



# Sturgeon Lake AREA STRUCTURE PLAN

June 2020 | *Draft*



## **ACKNOWLEDGEMENTS**

The preparation of this plan was assisted by a Citizens' Panel consisting of area landowners and residents established to review background information, discuss issues, and to provide feedback on draft versions of the plan. MD Council, Administration, and the consulting team with ISL Engineering and Land Services wish to thank the Citizens' Panel members for their contributions to the project.

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# INTRODUCTION

## 1.1 Preamble

Sturgeon Lake, located in the Municipal District of Greenview No. 16 (Greenview) is one of only a few readily accessible recreational lakes in northwest Alberta. As a result, private lands concentrated at the west end of the lake have been the subject of residential, resort and other recreational development. Agriculture and oil and gas exploration activity are also major uses in the area and the lake is home to a significant recreational fishery. In addition, a substantial portion of the land around the lake is under the jurisdiction of the Province of Alberta (Crown land, including two provincial parks), and the Sturgeon Lake Cree Nation. Two historical settlements, Calais and Sturgeon Lake Settlement are located on the south side of the lake surrounded by Sturgeon Lake Cree Nation lands.

This diversity of land use, coupled with the importance of the lake as a regional recreational and environmental resource, results in a need to ensure that the lake is protected from the potentially detrimental impacts of development. In addition, it is necessary to ensure that development that occurs around the lake is carried out in a sensitive manner. There are long-standing concerns present respecting water quality, resulting in a strong desire to prevent further degradation.

The purpose of an Area Structure Plan (ASP) is to provide a framework for future subdivision and development of a defined area within a municipality. The Sturgeon Lake ASP is a statutory plan that has been prepared in accordance with Section 633 of the *Municipal Government Act* (Act). The original ASP was adopted in August 1985 (Ministerial Order 485/85) and updates were adopted in June 1991 (Ministerial Order 492/91) and July 2002 (Bylaw 01-344).

Since the ASP was last reviewed in 2002, the area has experienced increased residential and recreational development pressures that warrant further review. In addition, it is prudent to review the ASP in general terms to ensure that its policies continue to be effective and relevant. In order to meet these needs, Greenview Council authorized a review of the Sturgeon Lake ASP in June of 2018.

A Citizens' Panel consisting of area landowners and residents was established to review background information, discuss issues, and to provide feedback on draft versions of this ASP.

## 1.2 Plan Area

Sturgeon Lake is located approximately 13 km (8 miles) west of the Town of Valleyview in Greenview as indicated in Map 1.

Sturgeon Lake is approximately 49 km<sup>2</sup> (19 mi<sup>2</sup>) in size, and consists of a main basin and a shallow westerly extension known as the West Bay. The drainage basin for the lake is substantially larger, encompassing an area of approximately 570 km<sup>2</sup> (220 mi<sup>2</sup>), the majority of which is located south of the lake. The lake depth averages approximately 5 m (16 ft), and is 9.5 m (31 ft) at its deepest point. The maximum depth of the West Bay is 3 m (10 ft).

The 2002 ASP consisted of a “Primary Zone” that applied to all privately and municipally held lands located in close proximity adjacent to the lake and contained a number of development areas within which residential and recreation development was concentrated. A “Secondary Zone” applied to the balance of the ASP area and corresponded to the Sturgeon Lake watershed.

In this updated version, the overall ASP area continues to correspond to the Sturgeon Lake watershed as shown in Map 2. The Land Use Concept (Map 3) identifies the area in which the detailed development policies of this ASP apply, and consists of:

- a. “Development Area” that consists of all private lands that have the potential to accommodate residential and recreational development; and
- b. “Conservation Lands” that consist of Crown land, private lands that are designated conservation purposes, or municipal lands that are designated as Municipal Reserve, Environmental Reserve, or for community purposes.

## 1.3 Legislative Framework

### 1.3.1 Provincial Land Use Policies

The Act requires that all statutory plans, including this ASP be consistent with the Provincial Land Use Policies.

### 1.3.2 Greenview Municipal Development Plan

The Act requires that all statutory plans be consistent with one another. As a result, this ASP has been prepared in accordance with the broader policy initiatives contained in Greenview’s Municipal Development Plan (MDP).

## 1.4 Interpretation

**1.4.1** The policies of this ASP are only enforceable on private lands in the Sturgeon Lake area. With respect to Crown lands, the policies are advisory only, but clearly represent the position of Greenview in the future development or disposition of said lands. This ASP does not apply to the Sturgeon Lake Cree Nation.

**1.4.2** Land use area boundaries are to be considered approximate except where such boundaries coincide with roads or property lines. Minor deviations may be permitted without an amendment at the discretion of Greenview if such deviations are not contrary to the purpose and intent of this ASP.

**1.4.3** Compliance with policies in this ASP shall be interpreted and applied as follows:

- a. “Shall” and “will” mean mandatory compliance;
- b. “Should” means compliance in principle but is subject to the discretion of the Approving Authority where compliance may be undesirable or impractical due to the specific circumstances associated with a particular issue;
- c. “May” means discretionary compliance or choice in the application of policy.

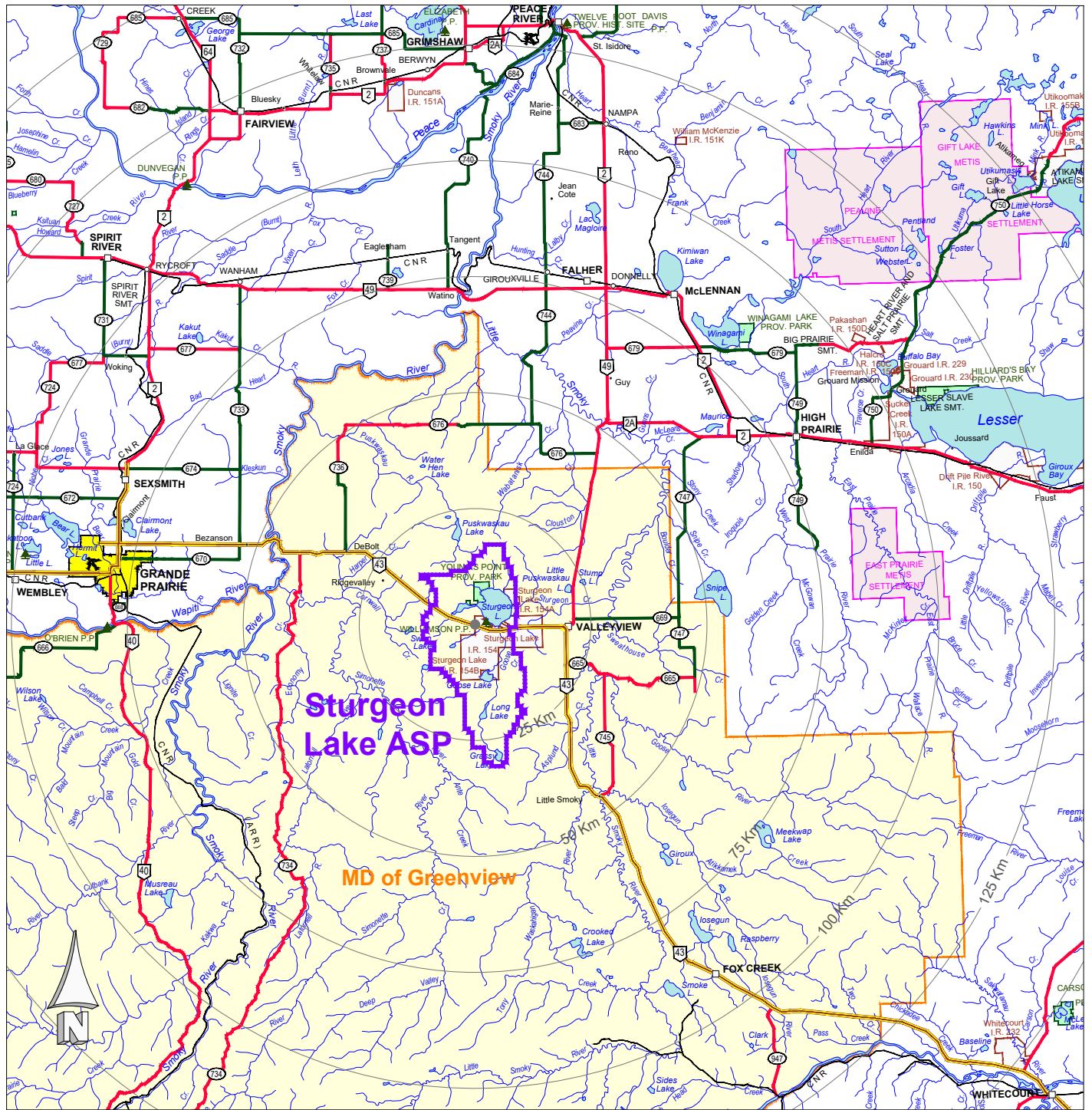
**1.4.4** For the purpose of interpreting this ASP, the definitions in Appendix A shall apply. All other words or expressions shall have the meanings assigned to them in the Act, the MDP and Land Use Bylaw (LUB) or other overarching legislation.

**1.4.5** In this plan the following acronyms are used:

ASP	Area Structure Plan
CR	Conservation Reserve
ER	Environmental Reserve
LUB	Land Use Bylaw
MDP	Municipal Development Plan
MR	Municipal Reserve
MSS	Municipal Servicing Standards

**1.4.6** In the event a matter arises that is not addressed by this ASP, then the policies of the MDP shall apply.





# Sturgeon Lake Area Structure Plan

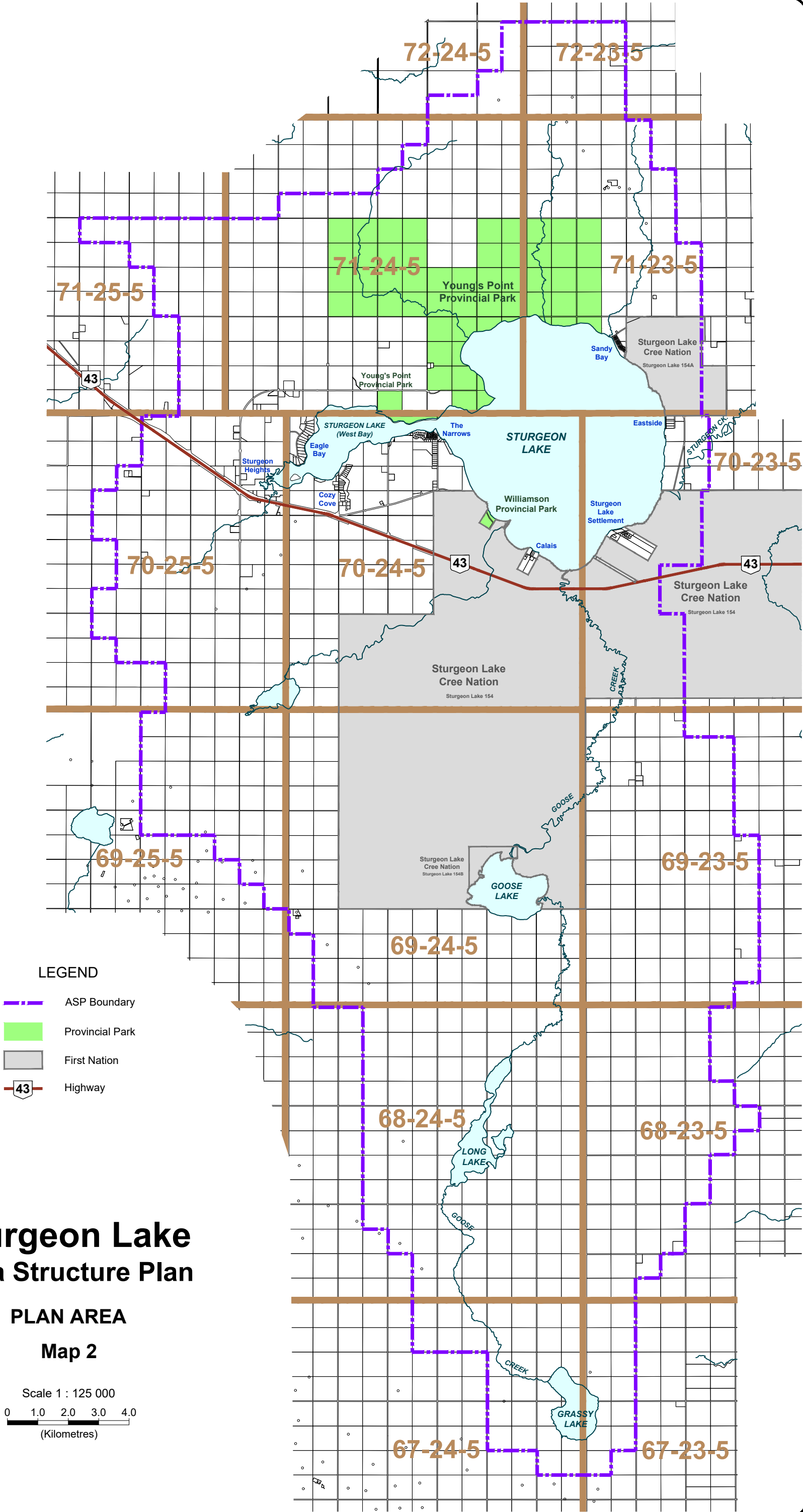
LOCATION

Map 1

Scale 1:1,250,000



May 2019



LEGEND

- ASP Boundary
- Provincial Park
- First Nation
- Highway

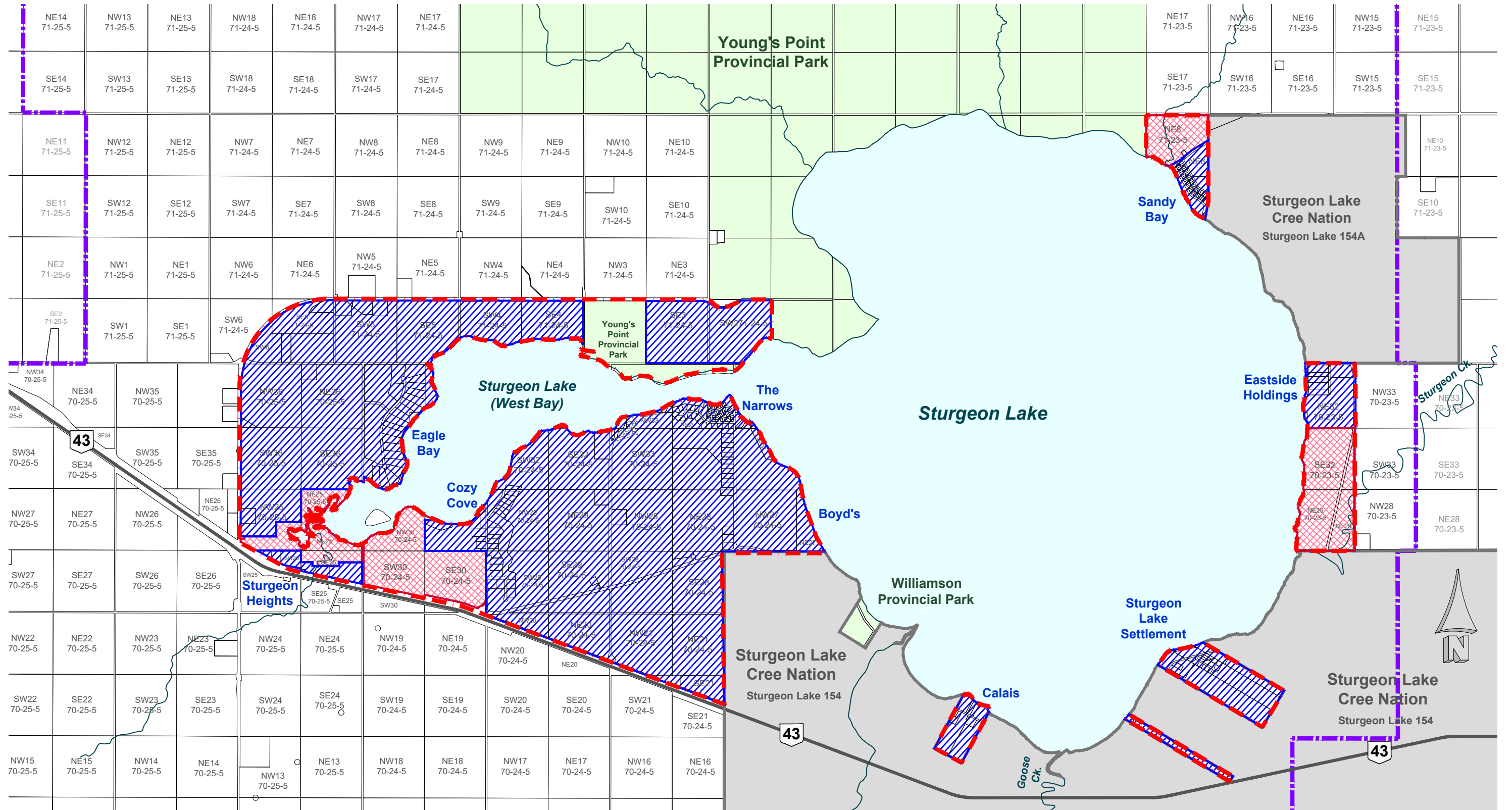
Sturgeon Lake  
Area Structure Plan

PLAN AREA  
Map 2

Scale 1 : 125 000  
0 1.0 2.0 3.0 4.0  
(Kilometres)



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#### LEGEND

- |  |                           |  |                 |
|--|---------------------------|--|-----------------|
|  | Development Area          |  | Provincial Park |
|  | Conservation Lands        |  | First Nations   |
|  | Development Area Boundary |  | ASP Boundary    |

Scale 1 : 50 000  
0 0.5 1.0 1.5 2.0  
(Kilometres)

## Sturgeon Lake Area Structure Plan

LAND USE CONCEPT

Map 3

October 2019



## GOALS AND OBJECTIVES

The goals and objectives of this ASP are as follows:

### 2.1 Plan Goals

- a. To accommodate a variety of residential and recreational land uses in an environmentally responsible fashion.
- b. To mitigate the potential impacts of development on the quality of Sturgeon Lake.
- c. To preserve and protect the natural environment within the ASP area.

### 2.2 Plan Objectives

- a. Development Opportunities
  - To encourage and promote efficient and well-designed recreational and residential development.
  - To consider and plan for the future demand for and responsible levels of residential and recreational development.
  - To minimize conflicts between land uses.
  - To provide for potential convenience store development opportunities.
  - To limit industrial development to small-scale home businesses and low impact natural resource extraction industries.
- b. Environment and Open Space
  - To promote environmental responsibility in the Sturgeon Lake area.
  - To provide for public access to the lake for recreational activities by ensuring the shore is retained in the public domain.
- c. Agriculture
  - To require the provision of Municipal Reserve, Environmental Reserve and Conservation Reserve for the protection of natural features and wildlife, the prevention of pollution and the creation of open space for public use.
- d. Infrastructure
  - To minimize the impacts of development on agricultural operations.
  - To mitigate the impact of agricultural activities on the lake.
- e. Transportation
  - To ensure that infrastructure requirements of proposed developments do not exceed system capabilities and capacities.
  - To ensure that servicing be provided to a high standard and in an environmentally sensitive fashion.
- f. Implementation
  - To include mechanisms for the administration of the ASP.
  - To promote ongoing communication between Greenview, the Sturgeon Lake Cree Nation, the public and provincial government agencies in any future endeavours.

# RESIDENTIAL DEVELOPMENT

## 3.1 Introduction

Like most recreational lakes, Sturgeon Lake has attracted a wide range of land uses including permanent and seasonal residences, campgrounds, and provincial parks. One of the primary land use planning concerns is the accommodation of an increasing demand for country residential development without affecting the lake environment.

To address this concern, the ASP establishes a Development Area to concentrate residential development in cluster form to promote an efficient land use pattern, conserve land in its natural state, and optimize servicing efficiencies.

In previous versions of this ASP, the approach to density was established on a basis of 13 units per quarter section, with 1 unit corresponding to 1 residential lot or 4 campsites/RV stalls. Discussions with the Citizens' Panel raised questions with this approach as the assigned density appeared arbitrary, and likely did not reflect the true site conditions of the subject lands as the density allowances were not verified through detailed study. It was the consensus of the Citizens' Panel that less emphasis be placed on assigning subjective densities and more focus placed on the quality of development through the application of more rigorous development standards and the study of site conditions.

## 3.2 Policies

**3.2.1** The Development Area shown on Map 3 is intended primarily for residential and recreational purposes. These areas shall, subject to rezoning and subdivision approval, be reserved for:

- a. Country residential development;
- b. Clustered leisure accommodation as defined in the LUB;
- c. Municipal parks;
- d. Seasonal recreational uses, including resorts, RV parks and campgrounds;
- e. Public uses; and
- f. Commercial uses.

**3.2.2** With the exception of farmstead separations, residential lots in the Development Area shall be:

- a. A minimum of 0.2 ha (0.5 ac) provided such lots are serviced with municipal or communal water and sewer system;
- b. A maximum of 1.2 ha (3 ac); and
- c. With the exception of (b), shall meet the development regulations of the CR-3 District of the LUB.

**3.2.3** Notwithstanding 3.2.2(a), lots smaller than 0.2 ha (0.5 ac) may be considered. Greenview may create a new district in the LUB to accommodate such small lot development.

**3.2.4** The resubdivision of existing lots may be supported provided that the new lots meet the requirements of the CR-3 District of the LUB and can be serviced in accordance with the requirements of Section 8.2.

**3.2.5** A vacant first parcel out of an unsubdivided quarter section may be permitted in the Development Area subject to the parcel being rezoned to the CR-3 District of the LUB. The subdivision of additional lots shall be subject to a minor ASP prepared in accordance with Greenview Policy 6001 (Minor Area Structure Plan).

**3.2.6** In order to reduce the potential for erosion and excess runoff, landowners are encouraged to retain as much natural vegetation on a site as possible, and where possible limit development to those areas that have been previously cleared.

# 3.0





**3.2.7** New residential subdivisions shall be designed in accordance with the following best practices in order to maximize public shoreline access, minimize environmental impacts, and ensure long term sustainability:

- a. Residential development shall be developed in cluster form;
- b. Residential development shall be served with water and sanitary sewer servicing in accordance with Section 8.2. The development must meet the provisions of Greenvue's Development Guidelines and Municipal Servicing Standards for the on-site infrastructure and internal road network;
- c. Development is to be designed to integrate with adjacent developments to improve connectivity and accessibility to local parks and open spaces by requiring the developer to provide walking trails, park spaces and green spaces that will preserve environmental and natural features for public purposes in accordance with Policy 5.2.8;
- d. That vegetated buffer strips be retained between residential clusters and the lakeshore as per Policy 5.2.17; and
- e. That the provision of common docking and boat launch facilities be encouraged.

**3.2.8** Notwithstanding any other provision of this ASP, existing undersized lots and existing developments not meeting the requirements of this ASP shall be allowed to continue to exist, and the reconstruction of existing structures will be allowed subject to the development meeting Greenvue's current requirements.

**3.2.9** All developers are required to submit detailed lot plans, lot grading plans, and stormwater management plans with their development permit applications or subdivision applications as applicable.

### 3.3 Settlements

The privately owned land around Sturgeon Lake includes two historic settlement areas established in 1914, Sturgeon Lake Settlement and Calais. These settlement areas contain a variety of land uses on lots that range in size from 0.11 ha (0.28 ac) to 36.8 ha (91 ac). Uses in these two settlements include single detached houses, stores, and a commercial campground. In addition, the Government of Canada purchased two of the larger lots in the Sturgeon Lake Settlement for the Sturgeon Lake Cree Nation on which Band facilities and numerous dwellings have been developed.

Due to the unique nature of the land uses and the parcel sizes present, Greenview has designated all settlement lands as Direct Control (DC) in the LUB. The policies in this section are designed to provide guidance in the administration of this DC zoning.

**3.3.1** Land in these areas shall generally be reserved for those developments allowed in other Development Areas.

**3.3.2** Developments on private lands in these areas shall be administered through the DC District of the LUB. Approvals shall be based on the standards for Development Areas as established in Sections 3.2, 5.2, 7.2 and 8.2 of this ASP.

**3.3.3** At the discretion of Greenview, with the exception of the preparation of technical studies, variances to the requirements of this ASP as noted in Policy 3.3.2 may be applied in Calais and the Sturgeon Lake Settlement due to the unique nature of these settlements.





# RECREATIONAL DEVELOPMENT

## 4.1 Introduction

Seasonal recreation and resort development has always had a significant presence in the Sturgeon Lake area and demand for this form of development continues to increase. Greenview's intention is to accommodate this increased demand for recreational and resort development, such as campgrounds and recreational vehicle parks, without affecting the lake environment by ensuring such development is undertaken to a high standard.

The purpose of this Section of the ASP is to establish criteria for evaluating future recreational and resort development proposals within the Development Areas.

## 4.2 Development Standards

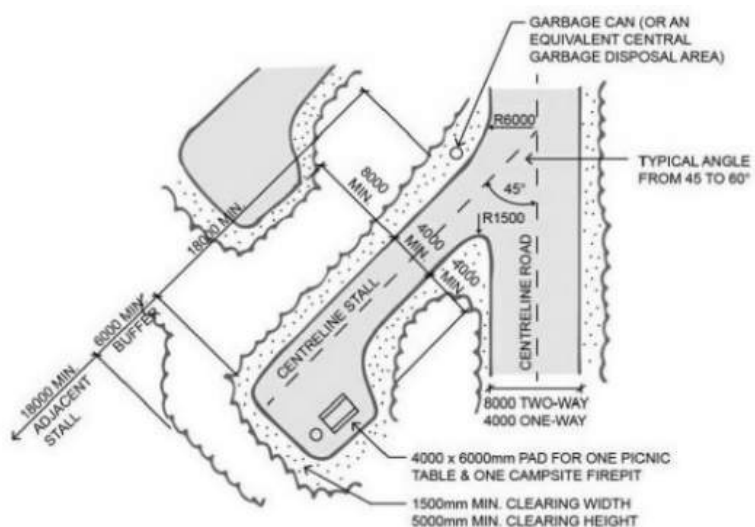
**4.2.1** The maximum allowable size for a resort cabin shall be 71.3 m<sup>2</sup> (768 ft<sup>2</sup>).

**4.2.2** A site plan for a proposed campground or recreational vehicle park shall be prepared that details internal circulation requirements, road widths, pedestrian circulation, site access and egress, emergency access, parking areas, storage areas, toilet and laundry areas, recreation areas and campsite areas.

### 4.2.3 Campgrounds and Recreational Vehicle (RV) Parks

- a. Campsites and RV stalls shall generally comply with the following requirements as illustrated in Figure 4.1:
  - i. Each campsite/RV stall shall have a minimum area of at least 93 m<sup>2</sup> (1,000 ft<sup>2</sup>) with an open and graded parking space sufficient to permit a clearance of 7.9 m (26 ft) between sides and 6.1 m (20 ft) between ends of adjacent recreation vehicles.
  - ii. Campsites/RV stalls shall be accessible by means of a driveway at least 4.0 m (13 ft) wide where the driveway is for one-way traffic, or at least 7.9 m (26 ft) wide where the driveway is for two-way traffic, and so constructed to allow the smooth passage of vehicles.
  - iii. Campsites/RV stalls shall be a minimum of 18 m (59 ft) in length.
  - iv. Each campsite/RV stall shall have a clear pad of minimum 4.0 m (13 ft) in width and 6.1 m (20 ft) in length to allow for one table and one campsite fire pit.
  - v. Each campsite/RV stall shall have one garbage can or an equivalent central garbage disposal area.
- b. A minimum of 2 barrier-free campsites/ RV stalls should be provided in a campground. Barrier-free campsites/RV stalls shall provide:
  - i. a firm and level dirt, crushed rock or paved campsite surface;
  - ii. a clear space around the tent pad and between other fixed elements (i.e. campfire, hook-ups);
  - iii. a campsite free of barriers and unprotected hazards;
  - iv. an accessible path less than 61 m (200 ft) to an accessible washroom/ vault toilet/wash station;
  - v. an accessible picnic table (i.e. with sufficient knee clearance and clear space) in the campsite; and
  - vi. access to fire pit and/or grill

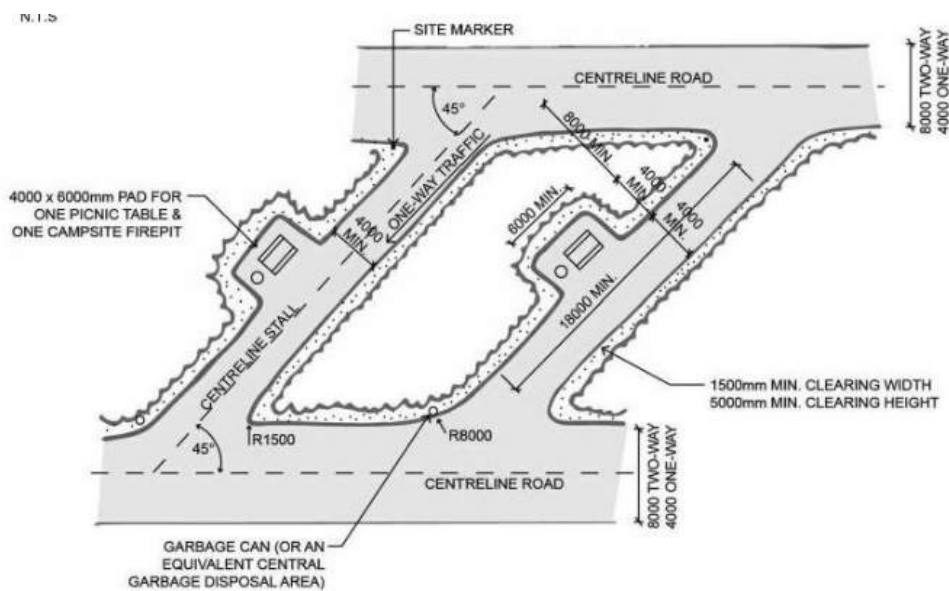
4.0



## 1

### TYPICAL BACK-IN CAMPGROUND STALL

N.T.S



## 2

### TYPICAL PULL-THROUGH CAMPGROUND STALL

N.T.S

Figure 4.1 – Campsite/RV Stall Configurations

#### 4.2.4 Site Considerations

In determining the appropriateness and suitability of a site for a proposed campground or resort development, the Development Authority shall consider such factors as accessibility, compatibility with adjacent land uses, environmental sensitivity and physical suitability and serviceability of the site itself.

- a. The development of facilities should occupy no more than two-thirds of the proposed site, thereby leaving one-third in its natural state.
- b. The site should be designed and landscaped in order to minimize disturbance to the natural environment and to protect heavy use areas from damage.
- c. The site should take advantage of existing clearings and open areas
- d. The site should be well-drained and located in areas free of standing water.

#### 4.2.5 Recommended Facilities

- a. Day Use and Overnight Campgrounds
  - i. The suggested minimum facilities include a central sanitary and water station, vault toilets, refuse containers, picnic tables and fire pits.
  - ii. Other suggested facilities include individual electrical outlets, showers, coin-operated laundry, playground, grassed open space, and individual sewer connections.
- b. Recreational Resort Facilities
  - i. The suggested minimum facilities include individual electrical outlets and water supplies, toilets, showers, refuse containers and cooking facilities.
  - ii. Other suggested facilities include individual water and/or sewer connections, laundry, picnic tables, on-site parking, grocery, and recreation building.
- c. Adequate lighting shall be provided at the entrance to the campground and in public areas such as walkways to a main service building, washrooms, etc.
- d. Campground and resort facilities shall provide improved beach access, swimming areas, and boat launch facilities where possible.
- e. Vault toilets shall be provided within 91 m (300 ft) of 80% of all designated campsites.

#### 4.2.6 Waste Management

- a. Roads shall have a good driving surface under all weather conditions. Roads leading to a proposed campground may be required as a condition of development approval, to be brought into a condition necessary to sustain the volume and type of traffic to be generated by the proposed campground.
- b. Within the campground development, a circular one-way system with gently curving roads, sensitive to topography and site characteristics is preferred, and shall be "signed" to avoid confusion.
- c. Parking is not encouraged on roadways but rather on individual camping sites or visitor parking areas. Storage for boat trailers and recreational vehicles shall also be provided. A majority of individual campsites should provide two vehicle parking spaces and one trailer pad.
- d. Minimum right-of-way widths for internal roads are:
  - i. One-way: 4.0 m (13 ft)
  - ii. Two-way: 7.9 m (26 ft).
- e. The use of a cul-de-sac road design should be limited to:
  - i. Areas allocated for tenting only, or
  - ii. Areas where an adequate turning radius is provided (minimum 24.5 m (80 ft) diameter outer dimension).

# ENVIRONMENTAL PROTECTION

## 5.1 Introduction

Sturgeon Lake is acknowledged as being one of the few lakes in the Upper Peace region that is able to support a variety of water-based recreational activities. Its shorelines are also used for a number of other purposes including permanent and seasonal residential uses, recreational and resort developments, and agriculture.

At the same time, however, the lake has historically been the subject of study due to ongoing concerns of water quality. The lake is naturally highly eutrophic, a condition common to many prairie lakes, where natural phosphorus concentrations contribute to a high degree of algae growth during the summer months. Secondly, as a result of reduced precipitation over the past few years, the water level of the lake has gradually dropped which contributes to the concerns of water quality. Although the issue of water level is outside the scope of this ASP, and there is no proven connection between water quality and development capacity, the ASP must continue to strike an acceptable balance between these environmental concerns and land use. In addition, there are a number of natural areas, including wetlands, watercourses and drainage channels that warrant protection. The presence of these features, identified at a high level in the Sturgeon Lake ASP Environmental Report (see Appendix B) prepared by Spencer Environmental Management Services Ltd., warrants further study at the time of development in order that they can be protected.

The purpose of this section is to address issues related to the protection of the natural environment. Policies are provided that reflect Greenview's position on lakeshore and water protection, through the implementation of such mechanisms as development setbacks, a high level of sanitary servicing, retention of natural vegetation, and environmental and municipal reserve dedication.

## 5.2 Policies

**5.2.1** Management of the watersheds is important within the plan area to protect, restore and ensure the sustainability of the natural water systems. Any development that results in the fragmentation of contiguous natural features, functions and habitat such as water systems, moraines, forests, wetlands and wildlife habitat and corridors shall be discouraged.

**5.2.2** Developers must, at the time of application, demonstrate that a proposed development will not detrimentally impact the water quality and riparian areas of all streams, creeks, and Sturgeon Lake. Factors that will be taken into consideration when determining a development application include, but are not limited to:

- The type of land use proposed and the potential for contamination of the site and groundwater
- On-site stormwater management; and
- Site layout.

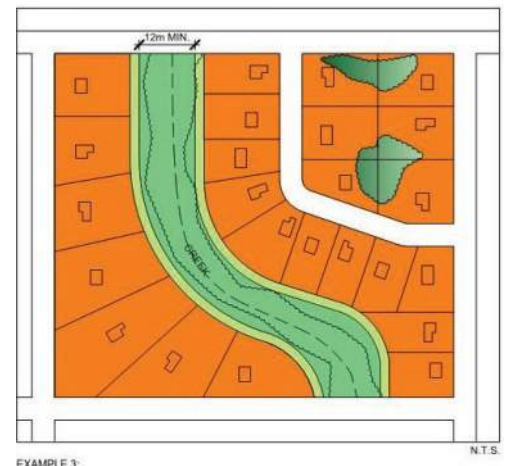
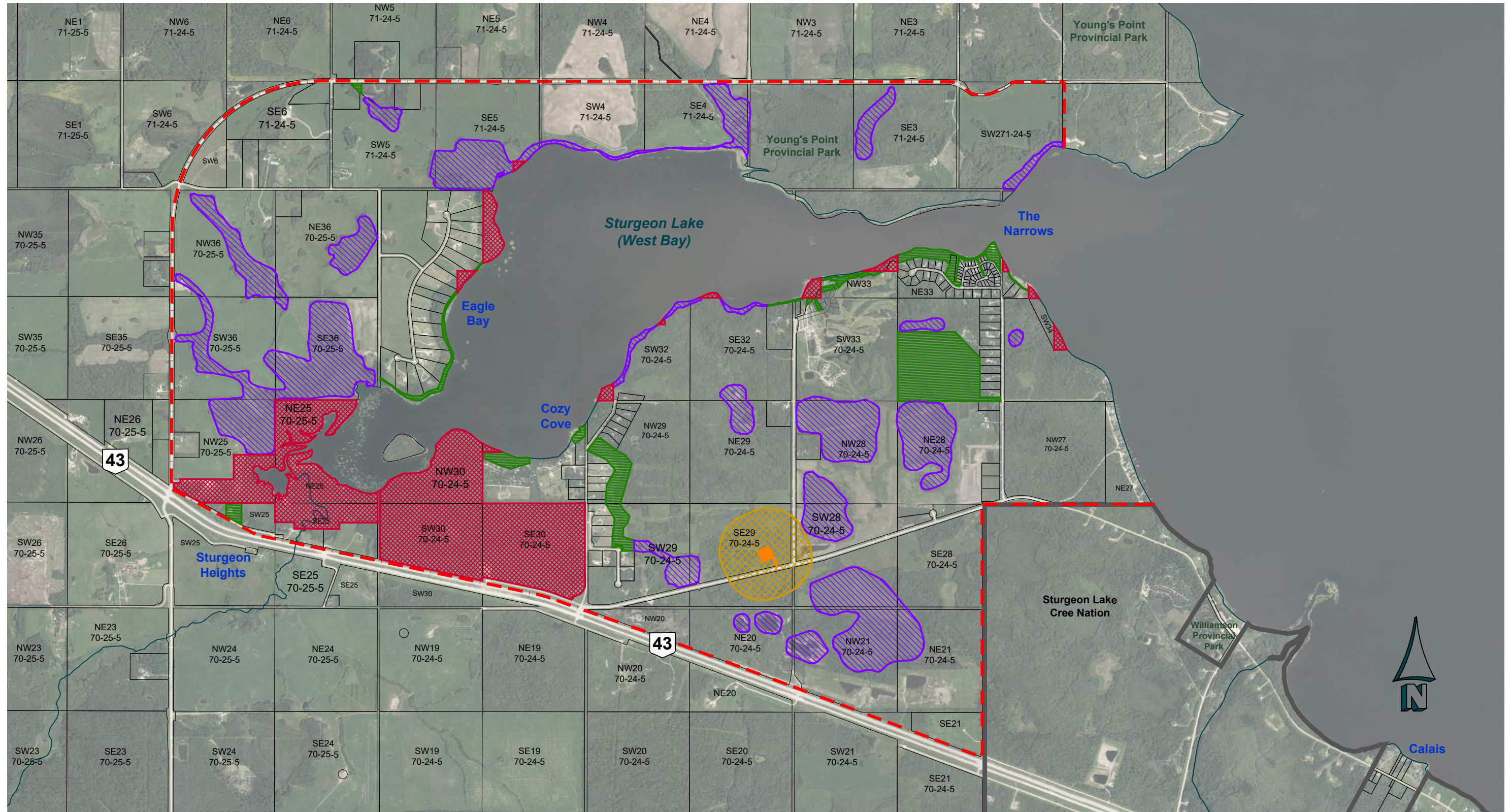


Figure 5.1: Illustration of Environmental Reserve



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#### LEGEND

- |   |                                     |   |                           |
|---|-------------------------------------|---|---------------------------|
|  | Wetland *                           |  | Landfill                  |
|  | Environmental/<br>Municipal Reserve |  | Landfill Setback (300m)   |
|  | Conservation Lands                  |  | Development Area Boundary |

\* Source: SLASP Environmental Report, Spencer Environmental Management Services Ltd., August 2018

Scale 1 : 30 000  
0 250 500 750 1000  
(Metres)

# Sturgeon Lake Area Structure Plan

## ENVIRONMENTALLY SENSITIVE AREAS

### Map 4

January 2020



**5.2.3** Numerous wetlands and other environmentally sensitive lands are present in the ASP area as illustrated on Map 4. The protection of these features shall be required in accordance with the provisions of this section. Only limited development that has a low impact on the natural environment, such as walking trails, shall be considered.

**5.2.4** At the time of subdivision, Greenview shall require that a strip of land with a minimum width of 6.1 m (20 ft) abutting the bed and shore of the lake, permanent watercourses, and permanent wetlands be dedicated as Environmental Reserve (ER) as illustrated in Figure 5.1. ER dedication is required in order to prevent pollution, reduce the potential for shoreline degradation, and protect ecologically sensitive areas and wildlife corridors. This ER may be increased in accordance with the recommendations of an assessment undertaken in accordance with Policies 5.2.12, 5.2.13 and 5.2.14.

**5.2.5** In addition to lands required under Policy 5.2.4, Greenview may require that the following lands also be dedicated as ER:

- Swamps and marshes in accordance with the recommendations of a wetland assessment; and
- Steep slopes, flood-prone and erosion-prone areas in accordance with the recommendations of a geotechnical assessment.

**5.2.6** Land dedicated as ER shall be left in its natural state, although the removal of deadfall may be undertaken by Greenview for reasons of safety, maintenance, or fire risk provided the intent of the ER is not compromised.

**5.2.7** Notwithstanding Policy 5.2.6, Greenview may consider the development of natural walking trails, identified at the time of subdivision, within ER lands to provide pedestrian links to public access points on the lake and other open space areas.

**5.2.8** At the time of subdivision, Greenview shall require that 10% of the land that is the subject of subdivision be dedicated as Municipal Reserve (MR). MR shall be dedicated in parcel form in order to provide lands for municipal parks and playgrounds, trail corridors, or public access points to the lake as illustrated in Figures 5.1, 5.2 and 5.3.

**5.2.9** Notwithstanding Policy 5.2.8, Greenview may acquire MR as money-in-lieu, calculated in accordance with the Act that will be invested in the park and open space network.

**5.2.10** In the event that Greenview determines that environmentally sensitive lands are required in addition to those identified in Policy 5.2.4, but cannot be justified as ER, then Greenview may acquire the additional lands as Conservation Reserve (CR) subject to compensation in accordance with the Act as illustrated in Figure 5.2.

**5.2.11** Greenview may encourage and promote the use of conservation easements as a means of working with landowners to protect environmentally sensitive features on private lands outside the subdivision process. The use and control of these feature areas shall be clearly stated in the easement agreement.

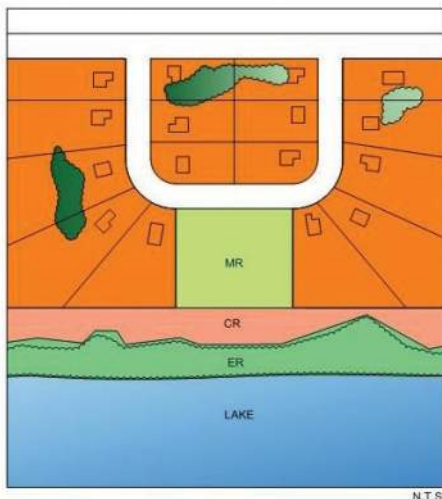


Figure 5.2: Illustration of Conservation Reserve

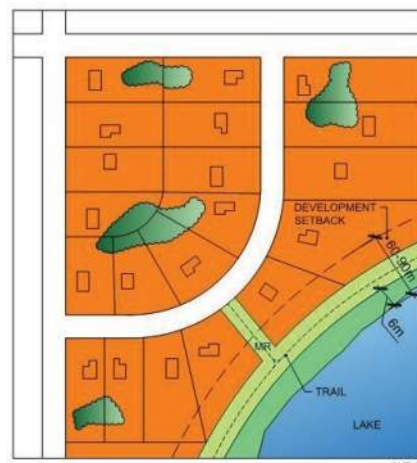


Figure 5.3: Development Setback

**5.2.12** Prior to development or subdivision approval, Greenview shall require the developer to provide a wetland assessment, prepared by a qualified professional, for any development that involves the potential disturbance of a wetland and requires provincial approval under the Water Act.

**5.2.13** All subdivision and development proposed on land adjacent to or containing watercourses and wetlands shall require a geotechnical study conducted by a certified professional engineer to:

- a. Delineate the municipal top-of bank as defined in the LUB, and
- b. Consider and make recommendations specifying additional development setbacks to increase the separation distance beyond the minimum 6.1 m (20 ft) identified in Policy 5.2.4.

**5.2.14** Prior to development or subdivision approval, Greenview may require the preparation of a Biophysical Report, prepared by a qualified professional consisting of the following:

- a. An inventory of protected areas, identified wetlands, and migratory bird sanctuaries,
- b. An inventory of rare plants and ecological communities after consulting the Alberta Conservation Information Management System,
- c. An inventory of sensitive species after consultation with the Province, and
- d. An assessment and analysis of environmentally sensitive areas that considers an ecological network approach, the maintenance and restoration of wildlife movement corridors, and required conservation buffers, mitigation measures, floodplain and development setbacks, and transition of land uses from identified natural living systems.

**5.2.15** Other than trails, boat launches, public recreation areas and beaches, all development, including on-site infrastructure, shall have a minimum setback of:

- a. 61 m (200 ft) from the shoreline surrounding the main body of the lake, and
- b. 91 m (300 ft) from the shoreline surrounding the West Bay as illustrated in Figure 5.3.

**5.2.16** Notwithstanding Policy 5.2.6, removable docks and boardwalks to access the bed and shore of the lake may be permitted in accordance with the following:

- a. That the dock or boardwalk be limited to 2.4 m (8 ft) in width and have a maximum terminal platform area of 24 m<sup>2</sup> (258 ft<sup>2</sup>);
- b. The dock or boardwalk is constructed of materials that will not negatively impact water quality by way of contamination or degradation; and
- c. The owner has obtained the appropriate approvals or authorizations from the Province.

**5.2.17** A treed/vegetated buffer shall be maintained between the lakeshore and any structural developments. Where possible this buffer shall be 61 m (200 ft) in width on the main body of the lake and along watercourses feeding the lake, and 91 m (300 ft) on the West Bay.

**5.2.18** Landowners will be required to manage invasive species and noxious weeds on their lands to prevent their establishment and to minimize their spread. The planting of non-native species is discouraged.

**5.2.19** Greenview should work with the Province and Sturgeon Lake Cree Nation to investigate opportunities for the installation of additional boat launch facilities.

**5.2.20** Greenview encourages the Province to continue to monitor and report on lake water quality.

**5.2.21** The following minimum setbacks shall be maintained from the abandoned landfill site as illustrated on Map 4:

- a. 300 m (984 ft) for all residential and recreational development in accordance with the *Subdivision and Development Regulation*; and
- b. 450 m (1,476 ft) for a water well in accordance with the *Nuisance and General Sanitation Regulation*.





# AGRICULTURE

## 6.1 Introduction

Agriculture is an important and expanding land use in Greenview. Much of the land base surrounding Sturgeon Lake is suitable for farming, and with some exceptions, should be treated the same as other agricultural land in Greenview. Although new development will result in the removal of some lands from production, it is the intent of this ASP to promote clustered form development that minimizes impacts on agricultural lands.

The use of such techniques as vegetation retention and the development of settling ponds may be required to reduce the chances of lake pollution occurring from adjacent land uses. To protect the quality of the lake water, intensive agricultural uses shall be set back an appropriate distance from the lake or restricted altogether. The objective is to keep uses that may pollute the lake away from surface features that drain directly into the lake.

## 6.2 Policies

**6.2.1** The subdivision of lands in the Development Areas currently designated as Agricultural One (A-1) in the LUB shall be limited to the following:

- a. Extensive agriculture;
- b. The first parcel out of an unsubdivided quarter section to accommodate an existing residence;
- c. The subdivision of a physically severed portion of a quarter (a.k.a. a Fragmented Parcel);
- d. Public uses;
- e. Recreational uses; and
- f. Uses that are accessory to those listed above.

The above limitations are not applicable to agricultural lands located outside of the Development Areas.

**6.2.2** Greenview supports land management practices that discourage sediment and nutrient loading into the Sturgeon Lake water system. These practices include:

- a. The stripping of vegetation, grading, or other soil disturbance being done in a manner which will minimize soil erosion;

- b. The retention and protection of natural vegetation whenever feasible;
- c. Keeping the extent of the disturbed area and the duration of its exposure within practical limits. Suitable stabilization measures should be used to protect exposed areas during construction and be re-vegetated as soon as possible;
- d. Managing site drainage so that surface runoff is maintained at pre-development rates subject to a stormwater management strategy prepared in accordance with Policy 8.2.8;
- e. Maintaining a naturally vegetated buffer along the shore of the lake and watercourses in accordance with Section 5.2.17.

**6.2.3** No confined feeding operations as defined in the *Agricultural Operation Practices Act* shall be permitted within the Development Area.



# COMMERCIAL AND INDUSTRIAL DEVELOPMENT

## 7.1 Introduction

Most of the commercial needs of local residents and lake users can be served from Valleyview, Crooked Creek, Sturgeon Heights and the Sturgeon Lake Cree Nation. As residential and recreation developments expand, however, there may be an opportunity for the establishment of small commercial ventures, primarily of a convenience nature.

## 7.2 Policies

**7.2.1** The subdivision and development of land for commercial uses may be permitted in the Development Area subject to rezoning. For the purpose of this section, the types of uses that may be supported include:

- a. Convenience stores;
- b. Recreational vehicle and boat storage; and
- c. Restaurants.

Convenience stores and restaurants do not require rezoning if developed as an accessory use within an existing development within the Recreation (REC) District of the LUB.

**7.2.2** The reclassification of land for industrial purposes shall not be permitted in the Development Area under any circumstances.

**7.2.3** Greenview shall not support the development of oil and natural gas exploration and extraction activities in the Development Area. In addition, no such activity shall be supported in the ASP area if located within 100 m (328 ft) of the lake or a permanent watercourse draining into the lake.

# 7.0





# INFRASTRUCTURE

## 8.1 Introduction

In order to serve the residents of the Sturgeon Lake area, Greenview has recently expanded the existing sewage lagoon at Sturgeon Heights. The lagoon was originally constructed as an integral part of an overall sewage disposal strategy for the area. Such a strategy is required to alleviate an increasing pressure for disposal facilities while at the same time protecting the quality of lake water by providing sound environmental options for local sewage disposal. The policies that follow are intended to further these goals, as well as addressing other servicing needs.

The ASP area is served by three paved roads (Highway 43 and Township Road 704 on the south of the lake, and the Young's Point Road (RR 251/Township Road 710) that bounds the West Bay to the west and north) as well as several gravel roads. Local roads that serve the interior of the ASP area are connected to these main roads. The purpose of this section is also to provide policies that will continue to ensure the safe and efficient flow of traffic through the area.

The use of environmentally friendly technologies and practices will be encouraged in the design and construction of all infrastructure. This may include the use of Low Impact Development (LID) standards for storm water management and energy conservation.

## 8.2 Servicing

**8.2.1** Greenview shall require all developments to provide holding tanks or composting toilets for sewage disposal if the development involves:

- a. New residential development or subdivision located within a Development Area; or
- b. New development or subdivision, including vacant first parcels out and the resubdivision of existing lots in the ASP area but outside a Development Area if the proposed sewage system is located within 91 m (300 ft) of any watercourse draining into the lake.

It is intended that these tanks be installed at locations that are easily accessible for a vacuum truck, and are to be pumped out regularly for disposal at a licensed facility. Surface discharges and other on-site systems may be permitted elsewhere in the ASP area provided that they conform to provincial standards.

**8.2.2** Multi-lot subdivisions may be serviced with communal sewage systems provided if they are registered as a condominium. The maintenance and upkeep of such systems shall be the responsibility of the condominium association and shall be located on common property within the development.

**8.2.3** New or expanding resort developments may be serviced with private lagoon facilities that are developed and operated in accordance with Provincial standards.

**8.2.4** Greenview may undertake a feasibility study to assess the potential options for the provision of municipal water and sewer services in the Narrows and other development nodes within a Development Area.

**8.2.5** In the event that municipal water and/or sewer services are installed in a Development Area, all development in proximity shall be required to connect to the system. Such services shall be designed and constructed in accordance with Greenview's Development Guidelines and Municipal Servicing Standards (MSS).

**8.2.6** In the case of existing development, Greenview encourages the upgrading of existing sewage facilities. To this end, as existing developments require development permits to renovate, reconstruct or enlarge, such permits shall be approved with a condition requiring that a sewage holding tank be installed

**8.2.7** For all new subdivisions, the applicant shall be required to demonstrate the availability of potablewater and/or construct a water system in accordance with the requirements of Greenview's MSS.

**8.2.8** The design and provisions for storm drainage shall take into account the reduction of ditch erosion, environmental damage, and sedimentation of the lake. The development of storm ponds may be required in accordance with Greenview's MSS.

### 8.3 Transportation

**8.3.1** The developer of a subdivision or development shall be responsible for the construction of all internal roads in accordance with the requirements of Greenview's MSS. In addition, the developer may be responsible for the costs of upgrading or widening existing roads serving the development.

**8.3.2** The construction of new roads shall not adversely impact sensitive natural features, recreation areas or historical sites.

**8.3.3** In order to accommodate development along Highway 43, service roads shall be provided in accordance with Alberta Transportation requirements.

**8.3.4** The provision, design and construction of all roads and access points affecting Highway 43 shall conform to Alberta Transportation standards. The design and construction of all road improvements shall have regard for the storm drainage system, and all proposed access points to developments shall have regard for traffic safety.

**8.3.5** Outside of approved public docking and boat launch facilities, no direct vehicular access to the lake shall be permitted.

## 8.4 Community Health and Safety

**8.4.1** Fire protection for the ASP area is provided by the DeBolt Fire Department and the Valleyview Volunteer Fire Department, a strong group of volunteer fire fighters serving the surrounding Sturgeon Lake area. Greenview will work in partnership with the community and emergency responders in maintaining appropriate emergency response services.

**8.4.2** In order to protect the community from environmental hazard:

- a. Future subdivision and development shall incorporate fire preparedness measures, such as provincial FireSmart guidelines;
- b. Greenview will require an Environmental Assessment to ensure measures are taken to mitigate any potential adverse environmental impacts. Greenview will adhere to the recommendations set out in the required Environmental Assessment, which may include restrictions with regard to:
  - i. Development of permanent structures,
  - ii. Removal of vegetation, and
  - iii. The alteration of natural drainage patterns.



# IMPLEMENTATION

## 9.1 Introduction

Upon adoption, this ASP shall become the policy document of Greenview to manage development in the Sturgeon Lake area.

## 9.2 Policies

**9.2.1** The land use designations in this ASP are considered flexible. However, an amendment will be required to the ASP in the event that:

- a. The intent of a policy is to be changed;
- b. A change is proposed to the land use areas identified in Map 3; or
- c. Policies are to be introduced or excluded.

Interested parties and government agencies will have an opportunity to comment on a proposed amendment in accordance with the public hearing procedures under the Act.

**9.2.2** This ASP should be reviewed at ten year intervals unless changing conditions warrant a review prior to that time. Such reviews may reflect such factors as legislative change, changes to local demand, future servicing, or Council direction. In undertaking such a review, consideration should be given to:

- a. Local land use changes and emergent issues;
- b. New best practices and development trends; and
- c. Communication and consultation with residents and stakeholders.

**9.2.3** Greenview will consult with provincial government agencies and the Sturgeon Lake Cree Nation as required to coordinate planning efforts around the lake.

An aerial photograph of a residential development, featuring several houses with dark roofs and numerous young, conical evergreen trees planted in rows across a grassy field. The entire image is overlaid with a semi-transparent blue filter. A solid green vertical bar is positioned on the right edge of the frame.

# APPENDIX A

Glossary

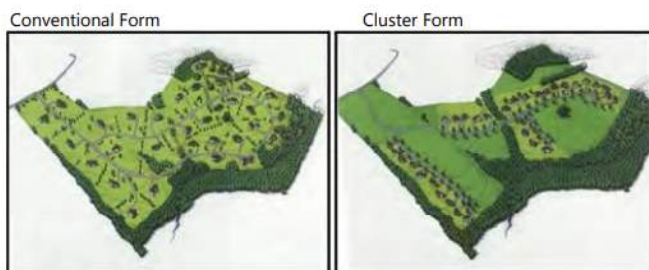


### Bed and Shore

Land located at and below the normal high water line of a lake or permanent wetland and where aquatic vegetation is normally present. Such land is under the jurisdiction of the Province.

### Cluster Form

An approach to land development where the main structures on nearby properties are grouped close together, enabling efficiencies in servicing and leaving large remnants in an undeveloped/semi-natural state or to serve as open space, conservation, recreation, or public uses.



### Communal Water and Sewer System

A system of water and/or wastewater infrastructure that serves a small, localized development, with capital and operation costs shared among the pool of users.

### Composting Toilet

A toilet design in which waste is retained and broken down through natural decomposition into a compost material, which can then be removed off-site. It uses no water for flushing and so does not require a connection to water supply, a septic system, or a municipal wastewater system.

### Conservation Lands

Lands identified within the Development Area as shown in the Land Use Concept (Map 3) that consist of Crown land, private lands that are designated for conservation purposes, or municipal lands that are designated as Municipal Reserve, Environmental Reserve, or for community purposes. These lands are not intended to undergo private development under this ASP.

### Country Residential Use

A use of land in a rural area, not situated in a hamlet, for primarily residential purposes, excluding farm buildings.

### Development Area

Lands identified in the Land Use Concept (Map 3) that consist of all private lands that have the potential to accommodate residential and recreational development. These lands are the intended target of private development under this ASP.

### Extensive Agriculture Use

A use of land involving the raising or production of any cultivated crops or livestock which utilizes relatively large areas of land and in which the use of buildings and confinement areas is auxiliary to the use of the land itself. This constitutes an agricultural operation pursuant to the Agricultural Operation Practices Act, but does not include an intensive livestock use such as a Confined Feeding Operation.

### FireSmart Guidelines

A framework for assessing, preparing for and reducing wildfire risk for communities. A guidebook for assessment and planning is available through the Province of Alberta.

### Fragmented Parcel

A portion of a parcel that is physically severed from the balance of a quarter section by a road, railway, water body, watercourse, ravine or similar feature. A Quarter Section containing a physical severance but that is still wholly on one title for the quarter is still treated as if it were one (1) quarter section unless subdivided.

### Invasive Species

A species that is not original to a local area and that has a tendency to spread to a degree believed to cause damage to the environment, human economy, or human health.



**Low Impact Development**

An approach to land use planning and engineering design to manage stormwater runoff as part of green infrastructure that is integrated with or makes use of existing natural features and processes to protect water quality.

**Municipal Water and Sewer System**

A system of water and/or wastewater infrastructure that is publicly funded and maintained by the municipal government. Typically this involves large-scale networks of pipes and centralized treatment facilities.

**Noxious Weeds**

A plant that causes damage or injury to crops, the natural environment, humans or livestock. Noxious weeds are defined by the *Alberta Weed Control Act*.

**Seasonal Recreational Use**

A use of land intended for occupancy on a short-term basis, which is further not to be continuous nor year-round.

**Steep Slope**

Land that exceeds a 15% incline (vertical rise as a portion of horizontal run).

**Terminal Platform Area**

The loading/unloading/lounging area of a dock structure. Does not include the walkway that is otherwise only used to access the terminal platform.

**Vault Toilet**

A toilet design in which waste is retained and stored (in a “vault”) so that it can be regularly removed and treated off-site. It uses no water for flushing and so does not require a connection to water supply, septic, nor municipal wastewater systems.

An aerial photograph of a residential area, showing several houses with dark roofs and a large number of young, conical evergreen trees planted in rows across a grassy field. The entire image is covered with a semi-transparent blue gradient. A solid green vertical bar is located on the far right edge of the page.

# APPENDIX B

**Sturgeon Lake Environmental Background Report**

**Sturgeon Lake Area Structure Plan Update  
Environmental Background Report**

**Final Report**

*Prepared for:*

**Municipal District of Greenview No. 16**  
Valleyview, Alberta

*Prepared by:*

**Spencer Environmental  
Management Services Ltd.**  
Edmonton, Alberta

*Under contract to:*

**ISL Engineering and Land Services Ltd.**  
Grande Prairie, Alberta

Project Number EP787

October 2018

# **Sturgeon Lake Area Structure Plan Update Environmental Background Report**

## **Executive Summary**

The current Sturgeon Lake Area Structure Plan (SLASP) was adopted by the Municipal District of Greenview (MD of Greenview) in 2002 to provide a framework for the long-term growth and development of the lands within the SLASP area. MD of Greenview recently commissioned a comprehensive review of the SLASP to ensure it remains consistent with current legislation and statutory plans, the community's vision and Council's strategic priorities. They identified environment as an area of concern and focus for the ASP review, with an emphasis on: preservation of Sturgeon Lake and surrounding watershed; respect for water quality and prevention of further water quality degradation; and existing vegetation. In support of the environmental aspects of the ASP review, the County commissioned a background report to describe current legislation and statutory plans affecting the plan area and provide high-level, desktop inventory of environmental sensitivities and opportunities for use as an effective planning and public engagement tool. This report represents the results of that desktop environmental study.

General methodology used to prepare this background report included: desktop review of existing project information, aerial photographic imagery, MD of Greenview data via MuniSight Ltd. and online data sources; review of available relevant research and resource management literature; review of legislation, plans and policies to compile a current legislative framework; field reconnaissance to document existing conditions and map resources within the study area; mapping of relevant sensitive resources and relevant planning boundaries for the entire SLASP using ArcGIS; analysis of Alberta's Environmental Significant Area (ESA) data (2014). Crown lands and groundwater resources were neither discussed nor mapped, owing to a lack of suitable datasets.

Results of the desktop analysis are presented in the main body of the report and in a 12-page ancillary map series. Since preparation of the 2002 SLASP, relevant legislative, plan and policy changes include: adoption of the municipality's 2016 MDP and environmental policies that provide support for ASP-level environmental protection; creation of an integrated watershed management plan; adoption of the Alberta Wetland Policy with associated directives; a new provincial Watershed Resiliency and Restoration Program; revisions to several provincial statutes and several approval application methods; revisions to two key federal statutes. Federal changes are more relevant to specific development projects, as they may govern or influence construction practices; for some activities, authorizations may be required. Other key study results include identification of protected areas and sensitive resources, description of hydrology, natural sub regions and vegetation, wildlife, fish/aquatic resources, wetlands, farmland capability, Alberta's Green and White Areas and recognized environmentally significant areas in the SLASP lands.

Additional observations, considerations and conclusions that may be useful to the SLASP review are as follows, presented in no particular order:

- Although the province no longer recognizes Sturgeon Lake as a mapped ESA, this exercise supports the 2002 SLASP contention that Sturgeon Lake is a significant and sensitive natural feature. For example, current information indicates that the lake drains a large catchment; receives flows from multiple tributaries, some of them first-order streams; appears to have many nearby wetlands that contribute to runoff management; is a valued sport fishery; supports two waterbird species that have specific breeding habitat requirements and a limited provincial distribution; and is a critical wildlife zone from the perspective of renewable energy management. It is also expected to be closely linked to the local groundwater table, on which many residents rely.



- Our findings support the 2016 MDP recognition of features such as lakes as environmentally sensitive lands. It also confirms that Sturgeon Lake is an important wildlife area.
- Our maps may assist planners and developers in identifying ASP lands that contain sensitive habitat and therefore may qualify as Environmental Reserve.
- Our findings reinforce the utility of the 2002 ASP boundary as the entire Sturgeon Lake watershed, which recognizes that important resources, such as stream and wildlife management zones, extend beyond the ASP primary zone boundary.
- The majority of Sturgeon Lake west bay shoreline is currently unprotected being neither municipal level reserve nor in provincial ownership. The majority of Sturgeon Lake main bay shoreline is either extra-jurisdictional Indian Reserve lands or is protected by its status as provincial park or ER.
- Sturgeon Lake water quality and quantity remains an important consideration and is in keeping with provincial initiatives such as Alberta's watershed resiliency and restoration program. The SLASP (2002) provides important protection for shoreline and stream riparian zones that in turn protect Sturgeon Lake water quality. If this protection is subject to review, our findings suggest a strengthening rather than diminishing of protection. Full protection of first-order stream reaches in the primary and secondary zones is an avenue to explore. Further, the MD may wish to circulate applications to DFO for review for projects crossing Sturgeon Lake tributary streams.
- Wetlands are an important consideration in future planning and development decisions, for all parcels. The SLASP may wish to consider specific wetland policies that recognize wetland ecological services and how they may contribute to Sturgeon Lake protection.
- The Provincial parks that border Sturgeon Lake are good neighbours and assist in lake protection and management. The MD may wish to explore how lands along the MD /park boundaries could be managed (e.g., in their capacity as buffers) to increase the ability of Park lands to protect fish and wildlife resources and water quality.
- Lands mapped as coniferous or mixedwood landcover are relatively limited in occurrence in the primary and secondary zones and contribute to habitat diversity with the area. Their conservation could be a consideration when dedicating Municipal Reserve or when discussing Conservation Reserve with land owners.
- When dedicating ER or riparian setbacks, considering using surveyed high water level as the targeted landmark rather than lake shore.
- This report relied on datasets derived for very large areas. Very little SLASP specific resource information is available.
- AEP's information should be used with caution when planning renewal energy projects and zones should be verified with site-specific investigations to confirm the presence of sensitive wildlife habitat.
- For policies requiring retention of lands in a natural state, consider also specifying certain minimum polygon sizes to attain the habitat benefits associated with larger habitat patches, rather than a mosaic of smaller patches.

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## **1.0 INTRODUCTION**

### **1.1 Background**

The current Sturgeon Lake Area Structure Plan (SLASP) was adopted by the Municipal District of Greenview (MD of Greenview) in 2002 to provide a framework for the long-term growth and development of the lands within the SLASP area. MD of Greenview recently commissioned a comprehensive review of the SLASP to ensure it remains consistent with current legislation and statutory plans, the community's vision and Council's strategic priorities. They identified environment as an area of concern and focus for the ASP review, with an emphasis on:

- Preservation of Sturgeon Lake and surrounding watershed
- Water quality (with emphasis on respect for WQ and prevention of further degradation)
- Existing vegetation

The comprehensive review was also to include development of a background report outlining current legislation and statutory plans affecting the plan area and a high level, desktop inventory of environmental sensitivities and opportunities to be used as an effective planning and public engagement tool. To that end, MD of Greenview retained ISL Engineering and Land Services Ltd. (ISL) to review and revise the SLASP as required. ISL retained Spencer Environmental Management Services Ltd. (Spencer) to provide a high-level desktop inventory of environmental sensitivities and opportunities in the SLASP area and an overview of current legislation and statutory plans. This report represents the results of that desktop study.

### **1.2 Report Organization**

This report is organized into 14 sections. Section 1 provides introductory background information followed by Study Area and Context in Section 2 and Methodology in Section 3. Section 4 provides information regarding the current legislative framework informing revisions to the SLASP. Sections 5-11 provide key environmental background information related to protected areas and sensitive resources, hydrology, natural sub regions and vegetation, wildlife, fish/aquatic resources, farmland capability and Alberta's Green and White Areas and environmentally significant areas. Finally, Section 12 presents observations and conclusions. References are provided in Section 13.

## **2.0 STUDY AREA AND CONTEXT**

The SLASP review study area comprises the full area structure plan (ASP) lands, which is coincident with the boundaries of the Sturgeon Lake watershed, approximately 15 km west of Valleyview, Alberta. A smaller Primary Zone encompasses Sturgeon Lake and adjacent areas (Figure 1; Appendix A). The ASP area covers a large, diverse and complex area that includes lands within both Green and White areas, portions of Sturgeon Lake Indian Reserve (154A and B), two provincial parks, Sturgeon Lake (a significant natural feature and popular recreation area), a diversity of smaller lakes, watercourses and wetlands,



upland forest and agricultural lands. There is high demand for recreational and country residential land use, especially in the vicinity of Sturgeon Lake.

## **3.0 METHODOLOGY**

### **3.1 General**

We undertook the following broad tasks to prepare this background report:

- Desktop review of existing project information, aerial photographic imagery, MD of Greenview data via MuniSight Ltd. and online open data sources
- Review of available relevant research and resource management literature.
- Review of legislation, plans and policies to compile a current legislative framework.
- Field reconnaissance inspection to document existing conditions and map resources within the study area.
- Mapping relevant sensitive resources and relevant planning boundaries for the entire SLASP area using ArcGIS. For mapping purposes, a 3 km buffer was applied to the ASP boundary to account for features and zones located within the ASP that extended beyond its boundary (e.g., wetlands, swan buffers, etc.). That buffer was incidentally included along the east boundary of the Sturgeon Lake IR lands so that those lands would not be trimmed from the map.
- Alberta's Environmentally Significant Area (ESA) data (2014) (Fiera 2014) were analyzed to identify and map all quarter sections with a score greater than 0.189 (identified as an ESA).
- All datasets are shown for all lands within the SLASP boundary, regardless of jurisdiction, but all maps also clearly identify provincial parks and Indian Reserves.

Crown lands and groundwater resources are not discussed or mapped, owing to lack of suitable desktop datasets.

### **3.2 Detailed**

#### **3.2.1 GIS Information Review**

The following online data sources were searched/reviewed:

- Alberta Conservation Information Management System (ACIMS), online data map searched 15 August 2018 for records of rare plant species or unusual plant communities in the SLASP lands (AEP 2017a).
- Fish and Wildlife Management Information System (FWMIS), searched 22 August 2018 using the Fish and Wildlife Internet Mapping Tool (FWIMT) for relevant recorded sensitive wildlife and fisheries species information and the location of special resource management zones relative to the SLASP area (AEP 2018a).

In addition, a complete list of specific GIS-based resources used in this desktop study is provided in Appendix B. The most recent and scale appropriate datasets were specifically targeted for this study.

### **3.2.2 Field Reconnaissance**

A field reconnaissance of the SLASP primary zone around Sturgeon Lake was conducted on 18 July 2018 with personnel from the MD of Greenview's Planning and Development Office to gain an understanding of environmental resources and related planning issues. The reconnaissance comprised a driving tour of the area complemented with on-site foot reconnaissance of select locations around the lake. Field documentation included annotating maps of the area as well as taking relevant field notes. Representative site photographs were taken throughout to assist in our subsequent investigations.

## **4.0 LEGISLATIVE FRAMEWORK**

Since preparation of the current SLASP (2002), there have been revisions to several municipal plans and policies, and there are new or revised regional, provincial and federal plans and legislation applicable to the diversity of resources and jurisdictions in the planning area. At the municipal level, the 2016 MDP and its environmental policies are key to SLASP revision and provide support for ASP level environmental protection. At the regional and provincial level, the updated SLASP should strive to align with and respect the influence of plans, guidelines and legal statutes that are now in place. At the regional level there is a new integrated watershed management plan. At the provincial level there is a new wetland policy with associated directives, a new Watershed Resiliency and Restoration Program, revisions to several statutes and key revisions to several approval application methods. At the federal level, two key statutes have been significantly revised. While identified federal legislation is certainly important, those statutes are more relevant to specific development projects, as they may govern or influence construction practices and, for some activities, authorizations may be required. The relevant instruments for all orders of governance are described in Appendix C.

## **5.0 PROTECTED AREAS AND SENSITIVE RESOURCES**

Protected areas in SLASP lands include two provincial parks located in the primary zone: 1) Young's Point Provincial Park (approximately 10.8 km<sup>2</sup> on the northwest shore of the main lake basin; and 2) the much smaller Williamson Provincial Park (1.74 km<sup>2</sup>) on the southwest shore of the main lake basin (Swanson and Zurawell 2006) (Figures 1 and 2, Appendix A). In addition, Alberta Parks' Sturgeon Lake Natural Area is located on a 28 ha island in the west bay of Sturgeon Lake, an area only accessible by boat (Alberta Parks 2018) (Figure 2, Appendix A). Approximately 19 areas around the margins of Sturgeon Lake are identified as municipal level reserves (Figure 3, Appendix A).

Sensitive resources in SLASP lands include provincially identified trumpeter swan 500 and 800 m buffers (See Section 8.1.1) around all water bodies as well as a provincially identified sharp-tailed grouse survey area (See Section 8.1.3) in the southeast section of the ASP secondary zone (Figure 2, Appendix A). Domestic and other use water wells are scattered throughout ASP lands with concentrations in residential areas around Sturgeon Lake and further west of the lake (Figures 2 and 3, Appendix A). The majority of shoreline

in the west bay of Sturgeon Lake is not protected by municipal level reserve or provincial ownership and the majority of the main bay shoreline is protected by provincial parks, environmental reserve (ER), or is extra-jurisdictional land.

## **6.0 HYDROLOGY**

### **6.1 Watersheds and Sub-Basin**

The SLASP lands are located in the Smoky/Wapiti River sub-basin (approximately 46,659 km<sup>2</sup>) within the larger Peace/Slave watersheds. The Peace/Slave River basin, the largest in Alberta, includes inflows from several major rivers including the Wapiti, Smoky, Little Smoky and Wabasca (Figure 4, Appendix A). That basin is coincident with the scope of the recently released Integrated Watershed Management Plan for the Peace and Slave Watersheds (IWMP)(Mighty Peace Watershed Alliance 2018).

The Smoky/Wapiti sub-basin is the largest sub-basin in the Peace Watershed and is the most diverse in terms of natural regions including alpine, foothills, central and dry mixed-wood forests and parkland in lower reaches (Hutchinson 2014). This sub-basin contains the largest number of large point source discharges and large agricultural areas, mostly in the Wapiti River catchment to the west of the SLASP. The Smoky River catchment (containing the SLASP) is predominantly forested, with areas of resource development and agriculture.

### **6.2 Streams**

SLASP lands are hydrologically complex with many streams and other water bodies including several lakes (Figure 1 and Figure 5, Appendix A). The Province classifies streams according to the Strahler method. First order streams are streams dominated by overland water flow and having no upstream concentrated flow (i.e., no links to tributary flows). They are the first upstream reach and closest to the headwaters (ArcGIS Pro 2018). Stream order increases to 2, 3, 4, etc. when two streams of the same order intersect along the downstream reaches of a stream. SLASP lands include fifth order streams. Since first order streams are closest to the source of the stream they are considered most susceptible to non-point source pollution and thus benefit the most from maintenance of wide riparian buffers relative to other areas in the watershed (ArcGIS Pro 2018). Figure 5 (in Appendix A) illustrates the location of identified first order streams throughout the SLASP area and therefore provides information relevant to riparian protection buffers. Most of the streams in the SLASP primary zone are relatively short, first-order streams that originate in the secondary zone and flow into the primary zone are longer.

### **6.3 Wetlands**

Inventoried wetlands in the ASP secondary and primary zone (Figures 7 and 8, Appendix A) are shown in Figures 7 and 8 in Appendix A. There are a significant number of wetlands across the entire ASP, scattered throughout with few identifiable concentrations. The data are from the Alberta Merged Wetland Inventory, a dataset known to be coarse and in need



of ground-truthing to confirm the presence/absence and boundaries of wetlands for specific locations in the ASP.

## **6.4 Sturgeon Lake**

### **6.4.1 Hydrology**

Sturgeon Lake is a large (approximately 49.1 km<sup>2</sup>), moderately shallow lake with an extensive drainage basin (approximately 521 km<sup>2</sup>) (Swanson and Zurawell 2006) (Figures 1). The lake's drainage basin includes a series of smaller water bodies and watercourses that drain into the lake on the north, west and southwest shores (Figure 5) and the SLASP is defined by that watershed. The main inflow, Goose Creek, enters the lake on the south shore and drains Goose, Long and Grassy Lakes to the south (Figures 1 and 5). Sturgeon Lake's outlet is Sturgeon Creek, on the lake's east shore, which carries water from the lake to the Little Smoky River to the east and ultimately into the Peace River to the north. Lake water levels are controlled by an adjustable concrete weir in Sturgeon Creek.

The lake comprises a main basin connected to a west bay by a narrow channel (Figure 1 and Figure 5). Maximum lake depth of 9.5 m is located in the main basin, just east of the channel, with the minimum lake depth of approximately 3 m in the west bay (Swanson and Zurawell 2006). With the exception of drought conditions in 1998-2001, lake water levels over the period 1982-2005 have remained relatively stable with annual fluctuations of 0.5 m (Swanson and Zurawell 2016).

### **6.4.2 Surface Water Quality**

Water quality at Sturgeon Lake was regularly monitored through the Provincial Parks Monitoring Program during the period 1983-2004 (Swanson and Zurawell 2006). During that time one to seven water samples were taken most years during the May-September open-water season. Results from that program indicated that Sturgeon Lake was a hypereutrophic lake (very high productivity) with fair recreational water quality. It was considered a fresh, neutral (neither acidic nor alkaline) lake with relatively low hardness. Relative to other lakes in the monitoring program it had low alkalinity meaning it was not well buffered against acidic deposition from snow or rainfall (Swanson and Zurawell 2006). Except for sulfate and carbonate, concentrations of most ions and associated measured parameters (e.g., conductivity, alkalinity, hardness and total dissolved solids) increased during the period 1983-2004. Concentrations of chlorophyll-a and total phosphorous fluctuated over the monitoring period with a spike in the second last year of monitoring (2003). Since water levels had been relatively stable during the sampling period it was believed these increases may have been due to increased inputs from roads, agricultural lands or residential development (Swanson and Zurawell 2006). As a result of increased inputs such as phosphorous, occasional cyanobacterial (blue-green algae) blooms have occurred over the last several years during the summer (S.A. Rosson, *pers. comm.*), which impairs water quality and produces toxins harmful to humans, wildlife and domestic pets.

## 7.0 NATURAL SUB REGIONS AND VEGETATION

The SLASP is located within the boreal forest natural region of Alberta and contains lands that are mapped as belonging to the dry mixedwood and the central mixedwood subregions (Figure 5, Appendix A)(Natural Regions Committee 2006). The dry mixedwood subregion comprises a relatively small portion of the ASP and is limited to the primary zone and Sturgeon Lake and extends to the east and beyond the ASP. Vegetation in that subregion is characterized by aspen forest and cultivated landscapes, with fens commonly occurring in low-lying areas. The remainder of the ASP area is located in the central mixedwood subregion. Vegetation in that subregion is characterized as a mosaic of upland aspen, mixedwood and white spruce forests with extensive areas of mainly treed fens. Mapped vegetation landcover classes (Figure 8, Appendix A) demonstrate the mosaic of vegetation types present in the ASP area. Broadleaf forest, the dominant land cover is interspersed with smaller areas of both coniferous forest and mixed forest, and fewer areas of shrubland and grassland. Concentrations of agriculture lands occur west of and on the margins of Sturgeon Lake west bay and along the east-central margin of the secondary zone. The majority of the undeveloped primary zone lands support agriculture, forest is the second most common land cover. Within the primary zone, coniferous forest is uncommon, occurring in a few patches only but of significant size at that scale. The most recent land cover data is from 2010 and may not accurately represent conditions, particularly in the primary zone.

### 7.1 *Special Status Species*

The ACIMS database search returned one historical special status non-vascular plant species in the SLASP area. That record was for the bean-spored rim lichen (*Lecania dubitans*) (ranked S2S4), observed in Williamson Provincial Park in 1967. No other records of special status plant species were identified in FWMIS or in other sources, including ABMI's open vegetation data. The lack of records does not necessarily indicate an absence of rare species; it may be a reflection of lack of surveys or lack of private sector or research survey results reported to Alberta Environment and Parks (AEP). The survey effort on SLASP lands is unknown.

## 8.0 WILDLIFE

### 8.1 *Special Status Species*

The FWMIS database search returned two records of special status wildlife species in the SLASP: trumpeter swan (*Cygnus buccinator*) (federally ranked as *Not at Risk* and provincially ranked as *Species of Special Concern* under the *Wildlife Act*) and western grebe (*Aechmophorus occidentalis*)(federally ranked as *Special Concern* on Schedule 1 of the *Species at Risk Act* (SARA) and provincially ranked as *Threatened* under the *Wildlife Act*). Lack of other records does not necessarily indicate an absence of rare species; it may be a reflection of lack of surveys or lack of private sector or research survey results reported to AEP. The survey effort on SLASP lands is unknown.

### 8.1.1 *Trumpeter Swan*

Trumpeter swan populations have been increasing in Alberta over the last 25 years due to active provincial management of trumpeter swan breeding habitat in the province (AEP 2018b). FWMIS contains records of trumpeter swans at all water bodies in the SLASP. Identified threats to trumpeter swans include habitat loss (wetland drainage, shoreline development) and human disturbance (e.g., vehicle traffic, boating, low-flying aircraft, industrial activity) on lakes and wetlands that may result in nest abandonment and the resulting death of young (AEP 2018b). In addition, AEP has noted that collisions with single-wire power lines is a significant source of mortality to swans (AEP 2018c). To minimize disturbance to trumpeter swan breeding habitat, AEP has developed recommended land use guidelines for activities near trumpeter swan habitat (AESRD 2012). The province has also established recommended 500 m and 800 m land use buffers around identified lakes or water bodies including water bodies in the SLASP lands (Figures 2 and 3). While those buffers, extending from the water body shoreline, greatly exceed what is practical and mandated in the current SLASP for development, these zones should be considered as sensitive areas with respect to swan habitat management. They are particularly relevant to certain types of development including single-line power lines and renewable energy projects such as wind and solar energy projects (See Section 8.1.3). There is no database specific to trumpeter swan use of Sturgeon Lake or other water bodies in the SLASP.

### 8.1.2 *Western Grebe*

Western grebe, a diving, fish-eating and colonial nesting waterbird species, was recently confirmed to be present during the breeding season (01 May to 31 August) at Sturgeon Lake (Prescott et al. 2018). Specifically, 179 individuals were observed at the lake in 2015. Through their recent update on the distribution and abundance of western grebe in Alberta, AEP identified Sturgeon Lake as a priority lake for future surveys and management actions based on: 1) Sturgeon Lake was confirmed to support  $\geq 100$  birds up to the year 2016, and 2) the lake has a “High” habitat suitability meaning it is considered a larger water body with extensive and continuous patches of emergent vegetation capable of supporting  $\geq 100$  breeding birds (Prescott et. al. 2018). A provincial recovery plan for this species is currently under development and is expected to include management actions that can be directed towards lakes where the maximum benefit can be attained. Considering Sturgeon Lake has been identified as a priority lake with respect to western grebe, and pending the outcome of AEP’s recovery plan, specific management actions may be required at this lake, which may influence adjacent land use planning.

### 8.1.3 *Sharp-tailed Grouse Survey Area*

Sharp-tailed grouse are relatively common throughout Alberta in areas of suitable grassland and shrubland habitats, including localized areas in the Boreal Forest Natural Region (The Federation of Alberta Naturalists 2007). Despite this, it is considered a *Sensitive* species (Alberta Wild Species General Status Listing 2015), because of the long-term effects of agriculture on the open grassland and shrubland habitat on which the species depends during the breeding season for its dancing grounds (leks) (AEP 2015). AEP has identified specific survey areas throughout the province where surveys for leks are required

prior to disturbance. Once such survey area is situated southeast of the Sturgeon Lake Indian Reserve that partially occupies the SLASP Secondary Zone (Figure 2).

## **8.2 Renewable Energy Wildlife Habitat Sensitivity Risk**

AEP's wildlife directives for Alberta wind and solar energy projects identifies areas of wildlife habitat sensitivity across the province. Those directives and the areas of wildlife habitat sensitivity map should be consulted and considered when choosing suitable sites for those types of developments on the landscape (AEP 2017b). AEP results were analysed and presented by quarter section. For lands within the SLASP, AEP identified sensitivity risk zones ranging from critical wildlife zones or non-accessible areas to lower risk (Figure 9, Appendix A). Critical wildlife zones in the SLASP included provincial parks and protected areas as well as the trumpeter swan buffer areas around water bodies as previously discussed above in Section 8.1.1. While there are scattered high (areas likely used by one or more species at risk or priority management species) and moderate (species at risk or priority management species and proximity to native grasslands) risk areas identified, it is less clear from AEP's available data why those areas were identified as such. For example, the one quarter section identified as High risk immediately south of the Sturgeon Lake channel straddles Highway 43 and there are no records of sensitive species available in FWMIS for that area. Similarly, the Moderate risk areas in the same location appears to coincide with areas identified as pasture (Figures 10 and 11, Appendix A) rather than native grassland. In addition, although the landcover map indicates that some small native grassland areas do occur throughout the SLASP area (Figure 8; Appendix A), the Moderate risk areas appear to more closely align with the agriculture land class than the grassland class. AEP's information should be used with caution when planning renewal energy projects and should be confirmed with site-specific investigations to confirm the presence of sensitive wildlife habitat.

## **9.0 FISH/AQUATIC RESOURCES**

### **9.1 Fisheries**

Sturgeon Lake and its tributaries support several native sport and coarse fish species including: burbot (*Lota lota*), lake whitefish (*Coregonus clupeaformis*), northern pike (*Esox lucius*), walleye (*Stizostedion vitreum*), yellow perch (*Perca flavescens*), spottail shiner (*Notropis hudsonius*), white sucker (*Catostomus commersoni*), Iowa darter (*Etheostoma exile*), longnose sucker (*Catostomus Catostomus*) and trout perch (*Percopsis omiscomaycus*) (FWMIS 2018). The FWMIS database search returned no records for special status fish species in the SLASP area.

Historically, Sturgeon Lake supported several fishery uses and was managed by the Province for recreational, commercial, and domestic user groups. The lake supported a commercial fishery for lake whitefish from the 1940s to the 2000s (Alberta Conservation Association (ACA) 2002). On August 1, 2014, all lakes in Alberta were closed to commercial fishing and commercial fishing ceased (AEP 2016b). Sturgeon Lake is still considered one of the most important sport fisheries in the region and has been extremely popular for recreational angling of walleye, yellow perch, and northern pike. An ACA



(2007) creel survey reported three species harvested: walleye, northern pike and (relatively few) yellow perch. Currently, Sturgeon Lake is managed as part of Alberta's Eastern Slopes Fish Management Zone. Like most of Alberta's lakes, fish populations are being managed for declining fish resources. In 2018/2019, fishing regulations restricted harvesting (retention of catch) to two species: burbot and yellow perch (AEP 2018e).

## **9.2 Aquatic Invasive Species**

The SLASP area falls within the province's whirling disease decontamination risk zone which indicates a high to moderate risk, meaning 1) waters in the area are susceptible to aquatic invasive species or fish disease, and/or 2) there is high/activity use of water bodies or the area is close to high population bases (AEP 2017c). Whirling disease is an infectious and often fatal disease that affects young salmonid fish such as trout, salmon and whitefish and has been detected in a number of waterbodies in four major watersheds in central and southern Alberta (Bow River, North Saskatchewan River, Oldman River, Red Deer River) (AEP 2018d). Whirling disease can be transmitted from infected locations to other water bodies through: equipment used for boating, fishing, paddling, scuba diving, swimming and water pumping infected fish and fish parts. The movement of fish (dead or alive), mud and water can potentially spread whirling disease. While this disease is not harmful to humans or other mammals, it can pose significant risks to conservation and sustainability of native fish species and their habitats. The decontamination protocols for watercraft and equipment developed by AEP for the yellow zone should, therefore, be adhered to by all users of water bodies in the SLASP area to prevent further spread of whirling disease and other fish diseases and aquatic invasive species.

## **10.0 FARMLAND CAPABILITY AND ALBERTA'S GREEN & WHITE AREAS**

Farmland capability for the SLASP, as mapped by the MD and excluding provincial parks, Indian Reserves and the Green Area, is shown in Figure 10 (in Appendix A). Three categories are recognized: arable, pasture and waste. Most lands are identified as pasture with a smaller portion identified as arable. Some data gaps are visible on lands associated with Young's Point Provincial Park, Sturgeon Lake Indian Reserve, along the south shore of the channel of Sturgeon Lake, in the southeast portion of the SLASP and along the west-central boundary of the SLASP. The remainder of the ASP area falls within the Green Area (forested). In the primary zone, lands surrounding Sturgeon Lake west bay comprises a mixture of lands with pasture and arable capabilities. There is one small area mapped as 'waste' capability shown on the west shoreline of Sturgeon Lake (Figure 11, Appendix A).

## **11.0 ENVIRONMENTALLY SIGNIFICANT AREAS**

In 2014, AEP updated their Environmentally Significant Areas (ESAs) analysis, mapping and reporting, including their approach to aquatic ESA's. That report replaces the Environmentally Significant Areas – Provincial Update 2009 and the Aquatic Environmentally Significant Areas of Alberta 2010 (AEP 2016). In the 2014 update (Fiera

2014), ESAs were identified at a very coarse scale (using the quarter-section as the unit of analysis). Fiera (2014) used select criteria, sub-criteria, and indicators to develop a model resulting in an environmental value for each quarter section in the province. ESA's were then identified as all quarter sections scoring at least 0.189. The model output serves as a coarse scale assessment of environmental values in the province. Overall, Fiera (2014) found that the Boreal Forest Natural Region contained the greatest proportion of ESA's across the province. The intent of the updated ESAs exercise is that it serves as an information tool, and not a regulatory tool, to support municipal, regional, and provincial scale planning initiatives.

ESAs (quarter section values  $>0.189$ ) within the SLASP lands are shown on Figure 12 in Appendix A. Much of the SLASP lands scored as ESAs. Larger blocks are concentrated in the Green Area but some multi-quarter section blocks are present in the primary zone. It is notable that Sturgeon Lake was not identified by the model as meeting the scoring criterion for identification as an ESA, while smaller lakes do meet that criterion. A review of the modelling data and methodology suggests the reason for the exclusion of Sturgeon Lake, as well as several other large lakes throughout the province, is that the model appears to have a positive bias towards terrestrial habitats and areas containing rivers and streams. In particular, because of inconsistencies in the model component data sources, the model purposefully excluded the contribution of lakes and wetlands to water quality and quantity. This exclusion negatively influenced the capacity for large lakes, such as Sturgeon Lake, to meet the threshold for identification as an ESA.

## **12.0 OBSERVATIONS AND CONCLUSIONS**

Building on the above findings, following are some additional observations, considerations and conclusions that may be useful to the SLASP review, presented in no particular order.

- Although the province no longer recognizes Sturgeon Lake as a mapped ESA, this exercise supports the 2002 SLASP contention that Sturgeon Lake is a significant and sensitive natural feature. For example, current information indicates that the lake drains a large catchment; receives flows from multiple tributaries, some of them first-order streams; appears to have many nearby wetlands that contribute to runoff management; is a valued sport fishery; supports two waterbird species that have specific breeding habitat requirements and a limited provincial distribution; and is a critical wildlife zone from the perspective of renewable energy management. It is also expected to be closely linked to the local groundwater table, on which many residents rely.
- Our findings support the 2016 MDP recognition of features such as lakes as environmentally sensitive lands. It also confirms that Sturgeon Lake is an important wildlife area.
- Our maps may assist planners and developers in identifying ASP lands that contain sensitive habitat and therefore may qualify as Environmental Reserve.

- Our findings reinforce the utility of the 2002 ASP boundary as the entire Sturgeon Lake watershed, which recognizes that important resources, such as stream and wildlife management zones, extend beyond the ASP primary zone boundary.
- The majority of Sturgeon Lake west bay shoreline is currently unprotected being neither municipal level reserve nor in provincial ownership. The majority of Sturgeon Lake main bay shoreline is either extra-jurisdictional Indian Reserve lands or is protected by its status as provincial park or ER.
- Sturgeon Lake water quality and quantity remains an important consideration and is in keeping with provincial initiatives such as Alberta's watershed resiliency and restoration program. The SLASP (2002) provides important protection for shoreline and stream riparian zones that in turn protect Sturgeon Lake water quality. If this protection is subject to review, our findings suggest a strengthening rather than diminishing of protection. Full protection of first-order stream reaches in the primary and secondary zones is an avenue to explore. Further, the MD may wish to circulate applications to DFO for review for projects crossing Sturgeon Lake tributary streams.
- Wetlands are an important consideration in future planning and development decisions, for all parcels. The SLASP may wish to consider specific wetland policies that recognize wetland ecological services and how they may contribute to Sturgeon Lake protection.
- The Provincial parks that border Sturgeon Lake are good neighbours and assist in lake protection and management. The MD may wish to explore how lands along the MD /park boundaries could be managed (e.g., in their capacity as buffers) to increase the ability of Park lands to protect fish and wildlife resources and water quality.
- Lands mapped as coniferous or mixedwood landcover are relatively limited in occurrence in the primary and secondary zones and contribute to habitat diversity with the area. Their conservation could be a consideration when dedicating Municipal Reserve or when discussing Conservation Reserve with land owners.
- When dedicating ER or riparian setbacks, considering using surveyed high water level as the targeted landmark rather than lake shore.
- This report relied on datasets derived for very large areas. Very little SLASP specific resource information is available.
- AEP's information should be used with caution when planning renewal energy projects and zones should be verified with site-specific investigations to confirm the presence of sensitive wildlife habitat.

- For policies requiring retention of lands in a natural state, consider also specifying certain minimum polygon sizes to attain the habitat benefits associated with larger habitat patches, rather than a mosaic of smaller patches.



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### **13.2 Personal Communications**

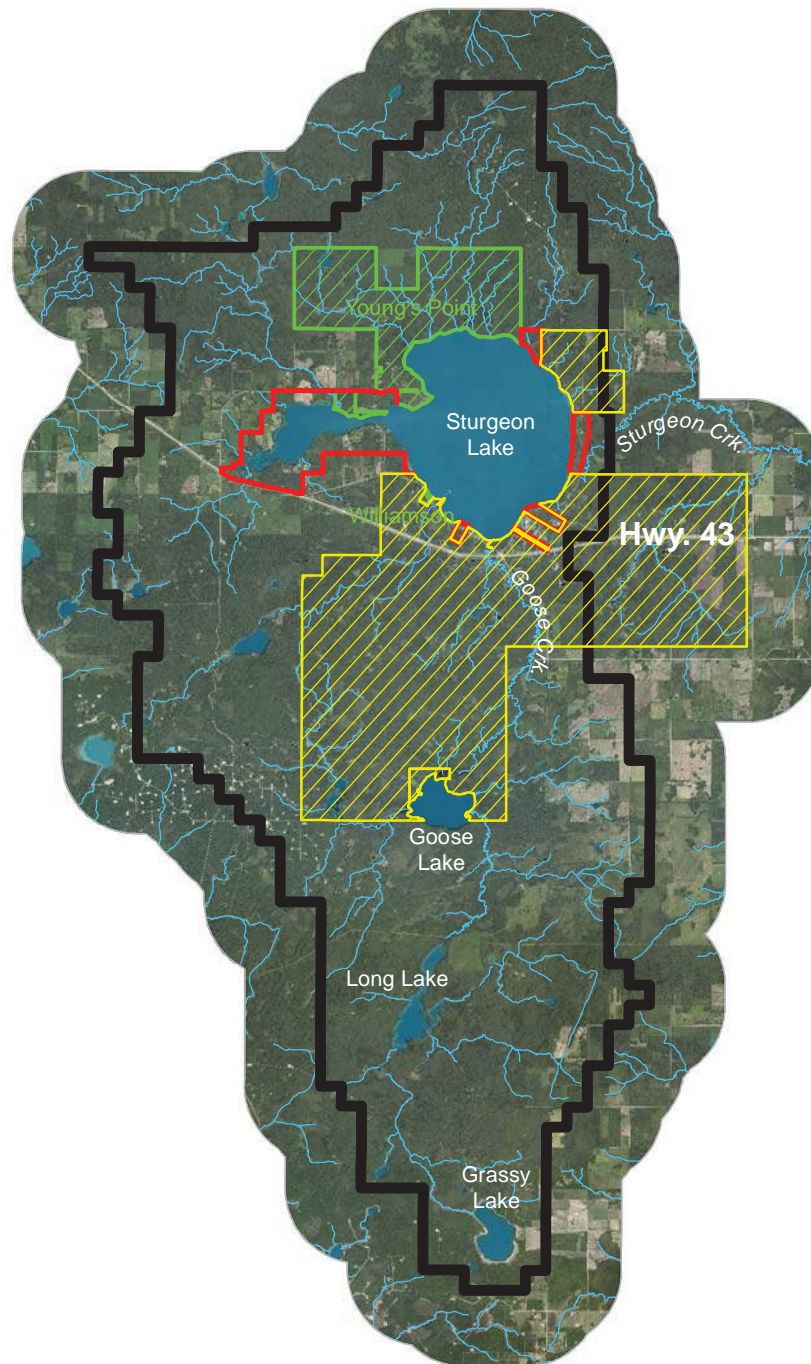
S. A. Rosson. Manager/Development Officer, Municipal District of Greenview No. 16., Valleyview, Alberta.

## **Appendix A: Figures**

- Figure 1. Sturgeon Lake ASP Area Key Features
- Figure 2. Protected Areas & Sensitive Resources
- Figure 3. Protected Areas & Sensitive Resources – Primary Zone
- Figure 4. Peace & Slave Watersheds with Smoky/Wapiti River Sub-Basin
- Figure 5. Natural Subregions & Stream Orders
- Figure 6. Inventoried Wetlands in the ASP Area
- Figure 7. Inventoried Wetland in the ASP Area – Primary Zone
- Figure 8. Vegetation Landcover Class
- Figure 9. Renewable Energy Wildlife Habitat Sensitivity Risk
- Figure 10. Farmland Capability & Alberta's Green and White Areas
- Figure 11. Farmland Capability – Primary Zone
- Figure 12. Environmentally Significant Areas

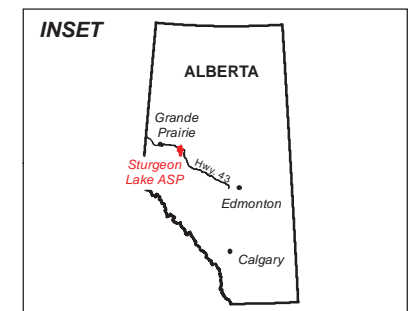


**Figure 1.**  
**Sturgeon Lake ASP Area**  
**Key Features**  
*Sturgeon Lake*  
*Area Structure Plan Update*  
*Environmental Report*



**Legend**

- Secondary Zone Boundary (Sturgeon Lake ASP)
- Primary Zone Boundary
- Sturgeon Lake Indian Reserve
- Watercourses
- Provincial Parks



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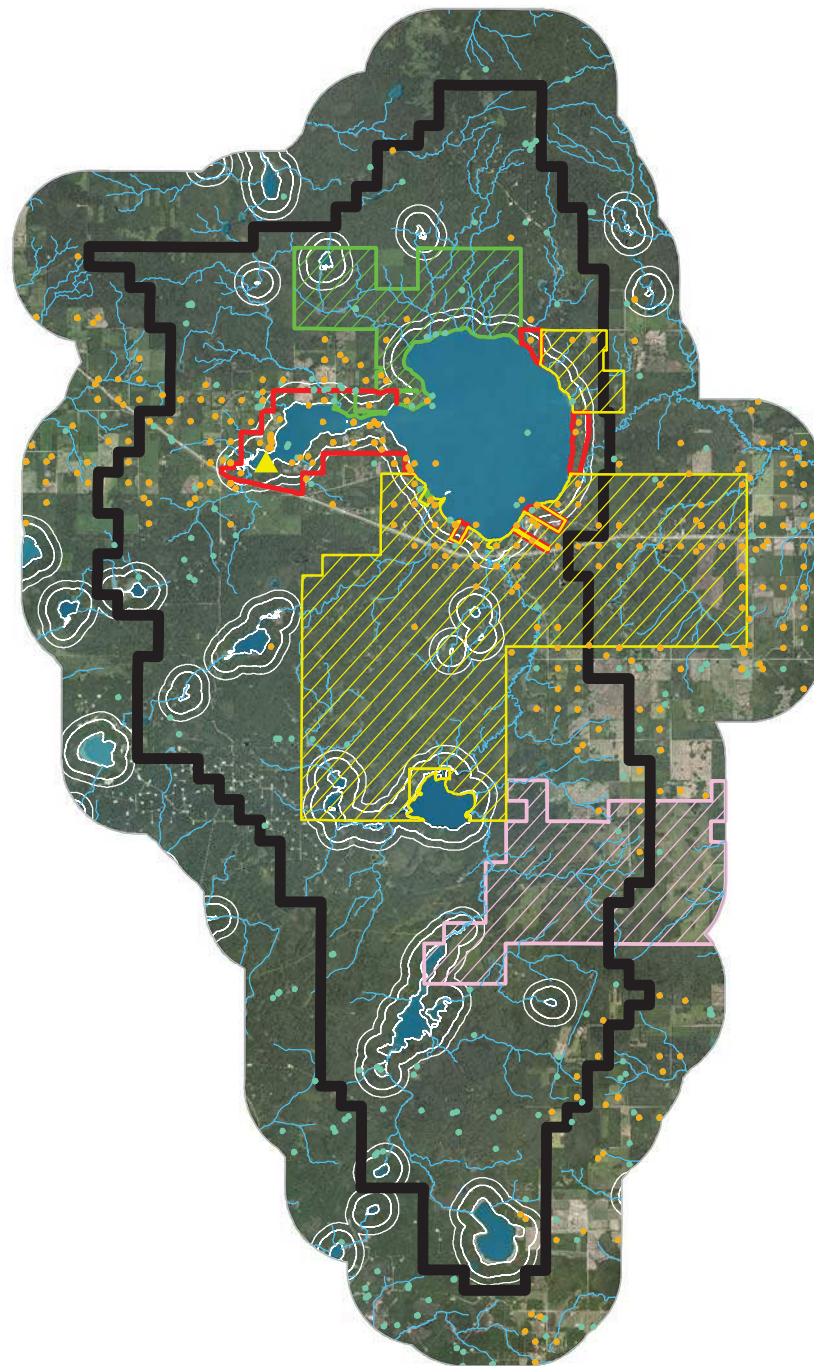
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Source: Refer to Appendix B for complete spatial data source information.

Date Map Created: 12 October 2018  
 Imagery: Unknown Year, Mosaic (MD Greenview No.16)



**Figure 2.**  
**Protected Areas &  
 Sensitive Resources**  
*Sturgeon Lake  
 Area Structure Plan Update  
 Environmental Report*



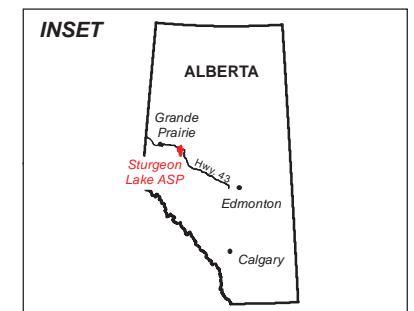
### Legend

- Secondary Zone Boundary (Sturgeon Lake ASP)
- Primary Zone Boundary
- Sturgeon Lake Indian Reserve
- Watercourses
- Provincial Parks
- Natural Area
- Sharp-Tailed Grouse Survey Area
- Trumpeter Swan 500m & 800m Buffers

### Water Wells\*

- Uses Include Domestic
- Other

\*Abandoned wells not shown



Date Map Created: 12 October 2018  
 Imagery: Unknown Year, Mosaic (MD Greenview No.16)



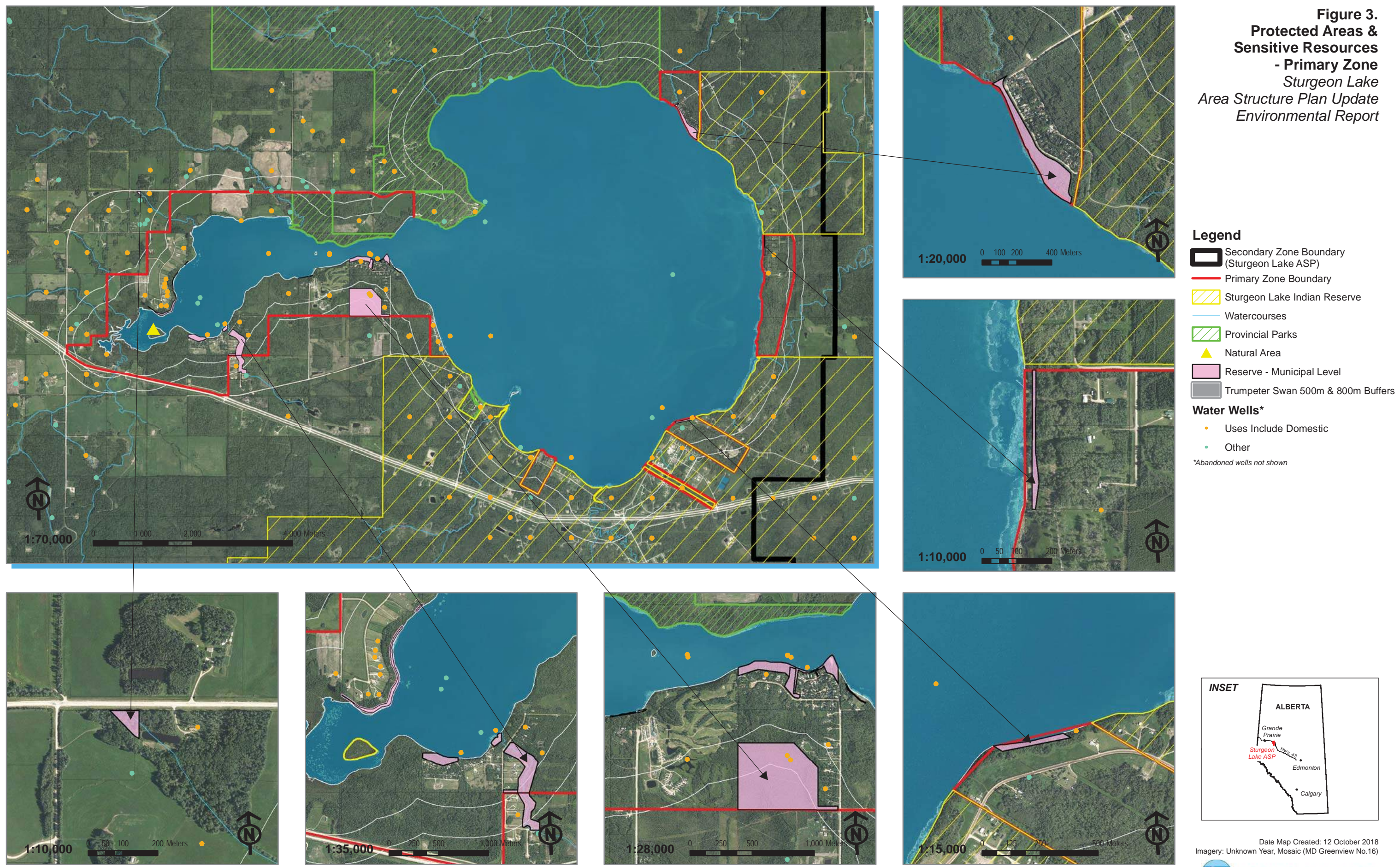
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Source: Refer to Appendix B for complete spatial data source information.



**Figure 3.**  
**Protected Areas & Sensitive Resources**  
**- Primary Zone**  
*Sturgeon Lake Area Structure Plan Update*  
*Environmental Report*








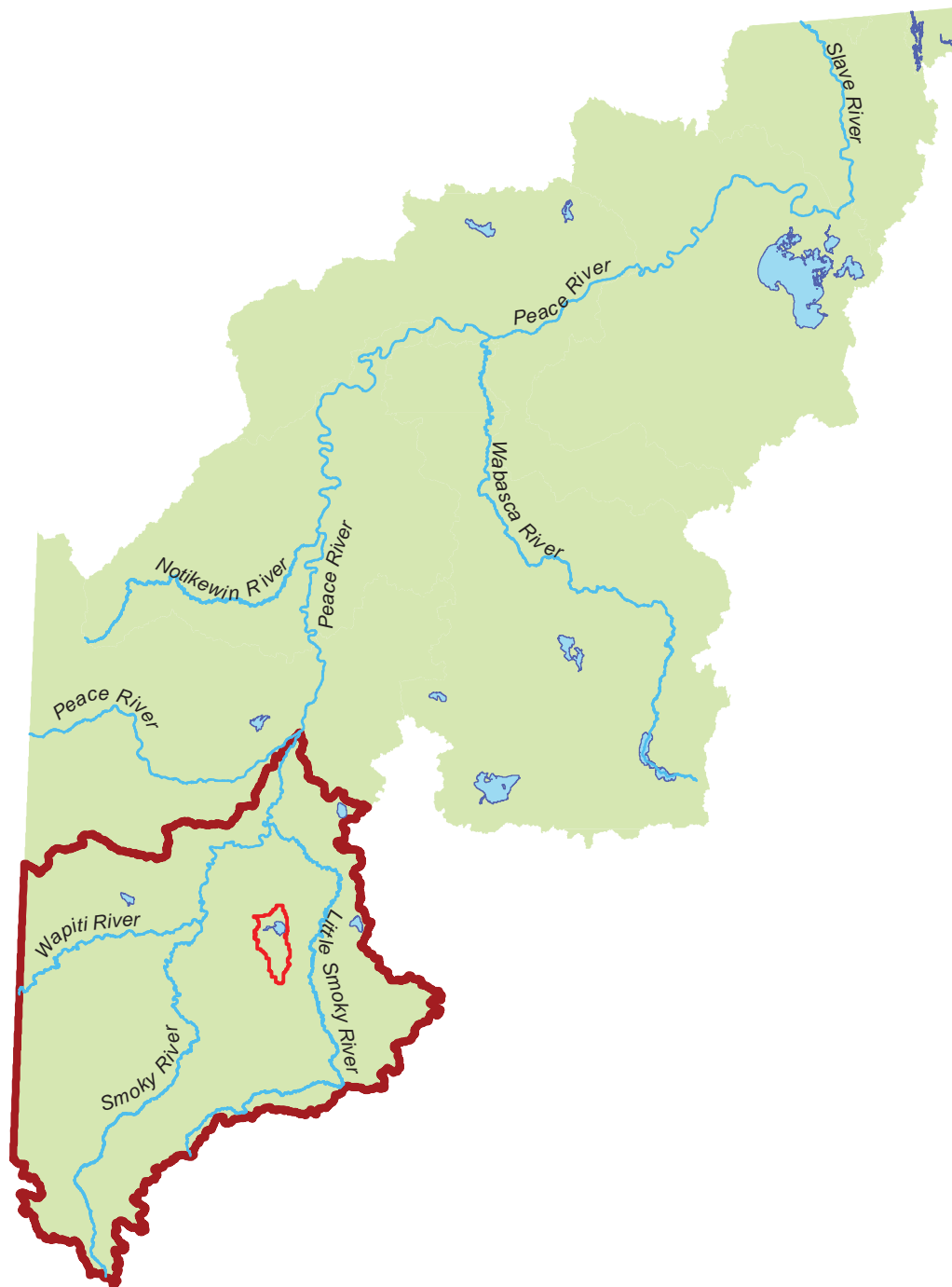
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**Figure 4.**  
**Peace & Slave Watersheds**  
**with Smoky/Wapiti River**  
**Sub-Basin**  
*Sturgeon Lake*  
*Area Structure Plan Update*  
*Environmental Report*

**Legend**

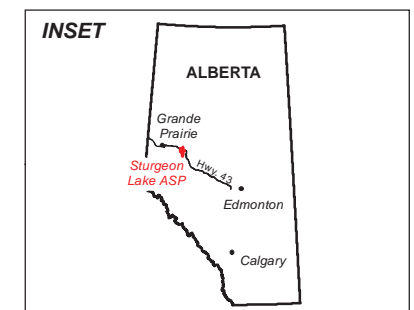
-  Peace & Slave Watersheds
-  Smoky/Wapiti River Sub-Basin
-  Sturgeon Lake ASP
-  Major River
-  Major Lake



1:4,330,000

0 50,000 100,000 200,000 Meters

Source: Refer to Appendix B for complete spatial data source information.

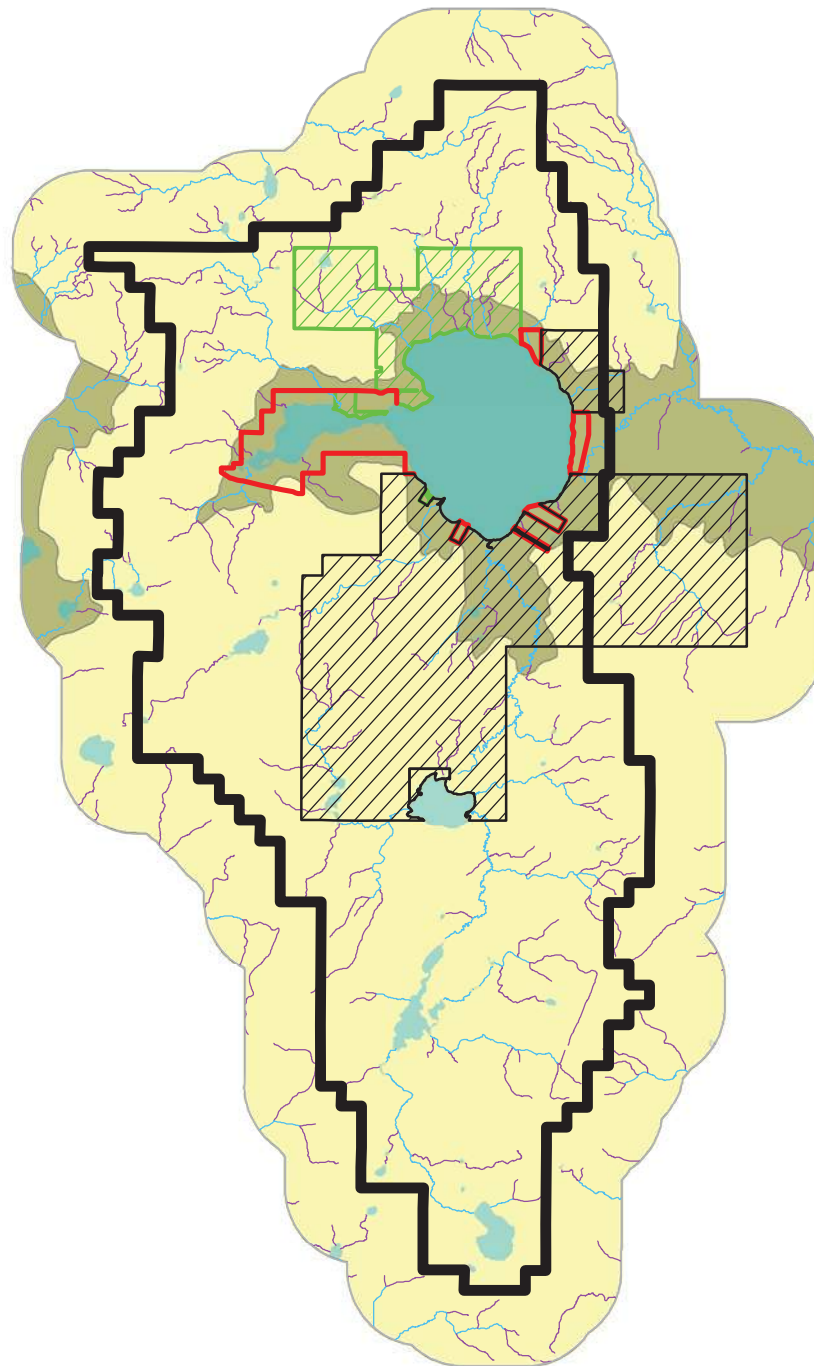


Date Map Created: 12 October 2018





**Figure 5.**  
**Natural Subregions &  
 Stream Orders**  
*Sturgeon Lake  
 Area Structure Plan Update  
 Environmental Report*

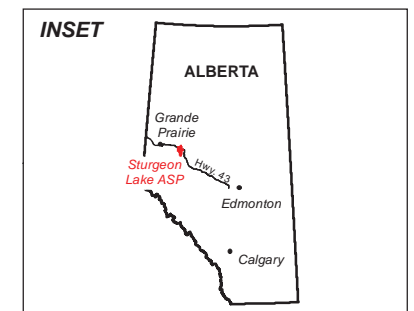


**Legend**

- Secondary Zone Boundary (Sturgeon Lake ASP)
- Primary Zone Boundary
- Sturgeon Lake Indian Reserve
- Provincial Parks
- Strahler Stream Order 1
- Strahler Stream Order 2, 3, 4, 5

**Natural Subregions**

- Central Mixedwood
- Dry Mixedwood



Date Map Created: 12 October 2018








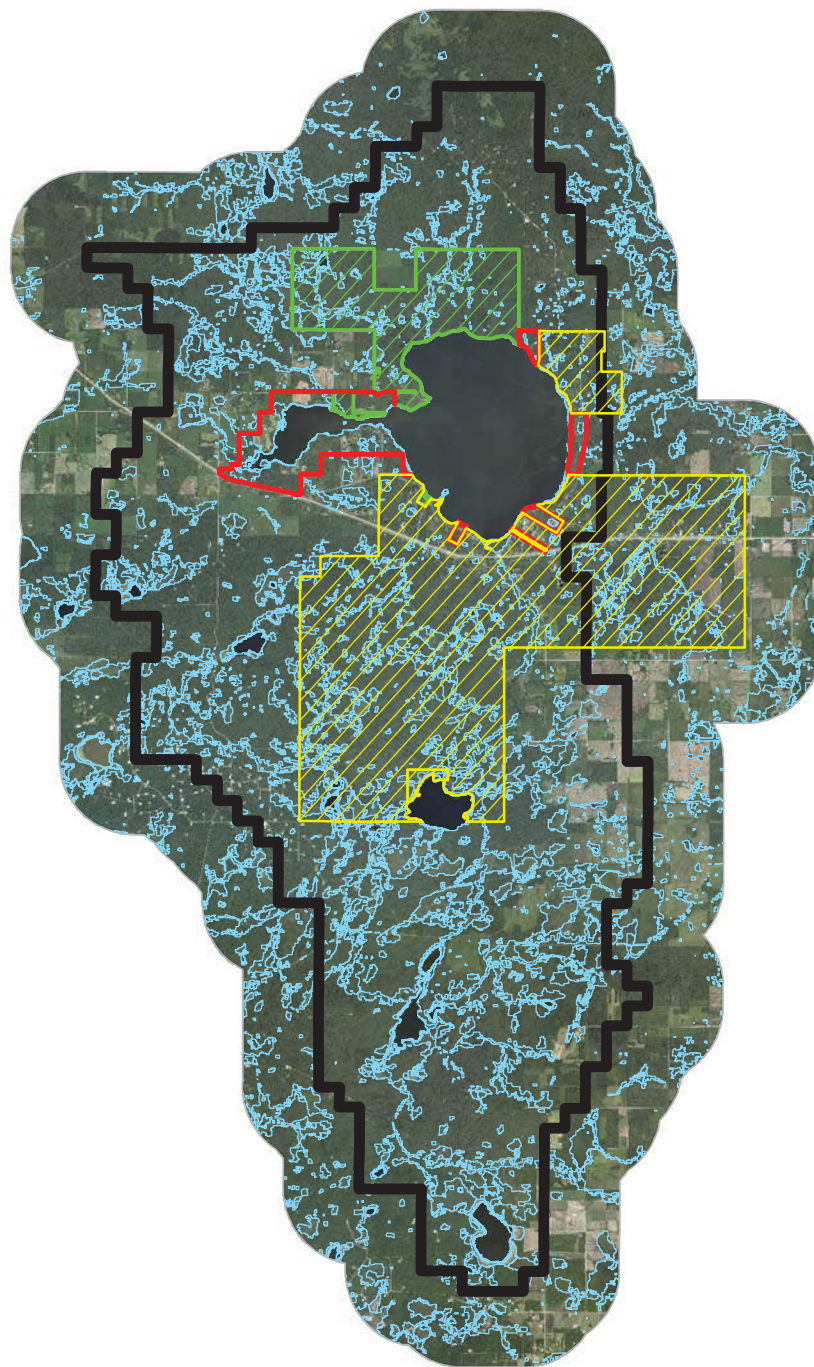
1:300,000

0 2,500 5,000 10,000 Meters

**Figure 6.**  
**Inventoried Wetlands**  
**in the ASP Area**  
*Sturgeon Lake*  
*Area Structure Plan Update*  
*Environmental Report*

**Legend**

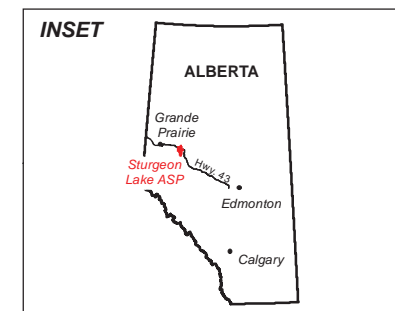
-  Secondary Zone Boundary (Sturgeon Lake ASP)
-  Primary Zone Boundary
-  Sturgeon Lake Indian Reserve
-  Provincial Parks
-  Wetland



1:300,000

0 2,500 5,000 10,000 Meters

Source: Refer to Appendix B for complete spatial data source information.  
 Note: Preliminary wetland data; not ground-truthed.



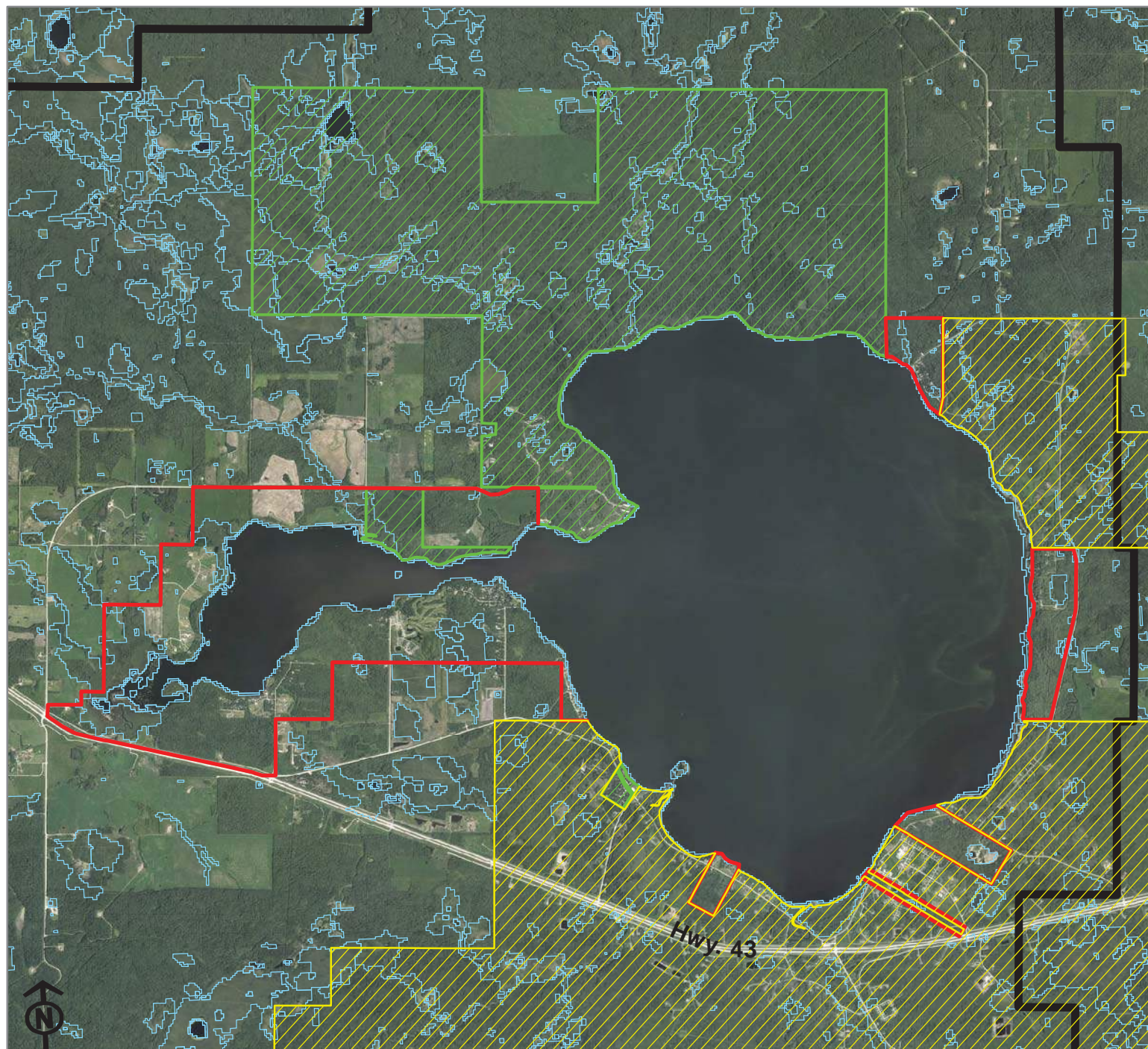
Date Map Created: 12 October 2018  
 Imagery: Unknown Year, Mosaic (MD Greenview No.16)



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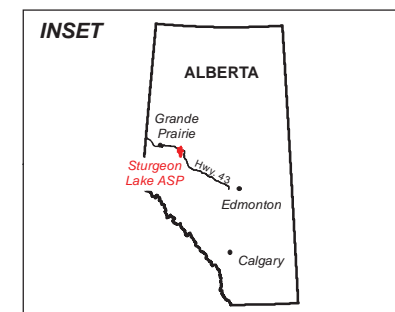


**Figure 7.**  
**Inventoried Wetlands**  
**in the ASP Area**  
**- Primary Zone**  
*Sturgeon Lake*  
*Area Structure Plan Update*  
*Environmental Report*



**Legend**

- Secondary Zone Boundary (Sturgeon Lake ASP)
- Primary Zone Boundary
- Sturgeon Lake Indian Reserve
- Provincial Parks
- Wetland



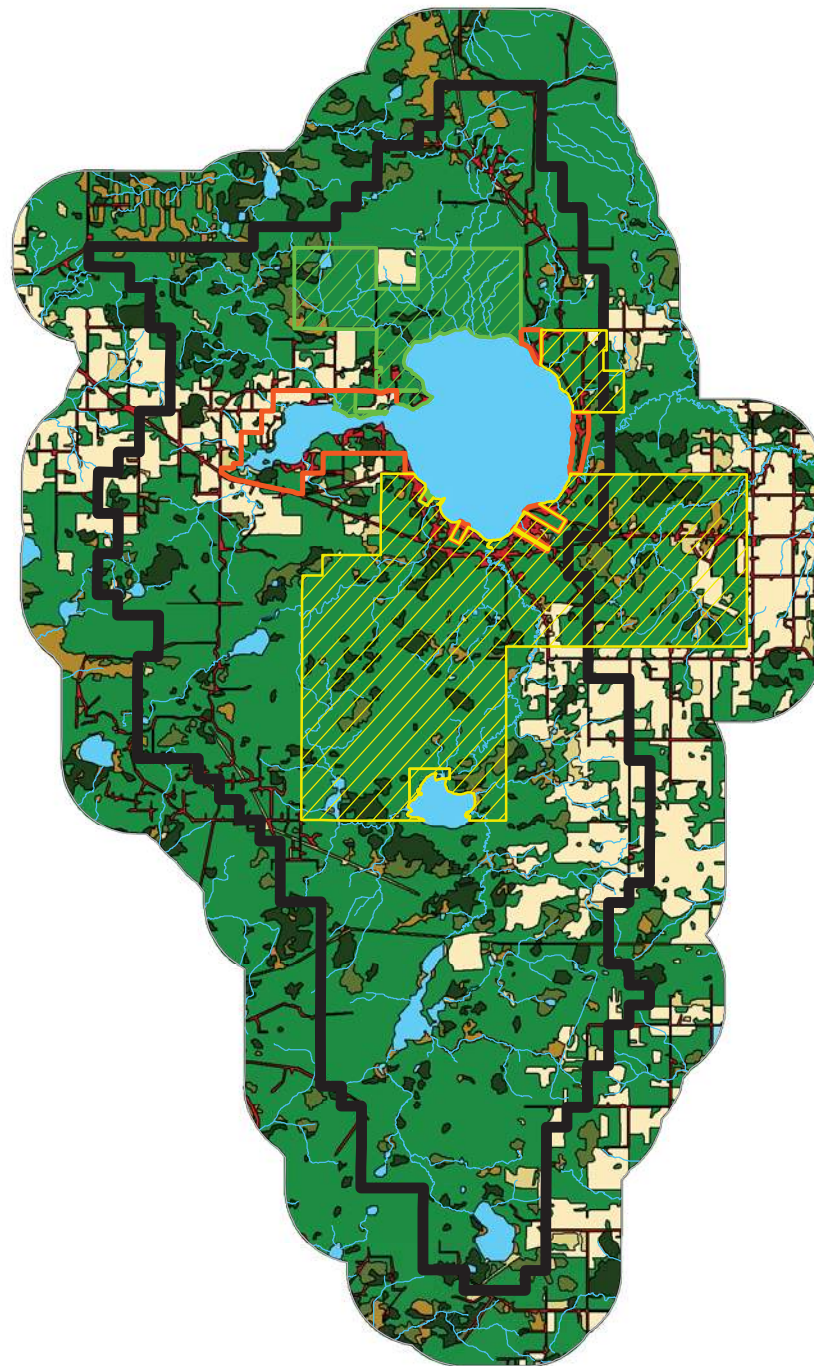
Date Map Created: 12 October 2018  
 Imagery: Unknown Year, Mosaic (MD Greenview No.16)








Source: Refer to Appendix B for complete spatial data source information.  
 Note: Preliminary wetland data; not ground-truthed.











**Figure 8.**  
**Vegetation**  
**Landcover Class**  
*Sturgeon Lake*  
*Area Structure Plan Update*  
*Environmental Report*

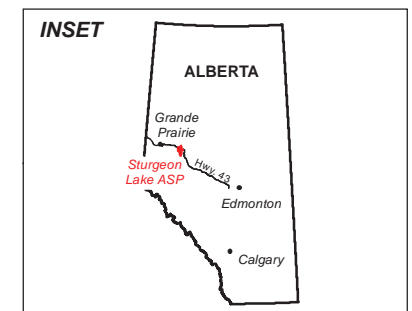


### Legend

-  Secondary Zone Boundary (Sturgeon Lake ASP)
-  Primary Zone Boundary
-  Sturgeon Lake Indian Reserve
-  Watercourses
-  Provincial Parks

### Landcover Class (ABMI, 2010)

-  Coniferous Forest
-  Broadleaf Forest
-  Mixed Forest
-  Shrubland
-  Grassland
-  Agriculture
-  Water
-  Developed



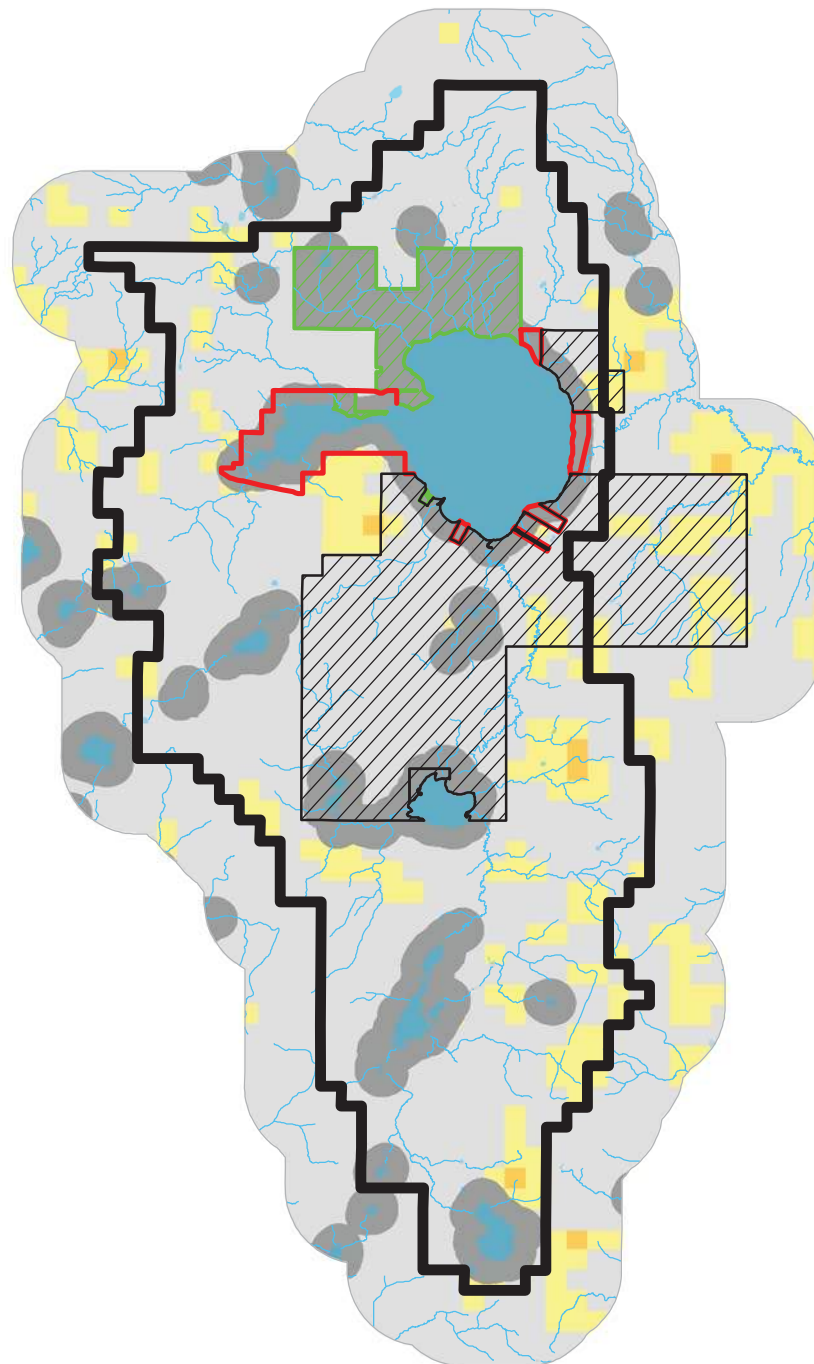
Date Map Created: 12 October 2018



1:300,000

0 2,500 5,000 10,000 Meters

**Figure 9.**  
**Renewable Energy**  
**Wildlife Habitat**  
**Sensitivity Risk**  
*Sturgeon Lake*  
*Area Structure Plan Update*  
*Environmental Report*

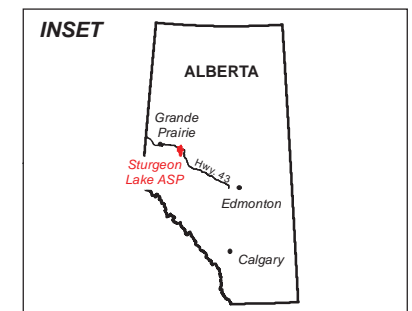


**Legend**

- Secondary Zone Boundary (Sturgeon Lake ASP)
- Primary Zone Boundary
- Sturgeon Lake Indian Reserve
- Watercourses
- Provincial Parks

**Alberta Wildlife Habitat Sensitivity Risk Zones**

- Critical Wildlife Zone or Non-Accessible Area
- High Risk
- Moderate Risk
- Lower Risk



Date Map Created: 12 October 2018

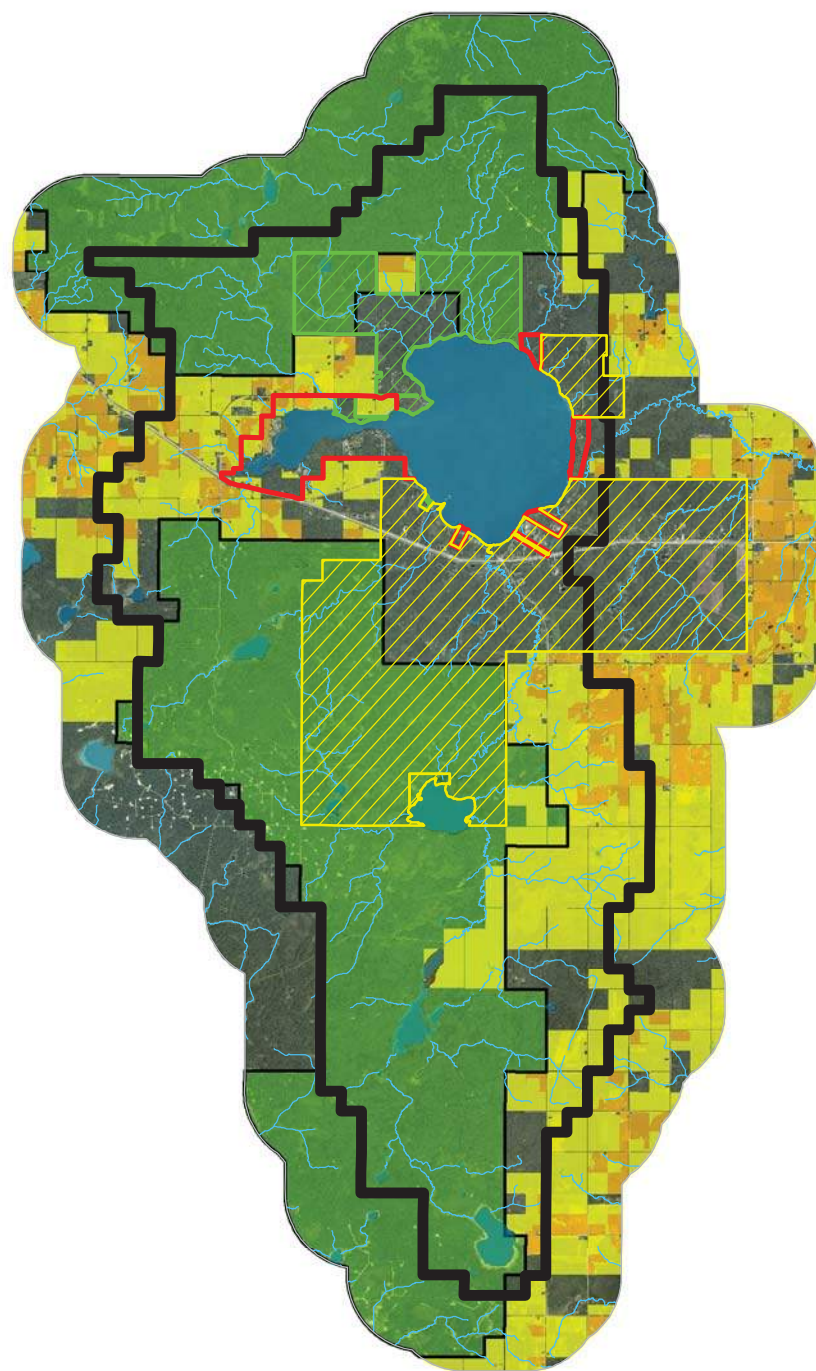


1:300,000

0 2,500 5,000 10,000 Meters



**Figure 10.**  
**Farmland Capability &**  
**Alberta's**  
**Green & White Areas**  
*Sturgeon Lake*  
*Area Structure Plan Update*  
*Environmental Report*



#### Legend

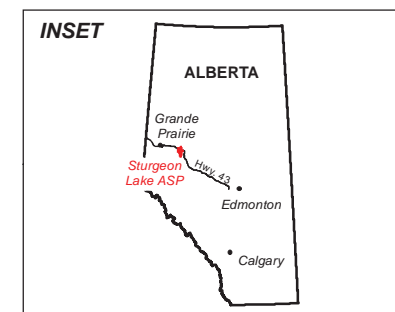
- Secondary Zone Boundary (Sturgeon Lake ASP)
- Primary Zone Boundary
- Sturgeon Lake Indian Reserve
- Watercourses
- Provincial Parks

#### Farmland Capability

- Arable
- Pasture
- Waste

#### Green & White Areas

- Green Area
- White Area (all lands outside of Green Area)



Date Map Created: 12 October 2018  
 Imagery: Unknown Year, Mosaic (MD Greenview No.16)



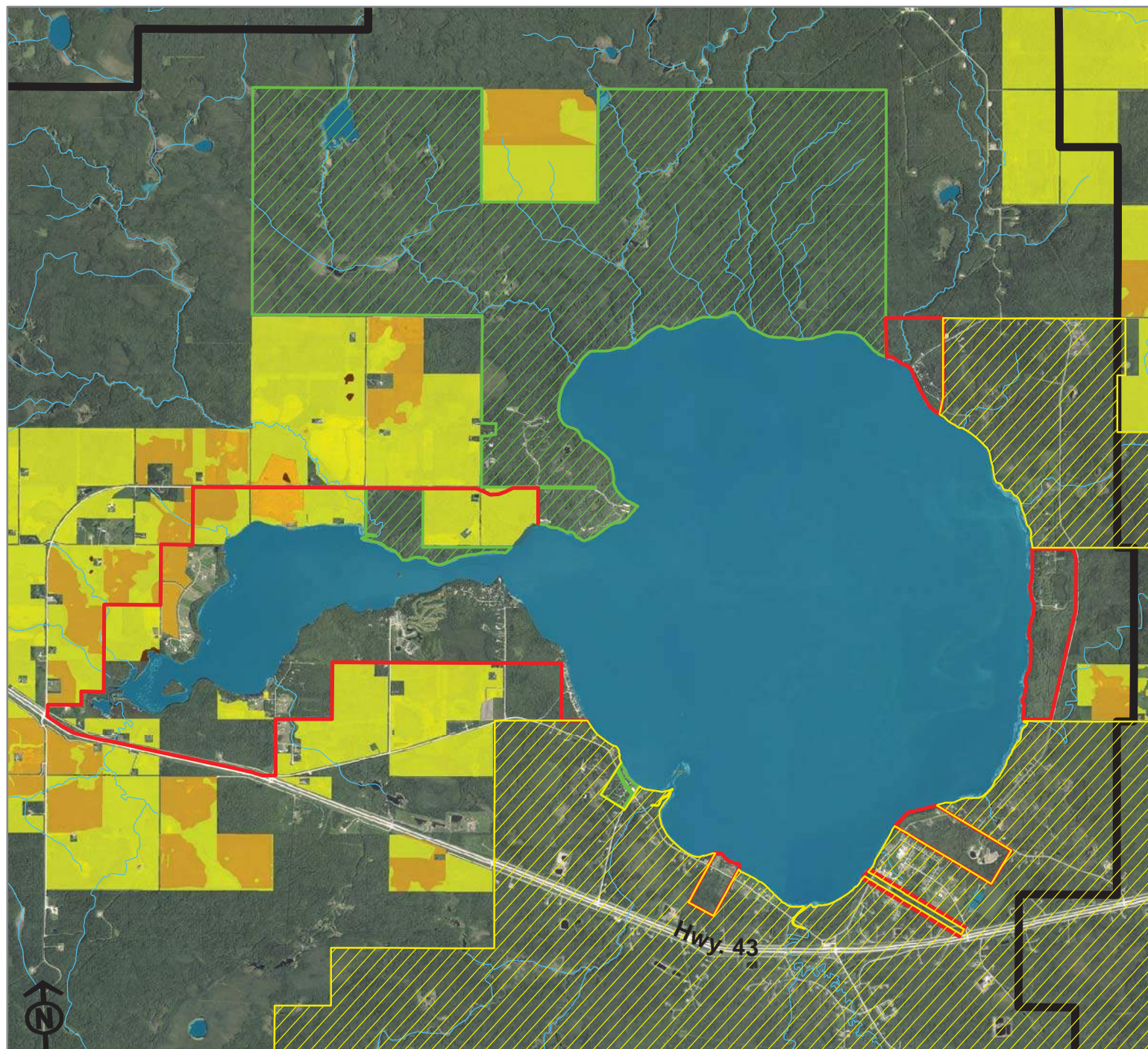
1:300,000

0 2,500 5,000 10,000 Meters

Source: Refer to Appendix B for complete spatial data source information.



**Figure 11.**  
**Farmland Capability &**  
**Alberta's**  
**Green & White Areas**  
**- Primary Zone**  
*Sturgeon Lake*  
*Area Structure Plan Update*  
*Environmental Report*

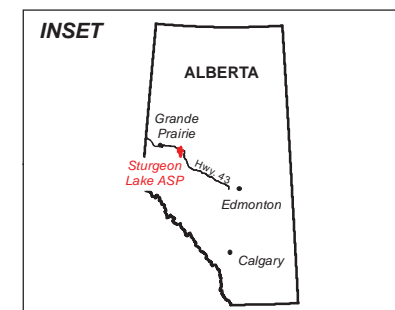


**Legend**

- Secondary Zone Boundary (Sturgeon Lake ASP)
- Primary Zone Boundary
- Sturgeon Lake Indian Reserve
- Watercourses
- Provincial Parks

**Farmland Capability**

- Arable
- Pasture
- Waste



Date Map Created: 12 October 2018  
 Imagery: Unknown Year, Mosaic (MD Greenview No.16)



1:80,000 0 500 1,000 2,000 Meters






Source: Refer to Appendix B for complete spatial data source information.

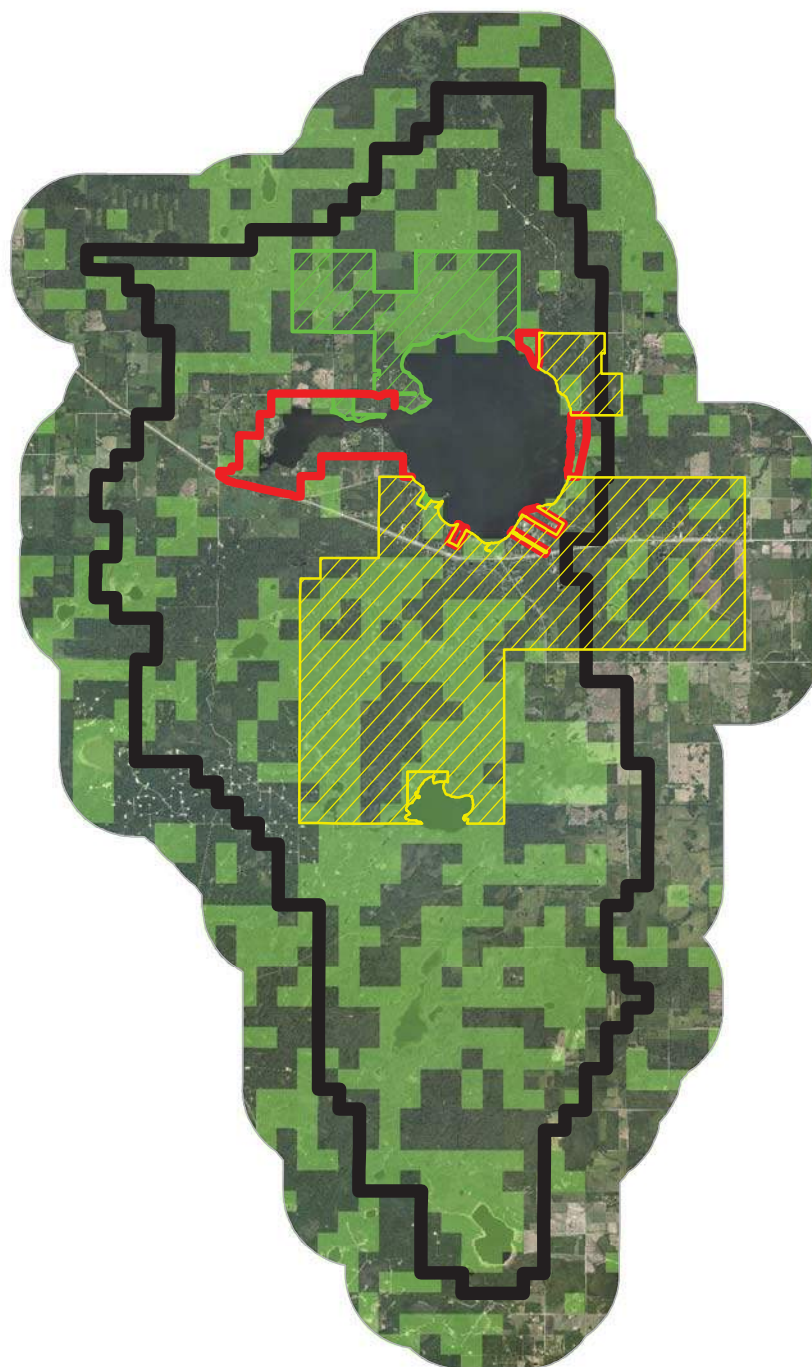


**Figure 12.**  
**Environmentally**  
**Significant Areas**  
*Sturgeon Lake*

*Area Structure Plan Update*  
*Environmental Report*

**Legend**

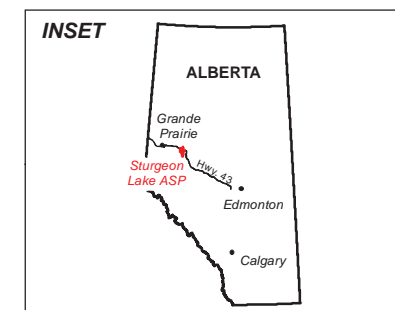
-  Secondary Zone Boundary (Sturgeon Lake ASP)
-  Primary Zone Boundary
-  Sturgeon Lake Indian Reserve
-  Provincial Parks
-  ESAs (quarter section score > 0.189)



1:300,000

0 2,500 5,000 10,000 Meters

Source: Refer to Appendix B for complete spatial data source information.



Date Map Created: 12 October 2018  
 Imagery: Unknown Year, Mosaic (MD Greenview No.16)



## **Appendix B: GIS Mapping Sources**

Appendix B				
Spatial Data Source Summary - Sturgeon Lake Area Structure Plan Update Environmental Report				
GIS Dataset	Data Source	Date Accessed	Applicable Map(s)	Data Source - Link
AB Environmentally Significant Areas (ESA, 2014)	Alberta Parks	22-Aug-18	12	<a href="https://www.albertaparks.ca/albertaparksca/library/environmentally-significant-areas-report/">https://www.albertaparks.ca/albertaparksca/library/environmentally-significant-areas-report/</a>
AB Green Area & White Area	AltaLIS Ltd.	23-Aug-18	10	<a href="http://www.altalis.com/pdf/Entry%20Page%20for%20quick%20access%20to%20downloads.pdf">http://www.altalis.com/pdf/Entry%20Page%20for%20quick%20access%20to%20downloads.pdf</a>
AB Land Cover Inventory (2010)	Alberta Biodiversity Monitoring Institute (ABMI)	23-Aug-18	8	<a href="http://www.abmi.ca/home/data-analytics/da-top/da-product-overview/GIS-Land-Surface/Land-Cover.html">http://www.abmi.ca/home/data-analytics/da-top/da-product-overview/GIS-Land-Surface/Land-Cover.html</a>
AB Natural Regions & Subregions	Alberta Parks	22-Aug-18	5	<a href="https://www.albertaparks.ca/albertaparksca/management-land-use/parks-system/">https://www.albertaparks.ca/albertaparksca/management-land-use/parks-system/</a>
AB Renewable Energy Wildlife Habitat Sensitivity Risk	Alberta Environment & Parks	13-Aug-18	9	<a href="http://aep.alberta.ca/fish-wildlife/wildlife-land-use-guidelines/default.aspx">http://aep.alberta.ca/fish-wildlife/wildlife-land-use-guidelines/default.aspx</a>
AB Sharp -Tailed Grouse Survey Area	Alberta Environment & Parks	22-Aug-18	2, 3	<a href="http://aep.alberta.ca/forms-maps-services/maps/wildlife-sensitivity-maps/default.aspx">http://aep.alberta.ca/forms-maps-services/maps/wildlife-sensitivity-maps/default.aspx</a>
AB Trumpeter Swan 500m & 800m Buffers	Alberta Environment & Parks	13-Aug-18	2, 3	<a href="http://aep.alberta.ca/forms-maps-services/maps/wildlife-sensitivity-maps/default.aspx">http://aep.alberta.ca/forms-maps-services/maps/wildlife-sensitivity-maps/default.aspx</a>
AB Watercourses (Fish and Wildlife Management Information System (FWMIS) - Hydrology Arcs and Polygons)	Alberta Environment & Parks	22-Aug-18	1, 2, 3, 4, 5, 8, 9, 10, 11	<a href="http://aep.alberta.ca/forms-maps-services/maps/resource-data-product-catalogue/hydrological.aspx">http://aep.alberta.ca/forms-maps-services/maps/resource-data-product-catalogue/hydrological.aspx</a>
AB Watershed & Sub-Basins (Hydrological Unit Code Watersheds of Alberta (HUC))	Alberta Environment & Parks	22-Aug-18	4	<a href="http://aep.alberta.ca/forms-maps-services/maps/resource-data-product-catalogue/hydrological.aspx">http://aep.alberta.ca/forms-maps-services/maps/resource-data-product-catalogue/hydrological.aspx</a>
Farmland Capability (attribute: apw1) - MD Greenview No.16 Reserve	MD Greenview No.16, via MuniSight Ltd.	9-Aug-18	10, 11	MD Greenview No.16, via MuniSight Ltd. ( <a href="http://mdgreenview.ab.ca/governance/maps/">http://mdgreenview.ab.ca/governance/maps/</a> )
Orthophoto (Unknown Year, Mosaic) - MD Greenview No.16 Reserve	MD Greenview No.16, via MuniSight Ltd.	9-Aug-18	1, 2, 3, 6, 7, 10, 11, 12	MD Greenview No.16, via MuniSight Ltd. ( <a href="http://mdgreenview.ab.ca/governance/maps/">http://mdgreenview.ab.ca/governance/maps/</a> )
Protected Areas (Provincial Park, Natural Area) - MD Greenview No.16 Reserve	MD Greenview No.16, via MuniSight Ltd.	9-Aug-18	1, 2, 3, 11	MD Greenview No.16, via MuniSight Ltd. ( <a href="http://mdgreenview.ab.ca/governance/maps/">http://mdgreenview.ab.ca/governance/maps/</a> )
Reserve - Municipal Level - MD Greenview No.16 Reserve	MD Greenview No.16, via MuniSight Ltd.	27-Aug-18	3	MD Greenview No.16, via MuniSight Ltd. ( <a href="http://mdgreenview.ab.ca/governance/maps/">http://mdgreenview.ab.ca/governance/maps/</a> )
Secondary Zone Boundary (Sturgeon Lake ASP); Primary Zone Boundary	MD Greenview No.16, via ISL Engineering and Land Services Ltd.	Aug-18	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	MD Greenview No.16, via ISL Engineering and Land Services Ltd. ( <a href="http://mdgreenview.ab.ca/">http://mdgreenview.ab.ca/</a> )
Sturgeon Lake Indian Reserve Boundary	MD Greenview No.16, via MuniSight Ltd.	9-Aug-18	1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12	MD Greenview No.16, via MuniSight Ltd. ( <a href="http://mdgreenview.ab.ca/governance/maps/">http://mdgreenview.ab.ca/governance/maps/</a> )
Water Wells - MD Greenview No.16 Reserve	MD Greenview No.16, via MuniSight Ltd.	9-Aug-18	2, 3	MD Greenview No.16, via MuniSight Ltd. ( <a href="http://mdgreenview.ab.ca/governance/maps/">http://mdgreenview.ab.ca/governance/maps/</a> )
Wetland Inventory - MD Greenview No.16 Reserve	MD Greenview No.16, via MuniSight Ltd.	9-Aug-18	6, 7	MD Greenview No.16, via MuniSight Ltd. ( <a href="http://mdgreenview.ab.ca/governance/maps/">http://mdgreenview.ab.ca/governance/maps/</a> )



## **Appendix C: Legislative Framework**

**Summary of Potentially Relevant Statutory and Non-Statutory Plans and Guidelines; Federal, Provincial and Municipal Legislation, Regulations and Policies**

<b>Legislation, Bylaw, Policy or Plan</b>	<b>Responsible Agency</b>	<b>Relevance to Project</b>	<b>Authorization/ Approval/ Permit Required</b>
<b>Municipal</b>			
<i>Municipal Development Plan, 15-742 (2016) (MDP)</i>	Municipal District of Greenview No. 16	The MDP provides a planning framework for land use including transport, services, utilities, municipal and environmental reserve, agriculture, infrastructure and several policies specific to the environment. If a matter not addressed by the Sturgeon Lake Area Structure Plan (SLASP) arises, MDP policies shall apply.	No permit required. Influences planning, design and delivery of developments.
<i>Land Use Bylaw, 17-779 (2018)</i>	Municipal District of Greenview No. 16	Regulates the use and development of land and buildings within MD of Greenview.	Development permits are issued pursuant to the Bylaw for development of land, buildings, structures or signs except where otherwise specified.
Strategic Plan 2017	Municipal District of Greenview No. 16	Guidance document defining strategic vision and planning process for MD of Greenview.	No permit required. Influences policy development for MD of Greenview and SLASP area.
<b>Regional</b>			
Integrated Watershed Management Plan (IWMP) – Peace and Slave Watersheds (2018)	Mighty Peace Watershed Alliance	A high-level guidance document that offers planners a set of strategies to address watershed concerns, particularly water quality.	No permit required. Influences policy development for Peace/Slave Watershed, including MD of Greenview.
Sturgeon Lake-Puskwaskau Sub-Regional Integrated Resource Plan (1987)	Alberta Forestry, Lands and Wildlife/Energy.	Applies to public lands within and around the Sturgeon Lake watershed. Although the Plan’s provisions aren’t binding on MD of Greenview when addressing development issues on privately held lands, management guidelines contained in the Plan respecting the Sturgeon Lake watershed area guided SLASP (2002) preparation.	No permit required. Influences policy development for MD of Greenview, including SLASP area.
<b>Provincial</b>			
<i>Municipal Government Act</i> (revised 2018)	Alberta Municipal Affairs (AMA)	The Act governs how Alberta's municipalities operate. The Act requires that all statutory plans be consistent with Provincial land use policies and that all statutory plans be consistent with one another.	No permit required. Influences policy development, planning and governance for MD of Greenview, including SLASP area.
<i>Historical Resources Act</i>	Alberta Culture and Tourism (ACT)	All projects with potential to disturb historical, archaeological and paleontological resources are regulated under this Act and require clearance from ACT.	<i>Historical Resources Act</i> Clearance. An assessment may be required before a development activity begins if the project has potential to impact Alberta’s historic resources. In 2018, revisions to approval processes were implemented.
<i>Public Lands Act</i>	Alberta Environment and Parks (Land Management Branch) (AEP)	Use of Crown lands, including the bed and shore of all bodies of water, are regulated under this Act.	Act requires proponents wishing to work on, alter or occupy Crown land to obtain a disposition or amend existing dispositions.

Legislation, Bylaw, Policy or Plan	Responsible Agency	Relevance to Project	Authorization/ Approval/ Permit Required
<i>Water Act</i>	Alberta Environment and Parks (Water Approvals Branch) (AEP); Alberta Energy Regulators (AER)	Water bodies, including lakes, watercourses and wetlands, occur throughout the SLASP area.	<ul style="list-style-type: none"> <li>• <i>Water Act</i> approvals, licenses or codes of practice may be granted for an activity that will impact a water body or when the works will divert and use surface or groundwater.</li> <li>• AER has authority over energy resource activities.</li> <li>• AEP has authority over all other sectors.</li> </ul>
Alberta Wetland Policy (2013)	Alberta Environment and Parks (AEP)	Wetlands are found throughout the SLASP area. The goal of the Policy is to conserve, restore, protect and manage Alberta's wetlands to sustain the benefits they provide to the environment, society and economy.	Approvals required pursuant to the <i>Water Act</i> . Regulatory applicants are expected to first consider avoidance, or, where avoidance is infeasible, minimization of impacts. Where permanent impacts will be incurred, wetland replacement options may be considered. Several directives prescribe how and when wetland impact assessments must be conducted.
<i>Wildlife Act</i>	Alberta Environment and Parks (AEP)	This Act applies to most species of wildlife and all activities on all lands and is especially relevant to clearing of vegetation. The willful molestation, disruption, or destruction of a wildlife nest or den is prohibited by this Act. Special provisions provide for the protection of raptors and their nests/habitats.	Although permitting for development is not required under the Act, violations of the Act, e.g. disturbances of breeding wildlife such as flying squirrels, may result in fines.
<i>Soil Conservation Act</i>	Alberta Agriculture and Forestry (AAF)	The Act outlines the duty of a landholder to take appropriate measures to prevent soil loss or deterioration from taking place, or if soil loss or deterioration is taking place, to stop continued loss or deterioration.	No permit required. Influences planning, design and delivery of developments.
<i>Alberta Weed Control Act ( revised 2010)</i>	Alberta Environment and Parks/ Alberta Agriculture and Forestry (AAF)	<ul style="list-style-type: none"> <li>• The Act gives the Province legal authority to deal with native or introduced weed species. It designates prohibited and noxious weeds and requires control or destruction of listed species.</li> <li>• The Act also empowers municipalities to do the same under adopted Bylaws, and it designates local authorities to destroy or control designated weeds.</li> </ul>	The Act provides guidelines for enforcement only; however, the Act provides for various control measures, such as inspection and enforcement, together with provisions for recovery of expenses in cases of non-compliance. The Act applies to developed, developing and undeveloped lands and all land uses.
<i>Agricultural Pests Act</i>	Alberta Agriculture and Forestry (AAF)	The Act describes the duties of individuals and local authorities to prevent and destroy pests, e.g. clubroot, including on municipal lands. MD of Greenview has a Clubroot of Canola Policy No. 6308.	No permit required. MD of Greenview clubroot management plan influences agricultural activities and municipal maintenance activities.
<i>Agricultural Operation Practices Act</i>	Alberta Agriculture and Forestry (AAF)	The Act and its associated regulations apply to all agricultural operations in Alberta. Confined feeding operations, as defined in the Act, are addressed in the SLASP (2002). As per the SLASP, these are not permitted within 1.6 km (1 mile) of Sturgeon Lake or 30.5 m (100 ft) from any permanent watercourse draining into the lake.	Part two of the Act sets the permitting process for the construction or expansion of confined feeding operations, the compliance process, and offences related to, and penalties for contravening, the Act.

Legislation, Bylaw, Policy or Plan	Responsible Agency	Relevance to Project	Authorization/ Approval/ Permit Required
Watershed Resiliency and Restoration Program	Alberta Environment and Parks (AEP)	Aims to improve natural watershed functions to build greater long-term resiliency to droughts and floods through restoration, conservation, education and stewardship, and research and data.	No permit required. Influences planning, design and delivery of developments.
<b>Federal</b>			
<i>Fisheries Act</i>	Fisheries and Oceans Canada (DFO) and Environment and Climate Change Canada (ECCC)	All activities with potential to cause harm to fish or fish habitats are regulated under this Act. Numerous water bodies within the SLASP lands are fish bearing and provide fish habitat.	DFO administers section 35, which prohibits any work or undertaking that would cause the harmful alteration, disruption or destruction of fish habitat. ECCC administers section 36 which prohibits deposition of deleterious substances into waters frequented by fish, unless authorized by regulations under the <i>Fisheries Act</i> or other federal legislation.
<i>Navigation Protection Act</i>	Transport Canada (TC)	<ul style="list-style-type: none"> <li>• The public right of navigation is protected in Canada, and any work with some potential to interfere with navigation is regulated by the NPA, irrespective of whether a water is scheduled under the NPA or not.</li> <li>• For example, Sturgeon Lake is a non-scheduled navigable water under the NPA</li> </ul>	<ul style="list-style-type: none"> <li>• Works on non-scheduled waters requiring Notice to the Minister include: <ul style="list-style-type: none"> <li>○ legacy works for which no opt-out notification has been acknowledged by the NPP, and</li> <li>○ works for which an application to opt in to the NPA regime has been successful.</li> </ul> </li> <li>• The Minor Works Order allows for works to be built if they meet applicable class criteria and specific terms and conditions for construction. Minor works may proceed without a Notice to the Minister if they comply with the legal requirements.</li> </ul>
<i>Migratory Birds Convention Act</i>	Environment and Climate Change Canada (ECCC)	This Act prohibits the disturbance of nests and individuals of specified (and the majority of) migratory bird species and prohibits release of deleterious substances into waters or areas frequented by migratory birds.	The Act provides guidelines for enforcement only; it is not linked to formal approvals required for development. Violation of the <i>Migratory Birds Convention Act</i> may, however, result in penalties.
<i>Species At Risk Act</i>	Environment and Climate Change Canada (ECCC)	This Act prohibits disturbance to listed species and, in some instances, listed species' habitat on federal lands. On private lands, only disturbance to listed aquatic species and migratory birds apply. Some ASP lands have potential to support habitat for federally-listed wildlife species at risk.	Although no approvals or permits are required, violation of the <i>Species At Risk Act</i> may result in penalties.