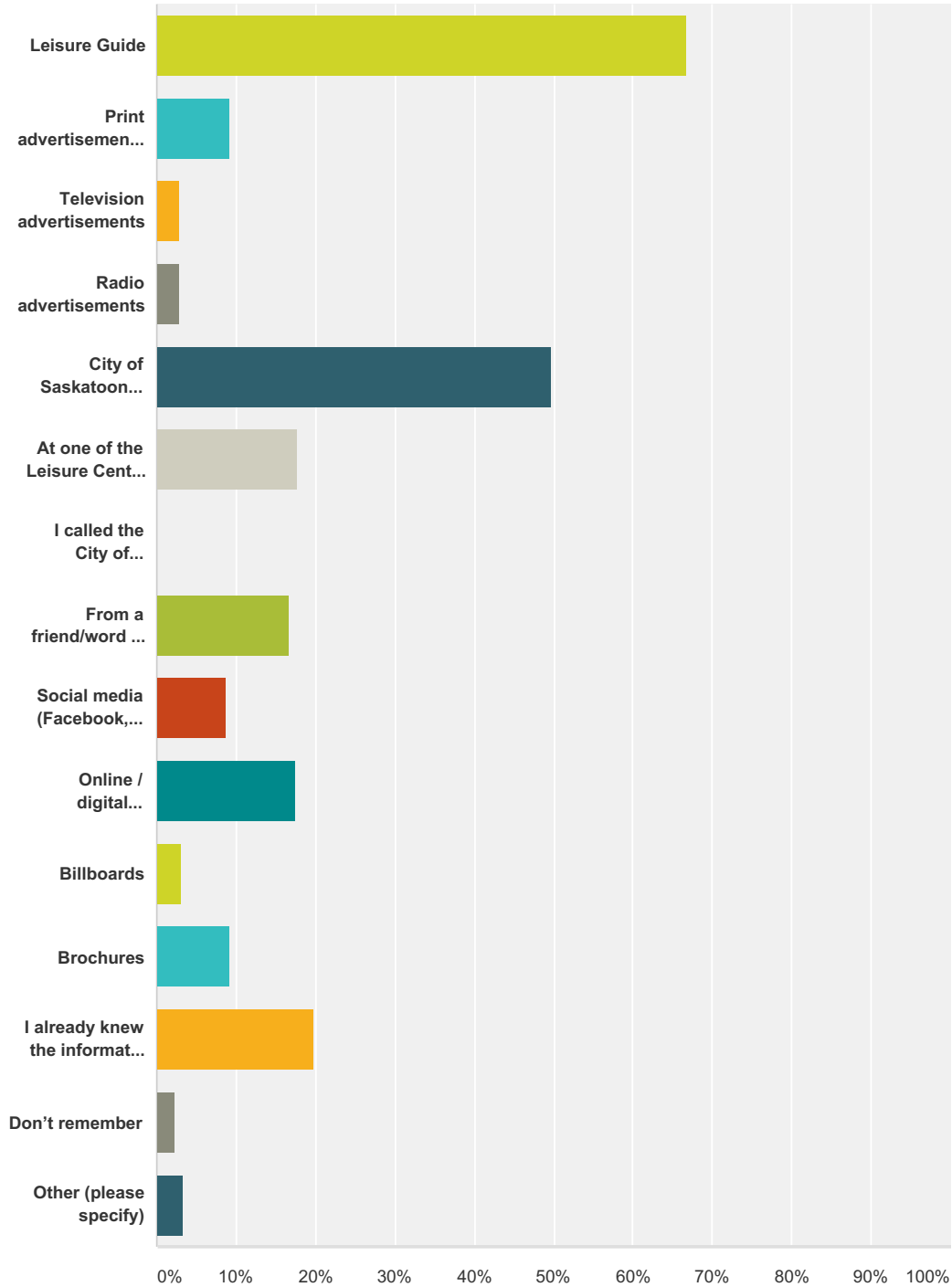
2016 City of Saskatoon Leisure Guide Survey

| | | |
|--|--------|-----|
| Lakewood Civic Centre | 33.53% | 168 |
| Lawson Civic Centre | 26.95% | 135 |
| Shaw Centre | 34.13% | 171 |
| Saskatoon Field House | 22.55% | 113 |
| Terry Fox Track (located in the SaskTel Sports Centre) | 3.59% | 18 |
| George Ward, Lathey, Mayfair or Riversdale Outdoor Pools | 19.16% | 96 |
| A.C.T., Archibald, Cosmo, Gordie Howe Kinsmen or Lions Indoor Rinks | 14.57% | 73 |
| Saskatoon Forestry Farm Park & Zoo | 44.31% | 222 |
| PotashCorp Playland at Kinsmen Park | 30.74% | 154 |
| Wildwood, Silverwood or Holiday Park Golf Courses | 16.57% | 83 |
| I haven't visited any City of Saskatoon leisure facility in the past 12 months | 20.16% | 101 |
| Total Respondents: 501 | | |

PLEASE NOTE: The Citizen Advisory Panel membership is self-selected, so although every effort is made to seek balanced representation, the results are not considered representative.

**Q2 Where have you found out about leisure facilities and the programs they offer?
(select all that apply)**

Answered: 495 Skipped: 6



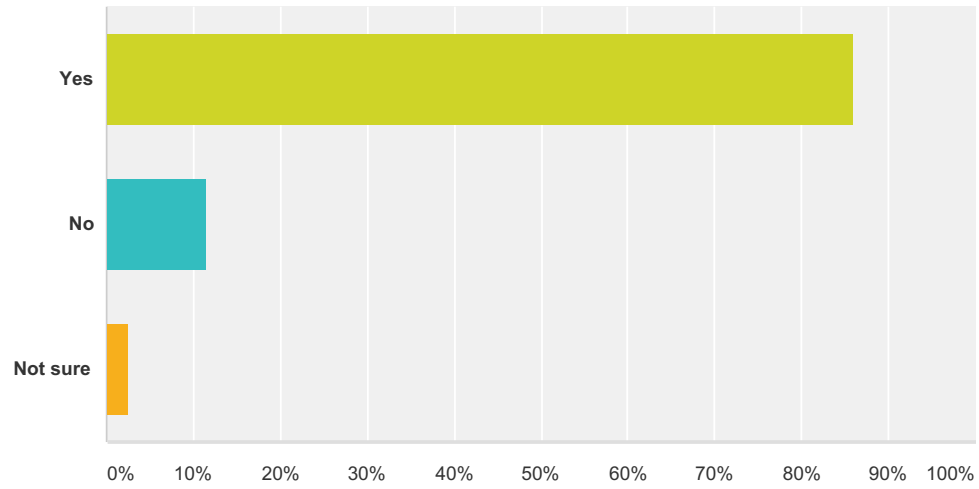
| Answer Choices | Responses |
|----------------|------------|
| Leisure Guide | 66.87% 331 |

2016 City of Saskatoon Leisure Guide Survey

| | | |
|--|--------|-----|
| Print advertisements (e.g. newspaper) | 9.09% | 45 |
| Television advertisements | 2.83% | 14 |
| Radio advertisements | 2.83% | 14 |
| City of Saskatoon website (www.saskatoon.ca) | 49.70% | 246 |
| At one of the Leisure Centres or other facilities | 17.78% | 88 |
| I called the City of Saskatoon Leisure Services Department | 0.00% | 0 |
| From a friend/word of mouth | 16.77% | 83 |
| Social media (Facebook, Twitter) | 8.69% | 43 |
| Online / digital advertisements | 17.58% | 87 |
| Billboards | 3.23% | 16 |
| Brochures | 9.09% | 45 |
| I already knew the information I needed | 19.80% | 98 |
| Don't remember | 2.22% | 11 |
| Other (please specify) | 3.43% | 17 |
| Total Respondents: 495 | | |

Q3 Are you familiar with the Leisure Guide?

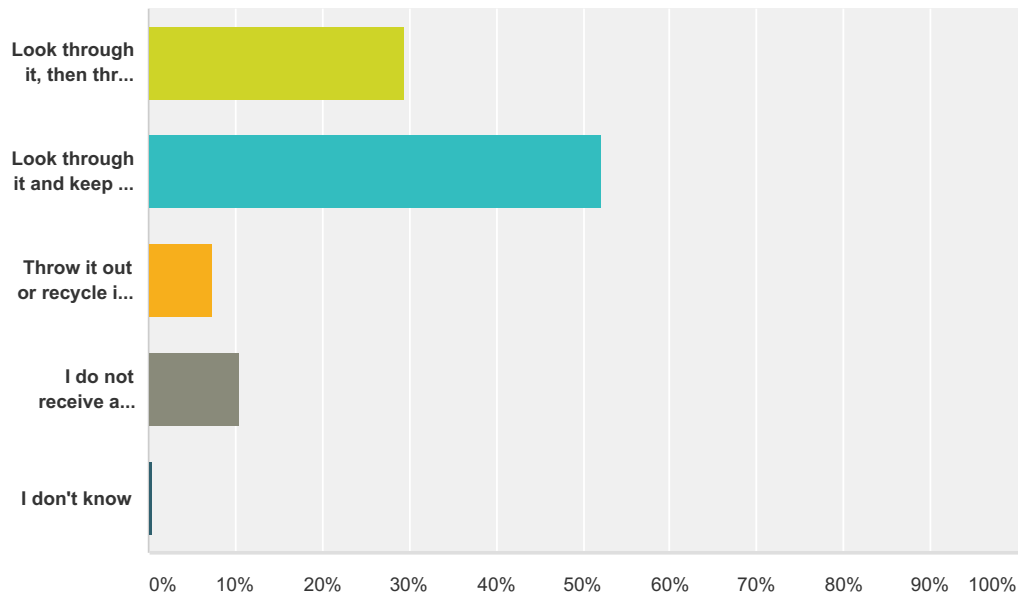
Answered: 164 Skipped: 337



| Answer Choices | Responses | |
|----------------|-----------|------------|
| Yes | 85.98% | 141 |
| No | 11.59% | 19 |
| Not sure | 2.44% | 4 |
| Total | | 164 |

Q4 When the Leisure Guide is delivered, do you...

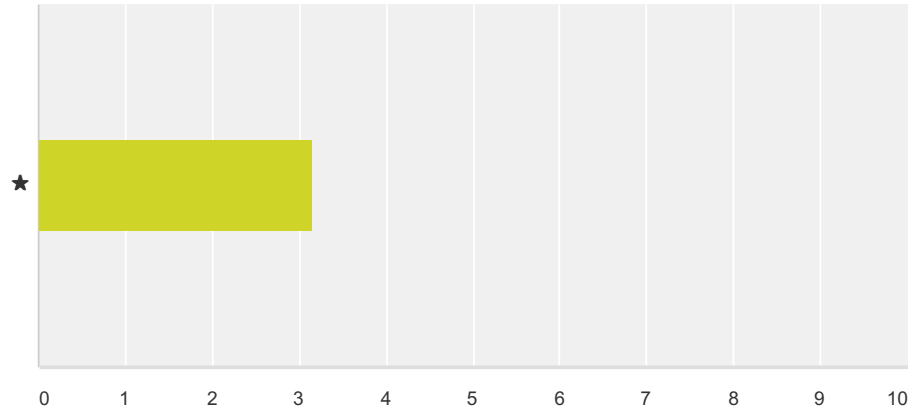
Answered: 475 Skipped: 26



| Answer Choices | Responses | Count |
|--|-----------|------------|
| Look through it, then throw it out or recycle it | 29.47% | 140 |
| Look through it and keep it for reference | 52.21% | 248 |
| Throw it out or recycle it without looking at it | 7.37% | 35 |
| I do not receive a Leisure Guide | 10.53% | 50 |
| I don't know | 0.42% | 2 |
| Total | | 475 |

Q5 Overall, how valuable is the City of Saskatoon Leisure Guide to you and your household?

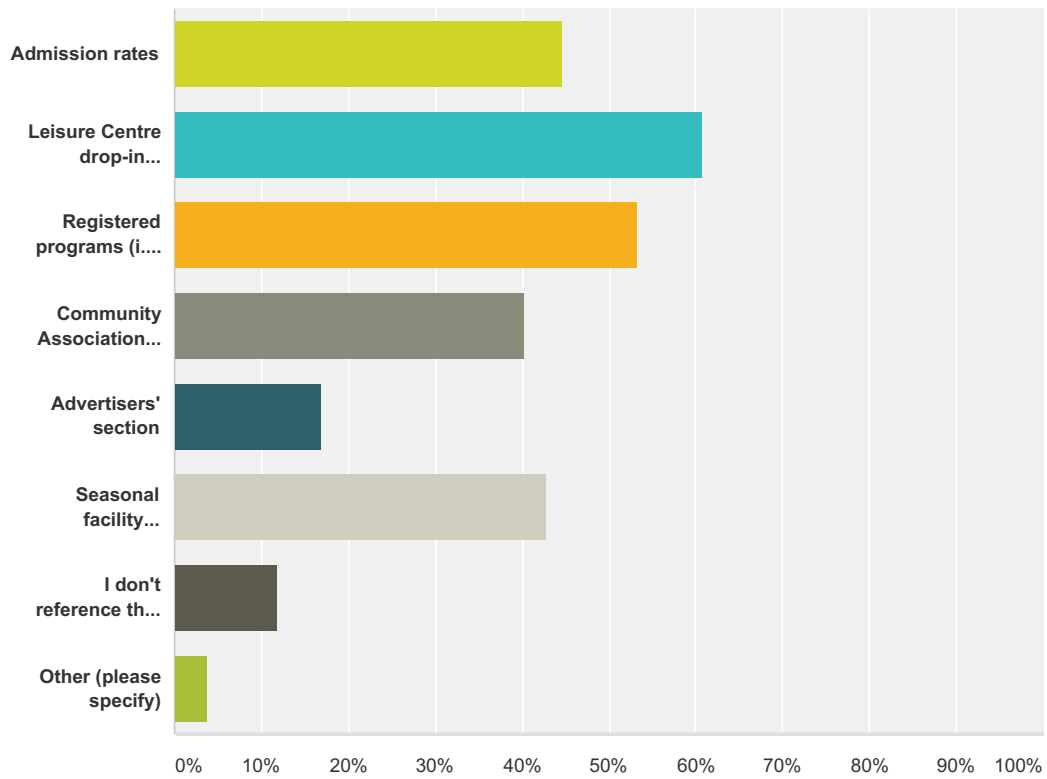
Answered: 474 Skipped: 27



| | 1 | 2 | 3 | 4 | 5 | Total | Weighted Average |
|---|--------------|--------------|---------------|---------------|--------------|-------|------------------|
| ★ | 16.24% 77 | 14.77% 70 | 25.95% 123 | 23.42% 111 | 19.62% 93 | 474 | 3.15 |

Q6 What sections of the Leisure Guide do you reference? (select all that apply)

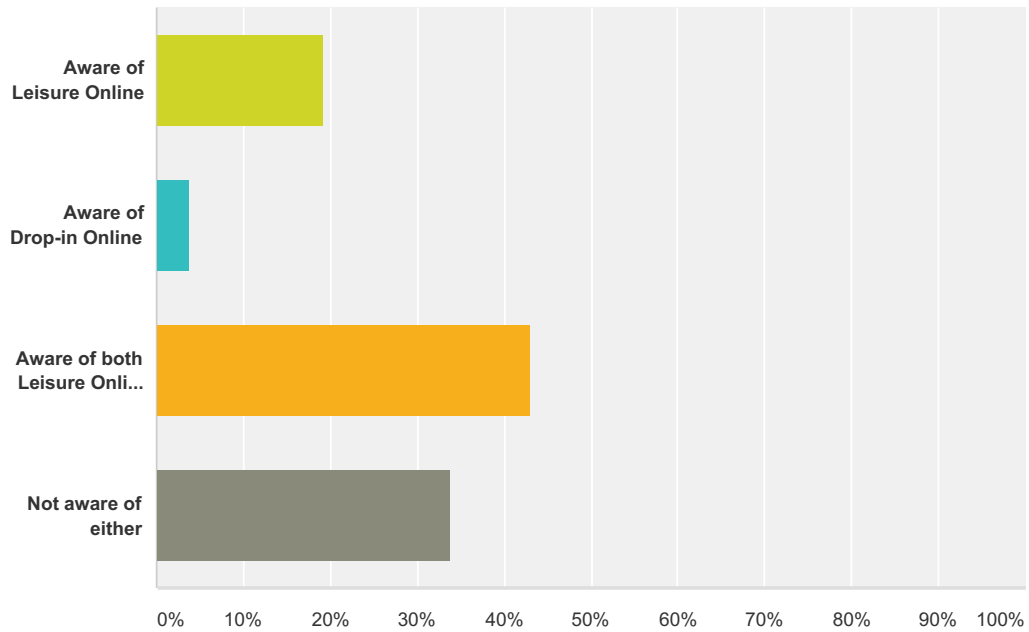
Answered: 474 Skipped: 27



| Answer Choices | Responses |
|--|------------|
| Admission rates | 44.73% 212 |
| Leisure Centre drop-in schedules (i.e. public swimming, fitness classes, etc.) | 60.76% 288 |
| Registered programs (i.e. swimming lessons, recreation programs, etc.) | 53.16% 252 |
| Community Association information | 40.30% 191 |
| Advertisers' section | 16.88% 80 |
| Seasonal facility information (i.e. rinks, golf courses, Saskatoon Forestry Farm Park & Zoo) | 42.83% 203 |
| I don't reference the Leisure Guide | 11.81% 56 |
| Other (please specify) | 3.80% 18 |
| Total Respondents: 474 | |

Q7 Are you aware you can access program information through Leisure Online and Drop-in Online?

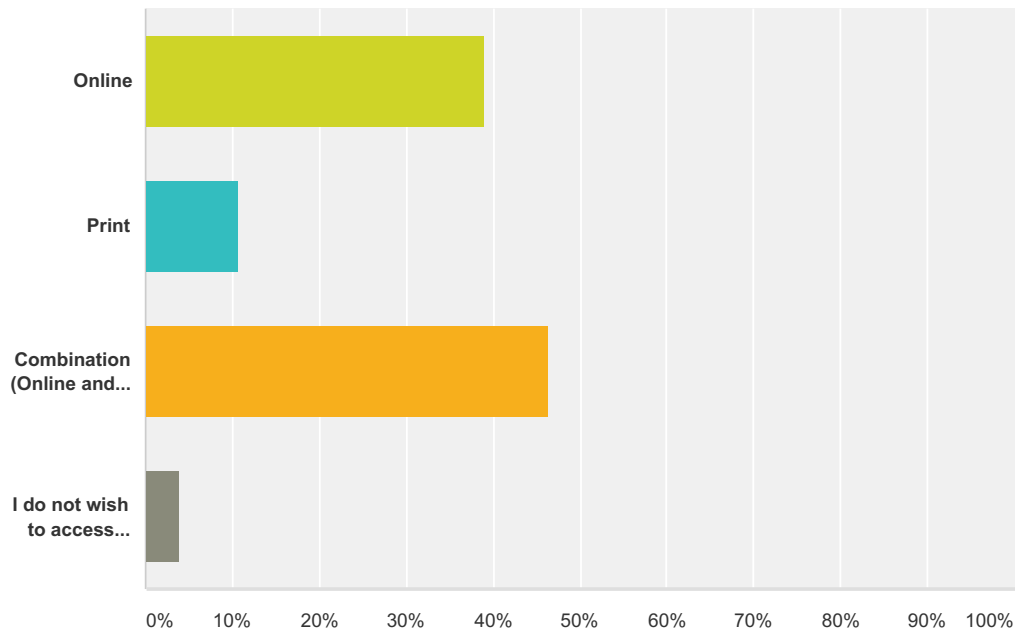
Answered: 492 Skipped: 9



| Answer Choices | Responses |
|---|------------|
| Aware of Leisure Online | 19.31% 95 |
| Aware of Drop-in Online | 3.86% 19 |
| Aware of both Leisure Online and Drop-in Online | 43.09% 212 |
| Not aware of either | 33.74% 166 |
| Total | 492 |

Q8 How would you prefer to access City of Saskatoon leisure program information?

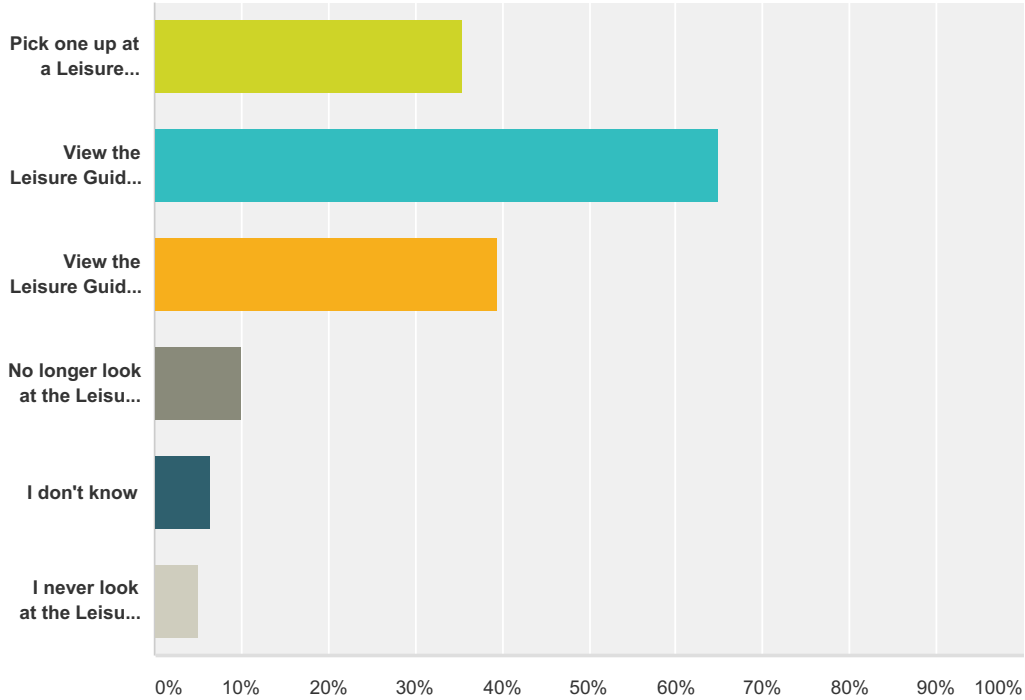
Answered: 491 Skipped: 10



| Answer Choices | Responses | |
|-------------------------------------|-----------|------------|
| Online | 39.10% | 192 |
| Print | 10.59% | 52 |
| Combination (Online and Print) | 46.44% | 228 |
| I do not wish to access information | 3.87% | 19 |
| Total | | 491 |

Q9 If the Leisure Guide was no longer delivered to your home would you prefer to... (select your top TWO choices)

Answered: 489 Skipped: 12



| Answer Choices | Responses |
|--|------------|
| Pick one up at a Leisure Centre or Saskatoon Public Library location | 35.58% 174 |
| View the Leisure Guide online at the City of Saskatoon website | 65.03% 318 |
| View the Leisure Guide on my mobile phone or tablet | 39.47% 193 |
| No longer look at the Leisure Guide | 10.02% 49 |
| I don't know | 6.54% 32 |
| I never look at the Leisure Guide anyway | 4.91% 24 |
| Total Respondents: 489 | |

Capital Project #1617 - Inspection and Condition Assessment of Primary Water Mains – Award of Engineering Services

Recommendation

That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

1. That the proposal submitted by Pure Technologies Ltd. for construction of access points, installation of permanent monitoring equipment, inspection, and condition assessment of primary water mains at an estimated cost of \$2,173,572.45 (including GST and PST) be accepted; and
2. That the City Solicitor be requested to prepare the appropriate agreement and that His Worship the Mayor and the City Clerk be authorized to execute the agreement under the Corporate Seal.

Topic and Purpose

The purpose of this report is to request City Council approval for the award of a contract to Pure Technologies Ltd.

Report Highlights

1. The City requested proposals from qualified, licensed, professional contractors to construct access points, install flow and pressure sensors, and conduct detailed engineering inspections for 3.86 km of high-priority primary water mains.
2. These inspections will provide critical information to the City that will be used to minimize the risk of future wide-spread service disruptions and system depressurization.
3. Administration recommends awarding the engineering services for the Inspection and Condition Assessment of Primary Water Mains to Pure Technologies Ltd.

Strategic Goals

Assessing the condition of water mains supports the Strategic Goals of Continuous Improvement and Asset & Financial Sustainability. Understanding the condition of primary water mains will allow for a proactive approach to water main maintenance, repair, or replacement. This information may lead to locations being strategically targeted for repair or replacement prior to them incurring failure, which leads to wide spread service interruptions, system depressurization, and lengthy and costly emergency repairs.

Background

Primary water mains are large-diameter buried pipes that distribute water to large areas of the city. In 2014, the City undertook a study to identify high risk primary water mains in order to prioritize them for condition assessment. Based on the results of that study,

the Administration selected 3.86 km of the highest priority mains for inspection and assessment.

Condition assessment and preservation of primary water mains is funded annually through Capital Project #1617.

Report

Request for Proposal

In August 2016, the City issued a Request for Proposals (RFP) to invite interested bidders to prepare and submit proposals for the construction of access points, inspection, and condition assessment of approximately 3.86 km of large diameter primary water mains.

The City required that the proposed inspection method be non-destructive, maintain normal operating pressures in water mains during inspections, and identify the quantity and location of pipe defects on an individual pipe segments basis. In addition, the scope of the proposals include the construction costs of infrastructure modifications that would be required to perform the inspections.

One proposal was received from Pure Technologies Ltd. The proposal meets the requirements set out by the City, and the cost is within the allocated budget. The total estimated net cost to the City is \$2,173,572.45. Costs are broken down into \$561,503 for inspection and condition assessment, \$796,152 for the construction of access pits, and \$713,687 for the construction of flow metering points. The Administration estimated the cost of inspection and condition assessment at \$500,000 based on comparisons with other cities. The costs quoted for insertion and extraction points and flow monitoring points are upset limits assuming that two insertion/extraction points and one monitoring point will be required per pipeline. The first phase of the project will be a desktop study and field inspection to determine the best points to access and monitor the pipelines. Depending on these findings, there may be opportunities to reduce the number of insertion/extraction points or to combine insertion/extraction and monitoring to one chamber. The Administration estimated the costs of insertion/extraction at \$100,000 per pit and the cost of monitoring points with permanent chambers at \$150,000 per point, the estimated costs compare closely with the quotes received.

Benefits

The 3.86 km of water mains proposed for inspection have an estimated replacement value of \$12.25M. Mains that were prioritized for inspection were selected based on consequence of failure. These mains are highly critical to the normal operation of the water distribution network. Due to their location and size, a failure would also mean potential for property damage, large scale and extended water outages and system depressurization, and for many locations major disruption of the City's traffic networks. A pipe failure along these segments would be considered a high consequence failure.

An example of this occurring in Saskatoon occurred in 2016, when a contractor inadvertently punctured a 1050 mm diameter primary water main on McOrmond Drive

near Fedoruk Drive in Evergreen. Although this was not a deterioration failure of the water main, the effects provide an example of what a primary water main failure would look like:

- Boil water advisories were issued to approximately 7800 residents. These advisories were in place for multiple days.
- Two temporary water fill stations were set up for residents to access clean water.
- Approximately 18.75 million litres of treated water was lost.
- Estimated cost of repairs to the water main and approximately 350 sq. m of roadway, is \$688,519.

This McOrmond primary water main rupture is considered a low consequence failure relative to other primary water mains. The mains selected for inspection as part of this project are in locations that have higher consequences if a failure was to occur. Failure at any of these locations would cause property damage, affect more residents and be more disruptive and more costly to the City.

Performing inspection work on these mains while in service is expensive. However, taking the main out of service to inspect is not a viable option. The data gathered from inspection and condition assessment will be used to develop a long-term strategy for preventive repairs and maintenance to avoid future high consequence pipe failures. The construction of the insertion and extraction points will be permanent and can be utilized for future inspections. The project will also include the installation of flow and pressure monitoring stations to provide the City ongoing data collection and calibration for modeling and assessment of the water distribution system.

It is recommended that the proposal submitted by Pure Technologies Ltd. for the inspection and condition assessment of water mains at an estimated cost of \$2,173,572.45 (including GST and PST) be accepted.

Options to the Recommendation

There is an option to not award the Request for Proposal. This is not recommended as the potential benefits outweigh the costs of the project.

Financial Implications

Having accurate condition data on water mains can lead to cost savings. These inspections will provide information to the City that will be used to reduce the risk of a catastrophic failure of a primary water main.

There is sufficient funding in Capital Project #1617 – Primary Water Mains to fund this project.

Capital Project #1617 Inspection and Condition Assessment of Primary Water Mains – Award of Engineering Services

The net cost to the City for the services that will be provided by Pure Technologies Ltd. is as follows:

| | |
|---|-----------------------|
| Inspection & Condition Assessment | \$ 561,503.25 |
| Construction of Insertion and Extraction Points | 796,152.00 |
| Construction of Pressure and Flow Metering Points | <u>713,687.00</u> |
| Total Proposal Price | \$2,071,342.25 |
| GST (5%) | <u>102,230.20</u> |
| Total Upset Fee | \$2,173,572.45 |
| GST Rebate | <u>(102,230.20)</u> |
| Net Cost to the City | <u>\$2,071,342.25</u> |

Communication Plan

Residents will be notified of any traffic restrictions or water disruptions in advance of work commencing.

Environmental Implications

In addition to evaluating the condition of water mains, the testing procedures used will detect leaks. Early detection of leaks will result in timely repairs, reductions in overall water loss, and reductions in overall energy use and greenhouse gas emissions associated with the treatment and distribution of potable water.

Other Considerations/Implications

There are no public and/or stakeholder involvement, policy, privacy, or CPTED implications or considerations.

Due Date for Follow-up and/or Project Completion

Project completion is anticipated for the fall of 2017 if the recommendation is adopted by City Council.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Report Approval

Written by: Stephen Wood, Manager, Water and Sewer Preservation
Reviewed by: Rob Frank, Engineering Manager of Asset Preservation
Reviewed by: Dan Willems, Director of Major Projects
Approved by: Jeff Jorgenson, General Manager, Transportation & Utilities Department

Combined Heat and Power Partnership with Saskatoon Health Region for St. Paul's Hospital

Recommendation

That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

1. That the City of Saskatoon enter into a Memorandum of Understanding with the Saskatoon Health Region for the purpose of studying the feasibility of a Combined Heat and Power plant at St. Paul's Hospital;
2. That the Office of the City Solicitor prepare the Memorandum of Understanding in accordance with the broad terms set out in this report, and that the Mayor and City Clerk execute the Memorandum of Understanding on behalf of the City of Saskatoon; and
3. That the Administration, in conjunction with the Saskatoon Health Region, issue a Request for Proposal to conduct a detailed feasibility study of the project economics and report the findings of the same to City Council.

Topic and Purpose

Saskatoon Light & Power (SL&P) and the Saskatoon Health Region are prepared to study the feasibility on a co-owned Combined Heat and Power (CHP) plant at St. Paul's Hospital. The proposed path is for the parties to enter into a Memorandum of Understanding and issue a Request for Proposal to contract an engineering consultant to conduct a detailed feasibility study.

Report Highlights

1. A CHP plant has the potential to reduce St. Paul's Hospital's operation and maintenance costs to generate building and process heat, and avoid future capital infrastructure replacement costs.
2. CHP plants produce both electricity and heat at the same time with less greenhouse gas emissions, and does so more efficiently than producing each separately.

Strategic Goal

This report supports the Strategic Goal to increase revenue sources and reduce reliance on residential property taxes, and to implement energy efficiency practices and reduce greenhouse gas emissions.

Background

The City currently operates and maintains three CHP plants located at the Landfill, Shaw Centre, and Lakewood Civic Centre.

Report

SL&P and the Saskatoon Health Region have started investigating the feasibility of a CHP plant at St. Paul's Hospital. Initial work has shown that a project with an investment of \$4.1 million has a high likelihood of success and a nine year payback.

A CHP plant produces both electricity and heat at the same time, and does so more efficiently than producing each separately. The CHP plant will produce electrical energy for SL&P and thermal energy for the hospital for use throughout their heating system. The goal of any CHP plant initiative is to reduce the operational and maintenance cost to generate heat, and avoid the capital cost for replacing aging steam boilers. For SL&P, the goal would be to create a new source of revenue generating electricity.

The purpose of the Memorandum of Understanding is to set the terms on which SL&P and the Saskatoon Health Region will work together to study the feasibility to build, operate, and maintain a CHP plant. SL&P and the Saskatoon Health Region will each contribute \$50,000 towards the feasibility study (\$100,000 total). The feasibility study work will include:

- 1) The installation of monitoring instrumentation to record actual heat demand in the hospital's heating circuits;
- 2) Contracting an engineering consultant through a Request for Proposal to:
 - a) size the CHP plant for optimal operation;
 - b) prepare preliminary engineering drawings and specifications; and
 - c) prepare a detailed capital cost estimate and economic analysis.

Initial work suggests that the project is financially viable.

| | |
|--|-------------|
| Net Present Value (100% cash, discount rate of 3.5%, 15 Year Project Term) | \$1,786,525 |
| Internal Rate of Return | 9.73% |
| Payback Period | 8.8 years |

A report on this initiative has been received by the Saskatoon Health Region Board of Directors. This project supports the Saskatoon Health Region Strategic Direction to focus on "Innovate for sustainability by redesigning healthcare delivery at a lower cost."

The Memorandum of Understanding sets the terms on which SL&P and the Saskatoon Health Region will conduct a detailed feasibility study of the project economics of a CHP plant initiative; it does not and would not commit the City to proceed with any development of a CHP at this time.

Options to the Recommendation

The City could choose not to participate in the project and the Saskatoon Health Region could proceed with the project on their own. This is not recommended by Administration as the Saskatoon Health Region is a significant client of SL&P, and potential annual

revenue loss from energy charges (without demand charges) could be \$11 million over the 15-year CHP plant lifetime.

Communication Plan

If the project proceeds, appropriate communication materials will be jointly prepared by the City and the Saskatoon Health Region to share the project details with residents. This may include website content, social media posts, and news releases.

Financial Implications

Sufficient funding for SL&P's \$50,000 contribution towards the feasibility study is available in approved Capital Project #1281 - Sustainable Power Generation Options.

Environmental Implications

By generating electrical energy and thermal energy together, Carbon Dioxide Equivalent (CO_{2eq}) savings for such a CHP plant are estimated at 3,000 tonnes per year, which is equivalent to removing 637 cars from the roadways.

Other Considerations/Implications

There are no public and/or stakeholder involvement, policy, privacy, or CPTED implications or considerations.

Due Date for Follow-up and/or Project Completion

The Request for Proposal will be issued in the first quarter of 2017. Administration will report back in late 2017 with further recommendations and details of the findings.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Report Approval

Written by: Nathan Ziegler, Sustainable Electricity Engineer
Reviewed by: Trevor Bell, Director of Saskatoon Light & Power
Approved by: Jeff Jorgensen, General Manager, Transportation & Utilities
Department

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Capital Project #2225 - WWT - Heavy Grit Groundwater Monitoring Program - Award of Engineering Services

Recommendation

That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

1. That the proposal submitted by Advisian WorleyParsons Group Canada for engineering services for the Heavy Grit Burial Site Groundwater Monitoring Program, for a total upset fee of \$137,835 (including GST), be accepted; and
2. That the City Solicitor be requested to prepare the appropriate agreement and that His Worship the Mayor and the City Clerk be authorized to execute the agreement under the Corporate Seal.

Topic and Purpose

The purpose of this report is to obtain City Council approval to award a proposal from Advisian WorleyParsons Group Canada (Worley), the highest rated respondent to the City's Request for Proposal (RFP), for a five-year Groundwater Monitoring Program at the Wastewater Treatment Plant (WWTP) Heavy Grit Handling Site.

Report Highlights

1. The WWTP, in compliance with the Permit to Operate, discontinued its previous practice for handling heavy grit on site.
2. The City conducted a Phase II Environmental Site Assessment of the area that had been used for handling heavy grit. Based on the Phase II results, a Risk Management Program and proposed annual sampling plan was submitted to the Water Security Agency, and approved.
3. Saskatoon Water issued an RFP to conduct a five-year annual groundwater monitoring program, to fulfill the terms of the Risk Management Program required by the Water Security Agency to satisfy the WWTP Permit to Operate. The proposal submitted by Worley was determined to be the most favourable to the City.

Strategic Goal

This report supports the Strategic Goal of Environmental Leadership through responsible land use and by ensuring land, previously supporting heavy grit handling operations, complies with environmental regulations while currently remaining undeveloped.

Background

Starting in 1971, grit and non-organic debris recovered from operations at the WWTP were buried west of the plant. From 1993, grit from City flusher trucks and private waste haulers was added to the substances handled at the site. By the late 1990s, the

area transitioned to a handling facility with the material being periodically moved to the Saskatoon Landfill.

The Heavy Grit Receiving Facility was constructed at the Saskatoon Landfill, which will result in no more material being deposited at the WWTP site.

Report

Current Practice Discontinued

To remain in compliance with the Permit to Operate, the WWTP discontinued its current practice of using the area west of the WWTP as a heavy grit handling site. The City designed and constructed the Heavy Grit Handling Facility at the Saskatoon Landfill where grit will be dewatered and disposed of.

Phase II Environmental Site Assessment and Risk Management Program

In addition to ceasing previous practices for handling heavy grit, the City recognized the need to develop a site rehabilitation plan. The Phase II Environmental Site Assessment determined the extent of past disposal activities, characterized the disposal materials, determined the movement of groundwater, and developed an action plan in cooperation with the regulatory body. The Phase II report was used to develop a Risk Management Program and help develop an annual groundwater sampling program in order to satisfy the terms of the WWTP Permit to Operate.

Request for Proposal

In November 2016, an RFP was issued for professional services to conduct a five-year annual groundwater monitoring program and update of the Risk Management Program of the disposal site west of the WWTP. The RFP called for groundwater monitoring, well inspections, consultation with the Water Security Agency, and further refinement of the submitted Risk Management Program.

Nine proposals were received and evaluated by Engineering Services staff and WWTP managers. A systematic evaluation of the proposals resulted in the proposal from Worley being selected as most favourable for the City.

The net cost to the City for the engineering services, as described above and within the proposal submitted by Worley, would be as follows:

| | |
|-----------------------|---------------------|
| 2017 Sampling Program | \$ 27,320.00 |
| 2018 Sampling Program | 25,433.00 |
| 2019 Sampling Program | 27,310.00 |
| 2020 Sampling Program | 24,660.00 |
| 2021 Sampling Program | <u>26,548.00</u> |
| Total Proposal Price | \$131,271.00 |
| GST (5%) | <u>6,564.00</u> |
| Total Upset Fee | \$137,835.00 |
| GST Rebate | <u>(6,564.00)</u> |
| Net Cost to the City | <u>\$131,271.00</u> |

Options to the Recommendation

The Administration could re-tender the work; however, this is not recommended as the proponent met all of the City's requirements and the cost is reasonable, considering the scope of work.

Financial Implications

Capital Project #2225 - WWT – Heavy Grit Burial Remediation provides funding for remediation of the heavy grit burial area adjacent to the WWTP. The project includes identifying locations of existing disposal sites and determining the most appropriate methods to deal with the buried material. There is sufficient funding available in this project.

Environmental Implications

The current Risk Management Program for the site involves a combination of engineering controls, administrative controls, and on-going groundwater quality monitoring to enable risk awareness.

This program will ensure that the annual groundwater monitoring program findings will address whether or not the accepted Risk Management Program provides adequate protection of human health and the environment, and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled through treatment, engineering, or institutional (administrative) controls.

Other Considerations/Implications

There are no public and/or stakeholder involvement, communications, policy, privacy, or CPTED implications or considerations.

Due Date for Follow-up and/or Project Completion

A report summarizing the results of the site sampling will be completed annually in March of the subsequent years. A meeting will then be scheduled with the Water Security Agency to discuss the findings of the Groundwater Monitoring and Risk Management Program Development. Depending on the findings and the recommendations given, Worley will provide an updated remedial action plan.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Report Approval

Written by: Pamela Hamoline, Project Engineer, Saskatoon Water
Reviewed by: Larry Schultz, Engineering Services Manager, Saskatoon Water
Reid Corbett, Director of Saskatoon Water
Approved by: Jeff Jorgenson, General Manager, Transportation & Utilities Department