



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

**Monday, March 13, 2017, 9:00 a.m.**

**Council Chamber, City Hall**

**Committee Members:**

**Councillor M. Loewen, Chair, Councillor H. Gough, Vice-Chair, Councillor T. Davies, Councillor S. Gersher, Councillor D. Hill, His Worship, Mayor C. Clark (Ex-Officio)**

**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 meeting held on January 31, 2017, be adopted.

**5. UNFINISHED BUSINESS**

**6. COMMUNICATIONS (requiring the direction of the Committee)**

**6.1 Delegated Authority Matters**

**6.1.1 Noise Bylaw Extension, Saskatchewan Blue Cross MS Walk, April 30, 2017, 10:00 a.m., Archibald Arena and Meewasin Valley trail, Rebecca Button, Community Engagement Coordinator [CK. 185-9]**

**7 - 7**

**Recommendation**

That the request for extension to The Noise Bylaw as outlined in 6.1.1 be approved subject to any administrative conditions.

**6.1.2 2017 Goals and Objectives - Saskatoon Environmental Advisory**

**8 - 9**

## **Committee [CK. 175-9]**

The Saskatoon Environmental Advisory Committee has approved the submission of its 2017 Goals and Objectives.

A letter regarding the Saskatoon Environmental Advisory Committee's 2017 Goals and Objectives, dated March 1, 2017 along with a request to speak is provided.

### **Recommendation**

That the 2017 Goals and Objectives of the Saskatoon Environmental Advisory Committee, dated March 1, 2017, be received as information.

### **6.1.3 Saskatoon Environmental Advisory Committee - GHG Subcommittee [CK. 375-4] 10 - 10**

A representative from the Saskatoon Environmental Advisory Committee will present a video on climate change in Saskatoon.

### **Recommendation**

That the information be received.

## **6.2 Matters Requiring Direction**

### **6.2.1 Municipal Heritage Advisory Committee - The Northeast Swale - Heritage Considerations [CK. 710-70 and PL. 718-42] 11 - 19**

The Municipal Heritage Advisory Committee is requesting that the report of the General Manager, Community Services Department, dated January 4, 2017, be forwarded to City Council for information and requests this report of the Municipal Heritage Advisory Committee be considered at the Standing Policy Committee on Environment, Utilities and Corporate Services when the Northeast Swale matter is on the agenda.

### **Recommendation**

That the information be received.

## **6.3 Requests to Speak (new matters)**

### **6.3.1 Meewasin Valley-wide Resource Management Plan [CK. 180-6] 20 - 170**

A request to speak from Eryn Tomlinson, Meewasin Valley Authority, dated February 14, 2017, is provided.

A PowerPoint presentation will be provided.

Due to the size of the attachment only an electronic copy is being provided as part of this agenda.

**Recommendation**

That the information be received.

**7. REPORTS FROM ADMINISTRATION**

**7.1 Delegated Authority Matters**

- 7.1.1 Development of the Swale - Response to Northeast Swale Watchers' 12 Points [CK. 4131-5 and PL. 181-14] 171 - 180**

A request to speak from Louise Jones, Chair, Northeast Swale Watchers, dated March 7, 2017, is provided.

**Recommendation**

1. That the information be received; and
2. That copies of this report be forwarded to the Standing Policy Committee on Planning, Development and Community Services and the Saskatoon Environmental Advisory Committee for information.

**7.2 Matters Requiring Direction**

- 7.2.1 Meewasin Valley Authority Northeast Swale - Special Conservation Area Designation [CK. 4131-5 and PL. 181-13-7] 181 - 187**

A PowerPoint presentation will be provided.

**Recommendation**

That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council that the Administration's intended approach to require Environmental Reserve dedication at the time of subdivision, where appropriate, be endorsed.

- 7.2.2 Diversity and Inclusion Annual Report 2016 [CK. 4500-1 and CP. 4690-1] 188 - 232**

**Recommendation**

That the report of the General Manager, Corporate Performance Department, dated March 13, 2017, be forwarded to City Council for information.

- 7.2.3 Equity Policy Review [CK. 225-40-9 and CP. 4690-001] 233 - 235**

### **Recommendation**

That the report of the General Manager, Corporate Performance Department, dated March 13, 2017, be forwarded to City Council for information.

#### **7.2.4 City Page / Weekly Public Notice Advertising [CK. 366-1 and CP. 5500-001] 236 - 240**

### **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 “City Page/Weekly Public Notice Advertising” for 2017 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 Hydropower Joint Ownership Project with Saskatoon Tribal Council [CK. 2300-1 and SLP. 2000-10] 241 - 253**

### **Recommendation**

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

1. That the Administration be directed to prepare a Memorandum of Understanding with the Saskatoon Tribal Council that outlines a joint ownership model to begin a feasibility study for a hydropower station in Saskatoon; and
2. That the Memorandum of Understanding be brought forward to the Standing Policy Committee on Environment, Utilities and Corporate Services, and City Council for City approval.

#### **7.2.6 Property Owner Payment Deferral Options for Mandatory Lead Service Line Replacements [CK. 7780-1, x 1930-1 and IS. 7820-0] 254 - 266**

### **Recommendation**

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

1. That City Council approve adding three-year deferral and

- five-year deferral options for mandatory Lead Service Line replacements to the existing payment options with a tax deferral program similar to The Low-Income Seniors Property Tax Deferral Bylaw, 2012; and
2. That City Council instruct the Solicitor's Office to prepare a new bylaw for this Lead Service Line replacement tax deferral program.

- 7.2.7 Budget Adjustment Request No. 2 - Capital Project 625-22 - Trunk Sewer - NE Sector - Lift Station to Central Avenue Trunk [CK. 7820-4, x 1702-1 and TS. 7820-1]** 267 - 272

**Recommendation**

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

That a budget adjustment of \$451,400 to Capital Project #625-22 – Trunk Sewer – Northeast Sector – MI – Force Main – UH2 – Lift Station to Central Avenue Trunk funded from the Trunk Sewer Reserve be approved.

- 7.2.8 Electric Vehicle Demonstration Project and Partnership [CK. 2000-1, x 7000-1 and SLP. 2000-12-4]** 273 - 277

**Recommendation**

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

That the Administration be directed to send a letter of support to the project partners for this initiative and allocate solar powered electricity purchased from existing customers on Saskatoon Light & Power's grid to meet the needs of the four electric vehicle charging stations until December 31, 2020.

8. MOTIONS (NOTICE PREVIOUSLY GIVEN)
9. GIVING NOTICE
10. URGENT BUSINESS
11. IN CAMERA SESSION (OPTIONAL)

## 12. ADJOURNMENT



185-9  
Saskatchewan Division  
#2- 706 Duchess St  
Saskatoon, Saskatchewan S7K 0R3  
Telephone: (306)-244-2114  
Toll Free: 1-800-691-0890  
www.mssociety.ca

City Clerk's Office  
222 – 3<sup>rd</sup> Avenue North  
Saskatoon, SK S7K 0J5

February 10, 2017

Dear, His Worship the Mayor and City Council Members,

The Saskatchewan Blue Cross MS Walk is coming up once again on Sunday April 30<sup>th</sup>, 2017 in support of the MS Society of Canada – Saskatchewan Division. Our event is mainly indoors at the Archibald Arena, however the Walk portion of the event is along the Meewasin Valley trail and kicks off at 10:00am with the North Saskatchewan Regiment Pipes and Drums playing just outside the Arena's overhead door. Since our kick-off is prior to the current bylaw time, I am requesting an extension of the Amplified Sound Bylaw for our event on Sunday April 30<sup>th</sup> for 10:00am.

We have been in contact with the Richmond Heights Community Association President who will be informing the community of our upcoming event at their next meeting and they will try to make a post through their social media pages as well.

Thank you,

A handwritten signature in blue ink that reads 'Rebecca Button'.

Rebecca Button  
Community Engagement Coordinator – North  
MS Society of Canada - Saskatchewan Division  
P: 306-244-2114 ext. 5052  
E: rebecca.button@mssociety.ca

March 1, 2017

Secretary, Standing Policy Committee on  
Environment, Utilities and Corporate Services

Dear Secretary:

**Re: 2017 Goals & Objectives – Saskatoon Environmental Advisory Committee  
(SEAC) [CK. 175-9]**

The Saskatoon Environmental Advisory Committee at its meeting held on February 9, 2017 approved for submission its 2017 Goals & Objectives to the Standing Policy Committee on Environment, Utilities & Corporate Services.

The Saskatoon Environmental Advisory Committee has provided advocacy and support for City of Saskatoon initiatives related to climate change mitigation and adaptation. The Committee acknowledges the work undertaken to date as part of the Covenant of Mayors (previously Compact of Mayors), including the completion of a comprehensive community greenhouse gas emissions inventory. The Committee looks forward to the development of a climate change action strategy as part of the City of Saskatoon's commitment toward the Covenant.

In 2017, SEAC has the following goals:

1. Support the City in the development of appropriate emissions' targets for community-wide greenhouse gas emissions reductions, including through engagement with expert stakeholders.
2. Advocate for the development of municipal practices and policies that support emissions reductions in the following domains:
  - (a) building codes
  - (b) energy efficiency including renewable energy programs, such as the Solar City project
  - (c) waste diversion, including city-wide organics diversion
  - (d) transportation
  - (e) other areas arising from target setting
3. In recognition of the role of public education and communication in achieving these goals, SEAC will continue to work towards the spring 2017 release of a short animated video on climate change in Saskatoon. Additionally, the Committee will continue to support the work of the partnership program Student Action for a Sustainable Future.

March 1, 2017

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4. Given their public value as carbon sinks and how they support climate resiliency, SEAC supports biodiversity and green spaces such as Meewasin.

The Committee respectfully requests the above matter be considered at the March 13, 2017 meeting of the Standing Policy Committee on Environment, Utilities & Corporate Services and also respectfully requests to speak.

Yours truly,



**Debby Sackmann, Committee Assistant**  
Saskatoon Environmental Advisory Committee

DRS:

cc: General Manager, Corporate Performance  
Director of Environmental & Corporate Initiatives

March 1, 2017

Secretary, Standing Policy Committee on  
Environment, Utilities and Corporate Services

Dear Secretary:

**Re: GHG Subcommittee Climate Change Video Presentation – Saskatoon  
Environmental Advisory Committee [CK. 375-4]**

Through partnership with Unite Digital the Saskatoon Environmental Advisory Committee has produced an animated video addressing climate change in Saskatoon. At its meeting held on February 9, 2017 the Saskatoon Environmental Advisory Committee resolved to present its video to the Standing Policy Committee on Environment, Utilities & Corporate Services for its consideration.

The Committee respectfully requests to present the above matter at the March 13, 2017 meeting of the Standing Policy Committee on Environment, Utilities & Corporate Services.

Yours truly,



**Debby Sackmann, Committee Assistant**  
Saskatoon Environmental Advisory Committee

DRS:

cc: General Manager, Corporate Performance  
Director of Environmental & Corporate Initiatives

January 12, 2017

Secretary, SPC on Environmental, Utilities and Corporate Services

Dear Secretary:

**Re: Municipal Heritage Advisory Committee Report for SPC on Environmental,  
Utilities and Corporate Services  
The Northeast Swale – Heritage Considerations  
[File No. CK. 710-70 and PL. 718-42]**

The attached report of the General Manager, Community Services Department dated January 4, 2017 regarding heritage considerations for the Northeast Swale was considered by the Municipal Heritage Advisory Committee at its meeting held on January 4, 2017.

The Committee raised concerns regarding the legal land survey and boundary establishment, and the expertise required to make comprehensive decisions regarding the Northeast Swale. The research and collection of information regarding key heritage elements was also discussed. It was noted that it would be premature to fully evaluate a potential heritage designation prior to the subdivision process. In addition it would be costly to survey the area at this time.

The Administration indicated that all stakeholders will be involved in any future discussions regarding heritage consideration. The Committee requested that they are provided updates regarding this matter.

Following consideration of this matter, the Committee supports that the report of the General Manager, Community Services Department, dated January 4, 2017, be forwarded to City Council for information and requests this report of the Municipal Heritage Advisory Committee be considered at the Standing Policy Committee on Environmental, Utilities and Corporate Services when the Northeast Swale matter is on the agenda.

Yours truly,



**Holly Thompson, Committee Assistant**  
Municipal Heritage Advisory Committee

HT

Attachment

cc: General Manager, Community Services Department  
Director, Planning & Development Division, Community Services Department  
Heritage & Design Coordinator, Community Services Department  
Ms. M. Schwab, Chair, Municipal Heritage Advisory Committee

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## The Northeast Swale – Heritage Considerations

### Recommendation

That a report be forwarded to the Standing Policy Committee on Environment, Utilities and Corporate Services recommending that the report of the General Manager, Community Services Department, dated January 4, 2017, be forwarded to City Council for information.

### Topic and Purpose

The purpose of this report is to provide information on protection and commemoration of the Northeast Swale.

### Report Highlights

1. The Northeast Swale is valued as one of the largest pieces of unbroken prairie, riparian forest, and wetland in the Saskatoon region.
2. Through various policies and plans, the Northeast Swale is currently subject to several levels of protection to mitigate any impact on this sensitive ecosystem.
3. Municipal Heritage Designation of the Northeast Swale would add another layer of protection to this site. Doing so, however, poses certain challenges at this time.
4. The Administration will undertake further consultation with the Meewasin Valley Authority (Meewasin), the Northeast Swale Watchers, and the Municipal Heritage Advisory Committee (MHAC) to evaluate appropriate designation and/or commemoration of the Northeast Swale's heritage elements.

### Strategic Goal

This report supports the City of Saskatoon's (City) Strategic Goal of Quality of Life. As a community, new and creative ways are found to showcase Saskatoon's built, natural, and cultural heritage.

### Background

At its February 4, 2015 meeting, MHAC received a presentation from Meewasin regarding the Northeast Swale Master Plan. Following the presentation, it was resolved that MHAC recommend that a review be undertaken for the potential of designation as a natural heritage site.

The Northeast Swale has been identified as a significant heritage resource through the Saskatoon Register of Historic Places.

## Report

### Description and Heritage Value of the Northeast Swale

The portion of the Swale located closest to the city of Saskatoon is referred to as the Northeast Swale (see Attachment 1). It is one of the largest pieces of unbroken prairie, riparian forest, and wetland in the Saskatoon region and has long been regarded as a significant environmental feature that has many unique ecological, hydrological, and hydrogeological characteristics.

The Northeast Swale contains many cultural heritage features still present and easily observed, including limestone quarries, kilns, and the Moose Woods-Batoche Trail, which played an important role in the settlement of Saskatoon and area in the late 1800s before the railway was extended to the city.

The Northeast Swale provides a variety of upland and wetland habitats; offers a large variety of plant species, birds, mammals, amphibians, reptiles, and insects; includes wetlands that provide a means of flood control for the surrounding community; and contains significant amounts of native prairie.

Additional information on the heritage value of the Northeast Swale is included in the property's Statement of Significance (see Attachment 2).

### Current and Pending Protection

The Northeast Swale is located in the Meewasin Conservation Zone and is owned by the City. Through various plans and policies, the Northeast Swale has several layers of protection to ensure retention of its ecological and cultural features. Meewasin began conducting research in the 1990s to determine the Northeast Swale's significance as a natural area. Subsequently, through the University Heights Sector Plan, the City designated the Northeast Swale as an important natural area.

A parallel report will address the designation of Northeast Swale lands as Environmental Reserve land during the subdivision process.

### Municipal Heritage Designation

Municipal Heritage Designation is another level of protection that could be put in place as a form of legal protection, conservation, and historic interpretation of the Northeast Swale. While it may be appropriate for the features relating to the Northeast Swale's natural and ecological significance (including its biodiversity and unique landscape characteristics), as well as features relating to its cultural value (including the limestone quarries, kilns, and trail remnants) to be protected and preserved, there are a number of challenges in doing so at this time. Two major issues include:

- i) Boundary Establishment - the boundaries of the Northeast Swale, while outlined in the University Heights Sector Plan, have not been formally established through the subdivision process. Municipal Heritage Designation requires that a bylaw be registered on the title of the property. This poses a significant challenge when

considering that the boundary of the Northeast Swale itself has not been created through formal subdivision.

- ii) Alteration Approvals of Natural Heritage – Through the *Heritage Property Act*, City Council has delegated the sole approval of any changes or alterations to the character-defining elements of a Municipal Heritage Property to MHAC. As the Heritage program moves to considering natural sites, such as the Northeast Swale for designation, it will be important to ensure that MHAC has access to the expertise and knowledge required to make comprehensive and complete decisions regarding ecological and/or biological resources.

### Future Consideration

The Administration will explore Municipal Heritage Designation and other forms of heritage recognition further in the coming years after the boundaries have been legally defined, capacity for rigorous approval has been established, and extensive consultation has occurred regarding which elements should be incorporated into any potential future designation. With the exception of Vancouver’s Stanley Park, large naturalized urban parks or areas across Canada, similar in nature to the Northeast Swale, have not received Municipal Heritage Designation or commemoration (see Attachment 3). While formally recognizing that the natural and cultural heritage value of the Northeast Swale would make Saskatoon relatively unique amongst other Canadian municipalities, it does present certain challenges and needs to be evaluated further.

### **Options to the Recommendation**

City Council may wish to pursue other options. In this case, further direction would be required.

### **Public and/or Stakeholder Involvement**

In addition to addressing the resolution of MHAC, this report addresses questions raised by other stakeholders, including the Northeast Swale Watchers.

### **Other Considerations/Implications**

There are no policy, financial, environmental, privacy, or CPTED implications or considerations; a communication plan is not required at this time.

### **Due Date for Follow-up and/or Project Completion**

No follow-up is required at this time.

### **Public Notice**

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

### **Attachments**

1. Location Plan
2. Statement of Significance
3. Canadian Urban Park Heritage Recognition Comparison

**Report Approval**

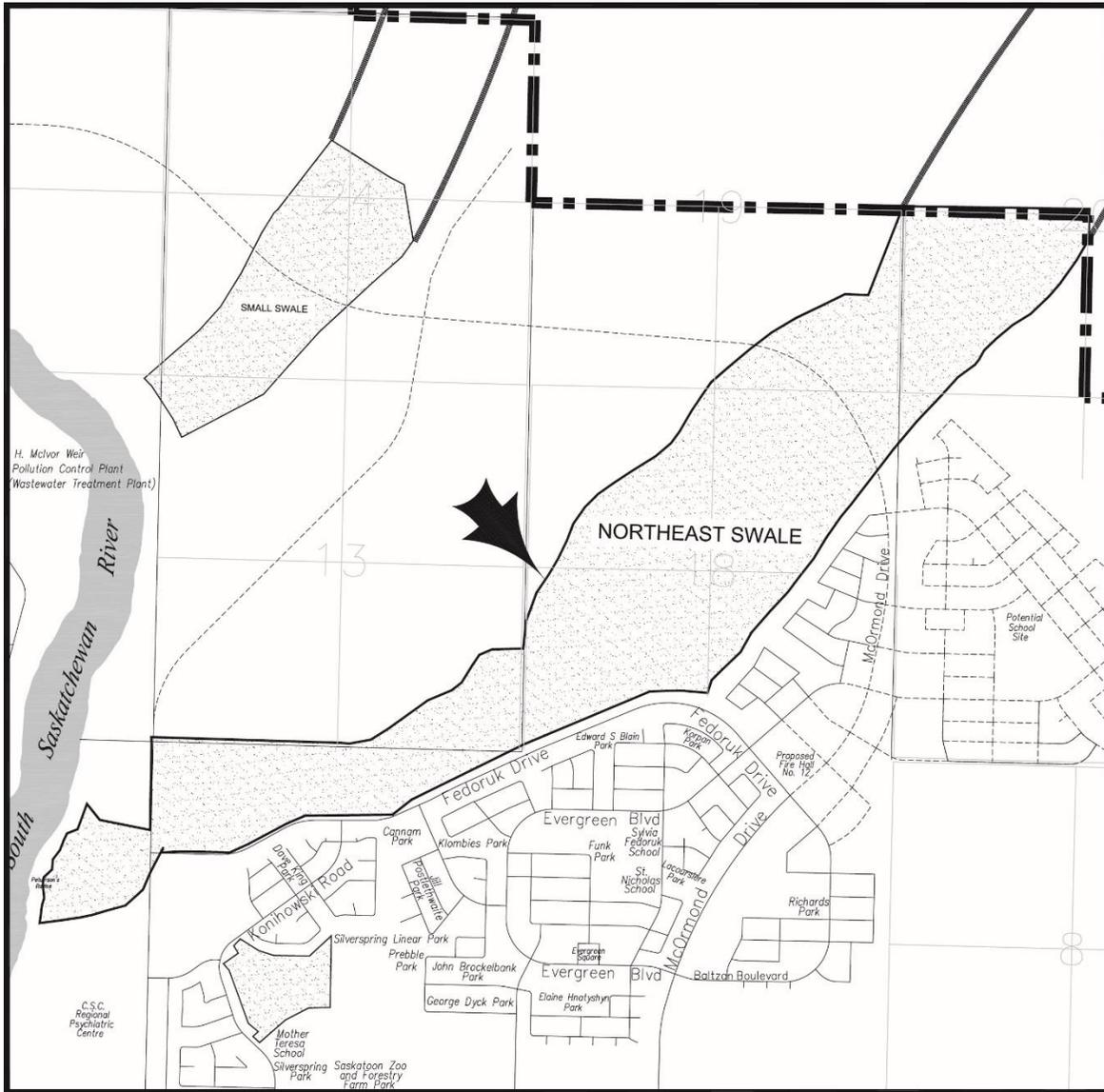
Written by: Catherine Kambeitz, Heritage and Design Coordinator, Planning and Development

Reviewed and

Approved by: Lesley Anderson, Acting General Manager, Community Services Department

S/Reports/2017/PD/MHAC – The Northeast Swale – Heritage Considerations/ks

### Location Plan



### LOCATION PLAN - NORTHEAST SWALE

 - SWALE



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## Statement of Significance

Northeast Swale

<b>Neighbourhood:</b>	-
<b>Designation:</b>	-
<b>Original Use:</b>	Natural Area
<b>Current Use:</b>	Natural Area



Source: City of Saskatoon

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### Description of the Historic Place

The Northeast Swale is a low-lying, ancient river channel that carves a path adjacent to the South Saskatchewan River. This ecological corridor connects Petursson's Ravine in Saskatoon to the greater swale northeast of the city, forming several connections with the South Saskatchewan River along its path. The Northeast Swale consists of an estimated 2,800 hectare (ha) natural area that contains a variety of environments, including steep rocky ridges, rolling prairie, lush valleys, treed areas, and wetlands.

### Heritage Value

Hundreds of years ago, the South Saskatchewan River flowed north and then east from the Saskatoon Forestry Farm Park and Zoo before connecting with the current river valley at Clark's Crossing. The river eventually moved on, leaving behind it a shallow, rock-strewn basin that stretches for 26 kilometers, called the Swale. There are many heritage features still present in the Swale that are easily observed, both within city limits (including limestone quarries, kilns, and the Moose Woods-Batoche Trail), as well as near Clark's Crossing.

The portion of the Swale located closest to the city of Saskatoon is referred to as the Northeast Swale. It is one of the largest pieces of unbroken prairie, riparian forest, and wetland in the Saskatoon region. It has long been regarded as a significant environmental feature having unique ecological, hydrological, and hydrogeological characteristics. The Northeast Swale:

- i) provides a large variety of upland and wetland habitats;
- ii) offers a vast variety of plant species, birds, mammals, amphibians, reptiles, and insects. The Northeast Swale is also home to several rare, endangered, or culturally significant species;
- iii) contains wetlands that provide a means of flood control for the surrounding community;

- iv) supports a wide variety of waterfowl, shore-land birds, and amphibian habitats;
- v) contains significant amounts of native prairie, including provincially-ranked rare species, such as *Lilium philadelphicum*, *Viola pedatifida*, and *Alisma gramineum*;
- vi) contains an assemblage of native species; and,
- vii) is dominated by western porcupine grass and northern wheatgrass. This association of mixed-grass prairie tends to transition into the fescue prairie. Fescue prairie once extended over a large portion of Canada, but less than 5% of its original expanse now remains in Saskatchewan.

The glacial rivers that formed the Northeast Swale deposited large limestone boulders, which were very useful for building, both for mortar and for the actual stones, as well as for fertilizer. Within the swale are boulders with splitting pins still intact, as well as boulders with drill holes, evidence of failed limestone quarrying.

The Moose Woods-Batoche Trail played an important role in the settlement of Saskatoon and area in the late 1800s before the railway was extended to Saskatoon. The Moose Woods-Batoche Trail entered Saskatoon from the south, and trail remnants are still visible within the Northeast Swale. The first settlers began to arrive in 1883, many choosing to travel along the trail from Moose Jaw rather than travel by way of the river. The trail was used by Métis and Sioux to travel to Batoche and Cree reserves near Duck Lake. During the North-West Rebellion of 1885, the Whitecap Sioux travelled this trail to join the Métis in Batoche.

The Northeast Swale is under the jurisdiction of the Meewasin Valley Authority (Meewasin). In 2013, Meewasin produced the Northeast Swale Resource Management Plan (Plan). The Plan calls for appropriate passive recreational activities and educational and research opportunities within the Northeast Swale. With native grasslands being one of the most imperilled ecosystems on the planet, the Northeast Swale contains considerable areas of native prairie grasslands and offers high-quality biodiversity, economic benefits for recreation and education, and a natural filter for air and water. As Saskatoon grows and expands, it is imperative that the ecological and historic value of the area continue to be protected and preserved.

Source: City of Saskatoon; Meewasin Valley Authority

### **Character-Defining Elements**

Key elements that contribute to the heritage value of this historic resource include:

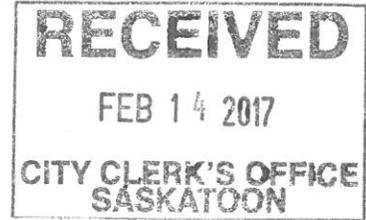
- i) those features that relate to its natural heritage, including its biodiversity and unique landscape characteristics; and
- ii) those features that relate to its historical value, including the limestone quarries, kilns, and trail remnants.

### Canadian Urban Park Heritage Recognition Comparison

Park Name	Recognition	Municipality	Size (ha)	Summary of Significance
Rouge National Urban Park (First National Urban Park in Canada)	National Park	Greater Toronto Area (GTA), ON (overlaps the cities of Toronto, Markham, and Pickering)	7,590	Contains natural, cultural, and agricultural landscapes with many remarkable features. Also includes tremendous biodiversity, some of the last remaining working farms in the GTA, Carolinian forests, marshes, beaches, and human history (including some of Canada's oldest known indigenous sites and villages).
Chadburn Lake Park	–	Whitehorse, YT	7,550	Encompasses alpine ecosystems, subalpine meadows, mixed-forest ecosystems, and portions of Croucher Creek. Includes an extensive network of First Nation trails within the park.
Northeast Swale	–	Saskatoon, SK	2,800	Contains large tracts of unbroken prairie, riparian forest, and wetland. Cultural heritage features include limestone quarries, kilns, and the Moose Woods-Batoche Trail.
Pippy Park	–	St. John's, NL	1,376	Contains some of the most important symbols of the province's culture with political, historical, cultural, educational, and natural elements.
Nose Hill Park	–	Calgary, AB	1,127	Contains valleys and lowlands carved out by ancient rivers and successive glaciers, archeological sites, including stone circles, fescue grassland and trees, shrubs, wildflowers, and wildlife.
Rockwood Park	–	Saint John, NB	890	Consists of a Stonehammer Geopark site, whose history can be seen in unique rock formations, caves, and waterfalls. The park has upland Acadian-mixed forest, many hills, as well as several freshwater lakes.
Pacific Spirit Regional Park	–	Vancouver, BC	874	Contains a spectacular foreshore and a richly dense forest with a variety of flora and fauna.
Stanley Park	National Historic Site	Vancouver, BC	405	Contains a densely-forested environment bordering the Pacific Ocean. Trees, animals, and birds are abundant, in addition to archeological evidence in the area.
High Park	–	Toronto, ON	250	Encompasses a large forested area and riparian zone with wildlife and rare plant species.
Point Pleasant Park	–	Halifax, NS	75	Contains preserved ruins of early fortifications, coastal ecosystems, as well as cultural resources.

180-6

**From:** City Council  
**Sent:** February 14, 2017 9:35 AM  
**To:** City Council  
**Subject:** Form submission from: Write a Letter to Council



Submitted on Tuesday, February 14, 2017 - 09:34  
Submitted by anonymous user: 142.165.131.160  
Submitted values are:

Date: Tuesday, February 14, 2017  
To: His Worship the Mayor and Members of City Council  
First Name: Eryn  
Last Name: Tomlinson  
Address: 402 Third Avenue Southe  
City: Saskatoon  
Province: Saskatchewan  
Postal Code: S7K 3G5  
Email: etomlinson@gmail.com

Comments:  
Presentation of the Meewasin Valley-wide Resource Management Plan (speaking)

We would like this report to go to SEAC (9th), EUCS (13th), and City Council in March 2017.

<https://www.dropbox.com/sh/60y9fjpwmxhdxkw/AABhKoxd1RR08LsKaJWDIPi5a?dl=0> (I can provide the document in other formats if necessary. Please confirm via email that you are able to open the document. Thank you.)

Meewasin is recognized locally, provincially, and nationally for its leadership in conserving, enhancing and managing the natural resources of the Meewasin Valley. In late 2015, Meewasin secured funding from Environment and Climate Change Canada to create a conservation action plan called the Meewasin Valley-wide Resource Management Plan (RMP) for the Meewasin Valley. The scope of the plan is regional and includes the area within a 15km buffer of Meewasin's jurisdiction. The RMP will guide Meewasin's conservation efforts over the next decade by identifying threats to the ecological integrity of the Meewasin Valley along with pragmatic and realistic strategies and actions to ensure the long term value of the natural resources of Meewasin Valley. The RMP was developed in partnership with the Nature Conservancy of Canada and engaged over 45 stakeholders during the process, including representatives from local municipal, provincial and federal ministries, non-government organizations, academic institutes, and special interest groups. The RMP aligns with Meewasin's 10-year Vision Document and 5-year Operational Plan.

The RMP has been vetted through all of Meewasin's advisory committees. This version of the RMP, while public, is intended primarily for agency partners, academic and internal use.

Four conservation targets were identified in the RMP and were assessed an overall rating of Fair condition. These targets include the river and creeks, swales, native grasslands and wetlands. Numerous threats for each conservation target were assessed and ranked according to its severity, irreversibility and scope. The largest threat to the Meewasin Valley is invasive species with a Very

High ranking overall. Threats that ranked High overall include dams and water management, stormwater, runoff of pesticides and fertilizers, suburban development, trespass issues, fire and fire suppression, and regional climate change.

The RMP identified over 180 key conservation actions for Meewasin to deliver over the next decade to mitigate these threats and improve the ecological integrity of conservation targets in the Meewasin Valley. Partnerships with various government agencies, non-government organizations, academic institutes and the general public are key to the successful implementation of this plan.

The RMP is intended to be a living document. It will be reviewed annually, with the conservation targets and threats updated based upon available information and action implementation reviewed, reported and updated. The RMP will serve as the guide for the renewal and development of site-specific resource management plans.

The results of this submission may be viewed at:  
<https://www.saskatoon.ca/node/398/submission/147425>

# Meewasin Valley-wide Resource Management Plan



2017 - 2027

Meewasin 

Date: March 2017

Authors: Eryn Tomlinson (Meewasin), Renny W. Grilz (Meewasin), and Matthew Braun (Nature Conservancy of Canada – Saskatchewan)

Meewasin Valley Authority

402 Third Ave South

Saskatoon, SK S7K 3G5

306-665-6887

meewasin@meewasin.com

meewasin.com

Meewasin Valley Authority

Created in 1979 by an Act of the Province of Saskatchewan, *the Meewasin Valley Authority Act*, Meewasin is a conservation agency dedicated to conserving the cultural and natural resources of the South Saskatchewan River Valley. It is the means by which the three participating parties (City of Saskatoon, Government of Saskatchewan, and University of Saskatchewan) have chosen to best manage the Meewasin Valley in the South Saskatchewan River Basin. The creation of Meewasin is based on the concept that the partners working together through a single agency – Meewasin – can accomplish more than they could individually.

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Over 60 people attended two workshops in Saskatoon and contributed their expertise and on the ground experience to the development of the plan. During the writing process other experts were consulted for data or further refinement including:

- Michelle Hanson, Quaternary Research Geologist, Saskatchewan Geological Survey, Ministry of Economy
- Jennifer Merkowsky, Senior Fisheries Ecologist, Fisheries Management Section, Fisheries Unit, Fish Wildlife and Lands Branch, Ministry of Environment
- Pam Minifie, Environmental and Municipal Management Services Division, Water Security Agency
- Jennifer Thompson, Archaeologist/GIS Specialist, Heritage Conservation Branch, Ministry of Parks, Culture and Sport
- Mike Watmough, Canadian Wildlife Service, Environment and Climate Change Canada

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## Glossary and Acronyms

Biodiversity (biological diversity) – The variety of life in the world, an ecosystem or habitat.

Conservation Target (Biodiversity Target) – An element of biodiversity, which can be a species, habitat, or ecological system that the project has chosen to focus on. All targets should collectively represent the biodiversity of the project (Conservation Measures Partnership 2013).

COSEWIC – Committee on the Status of Endangered Wildlife in Canada.

Key Ecological Attributes (KEAs) – “Aspect of a target’s biology or ecology that if present, define a healthy target and if missing or altered, would lead to the outright loss or extreme degradation of that target over time” (Conservation Measures Partnership 2013).

Hydro-riparian Areas – Rivers and creeks (flowing water bodies) from the stream bed up to top of bank including the riparian vegetation.

Land Trust – an organization (non-profit) that conserves land through land or conservation easement acquisition or by stewardship of the land.

Miradi – adaptive management software for conservation projects (Miradi 2016).

Meewasin RMP – abbreviated Meewasin Valley-wide Resource Management Plan.

NACP – abbreviated Natural Area Conservation Plan, the plans created by the Nature Conservancy of Canada. Similar to Meewasin’s Resource Management Plans.

NCC – abbreviated Nature Conservancy of Canada. Most often referring to the Nature Conservancy of Canada – Saskatchewan Region in this document.

RMP – abbreviated Resource Management Plan, a plan to inform and guide conservation activities within the Meewasin Valley.

Open Standards – a model for conservation planning that “brings together common concepts, approaches, and terminology in conservation project design, management, and monitoring in order to help practitioners improve the practice of conservation” (Conservation Measures Partnership 2013).

Planning Area (project scope) – Meewasin’s jurisdiction (within the City of Saskatoon and R.M. of Corman Park) with a 15 kilometer buffer applied.

Post-glacial channel scar (swale) – a remnant of glaciation consisting of glacial features such as ridges, glacial till and a series of wetlands (and high water table) resulting from the glacial meltwater channelizing to form an ancient river.

Resource Management (natural resource management) – is the management of land, water, air and species to achieve scenarios that are the most beneficial for the ecology of the region.

R.M. – Rural Municipality.

SARA – *Species At Risk Act*.

Swale – See Post-glacial channel scar.

## Executive Summary

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### Project Team and Purpose of Report

This project was completed in partnership with the Nature Conservancy of Canada – Saskatchewan Region (NCC). Meewasin’s Vision Document (2014-2024) identified the need for a comprehensive resource management plan for the Meewasin Valley. Funding was provided by Environment and Climate Change Canada’s Habitat Stewardship Program – Prevention Stream grant. During the early planning stages, it became apparent that the Nature Conservancy of Canada’s Saskatoon Prairie Natural Areas Conservation Plan was due for an update from its original 2008 version. A partnership was formed and this project utilized The Nature Conservancy’s Conservation Planning Model. Meewasin went through the process with NCC including stakeholder workshops, research, writing and presentations. Key differences in the organizations has lead to two plans: 1) the Nature Conservancy of Canada’s Saskatoon Prairie Natural Area Conservation Plan, which encompasses a large scope that uses ecodistricts as boundaries and within which lies Meewasin’s project scope; and 2) the Meewasin Valley-wide Resource Management Plan whose scope of a 15 kilometer buffer of Meewasin’s jurisdiction is much smaller and more urban than NCC’s plan. Not only are the scopes different, but each agency has a different mission and mandate and so the plans were focused to each agency’s purpose.

Meewasin intends to use this as a living document with updates captured as new information is received including six month data reviews and an annual update. The annual update will include a summary report on the work plan, detailed budgets, monitoring plan and actions check list, and updates to the viability assessment including any new data or status changes. This annual report will be presented to the Technical Advisory Committee and Meewasin’s Conservation Advisory Committee and communicated to the public.

### Methodology

#### Open Standards for the Practice of Conservation

The Open Standards for the Practice of Conservation were developed to standardize conservation project management. Standardization of conservation terms, definitions and categories of project components like strategies, targets, or threats allows projects to be more consistent, easily understood by all those involved (current and future project planners) and provide case studies for others in conservation planning. Many organizations have adopted the Open Standards model for conservation planning including The Nature Conservancy (U.S), the Nature Conservancy of Canada, World Wildlife Fund, the U.S. Fish and Wildlife Service, and Conservation International (CMP). The Open Standards model is continually improving and gives guidance to project planners in all stages of planning, no matter the scale of the plan.

The Open Standards model follows a five step process: 1) conceptualize; 2) plan actions and monitoring; 3) implement actions and monitoring; 4) analyze, use, adapt; and 5) capture and share learning (Conservation Measures Partnership 2013).



**Figure 1: The Open Standards model follows a five step process in guiding conservation planning practitioners (Miradi 2016)**

## Miradi

“Miradi – a Swahili word meaning “project” or “goal” – is a user friendly software program that allows nature conservation practitioners to design, manage, monitor, and learn from their projects to more effectively meeting their conservation goals, following a process laid out in the Open Standards for the Practice of Conservation” (Miradi 2016). Miradi is the software program that the Nature Conservancy of Canada uses, and that Meewasin is now using, to go through the Open Standards steps to complete the conservation plan. Miradi allows us to visually organize the conceptual model and threat and result chains. The real value of Miradi is that it allows an organization to input information (as little or comprehensive as they choose) and update their plans at any stage in the process.

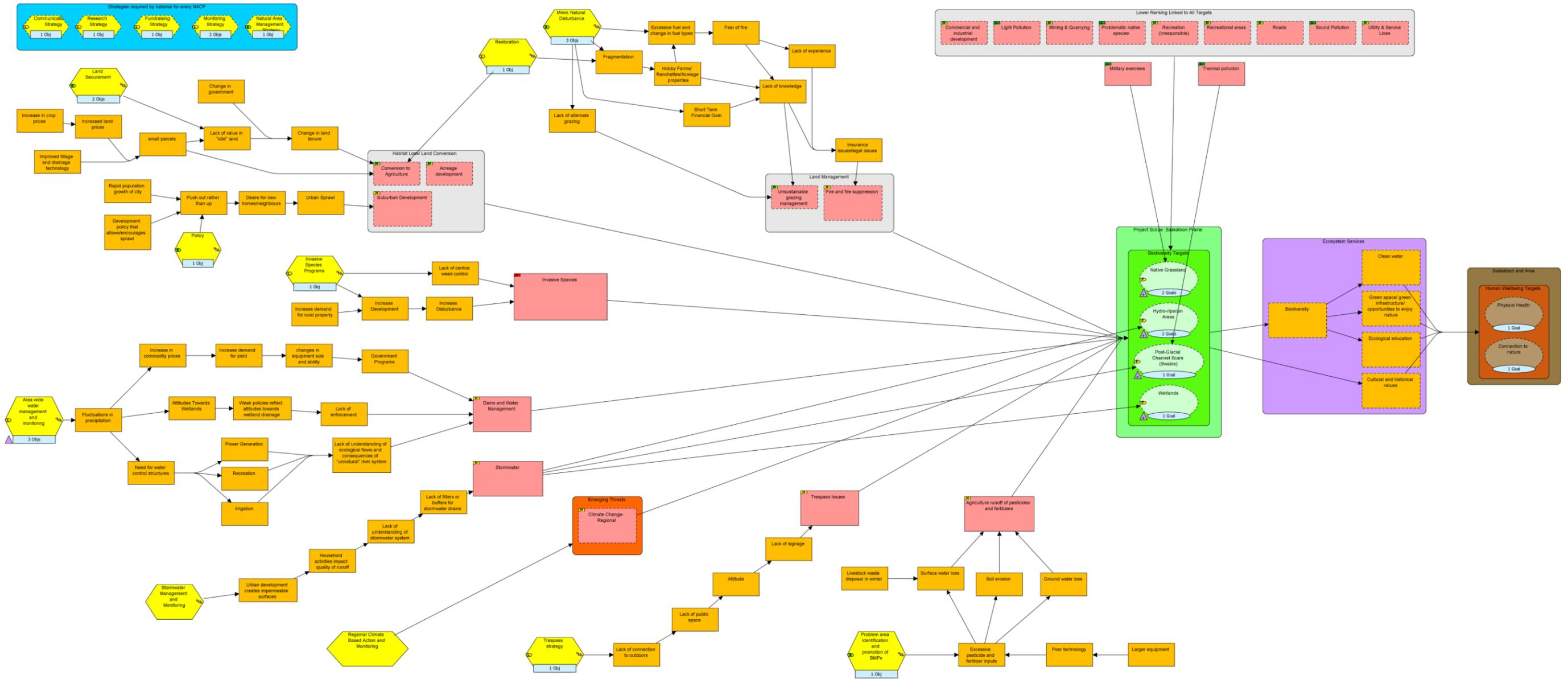


Figure 2: Conceptual Model for the Meewasin Valley-wide RMP as Depicted in Miradi

The conceptual model is used as a sort of mind map to explore the relationships between all of the components of the conservation planning process. Each box is able to be opened and contains more information including summaries, actions, objectives, indicators, etc. within the Miradi software. This is another way of thinking about the project and is included here as an example of Miradi’s capabilities. These relationships are explained in more detail throughout the Meewasin Valley-wide Resource Management Plan.

## Workshops and Stakeholder Input

Over 60 different people attended two full-day workshops led by Meewasin and the Nature Conservancy of Canada. Representatives from over 30 agencies were invited to attend to help determine the direction of the plans. Workshops were held in the fall of 2015: Workshop 1 at Saskatoon Wildlife Federation (October 23) and Workshop 2 at Wanuskewin Heritage Park (November 27). Workshop 1 focused on developing a list of conservation targets, key ecological features and indicators of those targets and threats to those targets. Workshop 2 reviewed the work done at the first workshop and built upon it, identifying top threats, goals, opportunities and constraints of conservation in the region, the conservation activities already in play, intervention points, and gaps (both in knowledge and work done by conservation groups).

Findings from the workshops were discussed in monthly meetings with the core team leaders who focused target definitions, refined threat rankings and expanded suggested activities. Both a technical advisory group and a steering committee reviewed the findings periodically and provided suggestions and comments that improved clarity.

*See Appendix B for “Stakeholders, Conservation Agencies, and Opportunities in Partnership”*

## Meewasin’s Vision

The Meewasin Valley Authority exists to ensure a healthy and vibrant river valley, with a balance between human use and conservation by:

- Providing leadership in the management of its resources;
- Promoting understanding, conservation and beneficial use of the Valley; and
- Undertaking programs and projects in river valley development and conservation,

for the benefit of present and future generations.

Meewasin has and will continue to apply the following five fundamental principles in planning the Valley:

- Valley's resources are accessible to everyone;
- Conserve natural and heritage resources;
- Recreation and development balanced with conservation;
- Diverse activities for a varied and changing demographic; and
- Public participation in decision making.

## Vision Statement for the Meewasin Valley-wide Resource Management Plan

Meewasin is the premier conservation agency and land trust in the region. Meewasin is a leader in the active conservation and enhancement of biodiversity, native species, habitats, and ecosystems through a strong and integrated resource management program. Awareness is created about the physical and mental health benefits provided through the conservation of these natural areas with increased opportunities for the citizens and visitors of the Meewasin Valley to connect with nature. Meewasin successfully partners with all jurisdictions, agencies, non-government organizations, volunteer groups, landowners, and the general public through a shared vision and united goal to enhance and maintain these ecologically connected landscapes of the region. Meewasin's resource management program is regionally, provincially, nationally and internationally recognized for its success in conserving the Meewasin Valley.

## Goals for the Plan

**Table 1: Future Status Goals of the Meewasin Valley-wide Resource Management Plan on Targets**

Goal
Awareness and education of conservation targets, threats and resource management activities are increased within the Saskatoon Region and provincially through successful completion of outreach activities.
Continue to ensure proposed developments are appropriately integrated into the Meewasin Valley by balancing human use and conservation through the <i>Meewasin Valley Authority Act's</i> Development Review Process.
Ecological health of conservation targets on Meewasin Conservation sites have improved by 20%, as determined through ecological health assessments, with progress underway in the Meewasin Conservation Zone.
Invasive species on Meewasin Conservation sites have significant reduction in cover and density (percent reduction depending on invasive species type), with progress underway in the Meewasin Conservation Zone.
Natural disturbance regimes including fire and grazing are employed on key Meewasin Conservation sites with a minimal goal of 15% disturbance per site per year.
Public access to nature and conservation of biodiversity habitat is improved with the addition of Conservation sites (5 additional sites, one site expanded) and an expanded Meewasin Conservation Zone.
Restoration of ecological integrity on Meewasin Conservation sites is continued with the development and implementation of site-specific restoration plans to address historically degraded conservation targets.

## Summary of Targets and Threats

See section 2.3 for the full threat analysis.

**Table 2: Threats to Conservation Targets within the Meewasin Valley-wide Resource Management Plan Scope**

Threats	Conservation Targets			
	Hydro-riparian Areas	Post-Glacial Channel Scars (Swales)	Native Grassland	Wetlands
Acreage development	✓	✓	✓	✓
Climate Change-Regional	✓	✓	✓	✓
Commercial and industrial development	✓	✓	✓	✓
Conversion to Agriculture	✓	✓	✓	✓
Dams and Water Management	✓	✓	✓	✓
Fire and fire suppression	✓	✓	✓	✓
Gathering of Plants	✓	✓	✓	✓
Invasive Species	✓	✓	✓	✓
Light Pollution	✓	✓	✓	✓
Military exercises	✓		✓	
Mining & Quarrying	✓	✓	✓	✓
Problematic native species	✓	✓	✓	✓
Recreation (Irresponsible)	✓	✓	✓	✓
Recreational areas	✓	✓	✓	✓
Roads	✓	✓	✓	✓
Runoff of pesticides and fertilizers	✓	✓	✓	✓
Sound Pollution	✓	✓	✓	✓
Stormwater	✓	✓		✓
Suburban Development	✓	✓	✓	✓
Thermal pollution	✓	✓		
Trespass Issues	✓	✓	✓	✓
Urban Riverbank Slumping and Slope Instability	✓			
Unsustainable grazing management	✓	✓	✓	✓
Utility & Service Lines	✓	✓	✓	✓

## 1. Background

### 1.1 Ecological Context

#### 1.1.1 Location and Size

Meewasin's Valley-wide Resource Management Plan is based on a 15 kilometre buffer of Meewasin's jurisdiction. Meewasin's jurisdiction is approximately 6,700 hectares, and with the 15 kilometre buffer, this brings the area of the planning scope to 294,184 hectares. Meewasin's jurisdiction is predominantly urban, centered in the City of Saskatoon and stretching outwards into the Rural Municipality of Corman Park.

The planning area is located within the Prairie ecozone and is dominated by glacial land formations. The Aspen Parkland ecoregion and the Moist Mixed Grassland ecoregion are located within the Prairie ecozone (Padbury et. al. 1998). The Aspen Parkland region, a mosaic of fescue grasslands and aspen groves, contains the Cudworth Plain and Waldheim Plain ecodistricts. The Moist Mixed Grassland, characterized by short and mid-grasses in mixed stands, contains the Elstow Plain, Goose Lake Plain, Minichinas Uplands, Moose Wood Sand Hills and Saskatoon Plain ecodistricts.

The planning area includes several ecodistricts (Goose Lake Plain, Saskatoon Plain) that are nearly level or gently undulating and glacial lacustrine deposits in origin (Padbury et. al. 1998). The majority of remaining native vegetation is found on the slopes of drainages. Some of the ecodistricts (Elstow Plain) are relatively level with some morainal landscape creating hummocky relief, where native vegetation may be found on the steepest of slopes or where the soil is too rocky for cultivation. These areas also contain numerous wetlands ringed by willows and sedges. The ecodistricts within the planning area with the most topographical relief include the Moose Wood Sand Hills and Minichinas Uplands (Padbury et. al. 1998). The majority of the native vegetation is found on the pastures and rangelands of the stabilized sand dunes of the Moose Wood Sand Hills with a small amount of native vegetation found on the steeper parts of the morainal upland of the Minichinas Upland. Other large blocks of native vegetation are found on community pastures in various ecodistricts; generally on the sandiest and, occasionally, very rocky soils. Throughout the planning area, ecodistricts are often described as having aspen where the water table is close to the surface (Padbury et. al. 1998).

See Appendix 1: Map 3

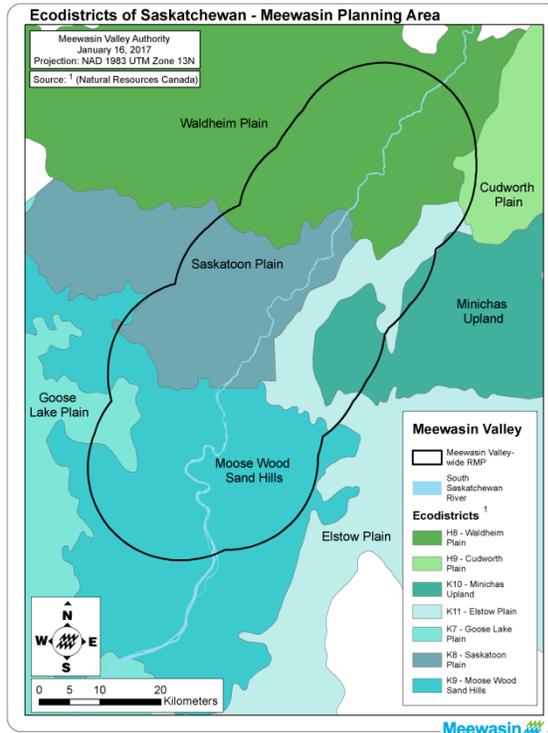


Figure 3: Ecodistricts of the planning area

### 1.1.2 Ecological Significance

According to Meewasin's "State of the Valley 2013 Assessment Report" the land within the Meewasin jurisdiction (with a 2 kilometre buffer) has lost 2.9% of habitat or potential for habitat lands over the past 15 years, while developed or disturbed lands have increased by 1.7%. Grasslands are the "world's most endangered ecosystem" (Kraus 2016). Grassland ecosystems represent 31-43% of the earth's terrestrial surface and have historically been one of the most productive and diverse terrestrial ecosystems (Gauthier and Reimer 2003). Human activity has modified these ecosystems to the point where all types of grasslands are now the most imperilled ecosystem on the planet (Gauthier and Reimer 2003). Native grasslands remain intact within this area only where soil types and slope steepness have limited agricultural development. With development pressure from increasing urbanization and demand for arable land increasing, natural habitats are being converted. Much of the large eolian deposits within the Moose Wood Sand Hills ecodistrict are vegetated with a mixed of native grasses and shrubs. These sandy soils have little value for arable agriculture, but are readily susceptible to development of acreages. To the north and east of Saskatoon, where the land is flatter and the soil texture finer, most of the easily cultivated land has been converted to arable agriculture; however, moraine deposits have limited cropping in some areas and remnant parcels of native habitat exist.



**Figure 4: Blue Grama Grass (*Bouteloua gracilis*) with Dotted Blazing Star (*Liatris punctata*)**

Within the planning area, a unique subset of Moist Mixed Prairie and Aspen Parkland called Fescue Prairie is considered to be one of the most threatened ecosystems in the Canadian Prairies (World Wildlife Fund 1988) and less than 5% of original Fescue Prairie in Saskatchewan remains (Grilz and Romo 1995). Fescue grasslands continue to disappear due to cultivation, tree encroachment and urban sprawl (Bailey and Anderson 1978). It has been suggested that Plains Rough Fescue (*Festuca altaica hallii*) may be critically endangered (Lamb 2016). Remnant parcels of Fescue Prairie remain in the north and south of the planning area. The Conservation Blueprint for Canada's Prairies and Parklands (Riley *et al.* 2007) identified the grassland/shrubland and sand hills of the Moose Wood Sand Hills and Goose Lake Plain ecodistricts, the moraine plain of the Minichinas Upland ecodistrict, and the glacial fluvial deposits of the Saskatoon Plains ecodistrict as ecologically significant. The Conservation Blueprint evaluated ecological systems on the landscape based on criteria of condition, diversity, ecological function, and special features. Those highest scoring ecological systems represent the best remaining ecological systems, and together with protected areas and conservation lands make the Conservation Blueprint portfolio. The Moose Wood Sand Hills ecodistrict has over 62% remaining natural cover and 41% of the ecodistrict lies within the Meewasin Valley-wide RMP scope (Riley *et al.* 2007). This ecodistrict has the highest percentage of natural cover in the Moist Mixed Grassland ecoregion of Saskatchewan. The sand hills south of Saskatoon were identified as one of the top ten scoring ecological systems for the entire Conservation Blueprint study area. Other ecodistricts of note in the planning area

include the Goose Lake Plain ecodistrict with 28% remaining native cover and the Minichinas Upland ecodistrict with 24% native cover. Other ecodistricts within the scope have between 22% and 13% native cover remaining.

Hydro-riparian areas, such as the South Saskatchewan River, provide significant ecological services to the surrounding ecosystems and value to humans in their role to provide clean water for drinking and recreation. According to the World Wildlife Fund, the South Saskatchewan River is one of the most threatened rivers in Canada, both in environmental flows (Swainson 2011) and overall health (World Wildlife Fund Canada 2016). “Environmental flows describe the quantity, timing and quality of water flows required to sustain freshwater and estuarine ecosystems and the human livelihoods and well-being that depend on these ecosystems” and it is with this definition that the South Saskatchewan River has rated as poor in environmental flows (Swainson 2011). Overall health of the Lower South Saskatchewan River watershed (within Saskatchewan) rated as very poor based on a set of four metrics: 1) water flow (very poor), 2) water quality (fair), 3) fish (data deficient) and 4) benthic invertebrates (fair) (World Wildlife Fund Canada 2015).



**Figure 5: Children learning about the importance of swales and wetlands at a Meewasin Ecoblitz (2012)**

Wetlands in Saskatchewan are lost at an alarming rate of 11.3 hectares (28 acres) per day (Hanbidge 2016). This has resulted in the total loss of 250,000 hectares of wetlands across the prairie pothole region of Saskatchewan in the last 50 years (Hanbidge 2016). “In some areas of the province, 90 per cent of wetland habitat is gone” (Ducks Unlimited Canada – Saskatchewan 2016). Remaining wetlands cover 1,757,514 hectares (Hanbidge 2016). This devastating blow is even more notable when we consider the benefits that wetlands provide including habitat for breeding and nesting birds, flood prevention (captures surface runoff), filtration of pollutants, and sources of water for wildlife. Post-glacial channels scars are equally significant, if not more so, as they are a complex of both native grasslands and wetlands and are somewhat rare in their occurrence.

**Table 3: Ecodistricts within the Meewasin Valley-wide RMP scope and estimated natural areas (%) remaining**

Ecodistrict	Total Area Within Scope (ha)	Total Area of Ecodistrict (ha)	% of Ecodistrict in Meewasin RMP	Estimated Natural Cover Left in Ecodistrict (%)	Estimated Natural Area Within Scope (ha)	Estimated Ecodistrict Natural Cover (%) in Meewasin RMP Scope
Moose Wood Sand Hills (K9)	89,508	216,067	41.4%	62.0%	55,495	18.9%
Waldheim Plain (H8)	81,155	412,250	19.7%	19.0%	15,419	5.2%
Saskatoon Plain (K8)	63,930	107,424	59.5%	22.0%	14,065	4.8%
Elstow Plain (K11)	32,435	482,448	6.7%	13.0%	4,216	1.4%
Minichinas Uplands (K10)	17,692	97,021	18.2%	24.0%	4,246	1.4%
Goose Lake Plain (K7)	7,113	511,442	1.4%	28.0%	1,992	0.7%
Cudworth Plain (H9)	2,351	232,563	1.0%	19.0%	447	0.2%
<b>Total</b>	<b>294,184</b>	<b>2,059,215</b>			<b>95,880</b>	<b>32.6%</b>

## 1.2 Key Conservation Data

### 1.2.1 Land Cover

Data for the ecosystem summary of land cover were obtained from Natural Resources Canada (Natural Resources Canada, 2009a). The data were clipped to the planning area and appropriate land cover types were dissolved into fewer categories (e.g. all the forest types combined into one treed cover category), reducing 17 land cover types to 10. The land cover type “Exposed” was added to “Barren/non-veg” as the ecological difference between the two was insignificant for the purposes of the plan. The land cover types “coniferous forest”, “deciduous forest”, “deciduous forest: dense”, “deciduous forest: open”, and “mixed forest: open” were combined into one land cover type called “treed cover”. Based on the location and observations from NCC, it seemed unlikely that there were significant differences between the various treed cover types to warrant separate classes. The “Wetland” and “Wetland Herb” cover types were combined into “Wetland” because the ecological difference between the two was insignificant for the purposes of the plan. The final step was to calculate the area for each new landcover category.

See Appendix A Map 4

**Table 4: Land Cover Types within the Planning Area**

Land-cover type	Area (ha)	Estimated Proportion of Meewasin's Planning Area
Annual Cropland	139,153.1	47.3%
Barren/Non-vegetated/Exposed	1,033.8	0.4%
Treed Cover	8,124.3	2.8%
Developed	12,776.5	4.3%
Grassland	33,565.4	11.4%
Herb	9,854.6	3.3%
Perennial Cropland & Pasture	71,213.6	24.2%
Shrubs	11,311.3	3.8%
Water	4,204.6	1.4%
Wetland	2,946.8	1.0%
<b>Total</b>	<b>294,184.0</b>	<b>100.0%</b>

### 1.2.2 Significant Species and Communities

Data for significant species and communities were obtained from a combination of observations recorded by staff, element occurrences provided by the Saskatchewan Conservation Data



**Figure 6: Northern Leopard Frog (*Lithobates pipiens*) at Wilson Island in the South Saskatchewan River (2015)**

Centre (CDC) (Saskatchewan Conservation Data Centre, 2014), and outside experts. Species were sorted by COSEWIC status, species type, and common name. The COSEWIC status, G-rank, N-rank, S-rank, Provincial legal status and Federal legal status of each species were noted along with any special concerns. Of the total 114 species listed as significant in the area there are 2 amphibians, 31 birds, 1 fish, 2 invertebrates, 5 mammals, and 73 vascular plants. Within the framework of COSEWIC there are 6 species listed as endangered, 12 threatened, 9 special concern, and 1 data deficient. Each species list was assigned to an associated target using the best available literature, external technical review committee, and internal expert review. All species were determined to be sufficiently represented with existing conservation targets.

See Appendix A Map 27

See Appendix C "Rare and Endangered Species"

### 1.2.3 Conservation Agencies and Opportunities

Within both Meewasin and the Nature Conservancy of Canada – Saskatchewan Region’s planning scopes, there are a wide variety of other agencies carrying out work that benefits conservation in the region. Many of these agencies also hold land within the area.



Figure 7: Aerial view of the Meewasin Northeast Swale (2015)

The following is a list of agencies or stakeholders that hold land for the purpose of conservation within the region:

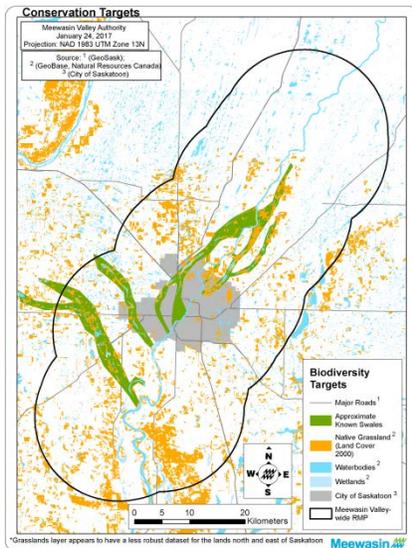
- Agriculture and Agri-food Canada;
- City of Saskatoon;
- Ducks Unlimited Canada;
- Department of National Defense;
- Environment and Climate Change Canada, Canadian Wildlife Services;
- Indigenous lands and communities;
- Meewasin Valley Authority;
- Ministry of Agriculture;
- Ministry of Environment;
- Ministry of Parks, Culture and Sport;
- Private landowners holding conservation easements;
- Rural municipalities;
- Saskatchewan Wildlife Federation and Saskatoon Wildlife Federation;
- University of Saskatchewan;
- Wanuskewin Heritage Park;
- Water Security Agency.

See Appendix 1 Map 5

## 2. Biodiversity Analysis

### 2.1 Conservation Targets

Four conservation targets were selected for the Meewasin Valley-wide Resource Management Plan and Saskatoon Prairie Natural Areas Conservation Plan including Native Grasslands, Hydro-riparian Areas, Post-Glacial Channel Scars (Swales), and Wetlands. Human well-being targets of Physical Health and Connection to Nature were also selected. The Prairie and



**Figure 8: Map of Conservation Targets in the Meewasin planning area**

Parklands Conservation Blueprint identifies native grasslands and wetlands as major components of the area. The ecosystem conservation targets identified occur at a variety of scopes, represent the major ecosystem types within the planning area and provide habitat for the nine G1-G3G4 species listed within our scope. Five conservation targets were proposed during the initial workshop, but following the second workshop, the proposed target of Northern Leopard Frogs was removed from the list of targets because it was deemed sufficiently nested within other targets. The proposed human well-being targets of urban green space and cultural heritage were introduced, but not explored during the workshops. These targets were subsequently reclassified as ecosystem services upon further research and new human well-being targets of Physical Health and Connection to Nature were proposed. The final targets were reviewed by Meewasin's Technical Advisory Committee who confirmed that they adequately represent the biodiversity of the area.

See Appendix A Map 12

#### Conservation Target: Native Grasslands

**Target definition:** Includes moist-mixed prairie, fescue prairie, eolian grasslands, shrub-lands with a mixture of native species, and marginal aspen forests. Each of these ecosystems has a similar set of species and varies mainly by soil texture and landscape complexity. Target is spatially delineated as native vegetation (provincially significant wetlands, evaluated wetlands and unevaluated wetlands).



**Figure 9: Prairie crocus (*Anemone patens*) at Wanuskewin Heritage Park (2015)**

**Habitat type:** Grassland – Temperate; Shrubland – Temperate

**Ecological justification:** The grasslands of North America have become one of the most threatened ecosystems on the continent (Gauthier and Wiken 2003) as native grasslands continue to be under threat from practices such as conversion to cropland, development activity, and degradation. Native Grasslands support rare species of plants and birds and ecosystem functions within the area. There are many high quality representations in the project scope including large patches of Rudy-Rosedale community pasture [former Prairie Farm Rehabilitation Administration (PFRA) pasture], the Canadian Forces Base Dundurn military base and smaller parcels of private land where soil or landscape prevent or delay cultivation and conversion. These grasslands provide important connectivity to wide-ranging mammals and migrating birds. The approximately 40% loss of grassland bird species over the last 40 years is attributed to the “continuing loss and degradation of native prairie through expansion of cropland, overgrazing, and invasion by alien vegetation” (White 2013). There are opportunities within the area to improve connectivity of existing grasslands by prioritizing converted arable parcels for restoration.

Conservation Target: Hydro-riparian Areas

**Target definition:** Includes named and unnamed streams, some of which may be ephemeral, which feed into the South Saskatchewan River. The target includes the bed of the stream or river, the land and vegetation adjacent to the bed that is influenced by the water and some of the area that may have been influenced by water in the hydro-riparian zone, but has since been converted to agriculture or domestic forages. These damaged riparian areas may still provide habitat or corridors to species in need of conservation. The riparian vegetation includes



**Figure 10: White-tailed deer (*Odocoileus virginianus*) at Chief Whitecap Park (2014) – Photo courtesy of Kneale Quayle Photography**

important species and community types such as the Eastern Cottonwood (*Populus deltoides*) and Green Ash (*Fraxinus pennsylvanica*) forests. The elevation within the planning area is relatively constant; therefore the morphology of the target does not change dramatically throughout the area. Stream targets change in size depending on their distance from the river. The South Saskatchewan River flows from the south to north through the project's scope with size, shape and

vegetation remaining relatively consistent. There is a significant barrier upstream (Gardiner Dam) and a smaller barrier (Saskatoon weir) within Saskatoon. Likewise, Opimihaw Creek and Brightwater Creek (two major streams within the planning area) are also dammed before entering the South Saskatchewan River. The target is spatially delineated as secondary, primary streams, and river as designated by the province's Water Security Agency.

**Habitat type:** Rivers, Streams, Creeks – Permanent; Rivers, Streams, Creeks – Seasonal/ Intermittent / Irregular; Riparian Areas

**Ecological justification:** Creeks and rivers within the planning area provide valuable and unique connected habitat in an area that is dominated by fragmentation and land conversion. Other important functions include maintaining and developing shorelines, reducing erosion and sedimentation, and filtering nutrients and contaminants (LaForge 2004). In terrestrial environments, riparian areas are the most productive type of habitat benefiting the largest number of species (Abouguendia 2001). They provide variable plant community structure, high spatial variability and corridors for migrating animals. Riparian areas provide nesting and foraging sites for migratory songbirds and critical habitat for wildlife.

Conservation Target: Post-Glacial Channel Scars (Swales)

**Target definition:** Post-glacial channel scars (swales) are a mixture of native prairie and wetland that have resulted from the scouring of glacial drainage. Post-glacial channel scars are defined by the deposition of glacial till resulting in rocky ridges and a high water table producing wet depressions in the landscape. This combination has deterred cultivation. The native prairie portions of these swales may include moist-mixed prairie, fescue prairie, shrub-lands with a mixture of native species, and marginal aspen forests. Each of these ecosystems has a similar set of species and varies mainly by soil texture and landscape. The target has begun to be spatially delineated through a series of studies by the City of Saskatoon and Meewasin, as well as partnering organizations, with boundaries established for the Small Swale and the Meewasin Northeast Swale (within Saskatoon City Limits). Many of these swales have been significantly impacted by agriculture, industrial and urban development.



Figure 11: Meewasin Northeast Swale (2015)

**Habitat type:** Wetlands – Seasonal / Intermittent Freshwater Pools; Wetlands – Permanent Freshwater Pools, Grassland – Temperate; Shrubland – Temperate

**Ecological justification:** The swales in and around Saskatoon serve many of the same ecological functions as wetlands and native grasslands. They provide necessary habitat for a variety of plant and animal species and provide forage for many different grazers. Additionally, swales act as corridors to move wildlife to and from the South Saskatchewan River.

## Conservation Target: Wetlands

**Target definition:** Most of the wetlands within the planning area are fresh water with some saline. Both permanent and seasonal wetlands are present within the scope, with seasonal wetlands being dependent upon yearly local precipitation and snow melt. Wetlands are dominated in some areas by cattails, sedges, and rushes with shrubs such as willows and snowberry in others. The difference may have more to do with landscape position and past disturbance than changes in climate or soil. Wetlands may exist in a matrix of cultivated fields, domestic pasture or hay land, and in native vegetation. Each of these ecosystems has a similar set of species and varies mainly by soil texture and landscape. The target is spatially delineated as native vegetation, provincially significant wetlands, evaluated wetlands and unevaluated wetlands.



**Figure 12: Horned Grebes (*Podiceps auritus*)**  
Credit: May Haga

**Habitat type:** Wetlands – Seasonal / Intermittent Freshwater Pools; Wetlands – Permanent Freshwater Pools; Wetlands – Permanent Saline, Brackish, or Alkaline Pools; Wetlands – Seasonal/ Intermittent Saline, Brackish, or Alkaline Pools

**Ecological justification:** Wetlands provide important functions for the landscape including maintaining shorelines, reducing erosion and sedimentation, filtering nutrients and contaminants, and increasing biodiversity (LaForge 2004). Above ground vegetation in wetlands filters sediments and pollutants

found in run-off. Root systems filter the underground movement of pesticide and fertilizer residues from cultivated uplands. Nutrients in runoff are often used in wetland plant growth and in some situations can slow the build-up of nutrients in the water and reduce the instances of dense algae blooms. Wetland areas typically have high biodiversity and support an array of terrestrial and aquatic species, notably waterfowl like ducks and geese. Southeast of Saskatoon, Ducks Unlimited Canada reports that there are as many as 23 breeding pairs per square kilometer in the Allan and Dana Hills and nearly 70% of North American's waterfowl migrate through Saskatchewan (Ducks Unlimited Canada – Saskatchewan 2016).

## Human Well-being Target: Physical Health

**Target definition:** Human health depends on clean water and clean air provided by the ecosystem as represented by the targets identified within the planning area. “Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (World Health Organization, 2016). According to the Conservation Measures Partnership, health is defined as including “being strong, feeling well, and having a healthy physical environment” (Conservation Measures Partnership, 2012).

**Habitat type:** All

**Ecological justification:** Meewasin and NCC support the provision of clean air and clean water for people by securing nature habitat and modified landscapes to conserve targets identified in the planning area. Conserving biodiversity targets provides ecosystem services such as carbon sequestration and pollination (providing and conserving pollinator habitat). Specific to human health, some of these ecological services include clean water, clean air and improvements to the physical health of the people within the planning area through passive recreation opportunities.



**Figure 13: Passive recreation: cross country skiers at Beaver Creek Conservation Area**

See Appendix A Map 14

#### Human Well-being Target: Connection to Nature

**Target definition:** Accessing nature to view and experience native vegetation, animals, and ecological processes is available for people of all genders, races, abilities, and economic backgrounds because of the ongoing conservation work carried out by Meewasin and NCC.



**Figure 14: A Black-capped Chickadee (*Poecile atricapillus*) enjoys some bird seed from a visitor to Beaver Creek Conservation Area**

**Habitat type:** All

**Ecological justification:** Meewasin and NCC provide access to native habitat for people to view plants and animals, and Meewasin provides numerous trails and interpretative opportunities by securing natural habitat and constructing green infrastructure (trails, picnic areas, naturalized parks, etc.) by conserving targets identified in the Meewasin Valley. Nature is important for both physical health (exercise, fresh air, Vitamin D) and mental health for all people. Conserving biodiversity targets provides

ecosystem services of native habitat that improve human health by reducing nature deficit disorder, defined as the growing disconnection between people and nature with increasing negative impacts including rising rates of attention disorders, obesity rates, both physical and mental illnesses as well as a lack of understanding of the natural world (Louv 2008). Green space or green infrastructure aids in human wellbeing and the conservation of biodiversity

targets provide such places. Examples of green infrastructure include city parks, conservation sites, community gardens, street trees, residential yards, green roofs, school yards, rain gardens, bioswales, and more.

See Appendix A Map 13, Map 14

**Table 5: Meewasin Sites and the Conservation Targets that are Present at each Site**

Meewasin and Associated Sites	Hydro-riparian Areas	Native Grassland	Post-Glacial Channel Scars	Wetlands	Access to Nature (Human Well-being)	Physical Health (Human Well-being)
Beaver Creek Conservation Area	✓	✓			✓	✓
Chappell Marsh		✓	✓	✓	✓	✓
Chief Whitecap Park	✓	✓			✓	✓
Cranberry Flats Conservation Area	✓	✓			✓	✓
Crocus Prairie	✓	✓			✓	✓
Floodplain Flats	✓				✓	✓
Fred Heal Canoe Launch	✓				✓	✓
Guenther Prairie	✓	✓			✓	✓
Maple Grove	✓				✓	✓
Meewasin Northeast Swale		✓	✓	✓	✓	✓
Meewasin Conservation Easements		✓	✓	✓	✓	✓
Meewasin Trail	✓				✓	✓
Paradise Beach	✓				✓	✓
Peggy McKercher Conservation Area	✓		✓	✓	✓	✓
Peturrson's Ravine	✓		✓		✓	✓
Poplar Bluffs Canoe Launch	✓				✓	✓
Saskatoon Natural Grasslands		✓		✓	✓	✓
Sutherland Beach	✓				✓	✓
University of Saskatchewan	✓				✓	✓
University of Saskatchewan Reclamation Land		✓	✓		✓	✓
Urban Riverbank	✓				✓	✓
Wanuskewin Heritage Park	✓	✓			✓	✓
Wilson Island	✓				✓	✓
Yorath Island	✓				✓	✓

## 2.2 Viability Assessment

To determine the current status or health of the conservation targets, a viability assessment was conducted. The identification of key ecological attributes (KEAs), defined as the “aspect of a target’s biology or ecology that if present, define a healthy target and if missing or altered, would lead to the outright loss or extreme degradation of that target over time” (Conservation Measures Partnership 2013), allowed Meewasin and NCC to develop a list of indicators to measure the status of the KEAs. Indicators must be measurable, precise, consistent and sensitive (Conservation Measures Partnership 2013). In the viability assessment indicators, KEAs and targets have their status ranked as poor, fair, good or very good. These status ratings are dependent on the thresholds set for the indicator, but general definitions for the status ratings are as follows:

“Very Good - The target is functioning in an ecologically desirable manner and requires little management.

Good – The conservation target is within the acceptable range of variation; some intervention may be required for maintenance.

Fair – The conservation target is outside the acceptable range of variation and requires human intervention. If no intervention occurs, the conservation target will be vulnerable to serious degradation.

Poor - Restoration is increasingly difficult. Current conditions may result in extirpation of the conservation target if the condition persists.” (Conservation Measures Partnership 2013).

See *Appendix D* for the full Viability Assessment including the thresholds.

Hydro-riparian areas rated as fair in health. Key ecological attributes of connectivity, ecosystem health and fish population rate fair, while water quality rated as good health. All indicators are to be maintained for future status objectives except for the riparian health assessment, which aims to improve from poor to fair and the percent buffer in permanent cover in which the objective is to improve to good from fair.

Native grasslands’ status rates as fair with connectivity (fair), ecosystem health (fair) and natural disturbance regime (poor) as the KEAs. Future improvements to indicators include filling the data gap in grassland bird population change (%) and increasing the annual extent of burning on agency land to fair from poor.

The viability assessment rates post-glacial channel scars’ health as fair with connectivity (fair) and ecosystem health (poor) indicators. All indicators should aim to maintain their status, except percent of swales with healthy amounts of permanent cover, which should have an objective to increase its percent within the poor category or improve to fair.

Wetlands rated as in fair health in the viability assessment. KEAs include density of wetlands (fair), diversity of wetland types (unknown) and ecosystem health (poor). Data gaps for

expected distribution of wetland types and aquatic invertebrate population need to be determined. All other indicators have future status improvements: annual rate of wetland loss from fair to good, percent of wetlands with healthy amounts of permanent cover from poor to fair, and the wetland health assessment ratings from poor to fair.

See Appendix D “Key Ecological Attributes”

**Table 6: Status of Key Ecological Attributes by Conservation Target**

<b>Target</b>	<b>Key Ecological Attribute</b>	<b>Indicator</b>	<b>Status (Poor, Fair, Good, or Very Good)</b>
<b>Hydro-riparian Areas</b>	Connectivity	Average length of undisturbed riparian areas	Fair
	Ecosystem health	Percent buffer in permanent cover	<b>Fair</b>
		Riparian health assessment	<b>Poor</b>
	Fish population	Presence data (% of baseline species present)	Fair
	Water Quality	Water Quality Index	Good
<b>Native Grassland</b>	Connectivity	Fragmentation of landscape with linear disturbances	Fair
	Ecosystem health	Percent change in population of grassland birds	<i>Unknown</i>
		Range health	<b>Fair</b>
	Natural disturbance regime	Annual extent of burning on Meewasin and conservation lands	<b>Poor</b>
<b>Post-Glacial Channel Scars (Swales)</b>	Connectivity	Fragmentation of swales with linear disturbances	Fair
		Percent of swales with healthy amounts of permanent cover	Fair
	Ecosystem Health	Percent of land cover in native habitat	Poor
<b>Wetlands</b>	Density of wetlands	Annual rate of wetland area loss	<b>Fair</b>
	Diversity of wetland types	Expected distribution of types of wetlands	<i>Unknown</i>
	Ecosystem health	Aquatic invertebrate population	<i>Unknown</i>
		Percent of wetlands with healthy amounts of permanent cover	<b>Poor</b>
		Wetland health assessment	<b>Poor</b>

## 2.3 Threats

A list of threats for this plan was based on the first generation NCC Saskatoon Prairie Natural Area Conservation Plan threats, several brain-storming sessions by the team members and the workshops held in Saskatoon in Fall 2015. During the first workshop, participants in different conservation target groups ranked the scope, severity and irreversibility of each threat on their target. Miradi software was used to convert those ratings into an overall project rating. The final package of threats and rankings was reviewed and approved by the Meewasin Technical Advisory Committee consisting of representatives from the conservation community. In focusing the project to Meewasin's scope, threats were re-evaluated from NCC's original threat rankings as the threats became more urban in nature with a smaller scope.

From the Open Standards for the Practice of Conservation:

“Scope - Most commonly defined spatially as the proportion of the target that can reasonably be expected to be affected by the threat within ten years given the continuation of current circumstances and trends. For ecosystems and ecological communities, measured as the proportion of the target's occurrence. For species, measured as the proportion of the target's population.

Severity - Within the scope, the level of damage to the target from the threat that can reasonably be expected given the continuation of current circumstances and trends. For ecosystems and ecological communities, typically measured as the degree of destruction or degradation of the target within the scope. For species, usually measured as the degree of reduction of the target population within the scope.

Irreversibility - The degree to which the effects of a threat can be reversed and the target affected by the threat restored.” (Conservation Measures Partnership 2013).

Threat rankings can be summarized based on the following:

Low – the threat is likely to slightly degrade or is narrow in scope (1-10% across occurrence) or easily reversed at low cost to restore (0-5 years). These threats can have easily attainable actions or objectives associated with them or may simply become less of a priority for the conservation plan.

Medium – the threat is likely to moderately degrade or is restricted in scope (11-30%) or is reversible with a reasonable commitment to restore (6-20 years).

High – the threat is widespread or will seriously degrade target (31-70%) or may be technically reversed, but may not be technically affordable to restore (21-100 years).

Very High – the threat is pervasive or may destroy the target (71-100%) and cannot be reversed and unlikely to be restored (100+ years) (Conservation Measures Partnership 2013).

**Table 7: Threat Ranking Summary for each Conservation Target**

Threats	Hydro-riparian Areas	Post-Glacial Channel Scars (Swales)	Native Grassland	Wetlands	Summary Threat Rating
Invasive Species	Very High	High	High	High	Very High
Climate Change-Regional	Very High	Low	Low	Medium	High
Dams and Water Management	Very High	High	Low	High	High
Fire and fire suppression	Low	High	High	Low	High
Runoff of pesticides and fertilizers	High	High	Low	High	High
Stormwater	High	High		Low	High
Suburban Development	Medium	Very High	Medium	Low	High
Trespass Issues	High	High	Medium	Medium	High
Acreage development	Medium	High	Medium	Low	Medium
Commercial and industrial development	Medium	High	Low	Low	Medium
Conversion to Agriculture	Medium	Low	Low	Medium	Medium
Mining & Quarrying	Low	High	Medium	Medium	Medium
Recreation (Irresponsible)	High	Medium	Medium	Low	Medium
Recreational areas	Medium	Medium	Low	Low	Medium
Road and Rail	Medium	High	Medium	Low	Medium
Thermal pollution	Medium	Medium			Medium
Unsustainable grazing management	Low	Medium	Medium	Medium	Medium
Utility & Service Lines	Medium	Medium	Low	Low	Medium
Light Pollution	Low	Medium	Low	Low	Low
Military exercises	Low		Low		Low
Problematic native species	Low	Low	Low	Low	Low
Sound Pollution	Low	Low	Low	Low	Low
Urban Riverbank Slumping and Slope Instability	Low				Low

## Very High Threats

### **Invasive Species**

Invasive species are species that are not native to a specific location, are accidentally or intentionally introduced; have a tendency to spread; and may cause damage to the environment, economy or human health. Invasive species can include plants, animals, insects, invertebrates, fungi, bacteria and diseases. Not all introduced species are invasive; it is



**Figure 15: Leafy Spurge  
(*Euphorbia esula*)**

estimated that between 5% to 20% of introduced species may become problematic (IUCN, n.d.). The International Union for the Conservation of Nature ranks invasive species as the second largest threat to biodiversity globally, after habitat loss and fragmentation. Invasive species can have detrimental effects on society, the economy and the environment through: negative impacts on biodiversity; species decline and extinction; soil degradation and erosion; alteration of fire cycles; disease; human or animal suffering; reduction of land and water recreational opportunities; significant control and management costs incurred; reduced productivity in forestry, agricultural, and fishing sectors; export and import trade restrictions; and reduction of property values (Environment and Climate Change Canada). In

Saskatchewan, the Ministry of Agriculture's *Weed Control Act* and the Ministry of Environment's *Fisheries Act* and their associated regulations identify and list invasive species that are prohibited from entering the province, species identified for eradication and control, and requirements of municipalities and landowners to deal with noxious weeds. Many invasive species have invaded and have a significant impact to the conservation targets within the planning area and Meewasin's Conservation Zone. Some significant invasive species found within the region include Wild Boar (*Sus scrofa*), Leafy Spurge (*Euphorbia esula*), Purple Loosestrife (*Lythrum salicaria*), Scentless Camomile (*Matricaria perforata*), Common Tansy (*Tanacetum vulgare*), Ox-eyed Daisy (*Leucanthemum vulgare*), Absinthe (*Artemisia absinthium*), European Buckthorn (*Rhamnus cathartica*), Kentucky Bluegrass (*Poa pratensis*), Smooth Brome (*Bromus inermis*), Wild Parsnip (*Pastinaca sativa*) and Crested Wheatgrass (*Agropyron cristatum*). New and emerging invasive species threats that are found outside of the region but are spreading towards the area include: Zebra mussels (*Dreissena polymorpha*), Quagga mussels (*Dreissena bugensis*), Prussian Carp (*Carassius gibelio*), Dutch Elm Disease, Emerald Ash Borer (*Agrilus planipennis*), Diffuse Knapweed (*Centaurea diffusa*), Russian Knapweed (*Centaurea repens*), Flowering Rush (*Butomus umbellatus*), and Downy Brome (*Bromus tectorum*). Saskatchewan Conservation Data Centre's iMap Invasives Program has been established to document and track invasive species in the province.

As native grasslands, wetlands and hydro-riparian areas are more widespread, the scope of the threat is rated as high. However, the scope of the threat to post-glacial channel scars is ranked as very high, suggesting that invasive species will affect the target across much of its

occurrence. Additionally, a scope ranking of high was determined for post-glacial channel scars due to the smaller number of known swales and their proximity to the fringe between urban and rural. This interface provides the potential for both agricultural and ornamental invasive species. Severity was ranked as high for all conservation targets, suggesting that invasive species will seriously degrade the target over the next decade. Irreversibility was ranked as high for native grasslands, wetlands and swales, proposing that the threat may technically be reversed. This reversal may be cost-prohibitive and can take anywhere from 21-100 years to achieve. However, the irreversibility of invasive species on hydro-riparian areas was ranked as very high signifying that it is either irreversible, unlikely to be reversed or may take over 100 years to do so. Removal of aquatic and riparian invasive species can prove very difficult and for some species, may require drainage of the river or tributary. This would be impossible for a river like the South Saskatchewan River, especially since the largest city in the province relies on it for all of its water needs (drinking, bathing, support of power generation, etc.) and Saskatchewan relies on it to operate the Coteau Creek Hydroelectric Station at the Gardiner Dam.

See Appendix A Map 15

## High Threats

### **Climate Change - Regional (Emerging Threat)**

The impact of climate change on the ecosystems and natural processes within the scope of the management plan is difficult to measure and rank, but likely to be a serious issue in the next fifty years and was therefore designated an emerging threat. Some predicted changes include milder, short winters with more precipitation in the form of rain; earlier summers; and a longer autumn (Sauchyn and Kulshreshtha 2008). Summers will be generally drier with less surface and soil moisture and weather events like droughts and flooding will be more frequent and severe (Sauchyn and Kulshreshtha 2008). Ecozone and ecoregion shift may occur with the forest and grassland boundaries edging northward (Sauchyn and Kulshreshtha 2008). Additionally, Saskatchewan will be at increased risk for exotic invasive species (Thorpe 2011). Climate change adaptation will be an overarching theme of the work Meewasin does within the Meewasin Valley as we learn more about its impact on Saskatchewan and the world.



**Figure 16: Crowfoot Violet (*Viola pedatifida*), a rare species, in the Meewasin Northeast Swale (2013)**

## Dams and Water Management

All rivers and major creeks within the scope of the Meewasin Valley-wide Resource Management Planning Area have been dammed or diverted in some way. The dams are used primarily for water retention in the reservoirs (Lake Diefenbaker, Brightwater Creek Reservoir, and Saskatoon weir) and for hydroelectric power generation. Uses of the Lake Diefenbaker reservoir include recreation, diversion to the Qu'Appelle River, human use for drinking and household use, and for diversion to crop irrigation. Wetlands are frequently drained and diverted in our scope as well; mostly for agricultural production and new housing developments. Historically, natural flows on the South Saskatchewan River pre-dam (1967) would have had peaks in April-May (prairie snowmelt and ice break up) and in June (melt of the glacial headwaters and mountain snowpack) (Pomeroy et. al. 2009). With the controlled flow regime, the natural flooding cycles that provide channel maintenance or flushing flow are removed (Reiser et. al. 1990). These flushing flows help to regenerate riparian vegetation such as Eastern Cottonwoods (*Populus deltoides*) (Begg 1997), clean the silt out of the gravel/cobble beds for fish spawning, and back-flooding to allow aquatic organisms to travel up the various creeks such as Opimihaw Creek and Brightwater Creek (Reiser et. al. 1990). With predicted increased variability in climate (Pomeroy et. al. 2009) and expected population growth, demand for water for irrigation, power generation and human use may increase.

The scope of this threat for wetlands and post-glacial channel scars (swales) is high as most in scope are affected and low for native grasslands. However, scope of hydro-riparian areas is very high as all are affected by water management controls in some form. Severity is high for both wetlands and swales as drainage or diversion would cause significant disturbance. The rating is very high for hydro-riparian areas and low for native grasslands as they are less likely to be damaged (all rivers and creeks are already dammed and native grasslands are not as likely to be flooded out). Irreversibility is high for hydro-riparian areas, wetlands and native grasslands (hydro-riparian areas unlikely to ever be un-dammed or unmanaged, flooded grasslands will have a vegetation shift to wetland/riparian vegetation types, and prairie species are adapted to drought). Swales may be more likely to recover because early seral aquatic vegetation establishes easily and so irreversibility is medium.

See Appendix A Map 22

## Fire and Fire Suppression

The threat of excessive fire and fire suppression is defined as times when the frequency of fire on a conservation target is outside the natural fire return interval; i.e. when burning occurs more or less often than expected with a natural fire regime. This



**Figure 17: Meewasin's Resource Management Officer, Renny Grilz, lights up native prairie with the drip torch during a prescribed burn (November 2016)**

threat manifests itself in the planning area most often when ephemeral wetlands are burned every year or when pastures are never burned. The impacts of an altered fire regime include encroachment of shrubs and trees, leading to a lack of variety in habitat structure for wildlife of the area (Gross and Romo 2010); a buildup of fuel, resulting in an increased risk of catastrophic wildfire; and reduced habitat for some bird species (Richardson et al 2014).

The scope of this threat is considered very high for native grasslands, post glacial channel scars and hydro-riparian areas and medium for wetlands because very little prescribed fire is currently applied in the planning area. The majority of burns are occurring on ephemeral wetlands either before seeding or after harvest of adjacent crops. Severity is rated as high for post glacial channel scars and native grasslands and medium for all others. Lack of fire has allowed aspen (*Populus tremuloides*) and shrub to encroach on the few patches of remaining fescue prairie within the planning area (Bailey and Anderson 1978, Romo 2003). This changes the composition of these sites from grassland to a higher percentage of woody species, thus changing the microclimate from a drier to wetter microsite. The irreversibility is medium for post glacial channel scars and native grasslands and low for hydro-riparian areas and wetlands. There is some evidence that a one-time return of fire can significantly alter the plant species composition, structure, and diversity of the burned area in as little as three years after burn (Antos, 1983), but there is no clear indication if pre-settlement conditions are restored. Overall this threat is rated as high.

### **Runoff of Pesticides and Fertilizers**

Runoff was defined as nutrients, pesticides, and soil sediments that originate on or were intended for arable cropped fields and waste materials that escape livestock operations. These materials leave fields through the erosion of soil particles, runoff with dissolved nutrients or pesticides, or drift of pesticides during application. Impacts of this threat may be cumulative and impact hydro-riparian areas downstream of the pollution source. The impacts of this threat on the targets within the scope were also assumed to impact the waterfowl production of wetlands through the pathways mentioned. Other species that rely on the primary productivity of these targets were also assumed to be impacted by this threat.

The scope of runoff of pesticides and fertilizers was rated high for all of the targets except native grasslands, which ranked as low. Conventional agriculture is the most common land use in the natural area. Up to 91% of wetlands sampled in the prairie cropland region by Main et. al (2014) tested positive for pesticides. Severity of this threat was rated as high for all targets except native grasslands, which ranked as medium. Pesticides impact production of invertebrates and amphibians by killing the plants they eat (Forsyth et al., 1997), changing the behaviour of invertebrates (Hamilton 1993), and reducing the population of amphibians (Relyea, 2005). Excess nutrients from agricultural fields and livestock operations increases primary production, resulting in algal blooms which ultimately reduce oxygen content in the water (Sharpley et al., 2001). The irreversibility of threat was ranked as medium presumably because the materials

from agricultural runoff would be metabolized within 6 to 20 years from when they were no longer applied. The summary threat rating for this threat is high.

## Stormwater

Stormwater outfalls are largely an urban issue. Storm drains collect pollutants such as motor oil, pesticides and road salts, as well as litter and weed seeds along with the rainfall runoff from impermeable surfaces. This is then emptied into stormwater retention ponds or the South Saskatchewan River within our scope, mostly untreated, aside from a grate system to prevent large debris from entering the water bodies. Though this issue rated high for swales, due to their current and projected use as stormwater management systems for adjacent neighbourhoods (specifically the Northeast Swale), the scope of this threat pertains to Saskatoon and does not pose a great threat to the planning area overall. However, stormwater from upstream communities such as Calgary, Red Deer, Lethbridge or Medicine Hat would have an impact on the downstream quality of the South Saskatchewan River that reaches Saskatoon.

Scope rated high for hydro-riparian areas, very high for swales and low for wetlands within our scope. Most known swales immediately surround the City of Saskatoon and are being used or explored for their use as stormwater management systems. Severity is high for both hydro-riparian areas and swales and ranked medium for wetlands. Irreversibility has ranked high for all of the targets except for native grasslands, in which the threat of stormwater was deemed not applicable and was not linked.

## Suburban Development

Suburban development is the outward expansion of residential and mixed use neighbourhoods of cities into the surrounding landscape, resulting in a conversion of native or agricultural ecosystems to suburban development and an increase in city footprint. These suburban neighbourhoods are *typically* defined by lower population density housing, car-dependency, and some sort of visual standard for housing (Forsyth 2012), though Saskatoon's newer neighbourhoods are encouraging higher density. Suburban development poses a threat to those ecosystems and species that stand in the way, increasing fragmentation of the land and destruction of habitat through the conversion of native prairie habitat and wetlands or conversion of agricultural landscapes (which hold some value in terms of biodiversity).



**Figure 18: A sign to remind visitors to the Meewasin Northeast Swale of its importance. Suburban development is anticipated to fully surround the site within Saskatoon City limits.**

Additionally, these suburban developments continue to have an impact on adjacent landscapes through pollution (light, sound, pesticide runoff, etc.), pets (e.g. cats and associated grassland bird mortality), and human presence.

As this is an urban issue, scope is very high for swales as most of the known swales surround Saskatoon and are presently impacted by suburban sprawl. Scope for hydro-riparian areas ranks as medium and low for both native grasslands and wetlands. Severity was ranked as medium for hydro-riparian areas (South Saskatchewan River) as this target has some protection from development through various agencies (including Meewasin). Projects with a significant impact would require mitigation; severity for all others was ranked as high. Irreversibility was ranked as very high for both native grasslands and swales (which have a native grassland component) due to the difficulty in restoration and outright loss of the endangered ecosystem (McKinney 2002). Hydro-riparian areas and wetlands may have more resiliency and were ranked as high.

### Trespass Issues

The threat of trespassing is defined as all unwanted activities that result from unauthorized access to the native grasslands, wetlands, swales, and hydro-riparian areas in the planning area. This includes new unsanctioned trails (hiking, cycling, vehicle), garbage dumping, baiting, hunting-blind construction and ecosystem damage resulting from these activities. This threat includes instances of unsustainable hunting, plant collecting and birding on conservation lands. Garbage dumping is the most obvious aspect of this threat, but new trail creation is also increasing.



**Figure 19: Volunteers clean up garbage at the Richard St. Barbe Baker Afforestation Site (July 2016)**

The scope of this threat is ranked high for post-glacial channel scars and hydro-riparian areas and medium for native grasslands and wetlands. Post-glacial channel scars surround the city resulting in intense pressure for recreational space, while people pressure on all targets decreases further from the city. Severity is rated as high for hydro-riparian areas and post-glacial channel scars and medium for native grasslands and wetlands. The factors that affect threat severity include biodiversity value of the area, erodibility, timing of the activity, and total area size (Pickering, 2010). Irreversibility is medium for all targets. The summary threat rating is high. New trails increase soil compaction and the amount of bare ground, which increases the risk of introducing invasive species thereby decreasing wildlife habitat quality (Havlick et al, 2016). Trails are also associated with decreased density of some bird species (Thompson, 2015) and a change in species composition (Trulio and Sokal, 2008) with some research showing trails increase the predation of nests (Miller et al., 1998).

## Medium Threats

### **Acreage and Exurban Development**

Acreage development is the development of housing and accompanying land development outside of urban centres or low density rural home development. This includes country residential multi-parcel subdivisions and farms. The development of these properties is usually associated with the conversion of land from agriculture or native ecosystems to housing, which requires the development and provision of services including electricity, natural gas, water lines or wells, and household sewage storage systems. Human activity on and surrounding acreage development (ATVs, pets, sound pollution, light pollution, control of “nuisance” animals threatening property, etc.) can have serious negative consequences for the surrounding conservation targets and the species associated with them.

The scope of this threat is low for wetlands, medium for hydro-riparian areas and native grasslands, and high for swales. Much of the most easily developed areas in the planning area have been converted to acreage developments so new development is likely to be lower in scope except for the swales and grasslands close to Saskatoon. Severity was ranked as medium for hydro-riparian areas and wetlands due to their inherent resiliency and high for native grasslands and swales as desire for development of these areas are higher than for water bodies. Irreversibility is high for all as, once developed, it is unlikely that they would be restored back. The effect of this threat is conversion of native ecosystems or arable farmland to acreages, which reduces connectivity and increases fragmentation.

### **Commercial and Industrial Development**

As the population grows within the planning scope, the demand for more goods and services increases resulting in the need for more commercial and industrial developments. Examples include gas stations, office buildings and strip malls, business districts, industrial districts and parks, warehouses, hotels, shopping centres, airports, auto-malls, technology and research centres, and expansions of all such developments. The more urbanized population centres become, the more outward urban centres sprawl as land is consumed for residential properties and commercial and industrial developments are developed on the fringes. The threat of commercial and industrial development to targets includes conversion of habitat and habitat fragmentation, pollution and the introduction of invasive species due to land disturbance and construction activities.

Scope for hydro-riparian areas and wetlands ranked as medium, while scope was low for both swales and native grasslands. Severity was ranked as medium for hydro-riparian areas and high for wetlands, swales and native grasslands. Irreversibility was ranked as high for all of the targets as it was unlikely the development or impact would be reversed within in reasonable time frame.

## Conversion to Agriculture

The threat of conversion to agriculture is defined as the cultivation and clearing of native vegetation and conversion to arable agriculture, including perennial non-native forages. Conversion of native grasslands to agriculture destroys habitat and reduces biodiversity of plants and animals compared to even small remnants of native prairie (Godwin et al. 1998). The scope is ranked as medium for all hydro-riparian areas and wetlands and low for swales and native grasslands. An estimate of mapped post-glacial channel scars shows that roughly 5% are within Meewasin's jurisdiction leaving the rest with little protection. The estimated remaining native vegetation within the Moist Mixed Grassland Ecoregion, in which the majority of the Meewasin Valley-wide RMP lies, was 14% in 1999 (James et al., 1999). Severity is rated as very high for post-glacial scars and native grasslands and high for hydro-riparian areas and wetlands. Cultivation completely destroys affected native grasslands and post-glacial channel scars, while wetlands and hydro-riparian areas retain some of their functionality when converted to agriculture, especially when planted to perennial forages. Irreversibility is high for all targets. Restoration is possible in all of these cases, but takes time and significant resources. The summary threat rating is medium.



**Figure 20: Sharp-tailed Grouse (*Tympanuchus phasianellus*), a male pictured here in the mating dance, are residents of the Meewasin Valley and found on many Meewasin conservation sites – Photo courtesy of May Haqa**

## Mining & Quarrying

The threat of mining is defined as the direct impact of mining and quarrying on the land where operations occur. Mining activity in the planning area includes potash, oil and gas, and gravel. Impacts include destruction of habitat during extraction or disposal of tailings, dust, noise, associated traffic, asctic displacement, and potential release of contaminants into the surrounding environment. In some cases, nearby water tables must be lowered to prevent flooding of mines (United Nations Environment Program and International Fertilizer Association 2001).

The scope of this threat for hydro-riparian areas, native grasslands, and wetlands is ranked low and medium for post glacial channel scars. Some post glacial channel scars contain deposits of gravel and other aggregates that could be mined and one of the swales is severely impacted by a potash mine site (extraction, site construction, use of swale's wetlands as tailings ponds). Severity is rated as high for hydro-riparian areas, native grasslands, and swales and medium for wetlands. Mining removes most of the vegetation from the area, though in cases of gravel

extraction some of the functionality of the wetland remains because sites become wetlands after operations cease. Irreversibility is high for hydro-riparian areas and very high for all other targets as substrate is removed and tailings piles are permanent. The summary threat rating is medium.

See Appendix A Map 23

### Recreation (Irresponsible)

Irresponsible recreation is recreational activities that cause harm or damage to ecosystems and their inhabitants, or in this case, conservation targets. These activities include the creation of unsanctioned trails for hiking, cycling or for all-terrain or off-road vehicle use; littering; site vandalism; intentionally disturbing wildlife (picking flowers, chasing animals, etc.); poaching; starting fires; creating large wakes on the river (power boats too close to the banks can lead to bank erosion) and more. These types of activities reduce or damage habitat and make areas undesirable for wildlife. Irresponsible recreation on natural lands sets precedence for the way other natural lands are treated. This summary threat rating is medium to all targets.

Scope is high for swales and hydro-riparian areas, medium for native grasslands and low for wetlands (these are based on the most publicly used targets within the scope). Swales, native grasslands and wetlands all have a low severity ranking, while hydro-riparian areas have a high ranking. Irreversibility is medium for all as most damage can be reversed by cleaning up and taking measures to stop the activity like increased security for sites, more effective signage or public awareness.



**Figure 21: Meewasin's Canoe Program at Beaver Creek Conservation Area**

### Recreational Areas

Recreational areas are those that have been identified for human use for leisure activities. They may hold some natural value, but have been altered to fit their use as a recreation site. These include golf courses, picnicking areas, trail systems, beaches with amenities, campgrounds, etc. These sites are usually adjacent or very near to natural landscapes, which put these natural areas at risk from recreational activities.

Disturbance to adjacent natural sites include construction (through clearing vegetation and introducing invasive species), invasive species (via intentional planting or unknowingly carrying seeds on clothing) that spread off of recreational areas, litter blown or carried off site, erosion, pet and human waste, trampling of vegetation, and soil compaction from off-target hiking. The presence of humans and pets decreases the desirability for wildlife to use the site (Sime 1999) and, presumably, adjacent natural areas. Increased population increases the risk of conversion of natural areas to recreational sites. Scope is high for hydro-riparian areas, medium for swales, and low for native grasslands and wetlands (based

on popularity of natural area sites within and surrounding Saskatoon, beaches being most popular). Swales and native grasslands have a high severity ranking and the severity rankings are medium for hydro-riparian areas and wetlands. Finally, irreversibility is medium for hydro-riparian areas and high for the other three targets.

## **Road and Rail**

With the largest rural road system in Canada, Saskatchewan's roads pose a threat to the conservation targets within the planning area (Stewart, 2016). The biggest impact is habitat fragmentation, which is the largest threat to biodiversity in the world (International Union for Conservation of Nature, 2016). This threat also includes bridges (vehicular: 5 existing bridges, 1 under construction and 1 proposed within the project scope; rail: 3 existing), ferry crossings (2 within the planning area), and rail. The reduction of connectivity profoundly impacts the movement of species across the landscape, creating barriers for native species and vectors for invasive species (Trombulak & Frissell 2000). Roads also increase the occurrence of road salts, gravel and dust, litter and wildlife mortality in addition to increasing access to previously remote areas. Another aspect to consider is the risk of accidental spills or damage to conservation targets as a result of an accident (car, ferry or rail). Scope is low for wetlands, medium for hydro-riparian areas and wetlands, and very high for swales, due to the relative number of conservation targets in the project scope (more wetlands, not many swales). Severity is rated as medium for native grasslands and hydro-riparian areas as many have some protection or are already impacted by roads, but is high for wetlands and swales due to the footprint of the roads and impact on these targets (filling in wetlands, changing hydrology and introducing contaminants). Irreversibility is high as roads are unlikely to be decommissioned and car-centric culture in Saskatchewan creates more demand as the population grows.

*See Appendix A Map 24, Map 25*

## **Thermal Pollution**

The threat of thermal pollution is defined as the ecosystem changes associated with the input of excess heat into the South Saskatchewan River. The main source of thermal pollution within the project scope is the Queen Elizabeth Power Station on the South Saskatchewan River within Saskatoon. This station disposes waste heat from the production of electricity into the river, which prevents a significant portion of the river in Saskatoon from freezing over in the winter. Other sources of thermal pollution include stormwater (runoff from sun-heated pavement), the water treatment plant, and the wastewater treatment plant (output may not be same temperature as the South Saskatchewan River). The increase in temperature above what would have occurred naturally can have significant effects on biodiversity (Brock 1975). This threat is specific to the hydro-riparian target in a relatively small area of the scope (Saskatoon) and thus, the overall threat of thermal pollution to the planning area is rated as low. Scope is high and severity and irreversibility are medium.

## Unsustainable Grazing Management

The threat of unsustainable grazing management is defined as the impact of continuous heavy grazing or exclusion of grazing. Unsustainable grazing management occurs when management is unaltered and unchanged for years on end. In other words: grazing frequency, intensity, duration or livestock type is not changed from year to year. Unsustainable grazing often results in extremely short vegetation from overgrazing and excessive standing dead plant material with under-grazing. Potential impacts of unsustainable grazing include increased potential for invasive species, decreased habitat quality for species using the target habitats, increased shrubs and woody species, increased fire hazard in ungrazed areas and increased soil erosion in overgrazed areas (Mapfumo et al. 2002).

The scope of the threat of unsustainable grazing management is ranked medium for hydro-riparian areas and wetlands and high for post-glacial channel scars and native grasslands. Threat severity is rated as medium for post-glacial channel scars, native grasslands, and wetlands and high for hydro-riparian areas. Severity is ranked high for hydro-riparian areas due to sensitivity to overgrazing and loitering, which can easily damage the slope and cause erosion (LaForge 2004). Ranellucci et al. (2012) compared impacts of continuous grazing with twice-over rotational grazing on bird populations and postulated that continuous grazing provided greater habitat diversity for songbirds. Irreversibility of the threat is low for hydro-riparian areas, and medium for all other targets. The summary threat rating is medium.



**Figure 22: Shepherd Jared Epp (with dog Bryn) demonstrates how to safely check a sheep's health at Beaver Creek Conservation Area (2013) during a conservation grazing demonstration. Meewasin uses sheep grazing to manage native prairie.**

## Utility & Service Lines

The threat of utility and service lines includes all disturbances associated with the installation of above and belowground utility lines and pipelines. This infrastructure and the associated right-of-ways threaten conservation targets by fragmenting habitat and introducing invasive species in disturbed lands (right-of-ways are often converted to tame forages, which can introduce invasive species). Additional disturbances from this threat include noise pollution from transmission lines, installation and maintenance (which disturbs wildlife), visual degradation of the landscape, risk to birds (fences and wires are flight-barriers and cause tangling or electrocution), and potential for pollution or contamination if a pipeline were to leak or burst. The summary threat ranking on this threat is medium. Scope is ranked as medium for hydro-riparian areas and post-glacial channel scars and low for native grasslands and wetlands. Severity and irreversibility is medium for all targets except for swales in which irreversibility is high.

*See Appendix A Map 26*

## Low Threats

### **Light Pollution**

Light pollution is created by artificial light for human use. This includes light from street lighting, commercial buildings and homes. Light pollution is most severe in urban centres and can be measured by the visibility of the night sky. Some species require a view of the night sky, which light pollution blocks. Other effects include the disturbance of the day-night cycles of a variety of species, accelerated flowering times and growing season (response to availability of sunlight due to angle of Earth), and disruption to nocturnal species. As a largely urban issue and site specific issue, the summary threat ranking is low. Scope is medium for hydro-riparian areas, high for swales (proximity to Saskatoon), and low for native grasslands and wetlands. Hydro-riparian areas and swales have a medium severity ranking (proximity to urban centre) and a low ranking is given to native grasslands and wetlands (more widely dispersed throughout the planning area). Irreversibility is low for all conservation targets.

### **Military Exercises**

Military exercises include the Canadian Forces Base Dundurn military base and any other activities carried out by the Department of National Defence (such as flight training). Most of the activity is concentrated on the Canadian Forces Base Dundurn military base and, therefore, is a low threat to the linked targets of hydro-riparian areas (Brightwater Creek flows through the site) and native grasslands (on which the site is situated and adjacent to). The use of the site for training has, in fact, spared the site from development or conversion from native prairie and some parts of the site have seen a disturbance regime of fire from ordnance. Scope for both targets is low and scope and severity are both ranked as medium.

### **Problematic Native Species**

Problematic native species are those native species that threaten biodiversity or disrupt human activities in the planning area. Examples include beavers (e.g. cutting down city or park trees), mosquitoes (e.g. West Nile and other diseases), mice and rats (e.g. Hanta Virus, etc.), Canada Geese (e.g. aesthetic - feces in parks and golf courses), deer (e.g. eating trees, road mortality), poisonous plants (e.g. Western Water Hemlock), etc. While of minimal threat to ecosystems, these were listed as a threat due to the resource management work (for Meewasin, the City of Saskatoon, and local RMs) required to deal with issues that arise. The summary threat ranking of these problematic native species is low. Scope is medium for hydro-riparian areas and post-glacial channel scars (South Saskatchewan River within Saskatoon, more



**Figure 23: The North American Beaver (*Castor canadensis*) – Photo courtesy of Kneale Quayle Photography**

publicly accessible sites are of these targets) and low for native grasslands and wetlands. Severity of this threat is medium for wetlands (beavers, plants, birds, and mosquito habitat) and low for the other three targets. Irreversibility is low for wetlands and medium for all others.

## **Sound Pollution**

Sound pollution is noise created from various human activities including construction, vehicular traffic, residential neighbourhoods, transmission lines, and other ambient noise created from daily human life. Sound pollution can cause wildlife to avoid the source and may disrupt breeding by masking mating calls. Overall, this threat is low in the planning area; the irreversibility is low and its effects are typically short-lived (stops when the noise does, site specific and can be somewhat easily mitigated). Scope is low for native grasslands and wetlands, medium for the creeks and their vegetation, and high for swales (sound pollution is concentrated in more urban areas). Severity is low for grasslands and wetlands and medium for hydro-riparian areas and swales. Irreversibility is low for all.

## **Urban Riverbank Slumping and Slope Instability**

Within the City of Saskatoon and all along its length, the South Saskatchewan River sees slumping of its banks due to the natural processes of a meandering, braided river channel and the movement of large volumes of water. However, within Saskatoon the process is exacerbated by removal of vegetation through landscaping and development (roots keep banks stable), increased weight loads (of housing, asphalt and development), and increased groundwater movement and volumes (impermeable street surfaces cause larger amounts of water to infiltrate into smaller permeable areas – flash flooding infiltrating into sandy soils will cause movement of that soil). Though slumping is a natural phenomenon, the erosion and instability within the urban area causes issue to infrastructure and human safety both economically and environmentally. Reclamation or remediation is required to reduce risks of collapse of infrastructure (roads, housing, and bridges) both for safety and usability, but also to prevent debris from entering the South Saskatchewan River in the case of a massive slumping event or smaller slumps over a number of years. Additionally, invasive species may be both a product and cause of bank slumping. Current invasions by species such as European Buckthorn or Kentucky Bluegrass, both shallow rooted species, may increase the risk of bank instability due to their ability to create monocultures of vegetation (which all have the same characteristics such as root depth, nutrient needs, etc.). Bare soils caused by slumping invite weedier species to colonize such as annuals which offer no long term bank stability. Related only to hydro-riparian areas, the low threat was categorized as low in scope, medium in severity and high in irreversibility.

### 3. Situation Analysis

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#### 3.1 Situation Analysis

Indigenous People have lived in the Saskatoon area almost continuously for the past 6,000 years as documented by Wanuskewin Heritage Park, which conserves pre-contact sites including Plains Bison kill sites, tipi rings and a medicine wheel. Early settlers and fur traders established agriculture in this area in the late 1800s. The majority of the early settlers in the area were part of the Temperance Colonization Society, who were led by John Lake in 1882 (Delainey 2007). The Colony's land grant

was on both sides of the river from Clarke's Crossing in the north to Moose Woods (now Whitecap Dakota First Nation) in the south (City of Saskatoon, 2007). The railway arrived in 1890 and in 1906 Saskatoon became a city (City of Saskatoon, 2007). The largest Indigenous community within the scope is the Whitecap Dakota Reserve, historically known as the Moose Wood Sioux Reserve, and is located in an area of sand dunes approximately twenty-five kilometres south of Saskatoon. The City of Saskatoon is the largest community

within our planning area and is Saskatchewan's largest city. Other large communities include Martensville, Warman, Hague, Rosthern, Aberdeen, Grandora and Vanscoy. The South Saskatchewan River, the only major river, bisects the planning area. In 2011, the population of Saskatoon was 222,189; a 9.8% increase since 2006 (Statistics Canada 2011a). The population of the Saskatoon Region was 260,600 in 2011 (Statistics Canada 2011a).

See Appendix A Map 13

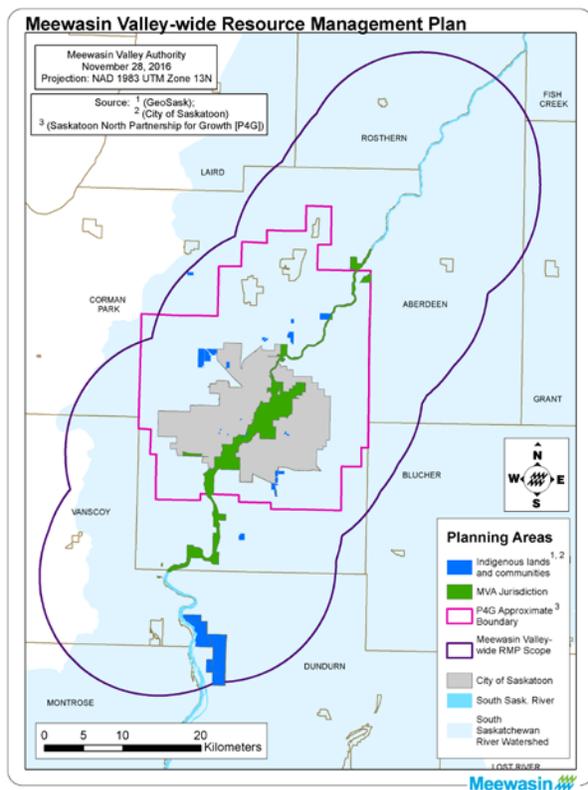
Major land uses in the planning area include arable agriculture with a significant portion of the province's dairy farms located near the city to supply a dairy processing facility within Saskatoon (Huynh 2006). There are several potash mines in the Saskatoon vicinity with access to almost two-thirds of the world's recoverable potash reserves (Huynh 2006, Saskatoon Regional Economic Development Authority Inc. 2008). There are also many gravel and sand extraction sites within the Saskatoon region for materials for building and highway construction (Huynh 2006). Smaller towns outside of Saskatoon are expanding, as well as acreage development areas.



**Figure 24: Dancers at Wanuskewin Heritage Park – Photo courtesy of Tourism Saskatoon**

Recent rapid growth has led to a marked increase in residential and non-residential construction within the city and the surrounding areas (Saskatoon Regional Economic Development Authority 2007). The availability of land, affordability, and short commutes drive population growth in the area (Saskatoon Regional Economic Development Authority 2007). The economy

of the city and surrounding area is considered as diverse as most mid-size Canadian cities (Saskatoon Regional Economic Development Authority 2015) with health, education, retail, construction, transportation, agriculture and mining among the major employers in the city (Saskatoon Regional Economic Development Authority 2016).



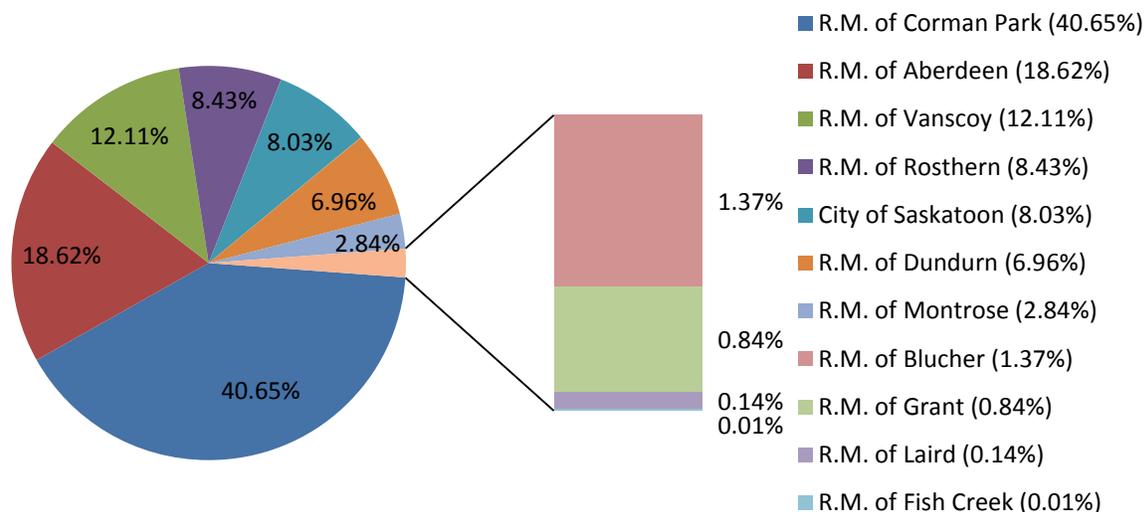
**Figure 25: Overlap of Planning Areas**

The City of Saskatoon is surrounded by the R.M. of Corman Park, which is the most populated R.M. in the planning area and has the highest farm count and total farm revenue of any rural municipality in Saskatchewan (Huynh 2006). This R.M. is seeing increasing demands for recreation, including golf courses close to Saskatoon (Huynh 2006). Within the R.M. of Corman Park, the highest population density is to the north and north-east of Saskatoon (Huynh 2006). According to the 2011 Census of Agriculture, the average age of farmers

within the planning area is 54.5 years (Statistics Canada 2011b). Farmers approaching retirement are more likely to sell their land to developers (Huynh 2006), which may increase the rate of conversion of native habitat. The Whitecap Dakota First Nation has diversified economically with the creation of a golf course and a casino on former native habitat. Also located within the planning area is Canadian Forces Base Dundurn Located on the southern portion of Dundurn community pasture (former Prairie Farm Rehabilitation Administration). The area was cleared and burned in 1927 and it was first used for military training in 1928.

*See Appendix A Map 2*

## Land Base\* as % of Meewasin Valley-wide Resource Management Planning Area



\*Only land within the planning area was used in calculation

**Figure 26: Interactions of the Various Jurisdictions within the Meewasin Valley-wide Resource Management Plan**

**Table 8: Population Statistics for the Jurisdictions within the Meewasin Valley-wide RMP scope**

Population	2006	2011	Trend (% Increase)
Saskatoon	202,408	222,189	9.8%
R.M. of Corman Park	8,266	8,354	1.1%
R.M. of Aberdeen	765	1,016	32.8%
R.M. of Vanscoy	2,629	2,714	3.2%
R.M. of Rosthern	1,840	2,015	9.5%
R.M. of Dundurn	632	1,148	81.6%
R.M. of Montrose	648	712	9.9%
R.M. of Blucher	1,588	1,787	12.5%
R.M. of Grant	406	425	4.7%
R.M. of Laird	1,136	1,240	9.2%
R.M. of Fish Creek	307	304	-1.0%
<b>Total</b>	<b>220,625</b>	<b>241,904</b>	<b>9.6%</b>

## **Current Planning Activities Underway in the Region (December 2016)**

The past decade of rapid growth of Saskatoon and surrounding area has spurred several planning initiatives. The City of Saskatoon has initiated or are participating in several development planning projects including Growing Forward!, a Green Infrastructure Plan and Saskatoon North Partnership for Growth (P4G). The P4G project also includes the R.M. of Corman Park and cities of Martensville, Warman and the Town of Osler. The Pike Lake Cottage and Watershed Association are developing a Pike Lake Watershed Plan, the University of Saskatchewan is working on implementing their Vision 2057, and the South Saskatchewan River Watershed Stewards Inc. is working on a Water Futures Program. All of these plans encourage various forms of public input through open houses, agency interviews and presentation, and online comments. There is a need for conservation agencies to participate in these planning exercises from a science-based perspective. Other agencies that are connected to Meewasin and NCC either by formal partnerships or professional relationships include Nature Saskatchewan, Saskatoon Nature Society, Native Plant Society of Saskatchewan, Ducks Unlimited Canada, Saskatchewan Environmental Society, Saskatchewan Invasive Species Council, Saskatchewan Prairie Conservation Action Plan (PCAP), Saskatchewan Wildlife Federation and Saskatoon Wildlife Federation, Saskatchewan Polytechnic, South Saskatchewan River Watershed Stewards Inc., University of Saskatchewan, and Wanuskewin Heritage Park. The community of scientists, naturalists, landowners, professionals and public connected by similar conservation interests are generally well integrated and willing to work together.

The situation analysis was developed based on the previous generation Saskatoon Prairie Natural Areas Conservation Plan (NCC) with updated information from Statistics Canada, the Saskatoon Regional Economic Development Authority, and various participants at the two workshops. Additional information and comments were solicited from the experts taking part in Meewasin's Technical Advisory Committee for this project.

## 4. Strategic Plan

### 4.1 Meewasin Valley-wide RMP Goals

Goals are a “formal statement detailing a desired impact of a project such as the desired future status of a target” (Conservation Measures Partnership 2013). To have a good goal, they must be linked to the conservation targets, be impact oriented, measurable, achievable within a certain time period and specific (Conservation Measures Partnership 2013).

**Table 9: Future Status Goals as Linked to Meewasin Valley-wide RMP Conservation Targets**

Goal	Targets
Awareness and education of conservation targets, threats and resource management activities are increased within the Saskatoon Region and provincially through successful completion of outreach activities.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands, Connection to Nature, Physical Health
Continue to ensure proposed developments are appropriately integrated into the Meewasin Valley by balancing human use and conservation through the <i>Meewasin Valley Authority Act's</i> Development Review Process.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands, Physical Health
Ecological health of conservation targets on Meewasin Conservation sites have improved by 20%, as determined through ecological health assessments, with progress underway in the Meewasin Conservation Zone.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands, Physical Health
Invasive species on Meewasin Conservation sites have significant reduction in cover and density (percent reduction depending on invasive species type), with progress underway in the Meewasin Conservation Zone.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands, Physical Health
Natural disturbance regimes including fire and grazing are employed on key Meewasin Conservation sites with a minimal goal of 15% disturbance per site per year.	Native Prairie, Swales, Connection to Nature
Public access to nature and conservation of biodiversity habitat is improved with the addition of Conservation sites (5 additional sites, one site expanded) and an expanded Meewasin Conservation Zone.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands, Connection to Nature, Physical Health
Restoration of ecological integrity on Meewasin Conservation sites is continued with the development and implementation of site-specific restoration plans to address historically degraded conservation targets.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands, Connection to Nature, Physical Health

### 4.2 Strategies and Key Intervention Points

#### Strategies

The targets in this planning area aim to maintain native upland, wetland and riparian habitat, while the threats to these habitats come from development in various forms. The expertise of

the people involved drove the development of the strategic plan. This expertise includes control of invasive species, management and restoration of native habitat and many aspects of wetland and riparian ecology. The planning process included staff and an advisory committee from Meewasin, a group dedicated not only to the conservation of natural spaces, but human well-being targets as well and, therefore, the strategies endorsed in the process include methods of improving human interaction with the natural world. Broad strategies were identified and endorsed during the two Saskatoon workshops attended by a variety of professionals, experts, stakeholders, and both Meewasin and NCC staff.

Specific activities for strategies were also identified and discussed during the meetings. These activities were researched, expanded on, written formally and reviewed by professionals in the fields of each target the activities impacted. Once combined with information from the first generation NCC NACP, final strategies and activities were reviewed and confirmed for the plan by the Project Team Leads, as well as Meewasin's technical advisory committee and NCC's internal reviewers. In addition, standard strategies and their activities included in every NACP were included and expanded on in the NCC Natural Areas Conservation Plan including communications, research, fundraising, monitoring and overall natural area management.

The resulting list of strategies was rated using Miradi's system of identifying the potential impact and feasibility based on an estimate of its potential to impact the target and how technically, ethically and economically feasible the action was to carry out. This generated a ranking for each strategy of not effective, less effective, effective or very effective. All threats ranked very high and high and targets with poor or fair viability were addressed with specific strategies or actions. Several strategies were ranked as less effective, but will be included as critical actions. For instance, restoration ranked as less effective, but will be pursued because it builds on current actions undertaken by Meewasin and NCC. Other actions such as sharing expertise, allowing public access and encouraging landowner interactions also ranked as less effective, but are still an important part of the work plan because they increase public awareness of conservation. During this process several knowledge gaps were identified and recorded.

### Key Intervention Points

Key Intervention Points were developed from the first generation NCC's NACP, conversations with stakeholders and experts at the workshops, and meetings with the Meewasin Technical Advisory Committee. After the group meetings, input and relevant ideas were vetted with appropriate experts. While strategies and activities were being researched and rewritten for clarity, results chains were created and the appropriate intervention point was identified and graphically displayed in Miradi. These results chains were the discussed and researched by core team members. These key intervention points are identified by where we have linked strategies (yellow box) to the results chain. The purple box is the threat reduction result we wish to see as the outcome.

Results Chains Showing Strategies and Key Intervention Points (Identified by link of strategy to results chain)

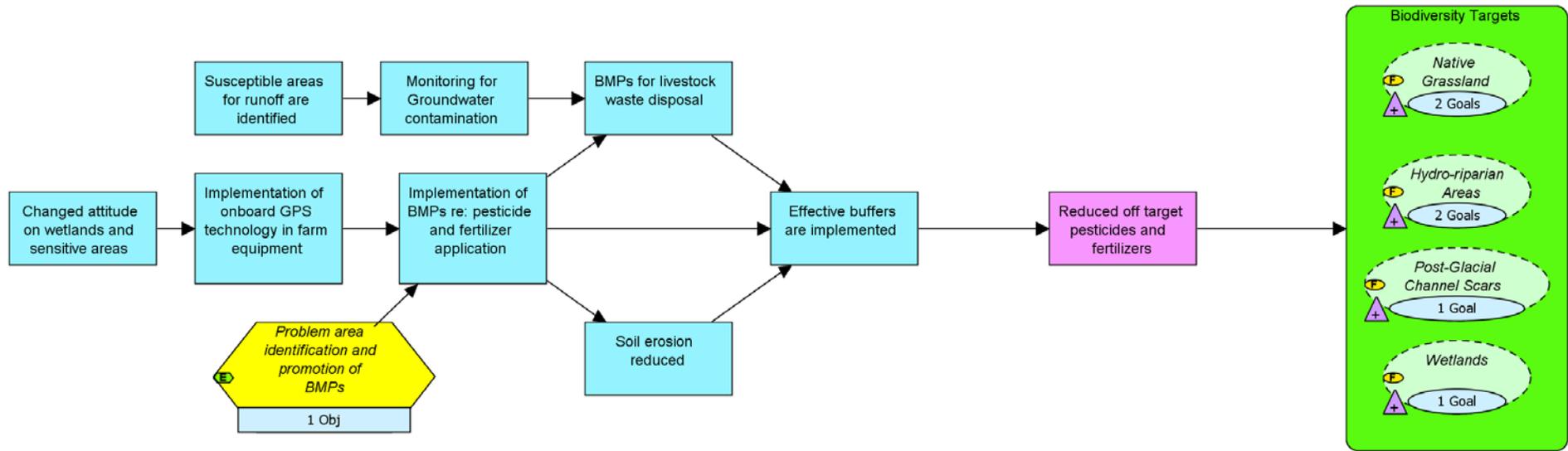


Figure 27: Results Chain: Agricultural Runoff - Best Management Practices

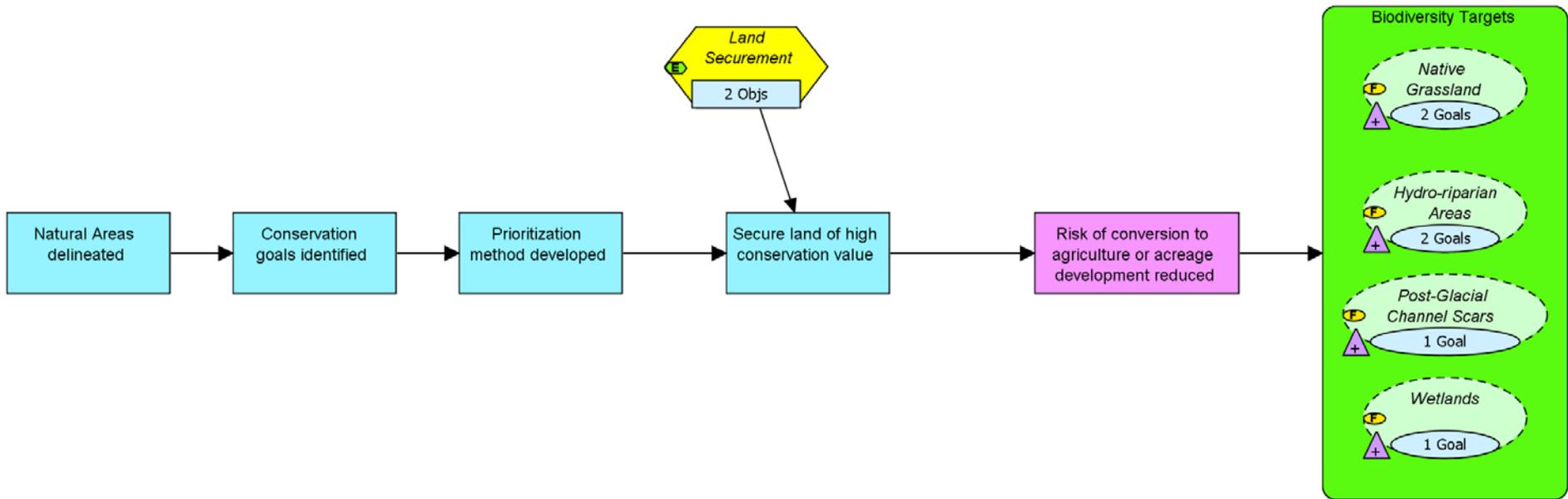


Figure 28: Results Chain: Conversion of Land - Land Securement

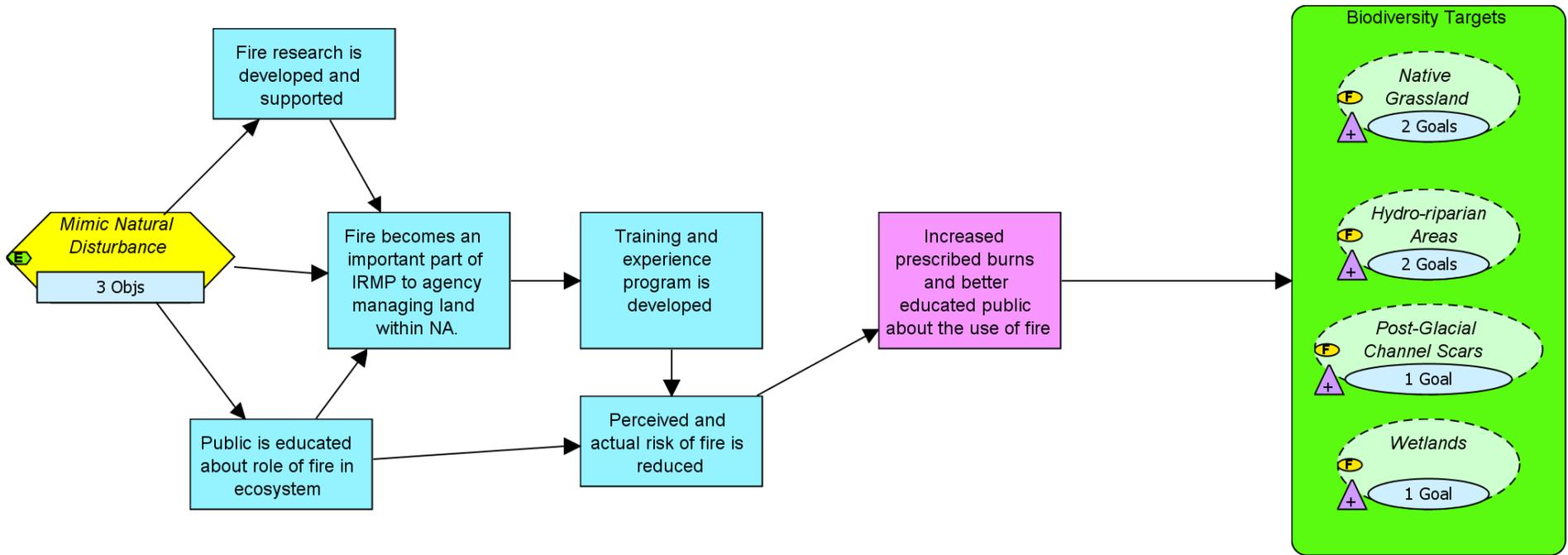


Figure 29: Results Chain: Fire and Fire Suppression - Natural Disturbance Regimes

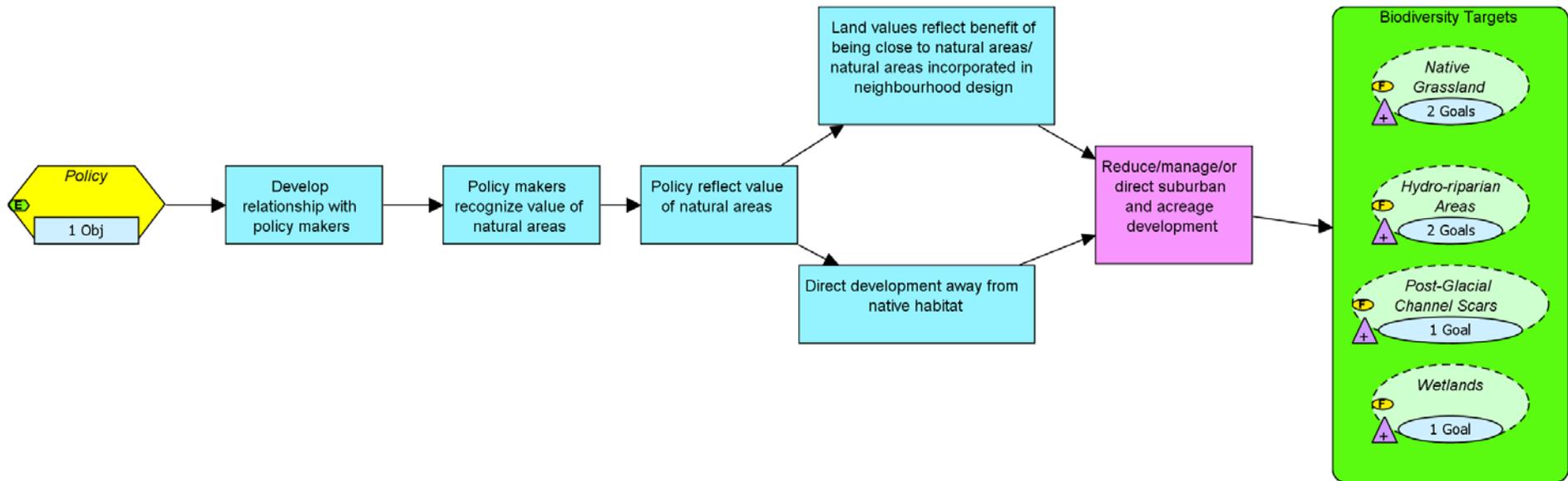


Figure 30: Results Chain: Development or Conversion of Land – Policy

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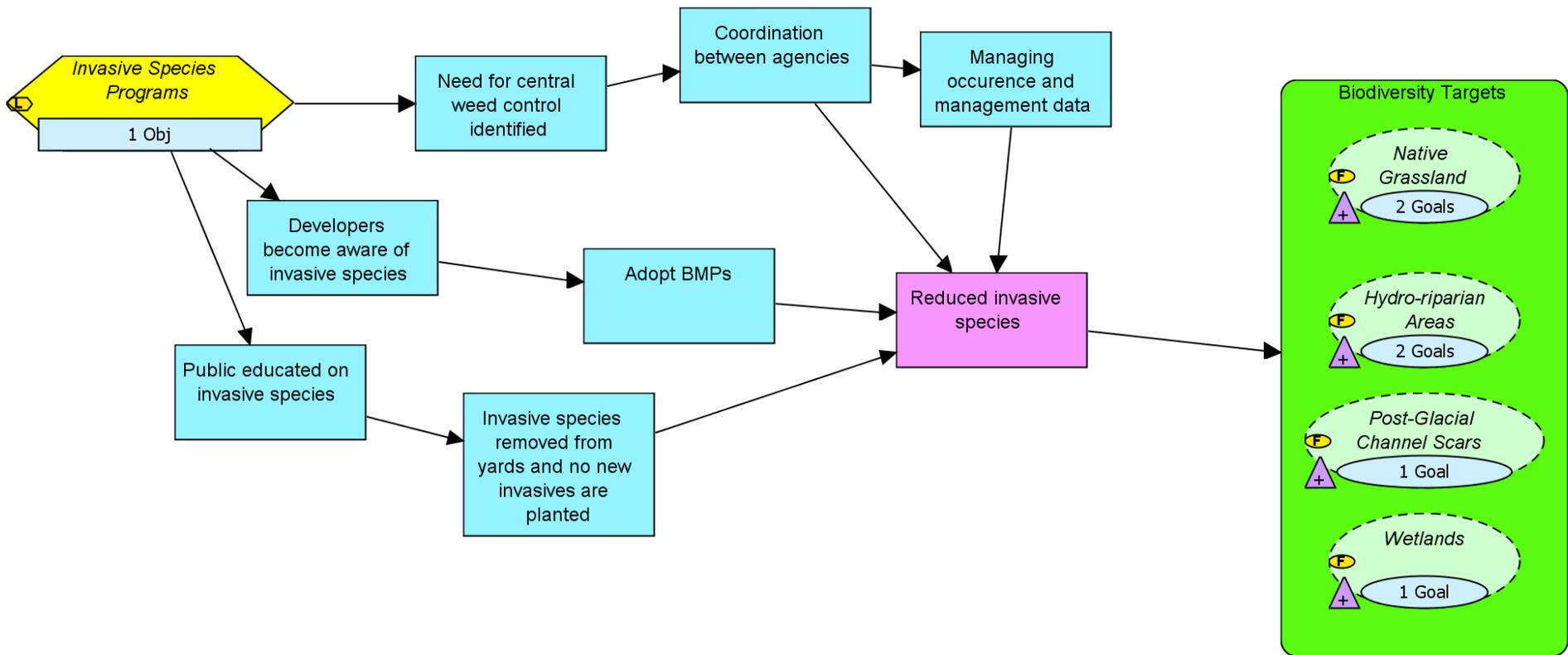


Figure 31: Results Chain: Invasive Species Programs

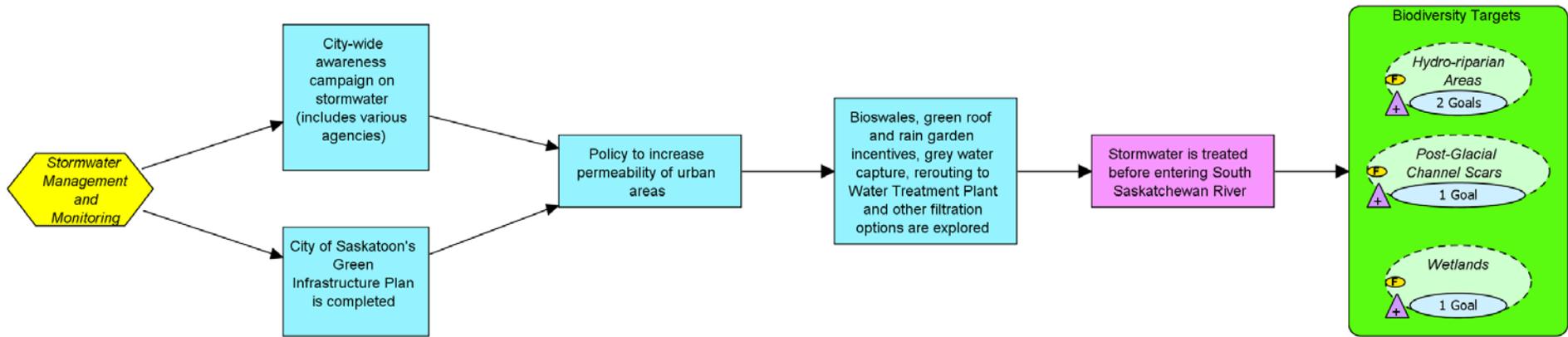


Figure 32: Results Chain: Stormwater Management

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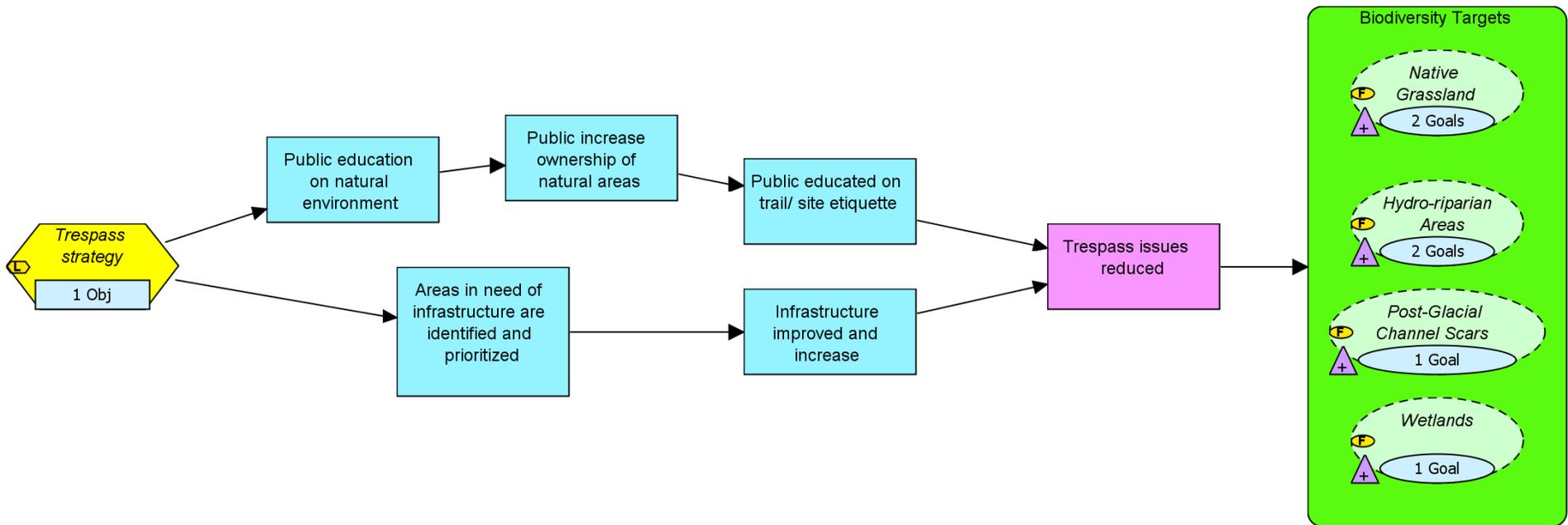


Figure 33: Results Chain: Trespass Issues Strategy

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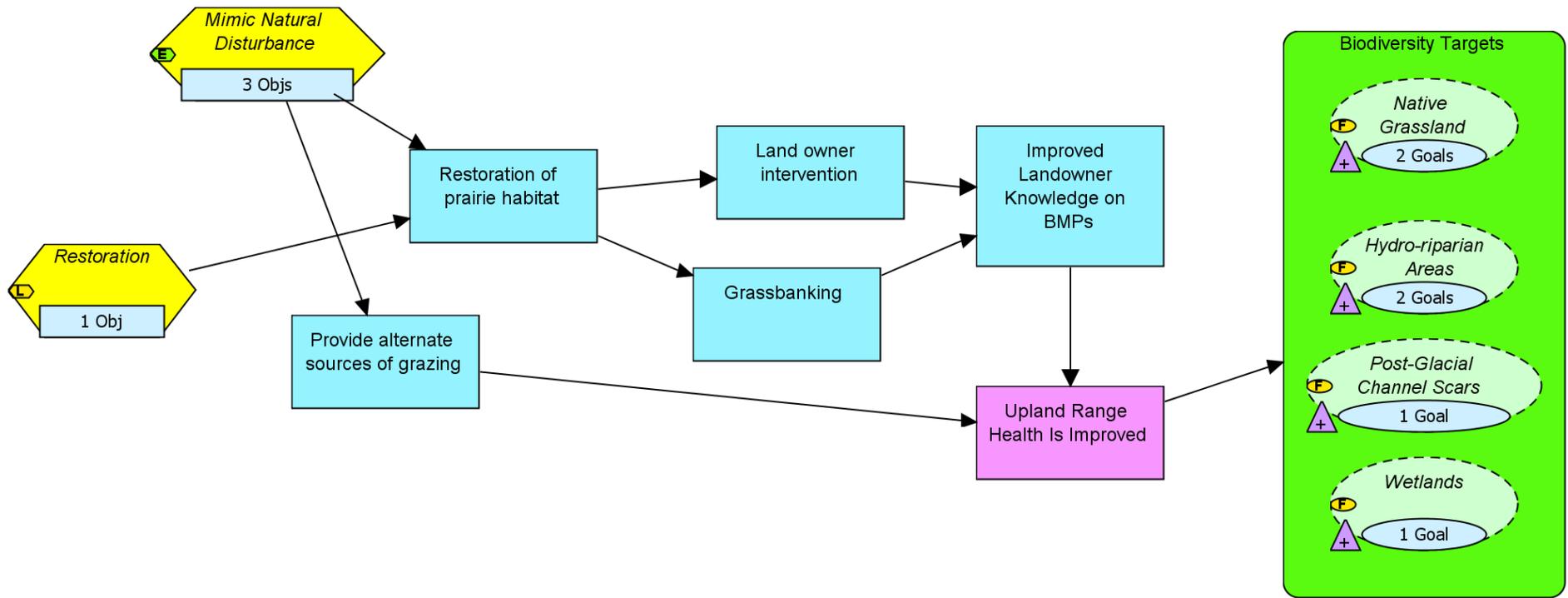


Figure 34: Results Chain: Unsustainable Grazing - Natural Disturbance Regime and Restoration

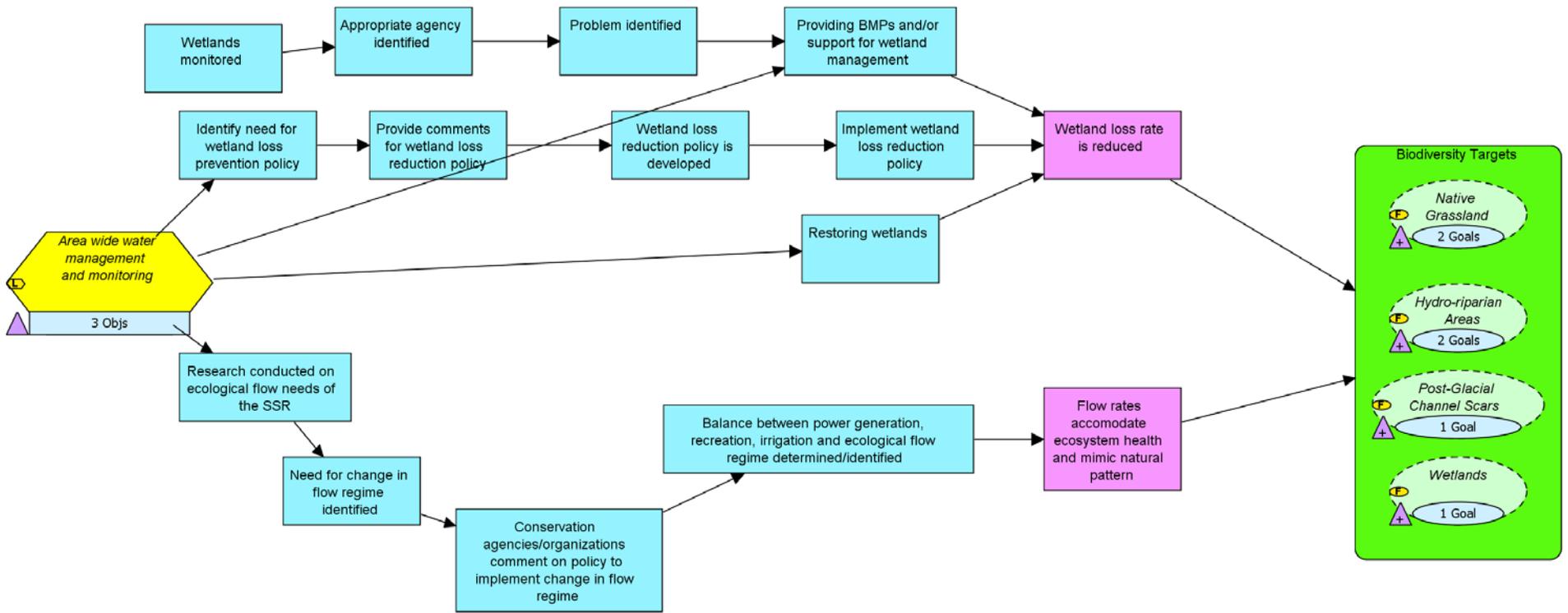


Figure 35: Results Chain: Water Management

## 4.3 Recommendations

### 4.3.1 Actions and Initiatives

Actions are the activities or tasks that conservation practitioners use to achieve their conservation planning objectives and goals. Strategies are made up of a group of actions with a common focus or goal. An example of this is the strategy of Restoration. This strategy is made up of all of the restoration based actions. Actions are a very important component of a project as this is the on-the-ground work that moves the conservation practitioner towards their goals to improve the status of their conservation targets. International Union for the Conservation of Nature (IUCN) categorizes actions in order to standardize conservation-based activities.

**Table 10: List of IUCN Categories and Subcategories that the Meewasin Valley-wide RMP Actions Fall Under**

Category	Subcategory
1.0 Land / Water Management	1.1 Site/Area Stewardship
	1.2 Ecosystem & Natural Process (Re)Creation
2.0 Species Management	2.1 Species Stewardship
	2.2 Species Re-Introduction & Translocation
	2.3 Ex-Situ Conservation
3.0 Awareness Raising	3.1 Outreach & Communications
4.0 Law Enforcement & Prosecution	4.1 Detection & Arrest
	4.3 Non-Criminal Legal Action
5.0 Livelihood, Economic and Moral Incentives	5.2 Better Products and Management Practices
6.0 Conservation Designation & Planning	6.1 Protected Area Designation and/or Acquisition
	6.2 Easements & Resource Rights
	6.3 Land/Water Use Zoning & Designation
	6.4 Conservation Planning
	6.5 Site Infrastructure
7.0 Legal & Policy Frameworks	7.1 Laws, Regulations & Codes
	7.2 Policies & Guidelines
8.0 Research & Monitoring	8.1 Basic Research & Status Monitoring
	8.2 Evaluation, Effectiveness Measures & Learning
9.0 Education & Training	9.1 Formal Education
	9.2 Training & Individual Capacity Development
10.0 Institutional Development	10.1 Internal Organizational Development & Support
	10.2 External Organizational Development & Support
	10.3 Alliance & Partnership Development
	10.4 Financing Conservation

See Appendix E “Action Plan” for the full list of actions

The Meewasin Valley-wide Resource Management Plan includes a list of over 180 recommended actions to be carried out over the next 10 years (2017-2027) (included in *Appendix E “Action Plan”*). These will form the basis of the annual work plan for Meewasin and involves many partnerships, which are the key to success of this plan. Not only do these partnerships include other agencies, but also include inter-departmental cooperation within Meewasin to carry out the various actions. An example of this is the creation and delivery of a Master Plan for a site, which includes Design and Development, Fund Development, Planning and Conservation, and Community Development. It is important to note that much of the work identified in the Action Plan is work that Meewasin is currently undertaking and may include expansions to that work (See “current initiative status” in the table below). The following table is a summary of the key initiatives and actions that Meewasin has identified as part of the Meewasin Valley-wide Resource Management Plan.

**Table 11: Meewasin Key Initiatives 2017-2017 Summary**

<b>Key Initiatives</b>	<b>Key Actions - Summarized</b>	<b>IUCN Action Categories</b>	<b>Current Initiative Status</b>
Awareness and Outreach	Conservation volunteers program developed and implemented	3.1	Existing and Expanded Initiatives
	Awareness of various resource management topics (invasive species, conservation programs (prescribed burning, grazing), poisonous and/or harmful plants and animals, storm water management, best management practices (agricultural and landscaping), river bank slumping) through various mechanism (signage, website, social media, presentations, publications, and tours)	3.1, 1.1, 5.2	Existing and Expanded Initiatives
	Awareness regarding Meewasin bylaws	3.1, 4.1	Existing and Expanded Initiatives
	Engage youth, university students and the general public in resource management concepts through public programs, tours, events and other forms of engagement	9.1	Existing and Expanded Initiatives
	Meewasin is the regional hub for training resource management practitioners	9.2	New Initiative
Clean-up / Pollution Mitigation	Abandoned water well decommissioning on Meewasin Conservation sites	1.1	New Initiatives
	Emergency spill planning and assistance for the South Saskatchewan River	1.1	Existing and Expanded Initiatives

Key Initiatives	Key Actions - Summarized	IUCN Action Categories	Current Initiative Status
Clean-up / Pollution Mitigation	Illegal dumping and littering awareness, clean-up and enforcement	1.1, 3.1	Existing and Expanded Initiatives
	Riverbank Clean-up Campaign coordination and delivery	1.1	Existing and Expanded Initiatives
	Storm water management utilization of natural and created wetlands	1.2	Existing and Expanded Initiatives
Conservation Planning	Develop and implement site-specific Resource Management Plans for Meewasin Conservation sites	6.4	Existing and Expanded Initiatives
	Define, delineate and inventory swales in the Saskatoon Region	6.4	New Initiative
	Delineate and inventory natural systems (e.g. grasslands, wetlands) in the Saskatoon Region	6.4	Existing and Expanded Initiatives
	Develop a monitoring and management strategy for Aquatic Invasive Species	6.4	Existing and Expanded Initiatives
	Develop a riverbank slope stability feasibility framework with the City of Saskatoon	6.4	Existing and Expanded Initiatives
	Develop and update Master Plans for new and existing Meewasin sites	6.4	Existing and Expanded Initiatives
	Green Infrastructure Strategy developed with the City of Saskatoon	6.4	Existing and Expanded Initiatives
	State of the Valley Report is updated in 2018 and 2023	6.4	Existing and Expanded Initiatives
	Evaluate implementation of Meewasin Valley-Wide Resource Management Plan annually	8.2	New Initiative
	Evaluate implementation of Meewasin site-specific resource management plans annually	8.2	Existing and Expanded Initiatives
	Baseline inventories are completed or update for all Meewasin Conservation sites	8.1	Existing and Expanded Initiatives
Habitat Conservation - Securement and Designation	Expand Meewasin's Conservation Zone according to Meewasin's Land Policy	6.1, 6.2, 6.3	Existing and Expanded Initiatives
	Investigate UNESCO Biosphere Reserve designation for Meewasin NE Swale, Small Swale, Meewasin Valley, and Wanuskewin Heritage Park	6.3	New Initiative
	Heritage Rivers designation for the South Saskatchewan River in partnership with the Partners FOR Saskatchewan River Basin	6.3	Existing and Expanded Initiatives

<b>Key Initiatives</b>	<b>Key Actions - Summarized</b>	<b>IUCN Action Categories</b>	<b>Current Initiative Status</b>
Habitat Conservation - Securement and Designation	Partner with other land trusts on habitat conservation	6.1, 6.2, 6.3	Existing and Expanded Initiatives
	Priority conservation lands within the City of Saskatoon and Meewasin's Conservation Zone are incorporated as Meewasin Conservation Sites	6.1, 6.2, 6.3	Existing and Expanded Initiatives
	Protective designation for conservation sites within City of Saskatoon	6.3	Existing and Expanded Initiatives
	Secure conservation priority lands in Fee Simple or with Conservation Easements through purchase or donation options	6.1, 6.2	Existing and Expanded Initiatives
	UNSECO Heritage Site designation for Wanuskewin Heritage Park	6.3	Existing and Expanded Initiatives
Habitat Enhancement	Bird and bat house placement for habitat enhancement	2.1	Existing and Expanded Initiatives
	Enhancement activities to improve grassland bird habitat	1.1	Existing and Expanded Initiatives
	Enhancement activities to improve habitat for species at risk	1.1	Existing and Expanded Initiatives
	Enhancement activities to improve Plains Rough Fescue habitat	1.1	Existing and Expanded Initiatives
	Enhancement activities to improve the ecological health of native grasslands, wetlands and riparian areas	1.1	Existing and Expanded Initiatives
	Enhancement of native grasslands with prescribed burning and conservation grazing programs	1.2	Existing and Expanded Initiatives
	Enhancement projects to improve fish habitat along the South Saskatchewan River and tributaries	2.1	Existing and Expanded Initiatives
	Protection of select urban forest trees from beaver activity	1.1	Existing and Expanded Initiatives
Habitat Restoration	Continuation of Meewasin's native plant greenhouse and nursery program	1.2	Existing and Expanded Initiatives
	Drained wetland restoration	1.2	New Initiatives
	Eastern cottonwood forest restoration	1.2	New Initiatives
	Native grassland restoration	1.2	Existing and Expanded Initiatives
	Restoration of snow dump site in the Small Swale	1.2	New Initiatives
	Riparian and wetland buffer restoration	1.2	New Initiatives
	Stormwater pond restoration at the Meewasin Northeast Swale	1.2	Existing and Expanded Initiatives

<b>Key Initiatives</b>	<b>Key Actions - Summarized</b>	<b>IUCN Action Categories</b>	<b>Current Initiative Status</b>
Habitat Restoration	Utilization of locally sourced native plant material on restoration projects on Meewasin Conservation sites and within the Meewasin Conservation Zone	1.2	Existing and Expanded Initiatives
Invasive Species	Aquatic invasive species awareness, monitoring and control	1.1, 3.1	Existing and Expanded Initiatives
	Early detection, rapid response for new invasive species occurrences	1.1, 3.2	Existing and Expanded Initiatives
	European Buckthorn awareness, monitoring and control	1.1, 3.2	Existing and Expanded Initiatives
	Invasive wildlife awareness, monitoring and control	1.1, 3.2	New Initiatives
	Non-native tree, shrub, grass and ornamental invasive species awareness, monitoring, and control	1.1, 3.1	Existing and Expanded Initiatives
	Provincially designated noxious and prohibited weed awareness, monitoring and control	1.1, 3.1	Existing and Expanded Initiatives
Meewasin Capacity Building	Fundraise for the Meewasin Conservation endowment fund to ensure long-term conservation and stewardship of Meewasin Conservation sites	10.4	Existing and Expanded Initiatives
	Fundraise to implement Valley-wide Resource Management Plan	10.4	Existing and Expanded Initiatives
Monitoring	Develop a monitoring framework for the Meewasin Valley	8.1	New Initiative
	Develop, foster and continue partnerships with other agencies and the public regarding monitoring	8.1	Existing and Expanded Initiatives
	Implement, expand and continue ecological monitoring and citizen science programs (water quality, vegetation, wildlife, birds, invasive species, dark sky quality, etc.) as part of the monitoring framework	8.1	Existing and Expanded Initiatives
	Report, to various databases and agencies, information collected through monitoring program	1.1, 8.1	Existing and Expanded Initiatives
Partnerships	Foster, develop and continue working relationships and partnership opportunities with local, regional and provincial NGOs, government agencies and special interest groups related to conservation, resource management, and land trust activities in the Saskatoon region	10.2, 10.3	Existing and Expanded Initiatives

Key Initiatives	Key Actions - Summarized	IUCN Action Categories	Current Initiative Status
Partnerships	Conservation Directory development	10.3	New Initiative
	Foster, develop and continue working relationships and partnership opportunities with the academic institutions including University of Saskatchewan and Saskatchewan Polytechnic.	10.3	Existing and Expanded Initiatives
	Foster, develop and continue working relationships and partnership opportunities with the agricultural community	10.3	Existing and Expanded Initiatives
	Partner and work collaboratively with City of Saskatoon's Parks Naturalization Program	10.3	Existing and Expanded Initiatives
	Develop and implement a Cooperative Weed Management Area partnership agreement with the City of Saskatoon and RM of Corman Park	10.3	New Initiative
	Engage various stakeholders and user groups utilizing the South Saskatchewan River and Meewasin Valley	10.3	Existing and Expanded Initiatives
Policies and Regulations	Conservation Offsets to mitigate the loss of habitat in the Saskatoon region is examined and developed	7.2	New Initiative
	Continuation of Meewasin's Development Review process	7.1	Existing and Expanded Initiatives
	Dark Skies Policy developed and implemented with the City of Saskatoon	7.2	Existing and Expanded Initiatives
	Enforce, review and update Meewasin bylaws	4.1	Existing and Expanded Initiatives
	Meewasin's Land Policy, Northeast Policy, and Development Review policies implemented	7.2	Existing and Expanded Initiatives
	Partner with local enforcement agencies	4.1	Existing and Expanded Initiatives
	Wetland Policy is implemented with the City of Saskatoon	7.2	Existing and Expanded Initiatives
Site Infrastructure	Dark-sky friendly lighting is installed adjacent to and within Meewasin Conservation sites	6.5	Existing and Expanded Initiatives
	Infrastructure installed, as required, to restrict off-highway vehicle access to ecologically sensitive areas	6.5	Existing and Expanded Initiatives

Key Initiatives	Key Actions - Summarized	IUCN Action Categories	Current Initiative Status
Site Infrastructure	Wildlife-friendly fencing designed and installed on Meewasin Conservation sites	6.5	Existing and Expanded Initiatives
	Wildlife-friendly movement designs in road construction adjacent and through Meewasin Conservation sites is designed and implemented	6.5	Existing and Expanded Initiatives
Species Stewardship and Management	Beaver management strategy for the urban forest and Wanuskewin Heritage Park	2.1	New Initiatives
	Collection of native plant diversity (plant specimens and seed) for inclusion in the WP Fraser Herbarium and Plant Gene Resources of Canada's Seed Bank	2.3	New Initiative
	Delayed mowing and haying until July 15th for grassland birds on Meewasin Conservation sites	2.1	Existing and Expanded Initiatives
	Feasibility study to determine the reintroduction of species to Meewasin Conservation sites	2.2	New Initiatives
	Management of the fish ladder at the weir	2.1	Existing and Expanded Initiatives
	Plains Bison reintroduction at Wanuskewin Heritage Park	2.2	New Initiatives
	Rehabilitated injured wildlife are released at Meewasin Conservation sites	2.3	Existing and Expanded Initiatives

## 5. Monitoring and Implementation Plan

“Effective monitoring uses the minimum amount of financial and human resources to provide you with the minimum credible information needed to determine if your project is on track and achieving stated objectives” (Conservation Measures Partnership 2013). In other words, monitoring is used to judge whether or not we are doing what we intended to do and determine if we are being effective and efficient. The measurement of success and failures helps conservation planners to learn from their mistakes and correct their course to achieve their objectives and goals. There are two types of monitoring that will be done as a result of this plan: 1) status monitoring and 2) effectiveness monitoring. Status monitoring is done in conjunction with the viability assessment and allows us to update our information to best reflect the current status of our conservation targets to understand trends and data gaps. Effectiveness monitoring tells us whether or not we are getting the job done and completing actions. Both types of monitoring will be done annually and reported in the “Annual Update” for accountability.

*See Appendix E for “Action Plan” for monitoring activities*

**Table 12: Example Action Progress Report for Monitoring to be Updated Annually within Miradi Software**

Action	Date to Be Completed By	Partnerships	Progress
6.5.2 Existing fences at Meewasin Conservation sites are updated to ensure fencing is wildlife friendly.	By 2027, all fencing on Meewasin Conservation sites is updated to wildlife-friendly fencing standards.	City of Saskatoon, Saskatoon Nature Society, Northeast Swale Watchers	Underway
5.2.2 Partner with the Ministry of Agriculture and the agricultural community to utilize Meewasin Conservation sites for promotion of best management practices for native prairie management.	By 2021, an annual event is hosted on a Meewasin Conservation site to promote best management practices to the agricultural community.	Ministry of Agriculture, PCAP, Saskatchewan Stock Growers Association, Livestock groups	Not started

## 6. Risk Assessment

### 6.1 Risk Assessment

The purpose of the risk assessment is to identify risks that will have an impact on the implementation of this plan and its associated actions. As with most risks, implementation relies heavily on funding opportunities and so financial risks dominate the risk assessment.

See Appendix B for “Stakeholders, Conservation Agencies and Opportunities in Partnership” for opportunities for plan implementation

**Table 13: Risks to Conservation or Implementation of the Meewasin Valley-wide Resource Management Plan**

Risk	Key Assumptions	Probability of Occurrence	Potential Impact	Mitigation Strategy	Likelihood of Success
Meewasin loses current funding.	Provincial funding under review at time of writing.	Low to medium	Parts of plan would not be implemented. General freeze on conservation in the area.	Public concern might prevent or reverse funding cuts. Meewasin may become more dependent on the City of Saskatoon. Meewasin continues to apply for funding grants.	Low to medium
Drastic rise in land prices.	This makes securement much more difficult.	Medium	Key corridors are not conserved.	Prioritize land securement away from areas of high likelihood of city growth.	Low to medium
Area planning exercises ignore or downplay conservation needs.	This could make it difficult to secure land or enact programs.	Medium	Decrease in ecosystem health across the planning area.	Attend meetings as requested and maintain contact with City of Saskatoon, local RMs and planning groups	Medium to high

Risk	Key Assumptions	Probability of Occurrence	Potential Impact	Mitigation Strategy	Likelihood of Success
Funding sources decrease for conservation agencies.	Agencies have fewer programs to offer making them less effective partners. This will make it difficult for partner agencies to be effective and we require some of their program to help.	High	Less benefits to all residents and visitors of Saskatchewan from conservation agencies due to decreased capacity (education programs, natural sites, best management practices programs, etc.)	Continue using other agency information and make sure we acknowledge the importance of the info in any publications produced. Include agencies in grants, projects and land securement opportunities.	Medium
Loss of data sources.	Budget cuts may make it more difficult to get up-to-date data (from all agencies) that this plan assumes will be present.	Low to medium	Decisions cannot be made or are not made with the best information.	Continue to request, use, and cite data from ministries that produce and maintain it.	Low to medium
Change in economic conditions.	This could have a huge ripple effect on land use because of an increase in city growth.	Low to medium	City growth would impact identified targets and increase pressure on ecosystem services.	Prioritize actions where land is most affordable. Continue to comment on land planning activities as opportunities arise.	Low to medium

## 7. Communications Plan

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In 2015, Meewasin received funding from Environment and Climate Change Canada through the Habitat Stewardship Program - Prevention Stream to develop a Meewasin Valley-wide Resource Management Plan. Meewasin currently has some site specific Resource Management Plans, however, this new plan will connect the entire region by developing over-arching conservation goals and strategies. Concurrent to our planning window, the Nature Conservancy of Canada - Saskatchewan Region (NCC) was preparing to update their 2008 Saskatoon Prairie Natural Areas Conservation Plan and so a partnership was born. Meewasin has partnered with the NCC and used their conservation planning method, the Open Standards of Conservation Planning. This is an internationally recognized model for conservation planning and has been adopted by The Nature Conservancy, World Wildlife Fund, and the United States Fish and Wildlife Service. The deliverables of this plan will be the identification of conservation goals, the prioritization of conservation targets, the ranking of the greatest threats to conservation in the planning region, and strategies and partnerships to mitigate these threats. Additionally, a work plan and monitoring plan will be developed and implemented.

Desired Outcome: An adaptive over-arching Resource Management Plan for the Meewasin Valley with work plan, implementation and monitoring for the next 10 years with opportunity to revisit plan every 2 years.

Want to Avoid: A static document that is not fully adopted / supported by all staff, field work activities, funding opportunities or partnerships.

Goals of a Communications Plan: The Meewasin Valley-wide Resource Management Plan will demonstrate that Meewasin is a regional, provincial and Canada-wide leader in conservation. This recognition of the value of Meewasin's work will increase funding sources and enhance Meewasin's legacy.

Audience of the Meewasin Valley-wide RMP: Other conservation agencies (world-wide), participating parties (City of Saskatoon, Government of Saskatchewan and University of Saskatchewan), donors, the general public, and for use in grant applications.

Report distribution and Advertisement:

- Meewasin documents including the Annual Report;
- Social media including Facebook, Twitter, LinkedIn, and Instagram;
- Key stakeholders and Meewasin committees to spread the word;
- Meewasin's website;
- Through Meewasin's newsletter, the Explorer;
- Meewasin site tours ; and
- By Meewasin staff to the public.

## 8. Summary

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**Figure 36: Cranberry Flats Conservation Area aerial (2009)**

The Meewasin Valley-wide Resource Management Plan is a 10 year conservation plan for the area encompassing the Meewasin Valley. This plan is a living document that allows updates and new information to be added as it is acquired. Annual updates will reflect the Open Standards Model and will include the yearly work plan, detailed budgets, what we have learned from the previous work of the plan (successes and failures), and updates to the viability assessment including any new information and status changes.

The conservation targets of hydro-riparian areas (rivers, creeks and the riparian vegetation surrounding them), post-glacial channel scars (swales), native grasslands and wetlands make up most of the complex ecosystems within the Meewasin Valley-wide Resource Management planning area. The key ecological attributes focus on connectivity and ecosystem health (also includes density, diversity, population size and natural disturbance regime). Viability was rated as fair for all conservation targets with the data available. The viability assessment acknowledges some data gaps, which are to be filled as new information becomes available. Threats to the conservation targets are many and varied, but invasive species stand out as the greatest threat to conservation within the planning area (very high threat). Other high threats include climate change, dams and water management, runoff of pesticides and fertilizers, trespass issues, stormwater, and fire and fire suppression. The list of actions (and their associated strategies) to improve the health of the targets is lengthy, but partnerships make these objectives manageable.

The goals and objectives are reflected by the vision and purpose of this report. The results of the Meewasin Valley-wide Resource Management Plan and the conservation work that Meewasin carries out as a result of the plan will continue to position Meewasin as a leading conservation agency and land trust in the Meewasin Valley. Meewasin engages in the active conservation and enhancement of biodiversity, native species, habitats, and ecosystems through its strong and integrated resource management program. Awareness is created about the physical and mental health benefits provided through the conservation of these natural areas and there are increased opportunities for the citizens and visitors of the Meewasin Valley to access and connect with nature. Meewasin has many successful partners within all jurisdictions (that Meewasin's jurisdiction intersects) and many different agencies, non-government organizations, volunteer groups, landowners, and the general public through a united goal to enhance and maintain these ecologically connected landscapes of the Meewasin Valley. Meewasin's resource management program is regionally, provincially, nationally and internationally recognized for its success in conserving the Meewasin Valley.

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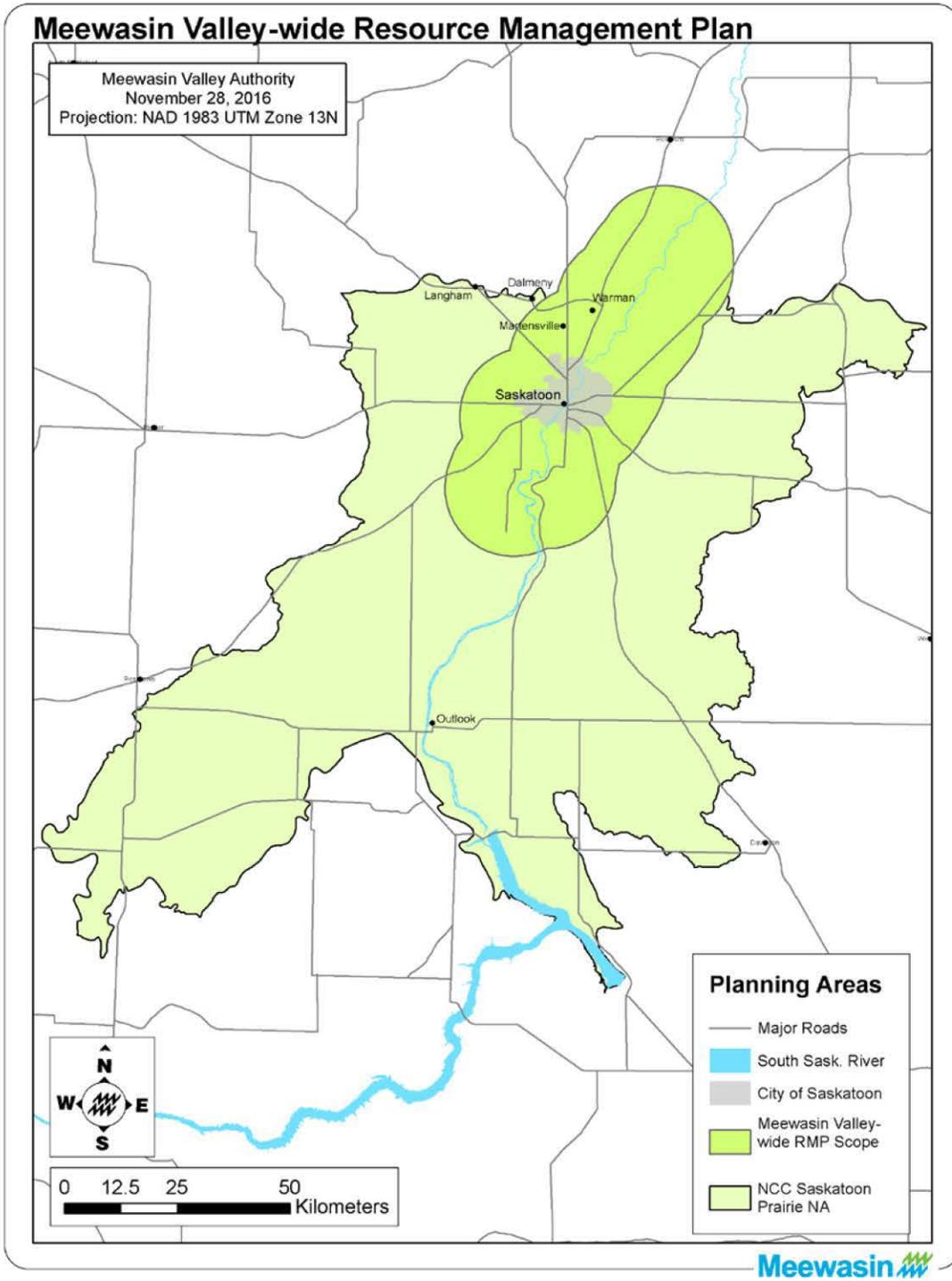
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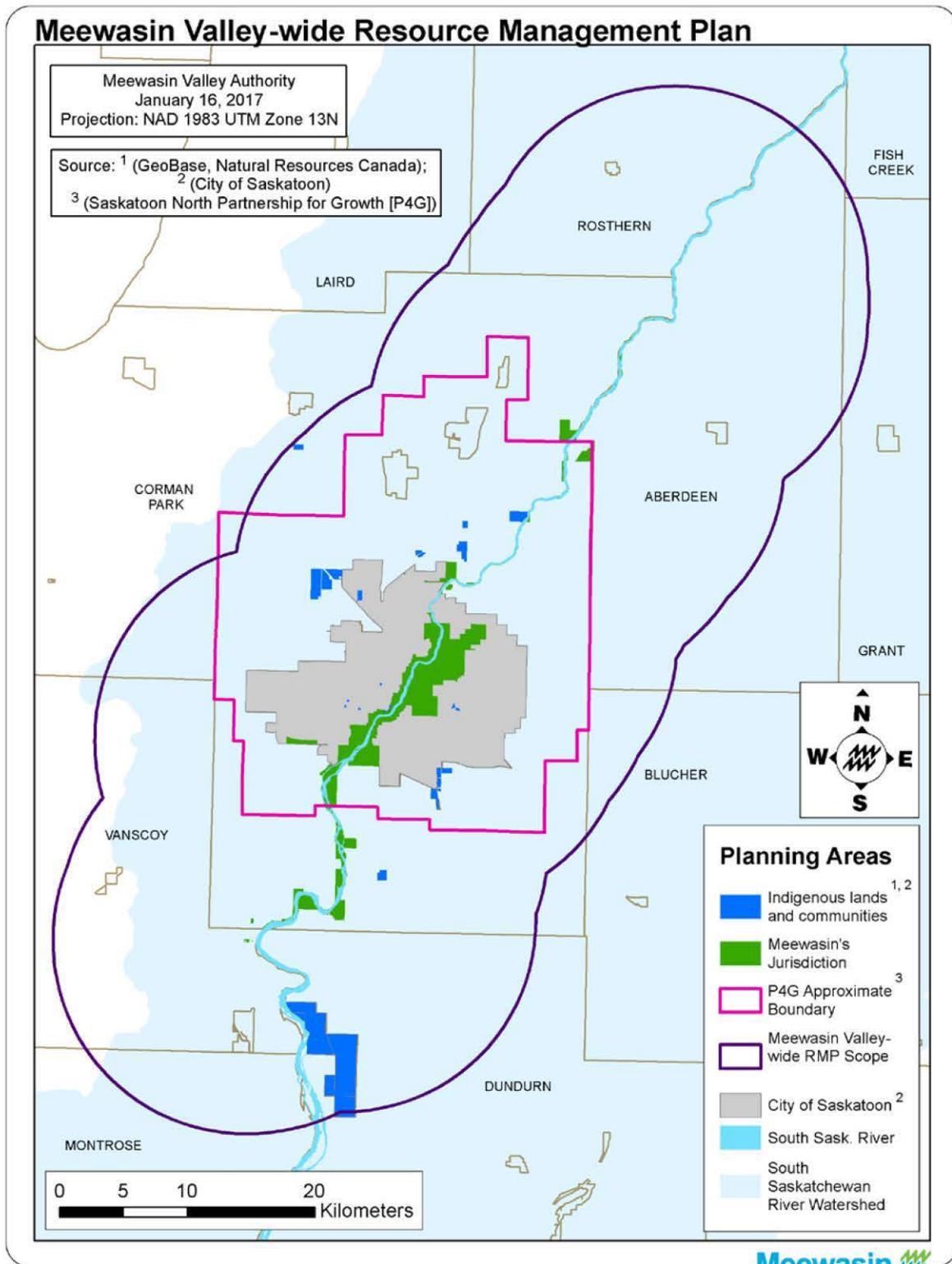
## Appendix A - Maps

### Scope and Context

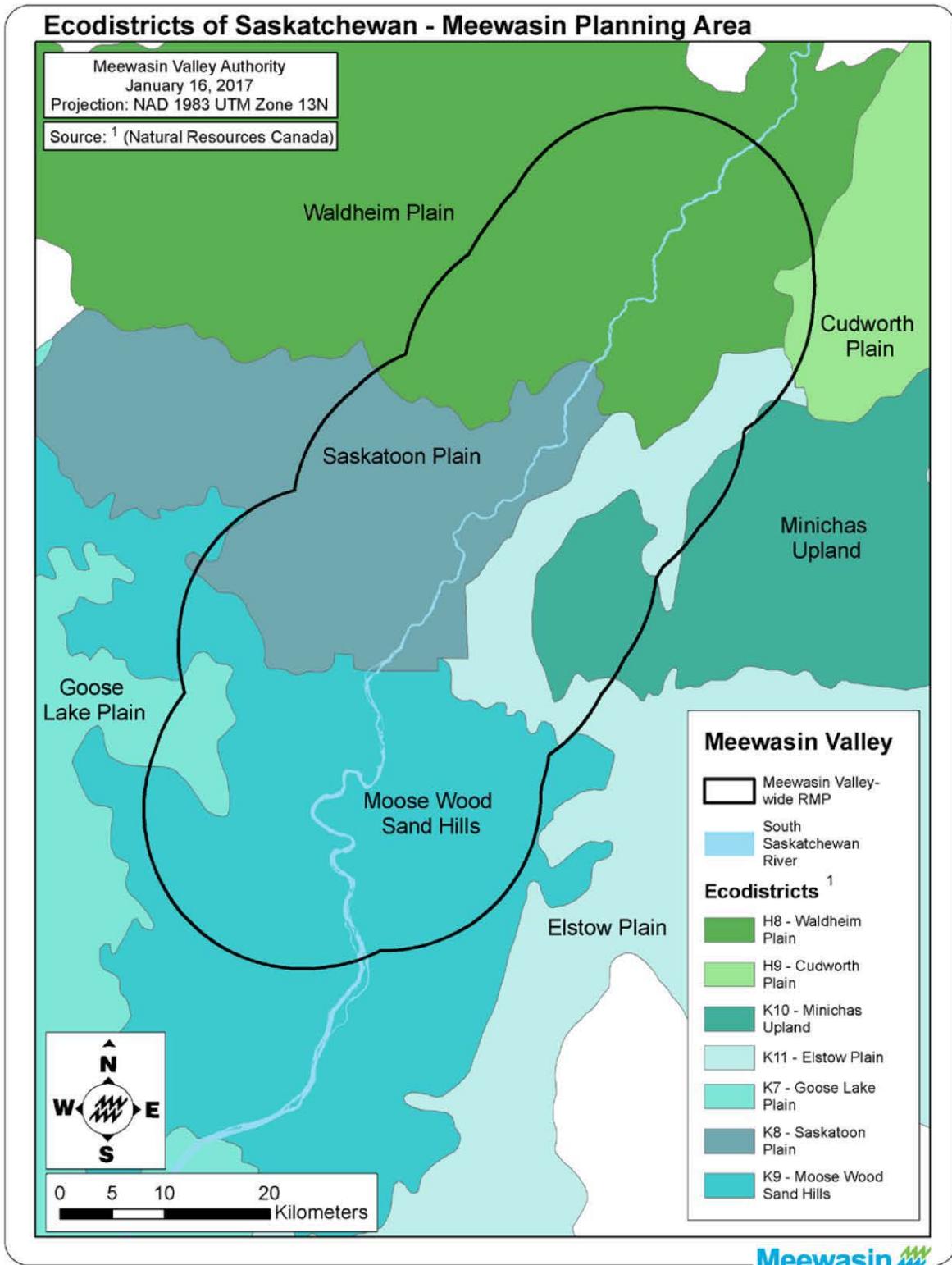
Map 1: Meewasin Valley-wide Resource Management Planning Area



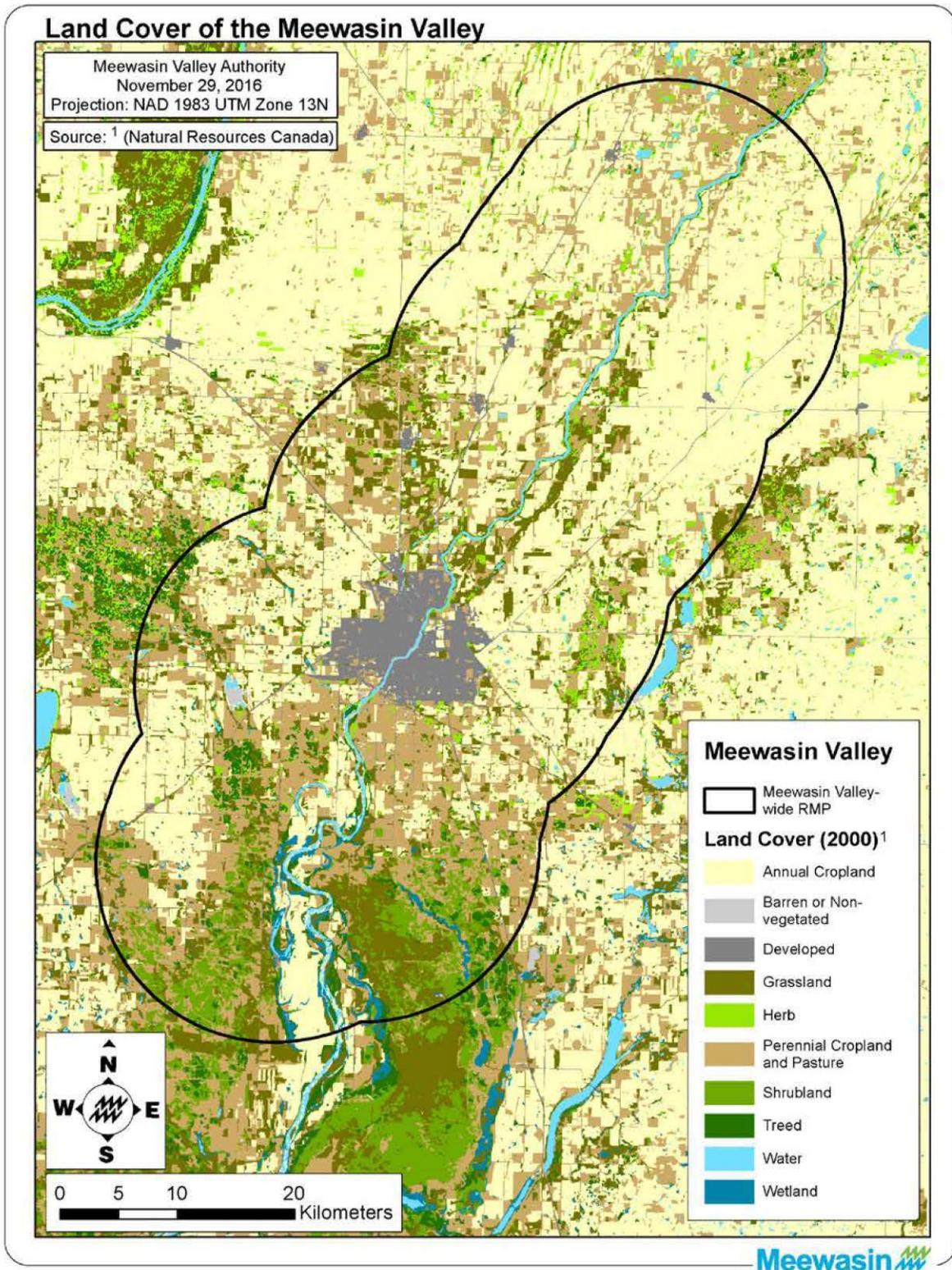
Map 2: Meewasin Valley Planning Areas Overlap



Map 3: Ecodistricts of the Region

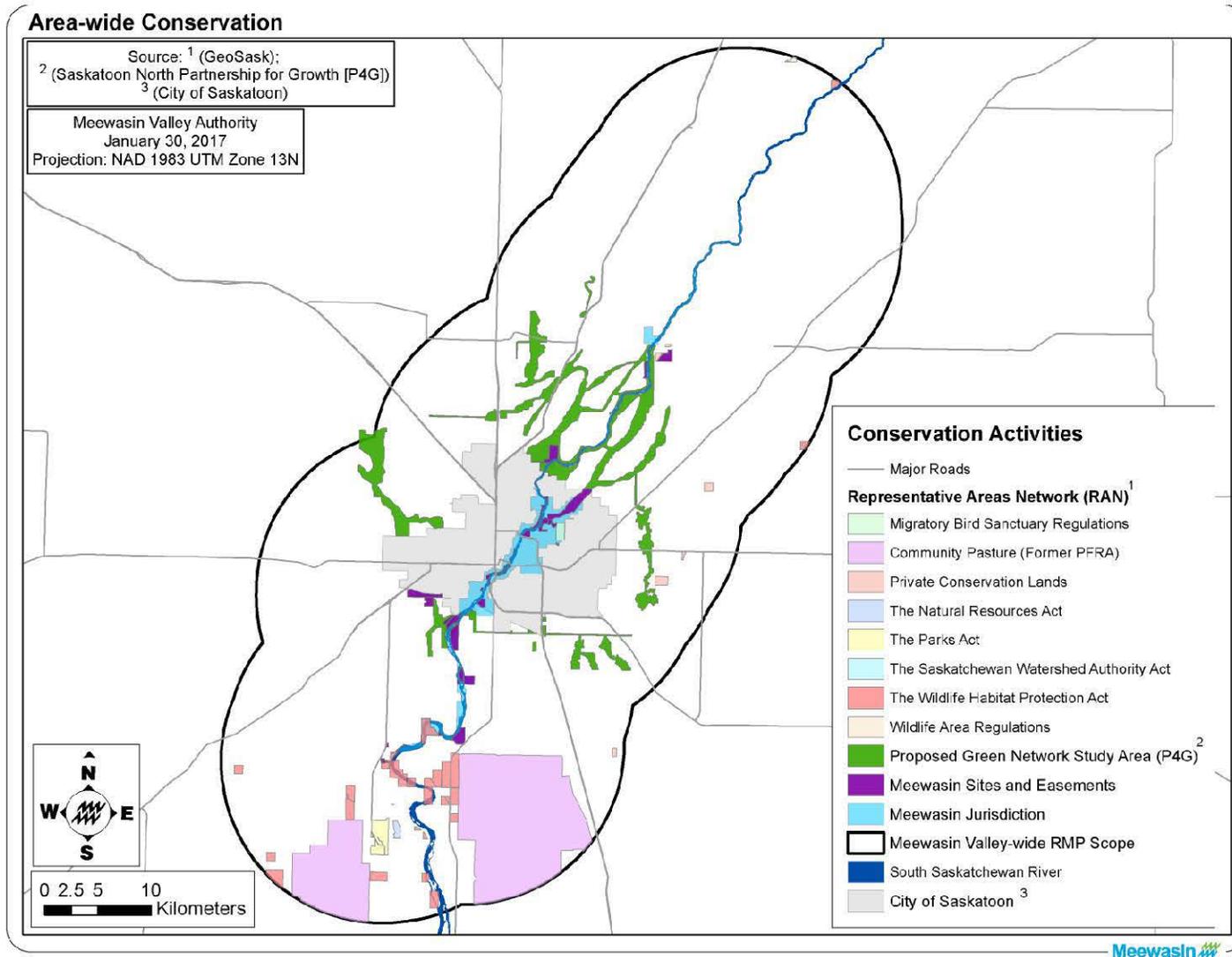


Map 4: Land Cover Classifications of the Region

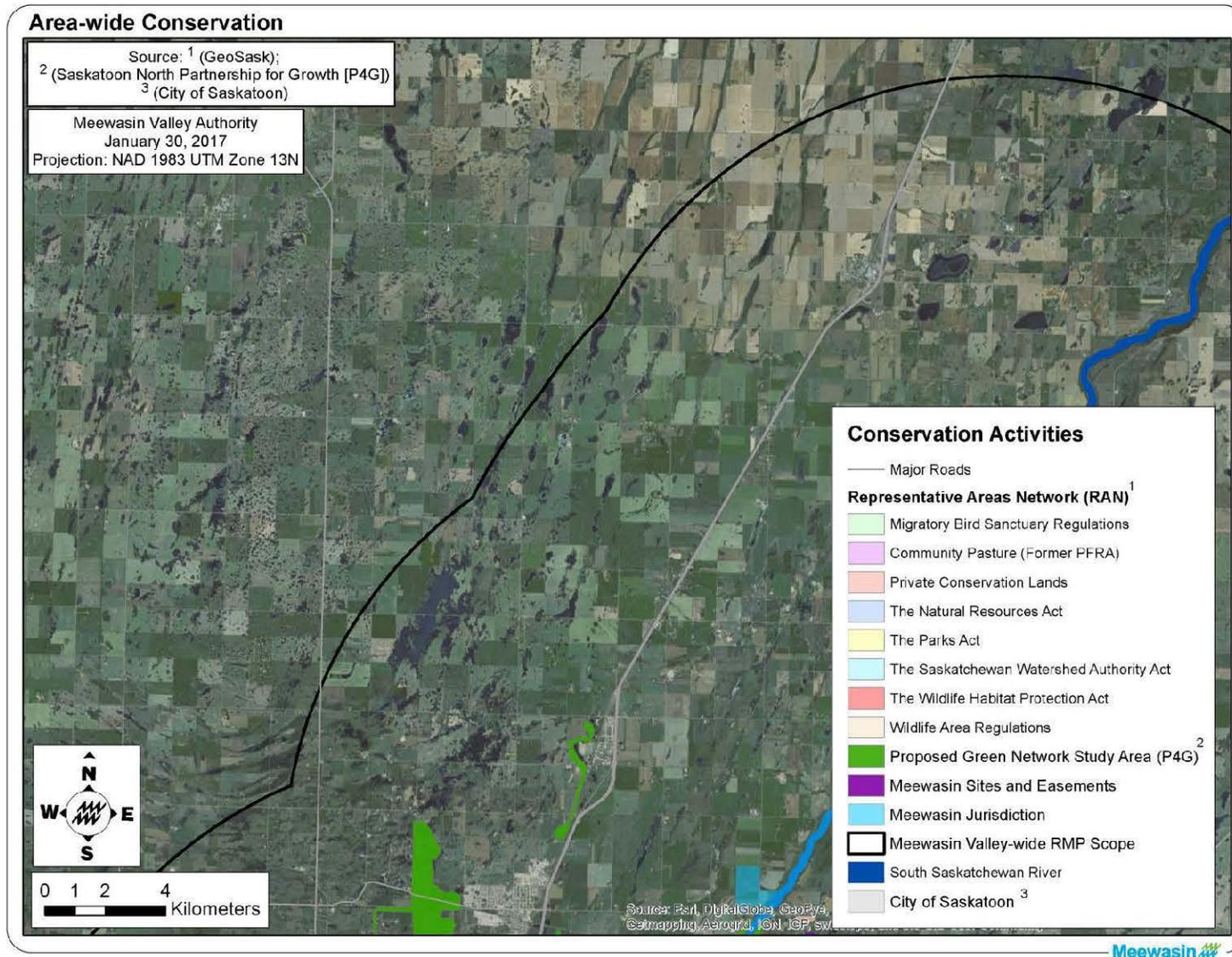


## Conservation

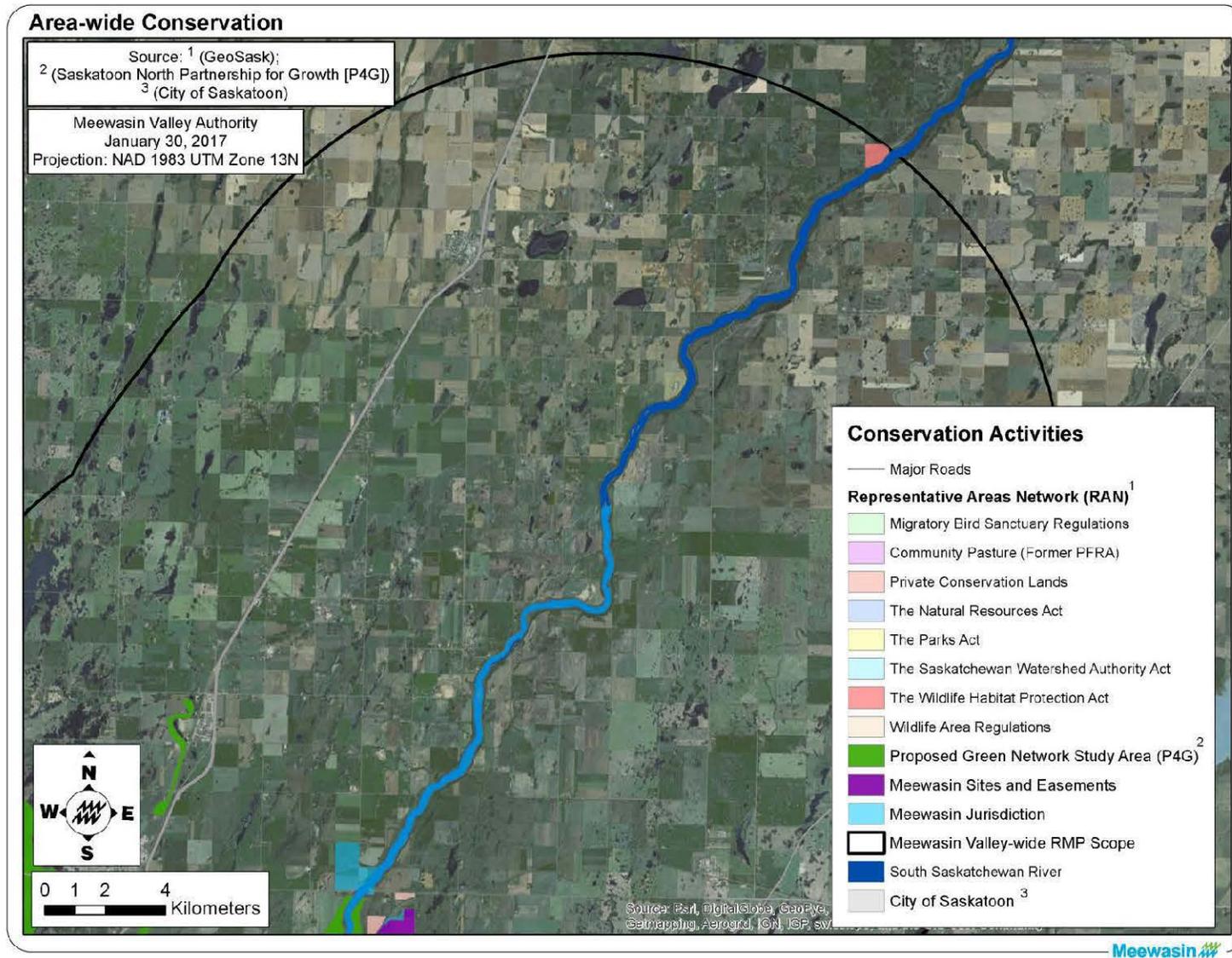
Map 5: Conservation Activities in the Region (All)



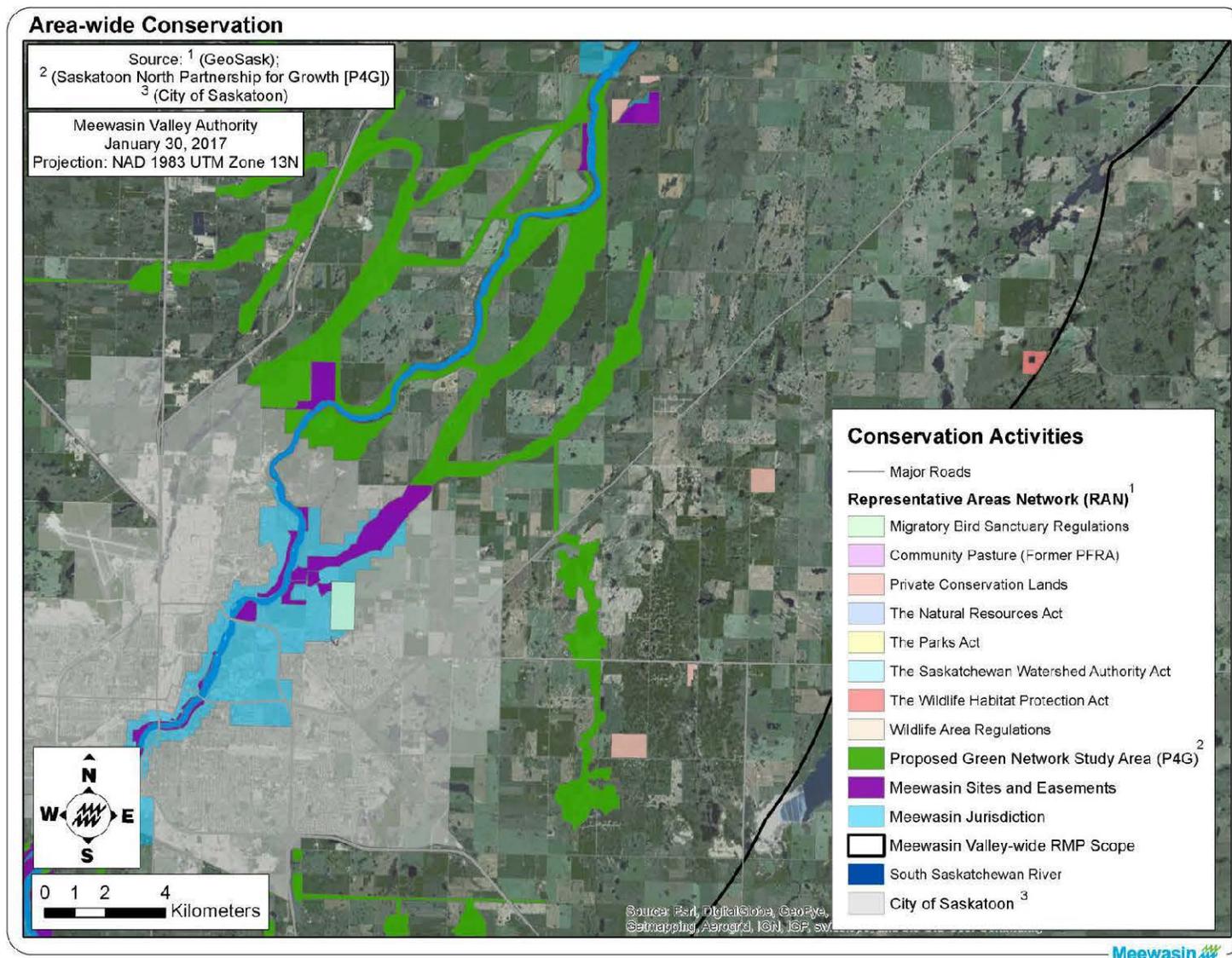
Map 6: Conservation Activities in the Region (Northwest)



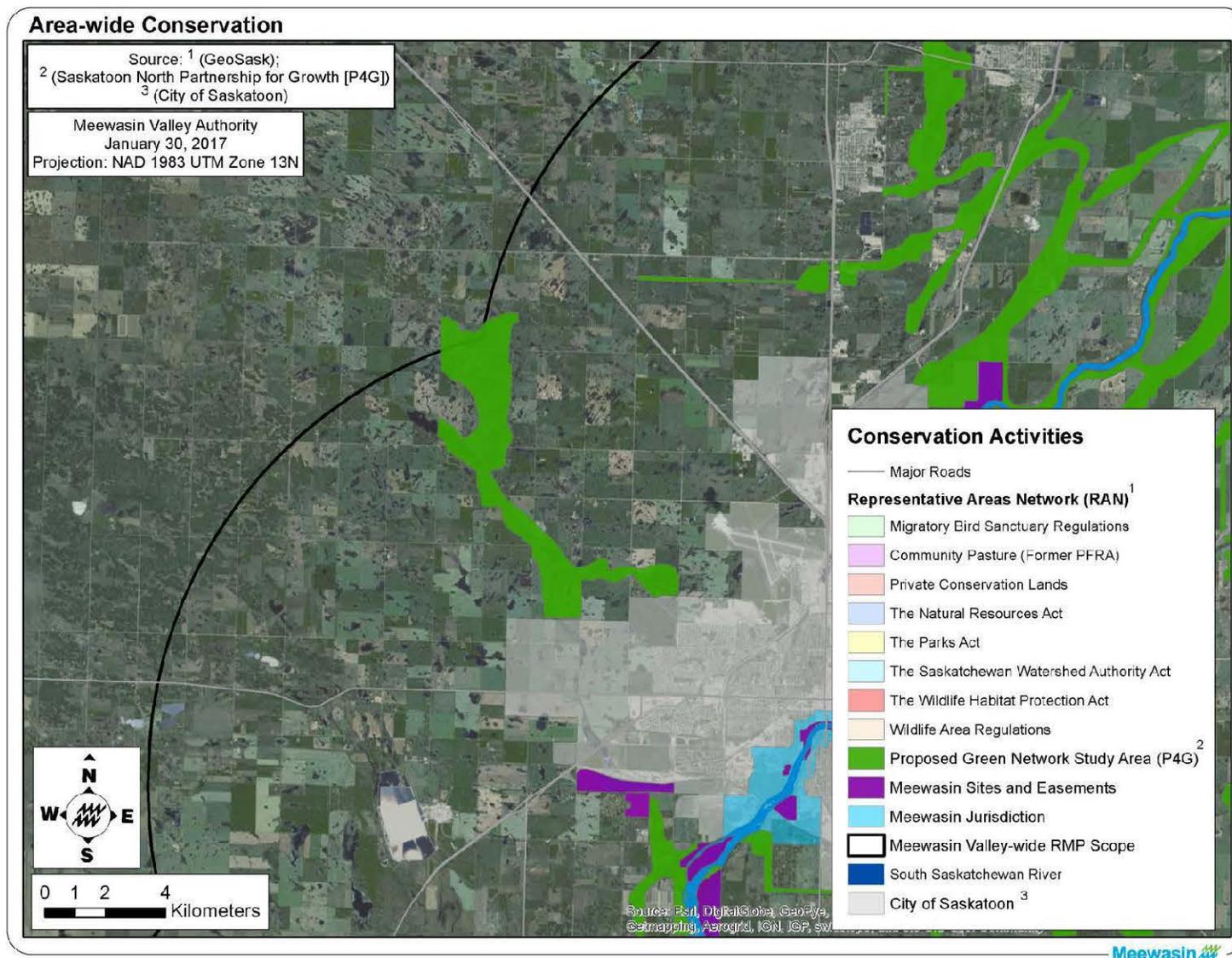
Map 7: Conservation Activities in the Region (Northeast)



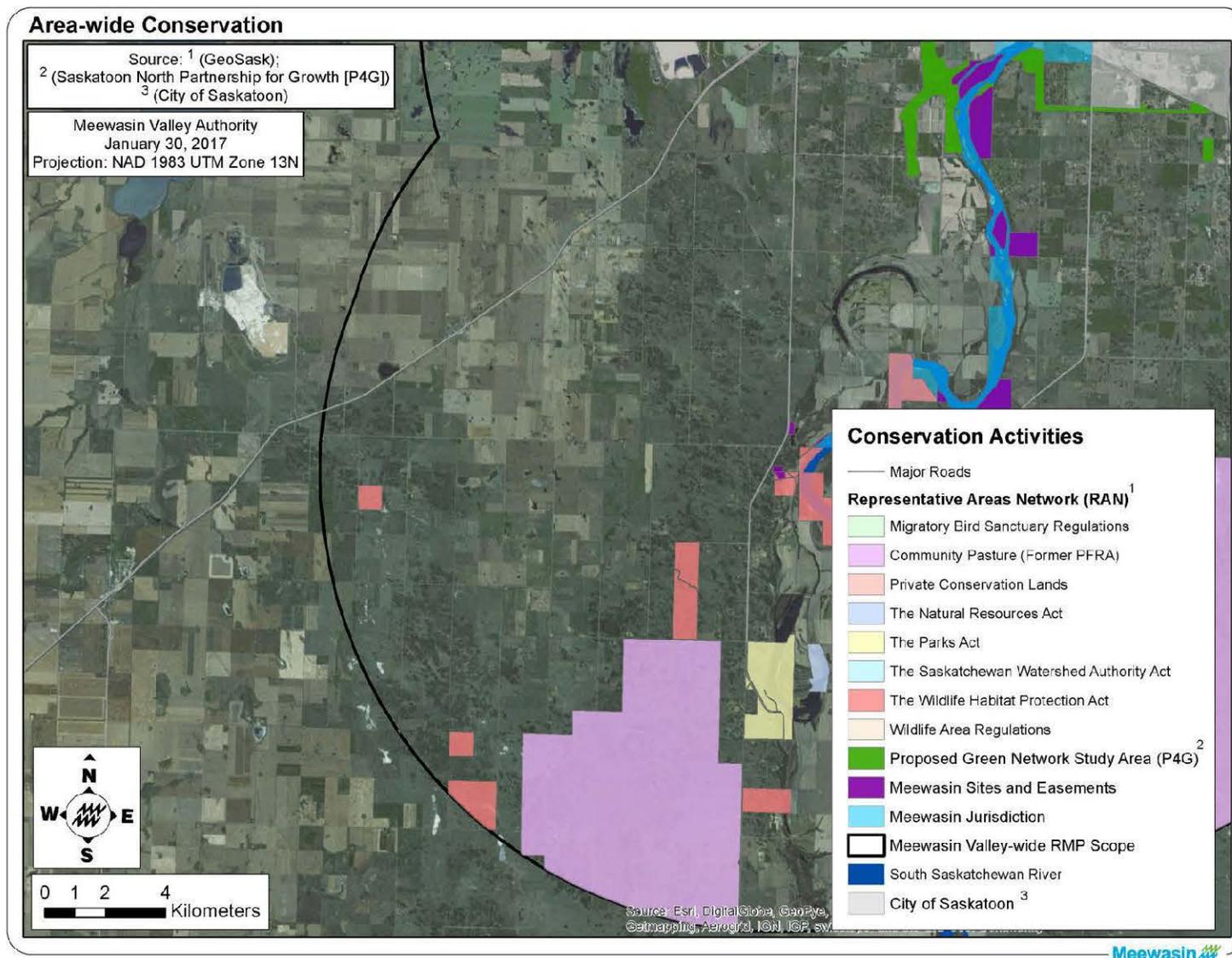
Map 8: Conservation Activities in the Region (Central - East)



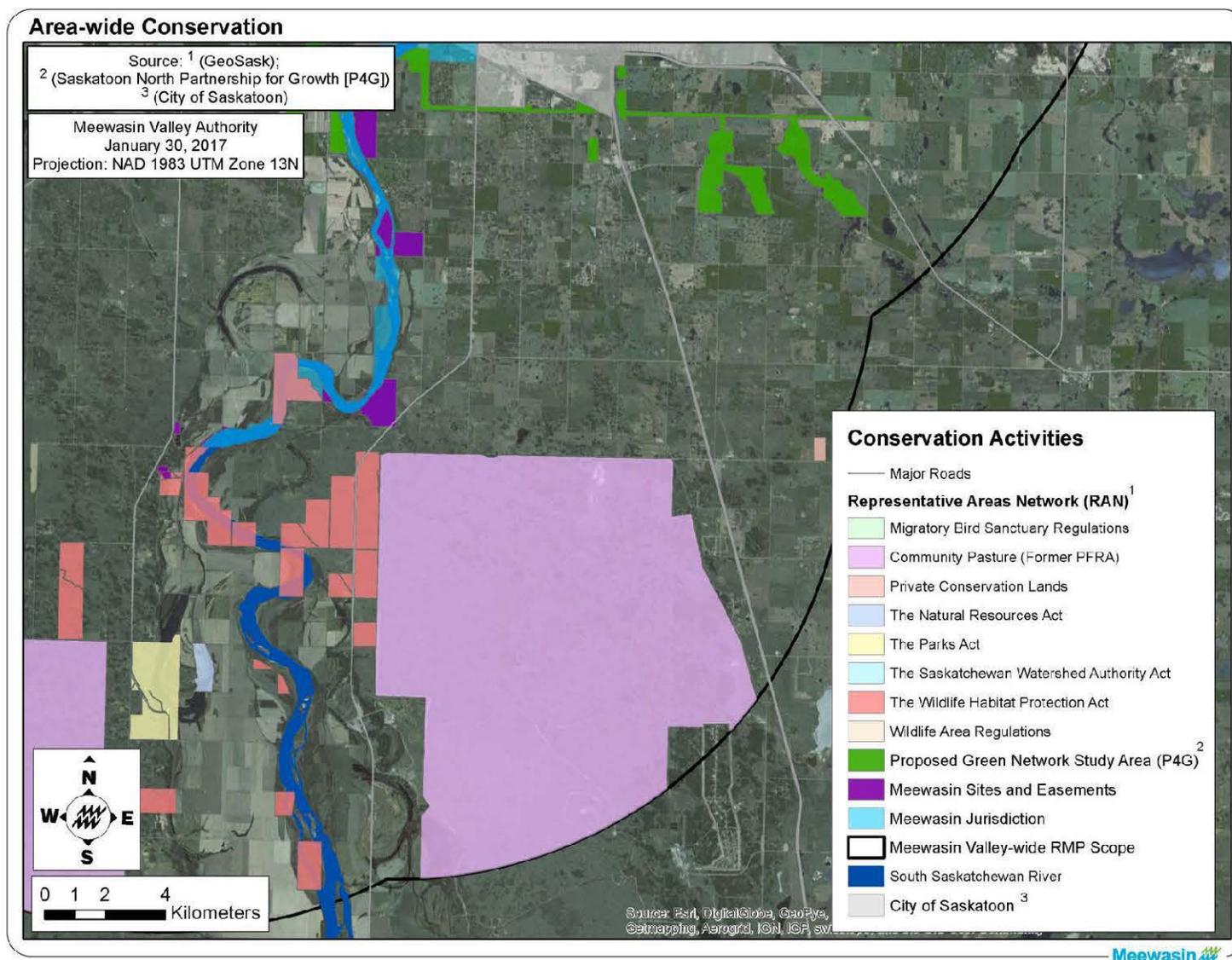
Map 9: Conservation Activities in the Region (Central - West)



Map 10: Conservation Activities in the Region (Southwest)

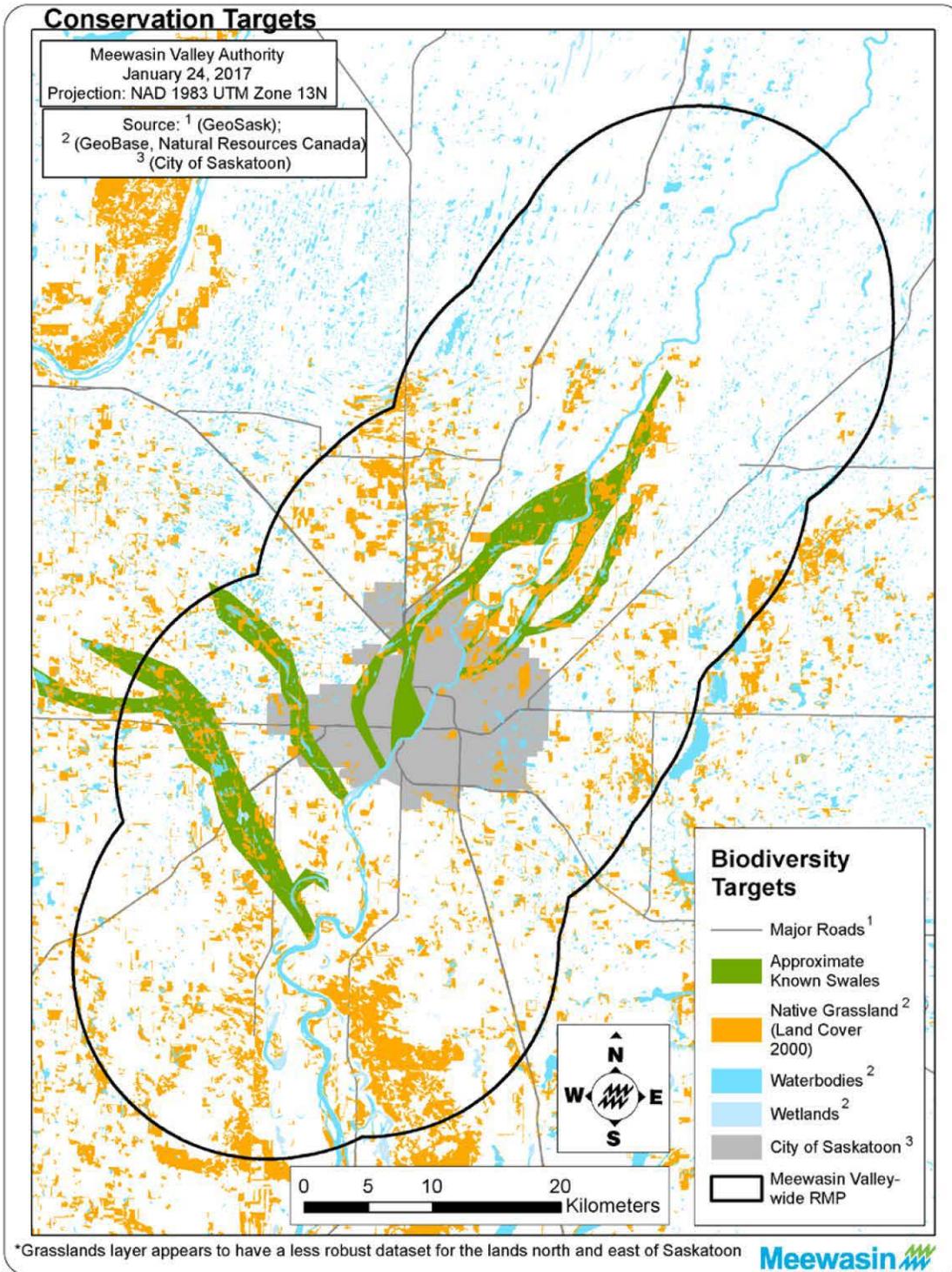


Map 11: Conservation Activities in the Region (Southeast)



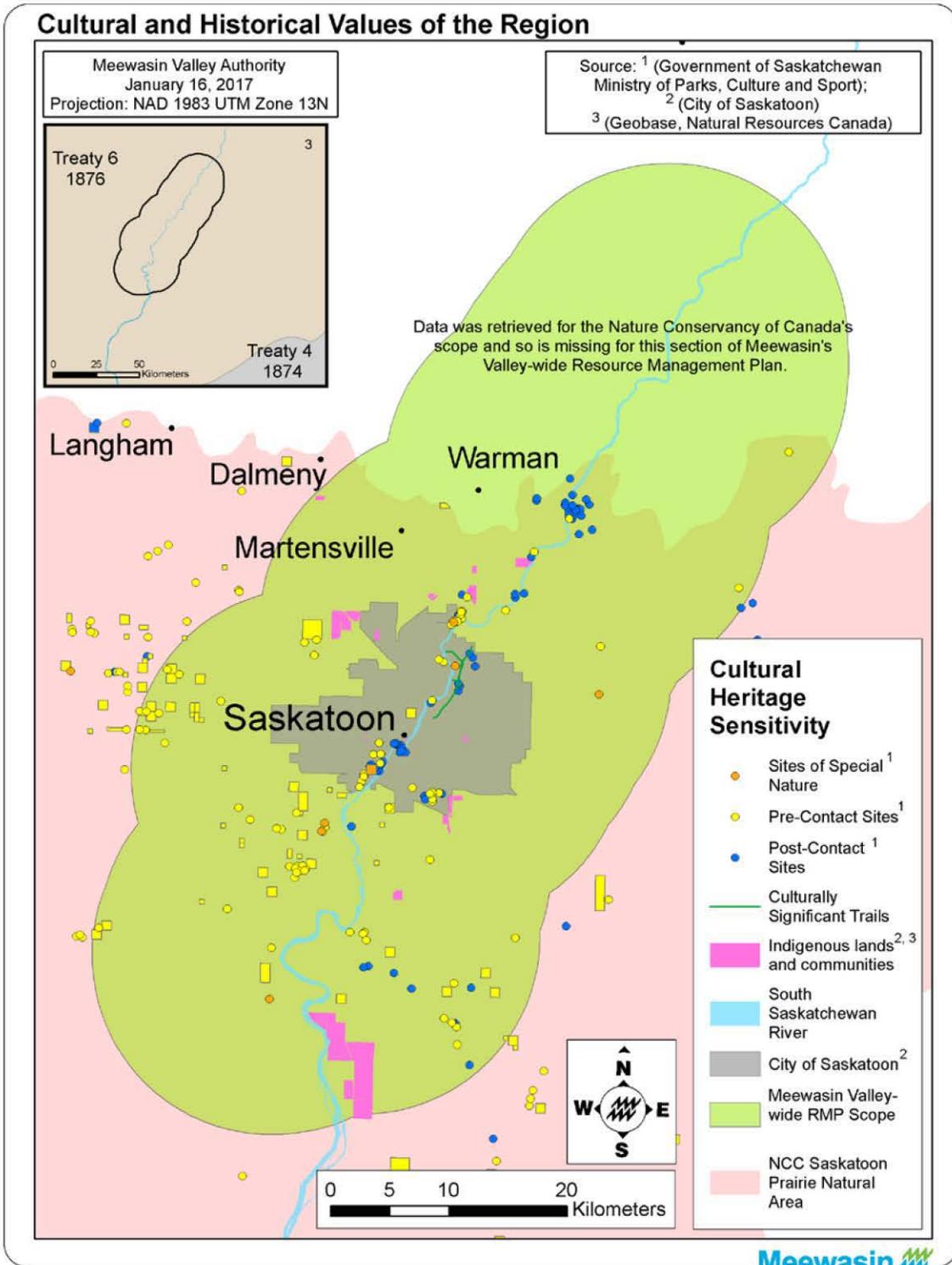
## Targets

Map 12: Meewasin Valley-wide RMP Conservation Targets



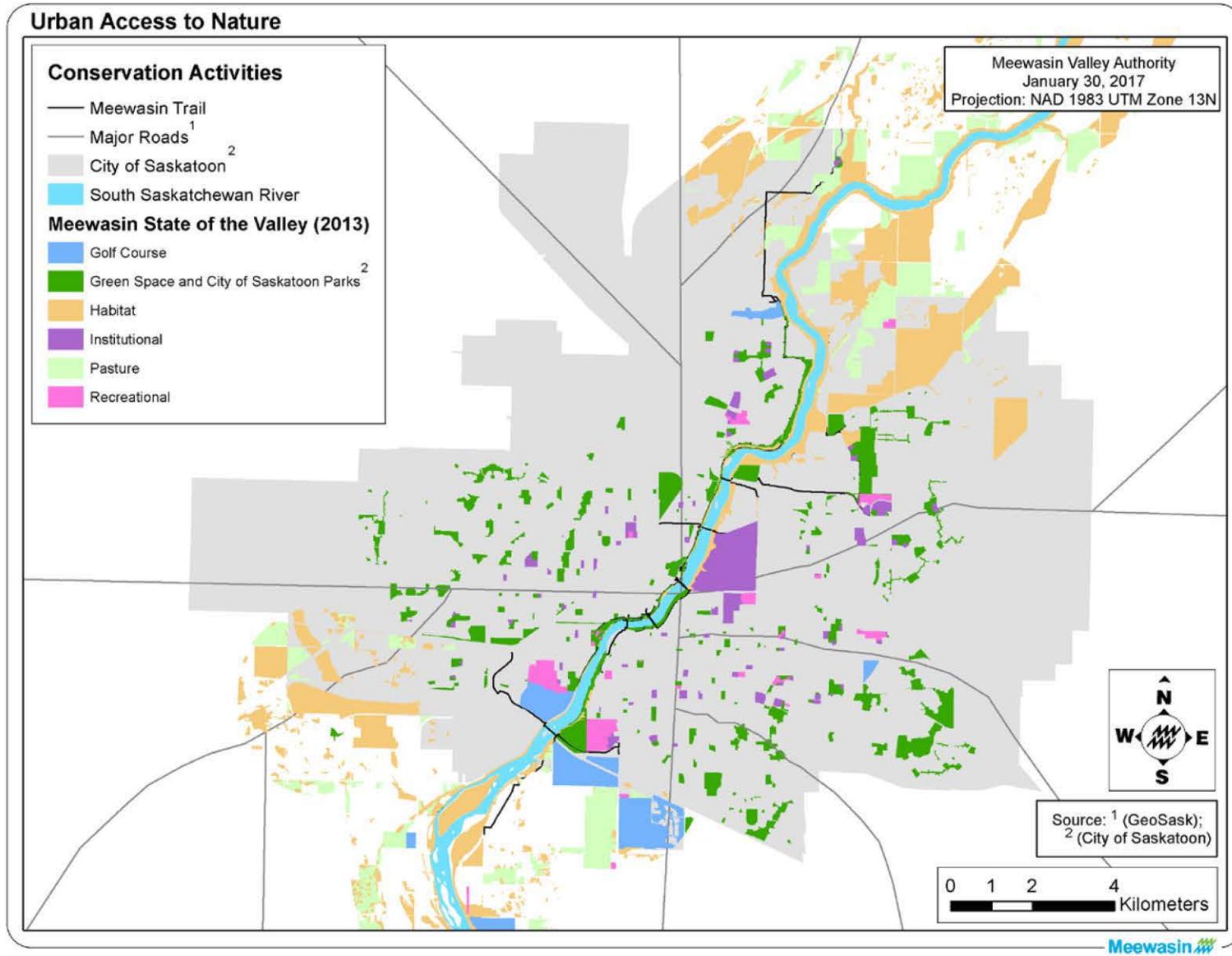
Map 13: Meewasin Valley-wide RMP Cultural and Historical Values\*

\*Not all sites may be reported within the provincial database. This map should not be used for navigation or legal purposes. It is intended for general reference use only.



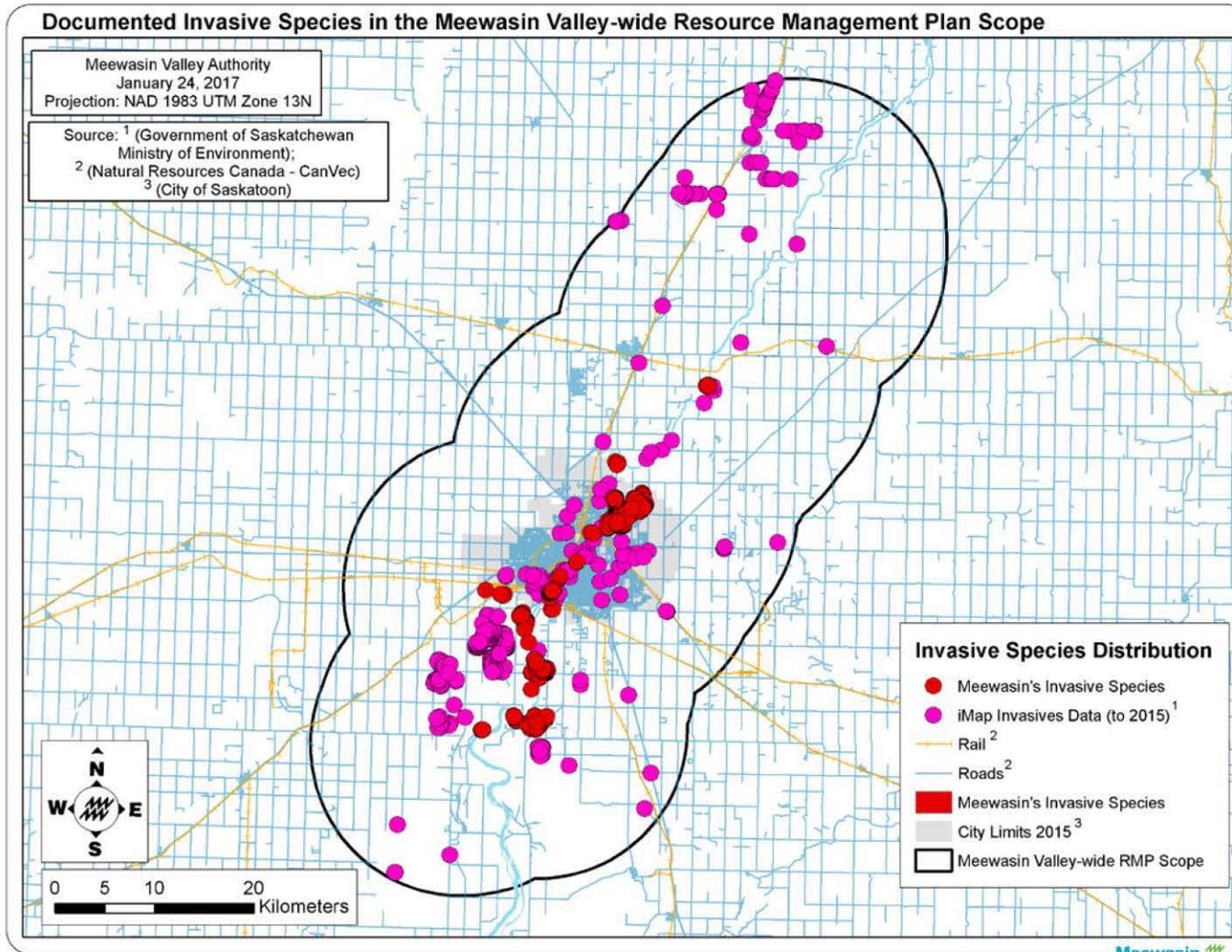
This map should not be used for navigation or legal purposes. It is intended for general reference use only.

Map 14: Saskatoon Region: Opportunities to Connect to Nature



## Threats

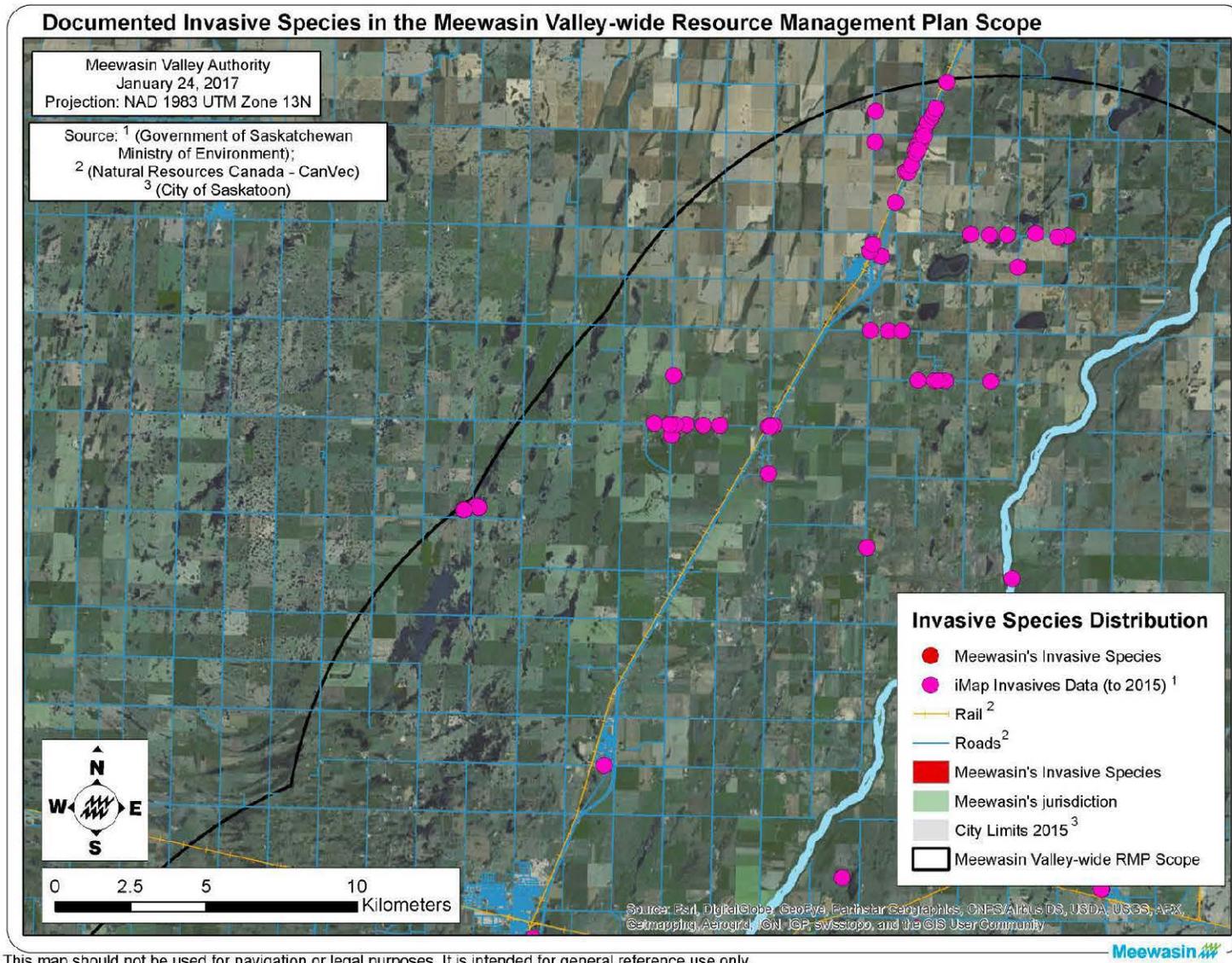
**Map 15: Invasive Species Occurrences\* in the Region (All) \*Not all occurrences may be reported within Meewasin or in the iMap Invasive Species Database**



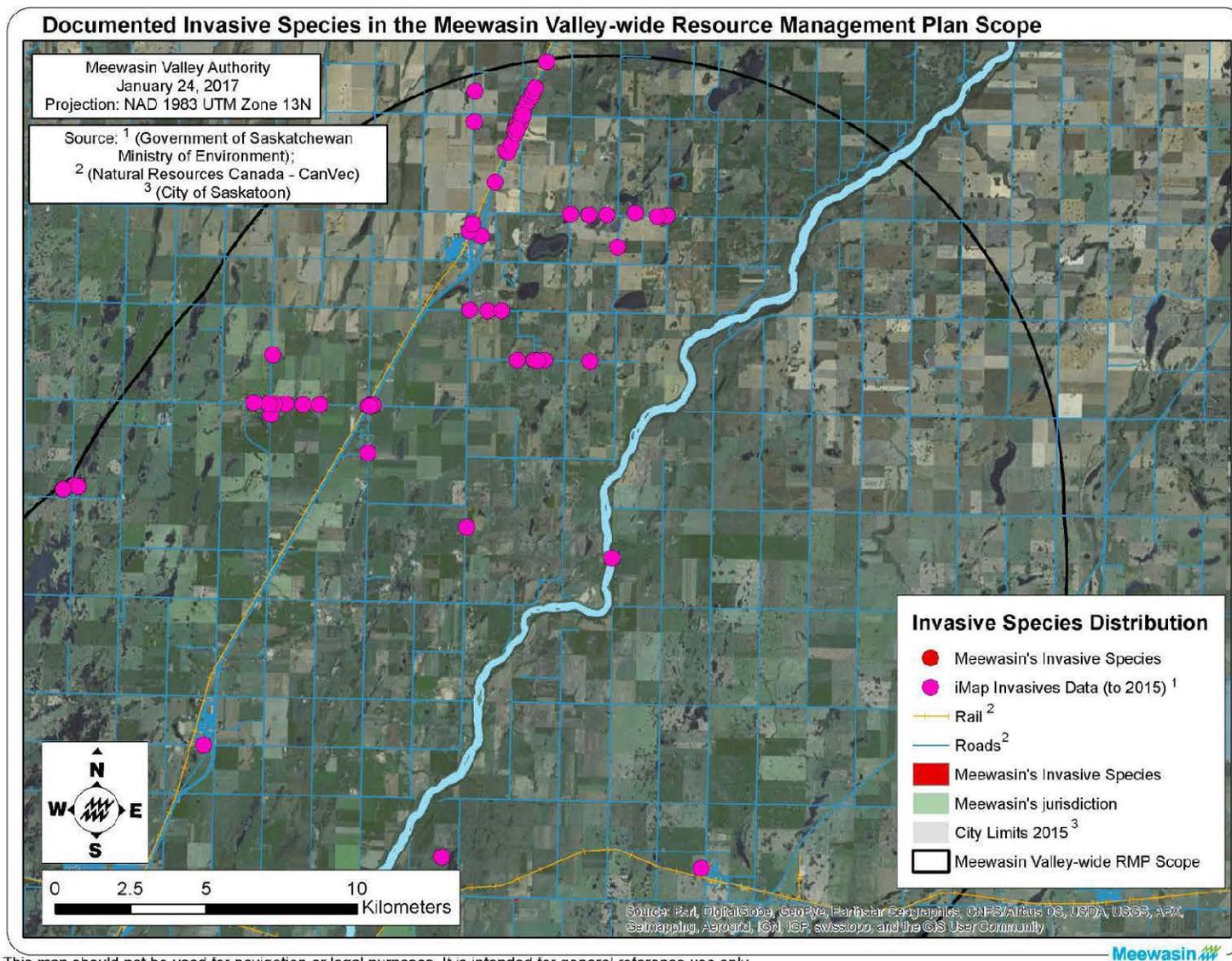
This map should not be used for navigation or legal purposes. It is intended for general reference use only.



Map 16: Invasive Species Occurrences in the Region (Northwest)

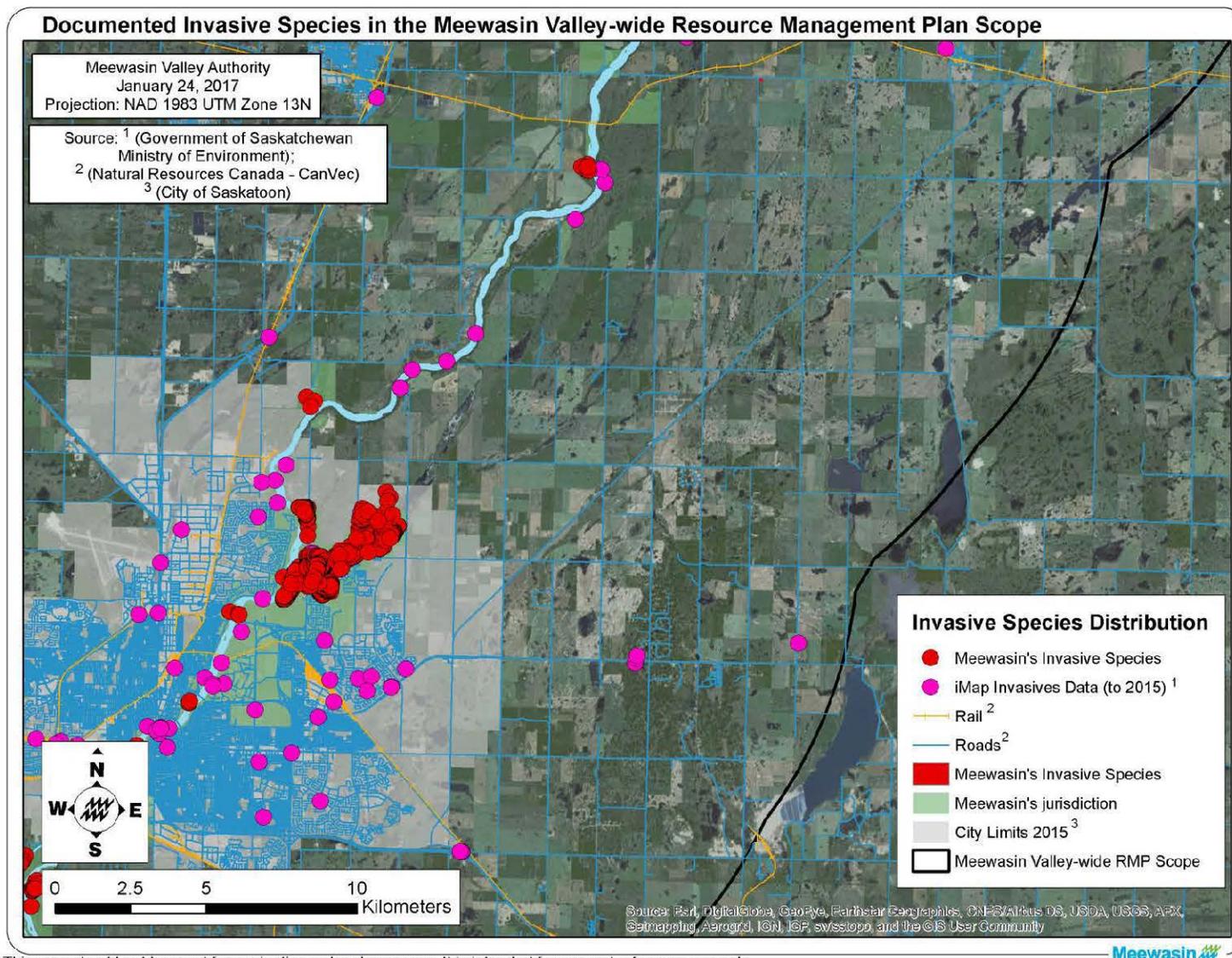


Map 17: Invasive Species Occurrences in the Region (Northeast)



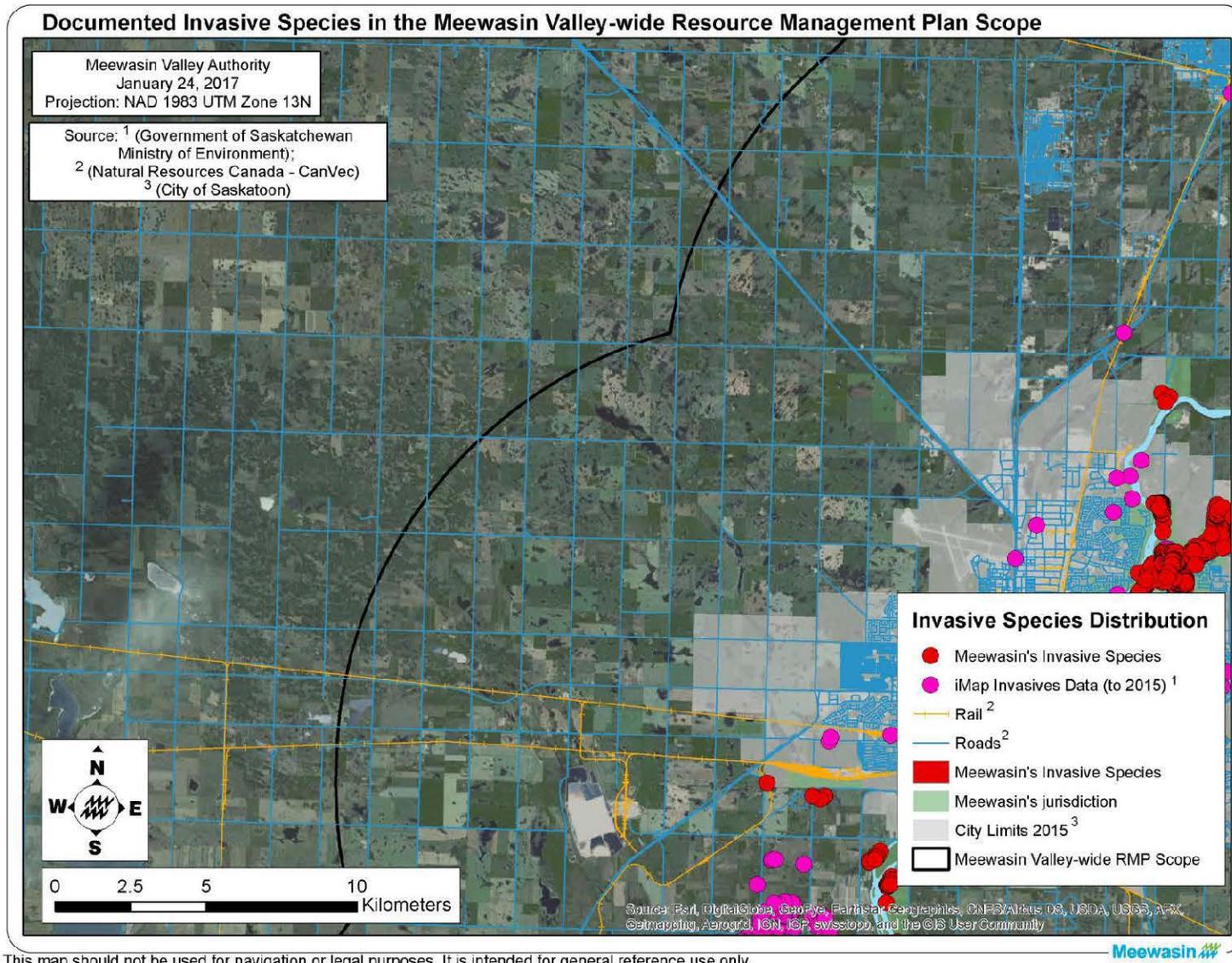
This map should not be used for navigation or legal purposes. It is intended for general reference use only.

Map 18: Invasive Species Occurrences in the Region (Central-East)



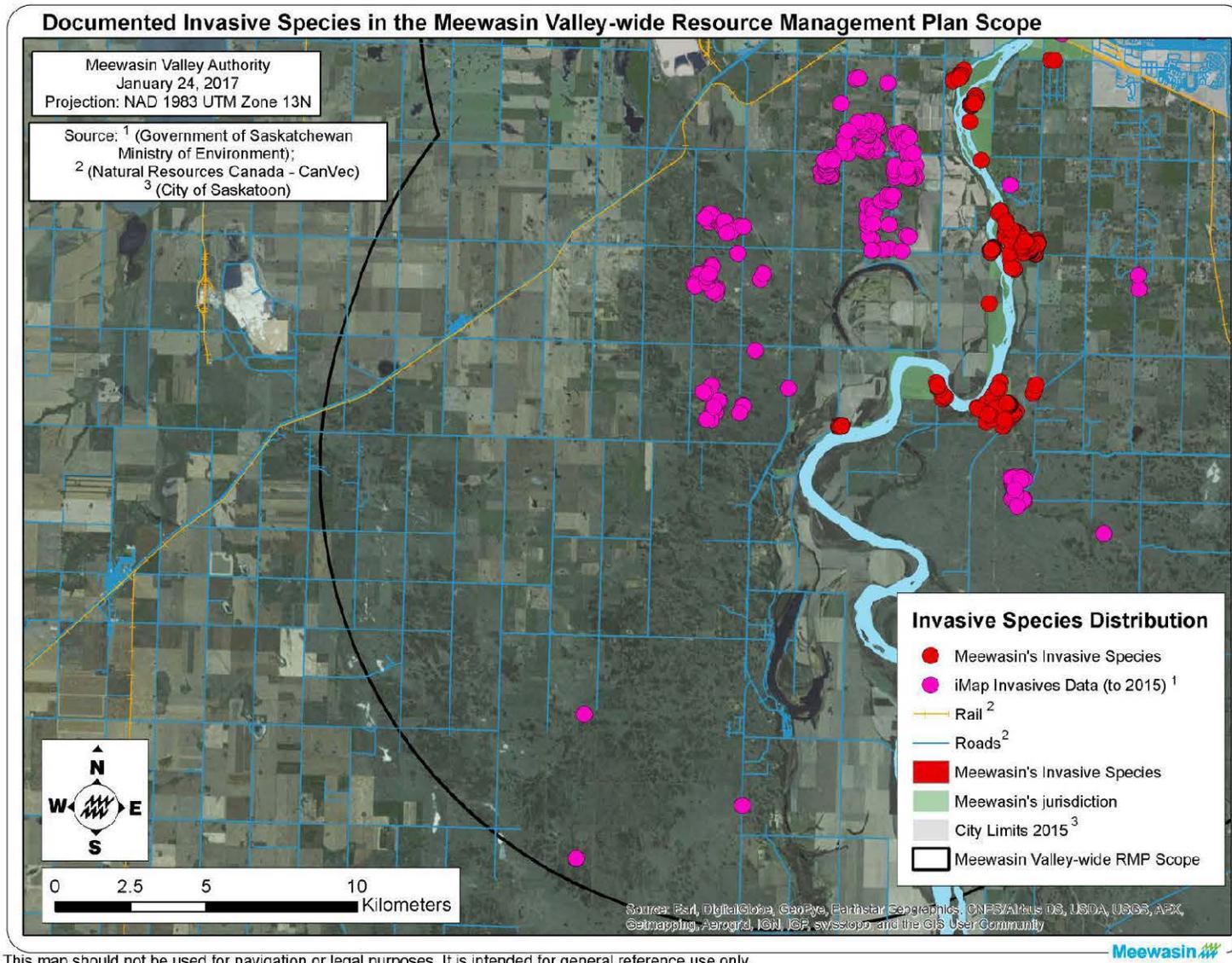
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Map 19: Invasive Species Occurrences in the Region (Central-West)

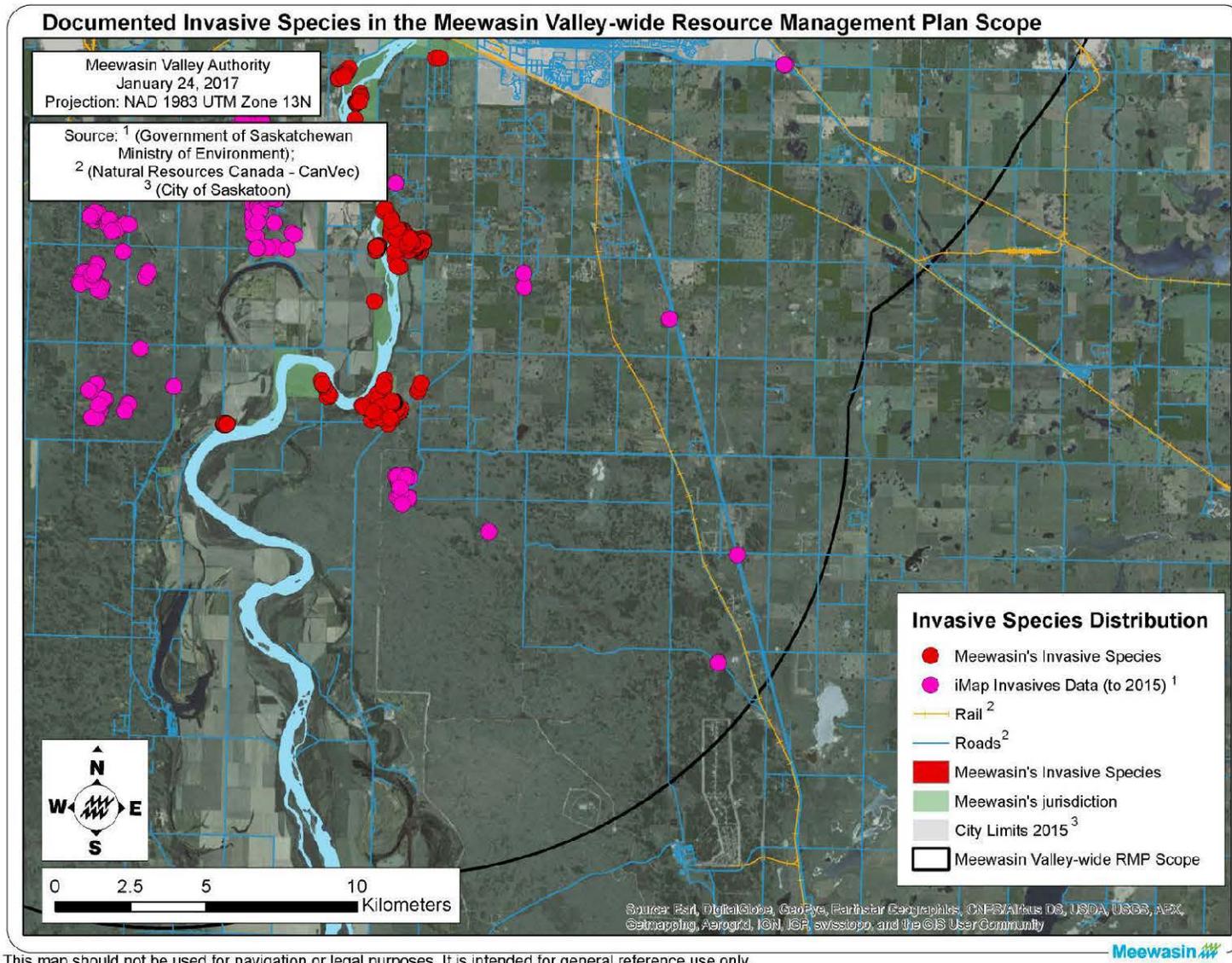


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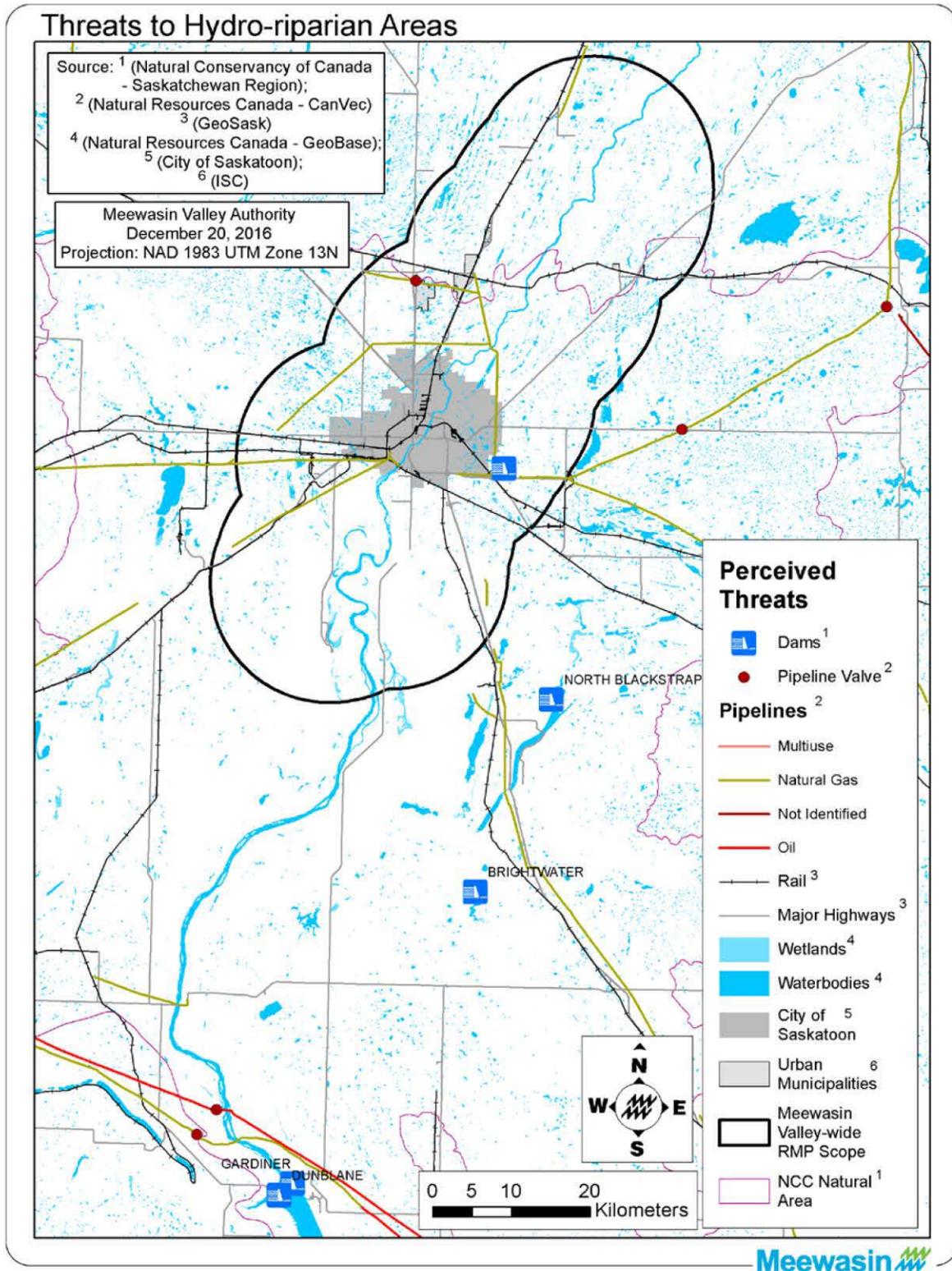
Map 20: Invasive Species Occurrences in the Region (Southwest)



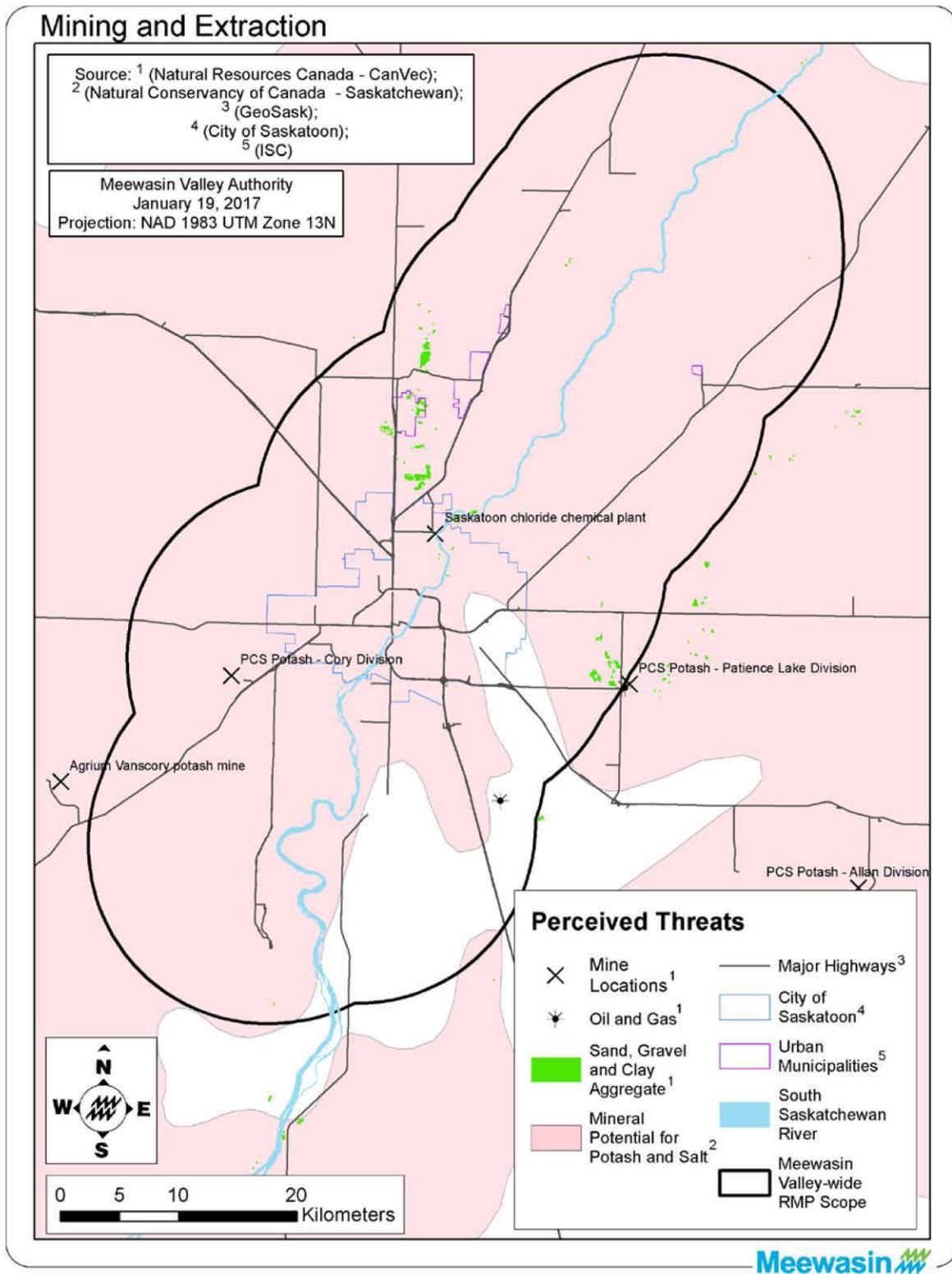
Map 21: Invasive Species Occurrences in the Region (Southeast)



Map 22: Dams and Pipelines as a Threat to Hydro-riparian Areas in the Planning Area

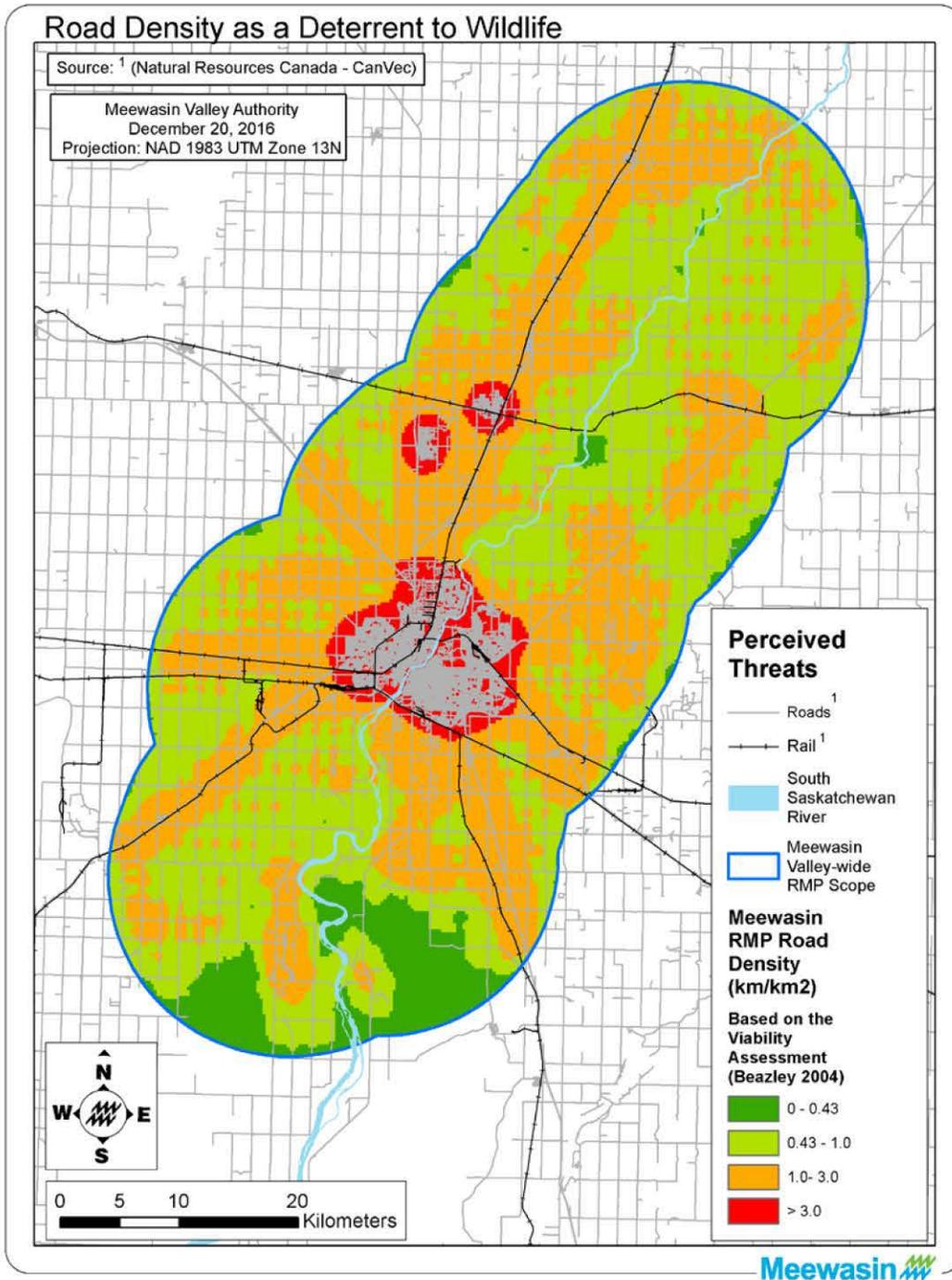


Map 23: Mining and Extraction in the Planning Area



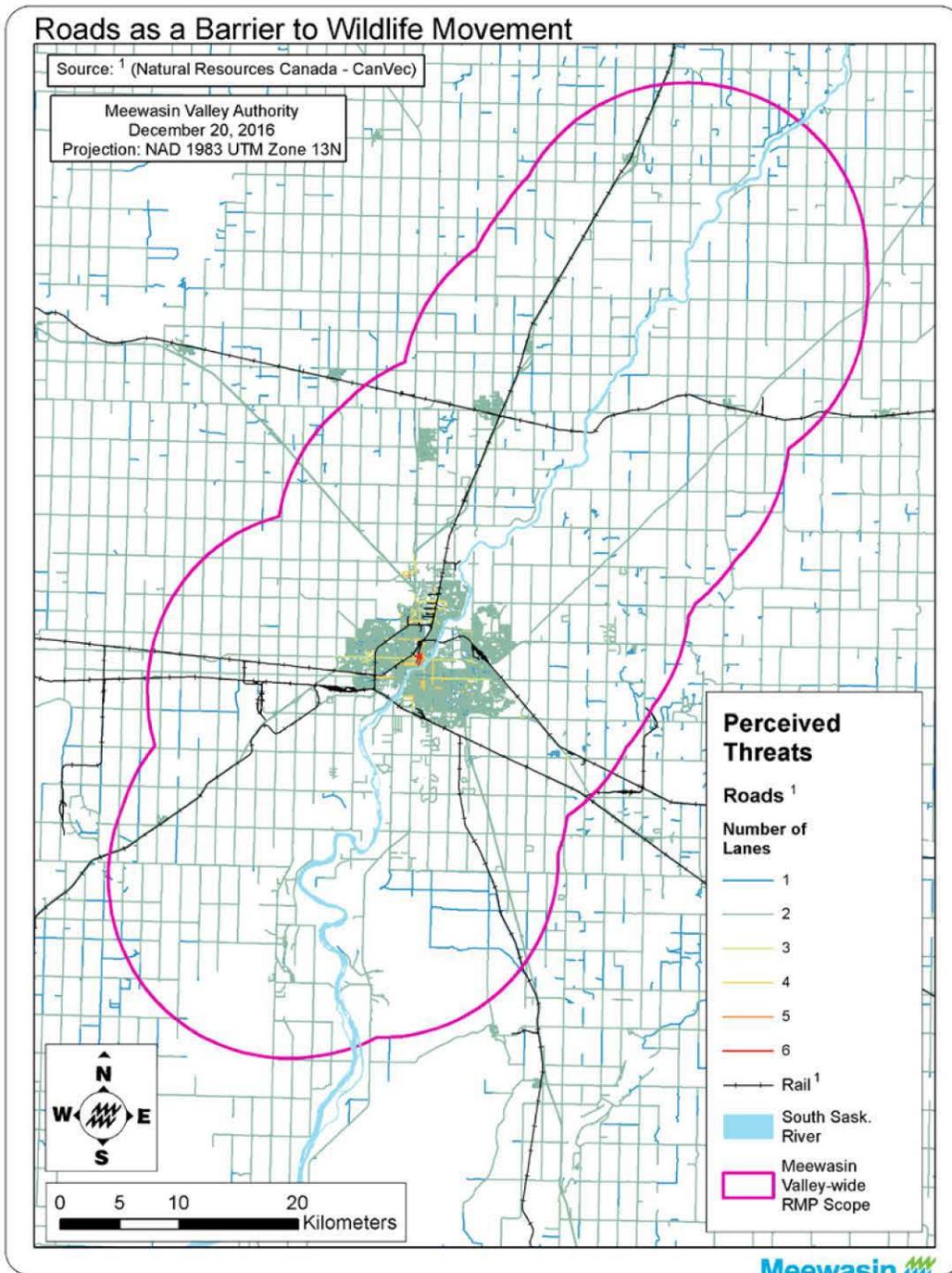
**Map 24: Road Density within the Planning Area**

Road density was based on Beazley et al. (2004). Road density is used to measure thresholds for wildlife survival as higher road density values are more likely to have a higher mortality rate for wildlife trying to cross.



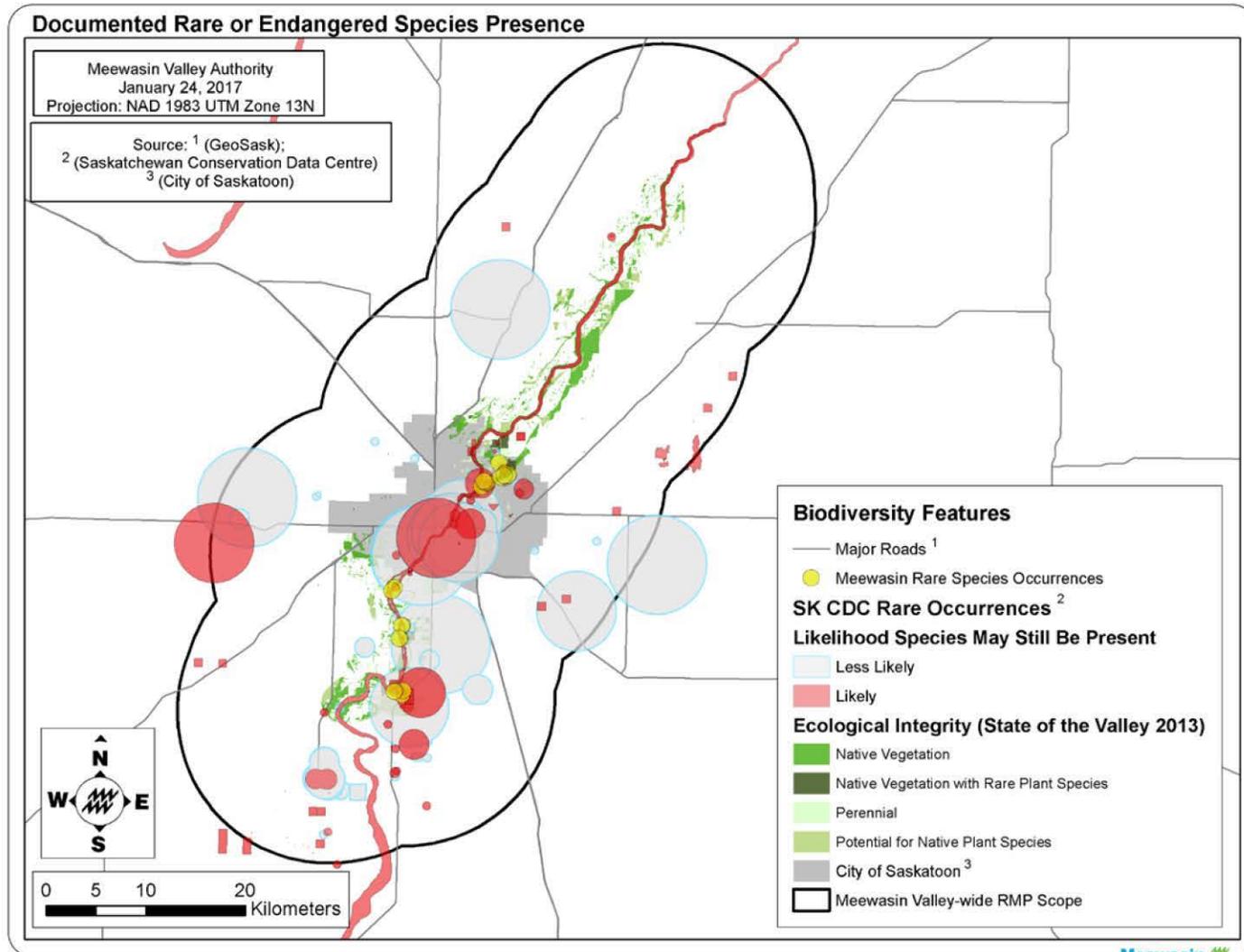
**Map 25: Road and Rail as Barriers to Wildlife Movement**

The higher the number of lanes, the less likely wildlife will be able to safely cross the road. Thus, higher number of lanes can mean higher wildlife mortality rates.



Miscellaneous

Map 26: Rare or Endangered Species Occurrences\* Within the Region \* Not all rare or endangered species occurrences may be recorded within Meewasin and Saskatchewan Conservation Data Centre's database



This map should not be used for navigation or legal purposes. It is intended for general reference use only.

## Appendix B – Stakeholders, Conservation Agencies, and Opportunities in Partnership

Stakeholders to conservation activities in the region and the opportunities and constraints of partnerships with those stakeholders (i.e. potential partnership opportunities).

Stakeholder Name	Description	Opportunity	Constraint
Archaeological Society of Saskatchewan	Archaeological conservation and awareness group	If land has archaeological value, good partner for protecting and interpretation?	Biodiversity & conservation science not a focus of group
Brightwater Science & Environmental Centre	Environmental education center offered by Saskatoon Public Schools	Adjacent to Meewasin's Beaver Creek Conservation Area (upstream)	Public school site, education primary focus
Canada North Environmental Services	Consulting company	Technical expertise	Consultant: likely need to be paid for their time, unless an individual can volunteer
City of Saskatoon	The governing body of the City of Saskatoon and services to residents	Land owner of many Meewasin sites	Participating Party for Meewasin
City of Saskatoon: Parks		Frequent partner of Meewasin	
City of Saskatoon: Environmental and Corporate Initiatives		Frequent partner of Meewasin	
Canadian Parks and Wilderness Society (CPAWS) - Saskatchewan	Non-profit conservation organization dedicated to establishment of protected areas	Voice for existing parks in province and for conservation	Area within scope may be too degraded or small as they focus on creating park space (preserving wilderness)
Ducks Unlimited Canada	Non-profit organization focused on managing and conserving wetlands and associated habitats for waterfowl	Partner for land securement	Focus on wetland ecosystems
EcoFriendly Sask	Create awareness and provide small scale funding	Awareness group, online support, weekly newsletter, small grants for local environmental projects	Cannot do much more than awareness

Stakeholder Name	Description	Opportunity	Constraint
Golder Associates	Consulting company	Technical expertise	Consultant: likely need to be paid for their time, unless an individual can volunteer
Government of Canada: Department of National Defence	National Defence	Can help us to understand conservation activities on Canadian Forces Base Dundurn base site, conserve a large tract of land, interested in joining prescribed burning committee	Their interest in activities outside of the Dundurn base may be limited
Government of Canada: Environment and Climate Change Canada	Government of Canada ministry concerned with environment and climate change	Federal government, expert knowledge	May be limited by federal government activity
Government of Canada: Parks Canada	National Parks system and ecology	Federal government, expert knowledge	No national parks within scope of NA
Government of Canada: Agriculture and Agri-food Canada	In charge of, among other things, federal community pastures.	Federal government, expert knowledge	May be limited by federal government activity
Landowners, Producers & Ranchers	Local stakeholders that are landowners, producers or ranchers in the planning area	Know the land, partnerships as grazers or easement opportunities	May lack technical or expert knowledge, conservation not their primary interest
Living Sky Wildlife Rehabilitation	Wildlife rehabilitation group & centre in Saskatoon	Partner for animal-based conservation activities and awareness, data collection	Primary focus is animal rehab
Meewasin & Meewasin Committees	Conservation agency dedicated to the stewardship of the South Saskatchewan River in Saskatoon and the RM of Corman Park through development, education and conservation.	Well established network of professionals, experts, and passionate public that understand and appreciate Meewasin's work.	Jurisdiction is smaller than scope of NA and focus is broader than biological conservation.
Native Plant Society of Saskatchewan (NPSS)	Group focused on education and awareness of native species and their conservation	Conservation and awareness of native plants makes NPSS a good partner, NPSS a supporter of Meewasin, data collection	Limited by funding,

Stakeholder Name	Description	Opportunity	Constraint
The Nature Conservancy of Canada (NCC)	NCC is a land conservancy agency that purchases fee simple properties and grants conservation easements and conducts programming to conserve biodiversity in the province.	NCC's network within the province is large and they are willing to partner on conservation initiatives beyond projects focused on individual pieces of land	NCC's focus is on biodiversity and they lack the experience and internal structure to work much outside of the conservation of biodiversity
Nature Saskatchewan	Conservation through research and land securement and awareness through education and outreach.	Possible source for data; possible opportunity for easements or partner to protect lands (e.g. in land policy)	Limited by funding
Northeast Swale Watchers	Saskatoon-based advocacy group for the Northeast Swale and other natural areas	Supporter of Meewasin and Meewasin's conservation efforts	Volunteer based (time may be limited and strong opinions may not be shared by all members)
Partners FOR the Saskatchewan River Basin (PFSRB)	Watershed-based education and awareness of sustainability and stewardship.	Have partnerships established across the prairie provinces, close partnership with Meewasin	Watershed focused
Government of Saskatchewan	Funding for various aspects of conservation work	Public servants have expertise, connections and drive required for many projects to happen. Participating Party for Meewasin	May be constrained by the mission of their ministry
Government of Saskatchewan: Ministry of Agriculture	Provincial government ministry responsible for agriculture	Meewasin and NCC partner with forage agrologists, Meewasin spreads awareness about <i>Weed Act</i> (helps bring awareness to agricultural invasives)	Ministry of Agriculture tends to be focused on higher intensity production
Government of Saskatchewan: Ministry of Economy	Provincial government ministry responsible for the economy	Data sharing	May not see the value in the data required for conservation work.
Government of Saskatchewan: Ministry of Environment	Provincial government ministry responsible for the environment	Data sharing, expert knowledge, partnership opportunities, on ground partnerships	May not be able to meet large and evolving data needs
Government of Saskatchewan: Parks, Culture and Sport	Provincial government ministry responsible for parks, culture and sports	Data sharing, expert knowledge, partnership opportunities, on ground partnerships, Ministry responsible for Meewasin	Ministry responsible for Meewasin, currently reviewing Meewasin's statutory funding

Stakeholder Name	Description	Opportunity	Constraint
Public	Residents and visitors of Saskatoon and surrounding R.M.s	Volunteer base, more free to speak up on issues	Some members of the public may not value conservation, conservation not most important sector to them
R.M. of Corman Park	rural municipality	R.M. weed inspector partners with Meewasin, opportunity to conserve land or add land to Meewasin jurisdiction in RM of Corman Park, Meewasin has properties and easements in RM, Provide partnership opportunities to protect the South Saskatchewan River	Development of native habitat seen as increasing tax base
R.M.s of Aberdeen, Blucher, Dundurn, Fish Creek, Grant, Laird, Montrose, Rosthern and Vanscoy	rural municipalities	Could create development policy that reduces conversion of native habitat	Development of native habitat seen as increasing tax base, not in Meewasin's jurisdiction
Saskatchewan Association of Watersheds	Collective of watershed groups in Saskatchewan	Greater voice for the South Saskatchewan River and water issues; allows for a holistic (i.e. upstream and downstream) perspective for the watershed	Province-wide thinking may highlight more urgent issues in other watersheds, watershed based
Saskatchewan Eco Network	Website promoting networking of environmentally focused groups in Saskatchewan	Provides links to conservation agencies for public	Website only (may not be updated in a timely fashion), funding issues
Saskatchewan Environmental Society	The Saskatchewan Environmental Society is a non-profit, registered charity whose mandate is to work towards a world in which all needs can be met in sustainable ways. Sustainability requires healthy ecosystems, livelihoods, and communities	Provide education such as water conservation and boreal watershed educational programs.	Focus is education and awareness.

Stakeholder Name	Description	Opportunity	Constraint
Saskatchewan Forage Council	Provincial council group to address forage issues and awareness within Saskatchewan	Invasive species of high concern, great partner for awareness of invasive species and native species	Production of domestic forages and pastures primary focus
Saskatchewan Invasive Species Council (SISC)	Non-profit association of professionals to promote awareness and coordination of efforts to combat invasive species in Saskatchewan	Invasive species of high concern, great partner for awareness of invasive species and native species, data collection	Funding may limit activity, invasive species primary focus, difficult to operate on private land
Saskatchewan Wildlife Federation	Non-profit wildlife conservation organization focused on hunting and fishing	Can also issue conservation easements, some funding opportunities for conservation activities, large member group = strong voice to Government	Hunting/fishing primary focus
Saskatoon Heritage Society	Non-profit group focused on the history and preservation of heritage in Saskatoon	Sites with heritage may give potential for partnership, active members on Meewasin committees (CAC, EAC)	Biodiversity and conservation science not a focus of group
Saskatoon Nature Society	Local naturalist organization	Voice for conservation, data collection (bird observations), partner for awareness activities (nature tours, etc.), member on Meewasin committee (CAC)	Volunteer based (time may be limited and opinions may not be shared by all members), scope limited to Saskatoon area
Saskatoon North Partnership for Growth	Regional planning partnership lead by City of Saskatoon and including RM of Corman Park, Martensville, Osler, and Warman	Opportunity to plug into process as stakeholders (and potentially experts), created a regional plan for green corridors	May not fully appreciate value of biodiversity and conservation science when planning growth
Saskatchewan Research Council	Consulting organization	Data collection and processing; Saskatchewan Geospatial Imagery Collaborative (SGIC) partnership	Consultant: likely need to be paid for their time, unless an individual can volunteer

Stakeholder Name	Description	Opportunity	Constraint
Saskatchewan Soil Conservation Association	Group promoting agricultural soil conservation	Understand the importance of permanent land cover when conserving soil	Soil focused
Saskatoon Wildlife Federation	Local chapter of Saskatchewan Wildlife Federation: non-profit wildlife conservation organization focused on hunting and fishing	Can also issue conservation easements, some funding opportunities for conservation activities, large member group = strong voice to Government	Hunting/fishing primary focus
Saskatoon Zoo Society	Environmental education focused on animals based out of the Saskatoon Forestry Farm and Zoo	Awareness and education about conservation (specifically to children), Young Naturalists program utilizes Meewasin sites	Education and awareness
SaskOutdoors	Outdoor and environmental education	Awareness and education about conservation (specifically to children), may use agency sites for activities	Education and awareness
SaskPower	Power utility service provider (Crown corporation)	Data sharing, willing to be at the table to discuss issue of importance to conservation community	Responsible for creating and maintaining infrastructure that contributes to dissection of habitats, power generation main focus, crown corporation
Saskatchewan Prairie Conservation Action Plan (PCAP)	Multi stakeholder partnership dedicated to conservation and awareness (education programs)	Partner, opportunity to present at their conference, awareness about conservation	Limited funding and possibly more focused on southern prairie habitat
Society for Ecological Restoration - Western Canada	Network of professionals and practitioners dedicated to restoring natural ecosystems	Events, research and data,	Limited ability to act as a body on a particular issue
Society for Range Management - Prairie Parkland Chapter	Professional organization dedicated to conservation of range management and professional development	Awareness of conservation issues in native prairie management	Limited ability to act as a body on a particular issue
South Saskatchewan River Watershed Stewards Inc. (SSRWSI)	Local watershed group focused on protecting the SSR watershed for both people and the natural environment through awareness and research	Partner often, data collection and sharing, invasive species and pollution great concerns	Focused on watershed based activities

Stakeholder Name	Description	Opportunity	Constraint
Stantec	Consulting company	Technical expertise	Consultant: likely need to be paid for their time, unless an individual can volunteer
Students	Post-secondary students (primarily from the University of Saskatchewan)	Data collection, volunteer time, student projects	Volunteer based (time may be limited and opinions may not be shared by all members)
The Royal Astronomical Society of Canada - Saskatoon Centre	Collective of astronomers, both amateur and professional, also creating awareness	Dark Skies - light pollution primary focus in regards to conservation	Biodiversity and conservation science not a focus of group
University of Saskatchewan	Public, research university - largest university in Saskatchewan	Data collection and sharing, voice for Meewasin, opportunities for research (Ag, Biol, SENS), land planning resources	Meewasin Participating Party, balance and integration of conservation and development
Wanuskewin Heritage Park	Non-profit park organization focused on Indigenous history and cultural values using education and conservation of the land	In Meewasin Conservation Zone, Meewasin created Wanuskewin, frequent partner, Indigenous perspective	Conservation of biodiversity is not the focus of the park
Water Security Agency	Provincial government agency responsible for water	Data collection and sharing, some protection for waterbodies within scope	Provincial agency, water issues primary focus
The Western Development Museum	Museum organization focused on Saskatchewan's history	Education of Saskatchewan's history - would touch on themes of native prairie, Indigenous people's movement across the land, and our relationship with the land	Biodiversity and conservation science not a focus of group, static location
Western Heritage	Consulting company	Technical expertise	Consultant: likely need to be paid for their time, unless an individual can volunteer
Wild About Saskatoon	Collective promoting education and awareness of urban ecology and conservation through events	Highlight conservation activities of Meewasin and Meewasin sites during Nature City Festival, education and awareness of conservation	Only activity appears to be for the Nature City festival

## Appendix C – Rare and Endangered Species That May Be Present within the Project Scope

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### COSEWIC, Provincial Status, and SARA Status

NAR	Not at Risk
SC	Special Concern
T	Threatened
E	Endangered
XT	Extirpated (Canada) or Extinct
DD	Data Deficient

Guidelines for Assessment: [http://www.cosewic.gc.ca/eng/sct0/assessment\\_process\\_e.cfm](http://www.cosewic.gc.ca/eng/sct0/assessment_process_e.cfm)

### Nature Serve Ranking (G,N,S)

- X Presumed Extinct (species)/Eliminated (ecological communities and systems) — Species not located despite intensive searches and virtually no likelihood of rediscovery. Ecological community or system eliminated throughout its range, with no restoration potential.
  
- H Possibly Extinct (species)/ Eliminated (ecological communities and systems) — Known from only historical occurrences but still some hope of rediscovery. There is evidence that the species may be extinct or the ecosystem may be eliminated throughout its range, but not enough to state this with certainty.
  
- 1 Critically Imperiled—At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
  
- 2 Imperiled—At high risk of extinction or elimination due to very restricted range, very few populations, steep declines, or other factors.
  
- 3 Vulnerable—At moderate risk of extinction or elimination due to a restricted range, relatively few populations, recent and widespread declines, or other factors.
  
- 4 Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.
  
- 5 Secure—Common; widespread and abundant.

- NR Unranked, not yet assessed
- U Unrankable, due to lack of information or due to substantially conflicting information about status or trends
- x#x# Range Rank, a numeric rank used to indicate a range of uncertainty about the status
- ? Denotes uncertainty of numeric rank
- B Breeding Qualifier, status only applies to breeding population
- N Nonbreeding Qualifier, status only applies to non-breeding population
- M Migrant, status applies to migrant species
- T# Identifies the status of an infraspecific taxa (subspecies or varieties)

#### **IUCN RedList**

- EX *Extinct* - A species group is Extinct when there is no reasonable doubt that the last individual has died
- EW *Extinct in the Wild* - A species group is Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range
- CR *Critically Endangered* - A species group is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered (see Section V), and it is therefore considered to be facing an extremely high risk of extinction in the wild
- EN *Endangered* - A species group is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered (see Section V), and it is therefore considered to be facing a very high risk of extinction in the wild
- VU *Vulnerable* - A species group is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable (see Section V), and it is therefore considered to be facing a high risk of extinction in the wild
- NT *Near Threatened* - A species group is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future
- LC *Least Concern* - A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened
- DD *Data Deficient* - A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status

NE *Not Evaluated* - A taxon is Not Evaluated when it has not yet been evaluated against the criteria

**Table 14: Endangered or Rare Species Possibly Present Within the Meewasin Valley**

Species common name	Species scientific name	Species type	COSEWIC status	Provincial status	G-rank	N-rank	S-rank	SARA Status	Associated targets			
									Native Grasslands	Hydro-riparian	Swales	Wetlands
Northern Leopard Frog	<i>Lithobates pipiens</i>	Amphibian	SC		G5TN R	N4	S3	SC	x	x	x	x
Plains Spadefoot	<i>Spea bombifrons</i>	Amphibian	NA R		G5	N3N4	S3			x	x	x
Burrowing Owl	<i>Athene cunicularia</i>	Bird	E	E	G4	N2B	S2B	E	x			
Mountain Plover	<i>Charadrius montanus</i>	Bird	E		G3	N1B	S1B	E		x	x	x
Piping Plover	<i>Charadrius melodus circumcinctus</i>	Bird	E	E	G3T3	N3B	S3B	E		x	x	x
Whooping Crane	<i>Grus americana</i>	Bird	E	E	G1	N1B	SXB,S1 M	E	x	x	x	x
Bank Swallow	<i>Riparia riparia</i>	Bird	T		G5	N5B	S5B, S5M		x	x		
Barn Swallow	<i>Hirundo rustica</i>	Bird	T		G5	N4N5 B	S5B,S5M		x			
Bobolink	<i>Dolichonyx oryzivorus</i>	Bird	T		G5	N4N5 B	S5B		x		x	x
Chestnut-collared Longspur	<i>Calcarius ornatus</i>	Bird	T		G5	N5B	S5B	T	x		x	
Common Nighthawk	<i>Chordeiles minor</i>	Bird	T		G5	N4B	S4B,S4M	T	x			
Ferruginous Hawk	<i>Buteo regalis</i>	Bird	T		G4	N4B	S4B,S4M	T	x			
Loggerhead Shrike	<i>Lanius ludovicianus excubitorides</i>	Bird	T		G4T4	N3B	S3B	T	x		x	
Sprague's Pipit	<i>Anthus spragueii</i>	Bird	T		G4	N3N4 B	S3B	T	x		x	

Species common name	Species scientific name	Species type	COSEWIC status	Provincial status	G-rank	N-rank	S-rank	SARA Status	Associated targets			
									Native Grasslands	Hydro-riparian	Swales	Wetlands
Baird's Sparrow	<i>Ammodramus bairdii</i>	Bird	SC		G4	N4B	S4B		x		x	
Horned Grebe	<i>Podiceps auritus</i>	Bird	SC		G5	N5B	S5B				x	x
Long-billed Curlew	<i>Numenius americanus</i>	Bird	SC		G5	N3N4 B	S3B,S4M	SC	x			
Red-necked Phalarope	<i>Phalaropus lobatus</i>	Bird	SC		G4G5	N4N5 B	S4B,S3M		x		x	
Short-eared Owl	<i>Asio flammeus</i>	Bird	SC		G5	N4B, N3N	S3B,S2N	SC	x		x	
Western Grebe	<i>Aechmophorus occidentalis</i>	Bird	SC		G5	N5B, N3N	S5B			x	x	x
American White Pelican	<i>Pelecanus erythrorhynchos</i>	Bird	NA R		G4	N3N4 B	S3B			x		
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Bird	NA R		G5	N5B, N5N	S5B,S4M ,S4N		x		x	
Boreal Owl	<i>Aegolius funereus</i>	Bird	NA R		G5	N5	S3		x			
Northern Harrier	<i>Circus cyaneus</i>	Bird	NA R		G5	N5B, N4N	S5B,S4M ,S2N		x		x	
Forster's Tern	<i>Sterna forsteri</i>	Bird	DD		G5	N4B	S4B			x	x	x
American Wigeon	<i>Anas americana</i>	Bird			G5	N5B, N5N	S5B,S5M ,S2N				x	x
Canada Goose	<i>Branta canadensis</i>	Bird			G5	N5B, N5N	S5B,S5M ,S2N				x	x
Franklin's Gull	<i>Leucophaeus pipixcan</i>	Bird			G4G5	N5B	S4B,S4M				x	x
Great Blue Heron	<i>Ardea herodias</i>	Bird			G5	N5B	S3B				x	x
Sandhill Crane	<i>Grus canadensis</i>	Bird			G5	N5B	S2B,S4M			x	x	x
Sharp-tailed Grouse	<i>Tympanuchus phasianellus</i>	Bird			G5	N5	S5		x			
Short-billed Dowitcher	<i>Limnodromus griseus</i>	Bird			G5	N5B	S1B,S4M				x	x

Species common name	Species scientific name	Species type	COSEWIC status	Provincial status	G-rank	N-rank	S-rank	SARA Status	Associated targets			
									Native Grasslands	Hydro-riparian	Swales	Wetlands
Turkey Vulture	<i>Cathartes aura</i>	Bird			G5	N5B	S2B,S2M,S2N		x	x		
Lake Sturgeon	<i>Acipenser fulvescens</i>	Fish	E		G3G4	N3N4	S2			x		
Monarch	<i>Danaus plexippus</i>	Invertebrate	SC		G4	N5B	S3B	SC	x	x	x	
Speyer's Cucullia Moth	<i>Cucullia speyeri</i>	Invertebrate			G4	NNR	SNR		x			
Swift Fox	<i>Vulpes velox</i>	Mammal	T	E	G3	N1N2	S1	T	x		x	
American Badger	<i>Taxidea taxus taxus</i>	Mammal	SC		G5T5	N4	S3		x		x	
Bobcat	<i>Lynx rufus</i>	Mammal			G5	N5	S3		x	x		
Olive-backed Pocket Mouse	<i>Perognathus fasciatus</i>	Mammal			G5	N3N4	S3		x			
Pronghorn	<i>Antilocapra americana</i>	Mammal			G5	N4	S3		x			
Small-flowered Sand-verbena	<i>Tripterocalyx micranthus</i>	Vascular plant	E	E	G5	N1N2	S2	E	x			
Hairy Prairie Clover	<i>Dalea villosa</i> var. <i>villosa</i>	Vascular plant	T	E	G5T5	N2N3	S2	T	x			
Smooth Arid Goosefoot	<i>Chenopodium subglabrum</i>	Vascular plant	T		G3G4	N3	S3	T	x			
Western Spiderwort	<i>Tradescantia occidentalis</i> var. <i>occidentalis</i>	Vascular plant	T	E	G5T5	N2	S1	T	x			
American Bugseed	<i>Corispermum americanum</i> var. <i>americanum</i>	Vascular plant			G5?T5?	N3N4	S3		x	x		x
Awned Cyperus	<i>Cyperus squarrosus</i>	Vascular plant			G5	NNR	S3			x	x	x
Beaked Annual Skeleton-weed	<i>Shinnersoseris rostrata</i>	Vascular plant			G5?	N2N3	S2		x			
Beaked Ditch-grass	<i>Ruppia maritima</i>	Vascular plant			G5	N3N5	S3			x	x	x

Species common name	Species scientific name	Species type	COSEWIC status	Provincial status	G-rank	N-rank	S-rank	SARA Status	Associated targets			
									Native Grasslands	Hydro-riparian	Swales	Wetlands
Bird's-eye Primrose	<i>Primula mistassinica</i>	Vascular plant			G5	N5	S3		x			
Blue Wild Rye	<i>Elymus glaucus</i> ssp. <i>glaucus</i>	Vascular plant			G5T5	N5	S3		x			
Blueflag	<i>Iris versicolor</i>	Vascular plant			G5	N5	S1		x		x	
Bristle-leaved Sedge	<i>Carex eburnea</i>	Vascular plant			G5	N5	S3		x	x	x	x
Bristly Gooseberry	<i>Ribes oxycanthoides</i> ssp. <i>setosum</i>	Vascular plant			G5T4 T5	N2	S2		x			
Bur Ragweed	<i>Ambrosia acanthicarpa</i>	Vascular plant			G5	N2N3	S2		x			
Bushy Cinquefoil	<i>Potentilla paradoxa</i>	Vascular plant			G5	N4	S2		x			
Carolina Whitlow-grass	<i>Draba reptans</i>	Vascular plant			G5	N3	S1			x	x	x
Chaffweed	<i>Anagallis minima</i>	Vascular plant			G5	N3N4	S3		x			
Columbia Needlegrass	<i>Achnatherum nelsonii</i> ssp. <i>dorei</i>	Vascular plant			G5T5 ?	N4N5	S3		x			
Crawe's Sedge	<i>Carex crawei</i>	Vascular plant			G5	NNR	S3		x	x	x	x
Crowfoot	<i>Viola pedatifida</i>	Vascular plant			G5	N4	S3		x			
Curved Yellow-cress	<i>Rorippa curvipes</i>	Vascular plant			G5	NNR	S3		x			
Downy Gentian	<i>Gentiana puberulenta</i>	Vascular plant			G4G5	N2	SH			x	x	x
Dry Goosefoot	<i>Chenopodium desiccatum</i>	Vascular plant			G5	N3N4	S3		x			
Dwarf Clubrush	<i>Trichophorum pumilum</i>	Vascular plant			G5	N3	S1			x	x	x

Species common name	Species scientific name	Species type	COSEWIC status	Provincial status	G-rank	N-rank	S-rank	SARA Status	Associated targets			
									Native Grasslands	Hydro-riparian	Swales	Wetlands
Dwarf Spike-rush	<i>Eleocharis coloradoensis</i>	Vascular plant			GNR	N2	S2			x	x	x
Engelmann's Spike-rush	<i>Eleocharis engelmannii</i>	Vascular plant			G4G5	N2	S3			x	x	x
Few-flowered Aster	<i>Almutaster pauciflorus</i>	Vascular plant			G4	NNR	S3		x			
Five-fingered Cinquefoil	<i>Potentilla rubricaulis</i>	Vascular plant					S3					
Flat-stemmed Spike-rush	<i>Eleocharis elliptica</i> var. <i>elliptica</i>	Vascular plant			G5	N5	S3			x	x	x
Flexible Naiad	<i>Najas flexilis</i>	Vascular plant			G5	N5	S3		x			
Flowering Quillwort	<i>Lilaea scilloides</i>	Vascular plant			G5?	N2N3	S1		x			
Hairy Bugseed	<i>Corispermum villosum</i>	Vascular plant			G4?	N3N4	S2		x	x		x
Hairy Germander	<i>Teucrium canadense</i> var. <i>occidentale</i>	Vascular plant			G5T5?	NNR	S3		x			
Hooker's Bugseed	<i>Corispermum hookeri</i> var. <i>hookeri</i>	Vascular plant			G4G5 T4T5	N4N5	S2		x	x		x
Idaho Fescue	<i>Festuca idahoensis</i>	Vascular plant			G5	N5	S1		x			
Indian Milk-vetch	<i>Astragalus australis</i>	Vascular plant			G5	N5	S3		x			
Least Mousetail	<i>Myosurus minimus</i>	Vascular plant			G5	N4	S3		x			
Lesser Bladderwort	<i>Utricularia minor</i>	Vascular plant			G5	N5	S2			x	x	x
Longstem Waterwort	<i>Elatine triandra</i>	Vascular plant			G5	N3N4	S2			x	x	x

Species common name	Species scientific name	Species type	COSEWIC status	Provincial status	G-rank	N-rank	S-rank	SARA Status	Associated targets			
									Native Grasslands	Hydro-riparian	Swales	Wetlands
Low Pussytoes	<i>Antennaria dimorpha</i>	Vascular plant			G5	N4	S2		x			
Macoun's Cryptantha	<i>Cryptantha celosioides</i>	Vascular plant			G5	NNR	S2		x	x		x
Marsh Felwort	<i>Lomatogonium rotatum</i>	Vascular plant			G5	N5?	S3		x			
Menzies' Catchfly	<i>Silene menziesii</i>	Vascular plant			G5	N5	S3			x	x	x
Mingan Moonwort	<i>Botrychium minganense</i>	Vascular plant			G4G5	N4	S1		x			
Moss Gentian	<i>Gentiana fremontii</i>	Vascular plant			G3G4	N2N3	S3			x	x	x
Mucronate Blue-eyed-grass	<i>Sisyrinchium mucronatum</i>	Vascular plant			G5	N4N5	S3		x			
Narrow-leaved Water Plantain	<i>Alisma gramineum</i>	Vascular plant			G5	N4	S3		x	x	x	x
Nodding Onion	<i>Allium cernuum</i> var. <i>cernuum</i>	Vascular plant			G5	N5	S1		x			
Northern Blue-eyed-grass	<i>Sisyrinchium septentrionale</i>	Vascular plant			G3G4	N3N4	S3		x			
Northern Buttercup	<i>Ranunculus pedatifidus</i> var. <i>affinis</i>	Vascular plant			G5T5	N4	S3		x		x	x
Pale Bulrush	<i>Scirpus pallidus</i>	Vascular plant			G5	NNR	S3				x	x
Pallas' Bugseed	<i>Corispermum pallasii</i>	Vascular plant			G4?	N3N4	S2		x	x		x
Pepperwort	<i>Marsilea vestita</i>	Vascular plant			G5	N2N3	S3		x			
Porcupine Sedge	<i>Carex hystericina</i>	Vascular plant			G5	N5	S3		x	x	x	x
Prairie Dunewort	<i>Botrychium campestre</i>	Vascular plant			G3G4	N2	S2		x			

Species common name	Species scientific name	Species type	COSEWIC status	Provincial status	G-rank	N-rank	S-rank	SARA Status	Associated targets			
									Native Grasslands	Hydro-riparian	Swales	Wetlands
Prostrate Alpen-cress	<i>Hornungia procumbens</i>	Vascular plant			G5	N3	S3			x	x	x
Pursh's Milk-vetch	<i>Astragalus purshii</i> var. <i>purshii</i>	Vascular plant			G5T5	N5	S3		x			
Red Bulrush	<i>Blysmopsis rufa</i>	Vascular plant			G5	N4	S3		x	x	x	x
Red Elderberry	<i>Sambucus racemosa</i> ssp. <i>pubens</i>	Vascular plant			G5	N5	S2		x			
Rocky Mountain Pincushion-Plant	<i>Navarretia saximontana</i>	Vascular plant			G4?	NNR	S3		x			
Sand-dune Wheatgrass	<i>Elymus lanceolatus</i> ssp. <i>psammophilus</i>	Vascular plant			G5T3	N3	S2		x			
Schweinitz's Flatsedge	<i>Cyperus schweinitzii</i>	Vascular plant			G5	NNR	S3			x	x	x
Small Dropseed	<i>Sporobolus neglectus</i>	Vascular plant			G5	N5	S2		x			
Small Lupine	<i>Lupinus pusillus</i> ssp. <i>pusillus</i>	Vascular plant			G5T5	NNR	S3		x			
Smooth Wild Rose	<i>Rosa blanda</i>	Vascular plant			G5	N5	S1		x			
Striped Coral-root	<i>Corallorhiza striata</i> var. <i>striata</i>	Vascular plant			G5T5	N5	S3		x	x		x
Tall Beggar's-ticks	<i>Bidens frondosa</i>	Vascular plant			G5	N5	S3		x			
Tall Blue Lettuce	<i>Lactuca biennis</i>	Vascular plant			G5	N5	S3		x		x	
Upright Narrow-leaved Pondweed	<i>Potamogeton strictifolius</i>	Vascular plant			G5	N4	S3		x			
Western Smooth Cliff-brake	<i>Pellaea glabella</i> ssp. <i>occidentalis</i>	Vascular plant			G5T4	N3	S1		x			
White Milkwort	<i>Polygala alba</i>	Vascular plant			G5	N3	S3		x			

Species common name	Species scientific name	Species type	COSEWIC status	Provincial status	G-rank	N-rank	S-rank	SARA Status	Associated targets			
									Native Grasslands	Hydro-riparian	Swales	Wetlands
Yellow Touch-me-not	<i>Impatiens noli-tangere</i>	Vascular plant			G4G5	N4	S2			x	x	x
Yellow-rattle	<i>Rhinanthus minor ssp. minor</i>	Vascular plant			G5T5	N4N5	S2		x			

\*\*Values in this table are reflective of data available on NatureServe, COSEWIC, IUCN, and ACIMS databases as of March 2016

Appendix D – Key Ecological Attributes

Key Ecological Attributes	Indicator	Status	Type	Poor	Fair	Good	Very Good	Source	Progress
<b>Hydro-riparian Areas</b>		Fair							
<u>Connectivity</u>		Fair	Landscape Context						
	Average length of undisturbed riparian areas	Fair		<1.6 km	1.6 to 3.2 km	>3.2 km		Rough Guess	
	Rating				2.23			Rapid Assessment	
<i>Future Status Objective: Maintain</i>					X				
<u>Ecosystem health</u>		Fair	Condition						
	Percent buffer in permanent cover	<b>Fair</b>		0 - 25%	25 - 75%	75 - 100%		Expert Knowledge	
	Rating				49.8			Rapid Assessment	
<i>Future Status Objective: Improve to Good</i>						<b>X</b>			
	riparian health assessment	<b>Poor</b>		0-60%	60-80%	80-100%		External Research	
	Rating			Unhealthy					
<i>Future Status Objective: Improve to Fair</i>					<b>X</b>				
<u>Fish population</u>		Fair	Condition						
	Presence data (% of baseline species present)	Fair		<80%	80 to 95%	95 to 100%	<100%	Rough Guess	
	Rating				88			Sampling Based	
<i>Future Status Objective: Maintain</i>					X				
<u>Water Quality</u>		Good	Condition						
	Water Quality Index	Good		<45	45 - 79	80 - 100		External Research	
	Rating					Healthy		External Research	
<i>Future Status Objective: Maintain</i>						X			

Key Ecological Attributes	Indicator	Status	Type	Poor	Fair	Good	Very Good	Source	Progress
<b>Native Grassland</b>		Fair							
<u>Connectivity</u>		Fair	Landscape Context						
	Fragmentation of landscape with linear disturbances	Fair		>3 km/km2	1 - 3 km/km2	0.43 - 1.0 km/km2	<0.43 km/km2	External Research	
	Rating				1.06			Intensive Assessment	
<i>Future Status Objective: Maintain</i>									
<u>Ecosystem health</u>		Fair	Condition						
	Percent change in population of grassland birds	Unknown		<-1%	-1 to 1%	>1%		External Research	
	Rating								
<i>Future Status Objective: Fill knowledge gap</i>									
	Range health	Fair		<50%	50 - 74%	75 - 100%		Expert Knowledge	
	Rating				Healthy With Problems			Expert Knowledge	
<i>Future Status Objective: Improve to Good</i>									
<u>Natural disturbance regime</u>		Poor	Condition						
	Annual extent of burning on Meewasin and conservation lands	Poor		0 to 1%/yr or more than 80%/yr	1 to 5%/yr or 20% to 80%/yr	5 to 20%/yr		External Research	
	Rating			below 1%				Rapid Assessment	
<i>Future Status Objective: Improve to Fair</i>									

Key Ecological Attributes	Indicator	Status	Type	Poor	Fair	Good	Very Good	Source	Progress
<b>Post-Glacial Channel Scars (Swales)</b>		Fair							
<u>Connectivity</u>		Fair	Landscape Context						
	Fragmentation of Swales with linear disturbances	Fair		>3 km/km2	1-3 km/km2	0.43-1.0 km/km2	<0.43 km/km2	Expert Knowledge	
	Rating				2.65			Intensive Assessment	
<i>Future Status Objective: Maintain</i>									
	Percent of Swales with healthy amounts of permanent cover	Fair		<25 %	25-74.9 %	>75 %		Expert Knowledge	
	Rating				46.4			Rapid Assessment	
<i>Future Status Objective: Maintain</i>									
<u>Ecosystem Health</u>		Poor	Unknown						
	Percent of land cover in native habitat	Poor		<50%	50 to 75	>75%	100%	Expert Knowledge	
	Rating			34.5				Intensive Assessment	
<i>Future Status Objective: Maintain</i>									

Key Ecological Attributes	Indicator	Status	Type	Poor	Fair	Good	Very Good	Source	Progress
<b>Wetlands</b>		Fair							
<u>Density of wetlands</u>		Fair	Size						
	Annual rate of wetland area loss	<b>Fair</b>		<-1.0 %	-0.5 to 0 %	0%	>0 %	Expert Knowledge	
	Rating				-0.11			Sampling Based	
	<i>Future Status Objective: Improve to Good</i>					<b>X</b>			
<u>Diversity of wetland types</u>		<i>Unknown</i>	Condition						
	Expected distribution of types of wetlands	<i>Unknown</i>							
	Rating								
	<i>Future Status Objective: Fill knowledge gap</i>								
<u>Ecosystem health</u>		Poor	Condition						
	Aquatic invertebrate population	<i>Unknown</i>			absent	present		Expert Knowledge	
	Rating								
	<i>Future Status Objective: Fill knowledge gap</i>								
	Percent of wetlands with healthy amounts of permanent cover	<b>Poor</b>		< 25%	25 to 74.9%	> 75%		External Research	
	Rating			5%				Intensive Assessment	
	<i>Future Status Objective: Improve to Fair</i>				<b>X</b>				
	Wetland health assessment	<b>Poor</b>		0-60%	60-80%	80-100%		Expert Knowledge	
	Rating			Unhealthy				Expert Knowledge	
	<i>Future Status Objective: Improve to Fair</i>				<b>X</b>				

Appendix E – Action Plan

Acronym	Organization	Acronym	Organization
ASUPCA	Association of Saskatchewan Urban Parks and Conservation Agencies	CoS	City of Saskatoon
DFO	Fisheries and Oceans Canada	DUC	Ducks Unlimited Canada
ECCC	Environment and Climate Change Canada	GoS	Government of Saskatchewan
MoA	Ministry of Agriculture	MoE	Ministry of Environment
MoH	Ministry of Highways and Infrastructure	NPSS	Native Plant Society
PCAP	Prairie Conservation Action Plan	RM	Rural Municipality of Corman Park
SaskPoly	SaskPolytechnic	SES	Saskatchewan Environmental Society
SISC	Saskatchewan Invasive Species Council	SNS	Saskatoon Nature Society
SPS		SSGA	Saskatchewan Stock Growers Association
SSRWSI	South Saskatchewan River Watershed Stewards Inc.	SW	Northeast Swalewatchers
SWF	Saskatchewan Wildlife Federation or Saskatoon Wildlife Federation	U of S	University of Saskatchewan
WHP	Wanuskewin Heritage Park	WRSS	
WSA	Water Security Agency		

Conservation Action Planning				Targets Addressed					
Category	Subcategory	Conservation Action	Measure of Success	Biodiversity	Human Well-Being	Threats Addressed	Potential Key Partners	Action Priority	Meewasin Departments
1.0 Land / Water Management	1.1 Site/Area Stewardship	1.1.1 Continue the European Buckthorn Eradication Project in the Meewasin Valley.	By 2027, an additional 2,000,000 European Buckthorn stems are controlled in the Meewasin Valley with European Buckthorn under control on Meewasin Conservation sites and City of Saskatoon Parks, with cover and density reduced by 75%, and progress underway in the river valley.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Urban Riverbank Slumping & Slope Instability	CoS, DUC, ECCC, MoA, MoE, NPSS, PCAP, RM, SISC, WHP	Critical	P&C
		1.1.2 Continue the integrated control of provincially designated noxious weeds in the Meewasin Valley.	By 2027, Leafy Spurge, Purple Loosestrife, Common Tansy, Absinthe and Baby's Breath on Meewasin Conservation sites are under control with cover and density reduced by 75%, and progress is underway in the river valley, other provincially designated noxious weeds have progress underway for control on Meewasin sites and the river valley.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Urban Riverbank Slumping & Slope Instability	CoS, DUC, ECCC, MoA, MoE, NPSS, PCAP, RM, SISC, WHP	Critical	P&C
		1.1.3 Continue the integrated control of non-native invasive trees in the Meewasin Valley.	By 2027, non-native invasive trees including Tartarian Honeysuckle, Cotoneaster, Siberian Elm and Caragana are under control, with cover and density reduced by 75%, on Meewasin Conservation sites with progress underway in the Meewasin Valley.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Urban Riverbank Slumping & Slope Instability	CoS, DUC, ECCC, MoA, MoE, NPSS, PCAP, RM, SISC, WHP	Critical	P&C
		1.1.4 Continue the integrated control of non-native grasses on Meewasin Conservation sites.	By 2027, a 10% reduction in cover and density of non-native grasses including Smooth Brome, Kentucky Bluegrass, Crested Wheatgrass and Reed Canary Grass on Meewasin Conservation sites.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species	CoS, DUC, ECCC, MoA, MoE, NPSS, RM, SISC, SSRWSI, WSA	Critical	P&C

	1.1.5 As aquatic invasive species and prohibited fish species are discovered in the Meewasin Valley, work with the various partners to reduce the impact and spread of these species.	When aquatic invasive species (aquatic invasive mussels, invasive fish species, invasive plant species, prohibited fish species) are discovered in the Meewasin Valley and the City of Saskatoon, work with the appropriate partners to ensure the impact and spread of the species is reduced and eliminate the species from Meewasin Conservation sites.	Hydro-riparian Areas, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species	CoS, DUC, ECCC, MoA, MoE, NPSS, PCAP, RM, SISC, WHP	Critical	P&C
	1.1.6 Continue the integrated control of potentially invasive "escaped" ornamental species on Meewasin Conservation sites and in the Meewasin Valley.	By 2027, non-native and potentially invasive "escaped" ornamentals such as Himalayan Balsam, Creeping Bellflower, Bouncing Bet and Yellow Clematis, are under control, with cover and density reduced by 75%, on Meewasin Conservation sites with progress underway in the Meewasin Valley.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species	CoS, DUC, ECCC, MoA, MoE, NPSS, RM, SISC, WHP	Critical	P&C
	1.1.7 As invasive animal species (e.g. Wild Boar) are discovered in the Meewasin Valley, work with the various partner agencies to reduce the impact and spread of these species.	When invasive animal species (e.g. Wild Boar) are discovered in the Meewasin Valley and Meewasin Conservation sites, work with the appropriate partners to ensure the impact and spread of the species is reduced throughout the Valley and eliminated from Meewasin Conservation sites.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species	CoS, DUC, ECCC, MoA, MoE, NPSS, RM, SISC, WHP	Critical	P&C
	1.1.8 As provincially designated prohibited weeds are discovered in the Meewasin Valley, Meewasin will lead the eradication of these species.	When prohibited noxious weeds are discovered in the Meewasin Valley and the City of Saskatoon, Meewasin will lead the eradication of these species to eliminate spread and impact to ecological systems.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species	CoS, MoA, MoE, RM, SISC	Critical	P&C
	1.1.9 Enhance grassland bird habitat on Meewasin Conservation sites through an integrated native prairie management approach.	By 2027, a 50% reduction in shrub cover and a 20% improvement in grassland ecological health through ongoing resource management activities to enhance grassland bird habitat on Meewasin Conservation sites.	Native Prairie, Swales	Physical Health, Connection to Nature	Fire Suppression, Invasive Species, Unsustainable Grazing Management	CoS, DUC, ECCC, MoA, NPSS, SISC, WHP	Critical	P&C
	1.1.10 Enhance Plains Rough Fescue habitat on Meewasin Conservation sites through an integrated native prairie management approach.	By 2027, a 10% increase in Plains Rough Fescue patch size and density through ongoing resource management and restoration activities on Meewasin Conservation sites with existing Plains Rough Fescue patches.	Native Prairie, Swales	Physical Health, Connection to Nature	Fire Suppression, Invasive Species, Unsustainable Grazing Management	ECCC, MoA, NPSS, SISC, WHP, UofS	Critical	P&C
	1.1.11 On Meewasin sites, all abandoned water wells are capped following Water Security Agency best management practices, to protect ground water resources.	By 2022, conduct an inventory of all wells on Meewasin sites and by 2027, all abandoned water wells are capped following best management practice procedure.	Hydro-riparian Areas, Swales, Wetlands	Physical Health	Dams & Water Management, Runoff - Pesticide and Fertilizer, Storm Water	SSRWSI, WSA	Critical	D&D, P&C
	1.1.12 Enhance habitat for species at risk and rare species on Meewasin Conservation sites through an integrated management approach.	By 2027, rare and species at risk flora and fauna have a 10% increase in populations through habitat enhancement activities on Meewasin Conservation sites.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Fire Suppression, Invasive Species, Unsustainable Grazing Management	ECCC, DUC, NPSS, SNS, WHP	Critical	P&C
	1.1.13 Enhance the ecological health of riparian areas and wetlands on Meewasin Conservation sites through resource management activities.	By 2027, the ecological health of riparian areas and wetlands will improve by 20% through integrated resource management activities.	Hydro-riparian Areas, Swales, Wetlands	Physical Health, Connection to Nature	Fire Suppression, Invasive Species, Unsustainable Grazing Management	DUC, ECCC, PCAP, SSRWSI	Critical	P&C

		1.1.14 Enhance the ecological health of native prairie on Meewasin Conservation sites through resource management activities.	By 2027, the ecological health of native prairie will improve by 20% through integrated resource management activities.	Native Prairie, Swales	Physical Health, Connection to Nature	Fire Suppression, Invasive Species, Unsustainable Grazing Management	DUC, ECCC, PCAP, UofS	Critical	P&C
		1.1.15 As emergency spills occur within the South Saskatchewan River, Meewasin will work with the various government agencies on containment, clean-up, restoration and monitoring of the situation.	When emergency spills occur within the South Saskatchewan River, Meewasin will work with the various government agencies on containment, clean-up, restoration and monitoring.	Hydro-riparian Areas, Swales, Wetlands	Physical Health, Connection to Nature	Roads, Utility & Service Lines, Storm Water	DFO, MoE, SSRWSI, WSA	Critical	P&C
		1.1.16 Continue the Meewasin Riverbank Clean-up Campaign, working jointly with the Great Canadian Shoreline Clean-up initiative.	The Meewasin Riverbank Clean-up Campaign is delivered by Meewasin along the Meewasin Valley and Meewasin Conservation sites, in conjunction with the Great Canadian Shoreline Clean-up initiative.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Trespass Issues	CoS, SES	Critical	CD, P&C
		1.1.17 Work with the City of Saskatoon on protecting significant trees along the riverbank and Meewasin Trail from beaver activity.	By 2022, historically wrapped trees along the riverbank have wire removed and/or upgraded to protect trees along the riverbank from beaver activity.	Hydro-riparian Areas	Connection to Nature	Problematic Native Species	CoS	Necessary	P&C
		1.1.18 Address ongoing littering and illegal dumping on Meewasin Conservation sites through regular site maintenance, signage and enforcement.	Ongoing site maintenance, signage and enforcement on Meewasin Conservation sites regarding littering and illegal dumping.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Trespass Issues, Recreation Areas, Irresponsible Recreation	CoS, MoE, RCMP, RM	Critical	CD, D&D, P&C
		1.1.19 Employ early detection and rapid response measures for new infestations of invasive species found on Meewasin Conservation sites.	Ongoing implementation of early detection and rapid response measures are employed on new infestation of invasive species that occupy patches less than 100 m <sup>2</sup> , recording and documenting the occurrences as they occur.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species	CoS, MoE, SSISC, RM	Critical	P&C
		1.1.20 Work with landowners on the creation of a minimum of 40 meter riparian area buffers along hydro-riparian areas and wetlands.	By 2019, hydro-riparian and wetland buffers are mapped within the planning area. By 2027, impacted riparian buffers have been restored to 40 meters buffer on 75% of the lands within the Meewasin Conservation Zone and 20% within the planning area.	Hydro-riparian Areas, Swales, Wetlands	Physical Health, Connection to Nature	Runoff - Pesticide and Fertilizers, Conversion to Agriculture	MoA, RM, SSRWSI	Necessary	P&C
	1.2 Ecosystem & Natural Process (Re)Creation	1.2.1 On Meewasin Conservation sites, restore drained wetlands to recreate ecological function and diversity.	By 2027, all drained wetlands on Meewasin Conservation sites are restored with drained wetlands in the Conservation Zone identified and plans in place to restore them.	Swales, Wetlands	Physical Health, Connection to Nature	Conversion to Agriculture, Acreage Development, Suburban Development, Invasive Species	DUC, SSRWSI, WSA	Critical	P&C
		1.2.2 On Meewasin Conservation sites, begin the process of restoring previously cultivated hay land / pastureland to native species either through outright breaking and restoring or enhancing by adding additional native species.	By 2022, all known previously cultivated sites are documented and restoration plans are developed with restoration underway on all Meewasin Conservation sites by 2027.	Native Prairie	Physical Health, Connection to Nature	Conversion to Agriculture, Invasive Species	NPSS, PCAP	Critical	P&C

		1.2.3 At the Meewasin Northeast Swale, restore the dry and wet storm retention ponds to native species.	By 2018, the restoration process begins of the dry and wet storm retention ponds in the Northeast Swale.	Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Storm Water, Dams & Water Management, Invasive Species	CoS, DUC, NPSS, PCAP, SSRWSI	Critical	P&C
		1.2.4 Develop an inter-agency native seed co-operative to share native grass, wildflower and shrub seeds for restoration projects.	By 2018, several agencies develop a native seed co-operative for agency restoration projects.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Conversion to Agriculture, Suburban Development, Recreation Areas	CoS, ECCC, NCC, NPSS, PCAP, WHP	Beneficial	D&D, P&C
		1.2.5 Establish a native seed nursery and a native aquatic pond on a Meewasin site to sustainably harvest native grass and wildflower seed for restoration projects on Meewasin Conservation sites.	By 2020, a Meewasin native seed nursery and a native aquatic pond is established.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Conversion to Agriculture, Suburban Development, Recreation Areas	CoS, NPSS, NCC, PCAP, WHP	Necessary	D&D, P&C
		1.2.6 Continue and expand Meewasin's native plant propagation program.	By 2020, all native shrubs, wildflowers, aquatics and native grass plugs are sourced locally or grown by Meewasin.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Conversion to Agriculture, Suburban Development, Recreation Areas	CoS, NPSS, NCC, PCAP, WHP	Necessary	D&D, P&C
		1.2.7 Locally sourced native plant materials are used on restoration and landscape plantings within the Conservation Zone.	By 2025, all restoration and landscape plantings, lead by Meewasin within the Conservation Zone, use locally sourced native plant materials.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Conversion to Agriculture, Suburban Development, Recreation Areas	CoS, NCC, NPSS, PCAP, WHP	Necessary	D&D, P&C
		1.2.8 Expand the conservation grazing program to include other grazers and additional Meewasin Conservation sites.	By 2020, the conservation grazing program includes livestock, sheep and goats to manage Meewasin Conservation sites with a minimum of three Conservation sites grazed annually and an annual minimal grazing disturbance regime of 10% of each site.	Native Prairie, Swales	Physical Health, Connection to Nature	Invasive Species, Unsustainable Grazing Management	MoA, PCAP, SSGA, Livestock Groups, WHP	Critical	P&C
		1.2.9 Continue the prescribed burning program on Meewasin Conservation sites.	By 2018, annually conduct prescribed burns on a minimum of 4 Meewasin Conservation sites with an objective of 5% of each site burned.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Fire Suppression, Invasive Species	CoS, ECCC, NCC, NPSS, PCAP, SPS, UofS, WHP	Critical	P&C
		1.2.10 Work with the City of Saskatoon on the development and utilization of naturalized wetlands as part of storm water management forebays prior to entering various swales and the South Saskatchewan River.	By 2025, naturalized wetlands are developed and utilized as part of storm water management forebays prior to entering various swales and the South Saskatchewan River.	Hydro-riparian Areas, Swales, Wetlands	Physical Health, Connection to Nature	Storm Water, Dams & Water Management	CoS, DUC, SNS, SSRWSI, WSA	Necessary	D&D, P&C
		1.2.11 Assist Wanuskewin Heritage Park with the restoration of cropland to native prairie species for Plains Bison habitat.	By 2025, the cropland at Wanuskewin Heritage Park is restored to native prairie species.	Native Prairie	Physical Health, Connection to Nature	Conversion to Agriculture, Invasive Species, Unsustainable Grazing	CoS, NCC, NPSS, PCAP, WHP	Necessary	P&C

		1.2.12 Continue to restore the St. Joseph's High School - Natural Grassland Project to improve the diversity of native species at the site.	By 2025, the St. Joseph's High School - Natural Grassland Project has an 80% reduction in non-native grasses and forbs with a 75% increase in native grass, forb and shrub diversity.	Native Prairie	Physical Health, Connection to Nature	Invasive Species, Suburban Development,	CoS, NPSS	Necessary	CD, D&D, P&C
		1.2.13 Work with the City of Saskatoon to develop a restoration plan and begin implementation to restore the snow dump located in the Small Swale	By 2027, restoration of the snow dump in the Small Swale is underway	Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Storm Water, Dams / Water Management	CoS	Urgent	D&D, P&C
		1.2.14 Develop and implement a strategy to begin the restoration of Eastern Cottonwood forests along the South Saskatchewan River.	By 2026, a restoration strategy is developed and implemented for Eastern Cottonwood forests along the South Saskatchewan River.	Hydro-riparian Areas	Physical Health, Connection to Nature	Dams & Water Management, Urban Riverbank Slumping & Slope Instability	CoS, SaskPower, WSA	Necessary	P&C
2.0 Species Management	2.1 Species Stewardship	2.1.1 Delayed haying and conservation mowing of Meewasin Conservation sites between May 1st and July 15th to minimize the impact to ground nesting grassland birds and waterfowl.	Haying and conservation mowing, for native shrub control, of Meewasin Conservation sites is delayed between May 1st and July 15th annually.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Unsustainable Grazing Management, Fire Suppression	ECCC, DUC, SNS	Critical	P&C
		2.1.2 Develop a beaver management strategy with the City of Saskatoon and Wanuskewin Heritage Park that balances sustainable populations of beavers, healthy riparian areas and the protection of urban planted trees.	By 2020, a beaver management strategy is developed and implemented.	Hydro-riparian areas, Swales, Wetlands	Physical Health, Connection to Nature	Problematic Native Species	CoS, RM, WHP	Necessary	D&D, P&C
		2.1.3 Inspect and maintain the fish ladder at the weir to allow for safe passage of fish species in the South Saskatchewan River.	Annually work with Fire Protection Services, Ministry of Environment, Water Security Agency and Department of Fisheries and Oceans to ensure the fish ladder at the weir is functioning properly.	Hydro-riparian Areas	Physical Health, Connection to Nature	Dams & Water Management	CoS, DFO, MoE, SSRWSI, WSA	Necessary	P&C
		2.1.4 Develop and implement fish habitat enhancement projects along the South Saskatchewan River and Beaver Creek that will enhance fish spawning habitat.	By 2027, three fish habitat enhancement projects are implemented.	Hydro-riparian Areas	Physical Health, Connection to Nature	Dams & Water Management	CoS, DFO, MoE, SSRWSI, WSA	Necessary	P&C
		2.1.5 Install nesting and roosting structures to enhance bird and bat habitat on Meewasin Conservation sites and along the Meewasin Valley to provide natural insect control.	By 2027, 300 tree swallow / mountain bluebird bird houses, 200 bat boxes, 20 purple marten houses and other structures are installed on Meewasin Conservation sites and along the Meewasin Valley.	Hydro-riparian areas, Swales, Wetlands	Physical Health, Connection to Nature	Problematic Native Species, Light Pollution, Sound Pollution	CoS, DUC, SNS	Beneficial	CD, P&C
	2.2 Species Re-Introduction & Translocation	2.2.1 Plains Bison are re-introduced to Wanuskewin Heritage Park.	By 2021, genetically pure Plains Bison are reintroduced to Wanuskewin Heritage Park.	Native Prairie	Physical Health, Connection to Nature	Unsustainable Grazing Management, Fire Suppression, Conservation to Agriculture	NCC, Parks Canada, WHP	Critical	P&C

		2.2.2 An evaluation of the potential and feasibility to reintroduce species to Meewasin Conservation sites is conducted.	By 2025, an evaluation is conducted to determine the potential and feasibility to reintroduce native species back to Meewasin Conservation sites that may have been locally extirpated.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Conversion to Agriculture, Commercial & Industrial Development, Suburban Development, Recreational Areas	ECCC, SNS, UofS	Beneficial	P&C
2.3 Ex-Situ Conservation		2.3.1 Work with the Living Sky Wildlife Rehabilitation Center and the Wildlife Rehabilitation Society of Saskatchewan to use the various Meewasin Conservation sites, with prior approval, for reintroduction of rehabilitated native wildlife.	Continue to work with the local and provincial wildlife rehabilitation organizations to release rehabilitated native wildlife on Meewasin Conservation sites.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Suburban Development, Roads	LSWRC, SNS, UofS	Necessary	CD, P&C
		2.3.2 Work with the Plant Gene Resource Center of Canada to collect a representative sample of seed genetic diversity from Meewasin Conservation sites for long-term conservation in the seed bank.	By 2027, over 200 different species of native plant seeds, from Meewasin Conservation sites are housed in the seed bank.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Conversion to Agriculture, Suburban Development, Roads	AgCanada, ECCC, SNS, NPSS, UofS	Beneficial	P&C
		2.3.3 Work with the W.P. Fraser Herbarium to collect and house herbarium samples of the plant diversity from Meewasin Conservation sites.	By 2027, over 300 different plant species, native and non-native, are collected and added to the collection at the herbarium.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Connection to Nature	Acreage Development, Conversion to Agriculture, Suburban Development, Roads	ECCC, NPSS, SNS, UofS	Beneficial	P&C
3.0 Awareness Raising	3.1 Outreach & Communications	3.1.1 At each Meewasin Conservation site and along the Meewasin Valley, site specific invasive species awareness signage is implemented as part of the overall signage strategy as part of the Trails Master Plan.	By 2019, awareness signage is installed at each Meewasin Conservation site and along the Meewasin Valley regarding invasive species utilizing templates provided by the Play, Clean, Go Campaign.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species	CoS, MoA, RM, SISC	Necessary	CD, D&D, P&C
		3.1.2 Develop and implement a Conservation Volunteers - like program to engage the general public and citizen scientists in resource management and ecological monitoring activities.	By 2017, a Conservation Volunteers - like program is developed with a minimum of 10 volunteer events delivered annually.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Fire Suppression, Problematic Native Species, Irresponsible Recreation, Sound Pollution, Trespass Issues, Unsustainable Grazing Management	CoS, NPSS, SNS	Necessary	CD, D&D, FD, P&C

		3.1.3 Promote awareness that Meewasin is a regional land trust that can purchase land in fee simple, accept land donations and has the ability to hold conservation easements on private land.	By 2017, Meewasin promotes that the organization is a regional land trust with various tools to conserve land including fee simple purchase, land donations, and conservation easements.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Commercial & Industrial Development, Suburban Development, Conversion to Agriculture	ECCC, DUC, NCC, SWF	Necessary	CD, FD, P&C
		3.1.4 Promote awareness of Meewasin's conservation grazing program.	Annually promote conservation grazing program with a minimum of one public and media event, social media awareness, signage and public / professional presentations and tours.	Native Prairie, Swales	Physical Health, Connection to Nature	Unsustainable Grazing Management, Invasive Species	MoA, NPSS, PCAP, SSRWSI, UofS	Beneficial	CD, FD, P&C
		3.1.5 Promote awareness of Meewasin's prescribed burning program.	Annually promote the prescribed burning program with social media awareness, signage, and public / professional presentations and tours.	Native Prairie, Swales	Physical Health, Connection to Nature	Fire Suppression, Invasive Species	MoA, NPSS, PCAP, SSRWSI, UofS	Beneficial	CD, FD, P&C
		3.1.6 Promote awareness of Meewasin's integrated invasive species program.	Annually promote the integrated invasive species program with social media awareness, signage and public / professional presentations and tours.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Fire Suppression, Unsustainable Grazing Management	MoA, NPSS, PCAP, SSRWSI, UofS	Beneficial	CD, D&D, FD, P&C
		3.1.7 Create awareness of poisonous and dangerous species including poisonous plants and dangerous wildlife that maybe found on Meewasin Conservation sites and along the Meewasin Valley, is implemented as part of the overall signage strategy as part of the Trails Master Plan.	By 2020, awareness signage is installed at each Meewasin Conservation site and along the Meewasin Valley regarding potentially poisonous plants and dangerous wildlife that maybe present.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Problematic Native Species, Invasive Species	NPSS, SISC, UofS	Necessary	D&D, P&C
		3.1.8 Partner with the City of Saskatoon to annually host landscaping best management practice events to promote biodiversity within the city and adjacent to natural areas.	By 2019, annual events are held to promote landscaping best management practices to promote biodiversity.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Sound Pollution, Storm Water	CoS, NPSS, SES, SNS	Beneficial	D&D, P&C
		3.1.9 Within Meewasin's Conservation Zone, install Don't Let It Go signage.	By 2018, Don't Let It Go signage is installed along Meewasin Conservation Zone within the City and at Meewasin Conservation sites.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Storm Water, Dams / Water Management	CoS, MoE, SISC	Necessary	P&C
		3.1.10 Engage landowners within the various swales and on adjacent lands to Meewasin Conservation sites and the Meewasin Conservation Zone regarding conservation opportunities, invasive species, and best management practices.	By 2020, Meewasin begins to engage landowners within the various Swales and on adjacent lands to Conservation Areas.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Invasive Species, Unsustainable Grazing Management, Fire Suppression	MoA, PCAP, SSRWSI	Necessary	CD, P&C
		3.1.11 Maximize Meewasin's social media and website to promote conservation and resource management.	Expand the use of social media and the Meewasin website to showcase the value of conservation and resource management in the Meewasin Valley.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats		Necessary	CD, P&C

		3.1.12 Host an annual invasive species tour and/or workshop on a Meewasin Conservation site.	Continue to host an annual invasive species tour for local weed inspectors, landowners and producers.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species	CoS, NCC, NPSS, PCAP, RM, SISC, SSRWSI, SWF	Beneficial	P&C
		3.1.13 Create awareness regarding the impact domestic pets can have on wildlife and natural systems.	By 2019, awareness signage is installed at each Meewasin Conservation site regarding the impact domestic pets can have on wildlife and natural systems.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species	CoS, SISC, SES, SNS	Necessary	CD, D&D, P&C
		3.1.14 Install aquatic invasive species awareness signage along the Meewasin Valley and on Meewasin Conservation sites.	Continue the installation of aquatic invasive species awareness signage.	Hydro-riparian Areas, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Storm Water, Dams / Water Management	CoS, MoE, SISC, WSA	Necessary	P&C
		3.1.15 Adequately sign Meewasin Conservation sites regarding Meewasin Bylaws.	By 2019, update signage at all Meewasin Conservation sites regarding Meewasin Bylaws.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Recreation Areas, Irresponsible Recreation, Trespass Issues, Gathering of Plants	CoS	Necessary	P&C
		3.1.16 Work with partners to deliver beneficial management practices (BMPs) to landowners within the Meewasin Conservation Zone and adjacent to Meewasin Conservation sites.	By 2018, work with partners to deliver beneficial management practices (BMPs) to landowners within Meewasin's Conservation Zone and adjacent to Meewasin Conservation sites to improve ecological health of the conservation targets.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Conversion to Agriculture, Runoff - Pesticide and Fertilizers, Unsustainable Grazing Management, Invasive Species	MoA, SSRWSI, RM	Beneficial	P&C
		3.1.17 Promote and participate in various partner programs related to stormwater management.	Continue to be involved with various programs like the Yellow Fish Road program and become engaged in additional partner programs including bioswales and green roofs to improve stormwater quality.	Hydro-riparian Areas, Swales, Wetlands	Physical Health, Connection to Nature	Storm Water	CoS, PFRSBC, SW, SSRWSI	Beneficial	CD, D&D, P&C
		3.1.18 Create awareness about slope stability and slumping and its role as a natural process along the South Saskatchewan River, and how residents of Saskatoon can mitigate its effects.	By 2019, work with the City of Saskatoon and various partners to create awareness about slope stability and slumping and its role as a natural process along the South Saskatchewan River, and how residents of Saskatoon can mitigate its effects.	Hydro-riparian Areas	Physical Health, Connection to Nature	Urban Riverbank Slumping and Slope Stability, Invasive Species	CoS, DUC, SSRWSI	Beneficial	CD, D&D, P&C
		3.1.19 Participate in initiatives to create awareness and monitor the impacts windows have on birds and bats.	By 2017, create awareness regarding the impacts windows have on birds and bats and by 2018, participate in the monitoring of bird strikes.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Suburban Development, Light Pollution	CoS, NS, SNS, WRSS	Beneficial	C&D, P&C
4.0 Law Enforcement & Prosecution	4.1 Detection & Arrest	4.1.1 Review and update Meewasin's bylaws regarding littering and river sandbar vehicle usage and where necessary, develop additional bylaws as required.	Bylaws are updated and reviewed every 5 years, starting in 2018.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Irresponsible Recreation, Trespass Issues	CoS, MoE, RCMP, RM	Necessary	P&C

		4.1.2 Develop a memorandum of understanding with the Saskatoon Police Service, Corman Park Police Service, Conservation Officers and the RCMP to provide the various policing agencies the ability to enforce Meewasin bylaws.	By 2018, a Memorandum of Understanding is signed with the RCMP, Saskatoon Police Service, Conservation Officers and Corman Park Police Service regarding enforcement of Meewasin bylaws.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Irresponsible Recreation, Trespass Issues	CoS, MoE, RCMP, RM	Critical	P&C
		4.1.3 A committee of local police agencies (Saskatoon Police Service, Corman Park Police Service and the RCMP), Conservation Officers and Meewasin meet on an annual basis to discuss enforcement opportunities in the Meewasin Valley.	Starting in 2017, the committee of local police agencies meets on an annual basis.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Irresponsible Recreation, Trespass Issues	CoS, MoE, RCMP, RM	Necessary	P&C
		4.1.4 Incidents of Meewasin bylaw infractions and breaches of various laws including the Wildlife Act are reported in a timely fashion to the responsible enforcement agency.	Infractions are reported to the responsible enforcement agency within 24 hours of confirmation by Meewasin Resource Management staff.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Irresponsible Recreation, Trespass Issues	CoS, MoE, RCMP, RM	Necessary	P&C
	4.3 Non-Criminal Legal Action	4.3.1 Determine the feasibility for Meewasin's Resource Management staff to hold Weed Inspector status within the Meewasin Conservation Zone.	By 2018, determine if Meewasin can enforce the <i>Weed Control Act</i> and if so, Resource Management staff are declared as Weed Inspectors within the Conservation Zone by 2019.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species	CoS, MoA, RM, SISC	Necessary	P&C
		4.3.2 Incorporate Meewasin Conservation sites with the RM of Corman Park's Rural Watch Program initiative.	By 2018, Meewasin Conservation sites are included with the RM of Corman Park's Rural Watch Program initiative.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Irresponsible Recreation, Trespass Issues	MoE, RCMP, RM	Necessary	P&C
5.0 Livelihood, Economic and Moral Incentives	5.2 Better Products and Management Practices	5.2.1 Develop, in partnership with the City of Saskatoon, landscaping best management practices to enhance biodiversity within the City and adjacent to natural areas.	By 2022, landscaping best management practices are developed to enhance biodiversity.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Sound Pollution, Storm Water	CoS, NPSS, PCAP, SES, SNS, UofS	Beneficial	CD, D&D, P&C
		5.2.2 Partner with the Ministry of Agriculture and the agricultural community to utilize Meewasin Conservation sites for promotion of best management practices for native prairie management.	By 2021, an annual event is hosted on a Meewasin Conservation sites to promote best management practices to the agricultural community.	Native Prairie, Swales	Physical Health, Connection to Nature	Fire Suppression, Invasive Species, Runoff - Pesticide and Fertilizers, Unsustainable Grazing Management	MoA, PCAP, SSGA, Livestock Groups	Beneficial	P&C
6.0 Conservation Designation & Planning	6.1 Protected Area Designation and/or Acquisition	6.6.1 Secure priority conservation lands in Fee Simple, through purchase and/or donation, and where appropriate, in partnership with other conservation organizations.	By 2027, two additional Conservation sites are secured, by Meewasin, through fee simple.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Commercial & Industrial Development, Conservation to Agriculture, Suburban Development	DUC, MoE, NCC, SWF	Necessary	FD, P&C

	6.1.2 As the City limits expand, additional portions of the Northeast Swale are incorporated into the Meewasin Northeast Swale.	Within 2 years of City of Saskatoon boundaries changing, additional portions of the Northeast Swale are incorporated into the Meewasin Northeast Swale.	Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Commercial & Industrial Development, Conservation to Agriculture, Suburban Development	CoS	Critical	D&D, P&C
	6.1.3 Refer priority conservation lands that may fit the requirement of other conservation organizations.	As referrals occur, they are passed onto other conservation organizations.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Commercial & Industrial Development, Conservation to Agriculture, Suburban Development	DUC, MoE, NCC, SWF	Critical	P&C
	6.1.4 Work with Wanuskewin Heritage Park on the establishment of a UNESCO World Heritage Site.	By 2020, Wanuskewin Heritage Park is designated as an UNESCO World Heritage Site.	Hydro-riparian Areas, Native Prairie	Physical Health, Connection to Nature	Suburban Development	CoS, WHP	Necessary	FD, P&C
6.2 Easements & Resource Rights	6.2.1 Secure priority conservation lands through donated, purchased and/or split-receipt Conservation Easements.	By 2027, two additional Conservation sites are secured, by Meewasin, through conservation easements.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Commercial & Industrial Development, Conservation to Agriculture, Suburban Development	DUC, MoE, NCC, SWF	Necessary	FD, P&C
	6.2.2 The University of Saskatchewan's Kernen Prairie and Biddulf Prairie sites are conserved with a conservation easement.	By 2020, Kernen Prairie and Biddulf Prairie have conservation easements placed on them.	Native Prairie	Physical Health, Connection to Nature	Acreage Development, Commercial & Industrial Development, Conservation to Agriculture, Suburban Development	NCC, UofS	Critical	FD, P&C
	6.2.3 Meewasin held Conservation Easements are annually monitored, meeting best management practice requirements set for by the EcoGift Program and the Canadian Land Trust Alliance.	On an annual basis, Meewasin Conservation Easements are monitored.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Commercial & Industrial Development, Conservation to Agriculture, Suburban Development	ECCC, NCC	Necessary	P&C

	6.2.4 Defend and enforce Meewasin's Conservation Easement agreements, if required.	As infractions occur on Conservation Easements, enforce and defend conservation easements as required.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Commercial & Industrial Development, Conservation to Agriculture, Suburban Development	ECCC, NCC	Critical	P&C
	6.2.5 Partner with other land trusts and agricultural special interest groups to examine the feasibility and potentially develop legislation for the creation of Agriculture Conservation Easements in Saskatchewan.	By 2027, Agricultural Conservation Easement legislation is available in Saskatchewan.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Commercial & Industrial Development, Conservation to Agriculture, Suburban Development	DUC, ECCC, MoA, MoE, NCC, SWF, Agricultural Groups	Beneficial	P&C
	6.2.6 Work with conservation partners to conserve aquifer sources for the various Swales in the Meewasin Valley.	By 2027, two properties are conserved that help protect the aquifer of various Swales in the Meewasin Valley.	Hydro-riparian Areas, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Commercial & Industrial Development, Conservation to Agriculture, Suburban Development	DUC, MoE, NCC, SWF	Necessary	P&C
6.3 Land/Water Use Zoning & Designation	6.3.1 Work with the City of Saskatoon to establish a protective designation for priority conservation lands within City Limits.	By 2020, a protective designation is created and applied to priority conservation lands within City limits.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Commercial & Industrial Development, Suburban Development, Dams & Water Management, Storm Water, Light Pollution, Sound Pollution, Utility and Service Lines	CoS, DUC, SW, SNS	Critical	P&C
	6.3.2 As priority conservation lands become available within City limits, those lands are incorporated as Meewasin Conservation sites.	As priority conservation lands become available within City limits, those lands are incorporated as Meewasin Conservation sites.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Commercial & Industrial Development, Suburban Development	CoS	Critical	P&C
	6.3.3 Explore the creation of a Biosphere Reserve, incorporating the Meewasin Northeast Swale, Small Swale and Wanuskewin Heritage Park.	By 2025, if feasible, explore the creation of a Biosphere Reserve for the Northeast Swale, Small Swale and Wanuskewin Heritage Park.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Suburban Development	CoS, DUC, SW, SNS, WHP	Beneficial	P&C

6.3.4 The Small Swale is incorporated into the Meewasin Conservation Zone and becomes a Meewasin Conservation site within the City limits.	By 2018, the Small Swale is incorporated into Meewasin's Conservation Zone and by 2020 becomes a Meewasin Conservation site.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Commercial & Industrial Development, Suburban Development	CoS, SW	Critical	P&C
6.3.5 Expand Meewasin's Conservation Zone as the City Limits expand, incorporating the lands meeting Meewasin's Land Policy criteria.	By 2018, Meewasin's Conservation Zone is expanded to include lands within the City limits that meet Meewasin's Land Policy criteria.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Commercial & Industrial Development, Suburban Development	CoS	Critical	P&C
6.3.6 Expand Meewasin's Conservation Zone within RM Corman Park boundaries, incorporating the lands meeting Meewasin's Land Policy criteria.	By 2025, Meewasin's Conservation Zone is expanded within R.M. Corman Park that meets Meewasin's Land Policy criteria.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Commercial & Industrial Development, Suburban Development	RM	Critical	P&C
6.3.7 Work with the Partners FOR the Saskatchewan River Basin on the designation of the South Saskatchewan River as a Canadian Heritage River System.	By 2020, the South Saskatchewan River is declared a Heritage River.	Hydro-riparian Areas	Physical Health, Connection to Nature		PFSRBC, SSRWSI	Necessary	FD, P&C
6.3.8 The Small Swale, West Swale, Hudson Bay Slough and other identified Swales within the City limits are incorporated into Meewasin's Conservation Zone.	By 2020, the various Swales located within the City limits, and are incorporated into Meewasin's Conservation Zone.	Native Grasslands, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Commercial & Industrial Development, Suburban Development	CoS, SW	Critical	P&C
6.3.9 Work with the Partnership For Growth (P4G) planning committee to incorporate priority conservation areas into their planning.	By 2017, priority conservation areas are incorporated into the P4G planning process.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Commercial & Industrial Development, Suburban Development	CoS, RM	Necessary	D&D, P&C
6.3.10 Kernen Prairie and Biddulf Prairie are added to Meewasin's Conservation Zone.	By 2018, Kernen Prairie and Biddulf Prairie are added to Meewasin's Conservation Zone.	Native Prairie	Physical Health, Connection to Nature	Acreage Development, Commercial & Industrial Development, Suburban Development	UofS	Critical	P&C

6.4 Conservation Planning	6.4.1 Update Resource Management Plans for Meewasin Conservation sites, based upon the Valley-Wide Resource Management Plan.	Each year, a minimum of one site-specific Resource Management Plans are updated or developed with all completed by 2027.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats	CoS, DUC, NCC, NPSS, SNS	Critical	P&C
	6.4.2 Work with the City of Saskatoon on the development and implementation of a Green Infrastructure strategy.	By 2018, the City of Saskatoon's Green Infrastructure Strategy is completed and implementation begins.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Suburban Development, Storm Water	CoS	Necessary	D&D, P&C
	6.4.3 Work with Wanuskewin Heritage Park on the development and implementation of a Resource Management Plan.	By 2018, Wanuskewin's Resource Management Plan is completed and implementation begins.	Hydro-riparian Areas, Native Prairie, Wetlands	Physical Health, Connection to Nature	Invasive Species, Fire Suppression, Unsustainable Grazing Management, Recreation Areas, Irresponsible Recreation	WHP	Necessary	P&C
	6.4.4 Update the State of the Valley Report in 2018 and 2023.	The State of the Valley Report is updated in 2018 and 2023.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Suburban Development, Roads	CoS, MoE, SNS	Necessary	P&C
	6.4.5 Define swale characteristics to make identification of swales easier and consistent.	By 2017, define the characteristics of a swale to provide a consistent definition.	Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Suburban Development, Storm Water	CoS, NCC, UofS	Critical	P&C
	6.4.6 Delineate the various swales located within and adjacent to Meewasin's jurisdiction.	By 2018, all swales within the planning area are delineated.	Native Grasslands, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Suburban Development, Storm Water	CoS, ECCC, MoE, SNS, SW, UofS	Critical	P&C
	6.4.7 Conduct a detailed inventory of all native prairie, wetlands, forests, and swales within a 30 km radius of the Meewasin Conservation Zone in partnership with various agencies.	By 2020, a detailed inventory of all native prairie, wetlands, forests, and swales is created including detailed classifications and mapping which is shared with the public and partners.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Suburban Development, Conversion to Agriculture, Dams / Water Management, Storm Water, Invasive Species	DUC, ECCC, MoA, MoE, NPSS, PCAP, RM, SPS, SNS, SSRWSI, UofS	Critical	P&C

6.4.8 Work with the Water Security Agency, Ducks Unlimited Canada and the South Saskatchewan River Watershed Stewards on a wetland and drainage inventory within and adjacent to Meewasin's Conservation Zone.	By 2020, Meewasin has assisted the various partners on an inventory of wetlands and drainage in the Saskatoon region.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreege Development, Suburban Development, Conversion to Agriculture, Unstainable Grazing Management, Invasive Species, Fire Suppression	DUC, ECCC, MoA, MoE, NPSS, RM, SPS, SNS, SSRWSI, UofS, WSA	Beneficial	P&C
6.4.9 Develop Master Plans for Richard St. Barbe Baker Afforestation Area and Maple Grove.	By 2020, Master Plans are developed for Richard St. Barbe Baker and Maple Grove.	Hydro-riparian Areas, Swales, Wetlands	Physical Health, Connection to Nature	Recreation Areas, Irresponsible Recreation, Trespass Issues	CoS, DUC, SNS, SW, Various Stakeholders	Necessary	D&D, P&C
6.4.10 As additional swales and extension of the Northeast Swale are incorporated into Meewasin's Conservation Zone, the Meewasin Northeast Swale Master Plan is updated to incorporate these new areas.	The Meewasin Northeast Swale Master Plan is updated as additional swale areas are incorporated into Meewasin's Conservation Zone.	Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Recreation Areas, Irresponsible Recreation, Trespass Issues	CoS, SW	Necessary	D&D, P&C
6.4.11 Conduct a river users access study, identifying areas to increase access to the river while minimizing ecological impact to the river ecosystem.	By 2018, a river access study is completed.	Hydro-riparian Areas	Physical Health, Connection to Nature	Recreation Areas, Irresponsible Recreation, Trespass Issues	CoS, Various Stakeholders	Necessary	P&C
6.4.12 A comprehensive and integrated invasive species management strategy is developed and implemented for the Meewasin Valley.	By 2020, a comprehensive and integrated invasive species management strategy is developed and implemented in the Meewasin Valley.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Fire Suppression, Unsustainable Grazing Management	CoS, DUC, ECCC, MoA, MoE, NPSS, SISC, WHP	Critical	P&C
6.4.13 Continue to collect data, analyze, map and update information on conservation targets and threats within the Meewasin Conservation Zone and the planning area.	Ongoing collection, analysis, mapping and updating of conservation target and threat data occurs with Miradi software updated bi-annually.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats	CoS, DUC, ECCC, MoA, MoE, NCC, NPSS, NS, PCAP, SNS, SSRWSI, WSA	Necessary	P&C
6.4.14 Develop and implement restoration plans, as part of the site-specific Resource Management Plans, to restore degraded conservation targets.	By 2027, Resource Management Plans are completed with restoration planning for degraded conservation targets included and implementation begins.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats	CoS, DUC, ECCC, MoA, MoE, NPSS, PCACP, SNS	Necessary	P&C
6.4.15 Develop a climate change adaption and mitigation strategy for the Meewasin Valley.	By 2027, a climate change adaptation and mitigation strategy for the Meewasin Valley is developed.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Climate Change	CoS, SES, MoA, MoE, SSRWSI, UofS	Beneficial	CD, D&D, FD, P&C
6.4.16 Work with the City of Saskatoon on the development for a slope stability feasibility framework for the City of Saskatoon.	By 2019, the City of Saskatoon and Meewasin have developed a slope stability framework for the city.	Hydro-riparian Areas	Physical Health, Connection to Nature	Urban Riverbank Slumping and Slope Stability	CoS	Urgent	D&D, P&C

	6.4.17 Work with partners to develop an Aquatic Invasive Mussels management strategy for the Meewasin Valley and the City of Saskatoon.	By 2018, an evaluation of the potential impacts Aquatic Invasive Mussels have on the Meewasin Valley and the City of Saskatoon is complete. By 2020, a management strategy for Aquatic Invasive Mussels is completed and implemented if invasion occurs.	Hydro-riparian, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species	CoS, DUC, ECCC, MoE, SISC, SSRWSI, WSA	Critical	P&C
6.5 Site Infrastructure	6.5.1 When Meewasin Conservation sites are fenced; wildlife friendly fence designs are installed.	All new fences meet current best management practices for wildlife friendly fencing.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Unsustainable Grazing Management, Trespass Issues, Recreation Areas, Irresponsible Recreation	CoS, SNS, SW	Critical	D&D, P&C
	6.5.2 Existing fences at Meewasin Conservation sites are updated to ensure fencing is wildlife friendly.	By 2027, all fencing on Meewasin Conservation sites is updated to wildlife-friendly fencing standards.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Unsustainable Grazing Management, Trespass Issues, Recreation Areas, Irresponsible Recreation	CoS, SNS, SW	Critical	D&D, P&C
	6.5.3 Work with the City of Saskatoon, Saskatchewan Ministry of Highways, developers, and other agencies to adopt dark sky-friendly lighting infrastructure adjacent, near and within Meewasin Conservation sites.	By 2020, all new lighting infrastructure installed adjacent or on Meewasin Conservation sites will be dark sky-friendly.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Light Pollution, Suburban Development, Roads	CoS, MoH, SNS, SW	Critical	CD, D&D, P&C
	6.5.4 Work with the City of Saskatoon, Ministry of Highways, developers and other agencies to incorporate wildlife-friendly movement designs into road construction when crossing the Meewasin Conservation Zone and Meewasin Conservation sites.	By 2020, all new road construction will take wildlife movement designs into consideration when crossing the Meewasin Conservation Zone and Meewasin Conservation sites.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Roads, Suburban Development	CoS, MoH, SNS, SW	Critical	D&D, P&C
	6.5.5 All Meewasin Conservation sites are adequately signed to identify Meewasin and City bylaws for each site.	By 2021, all Meewasin Conservation sites are adequately signed showing applicable bylaws.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Recreation Areas, Irresponsible Recreation, Trespass Issues, Gathering of Plants	CoS	Necessary	D&D, P&C
	6.5.6 As new sections of the Meewasin Trail are designed and developed, they are done using techniques to reduce impact to native vegetation and wildlife habitat.	By 2020, Meewasin Trail design standards incorporate additional techniques to reduce impacts to native vegetation and wildlife habitat through consultation with Resource Management.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Recreation Areas, Invasive species	CoS, UofS	Critical	D&D, P&C
	6.5.7 Portable interpretive signage is developed to be placed on Meewasin Conservation sites to interpret various resource management activities.	By 2018, a series of portable and temporary interpretive signage is developed and implemented on various Meewasin Conservation sites as resource management activities are implemented including invasive species management, prescribed burning and conservation grazing.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Fire Suppression, Unsustainable Grazing Management	CoS, NPSS, PCAP, SISC	Necessary	CD, D&D, P&C

		6.5.8 Infrastructure is installed to restrict access for off-highway vehicles into sensitive areas, if issues arise, on Meewasin Conservation sites.	As access issues arise of Meewasin Conservation sites, infrastructure is installed to restrict access for off-highway vehicles into sensitive areas.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Recreation Areas, Irresponsible Recreation, Trespass Issues	CoS	Critical	D&D, P&C
		6.5.9 Maintain the Meewasin Trail and secondary trails in a manner to reduce the spread of invasive species.	Annually, regularly mow and control invasive species along the Meewasin Trail and secondary trails to reduce the spread of invasive species.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Irresponsible Recreation	CoS	Critical	D&D, P&C
7.0 Legal & Policy Frameworks	7.1 Laws, Regulations & Codes	7.1.1 As part of the <i>Meewasin Valley Authority Act</i> , Development Review process for development projects within the Meewasin Valley is continued.	Development Review process is ongoing for development projects within the Meewasin Valley.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats	CoS, GoS, UofS	Critical	P&C
		7.1.2 Meewasin's Bylaws, under the <i>Meewasin Valley Authority Act</i> are reviewed, updated and enforced.	Bylaws are updated and reviewed every 5 years, starting in 2018.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats	CoS, GoS, UofS	Critical	P&C
		7.1.3 Work with the Saskatchewan Invasive Species Council and the Ministry of Agriculture and Ministry of Environment to update the <i>Weed Control Act</i> regulations and the <i>Fisheries Act</i> regulations to incorporate additional invasive species that are creating an issue in the Meewasin Valley.	By 2019, the <i>Weed Control Act</i> regulations and by 2025 the <i>Fisheries Act</i> regulations are updated with invasive species that Meewasin has identified as being of concern in the Meewasin Valley.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species	CoS, ECCC, MoA, MoE, RM, NPSS, SISC	Critical	P&C
	7.2 Policies & Guidelines	7.2.1 Examine the potential to develop Conservation Offsets to mitigate the loss of habitat in the Saskatoon region.	By 2022, the concept of Conservation Offsets is examined with a strategy for implementation.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Commercial & Industrial Development, Suburban Development, Dams & Water Management, Storm Water, Light Pollution, Sound Pollution, Utility and Service Lines	COS, DUC, MoE, NCC, SES, SWF	Beneficial	FD, P&C
		7.2.2 Work with the City of Saskatoon and various stakeholders to develop and implement a Dark Skies Policy for the city.	By 2020, a Dark Skies policy is developed and implemented.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Light Pollution, Suburban Development, Roads	CoS, DUC, SNS, SW	Necessary	CD, D&D, P&C
		7.2.3 Work with the City of Saskatoon on the implementation of the Wetland Policy.	By 2018, the Wetland Policy is implemented.	Swales, Wetlands	Physical Health, Connection to Nature	Commercial & Industrial Development, Suburban Development, Dams & Water Management, Roads, Utility and Service Lines	CoS, DUC, SNS, SW	Necessary	P&C

		7.2.4 Implement Meewasin's Land Policy, Northeast Policy and Development Review policies.	Implementation of the Land, Northeast, and Development Review policies with a review of these policies in 2026.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Conversion to Agriculture, Commercial & Industrial Development, Suburban Development, Recreational Areas	CoS, GoS, UofS	Critical	P&C
8.0 Research & Monitoring	8.1 Basic Research & Status Monitoring	8.1.1 Continue the annual MAPS (Monitoring Avian Productivity and Survivorship) program at Beaver Creek Conservation Area and expand the program to the Meewasin Northeast Swale.	By 2017, MAPS is reinstated at Beaver Creek Conservation Area and by 2020, MAPS is expanded to the Meewasin Northeast Swale.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Light Pollution, Sound Pollution, Suburban Development, Acreage Development, Roads, Fire Suppression, Conservation to Agriculture, Unsustainable Grazing Management, Recreation Areas	ECCC, NS, SNS, UofS	Necessary	CD, P&C
		8.1.2 Annually conduct amphibian surveys at the Meewasin Northeast Swale, Chappell Marsh Conservation Area, and Beaver Creek Conservation Area.	By 2018, annual amphibian surveys are conducted on key Meewasin Conservation sites.	Hydro-riparian Areas, Swales, Wetlands	Physical Health, Connection to Nature	Light Pollution, Sound Pollution, Suburban Development, Acreage Development, Roads, Fire Suppression, Conservation to Agriculture, Unsustainable Grazing Management, Recreation Areas	ECCC, NS, SNS, UofS	Necessary	CD, P&C

	8.1.3 Annually provide species information (flora, fauna, species at risk, invasive species) to the various databases including the Saskatchewan Conservation Data Centre, iMap Invasives, iNaturalist and other sources.	Continued sharing of species information with the various external databases.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Light Pollution, Sound Pollution, Suburban Development, Acreage Development, Roads, Fire Suppression, Conservation to Agriculture, Unsustainable Grazing Management, Recreation Areas	MoE	Critical	CD, P&C
	8.1.4 Establish permanent long-term monitoring plots on all Meewasin Conservation sites to measure, document, and monitor the impact of resource management activities and public use have on the biodiversity of each site including riparian areas, wetlands, swales, native grasslands and forested areas.	By 2027, each Meewasin Conservation site has permanent long-term monitoring plots on each site.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Fire Suppression, Unsustainable Grazing, Problematic Native Species, Trespass Issues, Recreation Areas, Irresponsible Recreation	ECCC, NPSS, SNS, UofS	Critical	P&C
	8.1.5 Implement long-term monitoring on Meewasin Conservation sites based upon the monitoring plan and long-term monitoring plots established for each site.	As permanent long-term monitoring plots are established, begin monitoring of each site.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Fire Suppression, Unsustainable Grazing, Problematic Native Species, Trespass Issues, Recreation Areas, Irresponsible Recreation	ECC, NPSS, SNS, UofS	Critical	P&C
	8.1.6 Continue the relationship with the University of Saskatchewan to conduct research projects on Meewasin Conservation sites that better understand the effects of resource management and ecological monitoring.	Minimum one research project per year is conducted on Meewasin Conservation sites in partnership with the University of Saskatchewan.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Fire Suppression, Unsustainable Grazing, Problematic Native Species, Trespass Issues, Recreation Areas, Irresponsible Recreation	ECCC, NCC, NPSS, SNS, UofS	Beneficial	CD, P&C
	8.1.7 Participate in research projects regarding invasive species management and control.	By 2027, Meewasin has participated in three research projects related to invasive species management and control.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species	AgCanada, ECCC, MoA, MoE, NCC, NPSS, PCAP, SISC, UofS	Necessary	P&C

	8.1.8 Develop and implement a long-term snow monitoring program on Meewasin Conservation sites, in partnership with the University of Saskatchewan, to measure various biotic factors influencing ground and surface runoff.	By 2019, a long-term snow monitoring program on three Meewasin Conservation sites is established and monitoring begins.	Hydro-riparian Areas, Swales, Wetlands	Physical Health, Connection to Nature	Agriculture Runoff, Dams & Water Management, Storm Water	CoS, ECCC, SSRWSI, WSA, UofS	Beneficial	CD, P&C
	8.1.9 Continue and expand benthic invertebrate monitoring, in partnership with the University of Saskatchewan, to measure the health and diversity in the Meewasin Northeast Swale and expanded to other sites.	Continue the ongoing monitoring in the Meewasin Northeast Swale and expand to other sites by 2020.	Hydro-riparian Areas, Swales, Wetlands	Physical Health, Connection to Nature	Runoff - Pesticide and Fertilizers, Dams & Water Management, Storm Water, Thermal Pollution	CoS, DUC, ECCC, SSRWSI, SW, WSA, UofS	Necessary	CD, P&C
	8.1.10 Partner with the University of Saskatchewan to develop a ground water monitoring program at the Meewasin Northeast Swale and other swales in the Saskatoon region.	By 2019, ground water monitoring begins in the Meewasin Northeast Swale with other swale monitoring occurring as added to the Meewasin Conservation Zone.	Hydro-riparian Areas, Swales, Wetlands	Physical Health, Connection to Nature	Runoff - Pesticide and Fertilizers, Dams & Water Management, Storm Water, Thermal Pollution	CoS, DUC, ECCC, SSRWSI, WSA, UofS	Necessary	CD, P&C
	8.1.11 Develop a monitoring protocol for invasive species including monitoring and sampling techniques.	By 2018, an invasive species monitoring protocol is established for Meewasin Conservation sites and the Meewasin Conservation Zone.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species	CoS, ECCC, MoA, MoE, NCC, NPSS, RM, SISC, SPS	Necessary	P&C
	8.1.12 Participate in substrate sampling and shoreline surveys in the South Saskatchewan River, Brightwater Creek, storm ponds in the Meewasin Northeast Swale, and wetlands on Meewasin Conservation sites, as part of the larger provincial collective on aquatic invasive mussels monitoring program.	Continue with the ongoing monitoring of aquatic invasive mussels at a minimum of 2 locations along Brightwater Creek, 5 along the South Saskatchewan River and 4 in the Meewasin Northeast Swale.	Hydro-riparian Areas, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species	CoS, MoE, SISC, SSRWSI, WSA	Critical	CD, P&C
	8.1.13 Archeological, paleontological and historical artifacts and sites along the Meewasin Valley and Meewasin Conservation sites are documented, and where possible, conserved for future generations.	By 2025, archeological, paleontological and historical artifacts and sites along the Meewasin Valley and Meewasin Conservation sites are documented and conserved.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Commercial & Industrial Development, Suburban Development, Roads, Utility / Service Lines	CoS, GoS, UofS	Necessary	P&C
	8.1.14 Continue and expand water quality monitoring on Meewasin Conservation sites and along the South Saskatchewan River with various partners.	Annually conduct water quality monitoring programs on 4 Meewasin Conservation sites and along 10 locations along the South Saskatchewan River.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Runoff - Pesticide and Fertilizers, Dams & Water Management, Storm Water, Thermal Pollution	CoS, ECCC, SSRWSI, UofS, WSA	Necessary	CD, P&C

	8.1.15 Research is conducted on the ecological flows and natural disturbance regime of the South Saskatchewan River.	By 2025, the ecological flows and natural disturbance regime of the South Saskatchewan River is researched.	Hydro-riparian Areas	Physical Health, Connection to Nature	Dams & Water Management	CoS, NCC, SSRWSI, WSA, UofS	Beneficial	P&C
	8.1.16 Map riparian zones and bank of South Saskatchewan River and tributaries using aerial photography and digital elevation models.	By 2020, riparian zones and the bank of the South Saskatchewan River and its tributaries are mapped.	Hydro-riparian Areas	Physical Health, Connection to Nature	Dams & Water Management	CoS, NCC, SSRWSI, WSA, UofS	Beneficial	P&C
	8.1.17 Assess tributary, creek and swale crossings for impediment and effectiveness of water flow.	By 2020, tributary, creek and swale crossing are assessed for impediment and effectiveness of water flow, with removal process beginning in 2024.	Hydro-riparian Areas, Swales	Physical Health, Connection to Nature	Dams & Water Management	CoS, MoA, MoE, SSRWSI, WSA	Beneficial	P&C
	8.1.18 Baseline inventories of Meewasin Conservation sites are completed to document conservation targets, unique species, and threats to each site.	By 2024, baseline inventories are completed or updated for all Meewasin Conservation sites.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats	CoS, NCC, SNS	Necessary	P&C
	8.1.19 Update and conduct slope stability studies along the South Saskatchewan River through the City of Saskatoon.	By 2025, conduct and update slope stability studies along the South Saskatchewan River through the City of Saskatoon, if identified in the slope stability framework.	Hydro-riparian Areas	Physical Health, Connection to Nature	Urban Riverbank Slumping and Slope Stability	CoS, WSA	Necessary	D&D, P&C
	8.1.20 Develop a monitoring framework for the Meewasin Valley-wide Resource Management Plan	By 2018, a monitoring framework is developed for the Meewasin Valley-wide Resource Management Plan	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats	CoS, ECCC, MoA, MoE, SNS, SSRWSI, UofS	Urgent	P&C
	8.1.21 Participate in various citizen science monitoring programs, engaging volunteers and Meewasin staff, on the collection and reporting of citizen science data from Meewasin Conservation sites and the Conservation Zone .	Annual participation in various citizen science programs including, but not limited to: Frog Watch, Ice Watch, Plant Watch, Christmas Bird Count, and Breeding Bird Survey, etc.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats	ECCC, NS, SNS, UofS	Necessary	C&D, P&C
8.2 Evaluation, Effectiveness Measures & Learning	8.2.1 Evaluate the implementation of the Valley-wide Resource Management Plan to determine its effectiveness on conserving and reducing the threats to the conservation targets and adapt as necessary to improve effectiveness and deal with emerging threats	Annually evaluate the effectiveness of the implementation of the Resource Management Plan with a 90% successful implementation by 2027.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats		Necessary	P&C
	8.2.2 Evaluate the implementation of various programs initiated from the Valley-wide Resource Management Plan to determine the programs effectiveness on conserving and reducing the threats to the conservation targets and adapt as necessary to improve effectiveness.	Annually evaluate the effectiveness of the implementation of various programs initiated from the Valley-wide Resource Management Plan with a 90% successful implementation by the end of each program or by 2027.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats		Necessary	P&C

		8.2.3 Evaluate the implementation of site-specific resource management plans to determine its effectiveness on conserving and reducing the threats to the biodiversity targets, adapt as necessary to improve effectiveness and deal with emerging threats.	Annually evaluate the effectiveness of the implementation of site-specific resource management plans with a 90% successful implementation by the end of the term for each plan.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats		Necessary	P&C
		8.2.4 Develop indicator species / community types for Meewasin Conservation sites as part of site-specific Resource Management Plans.	By 2027, as site-specific Resource Management Plans are developed, indicator species / community types are incorporated.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats	CoS, ECCC, NCC, SNS, SSRWSI	Necessary	P&C
		8.2.5 Develop annual reports for the various resource management programs and for each Meewasin Conservation site.	Annually develop annual reports for each resource management program and for each Meewasin Conservation site, based upon resource management plan implementation and integration with GIS.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats		Necessary	P&C
9.0 Education & Training	9.1 Formal Education	9.1.1 Engage youth in resource management concepts through public outreach programs at Beaver Creek Conservation Area, Saskatoon Natural Grasslands and the Meewasin Northeast Swale.	By 2017, public outreach programs engage school groups and youth in their programs on the land, in classrooms, and on the river regarding resource management activities and concepts with 150 classes and 4,500 students engaged annually.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Fire Suppression, Unsustainable Grazing Management	SNS, UofS	Necessary	CD, P&C
		9.1.2 Engage university and college students in resource management concepts.	By 2019, 6 university classes are engaged on Meewasin Conservation sites and 4 classroom lectures regarding resource management concepts annually.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Fire Suppression, Unsustainable Grazing Management	UofS, SaskPoly	Necessary	CD, P&C
	9.2 Training & Individual Capacity Development	9.2.1 Meewasin becomes the regional hub for the training of resource management practitioners on resource management activities including conservation grazing, prescribed burning, citizen science and invasive species management.	By 2022, Meewasin is recognized as the regional training hub for resource management practitioners.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Fire Suppression, Unsustainable Grazing Management	DUC, ECCC, MoA, MoE, NCC, NPSS, PCAP, SaskPoly, SISC, SNS, SPS, UofS	Beneficial	P&C
		9.2.2 Increase awareness and knowledge transfer regarding invasive species, conservation grazing and prescribed burning to other resource management practitioners at workshops, conferences and tours.	Continue to create awareness and transfer knowledge to other resource management practitioners at a minimum of a dozen workshops, conferences and tours annually.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Fire Suppression, Unsustainable Grazing Management	DUC, ECCC, MoA, MoE, NCC, NPSS, PCAP, SaskPoly, SISC, SNS, SPS, UofS	Necessary	P&C
10.0 Institutional Development	10.1 Internal Organizational Development & Support	10.1.1 Engage the Meewasin Conservation Advisory Committee to provide guidance and support on resource management activities.	Continue meeting with the Meewasin Conservation Advisory Committee on a minimum of twice / year expanding to quarterly to better engage the committee on guidance and support.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats	CoS, ECCC, MoA, UofS	Critical	P&C
		10.1.2 Engage the Technical Advisory Committee for the Valley-wide Resource Management Plan to provide guidance and support on the implementation of the plan.	Continue meeting with the RMP Technical Advisory Committee on a minimum annual basis to review implementation of RMP actions and update viability assessment of targets and threats.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats	CoS, ECCC, NPSS, MoA, MoE, UofS, SNS	Necessary	P&C

		10.1.3 Engage the Meewasin Valley Authority Board of Directors in resource management.	Provide monthly reports, two annual presentations and one annual tour to the Meewasin Valley Authority Board of Directors regarding resource management activities.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats	CoS, GoS, UofS	Critical	P&C
10.2 External Organizational Development & Support	10.2.1	Initiate opportunities for local volunteer stewardship groups and community associations to assist Meewasin with resource management activities.	On an ongoing basis, initiate opportunities for interested volunteer stewardship groups and community associations to work with Meewasin on resource management activities including site maintenance, invasive species management, monitoring and other roles.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats	SNS, SW	Necessary	CD, D&D, FD, P&C
	10.2.2	Support and become involved in special interest working groups established by partners related to resource management activities.	On an ongoing basis, become engaged in special interest working groups that are established by partners related to resource management activities including invasive species, grazing management, prescribed burning and other activities.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats	DUC, ECCC, MoA, MoE, NCC, NPSS, PCAP, SaskPoly, SISC, SSRWS, SNS, SPS, WSA, UofS	Necessary	P&C
10.3 Alliance & Partnership Development	10.3.1	All conservation NGOs and government agencies (federal, provincial and municipal) involved in regional conservation efforts in the Saskatoon region meet annually to discuss their various programs for the year and to explore partnership opportunities.	By 2018, all conservation NGOs and government agencies meet annually to provide updates to each group and to explore partnership opportunities.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats	DUC, ECCC, MoA, MoE, NCC, NPSS, PCAP, SaskPoly, SISC, SNS, SPS, SSRWSI, SWF, UofS	Beneficial	P&C
	10.3.2	All agencies in Saskatchewan that conduct prescribed burns meet annually to discuss upcoming prescribed burning activities, joint training and shared resource opportunities.	By 2017, agencies that conduct prescribed burns in Saskatchewan meet annually, participate in joint projects and training opportunities and share mapping of completed prescribed burns.	Native Prairie, Swales	Physical Health, Connection to Nature	Fire Suppression, Invasive Species	DUC, ECCC, NCC, PC, SPS, UofS	Necessary	P&C
	10.3.3	Continue participation with the Saskatchewan Invasive Species Council through representation and membership on the Council to share information and resources on invasive species management.	Continued involvement in the Saskatchewan Invasive Species Council.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species	CoS, ECCC, MoA, MoE, MoH, RM, SISC	Necessary	P&C
	10.3.4	Continue participation with the Partners FOR the Saskatchewan River Basin through representation and membership, to share information and resources on stewarding the Saskatchewan River system.	Continued involvement with Partners FOR the Saskatchewan River Basin.	Hydro-riparian Areas	Physical Health, Connection to Nature	All Threats	DUC, PFSRBC, WSA, UofS	Necessary	FD, P&C
	10.3.5	Continue participation with the South Saskatchewan River Watershed Stewards, Inc. through representation, membership and project partnership.	Continued involvement with the South Saskatchewan River Watershed Stewards, Inc.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats	CoS, MoA, RM, SSRWSI, WSA	Necessary	P&C

	10.3.6 Participate in the development of a Conservation Directory for Saskatchewan.	By 2020, a Conservation Directory is created for Saskatchewan.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats	DUC, ECCC, MoA, MoE, NCC, NPSS, PCAP, SaskPoly, SISC, SNS, SPS, SSRWSI, SWF, UofS	Beneficial	P&C
	10.3.7 Develop working relationships with the various Indigenous organizations that have an interest in the Meewasin Valley.	By 2020, an Indigenous committee is established within Meewasin.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats	WHP	Beneficial	CD, D&D, FD, P&C
	10.3.8 Develop working relationships with the agricultural community in the Saskatoon region to provide opportunities for partnerships in resource management on and adjacent to the Meewasin Conservation Zone.	By 2020, partnerships with the agriculture community begin to develop related resource management.	Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Conversion to Agriculture, Invasive Species, Acreage Development, Unsustainable Grazing Management, Fire Suppression,	MoA, SSGA	Necessary	P&C
	10.3.9 Continue partnership and research opportunities with the various programs at the University of Saskatchewan to conduct research and use Meewasin Conservation sites as a living classroom / laboratory for students and researchers.	Annually, a minimum of a dozen university classes use Meewasin Conservation sites as a living classroom and one research project is undertaken.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Unsustainable Grazing Management, Fire Suppression, Recreation Areas	UofS	Beneficial	CD, P&C
	10.3.10 Continue to partner with conservation groups on Meewasin Conservation sites to conduct tours and collect species observations.	Continue to partner with groups including the Saskatoon Nature Society and the Native Plant Society of Saskatchewan.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats	NPSS, SNS, SW	Necessary	CD, P&C
	10.3.11 Meewasin becomes an active member of the Saskatchewan Prairie Conservation Action Plan.	By 2018, Meewasin is a member of the Saskatchewan Prairie Conservation Action Plan.	Native Prairie	Physical Health, Connection to Nature	Conversion to Agriculture, Acreage Development, Fire Suppression, Invasive Species, Unsustainable Grazing Development, Suburban Development	DUC, ECCC, MoA, MoE, NCC, NPSS, PCAP, SNS, SPS, SSRWSI, SWF, UofS, WSA, WHP	Necessary	P&C
	10.3.12 Establish a Co-operative Weed Management Area between Meewasin, City of Saskatoon, RM of Corman Park, adjacent RMs, and various government agencies including the development and implementation of a cooperative weed management plan.	By 2018, a Co-operative Weed Management Area is created around the Meewasin Valley including the City of Saskatoon, RM Corman Park, adjacent RMs, and various government agencies and NGOs. By 2022, a co-operative weed management plan is developed and implemented.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species	CoS, MoA, MoE, MoH, RM	Critical	P&C

	10.3.13 Partner and work collaboratively with the City of Saskatoon's Naturalized Parks Program on resource management activities.	Continue to partner with the City of Saskatoon Naturalized Parks Program on resource management activities.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Fire Suppression, Unsustainable Grazing Management, Trespass Issues, Irresponsible Recreation	CoS	Necessary	P&C
	10.3.14 Promote and support the Master Naturalist Program.	Continued support of the Master Naturalist Program with Meewasin partnering with program development, volunteer training, and volunteer events and activities.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Fire Suppression, Unsustainable Grazing Management, Trespass Issues, Irresponsible Recreation	DUC, ECCC, MoE, NCC, NPSS, PCAP, SNS	Necessary	CD, P&C
	10.3.15 Formalize partnerships for research and stewardship in the Meewasin Northeast Swale and other conservation areas.	By 2019, a formalized partnership for research and stewardship is established for the Meewasin Northeast Swale and by 2024, all other Meewasin Conservation sites have formal partnerships.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Fire Suppression, Unsustainable Grazing Management, Trespass Issues, Irresponsible Recreation	NPSS, SNS, SW, UofS	Necessary	CD, P&C
	10.3.16 Become a member of the Clean, Play, Go and Don't Let It Loose awareness campaigns regarding invasive species awareness.	By 2018, Meewasin has signed on and has become a partner with the Clean, Play, Go and Don't Let It Loose invasive species awareness campaigns.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Irresponsible Recreation	CoS, MoA, MoE, MoH, RM, SISC, WSA	Necessary	P&C
	10.3.17 Develop relationships with the various recreational users of the river valley secondary trails to increase communication, collaboration and potential joint projects.	By 2020, the various recreational user groups using the secondary trails along the river valley meet together to discuss opportunities to work together collaboratively.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Irresponsible Recreation	CoS, Various Stakeholders	Necessary	CD, D&D, P&C
	10.3.18 Engage Environment and Climate Change Canada on opportunities to partner with the stewardship of the Sutherland Migratory Bird Sanctuary.	By 2018, Meewasin and ECCC have investigated opportunities to partner on the stewardship of the Sutherland Migratory Bird Sanctuary.	Swales, Wetlands	Physical Health, Connection to Nature	Invasive Species, Irresponsible Recreation, Light Pollution, Sound Pollution	CoS, ECCC, SNS	Beneficial	P&C

		10.3.18 Develop partnership opportunities with the various land trusts in Saskatchewan to share ideas, resources, and best management practices.	By 2018, the various land trusts in Saskatchewan meet annually to discuss partnership ideas, resources and best management practices.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Conservation to Agriculture, Commercial & Industrial Development, Recreation Areas, Invasive Species, Unsustainable Grazing, Fire Suppression	DUC, ECCC, MoA, MoA, NCC, NS, SPS, SWF	Beneficial	P&C
		10.3.19 Become an active member of the Canadian Land Trust Alliance.	When the new form of the Canadian Land Trust Alliance is created, Meewasin becomes an active member.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	Acreage Development, Conservation to Agriculture, Commercial & Industrial Development, Recreation Areas	DUC, NCC	Beneficial	P&C
		10.3.20 Engage the various stakeholders and user groups utilizing the South Saskatchewan River through the Meewasin Valley.	Annually host a meeting of the various stakeholder user groups who utilize the South Saskatchewan River through the Meewasin Valley.	Hydro-riparian Areas	Physical Health, Connection to Nature	Irresponsible Recreation, Trespass Issues, Recreation Areas	CoS, SWF, Various Stakeholders	Necessary	CD, D&D, FD, P&C
		10.3.21 Continue to be an active member of the Association of Saskatchewan Urban Parks and Conservation Areas and engage the association in resource management.	Meewasin is an active member of ASUPCA and has engaged the members in the value of resource management.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats	ASUPCA	Necessary	CD, P&C
	10.4 Financing Conservation	10.4.1 Establish a Stewardship / Conservation endowment fund to ensure the long-term conservation and stewardship of Meewasin Conservation sites and Conservation Easements into the future.	By 2027, an endowment fund is successfully created with all necessary funds in place to maintain, steward and conserve Meewasin Conservation sites and Easements into the future.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats	CoS, GoS, UofS	Necessary	FD, P&C
		10.4.2 Fundraise to implement the Meewasin Valley-wide Resource Management Plan	Ongoing fundraising to implement the Meewasin Valley-wide Resource Management Plan	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats		Urgent	FD, P&C
		10.4.3 As new Meewasin Conservation sites are added to Meewasin's portfolio, additional funds are raised in the endowment fund.	Ongoing, as new Meewasin Conservation sites are added, sufficient endowment funds are raised.	Hydro-riparian Areas, Native Prairie, Swales, Wetlands	Physical Health, Connection to Nature	All Threats	CoS, GoS, UofS	Necessary	FD, P&C

## Appendix F - Citizen Science Apps and Websites\*

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Citizen science or publicly collected data helps to inform Meewasin and other conservation agencies about a variety of ecological monitoring initiatives.

### General Species Recording

- iNaturalist [www.iNaturalist.ca](http://www.iNaturalist.ca)
- Saskatchewan Conservation Data Center [www.biodiversity.sk.ca/OnlineRep.htm](http://www.biodiversity.sk.ca/OnlineRep.htm)

### Amphibians

- Frog Watch [www.naturewatch.ca/frogwatch](http://www.naturewatch.ca/frogwatch)

### Birds

- eBird [www.ebird.org](http://www.ebird.org)
- Christmas Bird Count [www.birdscanada.org/volunteer/cbc](http://www.birdscanada.org/volunteer/cbc)
- Feeder Watch [www.birdscanada.org/volunteer/pfw](http://www.birdscanada.org/volunteer/pfw)
- Great Backyard Bird Count [www.birdscanada.org/volunteer/gbbc](http://www.birdscanada.org/volunteer/gbbc)
- Project Nest Watch [www.birdscanada.org/volunteer/pnw](http://www.birdscanada.org/volunteer/pnw)
- Canadian Lakes Loon Survey [www.birdscanada.org/volunteer/cls](http://www.birdscanada.org/volunteer/cls)

### Climate

- Ice Watch [www.naturewatch.ca/icewatch](http://www.naturewatch.ca/icewatch)
- Rink Watch [www.rinkwatch.org](http://www.rinkwatch.org)

### Insects

- Bumblebee Watch <http://bumblebeewatch.org>
- North American Butterfly Association [www.naba.org/butter\\_counts](http://www.naba.org/butter_counts)
- eButterfly [www.e-butterfly.org](http://www.e-butterfly.org)
- Lost Lady Bug Project [www.lostladybug.org](http://www.lostladybug.org)
- Dragonflies: Odonata Central <http://odonatacentral.org/>

### Invasive Species

- iMap Invasives Saskatchewan <http://imapinvasives.org/skimi>
- EDDS Maps Prairie Region <https://www.eddmaps.org/prairieregion/>

### Light Pollution

- Dark Sky Meter <http://www.darkskymeter.com/>

### Plants

- Plant Watch [www.naturewatch.ca/plantwatch](http://www.naturewatch.ca/plantwatch)

### Water

- Love Your Lake <http://www.loveyourlake.ca/>

### Worms

- Worm Watch [www.naturewatch.ca/wormwatch](http://www.naturewatch.ca/wormwatch)

\*This list is not comprehensive.

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## Development of the Swale – Response to Northeast Swale Watchers’ 12 Points

### Recommendation

1. That the information be received; and
2. That copies of this report be forwarded to the Standing Policy Committee on Planning, Development and Community Services and the Saskatoon Environmental Advisory Committee for information.

### Topic and Purpose

The purpose of this report is to provide information regarding the Northeast Swale Watchers’ “Twelve Main Points for City-Responsible Protection of the Swale,” identifying how the points are being addressed by the City of Saskatoon and other agencies.

### Report Highlights

1. The City of Saskatoon’s (City) plans, policies, and practices currently address the majority of the “Twelve Main Points for City-Responsible Protection of the Swale” (Twelve Points).
2. A forthcoming report will address long-term protection of the Northeast Swale (Swale).
3. The points related to the regional planning process (Saskatoon North Partnership for Growth) and Dark Sky compliance are partially addressed through existing and/or forthcoming plans or practices.
4. Discussions and studies, led by the Provincial Ministry of Highways and Infrastructure, regarding the general location of the Saskatoon Freeway (formerly Perimeter Highway) have concluded with the current location crossing the Swale determined to be “valid.”

### Strategic Goals

Existing and proposed measures to protect and enhance the Swale demonstrate the Strategic Goals of Environmental Leadership and Sustainable Growth.

### Background

During its April 11, 2016 meeting, the Standing Policy Committee on Environment, Utilities and Corporate Services (Committee) received a submission from the Northeast Swale Watchers, entitled “Twelve Main Points for City-Responsible Protection of the Swale.” The Committee resolved:

- “1. That the information be received; and
2. That the Administration report back to the Standing Policy Committee on Environment, Utilities and Corporate Services in response to the 12 recommendations put forward by the Northeast Swale Watchers.”

## Report

The Administration has reviewed the Twelve Points and has prepared a detailed response that describes if and how each point is being addressed and the agency or agencies responsible (see Attachment 1).

The majority of the Twelve Points are currently addressed through existing plans, policies, and/or practices. Those that are not fully addressed fall into three categories:

1. In-progress:
  - a) long-term legal protection for the Swale (point 9) – The Administration is preparing a follow-up report to its October 26, 2015 report to City Council for endorsement of the Northeast Swale Master Plan that will address long-term legal protection of the Swale. It is important to note that there are already a number of legal and practical “layers” of protection in place on the Swale.
2. Partially addressed:
  - a) impose Dark Sky lighting standards (point 3) - The lighting design for the North Commuter Parkway Project will ensure Dark Sky considerations are addressed appropriately. For residential neighbourhood street lighting, Saskatoon Light & Power used a standard fixture, which met Dark Sky requirements when adopted in 2014. However, Dark Sky requirements were updated in November 2015, and the City’s standard fixtures are no longer fully compliant. In addition, the Administration will be exploring the potential for Zoning Bylaw No. 8770 amendments that would provide incentives for environmentally sustainable development. The incentives to be investigated may include measures to encourage, though not require, the use of appropriate lighting on residential properties. Regulations mandating Dark Sky compliant lighting on private property are not being considered.
  - b) coordinate with the Saskatoon North Partnership for Growth (P4G) (point 12) – As a partner in the process, the City will continue to work towards a regional land use plan that supports the City’s Strategic Goals, including Sustainable Growth and Environmental Leadership. Ultimately, the P4G process will determine the extent to which environmental protection policies are adopted within the regional plan.
3. No action possible/recommended:
  - a) relocation of the Saskatoon Freeway (formerly Perimeter Highway) beyond the Swale (point 2) - Planning for the Saskatoon Freeway is a responsibility of the Provincial Ministry of Highways and Infrastructure. The City and the Meewasin Valley Authority participated in a 2014 study to validate the general location of the freeway, which determined that the current location through the Swale is “valid.” While minor adjustments in the alignment of the freeway may be necessary during the detailed design,

the Administration does not support re-opening discussions on its general location; nor has the Provincial Ministry of Highways and Infrastructure indicated that this is being considered.

**Other Considerations/Implications**

There are no policy, financial, environmental, privacy, or CPTED implications or considerations. No options to the recommendation were considered.

**Due Date for Follow-up and/or Project Completion**

No follow-up is required.

**Public Notice**

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

**Attachment**

1. Twelve Main Points for City-Responsible Protection of the Swale: Specific Responses

**Report Approval**

Written by: Chris Schulz, Senior Planner, Long Range Planning

Reviewed by: Lesley Anderson, Director of Planning and Development

Jeff Jorgenson, General Manager, Transportation and Utilities Department

Catherine Gryba, General Manager, Corporate Performance Department

Approved by: Randy Grauer, General Manager, Community Services Department

S/Reports/2017/PD/EUCS – Development of the Swale – Response to Northeast Swale Watchers’ 12 Points/ks

Twelve Main Points For  
City-Responsible Protection of the Swale: Specific Responses

(NOTE: Original points are in bold text. Responses to each point are in italics.)

**An integrated City-administered Swale Buffer Plan, parallel to the MVA NE Swale Master Plan, should be implemented since the surrounding City development creates disruptions and pollutants that will potentially affect and degrade the Swale. This Plan should include, as a minimum, all points below:**

*Response: The Northeast Swale Development Guidelines (2012) identify the boundary of the Swale and provide direction for how urban development should interface with, and provide a buffer for, the Swale. These Guidelines were adopted in conjunction with the University Heights Sector Plan Amendment (adopted 2013). The Guidelines prescribe a linear “Greenway” that is a minimum of 24 metres in width, beyond the Swale boundary, as a means to buffer the Swale from urban development. Where urban development already abuts the Swale (i.e. along Fedoruk Drive), the roadway corridor provides an acceptable buffer.*

- 1. Include Petursson's Ravine and Central Avenue Crossing within the Swale as indicated in the MVA Northeast Swale Master Plan.**

*Response: Petursson's Ravine is considered to be part of the Swale, according to the Northeast Swale Development Guidelines (2012) and the University Heights Sector Plan. The Guidelines provide guidance for the Central Avenue Crossing. This guidance has been built into the requirements for the North Commuter Parkway Project.*

- 2. Insist that the Province relocate the Perimeter Highway to Clark's Crossing, to go around the Swale within the Greater Saskatoon area region.**

*Response: Planning for the Saskatoon Freeway (formerly “Perimeter Highway”) is a responsibility of the Provincial Ministry of Highways and Infrastructure. In 2014, the Ministry undertook a validation study to determine whether the general location of the proposed freeway was still valid. The City and the Meewasin Valley Authority (Meewasin) were involved in this process, which involved specific discussion of the crossing of the Northeast Swale. The Ministry's study determined, in part, that the general location of the Saskatoon Freeway in the northeast area of Saskatoon, including the area of the Swale, is “valid.” While minor adjustments in the alignment of the freeway may be necessary during the detailed design, the Administration does not support re-opening discussions on its general location; nor has the Ministry provided indication that this is an option.*

3. **Impose Dark Sky policy lighting standards in neighbourhoods adjacent to the Swale through zoning bylaw changes that include neighbourhood roadways, residential and commercial properties, lit signage, and minimally-lit roadways through the Swale.**

*Response: Saskatoon Light & Power is working with Graham Commuter Partners, in consultation with Meewasin, on the lighting design for the North Commuter Parkway Project to ensure Dark Sky considerations are addressed appropriately.*

*Within residential neighbourhoods, Saskatoon Light & Power's standard fixture meets all Dark Sky-compliance requirements except the colour temperature requirement, which was updated in November 2015. The standard fixture used by Saskatoon Light & Power met the colour temperature requirement at the time it was selected in 2014.*

*Planning and Development will be exploring the potential for Zoning Bylaw No. 8770 (Zoning Bylaw) amendments that would provide incentives for environmentally-sustainable development. The incentives to be investigated may include measures to encourage, though not require, the use of appropriate lighting on residential properties. Zoning Bylaw amendments mandating Dark Sky-compliant lighting are not being considered at this time.*

4. **Eliminate bottlenecks for safe wildlife passage, modelling from Edmonton's Wildlife Passage Guidelines, and ensure that there is an ecological network in place to enable the wildlife to move unimpeded from the river through the Swale and back.**

*Response: The Northeast Swale Development Guidelines (2012) provide guidelines for design of neighbourhood interface and for roadway and infrastructure crossings to minimize the impacts to the Swale, while ensuring a connected urban environment. Meewasin's Northeast Swale Resource Management Plan 2013 is meant to guide ongoing management practices in the Swale to "ensure connectivity between the South Saskatchewan River, the existing natural areas, and the greater swale."*

5. **Ensure that wildlife crossings over roads and small animal crossings under roads are designed and installed for all roadways. The success of these crossings should be monitored.**

*Response: The Northeast Swale Development Guidelines (2012) provide guidance for the design of roadways that cross the Swale. Design and management requirements include:*

- a) maximum 50 kph speed limit;*
- b) wildlife crossing and no stopping signs;*

- c) *undivided roadway (McOrmond Drive and Lowe Road collector) to calm traffic, to reduce the crossing distance for animals, and to eliminate the potential for animals to be “stranded” in the roadway median;*
- d) *level crossings, where possible (roadway should be elevated as little as possible from surrounding terrain to improve sightlines for animals);*
- e) *culverts designed to permit small wildlife crossings, while minimizing roadway elevation; and*
- f) *special road design mitigation to ensure adequate amphibian and reptile crossings, where warranted.*

**6. Ensure that traffic-calming measures, including an enforced 50 kph speed limit, are implemented on all roads through the Swale.**

*Response: See response to point 5.*

**7. Ensure that there is minimum damage to the Northeast Swale and Small Swale during road and neighbourhood construction. Follow the City’s Predevelopment Protocol and the MVA’s Construction Protocols (articulated under the revised Development Review process) in a proactive way that includes environmental monitors with stop work authority.**

*Response: The City’s Predevelopment Protocol will be followed for all neighbourhood development. Similarly, the North Commuter Parkway included all of the same activities identified under the protocol, and environmental management plans are being observed, with ongoing monitoring and auditing, for all construction activities.*

**8. Ensure that the MVA has sufficient funding to finance the MVA Northeast Swale Master Plan and expand the Master Plan to include the Small Swale.**

*Response: Along with its endorsement of the Meewasin Northeast Swale Master Plan, City Council directed the Administration to “work with the Meewasin Valley Authority to develop a funding strategy and communication plan, consider potential regulations, and assist with additional implementation planning, reporting back at the appropriate time.” A November 30, 2016 report to City Council for the 2017 Corporate Business Plan and Budget Review addressed a capital and operating funding strategy for the implementation of Phases 1 and 2 of the Meewasin Northeast Swale Master Plan.*

*The Small Swale is not part of the above master plan, which is led by Meewasin. The Small Swale is currently outside of Meewasin’s Conservation Zone, though Meewasin has identified an interest in including it in its jurisdiction in the future. At an appropriate time during the development of the University Heights Sector Plan, an applicable plan and funding strategy for the Small Swale will likely be necessary. However, it is not necessary to include this level of detailed planning for the Small Swale at the same time as the Northeast Swale.*

**9. Enact long-term legal protection of the Northeast Swale and the Small Swale through a change to Zoning Bylaw No. 8770 through a special designation mandated by City Council.**

*Response: The Swale is currently under a number of “layers” of protection (all apply only within City limits):*

- a) with the exception of Petursson’s Ravine, the Swale is entirely under public ownership, meaning community interests govern decisions;*
- b) the majority of the Swale is within Meewasin’s Conservation Zone and is under Meewasin’s Northeast Swale Resource Management Plan and Northeast Swale Master Plan. Additionally, both the City and Meewasin have endorsed Meewasin’s Northeast Policy, which includes a proposed extension of its jurisdiction to include the entire Swale;*
- c) the University Heights Sector Plan identifies the Swale as an area to be preserved from urban development. As Sector Plans are considered “Concept Plans” under The Planning and Development Act, 2007, this designation is statutory; and*
- d) City Council adopted the Northeast Swale Development Guidelines (2012), along with the adoption of the University Heights Sector Plan. All development within, and adjacent to, the Swale should be in conformance with these guidelines.*

*Along with its endorsement of the Meewasin Northeast Swale Master Plan, City Council directed the Administration to report on the “process and implications for designating the Northeast Swale as a special conservation area.” The Administration prepared a response to this request that recommends the dedication of Swale lands as Environmental Reserve through the subdivision process. This will add another “layer” of protection to the Swale.*

*The Small Swale is earlier in the planning stages, but similarly has a number of layers of protection. All but a small portion of the Small Swale within the City limits is in public ownership. The University Heights Sector Plan and a subsequent natural area screening have identified the Small Swale as an area to be protected from development. While Meewasin does not have jurisdiction over most of the Small Swale, both the City and Meewasin have supported potentially adding it to the Conservation Zone in the future.*

*The Administration is also exploring the potential of pursuing some type of heritage designation for the Swale. This is addressed in another report.*

**10. Ensure that the University Heights Neighbourhood 3 (UH3) area is either not developed, or that the current design is scrapped and redeveloped as a model-sustainable community as suggested in Moriyama's 100-Year Plan. The current plan does not support designated environmental reserve lands that should be in excess of the minimal 10% for parks, playing fields, etc., and does not allow for an efficient public transportation plan.**

*Response: University Heights Neighbourhood 3 (UH3) is an integral part of the University Heights Sector Plan and the City's plans for growth. Foregoing development of this neighbourhood would mean that urban growth would need to be accommodated further out from the current extents of urban development; in effect: imposed urban sprawl. The City's Official Community Plan Bylaw No. 8769 explicitly prohibits such "leapfrog" development as it is not a sustainable practice.*

*UH3 has not yet been designed, so comments addressing how its design is not a "model-sustainable community" are premature. The City will work to ensure that when the design and development of UH3 occurs, it will reflect the City's Strategic Goals of Sustainable Growth and Environmental Leadership.*

*The Swale is excluded from Municipal Reserve calculations, meaning that each neighbourhood must contribute 10% of its own net developable area (in land or money in lieu) for Municipal Reserve. The requirement to preserve the 290-hectare (718-acre) Swale lands from development is in addition to the Municipal Reserve requirements from the development of urban neighbourhoods within the Sector. The University Heights Sector Plan open space (environmental) and Municipal Reserve dedication requirements far exceeds 10% of the total area of the Sector Plan.*

- 11. Ensure that the stormwater handling systems do not allow contaminants to enter the adjacent wetlands. They are experimental, so careful monitoring will be needed, especially since regulations for the Pesticide Use policy and the Wetlands policy are not in place.**

*Response: The Aspen Ridge constructed forebay has been designed to remove more than 80% of suspended sediments. This level of removal is within the enhanced protection category as per the Stormwater Management Planning and Design Manual, MOE, Ontario, 2003 (and City of Saskatoon wetland design guidelines), and is consistent with best practice in the industry.*

*Water quality and quantity within the Northeast Swale has been monitored since the fall of 2013. Certain water quality parameters were selected for analysis based on potential impacts of urban development. These parameters fall under the following categories: Metals, Major Ions, Nutrients, Microbiological Substances, and Petroleum Hydrocarbons. Additionally, a permanent monitor was installed to measure basic field parameters, such as Temperature, pH, Turbidity, Conductivity, and Dissolved Oxygen, at a 10-minute sampling interval from April to October each year.*

*Any additional stormwater forebays/outfalls into the Swale that may be required as a result of urban development (e.g. UH3) will include similar measures and standards.*

12. **Ensure that environmental protection policies are coordinated and adopted with the P4G group through the Saskatoon North Regional Study for the entire Swale region.**

*Response: In February and March of 2016, the Saskatoon North Partnership for Growth (P4G) held an open house and online engagement for the P4G Regional Plan. A draft land use plan and draft land use categories were introduced, which included a Conservation and Drainage category (now called the Green Network Study Area). This category includes wetlands, natural areas, and other vital ecological infrastructure, and provides direction for their protection. The P4G considered the comments received through the engagement and refined the draft land use map and draft land use categories. A subsequent round of public consultation for P4G began on January 24, 2017, and continued for a month.*

4131-5

**From:** City Council  
**Sent:** March 07, 2017 10:46 AM  
**To:** City Council  
**Subject:** Form submission from: Write a Letter to Council



Submitted on Tuesday, March 7, 2017 - 10:45  
Submitted by anonymous user: 204.83.109.202  
Submitted values are:

Date: Tuesday, March 07, 2017  
To: His Worship the Mayor and Members of City Council  
First Name: Louise  
Last Name: Jones  
Address: 206 111th Street  
City: Saskatoon  
Province: Saskatchewan  
Postal Code: S7N 1T2  
Email: swalewatchers@gmail.com

Comments:  
As Chair of the Northeast Swale Watchers, I am requesting to speak to the Standing Committee on Environment, Utilities, and Corporate Performance at their meeting on Monday, March 13th regarding development of the Swale, the response to the Twelve Points presented by the Swale Watchers, and would like to project a visual image at that time.

The results of this submission may be viewed at:  
<https://www.saskatoon.ca/node/398/submission/154435>

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## Meewasin Valley Authority Northeast Swale – Special Conservation Area Designation

### Recommendation

That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council that the Administration's intended approach to require Environmental Reserve dedication at the time of subdivision, where appropriate, be endorsed.

### Topic and Purpose

The purpose of this report is to provide an overview of existing measures of protection for the Northeast Swale, to outline additional measures and their implications, and to inform City Council of the Administration's intended approach.

### Report Highlights

1. The Northeast Swale (Swale) is currently protected by a number of layers of plans and policies.
2. The Administration reviewed a number of additional measures that could be used to ensure the long-term protection of the Swale.
3. The Administration intends to pursue dedication of Swale lands as Environmental Reserve (ER), incrementally, as part of the subdivision process.
4. Municipal Heritage Property Designation for the Swale is an option and is being considered under a separate report from the Municipal Heritage Advisory Committee (MHAC).

### Strategic Goals

Existing and proposed measures to protect and enhance the Swale demonstrate the City of Saskatoon's (City) Strategic Goals of Environmental Leadership and Sustainable Growth.

### Background

At its May 25, 2015 meeting, City Council endorsed the Northeast Policy submitted by the Meewasin Valley Authority (Meewasin). The intent of the Northeast Policy is to provide direction and guidelines for the continued balance of development and conservation in the northeast quadrant of the Meewasin Valley. This includes the future extension of Meewasin's jurisdiction to include all of the Swale within City limits. Meewasin has further recommended that swales, the riverbank, and other areas identified in the Conservation Zone, as illustrated in the Northeast Policy, should be dedicated as ER.

At its October 26, 2015 meeting, City Council endorsed the Meewasin Northeast Swale Master Plan. As part of this adoption, City Council directed the Administration to report

on the process and implications for designating the Swale as a special conservation area. As part of the review process for this master plan, the Administration was also asked by MHAC to evaluate the potential to designate the Swale as a natural heritage site.

## **Report**

### Protection Currently in Place

A summary of protection currently in place can be found in Attachment 1.

All development in the area of the Swale must be consistent with the University Heights Sector Plan and jointly-adopted Northeast Swale Development Guidelines. These plans/guidelines protect the Swale from development, identifying it as a significant environmental feature. The plans/guidelines also provide direction to minimize disturbance to the Swale, as well as meet transportation, utility, stormwater management, and other community needs.

Excluding the portion of the Swale known as Petturson's Ravine, the City is the sole landowner of the Swale lands within City limits. Community interests govern decisions related to the Swale and can ensure its protection from development.

Within City limits, Meewasin's Conservation Zone includes the majority of the Swale lands and will be expanded over time to include all of these lands. All improvements on lands within the Conservation Zone are subject to Meewasin's Development Review process and, ultimately, require approval of the Meewasin Board. This ensures that all development is consistent with Meewasin's conservation, education, and development goals, as defined by its plans and guidelines.

### Options for Additional Measures

Attachment 1 includes a summary of potential options that could be used to further protect the Swale. Only those options recommended for use or further review are discussed below.

### Environmental Reserve

ER is a form of dedicated land that may be required by an approving authority (such as the City) where land meets one or more criteria under *The Planning and Development Act, 2007 (Act)*. In consideration of these criteria and policies in Official Community Plan Bylaw No. 8769, the University Heights Sector Plan, and the applicable Meewasin plans and guidelines, the Swale is suitable for dedication as ER.

When City Council endorsed Meewasin's Northeast Policy, it also authorized a Memorandum of Understanding between the City and Meewasin that includes a commitment to dedicate Swale lands as ER at the time of subdivision, wherever possible.

The Administration intends to require dedication of Swale lands as ER when parcels are subdivided during adjacent neighbourhood development.

A number of implications have been noted with ER dedication:

1. The proposed approach to ER dedication will not occur immediately or on the entire Swale at once. As it is part of the subdivision process, ER dedication will occur incrementally over time as land is developed and parcels are subdivided.
2. ER land may only be used for purposes specified in the *Act* and the associated Dedicated Land Regulations, 2009. Based on the Administration's review, this will not inhibit any of the planned uses of Swale land, either by the City or Meewasin.
3. Capital Project No. 1663 (approved December 2016) provides funding for the development of Phases 1 and 2 of the Meewasin Northeast Swale Master Plan. However, a dedicated funding source for the development of future phases of the Swale and other protected environmentally significant areas is an outstanding issue. The Administration will be exploring this as part of the Green Infrastructure Strategy and Financing Growth initiatives. Fundraising by Meewasin is also expected to contribute to future phases.

Additionally, as urban growth proceeds in other sector plan areas with known or potential ecological significance, ER dedication will be identified where appropriate.

#### Designated Municipal Heritage Site

The Swale has been identified as a significant heritage and ecological resource in Saskatoon. It is appropriate that features relating to the Swale's natural and ecological significance (including its biodiversity and unique landscape characteristics) as well as features relating to its historical value (including the limestone quarries, kilns, and trail remnants) be protected and preserved. A report addressing heritage considerations for the Swale is proceeding separately to the Standing Policy Committee on Environment, Utilities and Corporate Services via MHAC.

#### **Options to the Recommendation**

City Council could choose to direct the Administration to not pursue dedication of Swale lands as ER through the subdivision process. The lands would still be covered by a number of practical and legal layers of protection. Choosing this option would be a departure from the agreed-upon terms of the Memorandum of Understanding between the City and Meewasin.

#### **Public and/or Stakeholder Involvement**

In addition to addressing the resolution of City Council, this report's evaluation of options to further protect the Swale addresses questions raised by members of the public and a number of stakeholders, including MHAC, the Saskatoon Environmental Advisory Committee, Meewasin, and the Northeast Swale Watchers.

#### **Other Considerations/Implications**

There are no policy, financial, environmental, privacy, or CPTED implications or considerations; a communication plan is not required at this time.

**Due Date for Follow-up and/or Project Completion**

No follow-up is required.

**Public Notice**

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

**Attachment**

1. Northeast Swale Layers of Protection

**Report Approval**

Written by: Chris Schulz, Senior Planner, Planning and Development

Reviewed by: Lesley Anderson, Director of Planning and Development

Jeff Jorgenson, General Manager, Transportation and Utilities Department

Catherine Gryba, General Manager, Corporate Performance Department

Approved by: Randy Grauer, General Manager, Community Services Department

S/Reports/2017/PD/EUCS – Meewasin Valley Authority Northeast Swale – Special Conservation Area Designation/lc/ks

## Northeast Swale Layers of Protection

<b>In Place</b>		
<b>Level of Protection</b>	<b>What it Means</b>	<b>Outstanding Risks/Concerns</b>
<b>Public Ownership</b> (within City Limits)	<ul style="list-style-type: none"> <li>- Community interests govern decisions.</li> </ul>	<ul style="list-style-type: none"> <li>- Ownership fragmentation outside City limits</li> <li>- Competing perception of community interests (hard infrastructure needs versus soft and/or social infrastructure).</li> </ul>
<b>Meewasin Conservation Zone</b>	<ul style="list-style-type: none"> <li>- Provincial authority.</li> <li>- Development review.</li> <li>- Resource management.</li> <li>- Awareness through education.</li> </ul>	<ul style="list-style-type: none"> <li>- Inability to regulate crown utilities or federal agency initiatives.</li> <li>- No authority over water and sewer infrastructure; work &lt; \$10,000 not regulated.</li> <li>- Budgetary challenges.</li> <li>- Require specific guidance on how to behave in/near the Conservation Zone.</li> <li>- Currently excludes some Swale land within City limits.</li> </ul>
<b>University Heights Sector Plan</b>	<ul style="list-style-type: none"> <li>- Defined geography where no urban development can occur.</li> <li>- Also defines complementary areas.</li> </ul>	<ul style="list-style-type: none"> <li>- Multiple, clustered crossings.</li> <li>- Urban neighbourhoods surrounding the Swale (potential for “diminishing returns” from over-use).</li> <li>- Stormwater management must be done correctly to ensure water quality is not negatively impacted.</li> </ul>
<b>Northeast Swale Development Guidelines</b>	<ul style="list-style-type: none"> <li>- Updated in 2013 in conjunction with Meewasin’s comprehensive Resource Management Plan.</li> <li>- Designates appropriate areas where roads may cross, stormwater may be stored, and what areas are to remain natural.</li> <li>- Prescribes a 24 metre “Greenway” area to buffer Swale from adjacent development.</li> </ul>	

<b>In Place</b>		
<b>Level of Protection</b>	<b>What it Means</b>	<b>Outstanding Risks/Concerns</b>
<b>Predevelopment Protocol</b> (Zoning Bylaw)	<ul style="list-style-type: none"> <li>- Nothing can occur without a predevelopment permit (4 weeks' notice).</li> <li>- Environmental screening work to have been done.</li> <li>- Requirement for environmental monitoring.</li> <li>- Construction and Design Division staff arranged for site visits three times weekly with reports at each visit. These reports are currently filed only with the Construction and Design Division (and showed no incidents for lift station).</li> </ul>	<ul style="list-style-type: none"> <li>- Appears to be a good tool for areas where no approved development plan is in place, but the same requirements are not yet in place for development already approved.</li> <li>- Planning and Development Division formally educating developers through the Developer's Liaison Committee.</li> <li>- Incident response protocol does not exist; ensuring it is clear what contractors are obligated to do in the event of an incident (remediate/mitigate).</li> </ul>
<b>Master Plan and Resource Management Plan</b>	<ul style="list-style-type: none"> <li>- City's Parks Division and Meewasin will coordinate efforts in implementing a common plan.</li> <li>- Sets expectations for landscape/recreation development and maintenance standards.</li> </ul>	<ul style="list-style-type: none"> <li>- Financial phase-in for plan expected to be long (&gt; 10 years); maintenance/management guidelines taking some time to develop.</li> <li>- Monitoring is sporadic.</li> <li>- Things are always changing (development, use, biodiversity conditions).</li> </ul>
<b>Contract Management</b>	<ul style="list-style-type: none"> <li>- Construction and Design Division staff now assign one inspector for each active contractor in the field to monitor construction. Each contractor receives the Northeast Swale Development Guidelines and are required to sign-off an acknowledgement in the contract.</li> <li>- Preconstruction meetings.</li> <li>- Meewasin hosted orientation meetings.</li> </ul>	<ul style="list-style-type: none"> <li>- Expertise of inspectors.</li> <li>- Incident reporting issue.</li> <li>- No formal mechanism yet for sharing information.</li> <li>- Applicable to civic contractors only (reliance on Meewasin to catch non-City projects).</li> <li>- Risk of Public-Private Partnership (P3) delivery model not yet known.</li> </ul>

## Under Consideration

Level of Protection	What it Means	Outstanding Risks/Concerns
<b>Environmental Reserve</b>	<ul style="list-style-type: none"> <li>- During the subdivision process, Swale land could be required as a form of dedicated land called Environmental Reserve.</li> </ul>	<ul style="list-style-type: none"> <li>- Could not be applied to the entire Swale at once without significant expense; otherwise, it will occur incrementally over time as subdivisions occur.</li> <li>- Funding strategy for natural areas to be identified.</li> </ul>
<b>Natural Heritage Area</b>	<ul style="list-style-type: none"> <li>- Municipal Heritage Designation could be applied to some areas/elements of the Swale, or the whole parcel.</li> </ul>	<ul style="list-style-type: none"> <li>- Determining the extent of the heritage resource is problematic.</li> <li>- May hinder implementation of plans.</li> <li>- Potentially precedent-setting, so would require further review of implications.</li> </ul>
<b>Conservation Easement</b>	<ul style="list-style-type: none"> <li>- A protective legal designation that may be granted by agreement between a landowner (grantor) and holder.</li> </ul>	<ul style="list-style-type: none"> <li>- Redundant since the City is already the landowner.</li> <li>- Intended primarily as a tool for private landowners to conserve significant landscapes while providing a tax incentive.</li> </ul>
<b>Amendments to Development Review Application Process</b>	<ul style="list-style-type: none"> <li>- Guidance documents to educate on best practices.</li> <li>- Adding more information to the concept plan application form about environmental requirements.</li> <li>- Adding a disclaimer to relevant forms and/or approvals, notifying applicants of the need to satisfy all federal/provincial acts and regulations.</li> </ul>	<ul style="list-style-type: none"> <li>- Need to ensure complete internal review of major City infrastructure (roads, bridges, and water/sewer infrastructure).</li> <li>- Monitoring approvals requires continued reliance on trust in developers to do what is expected within approval.</li> </ul>
<b>Contractor Requirements</b>	<ul style="list-style-type: none"> <li>- Adding appropriate performance standards to approvals.</li> </ul>	<ul style="list-style-type: none"> <li>- Resources and expertise may be required to ensure appropriate monitoring.</li> </ul>

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## Diversity and Inclusion Annual Report 2016

### Recommendation

That the report of the General Manager, Corporate Performance Department, dated March 13, 2017, be forwarded to City Council for information.

### Topic and Purpose

The Diversity and Inclusion Annual Report for 2016 reviews the progress being made toward having a workforce that is representative of the City of Saskatoon (City) and outlines plans for continuous improvement.

### Report Highlights

1. The City continues to work toward closing the gap between the workforce population statistics and the goals set by the Saskatchewan Human Rights Commission (SHRC) for all four equity groups including Aboriginal People, Persons with Disabilities, Visible Minorities, and Women in Underrepresented Occupations.
2. The Diversity and Inclusion Action Plan priorities for 2017 have been identified and grouped using the “Diversity and Inclusion Solutions Framework” developed by LaRoche & Yang (2014). This framework enables us to categorize specific action plans using the common links between them to support the City’s Strategic Plan.

### Strategic Goal

This report supports the strategic goal of Continuous Improvement and the progress made to offer an inclusive workplace that embraces diverse backgrounds. It also supports the ten-year priority to have a workforce representing the diversity of the City’s population.

### Background

The City’s 2013 - 2023 Strategic Plan has a long term strategy to “offer an inclusive workplace that embraces diverse backgrounds” with a success indicator of a “workforce representing the diversity of the City’s population.”

The City has a long-standing commitment to diversity and inclusion including being an equity partner with the SHRC. As an equity partner, the City commits to the basic principles and objectives which outline a larger responsibility to foster an inclusive society. As well, City Council has set performance targets to reach the SHRC goals below:

- Aboriginal: 14.0% of total workforce
- Persons with Disabilities: 12.4% of total workforce
- Visible Minority: 11.0% of total workforce
- Women in Underrepresented Occupations: 45.0% in underrepresented occupations

## Report

### Aboriginal Equity Group

- In December 2016, 7.2% of employees self-declared as Aboriginal.
- From those employees, 76.7% are permanent, 6.2% are seasonal, 3.8% are temporary, 13.3% are casual, 0.0% are jobshare.
- The Aboriginal employee population in December has increased over the last five years. The data shows that a greater priority needs to be placed on both hiring Aboriginal employees into permanent positions and increasing the number of opportunities for transitioning temporary and seasonal employees into full-time permanent positions.
- While seasonal employment continues to be a successful entry point, the long term objective is to increase permanent opportunities in relation to all employment entry points. With the introduction of phase one of the business intelligence tool, we are able to undertake a more detailed analysis of the occupational group data. This will assist with determining where we have the greatest potential for short and medium term success for increased representation of Aboriginal employees in permanent positions. The 2017 priorities will focus on initiatives relating to permanent positions and retention.

### Persons with Disabilities Equity Group

- In December 2016, 3.8% of employees self-declared in the equity group Persons with Disabilities.
- From those employees, 83.0% are permanent, 2.7% are seasonal, 2.7% are temporary, 9.8% are casual and 1.8% are jobshare.
- Representation for this equity group has not increased over the last five years. Research indicates that voluntary self-declaration for Persons with Disabilities is not a reliable measurement for employers to base the success of their equity program. Therefore, an analysis of the process for self-declaration will begin with a review of the self-declaration process for temporary and seasonal employees to ensure all divisions follow the corporate process. This includes providing a detailed explanation and allows for confidentiality when completing the form.
- Further work will be committed to ensuring the workplace environment is accessible and inclusive for Persons with Disabilities through providing corporate training workshops. In addition, follow up to the employee perception survey will include focus groups with the goal to identify areas of continuous improvement for Persons with Disabilities within the organization.

### Visible Minority Equity Group

- In December 2016, 10.6% of employees self-declared as a Visible Minority.
- Of those employees, 79.3% are permanent, 2.8% are seasonal, 5.6% are temporary, 12.4% are casual, and 0.0% are jobshare.
- There has been a consistent growth of permanent employees within the organization who have self-declared as a Visible Minority.
- With the organization successfully closing the gap, it shows current initiatives are working. However, there is a need to put efforts into ensuring the workplace is

also inclusive. This means ensuring we are utilizing the diversity of perspectives, skillsets, and communication to improve corporate performance and customer service.

#### Women in Underrepresented Occupations Equity Group

- In December 2016, 38.0% of the total workforce self-declared as female.
- From these, 71.8% are permanent, 0.9% are seasonal, 5.1% are temporary, 21.1% are casual and 1.2% are jobshare.
- The goal is to work toward women representing 45% of occupations in the labour force. For the purposes of this definition the following have been identified as occupational groups within the City that have less than 45% representation of women: Professional (42.1%), Managerial (37.3%), Technical (26.9%), Labour (21.7%), Operating (15.5%), Apprentice (8.3%) and Trade (1.5%).
- Women are still underrepresented in a majority of our occupational groups. The reasons why may be related to a shortage of women applicants applying for positions in certain occupations or the work environment not being inclusive for women. Exit and stay surveys will be implemented and results will be analyzed for inclusive workplace practices. In addition, continued participation with educational institutions will provide workplace practicums for women in occupations where they are underrepresented.

#### Diversity and Inclusion Action Plan Summary

Attachment 1 outlines statistics and action plans for the City. The 2017 action plan priorities are categorized in the “Diversity and Inclusion Solutions Framework” (LaRoche & Yang, 2014). This framework, developed for finding solutions to inclusion in the workplace, enables us to organize, guide, and support the development of specific action plans to support the City’s Strategic Plan.

##### *A. People (Awareness, Skills, and Communication)*

This includes building awareness, increasing skill levels, and improving communication between individuals or among teams, which is essential to bridge the cultural gap.

- To provide ongoing learning opportunities for employees to ensure an understanding of how to work in diverse workgroups. These opportunities include corporate training workshops such as the TRC Corporate Training and Fundamentals of Cultural Competency.
- Develop communication strategies that support diversity and inclusivity. This includes developing materials to assist hiring managers in recruiting a diverse workforce and retaining an inclusive work team. In addition, an online resource will be developed to provide resources for all employees on how they can contribute to a diverse and inclusive work environment.

##### *B. Systems (Work Processes, Performance Management, and Rewards)*

At the organization level, putting in place work processes, performance management, and reward systems that are aligned with the organization’s business

strategy helps people speak the same language and work in ways that achieve the organization's goal.

- Greater priority will be placed on initiatives that are designed to increase representation for each equity group within the permanent workforce. Initiatives will include career planning tools and processes that support and encourage career progression and retention.
- Entry points to permanent positions (external hires and internal promotions) will be identified and assessments completed to determine barriers and strategies developed to eliminate these barriers.
- Adjust the current recruitment and hiring processes to increase representation in jobs that are known to be entry points for external candidates.
- As a successful entry point into the organization, seasonal positions must continue to have qualified Aboriginal applicants. In 2017, a new external recruiting tool is being piloted to increase the number of qualified applicants.

*C. Environment (Leadership, Organization Design, and Inclusive Practices)*

To sustain the increased people capabilities and system effectiveness, we need leadership, effective organization design, and inclusive practices to create an environment where diversity becomes a true competitive advantage.

- Opportunities for new ports of entry for permanent positions will be identified within the organization to increase recruitment of new employees.
- Exit interviews/surveys and Stay interviews/surveys have been introduced as a separate mechanism for identifying barriers and challenges within the workplace. These surveys will be able to differentiate specific answers from the four equity groups and therefore identify specific barriers and challenges for these groups.

**Public and/or Stakeholder Involvement**

The Administration will work with community organizations to implement the Strategies outline in this report.

**Communication Plan**

The Diversity and Inclusion Annual Report for 2016 will be made available on the website. In addition, the report will be shared with the Division Managers, Saskatoon Police Service, and Civic Boards to help identify opportunities for improvement within their business units.

**Other Considerations/Implications**

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

### **Due Date for Follow-up and/or Project Completion**

There is no follow-up and/or project completion dates.

### **Public Notice**

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

### **Attachment**

1. Diversity and Inclusion Annual Report 2016

### **Report Approval**

Written by: Jodi Fick-Dryka, Diversity Coordinator, Human Resources  
Reviewed by: Marno McInnes, Director of Human Resources  
Approved by: Catherine Gryba, General Manager, Corporate Performance  
Department

Diversity and Inclusion Annual Report 2016.docx

# Diversity and Inclusion

2016 Annual Report | March 2017



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## EXECUTIVE SUMMARY

This report summarizes the progress made in 2016 by the City of Saskatoon (City) toward its long term strategy (2013-2023 Strategic Plan) to “offer an inclusive workplace that embraces diverse backgrounds.”

The City’s estimated workforce, for the purposes of diversity and inclusion statistics in July 2016 was 3,563. This number decreases to 2,925 in December 2016.

Table 1 provides the five-year employee population trend by equity group for July of each year (2012-2016). These results are compared with the Saskatchewan Human Rights Commission (SHRC) goals for employment equity partners in Saskatchewan. The July statistics provide a representation of each equity group during the employment period when there is a peak in seasonal and temporary positions.

Table 1: Employee Population Trend (% of Workforce) by Equity Group - July 31

Equity Group	July 2012	July 2013	July 2014	July 2015	July 2016	SHRC Goals
Aboriginal	7.6%	7.7%	8.5%	8.6%	8.5%	<b>14.0%</b>
Persons with Disabilities	3.8%	3.0%	2.9%	2.9%	3.8%	<b>12.4%</b>
Visible Minority	6.9%	7.8%	8.7%	9.6%	10.4%	<b>11.0%</b>
Women	39.1%	39.9%	39.4%	39.3%	38.5%	<b>46.0%</b>

Table 2 provides the five-year employee population trend by equity group for December of each year (2012-2016). The December statistics provide a representation of each equity group in terms of the City’s permanent workforce.

Table 2: Employee Population Trend by Equity Group - December 31

Equity Group	Dec 2012	Dec 2013	Dec 2014	Dec 2015	Dec 2016	SHRC Goals
Aboriginal	6.4%	6.2%	6.8%	7.2%	7.2%	<b>14.0%</b>
Persons with Disabilities	4.4%	3.8%	3.2%	3.9%	3.8%	<b>12.4%</b>
Visible Minority	6.5%	8.1%	7.8%	10.3%	10.6%	<b>11.0%</b>
Women	38.4%	38.4%	39.9%	38.0%	38.0%	<b>46.0%</b>

## INTRODUCTION

This report summarizes the progress made in 2016 by the City toward its long term strategy (2013-2023 Strategic Plan) to “offer an inclusive workplace that embraces diverse backgrounds.” (See Appendix 1 for definitions of diversity and inclusion)

As an equity partner with the Saskatchewan Human Rights Commission (SHRC), the City is required to measure and report out on the four equity groups: Aboriginal, Visible Minority, Persons with Disabilities, and Women (See Appendix 2 for definitions of each equity group). However, as an equity partner we also commit to the basic principles and objectives that outline a larger responsibility to foster an inclusive society (See Appendix 3 for larger role as an equity partner). As such, the City will be enhancing the diversity and inclusion portfolio to include initiatives outside of the four equity groups. In 2017, this will include expanding the initiatives supporting the LGBTTI2QQ community. A workshop entitled “Being an Ally to LGBTTI2QQ Communities” has been added to corporate training with a department scheduled for workshops in early spring and additional workshops occurring for employees throughout the year. Further information and resources will be available through the employee teamsite which will provide opportunity for self-directed additional learning. In addition, the City will be participating in various activities during the Saskatoon Pride Festival such as the Flag Raising Ceremony and the Community Fair.

Diversity and inclusion is an important consideration for applicants seeking to be recognized as a Top 100 Employer across Canada. As the City continues to enhance and broaden our initiatives, we will also be increasing our chances of becoming one of Canada’s Top 100 Employers.

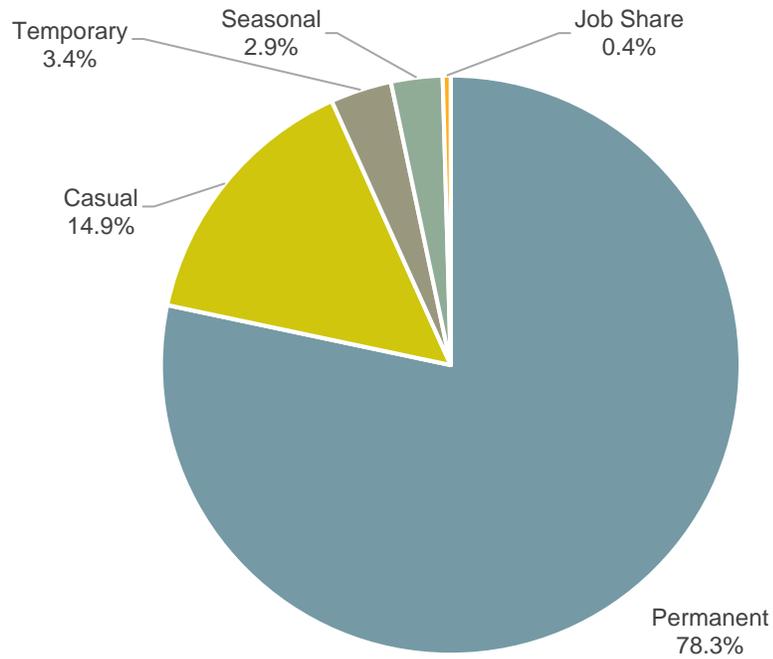
This report is based on the City’s workforce as at July 31, 2016, and December 31, 2016. The July 31 reporting date captures a representation of the City’s seasonal workforce. The December 31 reporting date captures a representation of the City’s permanent workforce. Both of these periods are important due to the significant difference in the total employee population during each of the time frames. The City’s estimated workforce, for the purposes of diversity and inclusion statistics, in July was 3,563. This number decreases to 2,925 in December 2016.

The report provides a statistical breakdown for each equity group by employment type (Permanent, Temporary, Seasonal, Casual (Other) and Jobshare) and occupational group (Labour, Operating, Clerical, Technical, Service, Trades, Apprentice, Professional and Managerial).

## EMPLOYMENT TYPE

Employment type is an important consideration in our diversity and inclusion strategy. 78.3% of the City's workforce is permanent.

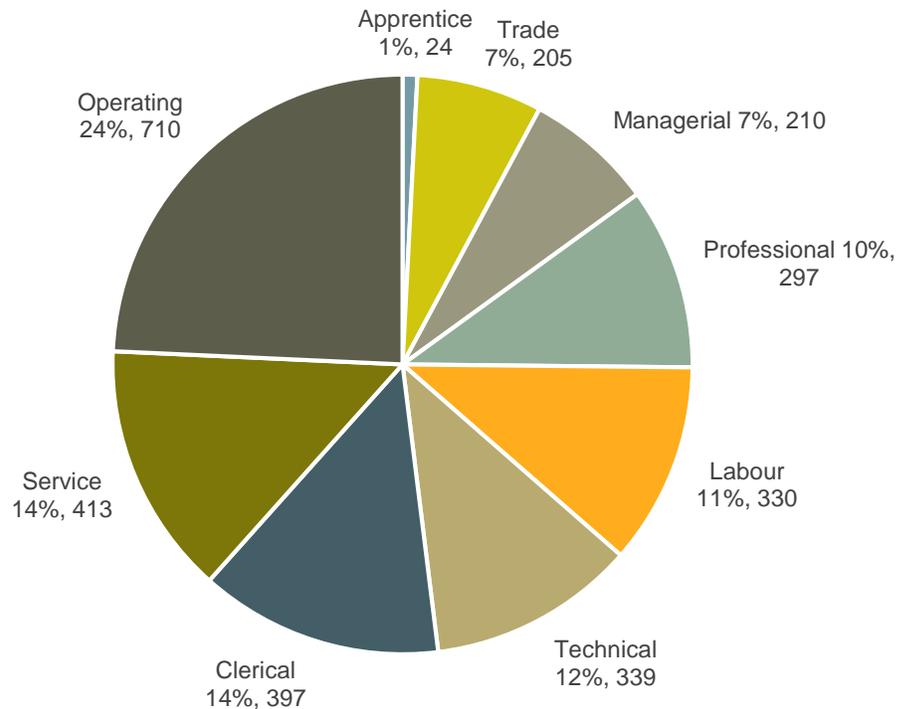
Chart 1: Total Workforce Employment Type - December 2016



## OCCUPATIONAL GROUPS

Nine occupational groups have been created to assist in the analysis of the workforce. Chart 2 below represents the percentage and total number of employees in each occupational group. The goal is to have representation in all occupational groups (See Appendix 4 for occupational group definitions)

Chart 2: Occupational Group Distribution - December 2016



### Operating

Operating is the largest occupational group with approximately 24% of the overall employee population included in this group. With the exception of the apprenticeship occupational group each of the remaining occupational groups account for 7% to 14% of the overall employee population.

Saskatoon Transit employs 50.5% of employees in the operating occupational group. The second largest departments are TU Water and Waste Stream and TU Roadways and Operations each employing slightly more than 14% of employees in the operating occupational group. 30.7% of the permanent employee population is included in the Operating occupational group

## **Service**

There are 413 positions in service within the four city departments. Service has the lowest number of permanent positions (23.5%). The Recreation and Community Development division employs 45% of the service positions.

## **Clerical**

There are 397 positions in clerical. Clerical employs the second largest number of permanent employees. Approximately 86% of clerical positions are permanent.

The report also highlights initiatives from 2016 and identifies priorities for moving forward for 2017. These priorities were identified as a result of our analysis, some of which is highlighted in this report. Within the priorities some common themes have been identified for all equity groups as potential opportunities for increasing employee representation. Priorities for 2017 have been identified and grouped using the “Diversity and Inclusion Solutions Framework” developed by LaRoche & Yang (2014). This framework enables us to categorize specific action plans using the common links between them to support the City’s Strategic Plan. The framework described on the next page is divided into three categories (People, Systems and Environment) and includes under each category the common themes that have been identified for all equity groups.

## Diversity and Inclusion Action Plan Summary

### PEOPLE

*(Awareness, Skills, and Communication)*

*This includes building awareness, increasing skill levels and improving communication between individuals or among teams that are essential to bridge the cultural gap.*

- To provide ongoing learning opportunities for employees to ensure an understanding of how to work in diverse workgroups.
- Develop communication strategies that support diversity and inclusivity.

### SYSTEMS

*(Work Processes, Performance Management, and Rewards)*

*At the organization level, putting in place work processes, performance management and reward systems that are aligned with the organization's business strategy helps people speak the same language and work in ways that add up to achieving the organization's goal.*

- Greater priority will be placed on initiatives that are designed to increase representation for each equity group within the permanent workforce. Initiatives will include career planning tools and processes that support and encourage career progression and retention.
- Entry points to permanent positions (external hires and internal promotions) will be identified and assessments completed to determine barriers and strategies developed to eliminate these barriers.

### ENVIRONMENT

*(Leadership, Organization Design, and Inclusive Practices)*

*To sustain the increased people capabilities and system effectiveness, we need leadership, effective organization design and inclusive practices to create an environment where diversity becomes a true competitive advantage.*

- The focus for these initiatives is to identify new ports of entry for permanent positions within the organization. Priority will be on ports of entry that provide opportunities for all equity groups to increase and not entry points that result in an increase of representation for one equity group to the detriment of another equity group.
- Exit interviews/surveys and Stay interviews/surveys have been introduced as a separate mechanism for identifying barriers and challenges within the workplace.

## ABORIGINAL

The performance goal set by City Council for Aboriginal employees is based on the Saskatchewan Human Rights Commission (SHRC) goal of 14.0%.

### CURRENT STATISTICS

#### Total Workforce

Table 3 shows the Aboriginal employee population in July has remained constant over the last three years. Although Aboriginal employees have made up 17% of the City's seasonal and temporary workforce in the last five years, this has not increased the overall Aboriginal representation. Based on this evidence, increased emphasis on employment of the seasonal and temporary workforce will likely have a limited ability to close the current gap. While the City will continue to place a priority on hiring seasonal and temporary positions, there is a need to introduce new strategies in order to achieve our goal.

Table 3: Total Aboriginal Employee Population Trend - July 31

Equity Group	July 2012	July 2013	July 2014	July 2015	July 2016	SHRC Goals
Aboriginal	7.6%	7.7%	8.5%	8.6%	8.5%	14.0%

Table 4 shows the Aboriginal employee population in December has increased over the last five years. The data shows that a greater priority needs to be placed on both hiring Aboriginal employees into permanent positions, as well as increasing the number of opportunities for transitioning temporary and seasonal employees into full time permanent positions.

Table 4: Total Aboriginal Employee Population Trend - December 31

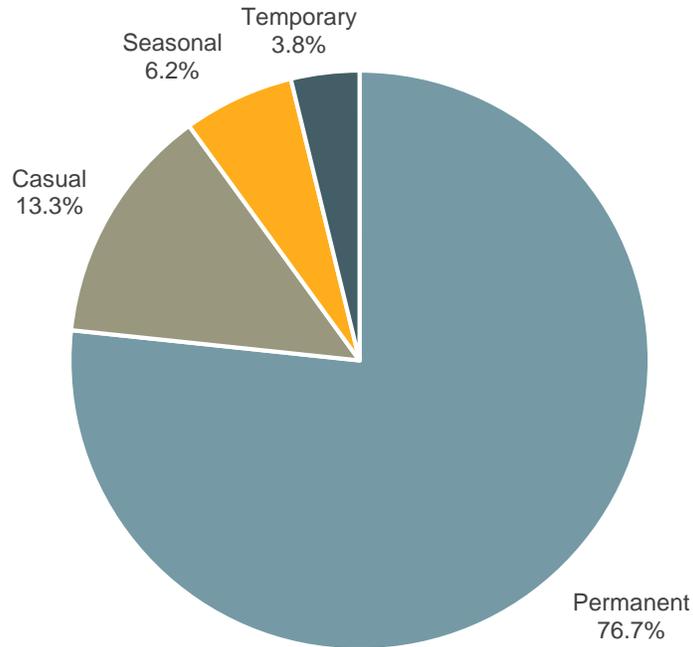
Equity Group	Dec 2012	Dec 2013	Dec 2014	Dec 2015	Dec 2016	SHRC Goals
Aboriginal	6.4%	6.2%	6.8%	7.2%	7.2%	14.0%

## Employment Type Distribution

The data below provides a breakdown of Aboriginal employee by each employment type. Employment type includes permanent, seasonal, temporary, casual and jobshare.

Chart 3 displays the distribution of Aboriginal employees by employment type for December 2016.

Chart 3: Aboriginal Employment Type - December 2016

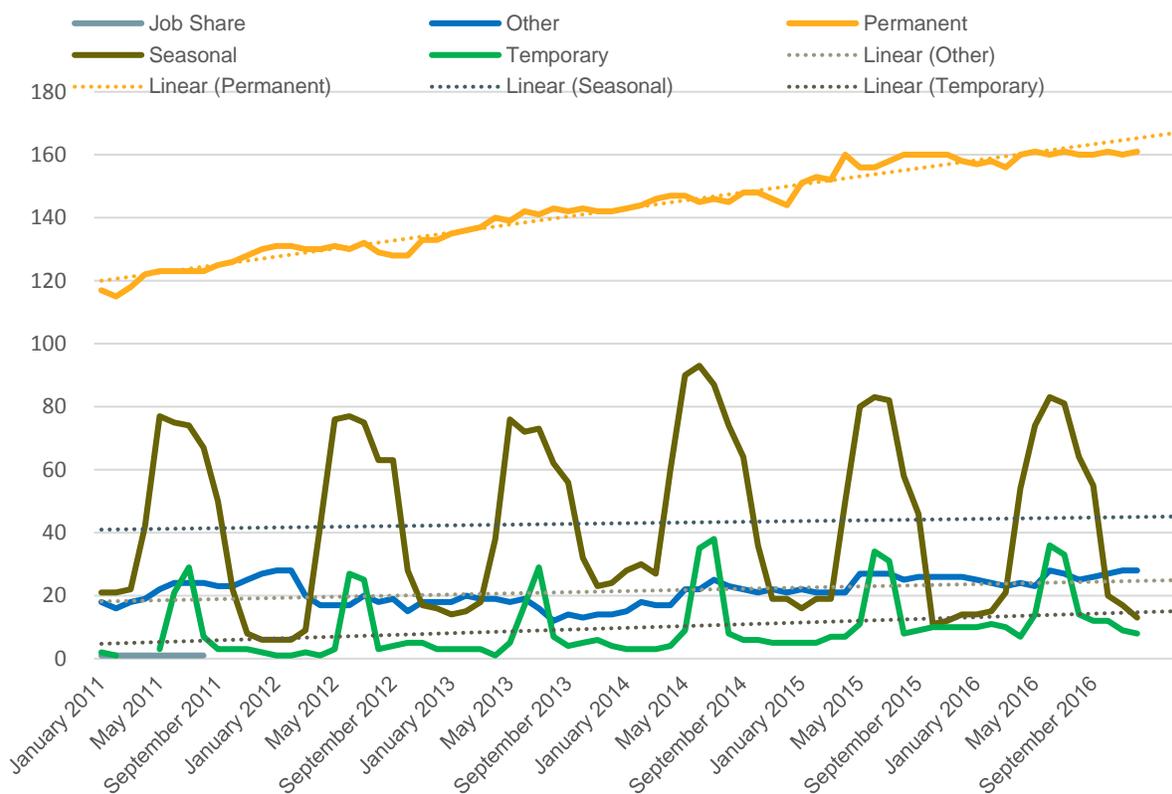


Aboriginal employees are employed predominantly in permanent positions (i.e., 76.7%). This is a lower percentage when compared to the organization as a whole which is 78.3%.

## Employment Type Trends

Chart 4 below shows the six-year trend occurring for Aboriginal employees based on employment type of permanent, seasonal, temporary, casual (other) and jobshare.

Chart 4: Aboriginal Employment Type Trend from 2010 to 2016



In Chart 4 above, the yellow line represents the permanent Aboriginal employees over the last six years with the linear trend line indicating a positive trend. Increasing the number of permanent employment opportunities for Aboriginal employees will be essential to achieving a representational workforce.

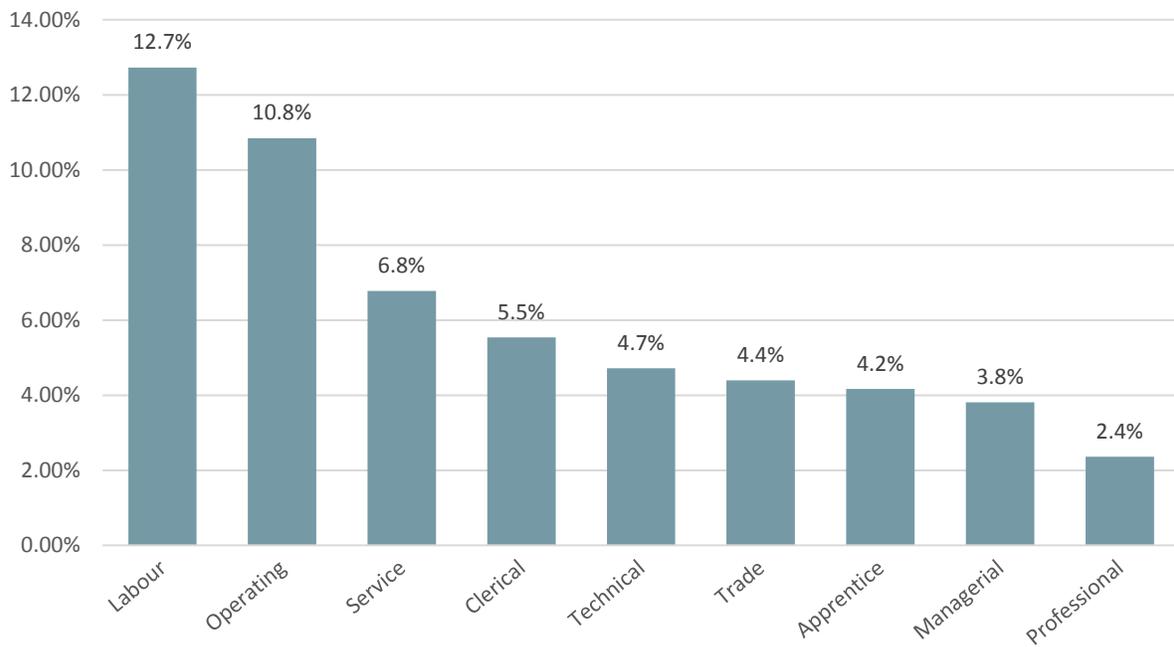
The brown line representing seasonal employees and the green line representing temporary employees fluctuate each year based on spring/summer hiring, with relatively no overall increase in the last six years. While current seasonal employment strategies need to be continued and enhanced, our long term success will depend on our ability to transition seasonal employees to permanent positions.

The blue lines represents the number of employees who hold casual (other) or jobshare positions with no increase over the last six years.

## Occupational Group Distribution

Chart 5 below represents the percentage of Aboriginal employees who occupy positions within each occupational group. The purpose of this information is to measure representation within occupational groups. The goal is to have representation in all occupational groups. (See Appendix 4 for occupational group definitions).

Chart 5: Aboriginal Employee Representation by Occupational Group - December 2016



**LABOUR:** Aboriginal employees account for 12.7% of the labour occupational group, specifically in the labourer and building custodian positions. 42% of the labourer positions are seasonal with a majority employed in the Parks and Public Works Divisions.

**OPERATING:** Aboriginal employees account for 10.8% of the operating group.

**SERVICE:** The service group is the third largest Aboriginal representation at 6.8%.

**CLERICAL AND TECHNICAL:** Aboriginal employees represent 5.5% in the clerical group and 4.7% in the technical group. The clerical and technical group has a large permanent employee population.

## New Hires

In 2016 we hired 683 employees (includes new hires and rehires, as well as recalls to seasonal and temporary positions).

Of the new hires in 2016, 10.7% self-declared as Aboriginal (73 employees). Of note, 66 were hired between January and July. Of the Aboriginal employees hired during this period the majority were hired into seasonal and temporary positions. Only seven new Aboriginal people were hired between August and December.

## 2016 HIGHLIGHTS

The following provides an update on 2016 initiatives that were identified in the 2015 report to work toward the goal of an “inclusive workplace that embraces diverse backgrounds”:

1. Workplace Harassment Policy and Respectful Workplace Policy: These policies underwent a review in 2016 that included reviewing current policies, researching best practices, and developed a revised policy. This revised policy will be ready for approval and implemented in early 2017.
2. Career path consultations occur regularly for applicants who have self-declared as a member of one of the equity group members. These consultations are designed to assist candidates with gaining employment with the City, advancing their career, and transitioning Aboriginal employees from seasonal and temporary positions into permanent positions.
3. A recruitment video was developed and launched in 2016. This video enhances recruitment efforts through a presence on social media, highlights our diverse workforce, and promotes the City of Saskatoon as one of Canada’s Top Diversity employers.
4. Partnership with community organizations has continued to be fostered with organizations such as Saskatchewan Indian Institute of Technologies (SIIT), Saskatoon Tribal Council (STC), Gabriel Dumont Institute (GDI) and Saskatoon Trades and Skills Centre (STSC). These partnerships include representation on programming committees, participation in pre-employment training programs, and client referral.
5. The Truth and Reconciliation Commission (TRC) Calls to Action Final Report recommendation No. 57 (Appendix 5) speaks directly to the Municipal Government’s role to provide education to public servants. A report was presented to City Council presenting a plan to provide training to all employees.
6. Based on the TRC Call to Action Final Report recommendation No. 92 (Appendix 5), which speaks directly to ensuring Aboriginal people have equitable access to employment in the corporate sector, an Aboriginal Employment Action Plan has been developed and is revised annually. This plan provides detailed action plans for increasing the Aboriginal employee population.

- Stay Surveys were developed and distributed to seasonal employees in Parks, Roadway and Operations and Water and Waste Stream Divisions. The feedback from these surveys will be compiled and analyzed and a report generated to assist with identifying new initiatives and strategies.

## 2017 PRIORITIES

The data shows an improvement in the number of Aboriginal employees in permanent positions over the past five years. While seasonal employment continues to be a successful entry point, the long term objective is to increase permanent opportunities in relation to all employment entry points. With the introduction of phase one of the business intelligence tool, we are able to undertake a more detailed analysis of the occupational group data, which will assist with determining where we have the greatest potential for short and medium term success for increased representation of Aboriginal employees in permanent positions. The 2017 priorities will focus on initiatives relating to permanent positions and retention. This includes:

### Diversity and Inclusion Action Plan Summary

#### PEOPLE

- Increasing the participation in Cultural Competency training. New facilitators will be trained within the organization in order to provide training workshops on a more regular basis. In 2017, six workshops of 25 participants will be offered. This training will increase skill level and improve communication between individuals of different cultures.

#### ENVIRONMENT

- Collective agreements language changes that support and enhance diversity and inclusion will be proposed for the current round of collective bargaining with the goal of creating additional entry points.
- Exit interviews and stay interviews will be conducted to collect data that will assess barriers and challenges within the workplace. Stay survey results will be compiled and reported on to enable the introduction of new initiatives.
- Division plans will be developed in collaboration with all divisions to focus on specific diversity and inclusion barriers and solutions for 2017.

#### SYSTEMS

- Career planning tools will be developed and distributed for managers to use when working with employees that wish to achieve permanent positions. This will include the implementation of Individual Development Plans that includes career development priorities.
- Recruitment processes involving jobs that provide a direct entry point to permanent positions will be monitored to identify and assess barriers and challenges for equity groups. A structured data tool will be created and used to collect information on the aggregate candidate supply and factors contributing to a successful or unsuccessful recruitment drive.
- As a successful entry point into the organization, seasonal positions must continue to have qualified Aboriginal applicants. External recruitment agencies will be piloted in 2017 to increase the number of qualified applicants.

## PERSONS WITH DISABILITIES

The performance goal set by City Council for Persons with Disabilities is based on the SHRC goal that 12.4% of the workplace population is comprised of people with disabilities. Stats Canada reports that the population of people with disabilities aged 15 to 74 (working age) was 7.6% in 2011.

### CURRENT STATISTICS

#### Total Workforce

Table 5 shows the employee population for Persons with Disabilities equity group in July has not improved over the last five years. The data provides a clear indication that the current strategies will need to be changed in order to reach our goal of 12.4%.

Table 5: Total Employee Population for Persons with Disabilities Trend - July 31

Equity Group	July 2012	July 2013	July 2014	July 2015	July 2016	SHRC Goals
People with Disabilities	3.8%	3.0%	2.9%	2.9%	3.8%	12.4%

Table 6 shows the employee population for Persons with Disabilities equity group in December has declined slightly in the last five years. The data provides a clear indication that current strategies have not been successful at increasing this equity group, therefore, a greater focus and new strategies will need to be put in place in order to achieve our goal.

Table 6: Total Employee Population for Persons with a Disabilities Trend -December 31

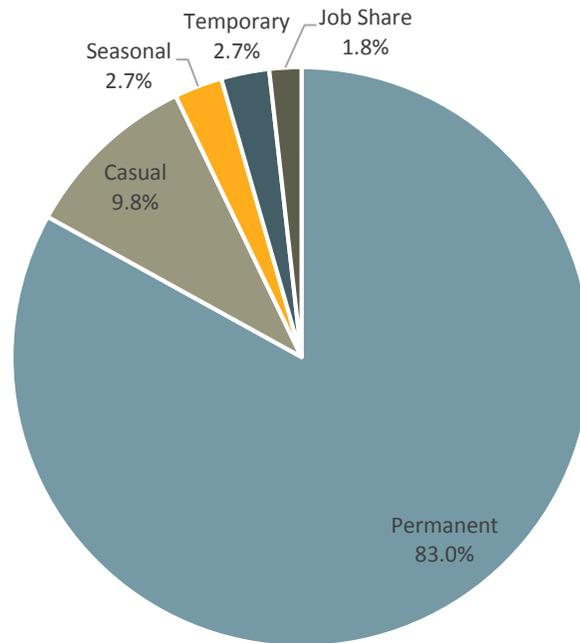
Equity Group	Dec 2012	Dec 2013	Dec 2014	Dec 2015	Dec 2016	SHRC Goals
People with Disabilities	4.4%	3.8%	3.2%	3.9%	3.8%	12.4 %

## Employment Type Distribution

The data below provides a breakdown of Persons with Disabilities employee representation by each employment type. Employment type includes permanent, seasonal, temporary, casual and jobshare.

Chart 6 below shows the distribution of Persons with a Disability by employment type for December 2016.

Chart 6: Persons with a Disability Employment Type - December 2016

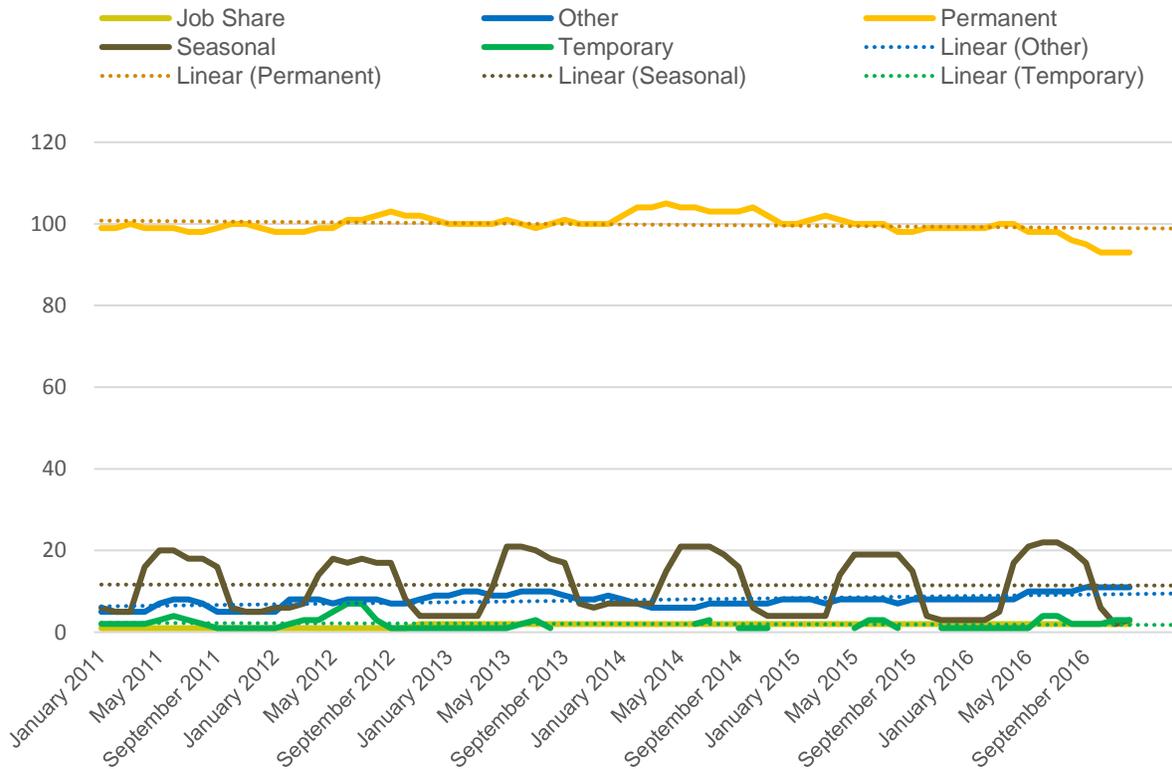


Persons with Disabilities are employed predominantly in permanent positions (i.e., 83.0%). This is a higher percentage when compared to the organization as a whole which is 78.3%.

## Employment Type Trends

Chart 7 below shows the six-year trend occurring for employees who have self-declared as Persons with Disabilities by each employment type of permanent, seasonal, temporary, casual (other) and jobshare.

Chart 7: Persons with Disabilities Employment Type Trend from 2010 to 2016

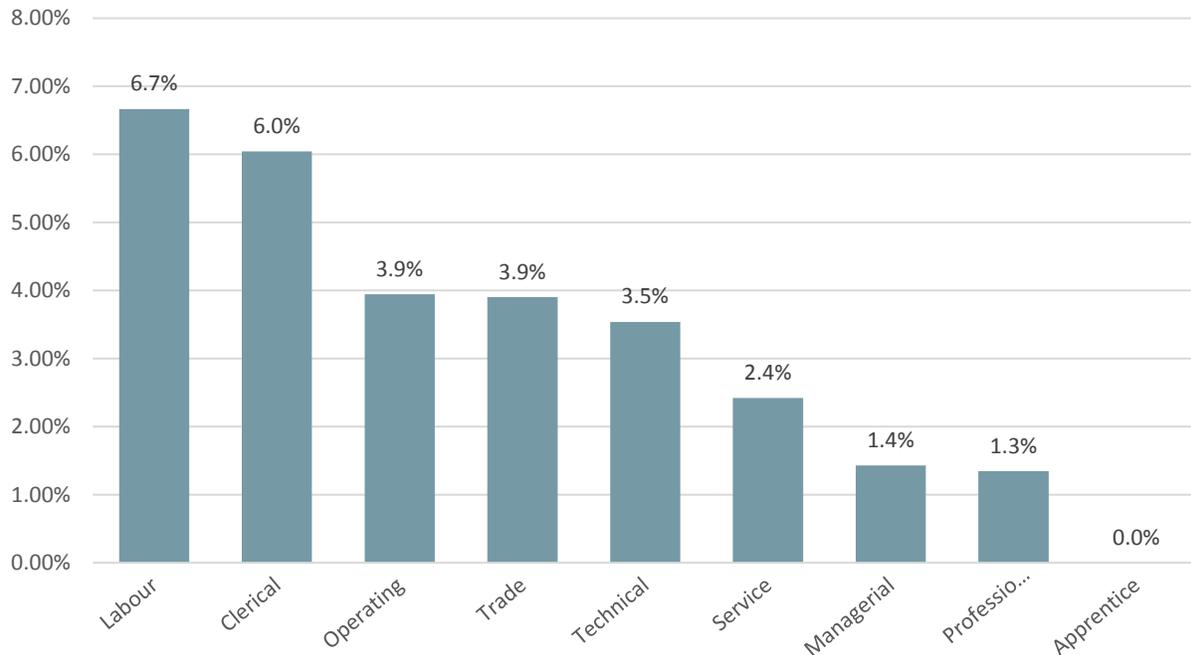


The yellow line representing permanent employees who have self-declared as a Persons with Disabilities has seen no change over the past six years and in the last half of 2016 there has been a decrease in the number of employees reporting as Persons with Disabilities. The brown line representing seasonal employees and the green line representing temporary employees do result in seasonal increases in spring/summer hiring. However, the overall trend has also not increased over the last six years.

## Occupational Group Distribution

Chart 8 below represents the percentage of Persons with Disabilities who occupy positions within each occupational group. The purpose of this information is to measure representation within occupational groups. The goal is to have representation in all occupational groups. (See Appendix 4 for occupational group definitions).

Chart 8: Persons with Disabilities Representation by Occupational Group - December 2016



**LABOUR:** Employees who self-declared as a Persons with Disabilities account for 6.7% of employees in the labour occupational group. The majority of the employees in this group are employed as Building Custodians.

**CLERICAL:** Similarly employees who self-declared as Persons with Disabilities account for 6.0% in the clerical occupational group. The clerical group is a large population and provides a significant opportunity for our diversity and inclusion initiatives.

**TRADE AND OPERATING:** The operating and trade groups both 3.9% of employees who self-declared as a Persons with Disabilities are employed in numerous division across the organization.

## **New Hires**

In 2016 we hired 683 employees (includes new hires and rehires, as well as recalls to seasonal and temporary positions).

In 2016, 1.9% or 13 new hires, self-declared as Persons with Disabilities.

## **2016 HIGHLIGHTS**

The following provides an update on 2016 initiatives, which were identified in the 2015 report to work towards the goal of an “inclusive workplace that embraces diverse backgrounds”:

1. The self-declaration process was enhanced to increase knowledge for new employees. Before employees complete the form, they are given a detailed explanation of how the data is used to measure how we are doing in diversity and continually improve our workplace, define the equity groups, ensure confidentiality, and answer any questions. This explanation is provided in order for employees to feel comfortable completing the self-declaration form and increase participation.
2. In partnership with the Learning Disabilities Association of Saskatchewan, Understanding Invisible Disabilities awareness training is provided once a year as part of the Corporate Training Calendar, as well as upon request by specific workgroups.
3. Partnerships continued to be fostered with community organizations who provide services to Persons with Disabilities. These partnerships include participation in the Business Advisory Committee for Canadian Council on Rehabilitation and Work (CCRW), referral of clients for various organizations, educating job coaches, and employment programs of the City of Saskatoon hiring processes.
4. Disability management is currently done through the Disability Assistance Program. This program manages accommodations and return to work plans. In 2016, this program was able to close 115 cases. There are currently 91 cases open.
5. Mental Health First Aid training was piloted in 2016 and will be made available for employee participation starting in 2017.

## 2017 PRIORITIES

Representation for this equity group has not increased over the last five years. Research indicates that voluntary self-declaration for Persons with Disabilities is not a reliable measurement for employers to base their equity program success on. Further work will be committed to ensuring the workplace environment is accessible and inclusive for Persons with Disabilities and more work will be done to measure success through employee surveys, focus groups, and perception surveys.

### Diversity and Inclusion Action Plan Summary

#### PEOPLE

- Two training workshops will be offered to employees to provide an understanding of providing a supportive and inclusive work environment for Persons with Disabilities.

#### SYSTEMS

- An analysis of the current gaps and barriers will be completed in the third quarter of 2017 that includes a report with recommended strategies for making the current recruitment and hiring processes more effective in increasing representation in jobs that are known to be entry points for external candidates.
- Improvements to the self-declaration process will be completed. This includes reviewing the process for temporary and seasonal employees to ensure all divisions follow the corporate process. This includes providing a detailed explanation and allows for confidentiality when completing the form. The goal is to increase the accuracy of our data count for Persons with Disabilities in the workforce.

#### ENVIRONMENT

- Assess the workplace environment and compare the 2013 perception survey results through employee interviews, focus groups and/or stay surveys. The goal of this research is to determine if there has been a change in perception and identify areas of continuous improvement for Persons with Disabilities within the organization.

## VISIBLE MINORITY

The performance goal set by City Council for Visible Minority employees is based on the SHRC goal of 11.0%.

### CURRENT STATISTICS

#### Total Workforce

Table 7 shows the employee population for the Visible Minority equity group in July has had a steady increase in employee population over the last five years.

Table 7: Total Visible Minority Employee Population Trend -July 31

Equity Group	July 2012	July 2013	July 2014	July 2015	July 2016	SHRC Goal
Visible Minority	6.9%	7.8%	8.7%	9.6%	10.4%	11.0%

Table 8 below shows the employee population for the Visible Minority equity group in December shows a steady increase over the last five years. This shows that the current strategies have been fairly successful in achieving our goal.

Table 8: Total Visible Minority Employee Population Trend - December 31

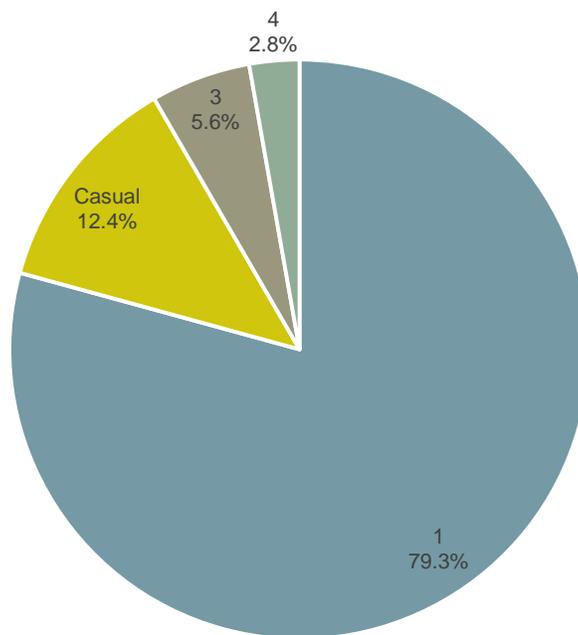
Equity Group	Dec 2012	Dec 2013	Dec 2014	Dec 2015	Dec 2016	SHRC Goals
Visible Minority	6.5%	8.1%	7.8%	10.3%	10.6%	11.0%

## Employment Type Distribution

The data below provides a breakdown of Visible Minority employee population in each employment type. Employment type includes permanent, seasonal, temporary, casual and jobshare.

Chart 9 below shows the distribution of the Visible Minority employee population by employment type for December 2016.

Chart 9: Visible Minority Employment Type - December 2016

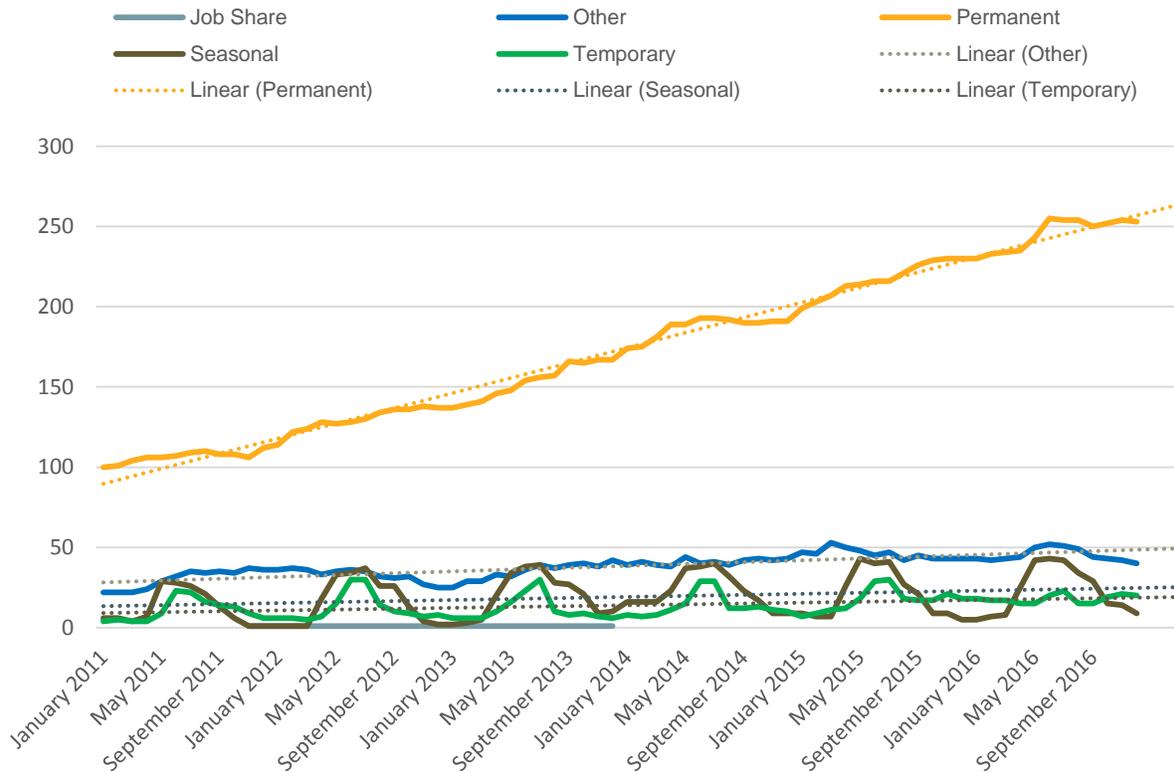


Currently, 79.3% of employees who self-declared as Visible Minorities are permanent, which is comparable to the City's overall average of 78.3%.

## Employment Type Trend

Chart 10 below shows a six-year trend occurring for the Visible Minority equity group based on employment type of permanent, seasonal, temporary, casual (other) and jobshare.

Chart 10: Visible Minority Employment Type Trend from 2010 to 2016



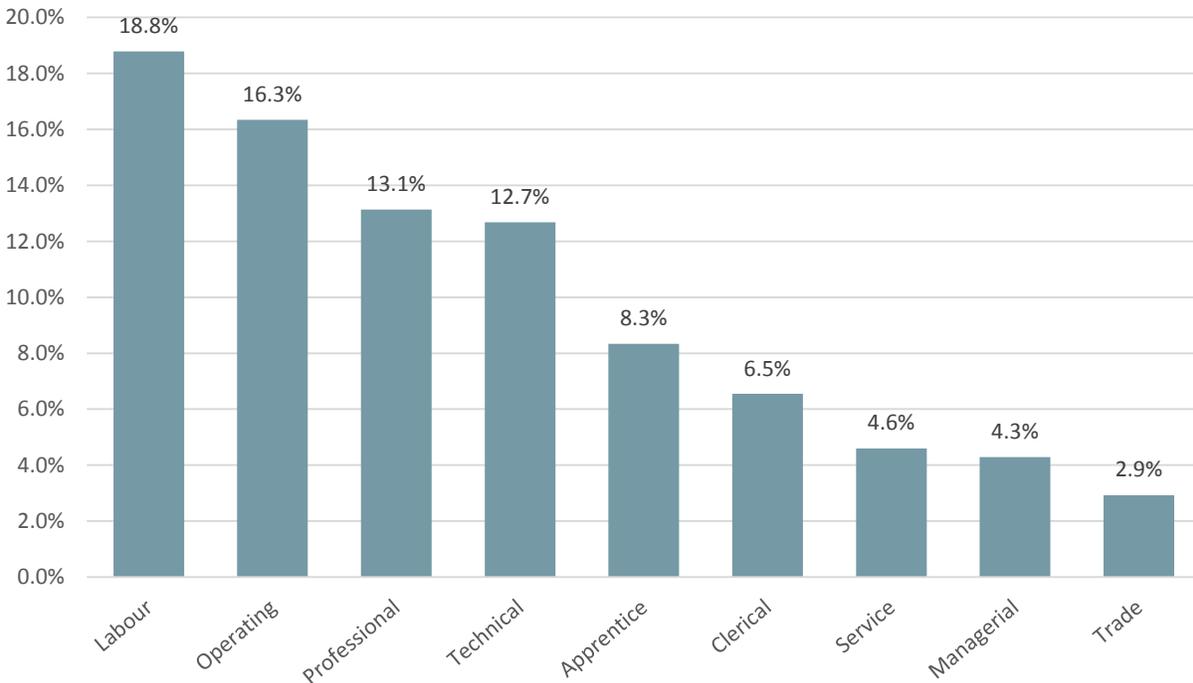
The yellow line shows the permanent Visible Minority employees over the last six years. The linear trend indicates a positive change based on the last six years for permanent employees.

The brown line representing seasonal employees and green line representing temporary employees fluctuates in the spring/summer of each year. The linear trend line indicates no relative increase overall in this type of employment, which is due to the number of seasonal and temporary jobs hired each year being consistent and the proportion of visible minorities being hired being proportionally the same in each year.

## Occupational Group Distribution

Chart 11 below represents the percentage of Visible Minority employees who occupy positions within each occupational group. The purpose of this information is to measure representation within occupational groups. The goal is to have representation in all occupational groups. (See Appendix 4 for occupational group definitions).

Chart 11: Visible Minority Employee Representation by Occupational Group - December 2016



**LABOURER:** The labour group has the highest representation of employees who self-declared as a Visible Minority at 18.8%.

**OPERATING:** 16.3% of employees in the operating group have self-declared as a Visible Minority.

**PROFESSIONAL:** 13.1% of employees in the professional occupation group have self-declared as a Visible Minority.

Increased efforts are required to increase representation in those occupational groups that are reporting less than 11.0% representation.

## **New Hires**

In 2016 we hired 683 employees (includes new hires and rehires, as well as recalls to seasonal and temporary positions).

In 2016, 13.3% of new hires self-declared as a member of the Visible Minority equity group.

## **2016 HIGHLIGHTS**

The following provides an update on 2016 initiatives that were identified in the 2015 report to work towards the goal of an “inclusive workplace that embraces diverse backgrounds”:

1. Cultural competency training was offered to employees in the Corporate Training Calendar with 20 employees participating.
2. A new course entitled “Intercultural Problem Solving” was developed and offered to supervisors and managers with 20 employees participating.
3. Cultural Bridging training was hosted for customer service staff for Leisure Centers.
4. Partnerships continued to be fostered with community organizations who provide services to newcomers. These partnerships include regular referral of clients, presentations to employment programs at the Saskatoon Open Door Society, International Women of Saskatchewan, and Saskatchewan Intercultural Agency, participation in career fairs such as WeConnect, and providing work placements for students in Human Resources.
5. Information guides with presentations were provided to Safety Superintendents and Public Works Superintendents on religious accommodation procedures, Islamic traditions, and holidays.

## 2017 PRIORITIES

Based on the analysis, current strategies for recruitment of this equity group are working, with a consistent increase in representation throughout all occupational groups. With a more culturally diverse workforce, the City of Saskatoon must ensure that the workplace is utilizing this diversity efficiently and effectively.

### Diversity and Inclusion Action Plan Summary

#### PEOPLE

- Increasing the participation in Cultural Competency training. New facilitators will be trained within the organization in order to provide training workshops on a more regular basis. In 2017, six workshops of 25 participants will be offered. This training will increase skill level and improve communication between individuals of different cultures.
- A site on SharePoint will be launched that includes diversity and inclusion tools and resources and will be accessible to the organization.
- In collaboration with supervisors and managers identify additional tools and resources needed that would assist in ensuring an inclusive workplace.

#### SYSTEMS

- Incorporate inclusive competencies in Corporate Competencies being developed for the organization.

#### ENVIRONMENT

- Exit interviews and stay interviews will be conducted. Results will be reviewed for inclusive workplace practices.

## WOMEN IN UNDERREPRESENTED OCCUPATIONS

The performance goal set by City Council for Women in Underrepresented Occupations is based on the Saskatchewan Human Rights Commissions (SHRC) goal. Women are considered underrepresented in occupations if they occupy less than 45% of positions within occupations.

### CURRENT STATISTICS

#### Total Workforce

Table 9 shows the Women employee population in July indicates that there has not been a significant increase in total population over the last five years.

Table 9: Total Women Employee Population Trend - July 31

Equity Group	July 2012	July 2013	July 2014	July 2015	July 2016	SHRC Goal
Women	39.1%	39.9%	39.4%	39.3%	38.5%	45.0%

Table 10 shows the Women employee population in December indicates that there has not been a significant increase in total population as well over the last five years.

Table 10: Total Women Employee Population Trend - December 31

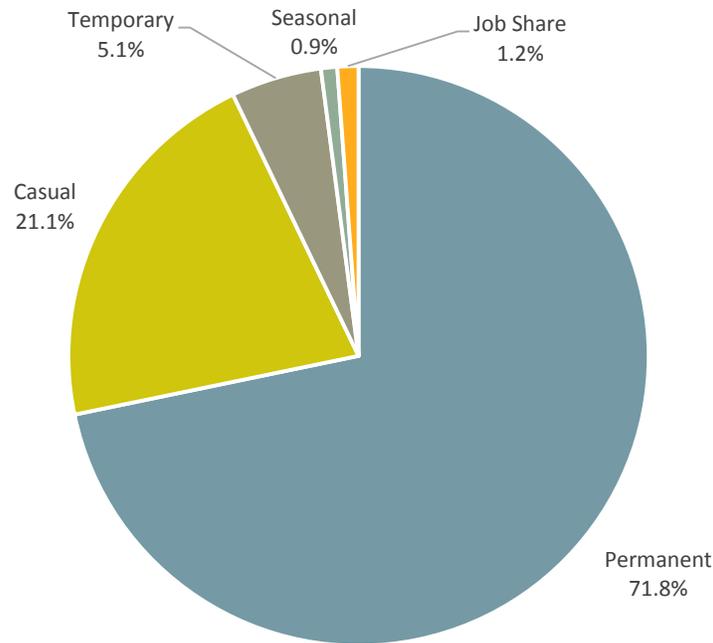
Equity Group	Dec 2012	Dec 2013	Dec 2014	Dec 2015	Dec 2016	SHRC Goal
Women	38.4%	38.4	39.9%	38.0%	38.0%	45.0%

## Employment Type Distribution

The information below provides a breakdown of women representation by each employment type. Employment type includes permanent, seasonal, temporary, casual and jobshare.

Chart 12 displays the distribution of Women by employment type for December 2016.

Chart 12: Women Employment Type - December 2016

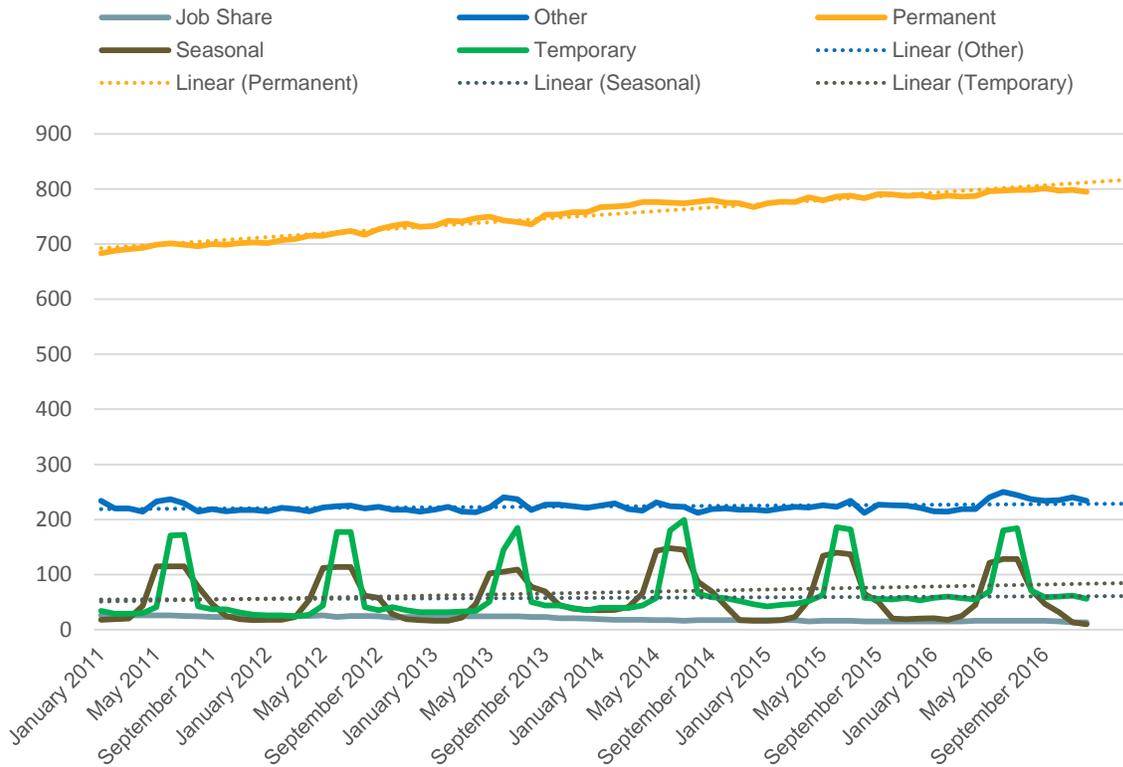


Currently, 71.8% of employees who self-declared as Women are permanent. This is lower than the City's overall average of 78.3%.

## Employment Type Trends

Chart 13 below show the six-year trend occurring for women employees based on employment type of permanent, seasonal, temporary, casual (other) and jobshare.

Chart 13: Women Employment Type Trend from 2010 to 2016



The yellow line representing permanent employees who are women indicates an increase over the last six years with the linear trend having a small positive increase over the last six years.

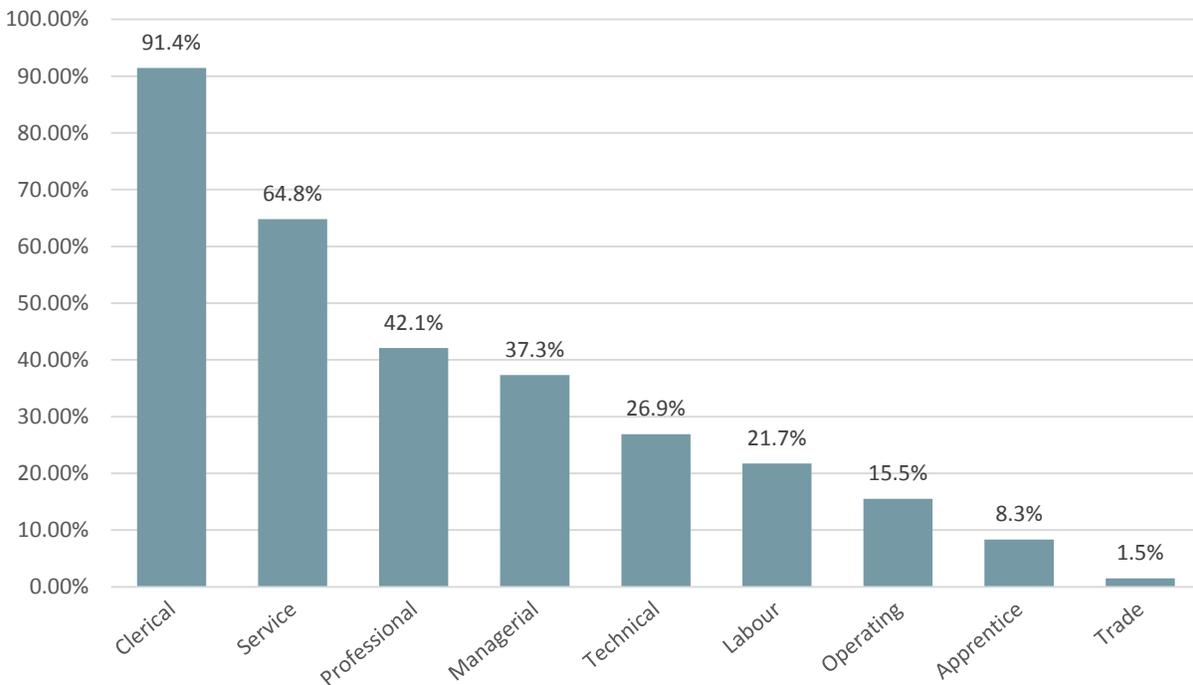
The brown line representing seasonal employees and the green line representing temporary employees fluctuates each year in spring and summer months. However, the linear trend line indicates no change based on the last six years. The blue line shows a consistent trend in relations to casual (other) positions.

## Occupational Group Distribution

Chart 14 below represents the percentage of women who occupy positions within each occupational group. The purpose of this information is to measure representation within occupational groups. Women are considered underrepresented in occupations if they occupy less than 45% of positions within occupations.

(See Appendix 4 for occupational group definitions).

Chart 14: Women Employee Representation by Occupational Group - December 2016



Occupations with less than 45% representation of women include: Professional (42.1%), Managerial (37.3%), Technical (26.9%), Labour (21.7%), Operating (15.5%), Apprentice (8.3%) and Trade (1.5%).

## New Hires

In 2016 we hired 683 employees (includes new hires and rehires, as well as recalls to seasonal and temporary positions).

In 2016, women represented 45.2% (309 employees) of total new hires to the organization.

## 2016 HIGHLIGHTS

The following provides an update on 2016 initiatives that were identified in the 2015 report to work towards the goal of an “inclusive workplace that embraces diverse backgrounds”:

1. Conducted significant awareness sessions for all employees in two divisions where women are underrepresented, that focused specifically on harassment, sexual harassment and respectful workplace.
2. Worked in collaboration with a community Aboriginal organization to hire a female engineer as a summer student.
3. Parks and Public Works Divisions both participated in training programs conducted by Saskatoon Trades and Skills Centre, whereby they provided practicum work placements to women who are training in the areas on landscaping and equipment operations.
4. Successfully recruited 57% women engineer internship programs with educational institutions.

## 2017 PRIORITIES

Based on the analysis, representation of women is still underrepresented in a majority of our occupational groups. The reasons why this could be occurring include a lack of women applicants applying for positions in certain occupations or the work environment is not inclusive for women. Initiatives in assessing these reasons will be the priority for 2017.

### Diversity and Inclusion Action Plan Summary

#### PEOPLE

- Work placements in Parks, Roadways and Operations, and Water and Wastestream will occur in collaboration with training and educational institutions for Landscaping and Heavy Equipment Operations.

#### ENVIRONMENT

- Results from exit interviews and stay surveys will be reviewed for inclusive workplace practices. If identified as a gap, strategies will be introduced to work towards enhancing the employee experience for women in underrepresented occupations.

#### SYSTEMS

- Using a new Business Intelligence tool, data will identify all occupations where women are underrepresented. HR will work closely with Divisions to identify new recruitment and hiring plans to help close this gap.
- Career planning tools will be developed and distributed for managers to use when working with employees specifically in seasonal/temporary positions that wish to achieve permanent positions. This will include the implementation of an Individual Development Plans that includes career development priorities.
- A structured data tool will be created and used to collect information on the aggregate candidate supply and factors contributing to a successful or unsuccessful recruitment drive.

## APPENDICES

### APPENDIX 1: DEFINITIONS OF DIVERSITY AND INCLUSION

“Diversity refers to the variety of differences and similarities/dimensions among people, such as gender, race/ethnicity, tribal/indigenous origins, age, culture, generation, religion, class/caste, language, education, geography, nationality, disability, sexual orientation, work style, work experience, job role and function, thinking style, and personality type.

Inclusion refers to how diversity is leveraged to create a fair, equitable, healthy and high-performing organization or community where all individuals are respected, feel engaged and motivated, and their contributions toward meeting organizational and societal goals are valued.” (O'Mara & Richter, 2011)

## APPENDIX 2: DEFINITIONS OF EQUITY GROUPS

### Aboriginal

Aboriginal people are those who identify themselves as First Nations, Métis or Inuit.

### Persons with Disabilities

Persons with disabilities are persons who have a disability within the meaning of section 2(1) (d.1) of [The Saskatchewan Human Rights Code](#).

In addition, for the purposes of employment equity plans, persons with disabilities:

- have persistent physical, intellectual, mental, psychiatric, sensory or learning conditions that
  - require a technical device and/or personal support or service which enables such persons to perform the essential functions of a job; and/or
  - require some form of accommodation such as extra rest breaks, or time off/leave to obtain treatment as necessary, or modifications to job responsibility, job site, or work hours;
- consider themselves, and believe an employer or a potential employer would consider them disadvantaged in finding, retaining or advancing in employment because of that condition.

### Visible Minority

Persons, other than Aboriginal peoples, who are people of colour.

### Women in Underrepresented Occupations

Women shall be considered underrepresented in occupations within an employer's labour force if women occupy less than 45 percent of positions in those occupations.

(Saskatchewan Human Rights Commission, 2015)

## APPENDIX 3: OUR LARGER ROLE AS AN EQUITY PARTNER WITH THE SHRC

Best practices in diversity and inclusion move away from only measuring and reporting on the legislated requirements on representation in the work force and have diversity and inclusion encompassed in all aspects of business. It is more than just diversity and inclusion quota setting but also includes comprehensive plans to create a workplace that is respectful and inclusive to all employees.

Our commitment as an equity partner with the SHRC further supports this practice. Under the SHRC equity partner agreement, we are committed to eliminating employment barriers for the four equity groups, as well as committed to the following principles and objectives found in the SHRC Policy on Equity Programs:

1. *To support the fundamental objectives set out in section 3 of The Saskatchewan Human Rights Code; that is,*
  - (a) *to promote recognition of the inherent dignity and the equal inalienable rights of all members of the human family; and*
  - (b) *to further public policy in Saskatchewan that every person is free and equal in dignity and rights and to discourage and eliminate discrimination.*
2. *To support the principle that cultural diversity is a fundamental human value.*
3. *To support the principle of equality of opportunity.*
4. *To foster the full potential of all individuals and promote their contribution to the creation of a prosperous, harmonious and inclusive society.*
5. *To improve opportunities for equity groups in the areas of employment, education, accommodation or public services.*
6. *To recognize the reality that individuals may experience disadvantage because of more than one prohibited ground of discrimination. Further, to consider whether additional measures are advisable where individuals face multiple barriers because they belong to more than one of the four original equity groups: Aboriginal people, people with disabilities, visible minorities and women in underrepresented occupations.*
7. *To support the establishment of links and partnerships between equity initiatives in employment, education and public services.*

(Saskatchewan Human Rights Commission, 2015)

## APPENDIX 4: OCCUPATIONAL GROUP DEFINITIONS

**Apprentice** – Apprentice Mechanic, Body Repairman, Powerline Technician, Power Electrician

**Clerical** – Clerk, Clerk-Steno, Secretary, Legal Secretary, Accounting Clerk, Buyer, Benefits Clerk, Customer Service Representative, Customer Service Cashier, Remittance Clerk, Credit and Collections Representative, Scheduling and Booking Clerk, Time Clerk

**Labour** – Building Custodian, Event Services Custodian, Meter Reader, Labourer, Building Attendant

**Managerial** – Manager positions, Facilities Superintendent, Sr. Planner, Parks Superintendent, HR Consultant, Operations Superintendent

**Operating** – Building Operator, Resident Building Operator, Coliseum Operator, Pool Technician, Facilities Utilityperson, Parks Technician, Equipment Operator, Utility, Transit Operator

**Professional** – Solicitor, Archivist, Research Coordinator, Systems Analyst, Accountant, Financial analyst, Budget and Financial Service Coordinator, Property Coordinator, Sr. Planner, Planner, Building Code Engineer, Community Consultant, Recreation Site Administrator, Accounting Coordinator, Traffic Engineer, Health and Safety Superintendent, Communications Consultant, Project Engineer

**Service** – Event Attendant, Guest Services Attendant, Client Service Services Attendant, Recreation Program Leader, Recreation Technician, Parts/Storesman, Environmental Coordinator, Aquatic Technician

**Technical** – Programmer Analyst, Preparator Assistant, Assessment Appraiser, Drafting Technologist, Trainer, Building Inspector, Electronic Communications Technician, Zookeeper, Bylaw Inspector, Park Technician, GIS Technologist, Engineering Technologist, Laboratory Technologist

**Trade** – Plumber, Electrician, Carpenter, Painter, Mechanic, Machinist, Welder, Body Repairman, Golf Course Equipment Service Technician, Power Electrician, Powerline Technician

*\* Due to the vast number of job titles, the above is not a comprehensive list.*

## REFERENCES

- LaRoche, L., & Yang, C. (2014). *Danger and Opportunity Bridging Cultural Diversity for Competitive Advantage*. New York: Routledge Taylor and Francis Group.
- O'Mara, J., & Richter, A. (2011). *Global Diversity and Inclusion Benchmarks: Standards for Organizations Around the World*. Julie O'Mara and Alan Richter.
- Saskatchewan Human Rights Commission. (2015). *Policy on Equity Programs*. Retrieved August 25, 2015, from Saskatchewan Human Rights Commission:  
<http://saskatchewanhumanrights.ca/equity-site/policy-on-equity-programs>

Prepared by Corporate Performance Department – Human Resources Division



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## Equity Policy Review

### Recommendation

That the report of the General Manager, Corporate Performance Department, dated March 13, 2017, be forwarded to City Council for information.

### Topic and Purpose

The purpose of this report is to address an Inquiry made by Councillor D. Hill on July 21, 2016, regarding a review of current equity policies.

### Report Highlights

1. A review of the City's equity policies is currently underway.
2. A review of the Cultural Diversity and Race Relations Committee will be included as part of the comprehensive governance review of the governance structures, models, practices, and procedures of boards and committees, including advisory committees.

### Strategic Goal

This report supports the strategic goal of Continuous Improvement.

### Background

On July 21, 2016, the following inquiry was made by Councillor D. Hill:

“Would the Administration please report on what would be involved to conduct a review of our current equity policies to be more inclusive of community diversity. Please include what, if any, portion of that review would include an evaluation and review of the Cultural Diversity and Race Relations Committee.”

### Report

#### The Equity and Inclusion Policy Review Process

During the 2016 Budget and Business Plan review process, City Council considered a report from the Administration outlining the City's response to the Truth and Reconciliation Commission Calls to Action, including an initiative to review City policies and programs with an Aboriginal lens to identify potential systemic or institutional discrimination and ensure they are inclusive to Aboriginal people.

The Cultural Diversity and Race Relations office within the Community Services Department was also developing an initiative to review City policies from an equity and inclusion perspective. These two initiatives have been combined into one diversity and inclusion review initiative that received funding in the 2016 budget. This initiative is

## Equity Policy Review

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currently underway and includes a review of the literature and investigates best practices.

The process will include a review of the City Council Policy C10-023 Cultural Diversity and Race Relations Policy, including the section that states “The workforce will be representative of the population of Saskatoon.” to ensure that the language and responsibilities are updated and relevant.

### Governance

A capital project was approved with the 2017 Business Plan and Budget for a Comprehensive Governance Review of the governance structures, models, practices, and procedures of boards and committees including advisory committees. This will include a review of the Cultural Diversity and Race Relations Advisory Committee. The intent is to conduct research, collect and analyze information, and meet with appropriate stakeholders. The Administration will make recommendations to the Governance and Priorities Committee for their consideration and ultimately to City Council for approval.

In response to the inquiry about a review of the Cultural Diversity and Race Relations Advisory Committee, the typical process for any change to an existing Advisory Committee’s mandate is to first have it reviewed by the Governance and Priorities Committee. Recommendations for change could come forward from the Committee itself or the Administration.

### **Communication Plan**

All changes to policy will be communicated to employees with an emphasis on managers and supervisors.

The Administration created a video to promote our diverse workplace, and it can be found on the City’s website at

<https://www.saskatoon.ca/city-hall/careers-city/diversity-inclusion>

This video is used as a recruitment tool and it is shared with all new employees during orientation and onboarding.

### **Policy Implications**

The policy implications are described within the body of this report.

### **Other Considerations/Implications**

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

### **Due Date for Follow-up and/or Project Completion**

The Administration will report back on the results of the policy review by fall of 2017 and the governance review in late 2017.

## Equity Policy Review

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### Public Notice

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

### Report Approval

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

Reviewed by: Lynne Lacroix, Director of Recreation and Community Development  
Joanne Sproule, City Clerk

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

Equity Policy Review.docx

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## City Page / Weekly Public Notice Advertising

### 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 “City Page/Weekly Public Notice Advertising” for 2017 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 a sole source contract for the administration, production, and distribution of the “City Page/Weekly Public Notice Advertising” in the Saskatoon StarPhoenix (*The StarPhoenix*) for the remainder April 1 – December 31, 2017 with an option to renew for 2018.

### Report Highlights

1. City Council Policy C01-021 indicates that public notice shall be published in *The StarPhoenix* on the Saturday at least seven days immediately prior to the meeting at which City Council will initially consider the matter.
2. Administration is recommending a sole source agreement with *The StarPhoenix* based on the current Public Notice Policy, and their extensive distribution network and delivery dates.
3. *The StarPhoenix* is proposing to hold the City of Saskatoon’s advertising at current 2016 rates for 2017 and 2018. The City Page advertisements will be replicated free every week in *Bridges* and a Big Box ad will link to the print ad every week for the online audience.
4. The term of the agreement will be for April 1, 2017 to December 31, 2017, with the option to renew for 2018.

### Strategic Goal

This report supports the strategic goal related to Continuous Improvement and being the best-managed city in Canada and provide high-quality services to meet the dynamic needs and high expectations of our citizens.

### Background

City Council Policy C01-021 sets out the minimum time for giving notice and the methods for which public notice is required to be given with respect to any matters for which public notice is required. The Policy directs that, public notice shall be published in *The StarPhoenix*, on the Saturday at least seven days immediately prior to the meeting, at which City Council will initially consider the matter.

The need for public notice in print form was the subject of a report to the Standing Policy Committee on Planning, Development and Community Services on July 18, 2016. Public Notice requirements were considered by City Council on August 18, 2016 (File No. CK255-2-1 and PL 4350-1 (BF No. 14-16)). City Council re-affirmed the existing Public Notice Policy C01-021 remain the same.

## Report

### The StarPhoenix

Administration is recommending a sole source contract with *The StarPhoenix* based on the current Council Public Notice Policy C01-021, and the extensive distribution network and delivery dates.

a) Council Public Notice Policy C01-021

The current Policy directs that, public notice shall be published in *The StarPhoenix*, on the Saturday at least seven days immediately prior to the meeting, at which City Council will initially consider the matter.

b) Distribution Network

The StarPhoenix distributes daily newspapers (Monday to Saturday) to 21,563 homes and 203 retail outlets who sell over 2,600 single copies. In addition, they offer the City a free replication of the City Pages in the Bridges which is delivered free of charge to 75,944 subscribers and non-subscriber Saskatoon homes every Friday. They will continue to bonus the City the ability to reach the Saturday online audience with a Big Box ad that will link to a replication of the City Page print ad every week.

Both the Star Phoenix and Bridges are delivered through contract haulers and home delivery carriers which minimizes any potential for service disruption.

The only other known print newspaper available in Saskatoon is a weekly publication. Over 3,100 copies are distributed to newsstands and restaurant locations on Monday or Tuesday. In addition, it is mailed through Canada Post using their targeted distribution system to over 46,000 homes in Saskatoon with household incomes of \$60,000/year and an average age of 40+. The mailed copies arrive at homes on Wednesday or Thursday. The weekly publication is also made available online.

c) Delivery Dates

As a minimum, *The Planning and Development Act, 2007* requires that any public notice must be given at least seven days before a council meeting or public hearing at which the matter is to be considered. Council Policy C01-021 outlines the same minimum standard for any matters for which public notice is required to be given under *The Cities Act*.

The StarPhoenix Saturday edition ensures the City Page public notices will meet the minimum requirement before a Monday council meeting or public hearing. Furthermore, it provides enough flexibility to place a public notice during the week day where required rather than waiting for the next weekly publication.

Based on the above, the Administration is recommending a sole source contract with *The StarPhoenix*. This provides a reliable and consistent way of reaching a large number of residents in the City.

*The StarPhoenix* proposal holds the City's advertising at current 2016 rates for 2017 and 2018. The rates include the costs associated with all aspects of the weekly advertisements including the administration, graphic design, production, and distribution. The rates will also be extended to the rest of the corporation including the various Boards and Committees. A full copy of the rates is provided in Attachment 1.

The estimated value of the City Page contract (mandatory, header/filler, and other program advertisements) is approximately \$200,000 - \$220,000 annually.

#### Terms of Agreement

The Administration is recommending City Council approve the award of the City Page contract to *The StarPhoenix*. The term of the agreement will be for April 1, 2017 to December 31, 2017, with the option to renew in 2018 (January 1 - December 31, 2018).

#### **Options to the Recommendation**

An option is for City Council to approve the award of the City Pages contract to *The StarPhoenix* for 2017 and direct the Administration to issue a request for proposal for 2018 rather than renew the agreement. This option is not recommended since *The StarPhoenix* is the only daily distribution in the City.

#### **Public and/or Stakeholder Involvement**

Public and/or stakeholder involvement was not required as part of this process. However, according to the 2016 Civic Services Survey 21% of telephone and 28% of online respondents prefer to receive information from the City through print ads in local newspapers and magazines. As a result, there may still be a need for public notice in print form to reach a significant portion of the Saskatoon population.

#### **Communication Plan**

If City Council approves the recommendation, additional advertising is not required to inform citizens and stakeholders on where the notice of a matter shall be published.

#### **Financial Implications**

There are no financial implications related to this report.

**Other Considerations/Implications**

The current Policy directs that, public notice shall be published in *The StarPhoenix*, on the Saturday at least seven days immediately prior to the meeting, at which City Council will initially consider the matter.

If City Council does not approve the recommendation in this report, Public Policy C01-021 will require changes to remove reference to *The Star Phoenix* and consider how to satisfactorily address public notice requirements with acceptable methods of giving notice.

**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' Page with *The StarPhoenix* and the City will be set in place, commencing April 1, 2017, and expiring December 31, 2017 with an option to renew in 2018.

**Public Notice**

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

**Attachment**

1. *The StarPhoenix* Rate Schedule (2017-2018)

**Report Approval**

Written by: Carla M. Blumers, Director of Communications  
Reviewed by: Catherine Gryba, General Manager, Corporate Performance Department.  
Approved by: Murray Totland, City Manager

City Page Weekly Public Notice Advertising 2017.docx

**ATTACHMENT 1**  
**The StarPhoenix Rate Schedule (2017-2018)**

**StarPhoenix Print Rates**

<b>Year</b>	<b>Monday to Thursday</b>	<b>Thursday to Saturday</b>	<b>Full Colour</b>
2017	\$1.40/line	\$1.58/line	\$250.00/Page
2018	\$1.40/line	\$1.58/line	\$250.00/Page

**StarPhoenix Print Rates – Header and Filler Ads**

<b>Year</b>	<b>Monday to Thursday</b>	<b>Thursday to Saturday</b>
2017	\$0.79/line	\$0.79/line
2018	\$0.79/line	\$0.79/line

The rates include the costs associated with all aspects of the weekly advertisements including the administration, graphic design, production, and distribution. The rates will also be extended to the rest of the corporation including the various Boards and Committees.

The City of Saskatoon will receive a replicated City Page free every week in *Bridges*. This will give the City the ability to reach over 79,900 homes.

The StarPhoenix will continue to bonus the City of Saskatoon the ability to reach the Saturday online (thestarphoenix.com) audience with a Big Box ad that will link to a replication of the City Page print ad every week.

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## Hydropower Joint Ownership Project with Saskatoon Tribal Council

### Recommendation

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

1. That the Administration be directed to prepare a Memorandum of Understanding with the Saskatoon Tribal Council that outlines a joint ownership model to begin a feasibility study for a hydropower station in Saskatoon; and
2. That the Memorandum of Understanding be brought forward to the Standing Policy Committee on Environment, Utilities and Corporate Services, and City Council for City approval.

### Topic and Purpose

The purpose of this report is to provide an update on the proposed hydropower project and present the benefits of a partnership between the Saskatoon Tribal Council and the City.

### Report Highlights

1. Saskatoon Light & Power has explored the feasibility of a hydropower station at the Saskatoon weir.
2. Joint ownership of the project between the City and the Saskatoon Tribal Council will bolster all aspects of the project and benefit both parties. A partnership will strengthen applications to senior governments for rates and capital contributions, and the combined resources of both agencies result in a stronger project team during the investigatory and construction phases, should the project proceed to construction.
3. The project provides an opportunity for the Saskatoon Region and the Saskatoon Tribal Council to realize economic and social benefits.
4. Earlier stakeholder and community engagement shows support for a green power project at the weir that maintains its visual beauty, serenity and natural ecology. Continued engagement is planned as part of a new feasibility study.

### Strategic Goals

The recommendations in this report support the short- and long-term strategies to strengthen relations with local Aboriginal organizations under the Strategic Goal of Quality of Life and the 2017 commitment to the Truth and Reconciliation Commission (TRC) Calls to Action.

The recommendations in this report support the long-term strategy to increase revenue sources and reduce reliance on residential property taxes under the Strategic Goal of Asset and Financial Sustainability. The report also supports the long-term strategy to

create new sources of green energy where feasible under the Strategic Goal of Environmental Leadership. Identifying opportunities to replace conventional energy sources with green energy technologies and finding alternate ways of generating capacity to support operations is in line with the City's four-year priorities.

### **Background**

In 2009, Saskatoon Light & Power commissioned pre-feasibility engineering and environmental baseline studies of several possible design concepts for a hydropower station at the Saskatoon Weir, including a white water park feature. While there was interest and potential for the hydropower project to generate revenue for the City, the project requires a substantial up-front capital contribution.

When the hydropower facility was discussed publicly in 2009, one potential feature suggested was a white water park at the weir. At the time it was not known the level of community support or the impact on the operations of a hydropower facility at this location. In 2014/15, during the development of the City's Recreation and Parks Master Plan, through extensive public consultation and research, a number of indoor and outdoor recreation facility priorities were identified (both upgrades to existing facilities and building new facilities). A facility such as a white water park was not identified in the list of high priorities and as recommended in the Master Plan. As facilities become more specialized or serve a smaller segment of the population, the funding model for this type of project should include a combination of private/non-profit investment, fundraising, user fees, and potentially some public taxes. Therefore any consideration for such a facility would most likely require leadership interest from either a developer, private operator, or non-profit organization.

At its meeting held on April 27, 2015, City Council considered the Proposed Hydropower Station at the Saskatoon Weir – Update report and resolved:

“That the Administration be directed to report back to the Standing Policy Committee on Environment, Utilities and Corporate Services with development options and potential next steps to advance the hydropower initiative.”

### **Report**

#### Hydropower Station at the Saskatoon Weir

The City's target is to produce or generate 10% of its annual energy requirements from local, renewable resources. Currently, the City is generating green power with the Landfill Gas Collection & Power Generation system, a multi-partner Solar Photovoltaic Demonstration Site, and a limited-subscriber Green Power program that offers environmentally preferred electricity at a higher rate.

The Saskatoon Weir is an ideal location for expanding the City's clean power generation program to hydropower and there is support from the community and governing bodies in concept. Hydropower projects have been successfully implemented in other communities across Canada, although many don't maintain the low-profile design that will be proposed.

The pre-feasibility work completed to date clearly indicates that the hydropower station is expected to generate a positive internal rate of return, which means that the project is economically viable and would result in a profit for the project owners. Gross annual revenue streams are expected to be in the range of \$3.6 to \$5.1 Million, which would be used to repay capital and fund ongoing operating costs. This conclusion from the pre-feasibility study would need to be confirmed through a full feasibility study. The City's conclusion that the project is expected to be economically viable is further supported by the fact that two proponents have approached the Administration, requesting to build the project at no cost to the City.

In addition, the annual reduction in greenhouse gas emissions is estimated at 21,120 tonnes. A new feasibility study is required before any negotiations on power rates can begin.

In addition to economic and environmental benefits, the project includes necessary restoration to the weir infrastructure and an extension of the existing 33rd Street multi-purpose pathway, improving accessibility across the river.

### Saskatoon Tribal Council

The Saskatoon Tribal Council's agreement with the Federation of Sovereign Indigenous Nations identifies it as the representative for the seven First Nations communities in the Saskatoon area. Joint submission with the Saskatoon Tribal Council opens up additional funding and sponsorship opportunities for this project through the First Nations Power Authority and their agreement with SaskPower to support green power generation projects.

The combined strengths of the City of Saskatoon and the Saskatoon Tribal Council will result in a partnership where both partners are needed; both will be essential to the success of the project; and both will realize significant benefits.

### Community Support

Earlier stakeholder and community engagement shows a majority of citizens would support the project, as long as the current visual beauty, serenity and natural habitat is maintained. Attachment 1 provides new engagement activities identified for critical stages of the feasibility study to ensure this legacy project reflects the pride and community spirit of citizens, possibly as a signature project to recognize the spirit and importance of Honouring the Truth, and Reconciling the Future.

### Next Steps

Once the Memorandum of Understanding has been drafted by the Administration and the Saskatoon Tribal Council, it will be brought forward to each respective government for execution. Once approved, the partners will work together to resolve next steps including a procurement approach for further consideration by each agency.

Approval of the recommendations of this report do not give the Administration authority to proceed with procurement or construction. The Memorandum of Understanding is a partnership agreement to jointly investigate the next steps of the project. Subsequent reports will provide City Council with the information it needs to determine whether or not it will proceed with construction of the project.

### **Options to the Recommendation**

The City could approach SaskPower independently to negotiate a Power Purchase Agreement for the proposed hydropower station. This option is not recommended because the City would realize all of the benefits of a partnership with the Saskatoon Tribal Council identified in the report.

SL&P could interconnect the hydropower station to its own grid and offset bulk power purchases from SaskPower. This would be a wholly City led project, and the City could use the project towards its corporate or community emissions targets. This option is not recommended as the internal rate of return is lower than all other development concepts.

### **Public and/or Stakeholder Involvement**

Informal and formal conversations will be on-going with major stakeholder groups such as SaskPower, Meewasin Valley Authority, University of Saskatchewan, Saskatchewan Ministry of the Environment, Water Security Agency; community-based special interest groups; and adjacent residents.

### **Communication Plan**

While many of the project details are unknown until further work is carried out, citizens can find information about the project at [saskatoon.ca/hydropower](http://saskatoon.ca/hydropower). Communications planning will be ongoing as the project progresses and will include website updates, media relations and advertising where required to promote accomplishments and opportunities for citizens to engage.

A list of Frequently Asked Questions is included in Attachment 2.

A preliminary set of conceptual artist renderings of the proposed hydropower station is shown in Attachment 3, demonstrating the low-profile infrastructure and responsive design of the small facility that houses the controls.

### **Financial Implications**

Project investigation to date has been funded from Capital Project #1281 - Sustainable Power Generation Options.

The capital costs are expected to be in the order of \$61.5 million to \$65.2 million, although this is a preliminary estimate. Because the project is expected to be financially viable and provide a positive rate of return, there will be net financial benefit to the City. The cost of capital will need to be repaid, and after that the intent is that the project would provide a legacy source of revenue for the partners. In the short term, the City

may be able to construct the pedestrian walkway at no direct cost to the City, and rehabilitate the existing weir as part of the project. The amount of short-term revenue available to the City will be known once the feasibility study is complete and the first phases of the procurement process are complete.

**Other Considerations/Implications**

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

**Due Date for Follow-up and/or Project Completion**

Administration will present a proposed Memorandum of Understanding with the Saskatoon Tribal Council for City Council approval in 2017, to include terms of a partnership and proposed strategy for developing the hydropower project.

**Public Notice**

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

**Attachments**

1. Critical Activity and Community Engagement Timeline
2. Frequently Asked Questions – Hydropower Project
3. Rendering of Proposed Hydropower Station

**Report Approval**

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

EUCS NZ - Hydropower Joint Ownership Project with Saskatoon Tribal Council.docx

## SASKATOON WEIR HYDROPOWER STATION A Clean Power Project Partnership

### Critical Activity and Community Engagement Timeline

<b>Project Phase</b>	<b>Possible Citizen Involvement Activities</b>
<i>MOU Phase</i> March to June 2017	<ul style="list-style-type: none"> <li>• Present Memorandum of Understanding agreement and recommendation to City Council</li> </ul>
<i>Feasibility Study Phase</i> June to October 2017	<ul style="list-style-type: none"> <li>• Host Open Houses for City Park, North Park and Richmond Heights neighbourhoods</li> <li>• Meetings with relevant community organizations</li> </ul>
<i>Unsolicited Power Proposal Phase</i> September 2017	<ul style="list-style-type: none"> <li>• Updated webpages including project video and feedback from community meetings</li> <li>• Project updates to key community-based organizations as needed</li> </ul>
<i>Request for Proposal Phase</i> October 2017 to February 2018	<ul style="list-style-type: none"> <li>• Community newsletter #1 delivered to residents of City Park, North Park and Richmond Heights</li> <li>• Community “Walk and Talk” in early Fall</li> <li>• Project updates to key community-based organizations needed</li> </ul>
<i>Assessment Phase</i> February 2018 through 2019	<ul style="list-style-type: none"> <li>• Updated webpages with feasibility-level engineering and environmental assessment information</li> <li>• Project updates to key community-based organizations needed</li> </ul>
<i>Design-Build Phase</i> 2020 to 2021	<ul style="list-style-type: none"> <li>• Community newsletter #2 delivered to residents of City Park, North Park and Richmond Heights</li> <li>• Rotating project display in community</li> <li>• Site signage at both ends of Weir</li> <li>• Host Open Houses for City Park, North Park and Richmond Heights neighbourhoods</li> <li>• Solicit public feedback on Shaping Saskatoon platform and through Citizen Advisory Panel</li> <li>• Project updates to key community organizations as needed</li> </ul>
<i>Opening Phase</i> End of 2021	<ul style="list-style-type: none"> <li>• Updated webpages with photos of commissioning and internal operations</li> </ul>



## **SASKATOON WEIR HYDROPOWER STATION A Clean Power Project Partnership**

### **Frequently Asked Questions – Hydropower Project**

#### **1. What is being proposed at the Weir?**

The City of Saskatoon, through its electric utility Saskatoon Light & Power, is exploring the feasibility of developing a run of the river hydropower station at the weir in partnership with the Saskatoon Tribal Council.

#### **2. What changes to the existing weir and site are being proposed?**

If the project proceeds, the existing weir infrastructure would be renewed; a small-scale hydropower station would be built on the university side of the river, and a service/pedestrian bridge would be built for safer river crossing.

#### **3. What is the cost? What is the cost to City of Saskatoon taxpayers?**

The total estimated cost of the project is \$61.5 - 65.2 million. These costs are expected to be covered by an investment by the Saskatoon Tribal Council and private partners, off-set from revenue generated by the power station and funding from other levels of government.

In the short term, the City may be able to construct the pedestrian walkway at no direct cost to the City, and rehabilitate the existing weir as part of the project. A modest revenue stream in the short term may also be possible for the City. At the end of the procurement phase, the City and the Saskatoon Tribal Council will inherit the facility in good working order, which would provide a long term revenue source to both partners.

#### **4. Will raising the height of the weir affect the water supply?**

Saskatoon is very fortunate to have one of the world's largest earth dams (Gardiner Dam) upstream of us to create a large reservoir of fresh water (Lake Diefenbaker). If flows were to be severely reduced, the elevation of the weir would help ensure water continued to be available for the low-level Raw Water Intake facility.

#### **5. How will this affect the pelicans?**

The health and well-being of the pelicans will be protected and enhanced.

Pelicans feed at the weir site, but they do not nest there. The proposed project will enhance fish habitat and migration, and will retain much of the original weir structure, which will maintain attractive conditions for pelicans.

#### **6. How will this affect fish and other aquatic wildlife?**

Fish migration and habitats will be protected and enhanced.

The current Weir is a challenge for fish migration as the existing fish ladders are ineffective and impassable going upstream for most of the year. Also, the stretch of river between the Gardiner Dam the City is not particularly good fish habitat, in part because of the effects of the weir and dam.

The project will include an enhanced fish navigation channel in the project that will make fish migration easier. This bypass channel will use native bed materials and plant species to mimic natural rest and refuge areas. Flow through the channel will be supplied by natural river flow.

### **7. What is the expected noise level of the proposed plant?**

The 5.5 to 6.1 megawatt hydropower station will produce very little noise. The mechanical systems will be completely enclosed and submerged under the water. People using the pedestrian crossing would be able to have a conversation – without having to raise their voices – standing directly above it.

### **8. What will the hydropower station look like?**

At this early stage of the project, many details have to be finalized. As plans develop, we will seek community input on the proposed design of the plant.

We know that it will be small in scale and that it will be sensitive and responsive to its environment. For instance, we envisage a green roof on the facility – as a nod to green-friendly technology but also as a way of incorporating the structure into its natural surroundings.

### **9. Are there similar run of the river projects in other cities?**

There are many hydropower projects that vary in size. The difference with this proposed system is that most of the infrastructure will be below the water level and maintain a low profile.

### **10. Are the findings of the environmental and pre-feasibility engineering studies still valid?**

Yes. Pre-feasibility Engineering and Baseline Environmental studies were conducted in 2009 to gain a clearer understanding of the technical, environmental, and economic implications of a proposed hydropower station at the Saskatoon Weir. All technical and environmental conditions remain the same, making the data and findings of those reports still valid.

### **11. Why partner with the Saskatoon Tribal Council?**

There are many benefits to both partners. Highlights of benefits to the City include a stronger project team; broader access to provincial and federal funding programs; and honouring the City's commitments to the Truth and Reconciliation Commission's Calls to Action. A joint ownership of this project leverages on Saskatoon Tribal Council's alliance with the First Nations Power Authority, a non-profit organization that assists Aboriginal power producers in advancing power generating projects to SaskPower.

### **12. Why isn't the City going through a tendering process to solicit interest from potential partners?**

The feasibility study will explore the benefits of private partner to construct and operate the facility on behalf of the owners, the City of Saskatoon and Saskatoon Tribal Council. A partner would be selected through a competitive bidding process for the design, development and operation of the project.

### **13. You're exploring involving a private partner. Why doesn't SL&P just construct and operate the plant?**

It is yet to be determined who will operate the plant. Public-private partnerships are common and provide a way to finance and operate public facilities efficiently and affordably. It means that state-of-the-art facilities can come on stream faster and address community needs sooner.

### **14. What is the economic benefit to the City of Saskatoon?**

The pre-feasibility work completed to date clearly indicates that the hydropower station is expected to generate a positive internal rate of return, which means that the project is economically viable and would result in a profit for the project owners.

### **15. What are the benefits for the Saskatoon Tribal Council?**

Investment returns from the hydropower project will support community infrastructure and social programs in the Saskatoon Tribal Council member communities. First Nations can benefit from employment, training and education opportunities that extend beyond the construction phase. The project can lay the foundation for future business ventures in sustainable power and other industries.

### **16. How much power is produced through this process and what will the partners do with it?**

Depending on the final design, the station will produce enough green power for 2,400 to 3,500 homes each year. If approved by SaskPower, they would purchase the electricity and would contribute to their target to have 50 per cent of their generating capacity from renewables by 2030. This could yield a higher rate of return than using the power locally on Saskatoon Light & Power's grid.

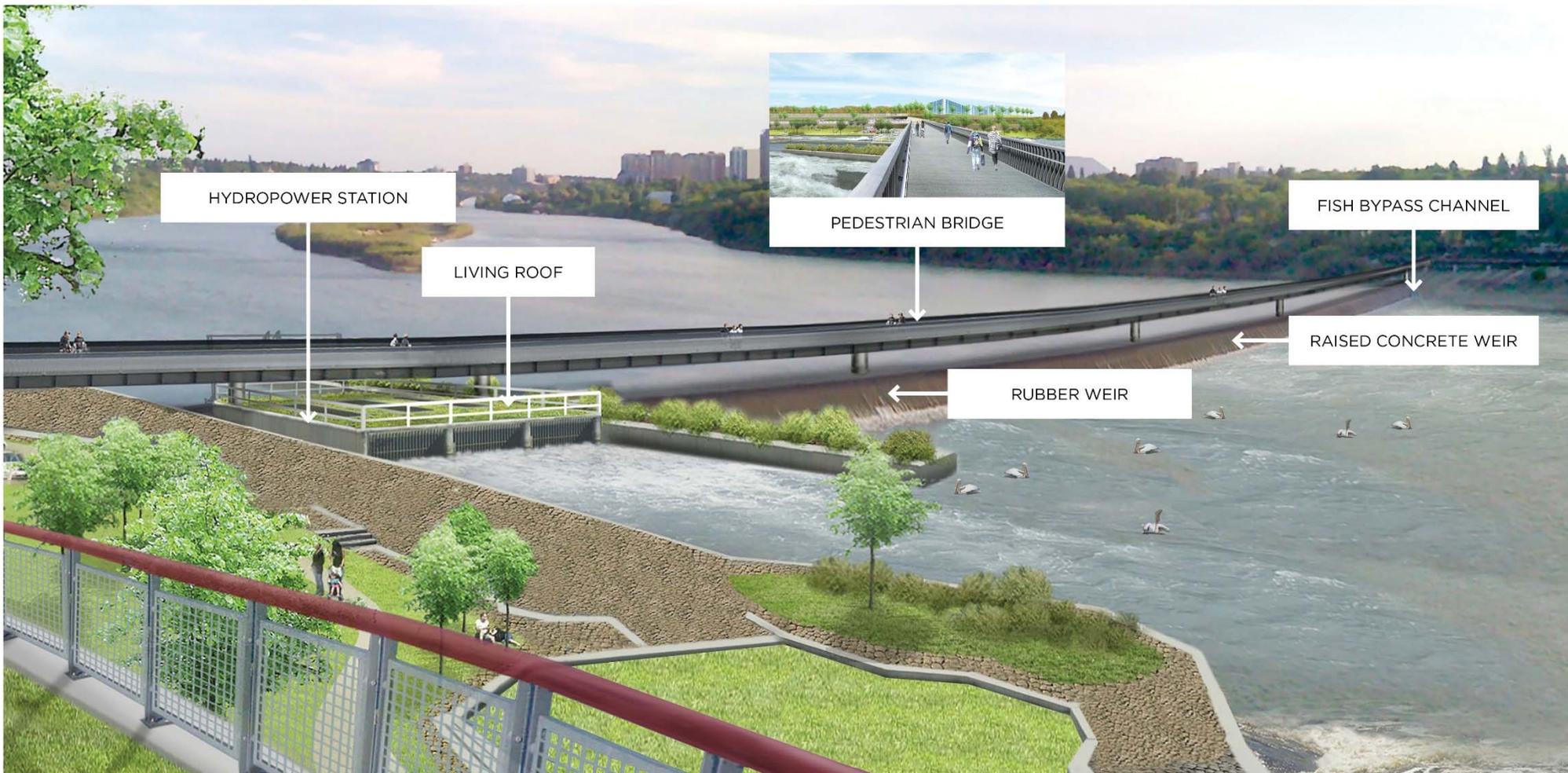
### **17. Why has the white water feature been pulled out of the scope of the project?**

Within the Recreation and Parks Master Plan (Master Plan), there were numerous indoor and outdoor recreation facility priorities identified. The current priorities for public recreational infrastructure investment were identified through extensive citizen consultation, and include a focus on reinvesting in existing recreation facilities and parks (i.e. leisure centres, play structures, park upgrades, paddling pools, etc.); potential partnerships around the development of indoor ice facilities; and the potential development of a recreation facility.

A facility such as a white water park was not identified in the list of high priorities. The Master Plan recommends that as facilities become more specialized or serve a smaller segment of the population the funding model for this type of project should include a combination of private/non-profit investment, fundraising, user fees, and potentially some public taxes.

Earlier studies confirmed that a white water park in conjunction with a hydropower plant at the weir is physically viable. To now proceed as part of the feasibility study of the hydropower project, the City would be seeking, from the community interest groups, a formal business plan for the operations of such a facility and private capital funding would have to be secured for the development and operation.





# SASKATOON WEIR HYDROPOWER STATION

A Clean Power Project Partnership

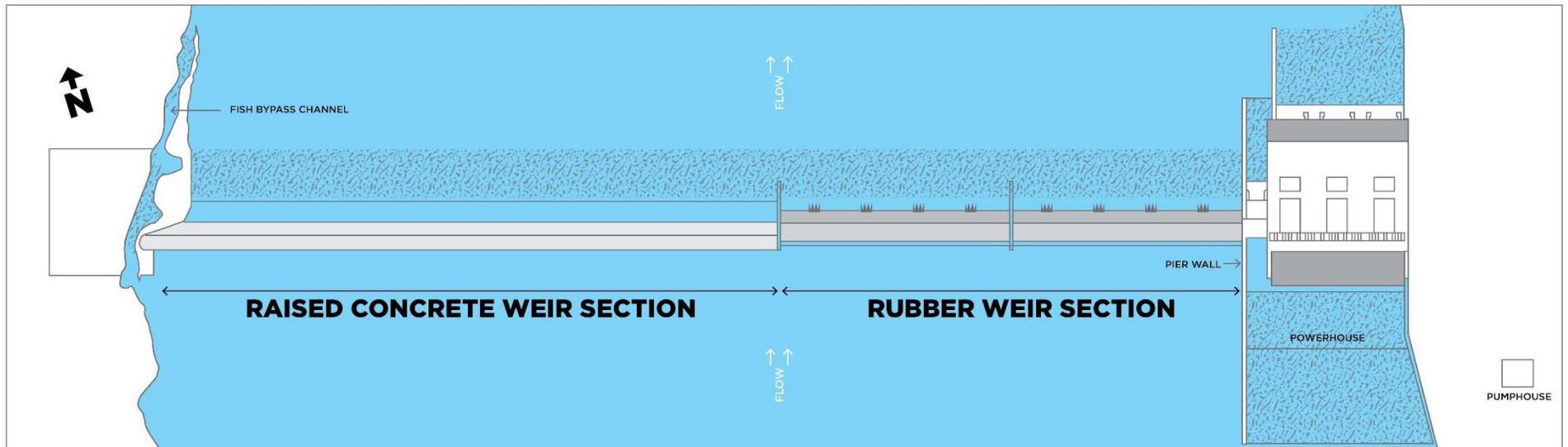




# **SASKATOON WEIR HYDROPOWER STATION**

**A Clean Power Project Partnership**

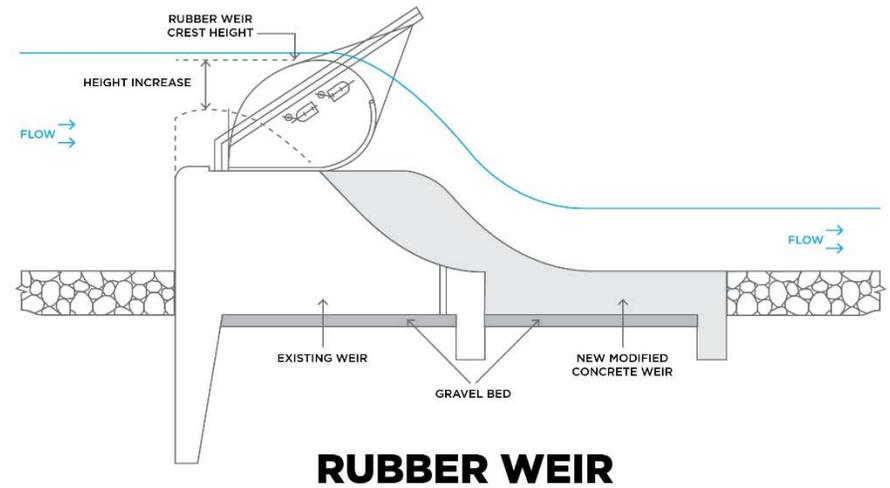
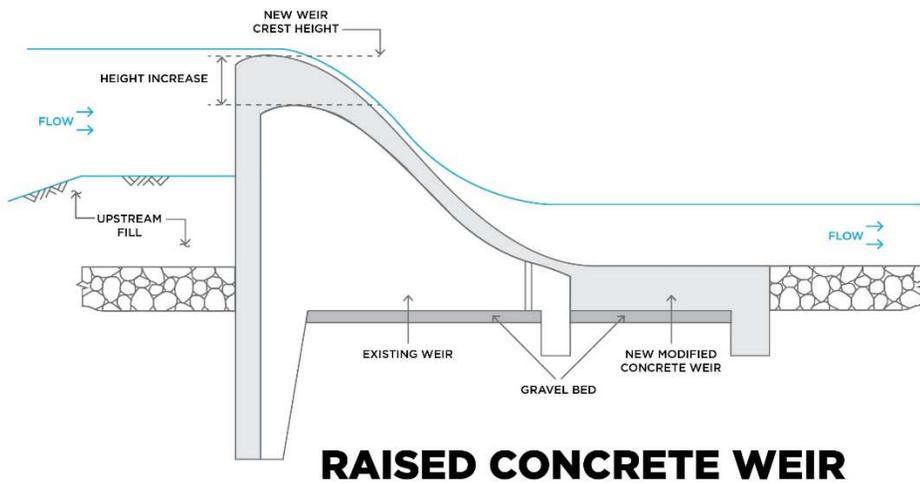




# SASKATOON WEIR HYDROPOWER STATION

A Clean Power Project Partnership





# SASKATOON WEIR HYDROPOWER STATION

A Clean Power Project Partnership



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## Property Owner Payment Deferral Options for Mandatory Lead Service Line Replacements

### Recommendation

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

1. That City Council approve adding three-year deferral and five-year deferral options for mandatory Lead Service Line replacements to the existing payment options with a tax deferral program similar to *The Low-Income Seniors Property Tax Deferral Bylaw, 2012*.
2. That City Council instruct the Solicitor's Office to prepare a new bylaw for this Lead Service Line replacement tax deferral program.

### Topic and Purpose

The purpose of this report is to obtain City Council's approval to alter the current payment options available to homeowners who must undergo mandatory Lead Service Line (LSL) replacements through City programs in an effort to make the costs more affordable for the homeowners.

### Report Highlights

1. The City is responsible for service connections from the main line to the property line; and homeowners are responsible for the portion from the property line to the building. In 2010, the City made it mandatory to fully replace failed/disturbed lead service connections.
2. A cost-sharing program is offered to homeowners who qualify; the City pays 60% of the replacement costs, and the homeowner pays 40%, with a cap on the homeowner's costs.
3. In May 2016, City Council approved the accelerated replacement of LSLs; therefore, the remaining 4900 LSLs will be replaced by the end of 2026.
4. Federal Clean Water & Wastewater Fund (CWWF) money is being used to replace approximately 900 LSLs as part of Capital Project work in 2017.
5. Administration recently hosted two Information Sessions for the CWWF projects. Feedback from residents who are to undergo mandatory LSL replacement showed a great desire for change in the payment options.

### Strategic Goals

The information presented in this report support the Strategic Goals of Quality of Life and Asset and Financial Sustainability. Lead service connections have been identified as potential health risks; therefore, the full replacement of lead connections is a strategy to reduce this risk and improves quality of life by virtually eliminating the need for affected property owners to take daily action to reduce their exposure to lead in their drinking water. Revising the payment options will help to ensure failing infrastructure

and service connections made of materials no longer in compliance with the specifications are being replaced in a cost-effective manner to both the homeowner and the City.

### **Background**

The Water and Sewer Service Connection Rehabilitation on Private Property - Disturbance of Lead Water Service Connections report was adopted by City Council, at its meeting held on April 12, 2010.

*The Low-Income Seniors Property Tax Deferral Bylaw, 2012* was approved and came into effect at the April 2012 Council Meeting. This bylaw allows low-income seniors to have some or all of their property taxes deferred with an annual application to Council.

A report recommending an accelerated approach to LSL replacement was received as information by the Standing Policy Committee on Environment, Utilities and Corporate Services on May 9, 2016, and budget considerations were approved during the 2017 Budget deliberations.

On June 27, 2016, a report recommending the use of CWWF money to accelerate LSL replacements in addition to water and sewer main replacement was adopted. In addition, at the June 2016 Council meeting Bylaw 8880, *The Private Sewer and Water Service Connection Bylaw, 2010* was updated to reflect the current LSL replacement practices.

### **Report**

The City has mandated that the full LSL must be replaced when it leaks or becomes disturbed, as failure to do so can increase lead levels in the water inside the affected home. In an effort to make this program more palatable and affordable for homeowners who are required to undergo this work, the homeowner cost has been capped at 40% of the contract cost of the connection replacement (based on the City's annual LSL replacement contract). There have been three payment options made available to homeowners:

1. Pay the whole amount directly to the contractor who does the work;
2. The City pays the Contractor and adds the amount on to the following year's property taxes, interest free; and
3. Homeowners who fall below the Low Income Cut-Off (LICO) mark as set out by Statistics Canada qualify for a 10-year payment deferral of the LSL replacement amount that has been added to their property taxes, which is not interest free. The interest rate for this option is currently set by Corporate Revenue.

The current payment contract with these options is shown in Attachment 1 - Current Selection of Option Contract Package.

Starting in 2017, the City will be implementing an accelerated approach to replacing the remaining LSL inventory. This means that all remaining 4900 LSLs will be replaced in

the next 10 years and that the LSL replacement work will now be coordinated with water main replacement work. On top of the accelerated approach, the CWWF grant allows for the completion of a large volume of work in 2017. In short, approximately 900 LSLs will be replaced in 2017 using a more neighbourhood-based approach than in previous years. The distribution of the remaining LSL inventory is shown in Attachment 2 - 2016 Lead Service Line Inventory.

The recommendation is that City Council approve adding the following payment options to the existing payment options:

1. The City pays the Contractor and adds the amount on to the following year's property taxes. This amount is then deferred and repaid by the homeowner over a three-year period; and
2. The City pays the Contractor and adds the amount on to the following year's property taxes. This amount is then deferred and repaid by the homeowner over a five-year period.

These two payment options would allow property owners to repay the City over either a three-year period or a five-year period by having a decreasing portion of the original amount deferred each year until the amount is paid off and the lien discharged. The property owner would not need to meet the LICO criteria to qualify for these options. There would be an administration fee charged for each option, one fee for the three-year option and one fee for the five-year option, in order to recover the City's administrative costs related to processing of the payment and registering the amount as a tax lien on the property. These administration fees would be calculated and updated by Corporate Revenue. The property owner would make a one-time deferral application for the time period of their choice when they sign the payment option contract and would not need to make an annual deferral application. If the property is sold, the property owner dies, or the property owner defaults on the payments then the remaining balance of the amount would become due and owing, similar to the structure of *The Low-Income Seniors Property Tax Deferral Bylaw, 2012*.

If the recommendation is approved and until the new bylaw can be drafted and approved, as an interim solution Administration would advise affected homeowners that additional three-year and five-year payment options are being set up and that until the new bylaw is in place they should choose the existing one-year add to taxes option. Homeowners who indicate they intend to utilize the three and five year deferral plans will be contacted by Administration once the new bylaw is approved, and will be provided with the deferral application that will be developed.

The new payment options will be offered to homeowners who had or are scheduled to have their connection replacement on or after January 1, 2017. Homeowners who had their connections replacement prior to January 1, 2017, would not be eligible for the new payment options as their replacement amounts would already be applied to their property taxes.

### **Options to the Recommendation**

One option is to keep the existing payment options. This means that over the next ten years of accelerated LSL replacement, homeowners who do not qualify for the 10-year LICO deferral would see an increase of \$260.00 per month or more added to their property taxes for one year.

### **Public and/or Stakeholder Involvement**

Administration recently hosted two Information Sessions for the CWWF projects. Feedback from residents who are to undergo mandatory LSL replacement showed a great desire for change in the payment options.

### **Communication Plan**

Information explaining the CWWF projects and associated LSL replacements has already been communicated to the affected residents. Any changes in payment options and associated costs will be provided to the homeowners whose residences are scheduled for LSL replacement in 2017.

### **Policy Implications**

It would be necessary for the City Solicitor's Office to draft a new bylaw governing this new tax deferral program for LSL replacements. Administration could selectively apply eligibility criteria from existing bylaws, with Council approval, until the new bylaw can be drafted and approved.

### **Financial Implications**

As it is difficult to determine the exact uptake in the deferral program and which options will be selected by residents, the financial implications represent an estimate based on certain assumptions.

The largest financial impact to the City would be if 100% of residents selected the 10-year deferral option. This would result in the following:

1. Approximately \$1.0M in interest revenue for the City of Saskatoon would be forgone. This interest is revenue that the City would have otherwise received on its investment earnings.
2. Due to the timing of repayments, the most the City would expect to have outstanding at any given time would be approximately \$5.0M (in year 10). These loans would be supported by the City's cash holdings, which are estimated to be sufficient to support the program.

As not all residents are expected to select the five-year deferral option, the actual Financial Impact to the City will be between \$0 and \$1.0M in interest revenue and between \$0 and \$5.0M in outstanding deferrals at any given time.

### **Environmental Implications**

Historical use of lead for manufacturing of materials such as plumbing pipes and fixtures, paints, and gasoline additives has dispersed lead extensively throughout our environment. Today, lead is understood to be a significant environmental hazard, with

long-term human health impacts linked to exposure. Governments began phasing out lead in manufacturing in the 1970s; food and drinking water are now identified as the primary source for lead exposure in Canada. Full replacement of LSLs is an effective action the City can take to mitigate long term health risks for residents.

Replacement of LSLs will also result in the consumption of energy and materials and the generation of greenhouse gas emissions. The overall impact on greenhouse gases has not been quantified at this time.

**Other Considerations/Implications**

There are no privacy, or CPTED implications or considerations.

**Due Date for Follow-up and/or Project Completion**

Administration is currently contacting homeowners to obtain the necessary agreements to perform LSL replacement work during the 2017 construction season. Changes in payment options should be implemented no later than May 1, 2017. All CWWF funded work must be complete by March 31, 2018.

**Public Notice**

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

**Attachments**

1. Current Selection of Option Contract Package
2. 2016 Lead Service Line Inventory

**Report Approval**

Written by: Caleb Ripley, Project Engineer, Construction & Design  
Reviewed by: Sohrab Khan, Senior Project Management Engineer, Construction & Design  
Reviewed by: Matt Jurkiewicz, Engineering Manager, Construction & Design  
Reviewed by: Celene Anger, Director of Construction & Design  
Reviewed by: Clae Hack, Director of Finance, Asset & Financial Management  
Reviewed by: Shelley Sutherland, Director of Corporate Revenue, Asset & Financial Management  
Reviewed by: Kerry Tarasoff, CFO/General Manager, Asset and Financial Management Dept.  
Approved by: Jeff Jorgenson, General Manager, Transportation & Utilities Department

EUUCS CR - Property Owner Payment Deferral Options for Mandatory Lead Service Line Replacements

## Water and Sewer Connection Replacement Selection of Option Contract

**Between the Property Owner and the City of Saskatoon and the Contractor**

The Property Owner has lead water connection service lines that must be replaced right up to the water meter in the Property Owner's house. The Property Owner (or authorized agent on behalf of the Property Owner) has chosen to have this work done and paid for as indicated by the boxes marked below:

1.  **Use City's Contractor:** The Contractor will replace the water and sewer line up to the outer wall of the house only for \$3,016.00 + GST. NOTE: (1) The Property Owner is responsible for all costs of water and sewer hook-up from there, including replacing the lead line right up to the water meter. (2) This does not include landscaping or other restoration on private property. **If choosing this option, choose payment option A or B below:**
  - A.  Pay Contractor Directly. The Property Owner agrees to pay the Contractor directly for the above amounts. The Property Owner agrees that clause 4, *Warranty* from the attached Deferred Payment Terms and Conditions applies.
  - B.  The City pays the Contractor on behalf of the Property Owner, and the Property Owner agrees to have that amount added to the 2018 property taxes. The Property Owner agrees that the Deferred Payment Terms and Conditions attached apply in full, and agrees that the signature on this document authorizes the City and the Contractor to proceed as per the Deferred Payment Terms and Conditions attached hereto.

**OR**

2.  **Use Independent Contractor:** The Property Owner will arrange to hire a licensed water and sewer contractor to replace the lead water service connection, from the property line to the water meter, of the property outlined below, by \_\_\_\_\_. The Property Owner understands that if work required is not completed by the stated date, the City will arrange to have the work done and the full costs thereof will be charged to the property taxes pursuant to Sections 22, 24, 333 and 361 of *The Cities Act*, and the Property Owner hereby authorizes the same.

3. The address of the property having connection replaced is: \_\_\_\_\_

4. Property Owner's Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Telephone: (\_\_\_\_) \_\_\_\_\_

Email: \_\_\_\_\_

\_\_\_\_\_  
Signature of Property Owner (or Authorized Agent)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Witness

\_\_\_\_\_  
Name of Witness (please print name)

**If applicable:** As Authorized Agent, I represent and warrant to the City and the Contractor that I have the Property Owner's full legal authority to enter into this Agreement on his or her behalf.

\_\_\_\_\_  
Name of Authorized Agent (please print name)

\_\_\_\_\_  
Address & Telephone Number

## Deferred Payment Agreement Terms and Conditions

Whereas the City, by means of the Contractor, is replacing or repairing the City's water and/or sewer line to which the Property Owner's property connects; and

Whereas the Property Owner has retained the City's Contractor to replace the Property Owner's water and/or sewer connection at the same time;

And Whereas the Property Owner has chosen not to pay the Contractor directly, but has chosen to use one of the payment deferred options described below;

Now Therefore, parties hereby agree:

### **The City will pay to the Contractor on behalf of Property Owner, and Property Owner will Reimburse the City**

1. In consideration of the work and services supplied by the City's Contractor, the Property Owner understands and agrees that upon the Property Owner providing the Signed Original copy of this Agreement to the Contractor, along with a signed copy of the Contractor's invoice indicating that the work has been completed, the City will pay, on behalf of the Property Owner, the above sum plus GST to the contractor on the Property Owner's behalf.
2. The Property Owner agrees that the Property Owner will reimburse the City for such sum paid by the City to the Contractor on the Property Owner's behalf as follows:

(a)  **Short Term Deferral**

The Property Owner agrees that if the work and services are provided before September 30th, of any year, the said amount will appear as a pending liability on the Property Owner's property tax information and will be added to the Property Owner's property taxes for the following year, and is payable in full on or before June 30th, of that following year. If the work and services are provided after September 30th, in any year, the said amount will appear as a pending liability on the Property Owner's property tax information and will be added to the Property Owner's property taxes for the year after the following year, and will be payable in full on or before June 30th, of the year after the following year.

[For example, for work done in August, 2017, the amount will be added to the 2018 taxes and is payable in full on or before June 30, 2018. For work done in October, 2017, the amount will be added to the 2019 taxes and is payable in full on or before June 30, 2019. If the Property Owner uses TIPP's, the appropriate sums will be added and charged through that program.]

**OR**

- (b)  **Long Term Deferral** (Available ONLY to Qualified Low Income Property Owners)

**Qualified Low Income Earner** means a person with an income lower than the Low Income Cut Off (LICO) published by Statistics Canada from time to time. Complete the attached Schedule "A" if you qualify. If you do, the completed Schedule "A" and documents required by Schedule "A" must be submitted directly to the City in the envelope provided for verification by the City.

The Property Owner agrees that the amount due for the work and services, plus a property tax lien fee of \$90.00, will be added to the Property Owner's property taxes. Then, 1/10th of the above sum is due and payable on or before June 30th of the following year. In each year thereafter, 1/10th of the said above sum, plus interest on the entire outstanding balance at 3.20% per annum, is due and payable on or before June 30th of each following year until the full amount (and interest) has been paid in full. These are the minimum payments required, but the Property Owner may pay additional sums, if desired, in which case the sums owing will be adjusted accordingly.

[For example, if the work and services are \$2,000.00, and the work is done in 2016, the sum of \$2,090.00 will be added to the 2018 property taxes. Then, on June 30, 2018, 1/10th of the amount (\$209.00) is due and payable. On June 30, 2019 to and including June 30, 2027, the sum of \$209.00, plus interest on the entire balance outstanding at 3.20% per annum is due and payable. If the Property Owner uses TIPP's, the appropriate sums will be added and charged through TIPP's.]

### **What happens if Property Owner fails to repay the City**

3. If the Property Owner fails to pay any of the sums on the due date or dates, the amounts then due, together with and any future sums that may become due, shall be due and payable immediately as arrears of taxes, and the City shall be entitled to collect the same as property tax arrears, together with the City's normal penalties and interest through the City's normal property tax collection system, up to and including taking the property for unpaid taxes.

### **Warranty**

4. The Property Owner and the Contractor agree that any warranty for the work done by the Contractor for the Property Owner is provided by the Contractor, and they both agree that the City has not and does not warranty the Contractor's work, and the City is not liable for such work in any circumstances.

## Schedule "A" LICO Application Form – Long Term Deferral

### Applicant Information

Name: \_\_\_\_\_

Property Address: \_\_\_\_\_

Telephone: ( \_\_\_\_\_ ) \_\_\_\_\_

Email: \_\_\_\_\_

A Saskatoon household whose total household income falls under Statistics Canada's Low Income Cut Offs (LICO) is eligible for this program. Below is a chart that outlines LICO's maximum acceptable income levels per household based on the number of people in the immediate family. Please refer to this chart to see if your household qualifies.

Size of Family Unit	1	2	3	4	5	6	7 or more
<b>Total Household Income</b>	\$20,952	\$26,082	\$32,065	\$38,931	\$44,154	\$49,800	\$55,444

**Documentation Required** Income Verifying Requirement: A copy of your most recent Notice of Assessment from Canada Revenue Agency is **REQUIRED** for each adult (married or common-law) within your household. If you do not have a copy of your Notice of Assessment, it can be obtained by calling 1-800-959-8281 and it will be mailed to you. Request the Option C Form or a Verified Copy of your most recent Income Tax Return.

**Household Members** If you qualify and wish to utilize this program, in the table below, list the people in your immediate family (parents/guardians and their children who are under 19 years of age) that are currently living in your household along with their income from line 150 on the most recent Notice of Assessment from Revenue Canada. This includes a maximum of two adults. **Please print clearly.**

*Note: Adult children 19 years of age and over, roommates or other non-immediate family members, such as grandparents, are not to be included in your household numbers for the purposes of this application.*

	Last Name	First Name	Date of Birth	Income Level
<b>Applicant</b>				
<b>Spouse/Partner</b>				
<b>1<sup>st</sup> Dependent</b>				
<b>2<sup>nd</sup> Dependent</b>				
<b>3<sup>rd</sup> Dependent</b>				
<b>4<sup>th</sup> Dependent</b>				

I certify that all the information provided is correct, and hereby apply for Long Term Deferral set out in this application form and agree to be bound by the terms set out above.

\_\_\_\_\_  
Signature of Applicant

\_\_\_\_\_  
Date

***The City of Saskatoon reserves the right to verify information provided on and with this application form.***

January 2017

## Lead Connection Information Sheet

According to our records, your home has a lead service connection, which is the pipe that supplies water from the water main in the street to your house. Most houses built prior to 1949 (approximately 6,000 homes in Saskatoon) have this type of connection.

As part of the City's regularly-scheduled replacement of deteriorated water and sewer mains, we will be in your area this spring replacing water service lines that run from the street to the houses.

We will be requiring replacement of your portion of the pipe as well, for health and safety reasons outlined in the formal letter. Some new information has been used from the American Water Works Association (AWWA), dated February 3, 2010, stating that:

“Permanently reducing lead in drinking water fundamentally rests on removing lead material from contact with drinking water, including lead service lines. Because customers are frequently reluctant to replace the portion of the lead service lines under their control, utilities sometimes replace on the utility portion of the line.

Recent utility research suggests that disrupting lead service lines—as occurs during lead service line replacement—substantially increase lead levels for a period of time. When lead pipe remains after the disruption, lead levels can continue to be elevated longer.”

### Is there lead in the drinking water system? What is the acceptable level?

The drinking water leaving the Saskatoon Water Treatment Plant and in the distribution system is virtually lead free. However, lead may be present in household tap water due to its presence in the service connection or in household plumbing systems containing lead, including solder and brass fittings.

Small amounts of lead can dissolve into drinking water when it sits in household plumbing. In Saskatoon, water is treated such that it leaves a deposit which coats the plumbing system, and along with other water quality characteristics, may help reduce water contact with lead service connections or lead in plumbing systems.

Excess quantities of lead may impact human health, especially in small children; therefore, a very conservative limit has been set by Health Canada at 0.010 mg/L of lead in drinking water. This limit is based on long-term chronic effects, so short-term consumption of water above this limit does not necessarily pose undue risk to health. The lead level content in Saskatoon drinking water when it enters the distribution systems is less than 0.0001mg/L or 100 times lower than the Health Canada Limit.

Lead is also commonly found in soil, food, and consumer products.

### Some additional resources you can check out:

For additional information, visit Health Canada's website on drinking water at [www.hc-sc.gc.ca/ewh-smpt/pubs/water-eau/lead-plomb-eng.php](http://www.hc-sc.gc.ca/ewh-smpt/pubs/water-eau/lead-plomb-eng.php) and the American Water Works Association at: <http://www.awwa.org/publications/StreamlinesArticle.cfm?itemnumber=53926>

### Electrical Inspections

#### NOTICE

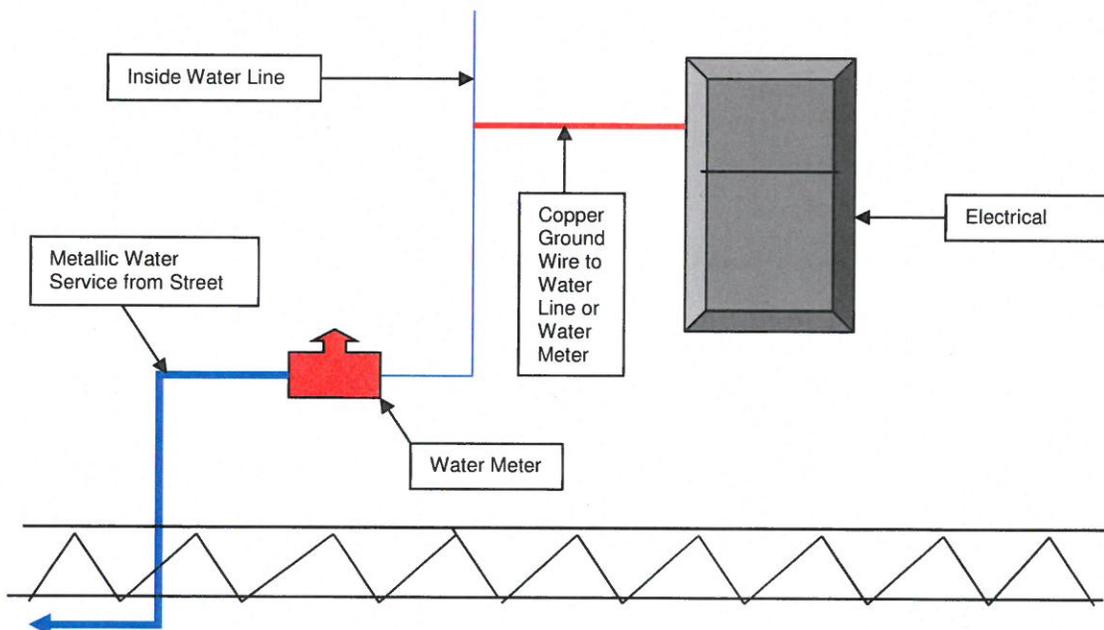
Old metallic water services (lead) are being replaced with new plastic lines in many areas in the city of Saskatoon.

In many cases the existing water service is being used as the grounding means for the electrical service in the house. Removal, or modification, of the metallic water line may disrupt the integrity of the grounding system for the house.

For the safety of you and your family, it is very important that the electrical service remain securely grounded at all times.

If the ground for the electrical service in your home has been altered in any way, please contact a licensed Saskatchewan Electrical Contractor immediately and have them check, and/or repair, the grounding connection to the electrical service.

**If you have any questions or concerns, please call SaskPower's toll free number: 1-888-757-6937**



(4) Notwithstanding subsections (1) to (3), a designated officer shall not enter any place that is a private dwelling without:

- (a) the consent of the owner or occupier of the private dwelling; or
- (b) a warrant issued pursuant to section 325 from a justice of the peace or a provincial court judge authorizing the entry.

2002, c.C-11.1, s.20.

**Right of entry re reading meters**

21 A city may enter any land or building to which a public utility service is provided:

- (a) for the purpose of reading meters; and
- (b) after making a reasonable effort to notify the owner or the occupant, for the purpose of installing, inspecting, replacing or removing meters and conducting sampling tests.

2002, c.C-11.1, s.21; 2003, c.18, s.7.

**Service connections**

22(1) The owner of a parcel of land is responsible for the construction, maintenance, repair and replacement of a service connection of a public utility located above, on or underneath the parcel of land, unless otherwise determined by the city.

(2) If the city is not satisfied with the construction, maintenance, repair or replacement of a service connection by the owner of a parcel of land, the city may require the owner to construct, maintain, repair or replace the service connection of a public utility in accordance with the city's instructions within a specified time.

(3) If an owner does not comply with a requirement of a city to the satisfaction of the city within the specified time, or in an emergency, the city may enter any land or building to construct, maintain, repair or replace the service connection.

(4) Notwithstanding the other provisions of this section, the council may, as a term of providing a public utility service to a parcel of land, give the city the authority to construct, maintain, repair and replace a service connection located above, on or underneath the parcel.

(5) A city that has the authority to construct, maintain, repair or replace a service connection pursuant to subsection (4) may enter any land or building for that purpose.

(6) After the city has constructed, maintained, repaired or replaced a service connection pursuant to subsection (5), the city shall restore any land it entered for that purpose as soon as is practicable.

(7) The city's costs relating to the construction, maintenance, repair or replacement and restoration pursuant to this section are an amount owing to the city by the owner of the parcel of land, unless otherwise determined by the city.

2002, c.C-11.1, s.22.

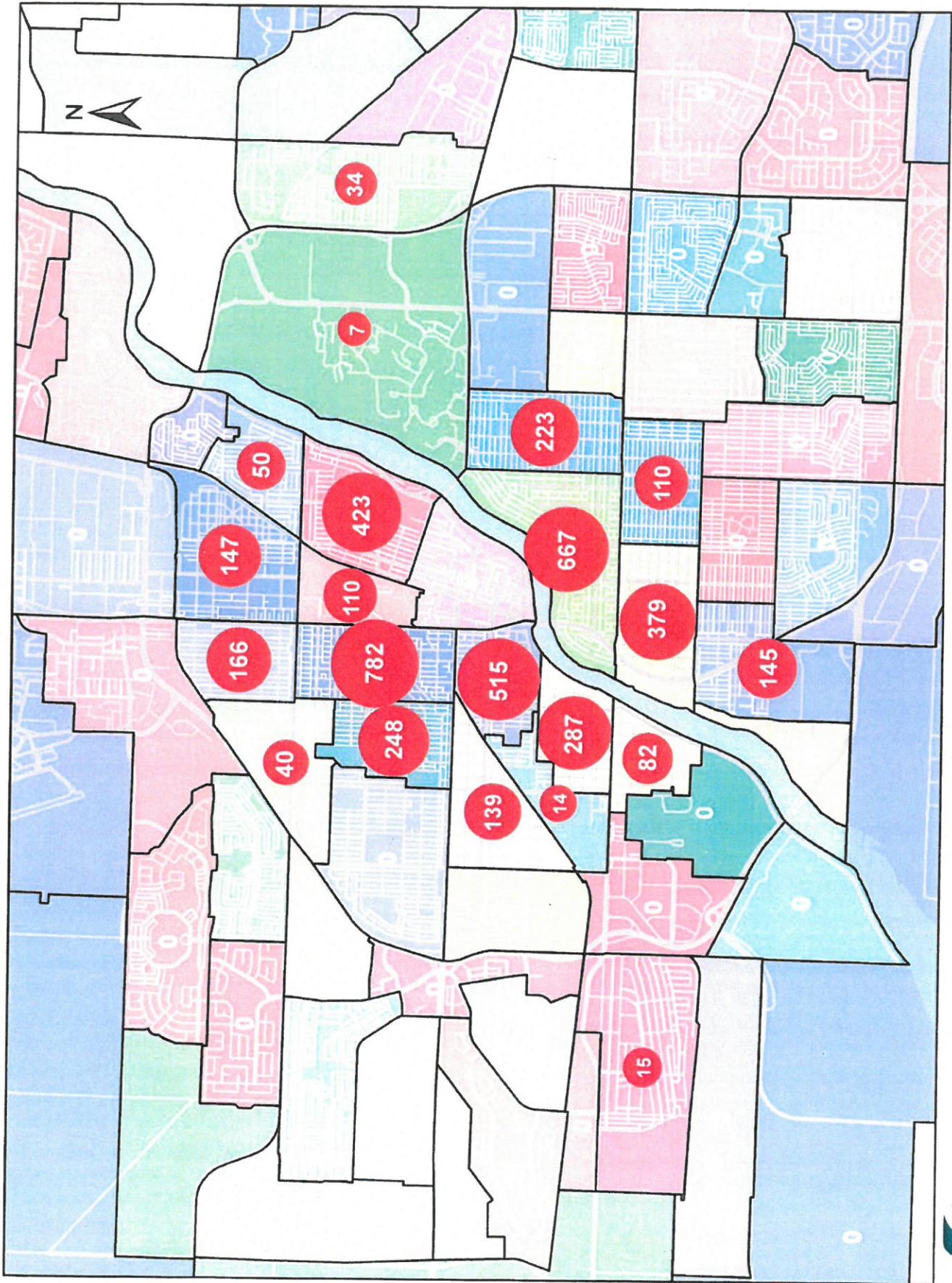


Figure 1  
2016 Lead Service Line Inventory

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## **Budget Adjustment Request #2 - Capital Project #625-22 – Trunk Sewer – NE Sector – Lift Station to Central Avenue Trunk**

### **Recommendation**

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

That a budget adjustment of \$451,400 to Capital Project #625-22 – Trunk Sewer – Northeast Sector – MI – Force Main – UH2 – Lift Station to Central Avenue Trunk funded from the Trunk Sewer Reserve be approved.

### **Topic and Purpose**

The purpose of this report is to request City Council approval for a budget adjustment to Capital Project #625-22 – Trunk Sewer – Northeast Sector – MI – UH2 – Lift Station to Central Avenue funded by the Trunk Sewer Reserve.

### **Report Highlights**

1. The completion of Capital Project #625-22 in 2015 was identified as a priority to enable Aspen Ridge lot sales.
2. Capital Project #625-22 requires an increase in funding allocation to finalize payments on Contract #13-0643 and to complete the project. The final payments are for services that were in dispute, and for purchase of force main materials.

### **Strategic Goals**

The recommendations support the Strategic Goals of Sustainable Growth as the work done under this contract will provide sanitary and water main infrastructure.

The recommendations also support the Strategic Goal of Quality of Life as the installation of a new force main sewer with a vortex flow structure (controls odour release) will help alleviate odour issues that area residents could otherwise experience.

### **Background**

In 2013, the City awarded Contract #13-0643, Aspen Ridge Force Main. The scope of the work was to install a force main along Central Avenue to the newly installed lift station in Aspen Ridge. Due to contractor issues regarding performance and safety, a significant portion of the work from Contract #13-0643 was removed from the contractor and tendered with the work in Contract #14-0058. The Contractor continued to have difficulties on the remaining scope of work on Contract #13-0643 which resulted in a dispute of payment. The force main is now repaired, completed and fully commissioned.

**Budget Adjustment Request #2 - Capital Project #625-22 – Trunk Sewer – NE Sector – Lift Station to Central Avenue Trunk**

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**Report**

Scope of Work

Since the completion of the force main in late 2015, the disputed services and materials have been resolved.

Contract #14-0058 required a budget adjustment which was requested in a separate report that went to City Council on May 24, 2016. (Attachment 1). When final costs on the project were calculated, they did not take into account outstanding charges in dispute on Contract #13-0643, while Contract #14-0058 was paid out in full. This has resulted in a funding deficit in Capital Project #625-22 – Trunk Sewer – Northeast Sector – Lift Station to Central Avenue Trunk.

**Financial Implications**

Capital Project #625-22 Force Main, Lift Station to Central Avenue Trunk, Installation was approved for funding in the amount of \$3,742,000. An additional \$868,000 was approved by City Council on May 24, 2016, which was required to remediate and complete the construction of the force main. Completion of the project including dispute resolution with the original contractor is expected to result in an additional \$430,000.

Total costs of this project are summarized below:

Project #625-22 Approved Funding	\$3,742,000
Budget Adjustment Approved on May 24, 2016	<u>868,000</u>
Adjusted Funding Available	<u>\$4,610,000</u>
Expenditures to Date	\$4,632,000
Contractor Settlement	358,000
Additional Project Costs to Complete	<u>72,000</u>
Total Expected Expenditures	<u><u>\$5,062,000</u></u>
 Budget Shortfall	 <u>\$ 430,000</u>

There is sufficient funding in the overall Land Development Prepaid Service Reserve to fund this request.

Even with this overage, and taking into account the previous budget adjustment of \$867,510.00, the total cost for Project #625-22 is less than the original Engineers estimate of \$5.3M.

**Environmental Implications**

The project has been executed in full consultation with Meewasin Valley Authority (MVA). All MVA requirements were monitored during construction by City staff. If any design/construction changes affected MVA land/requirements, MVA representatives were consulted. Therefore, the minimum environmental impact possible has been achieved.

**Other Considerations/Implications**

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

**Due Date for Follow-up and/or Project Completion**

Contract #13-0643, Aspen Ridge, was halted on September 16, 2014, because of inadequate Contractor performance. Contract items in dispute have been resolved (between City and Contractor) and it is the goal to make final payment by the end of March, 2017.

**Public Notice**

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

**Attachment**

1. Budget Adjustment Request – Capital Project #625-22 – Trunk Sewer – NE Sector – Lift Station to Central Avenue Trunk

**Report Approval**

Written by: Andy McMeekin, Project Engineer, Construction & Design  
Reviewed by: Matt Jurkiewicz, Senior Project Management Engineer,  
Construction & Design  
Reviewed by: Celene Anger, Director of Construction & Design  
Approved by: Jeff Jorgenson, General Manager, Transportation & Utilities

EUCS AM - Budg Adjust2-CP625-22 Trunk Sewer - NESector-Lift Station-Central Ave Trunk

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## Budget Adjustment Request - Capital Project #625-22 – Trunk Sewer – NE Sector – Lift Station to Central Avenue Trunk

### Recommendation

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

1. That the Administration be given approval for Contract #14-0058, Central Avenue and Fedoruk Drive to exceed 25% of the contract value; and
2. That a budget increase of \$868,000 for additional funding from the Trunk Sewer Reserve for Capital Project #625-22 – Trunk Sewer – Northeast Sector – MI – Force Main – UH2 – Lift Station to Central Avenue Trunk be approved.

### Topic and Purpose

The purpose of this report is to request approval to exceed 25% of the contract value and to request City Council approval for a budget adjustment to Capital Project #625-22 – Trunk Sewer – Northeast Sector – MI – UH2 – Lift Station to Central Avenue to be funded by the Trunk Sewer Reserve.

### Report Highlights

1. The completion of Capital Project #625-22 in 2015 was identified as a priority to enable Aspen Ridge lot sales.
2. Capital Project #625-22 requires an increase in funding allocation to complete Contract #14-0058. Contract completion is scheduled for the 2016 construction season.
3. Incomplete work from Contract #13-0643, Aspen Ridge Force Main, was transferred to Contract #14-0058, Central Avenue and Fedoruk Drive.

### Strategic Goals

The recommendations support the Strategic Goals of Sustainable Growth as the work done under this contract will provide sanitary and water main infrastructure.

The recommendations also support the Strategic Goal of Quality of Life as the installation of a new force main sewer with a vortex flow structure (controls odour release) will help alleviate odour issues that area residents could otherwise experience.

### Background

Contractor failure on the Aspen Ridge Force Main resulted in the Administration removing incomplete work from that contract and adding the work to another contract.

## Report

### Scope of Work

In 2013, the City awarded Contract #13-0643, Aspen Ridge Force Main. The scope of the work was to install a force main along Central Avenue to the newly installed lift station in Aspen Ridge. Due to contractor issues regarding performance and safety, a significant portion of the work from Contract #13-0643 was removed from the contractor.

At that time, Acadia Construction was working on an adjacent contract, Contract #14-0058, Central Avenue and Fedoruk Drive. Acadia Construction was approached regarding completion of the remaining work on Contract #13-0643. Completion of the Aspen Ridge Force Main was identified as a corporate priority. Acadia Construction accepted this work under a contract extension to Contract #14-0058. The force main is now repaired, completed and fully commissioned.

### **Communication Plan**

Due to the complexity and delays associated with this project, and the expression of concern from residents, a communication plan would be beneficial. In addition to construction notices in advance of work, this plan could include a letter to the community providing basic project history. This will help residents feel more included in the process and aware of the project's progress.

### **Financial Implications**

Details of the estimated project cost that pertain to the contract and individual projects are as follows:

Contract #14-0058 - Central Avenue and Fedoruk Drive:

Original Contract	\$4,578,683.80
Contingency	650,000.00
GST	<u>261,434.19</u>
Total Original Contract Cost	\$5,490,117.99
GST Rebate	<u>261,434.19</u>
Net Cost to City	<u>\$5,228,683.80</u>

Estimated Contract Value Upon Completion:

Estimated Final Contract Cost	\$6,523,608.45
GST	<u>326,180.42</u>
Total Contract Cost	\$6,849,788.87
GST Rebate	<u>326,180.42</u>
Net Cost to City	<u>\$6,523,608.45</u>

**Budget Adjustment Request - Capital Project #625-22 – Trunk Sewer – NE Sector – Lift Station to Central Avenue Trunk**

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**Contract Cost Analysis:**

Anticipated Final Cost	\$6,523,608.45
Original Contract Cost	<u>5,228,683.80</u>
Cost Over the Original Contract	<u><u>-\$1,294,924.65</u></u>

The above shows that Contract #14-0058, Central Avenue and Fedoruk Drive, is projected to be 24.78% over the original contract award total. Administration requires Council approval to exceed 25% of an original contract amount, so is seeking formal approval in the event the final cost does exceed 25%.

Regarding the budget for Project #625-22 Force Main, Lift Station to Central Avenue Trunk Installation, additional funding is required as follows:

Current Project Charges (Force Main only)	\$4,531,510.00
Further Costs to Completion	<u>78,000.00</u>
Total Estimated Cost	\$4,609,510.00
Budget Allocated from Trunk Sewer Reserve	<u>3,742,000.00</u>
Budget Adjustment Required	<u><u>-\$ 867,510.00</u></u>

Even with this overage, the total cost for Project #625-22 will be less than the original estimate of \$5.3 Million. This project is funded from development levies.

A budget adjustment to Capital Project #625-22 is requested to be funded from the Trunk Sewer Reserve.

**Environmental Implications**

The project has been executed in full consultation with Meewasin Valley Authority. Therefore, the minimum environmental impact possible has been achieved.

**Other Considerations/Implications**

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

**Due Date for Follow-up and/or Project Completion**

Contract #14-0058, Central Avenue and Fedoruk Drive, will be completed in late 2016.

**Public Notice**

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

**Report Approval**

Written by: Jim Donohoe, Project Engineer, Construction & Design  
Reviewed by: Matt Jurkiewicz, Senior Project Management Engineer  
Reviewed by: Celene Anger, Director of Construction & Design  
Approved by: Jeff Jorgenson, General Manager, Transportation & Utilities

EUCS JD - Budg Adjust-CP625-22 Trunk Sewer - NESector-Lift Station-Central Ave Trunk

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## Electric Vehicle Demonstration Project and Partnership

### Recommendation

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

That the Administration be directed to send a letter of support to the project partners for this initiative and allocate solar powered electricity purchased from existing customers on Saskatoon Light & Power's grid to meet the needs of the four electric vehicle charging stations until December 31, 2020.

### Topic and Purpose

Saskatoon Light & Power (SL&P), along with project partners including the Saskatchewan Environmental Society (SES), SES Solar Co-operative, Saskatoon Car Share Co-operative, the University of Saskatchewan, the Saskatchewan Research Council (SRC), and Sun Country Highway, would like to develop the necessary infrastructure to support local electric vehicle (EV) car-share programs by installing EV charging stations and supplying them with 100% local solar-powered electricity. The project would involve four sites and would serve to demonstrate and evaluate the feasibility of EV charging stations in public spaces.

### Report Highlights

1. Each project partner provides valuable expertise in their respective areas to support this initiative, and are already established with operations in Saskatoon.
2. All project partners share a common vision to accelerate the deployment of plug-in EVs in Saskatoon.

### Strategic Goal

This report supports the Strategic Goal of Environmental Leadership to replace conventional energy sources with green energy technologies, and to implement energy efficiency practices and reduce greenhouse gas emissions.

### Background

A decade ago, there were only a few thousand EVs on the road worldwide. By 2015, the number of EVs on the road exceeded 1 million. Transportation currently represents more than half of the oil used in the world. According to the International Energy Agency, reducing emissions to levels consistent with limiting climate change to less than two degrees would see 715 million EVs cruising the streets by 2040, which would also shrink global oil demand by 20% relative to today.

In 2015, just under 7,000 Canadians bought an EV, up by 32% from the year before, but still just representing 0.4% of all new vehicles sold across the country. EVs produce no tailpipe pollution, and in most provinces EV drivers plug into relatively clean power grids. Limited access to clean power is currently a possible barrier for EV deployment

in Saskatoon. This initiative would ensure EV charging stations included in this pilot are supplied with 100% local solar powered electricity. SaskPower also recently announced plans to increase renewable power production to make up 50% of the generating capacity going onto the provincial grid by 2030.

The cost of EVs is expected to be comparable in price to their gasoline competitors within the next six years. The cost of an electric car battery (the most expensive component) dropped 35% last year alone. Meanwhile, battery density has increased, extending the distance a battery powered vehicle can travel on each charge. Drivers will soon have more options to choose from, as the world's auto manufacturers plan to roll out dozens of new electric models over the next decade. A majority of Canadians think EVs will outnumber gas powered cars within 10 to 20 years, according to a 2016 poll by Abacus Data.

### **Report**

SL&P would work with a number of partners to accelerate the deployment of electric vehicles in Saskatoon. All partners are already established with existing operations in Saskatoon, and share this common vision. A profile of each partner's organization follows:

#### Saskatchewan Environmental Society (SES)

The SES is a non-profit, registered charity whose mandate is to work towards a world in which all needs can be met in sustainable ways. The SES has been active in Saskatchewan since 1970 and is committed to supporting sustainable living and resource use in the province. The SES works with, and on behalf of, organizations, businesses, and policymakers to encourage informed decision making that moves us towards sustainability. They undertake research and use educational programs, community outreach, and demonstration projects to provide the people of Saskatchewan with support, information, and the tools they need to make informed decisions.

The SES Solar Co-operative was started in 2015 and currently operates at two locations within Saskatoon, one at the Two-Twenty Building (220, 20<sup>th</sup> Street West), and one at the City's Landfill Gas Power Generation Facility. They currently have 130 community members as shareholders, and are looking at the potential to add additional solar generation capacity within Saskatoon to supply EV charging stations. For this project, the SES has applied for program funding from Western Diversification.

#### Saskatoon Car Share Co-operative

The Saskatoon Car Share Co-operative has been operating for over four years and currently uses two gasoline powered 2011 Nissan Versa four door hatchback vehicles. Cars are parked in designated spots in the Nutana neighbourhood near Broadway Avenue. They currently have over 50 members. Trip lengths are typically 5, 10, or 20 kilometres. Several membership options are available with different payment terms, hourly, and per-kilometre rates.

The Saskatoon Car Share Co-operative is currently running a Crowd Funding Campaign to expand their fleet, with all donated funds matched by Sun Country Highway. The goal is to add EVs to their fleet, fueled by 100% local solar-powered electricity. The Saskatoon Car Share Co-operative is also hoping to expand to include other areas of the city, such as City Park and Riversdale.

The Saskatoon Car Share Co-operative would provide vehicles that would participate in the project and share data on use and other information.

### University of Saskatchewan – Car Share Program

A car share program has been operating for three years at the University of Saskatchewan. Although a change in service providers is currently underway, the University of Saskatchewan intends to continue hosting a car share program for staff and students. The program is intended to reduce the total number of personal vehicles on campus by offering flexible alternative transportation options. To date, two gasoline powered vehicles have been available through the program, one parked in Lot 1 (Place Riel), and one parked at the Graduate Housing Complex along Aird Street in College Quarter.

The University of Saskatchewan is looking at the potential to switch to EVs instead of gasoline powered vehicles, fueled by 100% solar powered electricity. They would provide vehicles and sites for the charging stations located on campus for this project.

### Saskatchewan Research Council (SRC)

The SRC is one of Canada's leading providers of applied research, development and demonstration and technology commercialization. Over the past year, the SRC undertook more than \$22 million in projects aimed at creating positive environmental and social impacts. Their work for clients contributed to the reduction of more than 21 kilo-tonnes of greenhouse gas emissions and saved over 40 million kWh per year of energy.

The SRC is interested in exploring demand-side management opportunities for EV charger networks, such as using an external signal from the utility, through a smart grid, to enable charging during off-peak periods when electrical generation costs are at their lowest. They are also interested in improving performance for EVs in cold weather conditions through winterization.

The SRC would provide much of the monitoring expertise for the project.

### Sun Country Highway

Sun Country Highway, with their head office in Saskatoon, has developed the largest Level 2 EV charging network in the world, encompassing North America from coast-to-coast-to-coast. Most electric car charging is done at home, by simply plugging into a standard 120 volt AC outlet using the charging cord supplied with the vehicle. Level 2 chargers use a 240 volt AC power source, and will charge the EV much faster (3 to

4 hours for most EVs). Level 2 chargers are typically found in public spaces such as shopping malls or other places of business.

Sun Country Highway would provide and install the required charging stations.

For the demonstration project, Level 2 EV Charging Stations are proposed to be installed at the following four locations within SL&P's Service Area:

1. In Nutana, near Broadway Avenue (to supply Saskatoon Car Share);
2. In Riversdale, near 20<sup>th</sup> Street West (to supply Saskatoon Car Share);
3. Near Cumberland Avenue and Aird Street (to supply University Car Share); and
4. At the University of Saskatchewan, near Lot 1 (to supply University Car Share).

### Saskatoon Light & Power

SL&P has established a Net Metering Program that allows customers to be interconnected to the grid with their own solar panels. When customers produce more solar-powered electricity than they can use at their home or business, SL&P purchases the electricity from its customers at the retail rate. In 2017, approximately 250 megawatt-hours of solar powered electricity is expected to be purchased from over 75 interconnected customers, and would be enough to fuel 100 EVs per year with 100% local solar powered electricity. Throughout this demonstration project, SL&P is committing to supplying the EV charging stations with 100% local solar power from the grid at the retail rate, to the close of the project in 2020.

SL&P has installed an Advanced Metering Infrastructure (AMI) using smart meters throughout its Service Area (defined by the 1958 City Boundary, and including the St. Thomas More Building adjacent to Lot 1 at the University of Saskatchewan). By the end of 2017, all customers will have a new smart meter. The AMI provides the communication network for the smart meters, and is the first step toward implementing a smart grid. With the new smart meters, it could be possible to "virtually" net meter solar-powered electricity produced at one location, against the electricity consumed by the EV charging stations at different locations across SL&P's grid; thereby, fueling EVs with 100% local solar powered electricity. The AMI could also be used to facilitate smart grid applications such as demand-side management with the EV charging stations.

If in the future the City wants to commit to continuing to supply EVs with 100% solar power, and depending on the number of EVs on the roads in Saskatoon, additional solar power sources could be added to the grid, either from new interconnected customers and community co-operatives such as the SES Solar Co-operative, or through utility-scale solar projects led by SL&P or other development partners.

### **Options to the Recommendation**

In addition to supplying EV charging stations with 100% solar powered electricity, SL&P could also supply civic facilities in the future with 100% solar power virtually net-metered over the grid. SL&P could also implement a Green Power program such as SaskPower

has offered its customers in the past, whereby customers pay a premium charge for electricity from renewable sources.

### **Communication Plan**

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

### **Financial Implications**

There are no financial implications. All solar powered electricity produced onto SL&P's grid would be purchased at the EV charging stations at the retail rate. If the Province of Saskatchewan implements a carbon tax starting in 2018, as has been legislated in other parts of Canada, the renewable energy credits allocated to the EV charging stations through this program would amount to a total of approximately \$360 through the close of the project in 2020. The costs of installing and monitoring the charging stations is addressed by the other partners in the projects.

### **Environmental Implications**

Since all electricity used by the EV charging stations is generated from local solar panels on SL&P's grid, there would be no net emissions from the EVs. For each EV participating in the program, it would be equivalent to removing a gasoline powered vehicle from 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 EV charging infrastructure could be in place by the end of 2017. Administration will report back at that time regarding the success of the demonstration project.

In the future, SL&P could offer a subscription program, whereby EV drivers would register with SL&P to purchase solar power from the grid to supply their EV charging with 100% renewable energy resources. In the coming decades, there could be up to 50,000 EVs charging daily within SL&P's Service Area, and would use an equivalent amount of energy as could be provided by 100 megawatts (MW) of solar panels.

### **Public Notice**

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

### **Report Approval**

Written by: Kevin Hudson, Metering & Sustainable Electricity Manager  
Reviewed by: Trevor Bell, Director of Saskatoon Light & Power  
Approved by: Jeff Jorgenson, General Manager, Transportation & Utilities  
Department

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