

**BYLAW 24-2018**

A BYLAW OF STRATHCONA COUNTY IN THE PROVINCE OF ALBERTA, FOR THE PURPOSE OF ADOPTING THE HEARTLAND INDUSTRIAL AREA STRUCTURE PLAN.

WHEREAS it is deemed advisable to adopt the Heartland Industrial Area Structure Plan;

NOW THEREFORE, the Council of Strathcona County, duly assembled, pursuant to the authority conferred upon it by the *Municipal Government Act, R.S.A. 2000, c. M-26*, and amendments thereto, enacts as follows:

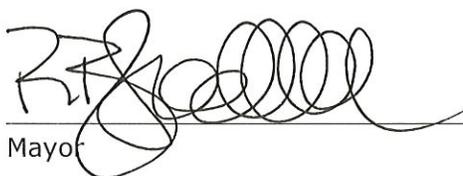
1. That Bylaw 24-2018 is to be cited as the "Heartland Industrial Area Structure Plan".
2. That Schedule "A" forms part of this Bylaw.
3. That Bylaw 65-2001 is repealed.
4. That Bylaw 50-2002 is repealed.
5. That Bylaw 58-2015 is repealed.
6. That Bylaw 3-2016 is repealed.

Read a first time this 17 day of July, 2018.

EDMONTON METROPOLITAN REGION BOARD APPROVAL this 10 day of October, 2018.

Read a second time this 30 day of October, 2018.

Read a third time this 30 day of October, 2018.

  
\_\_\_\_\_  
Mayor

  
\_\_\_\_\_  
Director, Legislative and Legal Services

Date Signed: 5<sup>th</sup> Nov. 2018

# Heartland Industrial AREA STRUCTURE PLAN

BYLAW 24 -2018





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## Section 1

# Introduction

### 1.1. Location and Purpose

Alberta's Industrial Heartland encompasses approximately 582 square kilometres of land within the Edmonton Metropolitan Region contained within five neighbouring municipalities, the City of Edmonton, the City of Fort Saskatchewan, Strathcona County (the County), Sturgeon County, and Lamont County, as illustrated on **Map 1: Location**.

Strathcona County's portion of Alberta's Industrial Heartland includes approximately 134.57 square kilometres and is bordered by the North Saskatchewan River Valley to the north and west, the City of Fort Saskatchewan to the southwest, agricultural land within Strathcona County to the south, and Lamont County and the Town of Bruderheim to the east. Highway 15, Highway 830, the Canadian National Railway and the Canadian Pacific Railway all cross through Strathcona County's portion of Alberta's Industrial Heartland.

Each municipality has developed an Area Structure Plan (ASP) for their portion of Alberta's Industrial Heartland to guide future growth in the area. The purpose of Strathcona County's Heartland Industrial Area Structure Plan (the Plan) is to provide a statutory framework for land use planning of Strathcona County's portion of Alberta's Industrial Heartland (the Plan area, as shown on **Map 1: Location**). The Plan also includes identification of appropriate levels of infrastructure and services, as well as the conservation of the natural landscape and Provincially Protected Environmentally Significant Areas.

The Plan is in conformance with established planning policies, regulations, objectives, and requirements of the County, and considers the characteristics and opportunities contained within the Plan area.

This Plan includes goals, objectives and policies that guide land use and future development in the overall Plan area, and that also provide specific direction related to the Policy Areas as illustrated in **Map 3: Land Use Concept**. The Policy Areas within the Land Use Concept consist of a Heavy Industrial Policy Area, a Heartland Heavy Industrial Overlay, a Transition Policy Area and an Environmental Policy Area.

## 1.2. Vision

Strathcona County's portion of the Alberta's Industrial Heartland will provide opportunity for heavy industrial development supported by medium and light industrial uses as well as uses that are supportive of the large agricultural area south of the Plan area. Development within the Plan area will respect the natural environment, existing land uses and transition to the surrounding land uses.

## 1.3. Background

Alberta's Industrial Heartland represents cooperation between local governments and industries to create a world-class industrial area. It is Canada's largest hydrocarbon processing region, and a significant component of the local, provincial, and national economy. It provides an important processing link from the oil sands in northeastern Alberta to market destinations in North America and overseas, and is an attractive location for chemical, petrochemical and oil and gas operations. The area is also well suited to manufacturing, logistics and related support industries. Strathcona County has the land base and infrastructure necessary to support industry within Alberta's Industrial Heartland.

This Plan replaces the original Strathcona County Alberta's Industrial Heartland ASP Bylaw 65-2001 and subsequent amendments. Since the adoption of the original ASP, the area has undergone substantial growth, with increased industrial development demand. Furthermore, the local and regional planning framework has also been updated, including Strathcona County's Municipal Development Plan (MDP) and the Edmonton Metropolitan Region Growth Plan (EMRGP). This updated Plan allows for alignment with current local and regional planning and policy frameworks, and provides improved clarity and direction relating to Policy Areas within the Plan area.

## Section 2

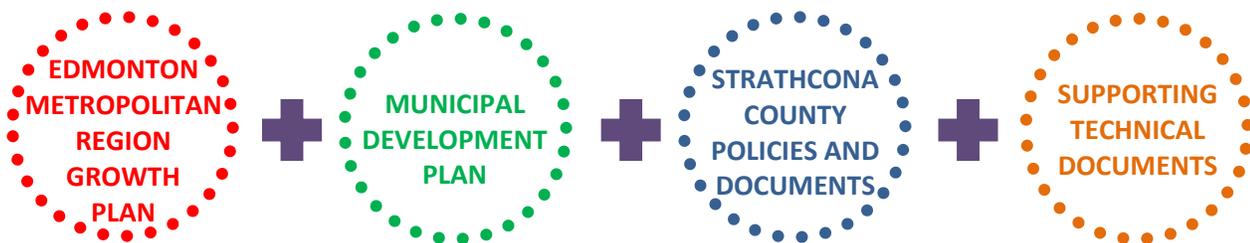
# Administration

## Document Framework

This Plan should be read in conjunction with Strathcona County's MDP, supporting technical documents for the Plan, as well as other Strathcona County policies and documents.

Additionally, regional plans, such as the EMRGP, as well as provincial acts and regulations, such as the *Municipal Government Act* (MGA) inform this Plan. The EMRGP identifies regional-level components that need to be considered comprehensively with respect to the Plan.

This Area Structure Plan is to be read in conjunction with:



## 2.1 Policy Structure & Policy Terms

This Plan uses specific terminology within policies as outlined in Table 1 to ensure that they have clear intentions that are designed to be achieved through actions. All policies must contain one of the following actions:

**Require** - these policies are compulsory and must be met in order to receive County administration support for a proposal. Require policies are always paired with ensure. Require is the compulsory obligation and ensure explains the result that is to be achieved.

**Encourage** - proposals should be consistent with all applicable encourage policies in order to be supported by County administration. Proposals which do not meet an applicable encourage policy must provide justification to the satisfaction of County administration as to why the applicable encourage policy cannot be met. Encourage policies are always paired with promote. Encourage is what is expected and promote shows active county encouragement for the result that is to be achieved.

**Consider** - proposals that fall under a consider policy will be evaluated on a case-by-case basis and may or may not be supported by County administration based on the specifics of the proposal and how it aligns with the goals and objectives of this Plan. Consider policies are always paired with support. Consider is followed by criteria for when an action may be suitable and support shows passive county support through the conditional consideration of the result that is to be achieved.

TABLE 1: POLICY TERMS

ACTION		INTENTION	
<b>Require</b>	Is a compulsory obligation	<b>Ensure</b>	To make sure of a result through a requirement
<b>Encourage</b>	Provides direction for what is expected	<b>Promote</b>	Shows active County encouragement
<b>Consider</b>	Provides criteria for when actions may be suitable	<b>Support</b>	Shows passive County support through conditional consideration

## 2.2 Interpretation

All map symbols, locations, and boundaries contained within this Plan shall be interpreted as approximate unless otherwise specified in the Plan, or unless they coincide with clearly recognizable physical features or fixed (i.e., legal) boundaries.

### Permissive Premise

This Plan is intended as a permissive document. Where direction on an item is not provided, the item should not be considered.

### Definitions

Terms not defined within Section 6 of this Plan may be given their meaning from the following documents in order of priority:

- (a) *Municipal Government Act*;
- (b) Edmonton Metropolitan Region Growth Plan;
- (c) Strathcona County's Municipal Development Plan.

Other terms shall be given their usual and customary meaning.



## Section 3

# General

The general policy sections are applicable to the entire Plan area as illustrated in **Map 1: Location**. The general policy sections are:

- 3.1 General Land Use
- 3.2 Natural Environment
- 3.3 Transportation
- 3.4 Utilities
- 3.5 Pipelines

## 3.1 General Land Use

The Plan area is intended to be developed primarily as heavy industrial and bordered by supportive transitional as well as conservation land uses. However, non-industrial land uses that existed prior to the adoption of this Plan, and are located within the Plan area, may be allowed to continue as heavy industrial operations are developed. This section provides overall direction for the existing non-industrial land uses within the Plan area.

### ❖ GOAL

To develop the Plan area in a manner that allows existing non-industrial land uses where they do not hinder the long-term viability of existing and planned industrial land uses.

### ❖ OBJECTIVES

Strathcona County's **Land Use** objectives in the Plan area are to:

1. Provide limited accommodation for **existing residential development**.
2. Allow the operation of **agricultural uses**.
3. Enable the continued operation of **aggregate extraction**.
4. Minimize **land use conflict** between industrial and non-industrial land uses.
5. Maintain the integrity of **historically significant resources**.
6. Maximize the benefits of **municipal reserve** dedication.

## ❖ POLICIES

### Existing Residential Development

1. Consider the maintenance, modification or addition to residential dwellings, where the dwelling existed prior to the adoption of this Plan, to support limited accommodation of existing residential uses.
2. Consider the reconstruction or replacement of an existing residential dwelling or an existing residential dwelling that has been destroyed that meets the following criteria to support limited accommodation of existing residential uses:
  - a) existed prior to the adoption of this Plan;
  - b) is above the top-of-bank of a water body; and
  - c) is not located in areas prone to extensive erosion or subsidence, or within the 1:100 year flood plain.

### Agricultural Uses

3. Encourage extensive agriculture and livestock operations to promote the continued operation of agricultural uses.
4. Consider the maintenance, modification or addition to indoor agriculture, where the indoor agriculture existed prior to the adoption of this Plan to support continued operation of existing agricultural uses.
5. Consider the reconstruction or replacement of indoor agriculture where it meets the following criteria to support continued operation of existing agricultural uses.
  - a) it existed prior to the adoption of the Plan;
  - b) is above the top-of-bank of a water body; and
  - c) is not located in areas prone to extensive erosion, subsidence or within the 1:100 year flood plain.
6. Consider new indoor agriculture where it meets the following criteria to support the long term viability of the Plan area for industrial development.
  - a) is above the top-of-bank of a water body;
  - b) is not located in areas prone to extensive erosion, subsidence or within the 1:100 year flood plain; and
  - c) does not limit existing or planned industrial development.
7. Consider the expansion of existing confined feeding operations in accordance with the Agricultural Operation Practices Act where the location does not limit existing or planned industrial development to support confined feeding operations to continue as long as possible.
8. Require new confined feeding operations to locate outside of the Plan area to ensure land is available for future industrial development in the Plan area.

### Aggregate Extraction

9. Encourage the continued operation of existing aggregate extraction to promote maximization of the benefits of the naturally occurring resources of the Plan area.
10. Consider new aggregate extraction and expansions to existing aggregate extraction where the location does not hinder the long term viability of existing and planned industrial development to support maximization of the benefits of the naturally occurring resources of the Plan area.
11. Require aggregate extraction to be carried out in accordance with an approved reclamation plan to ensure the maximization of potential land available for future industrial development in the Plan area.
12. Require development permits for aggregate extraction to provide for the following to ensure orderly development and the availability of land in the future for industrial development:
  - a) reclamation of the site;
  - b) conservation and storage of top soil;
  - c) designation of aggregate haul roads to reduce noise, excessive maintenance costs and dust concerns; and
  - d) any additional information that the Development Authority requires to assess the application.

### Minimization of Land Use Conflict

13. Require that the following non-industrial land uses are located outside of the Plan area to ensure the minimization of the risk of a fatality resulting from industrial activity:
  - a) a new residential subdivision or a new dwelling;
  - b) new development which enables increased population concentration or overnight stays (e.g., Bed and Breakfasts and Group Homes);
  - c) development that results in large indoor/outdoor assembly; and
  - d) buildings which present difficulties in the event of evacuations.
14. Despite Policy 3.1.13 c), consider the continuation of an existing private camp or an existing campground on an interim basis until the expansion or new development of heavy industrial operations results in a risk of a fatality of  $1 \times 10^{-6}$  extending into the parcel that the existing private camp or existing campground is located on to support uses that were established prior to the adoption of this Plan.
15. Require that non-industrial development maintains setbacks from rail lines in accordance with the applicable Canadian National Railway and Canadian Pacific Railway Guidelines to ensure mitigation of potential risk and nuisance resulting from railway operations in proximity to non-industrial development.
16. Despite Policy 3.1.15, consider reducing a setback from a rail line where a risk assessment is submitted that identifies a reduction to the applicable development setbacks outlined within the Canadian National Railway and Canadian Pacific Railway

Guidelines maintains an acceptable level of risk to support minimization of land use conflict between industrial and non-industrial land uses.

#### **Historically Significant Resources**

- 17.** Require the completion of an Historical Resources Impact Assessment as part of an application for subdivision or development to ensure the identification of any historically significant resources that may be present within the Plan area.
- 18.** Encourage that development is located away from historically significant resources identified in an Historical Resources Impact Assessment to promote the retention of historically significant resources.

#### **Municipal Reserve**

- 19.** Require any dedication of municipal reserve as part of a subdivision to be provided as cash-in-lieu to ensure the re-direction of municipal reserve to locations throughout the County where they will achieve the maximum benefit.

## 3.2 Natural Environment

The landscape within the Plan area consists of a diversity of land uses and landforms. While industry and agriculture are present in the Plan area, there is undisturbed habitat in shrubby swamps, upland bogs, pine forests, and wet areas.

Environmental features shown on **Map 2: Natural Environment** have been identified through a biophysical assessment that was completed for this Plan to determine suitability for conservation. It is the intent of this Plan that these ecological features are to be conserved wherever possible.

The North Saskatchewan River forms the northwestern boundary of the Plan area. The River Valley and its adjacent lands provide a significant area of forested lands and wildlife habitat. Astotin Creek bisects the Plan area and provides a critical linkage from the unique and sensitive Beaver Hills Moraine to the River Valley.

There are also two provincially protected environmentally significant areas within the Plan area: North Bruderheim (Sandhills) Natural Area and Northwest of Bruderheim Natural Area. These areas protect important environmental features such as pine stands, sand dunes and groundwater recharge areas.

Wetlands are present throughout the Plan area. Priority wetlands shown on **Map 2: Natural Environment** have been targeted for conservation based on a Significant Natural Features and Landscapes report; their function in association with Astotin Creek; and the provision of connectivity between protected areas.

Wetland habitat has been separately identified on **Map 2: Natural Environment**. Riparian and upland areas surrounding wetlands have a direct impact on the functioning of the wetland; they impact the health through filtering functions, they provide vital habitat, and they mitigate the impact of surrounding land use. The wetland habitat includes an extension of the wetland's riparian area and together with the adjacent upland habitat also identified on **Map 2: Natural Environment** creates habitat within the Plan area that is used by a larger proportion of birds, wildlife and species that require specific habitat. In combination, the extension of the riparian area to the upland area that contributes to the functioning of the wetland and habitat can be described as the functional upland zone.

However, regardless of whether the wetlands are illustrated as priority or habitat, the *Alberta Water Act* and County's wetland policies still apply.

## ❖ GOAL

To develop the Plan area in a sensitive manner that accommodates the conservation of the natural environment and Natural Areas.

## ❖ Objectives

Strathcona County's **Natural Environment** objective in the Plan area is to:

1. **Conserve** the natural environment and Natural Areas wherever possible.

## ❖ Policies

### Conservation

1. Encourage a site specific biophysical assessment to be submitted as part of any subdivision or development permit application to promote the identification of the biological and physical elements of the ecosystem.
2. Encourage that wetlands and wetland habitat identified on **Map 2: Natural Environment** are targeted for conservation to promote the long-term health and viability of Astotin Creek and connectivity between Natural Areas.
3. Encourage development to be sited away from areas identified as functional upland zones within a site specific biophysical assessment to promote the long-term health, connectivity and viability of wildlife habitat.
4. Encourage development to be sited away from areas identified as Natural Area, priority wetland, wetland habitat, upland habitat, and habitat connection on **Map 2: Natural Environment** or identified within a site specific biophysical assessment as an environmental feature or natural landscape to promote minimization of fragmentation and retention of the overall function of naturally occurring ecosystems.
5. Encourage that an environmental impact assessment that has been prepared by a qualified professional is submitted as part of any application for a development permit that includes heavy industrial development to promote the identification of potential environmental impacts resulting from industrial development.
6. Encourage that proposed industrial development is located in a manner that addresses the recommendations contained within an environmental impact assessment to promote the minimization of development impact on the environment.

- 7.** Require that recommendations of technical studies (e.g., a top-of-bank survey, flood plain study, or geotechnical report) submitted as part of a subdivision or development permit application for a parcel of land adjacent to a water body are addressed to the satisfaction of the County to ensure the integrity of water bodies is maintained.
- 8.** Require that development is directed outside of areas prone to erosion or subsidence to ensure the integrity of development.
- 9.** Require that development is directed outside of the 1:100 year flood plain of rivers, streams, lakes, and wetland to ensure the integrity of development.
- 10.** Despite 3.2.8 and 3.2.9, consider extensive agricultural uses, passive recreational uses, or interim aggregate extraction within a top of bank or areas prone to erosion, subsidence or flooding to support maximization of the benefits of the naturally occurring resources of these areas.
- 11.** Encourage existing access routes to the North Saskatchewan River to be prioritized over the creation of new access routes to promote the efficient use of infrastructure and reduce additional disturbance to the North Saskatchewan River.
- 12.** Encourage that overall habitat connections and corridors remain intact to promote the long-term health, connectivity and viability of wildlife habitat.

## 3.3 Transportation

An update to the Alberta’s Industrial Heartland Transportation Study was conducted concurrently with the preparation of this Plan and provided the foundation for the transportation network shown on **Map 4: Transportation**. The transportation network provides a hierarchy of roadways to support existing uses and future development in the area, while respecting the need for safe and efficient circulation.

This Plan includes existing and anticipated heavy industrial operations at a scale that utilize larger tracts of land than typically seen within other areas of the County. As a result of the expected scale of development, the large landholdings of individual landowners often traverse the roadway network. The transportation network will need to have the flexibility to take into consideration these large landholdings where potential development plans and consolidation of parcels may result in proposals to alter the planned roadway network.

### ❖ GOAL

To provide a safe and efficient transportation network that supports the needs of existing and future users.

### ❖ Objectives

Strathcona County’s **Transportation** objectives in the Plan area are to:

1. Provide a **roadway network** that is safe and efficient.
2. Integrate **railway** access and infrastructure in a safe and efficient manner.

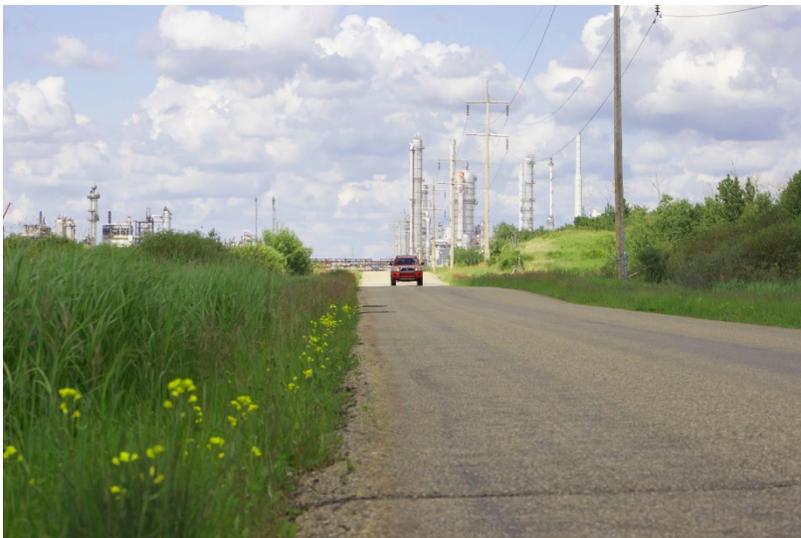
## ❖ Policies

### Roadway Network

1. Require that a network of major roadways is provided as illustrated in **Map 4: Transportation** to ensure a principal means of access and major circulation routes are established throughout the Plan area.
2. Encourage that transportation infrastructure is developed in accordance with the Alberta's Industrial Heartland Transportation Study, as updated from time to time, to promote a consistent and necessary level of transportation infrastructure.
3. Despite Policy 3.3.1, consider a realignment or alteration to the road network shown in **Map 4: Transportation** where it meets the following criteria to support the facilitation of industrial development on large tracts of land:
  - a) alternative alignments will be developed in accordance with the requirements contained within the Alberta's Industrial Heartland Transportation Study;
  - b) alternative alignments will not create new at-grade railway crossings;
  - c) the planning, design and any costs associated with the construction of any new or altered roadways is the responsibility of the proponent, and will be required to achieve approval from the County and, where necessary, Alberta Transportation;
  - d) public engagement will be conducted by the proponent to provide a means for any person who may be affected by the proposed alteration or realignment to make suggestions and representations; and
  - e) realignment of any portion of the roadway network shown within a road plan will be required to achieve Council adoption of a road closure bylaw where necessary.
4. Require that a transportation impact assessment prepared by a qualified professional be submitted as part of a subdivision or development permit application and achieve County acceptance to ensure anticipated traffic generation and potential impacts on the overall circulation network can be assessed and addressed.
5. Encourage all newly created lots to have physical access to a public road to promote the reduction of landowner conflict associated with cross lot access.
6. Require that emergency access is provided as part of a proposed development in accordance with Strathcona County Emergency Services requirements to ensure an acceptable response to an industrial accident.
7. Encourage collaboration with Alberta Transportation on any future upgrades to provincial highways that impact the Plan area to promote consideration of the overall transportation network within the Plan area in the planning of provincial infrastructure.
8. Require consultation with partner municipalities of Alberta's Industrial Heartland and the Town of Bruderheim as part of transportation planning that impacts the Plan area to ensure adjacent municipalities have the opportunity to provide input on compatible roadway alignments, effective circulation and access between municipalities within Alberta's Industrial Heartland.

## Railway

9. Require that proposals to create new or expanded rail spur lines submit a risk assessment as part of a development permit application to ensure any industrial risk is identified and mitigated.
10. Require that development permit applications to create new or expanded rail spur lines maintain setbacks from existing non-industrial development in accordance with the applicable Canadian National Railway and Canadian Pacific Railway Guidelines to ensure minimization of land use conflict between industrial and non-industrial land uses.
11. Require that proposals to create new or expanded rail spur lines do not create at grade crossings with public roads to ensure minimization of transportation conflicts and maintenance of safe transportation systems.
12. Encourage proposals to create new or expanded rail spur lines to not create at grade crossings that conflict with development access points to promote minimization of transportation conflicts and maintenance of safe transportation systems.



## 3.4 Utilities

The intent of utility servicing within the Plan area is to provide a safe, efficient, economical, and environmentally responsible plan to support future development. While servicing for development within the majority of the Plan area has been, and is expected to be, self-contained for each development site, the Plan provides overall direction for major servicing components to ensure that servicing for the area remains coordinated and functional.

The majority of water servicing within the Plan area is provided through private onsite systems with some process water supplied to a small number of users as part of a provincial license to withdraw water from the North Saskatchewan River. It is anticipated that water servicing for the majority of development will continue through private onsite systems. However, a pressurized water main crosses through the Plan area along the north side of Highway 15 via the John S. Batiuk Regional Water Commission Line shown in **Map 6: Existing Water Mains**, which provides some opportunity for future connections to this rural water main on a limited basis. Given the limited opportunity, consideration is necessary for pressurized water to be allocated in a manner that best supports the development of the Plan area.

There is no municipal wastewater servicing available within the Plan area. As a result, the majority of developments treat their effluent onsite and either discharge to the North Saskatchewan River, or have it transported to the Alberta Capital Region Wastewater Commission. It is anticipated that wastewater servicing for the majority of development will continue in this manner.

The Plan area is located in the Beaverhill Watershed of the North Saskatchewan River, and is divided into 16 sub-watersheds which largely drain into Astotin Creek that flows through the Plan area from south to north. Astotin Creek merges with Beaverhill Creek to the north and east of the Plan area, which eventually drains into the North Saskatchewan River. Stormwater within the Plan area is intended to be managed by individual developments and continue to drain into Astotin Creek as development proceeds.

## ❖ GOAL

To provide safe, efficient, economical, and environmentally responsible water, wastewater and stormwater systems to support future development within the Plan area.

## ❖ Objectives

Strathcona County's **Utilities** objectives in the Plan area are to:

1. Provide an adequate supply of potable **water** for existing and planned development.
2. Provide appropriate **wastewater** management for existing and planned development.
3. Manage **stormwater** responsibly.

## ❖ Policies

### Water

1. Consider development which requires the provision of potable water for domestic purposes is serviced with private on-site water systems where municipal infrastructure is not readily available to support economically viable infrastructure.
2. Consider connection to piped water systems for domestic purposes for development proposals within the Transition Policy Area where the proposed development meets the following criteria to support economically viable infrastructure:
  - a) demonstrates a need for water servicing that cannot be fulfilled by onsite systems;
  - b) designed and constructed in accordance with the Strathcona County Design and Construction standards; and
  - c) receives necessary approvals from the applicable water commission.
3. Encourage process flows to continue to be supplied through private systems or provincial licenses to withdraw from the North Saskatchewan River (i.e., private service providers) to promote economically viable infrastructure.

### Wastewater

4. Require that development manages wastewater through private onsite systems to ensure economically viable infrastructure.

### Stormwater

5. Encourage overall stormwater management to be in accordance with **Map 5: Stormwater** to promote efficient provision of coordinated and comprehensive stormwater management within the Plan area.
6. Consider the preparation and implementation of a stormwater management plan for each sub-watershed where the amount of existing and proposed industrial development necessitates coordination of stormwater management to promote comprehensive management of stormwater runoff within each sub-watershed area.
7. Encourage provision of stormwater management in accordance with Alberta's Industrial Heartland Stormwater Drainage Study as updated from time to time to promote a consistent level of stormwater management.
8. Require the submission of a stormwater management plan as part of a development permit application to ensure that the existing overall drainage pattern and pre-development discharge rates are maintained within the Plan boundary.
9. Encourage all proposed developments to design and implement stormwater management in a manner that provides on-site stormwater retention and storage to promote independent management of stormwater runoff for each development.
10. Require that stormwater management as part of a proposed development is designed to attenuate the 1:100 year rainfall event to ensure responsible stormwater management in the Plan area.
11. Consider the completion of a detailed watershed study for the Astotin Creek watershed where the amount of existing and proposed industrial development necessitates the study to determine the maximum post development release rates necessary to support the conservation and integrity of Astotin Creek.
12. Require that a site specific erosion and sediment control plan is submitted as part of a subdivision or development permit application to ensure adverse effects on the environment resulting from development are mitigated.

## 3.5 Pipelines

Transport of product by pipeline from a point outside of the Alberta's Industrial Heartland to a specific industrial site within the Alberta's Industrial Heartland is a predominant method of transporting oil and gas. Thousands of kilometres of pipelines being constructed throughout Alberta has been the result. Pipeline routing has been conducted in an ad hoc manner with the primary goal of connecting source and destination points in a direct line. This method has now placed development limitations on some areas due to the land being fragmented by a web of pipelines. It is now recognized that pipeline routing in Alberta's Industrial Heartland needs to be approached in a comprehensive and innovative manner. Industrial lands are valuable from an economic and space efficiency perspective and cannot necessarily accommodate pipeline corridors.

Consequently, a pipeline routing methodology was established with stakeholders and landowners to reduce development restrictions. The intent of the pipeline routing methodology for the Plan is to provide options for pipeline access to industrial sites while ensuring optimal industrial development. Development of industrial lands and pipelines is intended to be approached using a mechanism for solutions that is balanced and fair for all parties in this area.

### ❖ GOAL

To provide options for pipeline access to industrial sites while achieving optimal industrial development within the Plan area.

### ❖ Objectives

Strathcona County's **Pipeline** objectives in the Plan area are to:

1. Facilitate **pipeline routing** that maintains development areas and avoids land fragmentation.
2. Advocate for pipeline routing to **minimize impacts** on non-industrial development.

## ❖ Policies

### Pipeline Routing

1. Encourage the area created by the minimum development setback from a property line (outside of future road widening requirements) to be made available for routing of new pipelines to promote the efficient use of land.
2. Encourage the area created by the minimum development setback from a property line (outside of future road widening requirements) or existing right-of-ways to be the initial routing selections for new pipelines to promote the reduction of land fragmentation.
3. Consider pipeline routing located outside of a minimum development setback from a property line where development plans of the subject property indicate the minimum development setback from a property line is not feasible for pipeline routing to support the viability of industrial development.
4. Encourage pipeline right-of-way widths to be minimized wherever possible to promote the maximization of the value and amount of land available for development.
5. Encourage above ground facilities (i.e., valve sites) to only locate on industrial sites where the site is part of the pipeline commercial contract to promote the optimal configuration of land available for development.
6. Consider pipelines to cross over each other and/or cross road right-of-ways at an angle where it alleviates pinch points and/or otherwise inaccessible routing to support the efficient development and operation of pipelines.
7. Encourage new pipeline routing to identify and address future industrial access points and other development conflicts through appropriate construction techniques (e.g., increased pipeline depths or increased wall thickness) to promote the viability of planned development.
8. Encourage a site specific biophysical assessment to be completed prior to pipeline route planning to promote identification of biological and physical elements of the ecosystem.
9. Encourage pipeline routing to avoid provincially protected environmentally significant areas, priority wetlands, wetland habitats, and upland habitats as identified in **Map 2: Natural Environment** or environmental features as identified within a site specific biophysical assessment to promote the conservation of the natural landscape.

### Minimize Impacts

10. Encourage new pipeline development to meet or be less than acceptable levels of risk for existing development in accordance with Major Industrial Accidents Council of Canada criteria to promote minimization of risk of a fatality related to industrial activity.

## Section 4

# Land Use Concept

Section 4: Land Use Concept contains policies which are applicable to the following Policy Areas of the Plan as illustrated in **Map 3: Land Use Concept**:

- 4.1 Heavy Industrial Policy Area
- 4.2 Heartland Heavy Industrial Overlay
- 4.3 Transition Policy Area
- 4.4 Environmental Policy Area



## 4.1 Heavy Industrial Policy Area

The Plan area is well-suited for industrial development due to its strategic location, the large tracts of undeveloped land, and well-developed highway and rail links. The Heavy Industrial Policy Area is intended to promote and support a range of heavy industry, including petrochemical processing and manufacturing, oil and gas refining and directly associated support service industries. Approximately 7,572 hectares of the Plan area are designated for heavy industrial uses. The policies that govern these lands are designed to maintain safety, provide compatibility with adjacent land uses and allow for innovative opportunities, including eco-industrial configurations.

### ❖ GOAL

To provide opportunities for heavy industry that is developed in a safe, efficient manner while ensuring the Plan area is viable over the long term.

### ❖ Objectives

Strathcona County's **Heavy Industrial Policy Area** objectives in the Plan area are to:

1. Provide **viability** of the Plan area over the long term.
2. Responsibly **manage risks** associated with industrial development.
3. Provide **efficiently designed** industrial developments.

## ❖ Policies

### Viability

1. Encourage heavy industrial developments to locate within the Plan area to promote the long term viability of, and synergistic opportunities within, the Plan area.

### Risk Management

2. Require that an industrial risk assessment prepared by a qualified professional is submitted as part of any application for a development permit that includes heavy industrial development to ensure that the risk resulting from proposed heavy industrial development is known.
3. Require that all risk assessments are prepared in accordance with the standards established by the Major Industrial Accidents Council of Canada (MIACC) to ensure risk is identified and managed through a consistent and accepted method.
4. Require heavy industrial development that is located outside of the Heavy Industrial Overlay to meet or be less than the following acceptable levels of industrial risk:
  - a) A risk of 1 in 10,000 ( $1 \times 10^{-4}$ ) chance of a fatality resulting from an industrial accident shall be contained within the property line of the property where heavy industrial risk source is located.
  - b) A risk of 1 in 100,000 ( $1 \times 10^{-5}$ ) chance of a fatality resulting from an industrial accident shall be contained within a distance of 1.5 km from the property line of the property where heavy industrial risk source is located.
  - c) A risk of 1 in 1,000,000 ( $1 \times 10^{-6}$ ) chance of a fatality resulting from an industrial accident shall be contained within a distance of 3.0 km from the property line of the property where heavy industrial risk source is located.
5. Require that an emergency response plan prepared in accordance with County requirements is submitted as part of any development permit application that includes heavy industrial development to ensure an acceptable response to an industrial accident is established.

### Efficient Design

6. Encourage the utilization of eco-industrial principles (e.g., sharing by-products and services, re-use and recycling of wastes, and sharing resources and infrastructure) between developments within the Heavy Industrial Policy Area and developments within the rest of the Plan area to promote the maximization of synergistic development within the Plan area.
7. Encourage that heavy industrial development prevent or mitigate nuisance impacts (e.g., road and rail traffic, noise, vibration, smoke, dust, odour, fumes, and lighting) on non-industrial land uses outside of the heavy industrial policy area by implementing applicable industry standards, best practices and regulatory requirements to the satisfaction of the County to promote the continued value, use and enjoyment of adjacent lands.

8. Consider subdivision of parcels where it meets the following criteria to support the efficient use of land for development:
  - a) the parcel has the appropriate zoning;
  - b) an outline plan is prepared for applications proposing four or more total lots; and
  - c) infrastructure is provided as required to facilitate the proposal.
9. Consider consolidation of parcels which meet the following criteria to support the efficient use of land for development:
  - a) the application is supported by a site plan;
  - b) any realignment of the transportation network is completed in accordance with Policy 3.3.3.;
  - c) the proposal is consistent with the zoning of the subject properties; and
  - d) the proposal results in a parcel that is zoned under a single zoning district.



## 4.2 Heartland Heavy Industrial Overlay

A Heavy Industrial Overlay as illustrated on **Map 3: Land Use Concept** applies to a portion of the lands designated as Heavy Industrial Policy Area that are closest to non-industrial land uses outside of the Plan area. The overlay applies more stringent requirements for industrial risk management and nuisance mitigation, and applies to approximately 1,235 hectares of the Plan area. The intent of this Overlay is to minimize the impact of heavy industry on residential development in the Town of Bruderheim to the east and non-industrial lands outside the south boundary of the Plan area.

### ❖ GOAL

To minimize the impact of heavy industry on residential development in the Town of Bruderheim to the east and non-industrial lands outside the south boundary of the Plan area.

### ❖ OBJECTIVES

Strathcona County's **Heavy Industrial Overlay** objectives in the Plan area are to:

1. Maintain an acceptable level of industrial **risk** on adjacent land uses.
2. **Minimize nuisance** impacts created by industrial development on adjacent non-industrial uses.

## ❖ Policies

### Risk Management

1. Require a Heartland Heavy Industrial Overlay as identified in **Map 3: Land Use Concept** to ensure an acceptable level of heavy industrial risk is consistently maintained for adjacent land uses.
2. Despite Policy 4.1.4., require heavy industrial development meet or be less than the following acceptable levels of industrial risk to ensure an acceptable level of heavy industrial risk is consistently maintained for adjacent land uses:
  - a) A risk of 1 in 10,000 ( $1 \times 10^{-4}$ ) chance of a fatality resulting from an industrial accident shall be contained within the property line of the property where heavy industrial risk source is located.
  - b) A risk of 1 in 100,000 ( $1 \times 10^{-5}$ ) chance of a fatality resulting from an industrial accident shall be contained within the plan boundary; and
  - c) A risk of 1 in 1,000,000 ( $1 \times 10^{-6}$ ) chance of a fatality resulting from an industrial accident shall be contained within a distance of 1.5 km from the boundary of the Heavy Industrial Overlay, as identified on **Map 3: Land Use Concept**.

### Minimize Nuisance

3. Encourage prevention or mitigation of nuisance resulting from industrial development (e.g., road and rail traffic, noise, vibration, smoke, dust, odour, fumes, and lighting) at the southern and eastern boundary of the Heartland Heavy Industrial Overlay by implementing applicable industry standards, best practices and regulatory requirements to the satisfaction of the County to promote the continued value, use and enjoyment of adjacent lands.

## 4.3 Transition Policy Area

The primary intent of the Transition Policy Area is to provide a land use transition between heavy industrial activities within the Plan area and adjacent non-industrial land uses within and bordering Strathcona County. The area comprises approximately 2770 hectares of land and will facilitate the development of uses that support heavy industrial uses to the north or support agricultural operations to the south.

This area is envisioned to contain development such as light and medium industrial uses, agricultural product processing, agricultural support services, and light industry directly related to agriculture, that are compatible and provide synergistic opportunities with adjacent heavy industrial uses and agricultural operations. A fundamental feature of this Policy Area is that the land uses within it do not result in nuisance beyond the Plan area.

### ❖ GOAL

To provide a transition between heavy industrial land use and adjacent non-industrial land uses while enabling opportunities for uses that support heavy industrial and agricultural operations in the Plan area.

### ❖ OBJECTIVES

Strathcona County's **Transition Policy Area** objectives in the Plan area are to:

1. Provide a **transition** between heavy industrial uses in the Plan area and non-industrial uses outside of the Plan area.
2. Minimize **land use conflicts**.
3. Facilitate **synergies** between land uses.

## ❖ Policies

### Transition

1. Require that the extents of the Transition Policy Area as identified on **Map 3: Land Use Concept** remain unchanged to ensure non-industrial land uses outside of the Plan area are buffered from heavy industrial land uses within the Plan area.

### Minimize Land Use Conflicts

2. Require medium industrial development to be located 400 metres away from the Town of Bruderheim municipal boundary to ensure minimization of development impacts on non-industrial development in the Town of Bruderheim.
3. Encourage buildings within 200 metres of the Town of Bruderheim municipal boundary to be designed to be compatible with the Town's abutting land use in terms of scale and design of development to promote a cohesive transition of development between the Plan area and the Town of Bruderheim.
4. Require that any outdoor storage or loading areas are sited away from or screened from adjacent roadways and adjacent non-industrial land uses outside the Plan area to ensure minimization of visual impacts on transportation corridors and adjacent properties.
5. Require site specific nuisances (e.g., noise, vibration, smoke, dust, and odour) resulting from a development to be contained entirely within the boundaries of the property on which the development is located to ensure adjacent properties are not subjected to the nuisance effects of development.
6. Require exterior lighting to be designed to reduce light pollution and minimize light trespass on any abutting properties to the satisfaction of Strathcona County to ensure abutting properties are not subjected to the nuisance effects of development.
7. Require risk assessments to be submitted as part of a development permit application for a use that proposes to have a hazardous substance onsite to ensure identification of risks resulting from a proposed use.
8. Require development to meet or be less than the following acceptable level of risk to ensure minimization of land use conflict between industrial uses in the Transition Policy Area and adjacent non-industrial uses:
  - a) A risk of 1 in 1,000,000 ( $1 \times 10^{-6}$ ) chance of a fatality resulting from a hazardous substance accident shall be contained within the property line where the risk source is located.
9. Require emergency response plans to be submitted as part of a development permit application for a use determined to have hazardous substance onsite to ensure an acceptable response to a potential industrial accident is established.
10. Require that the Land Use Bylaw be updated to create a zoning district(s) specific to the Transition Policy Area prior to a rezoning application being accepted to ensure that the objectives of this Policy Area are achieved.

## Synergies

- 11.** Encourage the utilization of eco-industrial principles (e.g., sharing by-products and services, re-use and recycling of wastes, and sharing resources and infrastructure) between developments in the Transition Policy Area and developments within and surrounding the Plan area to promote the efficient use of infrastructure and waste reduction.
- 12.** Encourage uses such as the following to locate within the Transition Policy Area to promote synergies between and diversity of land uses:
  - a) agriculture support services and agricultural product processing;
  - b) light industrial and medium industrial uses that support heavy industrial and/or agricultural operations; and
  - c) indoor agriculture.
- 13.** Consider uses that do not primarily support heavy industry or agriculture (e.g., outdoor recreational vehicle storage, storage facilities and contractor services) to locate within the Transition Policy Area where they suit the location and meet the overall policy intent of the Transition Policy Area to support a diversity of industrial land uses within the Policy Area.
- 14.** Consider subdivision of parcels within the Transition Policy Area where:
  - a) the parcel has appropriate zoning;
  - b) an outline plan is prepared for applications proposing four or more total lots; and
  - c) infrastructure is provided as required to facilitate the proposal.



## 4.4 Environmental Policy Area

The North Saskatchewan River is an extremely prominent and important feature on the landscape. The Environmental Policy Area, illustrated on **Map 3: Land Use Concept**, protects the North Saskatchewan River corridor by providing a buffer from development within the adjacent Heavy Industrial Policy Area. The Environmental Policy Area is aligned with the North Saskatchewan River conservation corridor and primarily based on the upper top of bank of the river.

The northeastern portion of this Policy Area which extends southward along the eastern boundary of the Plan area provides a buffer between heavy industry and adjacent North of Bruderheim Natural Area within Lamont County. Approximately 1,534 hectares of the Plan area is designated as Environmental Policy Area.

### ❖ GOAL

To conserve the North Saskatchewan River and North of Bruderheim Natural Area.

### ❖ OBJECTIVES

Strathcona County's **Environmental Policy Area** objectives in the Plan area are to:

1. **Conserve** the North Saskatchewan River and North of Bruderheim Natural Area.
2. Enable opportunities to **interact** with the River Valley.

## ❖ Policies

### Conservation

1. Require an Environmental Policy Area as identified in **Map 3: Land Use Concept** to ensure a buffer is maintained between heavy industry and both the North Saskatchewan River and adjacent North of Bruderheim Natural Area.
2. Require new development that is not related to agriculture, passive recreational activities or aggregate extraction to be located outside of the Environmental Policy Area to ensure the conservation of the North Saskatchewan River.
3. Require that the following information to be submitted as part of any rezoning, subdivision, or development permit application for a property that is within or contains Environmental Policy Area as shown on **Map 3: Land Use Concept** to ensure conservation of the North Saskatchewan River:
  - a) Site specific biophysical assessment;
  - b) Top of bank study delineating the upper bank of the North Saskatchewan River;
  - c) Slope stability study; and
  - d) Geotechnical assessment.
4. Consider split zoning on properties within the Environmental Policy Area where a portion of that same property is also within the Heavy Industrial Policy Area to support efficient use of developable areas on affected properties.
5. Require any subdivision proposal for parcels affected by the Environmental Policy Area to include that portion of Environmental Policy Area (being the area located within the top of bank plus 50 metres) in an environmental reserve lot in accordance with the *Municipal Government Act* to ensure the integrity of the North Saskatchewan River is maintained.

### River Valley Interaction

6. Consider infrastructure for passive recreational activities (e.g., the development of trails through the River Valley for hiking and biking) where the activity is connected with other corridors within and adjacent to the County to support contiguous recreational opportunities within the County.





## Section 5

# Implementation

The primary function of this Area Structure Plan is to provide direction, through policies, that guide future development. All future development must reflect the intent of this plan. Implementation is achieved through the understanding and cooperation of developers and relevant agencies.

## 5.1 Plan Implementation

This Plan will be implemented through the Land Use Bylaw (LUB), the subdivision process, the development permitting process, and development agreements.

A review of the LUB is required to identify potential amendments to the Zoning Districts that apply to the lands in the Plan area.

A key component of the success of the Plan will be ongoing engagement with municipalities in Alberta's Industrial Heartland, industry, other stakeholders, and approval authorities to ensure continued collaboration and coordination. This Plan is considered complementary to the ASPs of the other municipalities in Alberta's Industrial Heartland, and will facilitate coordinated, compatible, and consistent development.

In addition to the LUB and MDP, this Plan requires that appropriate transition, buffers, and mitigation measures are in place to reduce negative impacts of industrial uses on surrounding areas, and to respect the natural landscape and existing uses.

## 5.2 Implementation Items

The items listed in the following table are actions required to implement the policies of this plan.

IMPLEMENTATION ITEM	JUSTIFICATION
Amend the Land Use Bylaw to create a Zoning District specific to the Transition Policy Area.	The Transition Policy Area requires specific transitioning regulations and land uses.
Amend the Land Use Bylaw to create an Agricultural Zoning District specific to the Plan area.	The Plan includes specific policies for agricultural land use that is either not addressed by existing zoning districts or requires additional clarity.
Review the current IHH – Industrial Heavy (Heartland) and IMH – Industrial Medium (Heartland) zoning districts to ensure compliance with this Plan and amend the Land Use Bylaw as necessary.	Additional regulations may be required to implement additional risk and nuisance restrictions adjacent to the Town of Bruderheim
Review the need to complete a detailed watershed study once development necessitates the need.	The maximum post development storm water release rates that Astotin Creek can handle are unknown
Review the need for detailed pipeline and utility corridor planning.	Pipeline and utility corridor planning would provide both a greater degree of certainty and options for pipeline access to industrial sites.
Create procedures and requirements related to outline plans.	The Plan makes reference to the requirement for outline plans prior to consideration of subdivision within the Heavy Industrial Policy Area.

## Staging

Given the extensive property holdings of individual landowners, staging will be determined by the locational preferences and site selection of individual firms and organizations, as well as through the logical extension of services and infrastructure to support development as necessary.

Some development, specifically those surrounding the Highway 15 and 830 corridors, may require additional review and approval from Alberta Transportation.

## Technical Studies

In support of the preparation of this Plan, the following technical studies have been completed:

- Transportation Plan
- Desktop Terrain and Landslide Hazard Mapping
- Biophysical Assessment
- Desktop Geotechnical Evaluation
- Stormwater Drainage Study
- Cumulative Risk Assessment

The technical studies provide a high-level overview of the Plan area. Further work may be required with subsequent rezoning, subdivision, and/or development proposals to provide a more detailed analysis.

Strathcona County may, in the future, update the Biophysical Assessment for additional information regarding (but may not be limited to): type and size of buffers to protect water quality of creeks and creeks as corridors, ungulate and predator movement, buffer width requirements, and connectivity.

## Area Structure Plan Amendment

Any changes to the Plan must be consistent with the *Municipal Government Act*, Edmonton Metropolitan Region Growth Plan, and the Municipal Development Plan. Applicants applying to amend the Plan will provide supporting information, analysis, and technical data at the request of the County in order for the merits and impacts of the proposed changes be properly determined and evaluated. Given the integration of the Plan with the supporting technical studies listed above, any amendment to the Plan may require updates to these studies.



## Section 6

# Definitions

**Eco-industrial:** Cooperating businesses which are located together on a property, or in close proximity to one another, that work together to improve their environmental and economic conditions by reducing waste and increasing product efficiency.

**Functional Upland Zone:** The extension of the riparian area to the upland area that contributes to the functioning of the water features.

**Hazardous Substance:** Any item or agent identified by the Major Industrial Accidents Council of Canada suite of documents, determined to have the potential to cause harm to humans, animals, or the environment, either by itself or through interaction with other factors.

**Overlay:** Additional regulations or restrictions placed on specific areas which

supersede or add to the regulations of the underlying area and regulations.

**Outline Plan:** A land use that plan provides the general pattern of development an area of land. The Plan identifies how the land will be further subdivided, the provisions to be made for utility servicing, and the basic vehicular circulation patterns.

**Split Zoning:** a parcel or lot with two or more zoning designations within the registered property lines. All applicable zoning regulations for each particular zone shall be applied separately for each portion of a parcel or lot which is split-zoned.

**Synergy:** The cooperative interaction among individuals, companies or industries to provide the value and performance that would be greater than the sum of their individual effects.



## Section 7

# Maps

Map 1: Location

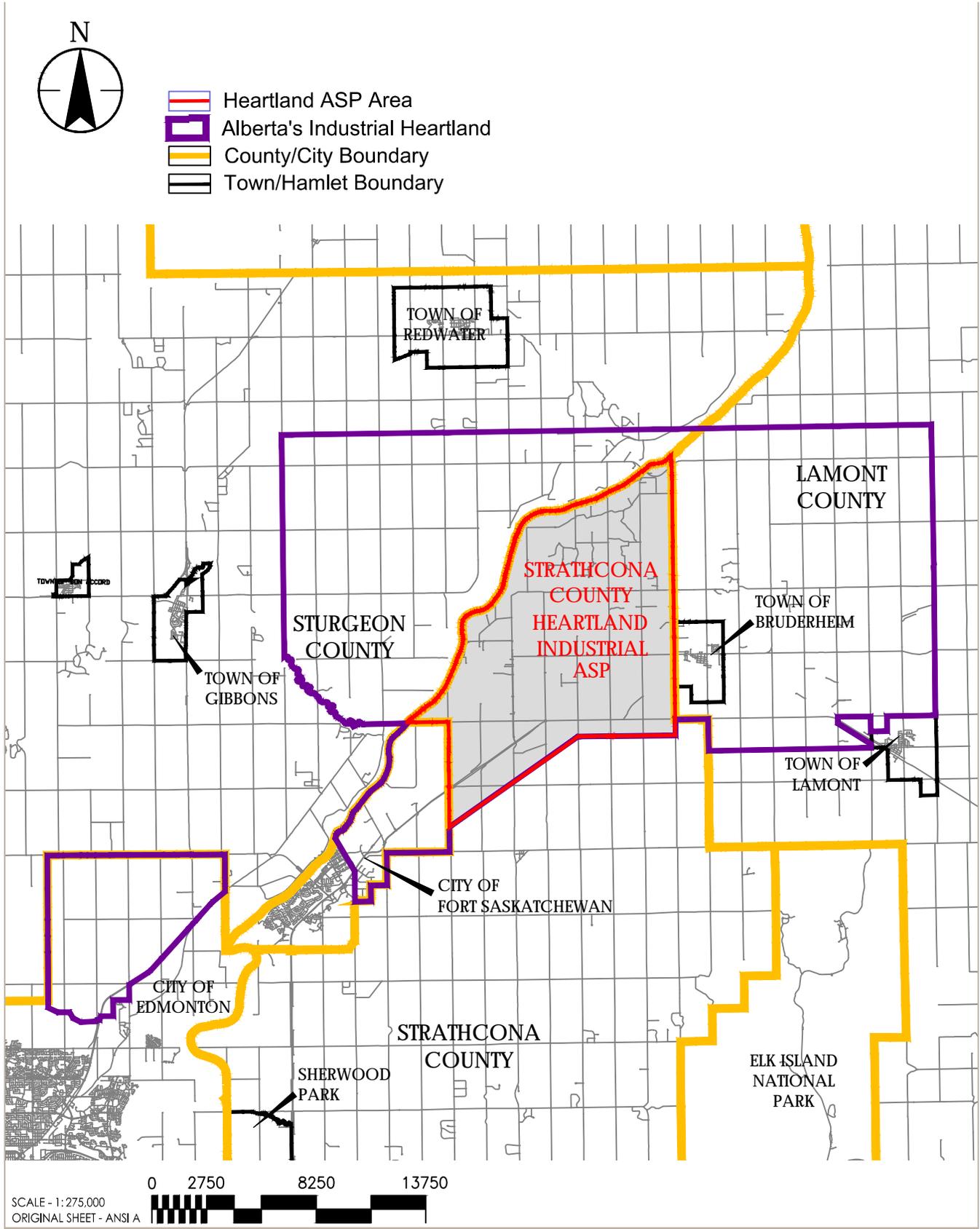
Map 2: Natural Environment

Map 3: Land Use Concept

Map 4: Transportation

Map 5: Stormwater

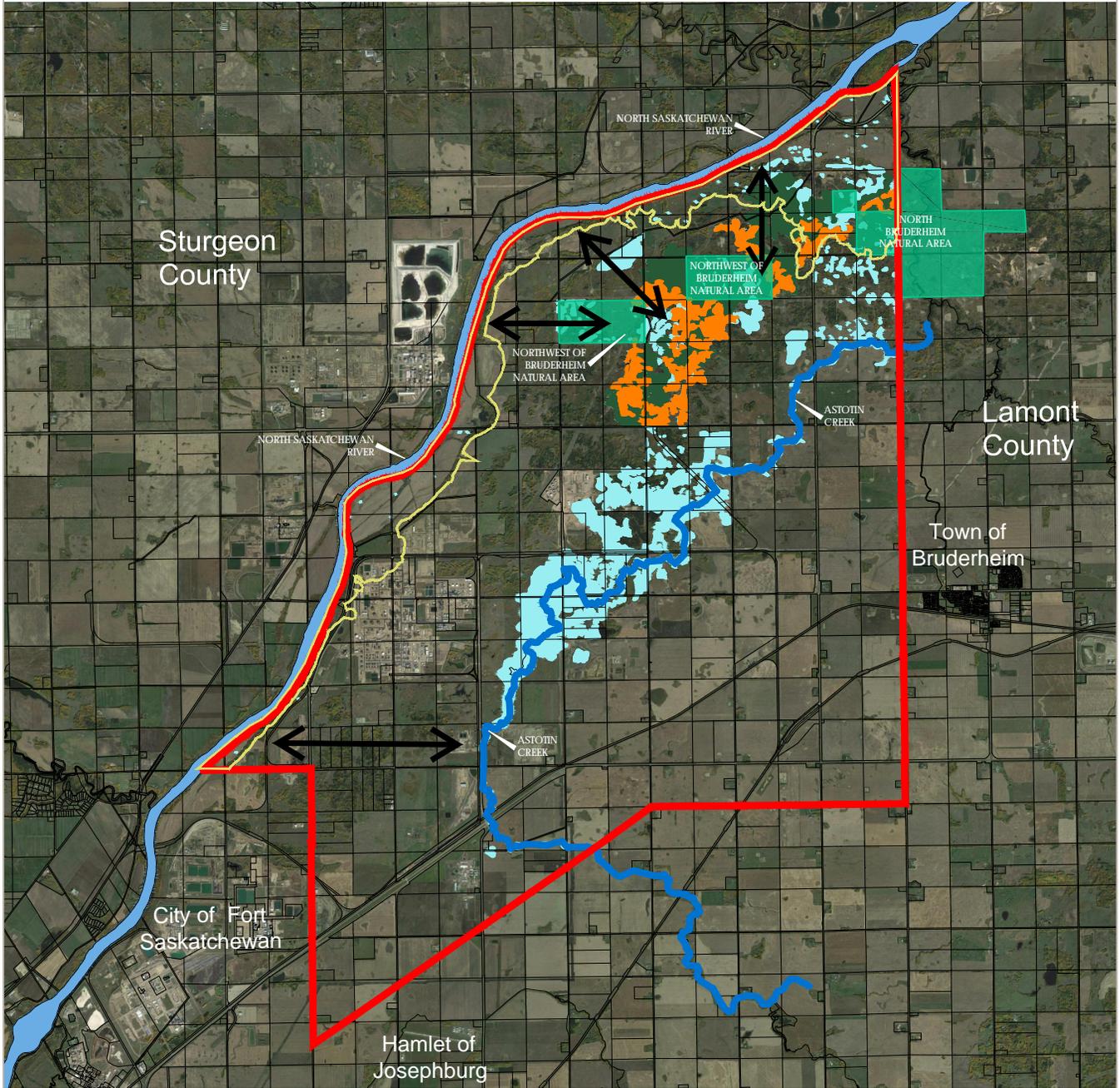
Map 6: Existing Water Mains

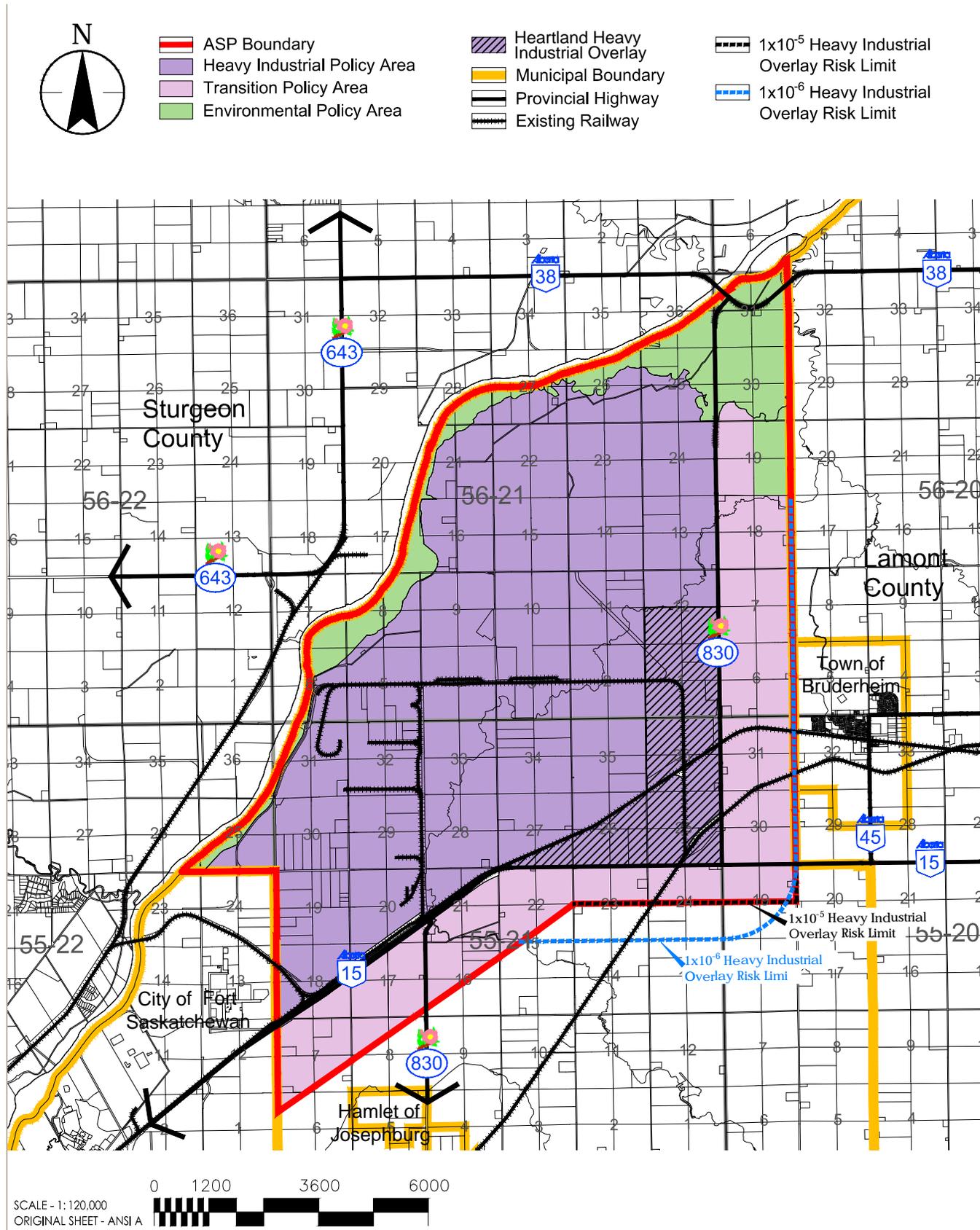




- ASP Boundary
- Natural Area
- Astotin Creek with Buffer
- Top of Bank +50 metres

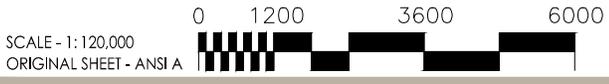
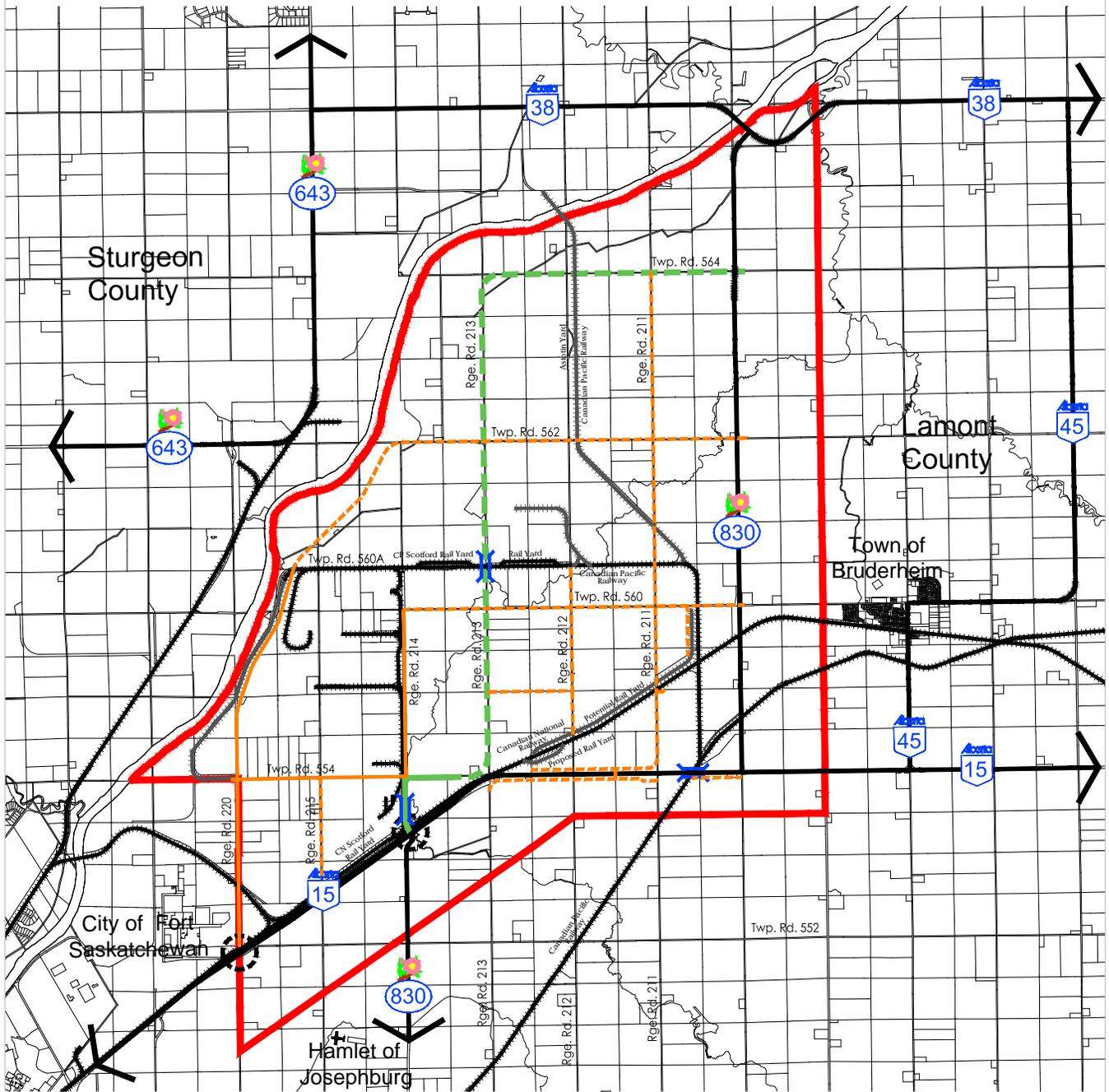
- Priority Wetlands
- Upland Habitat
- Wetland Habitat
- Habitat Connection





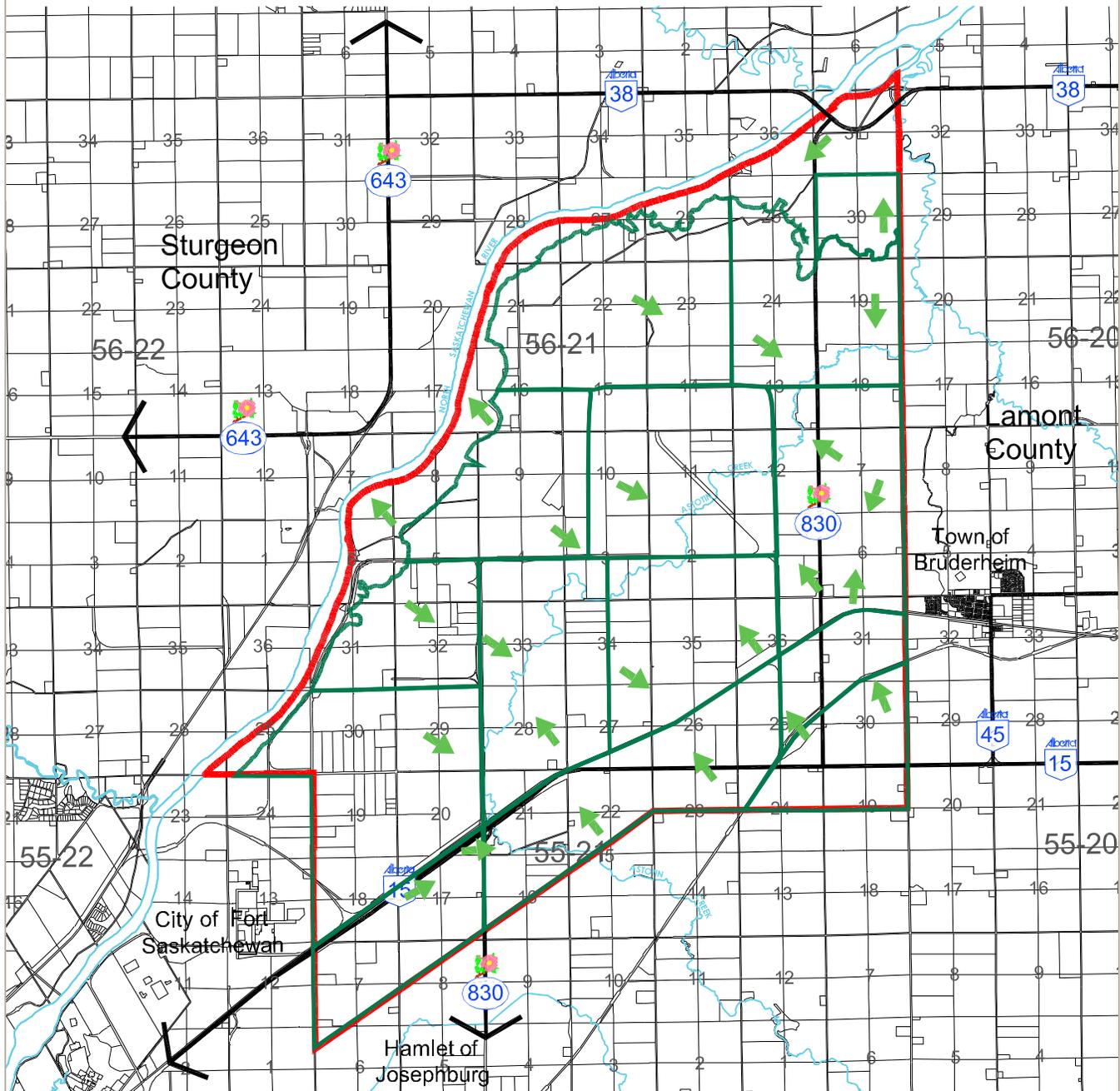


- ASP Boundary
- Provincial Highway
- Existing Upgraded Spine Road
- Proposed Spine Road
- Existing Upgraded Road
- Proposed Upgraded/New Road
- Existing Railway
- Proposed Railway
- Grade Separated Crossing
- Interchange

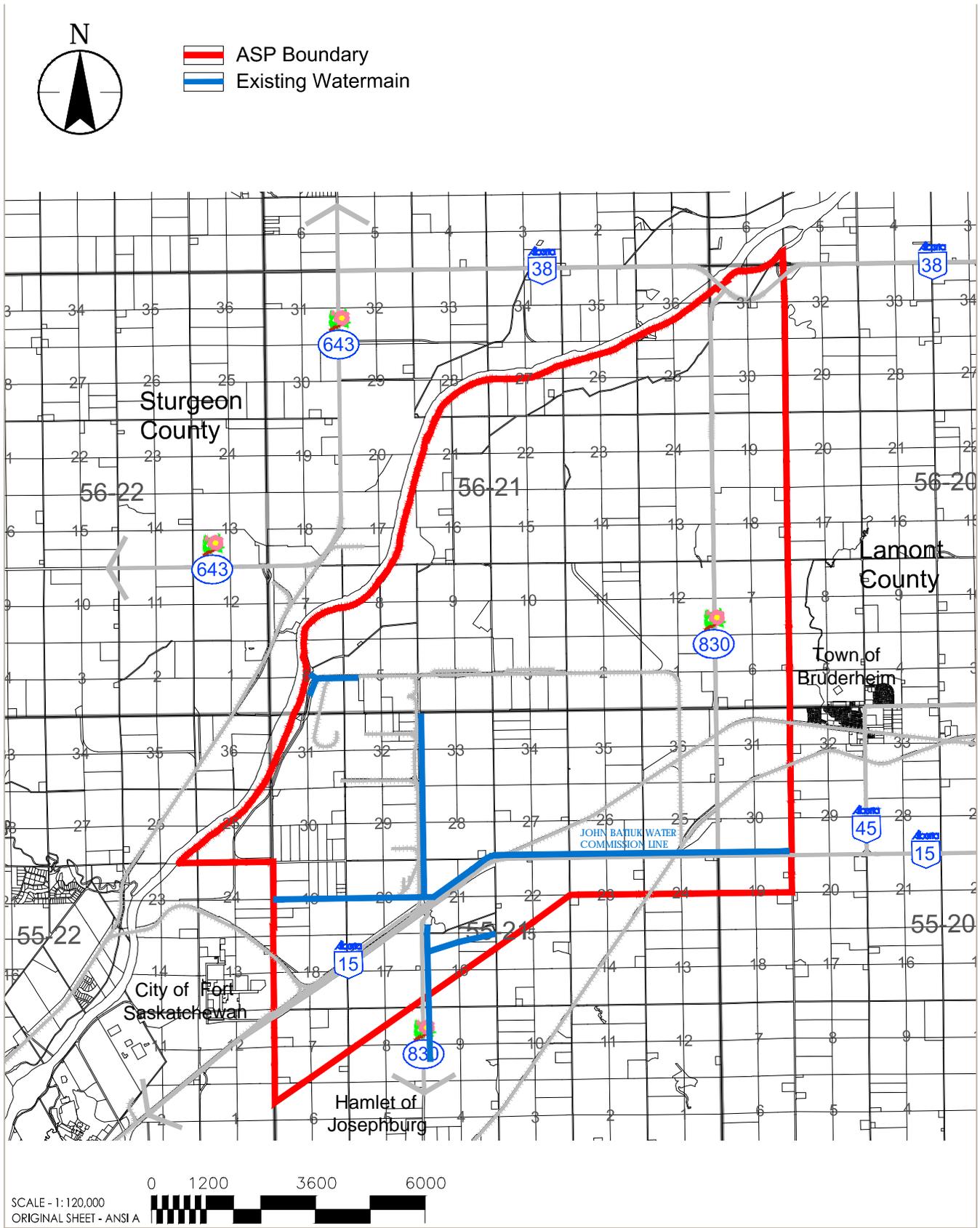




-  ASP Boundary
-  Drainage Direction
-  Sub-watershed Boundary



# Map 6: Existing Water Mains





# Appendix A

# Site Specific Attributes

## Existing Conditions

The majority of the Plan area is zoned for industrial and agricultural uses, with much of the land currently used for agriculture. The southwest portion of the Plan area contains mixed agricultural uses (e.g., grain farming and pasture land), and includes rural residences. The north portion of the Plan area includes the North and Northeast of Bruderheim Natural Areas and the Astotin Natural Area, which contain the majority of the Plan area's natural vegetation. Within the western portion of the Plan area there are a number of large existing industrial sites. Gas wells and gas exploration activities are prevalent in the northeast portion of the Plan area.

## Adjacent Land Uses

The lands to the north and west of the Plan include the North Saskatchewan River Valley. Beyond this are Sturgeon County's portion of Alberta's Industrial Heartland. These lands are largely designated for heavy industrial uses with surrounding agricultural and environmental buffer areas.

Lands to the southwest of the Plan fall within the City of Fort Saskatchewan's portion of Alberta's Industrial Heartland, and include heavy industrial, medium industrial, light industrial and environmental land use designations adjacent to the Plan area.

Lands to the south of the Plan area are within Strathcona County and are primarily agricultural. The hamlet of Josephburg is situated approximately 1.6 km south of the Plan area, and includes an airport, which supports industry. Portions of the Airport Vicinity Protection Overlay, intended to minimize conflicts from incompatible land use and development, extend into the Plan area.

Land to the east of the Plan area include Lamont County's portion of Alberta's Industrial Heartland. This area designates an agricultural buffer surrounding heavy industrial lands. The Town of Bruderheim is also situated immediately to the east of the Plan area. Adjacent lands within the Town are designated as industrial, residential, public utility, and recreation/open space, with future industrial expansion proposed to the south.

## Infrastructure

Existing infrastructure supporting the Plan area includes Highway 15 towards the south and Highway 830 towards the east. Several roads extend from these highways to existing development within the Plan area. CN and CP rail lines also pass through the Plan area and provide rail access for development. Furthermore, the Plan area also contains several pipeline and utility corridors to serve existing and future development.

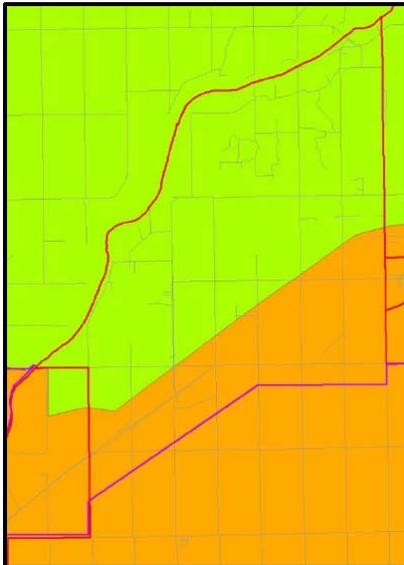
## Topography

The Plan area is generally flat agricultural land with a high ridge in the southwest. Class 1 and 2 soils are found here, as well as an abundance of sandy soils in the northeast portion of the Plan area south of the North Saskatchewan River. Included in this area is the Beverly Channel, which is a hydrogeological feature that roughly follows the orientation of the North Saskatchewan River. The most significant topographical feature of the Plan area is the North Saskatchewan River Valley. Specific desktop evaluation of the east bank of the North Saskatchewan River has been undertaken to determine areas requiring more detailed geotechnical investigations relative to future development in proximity to the top-of-bank. Details of this assessment are provided in the 2016 report completed by Stantec Consulting Ltd. titled Desktop Report: Terrain and Landslide Hazard Mapping, and Geotechnical Evaluation.

Overall drainage for the area, which lies within the Beaverhill Watershed, flows in a northeasterly direction towards the North Saskatchewan River Valley system. Continual erosion of steep slopes and terraces present along the Valley, which is composed of glacial deposits, present slope stability concerns. While the majority of the area has low landslide hazard rankings, a small portion (less than 7%) has moderate to high landslide potential. Development of these areas may create further slope stability concerns. As such, site-specific geotechnical investigation in and around the areas identified as moderate or high concern will need to be undertaken to identify setbacks and cut/fill areas prior to development. Astotin Creek also flows through the Plan area from Astotin Lake to the south and into Beaverhill Creek and then the North Saskatchewan River to the north. Further stormwater drainage details are provided in the 2016 Stormwater Drainage Study completed by Stantec Consulting Ltd.

## Natural Features

The Plan area resides within the Boreal Forest Natural Region, and is characterized by the Dry Mixedwood subregion in the northern portion of the Plan area and Central Parkland Subregion, and extensive wetlands.



Natural Subregions within the Plan area. Green indicates the Dry Mixedwood Subregion and orange indicates the Central Parkland Subregion.

A biophysical assessment was completed for Strathcona County lands within the Plan area to identify the ecological features present to determine suitability for conservation. The assessment included a desktop review of available literature, vegetation mapping. The Biophysical recommends that further site studies be completed in the spring of 2016, pending on landowner consent. These natural features from the biophysical assessment are identified in **Map 2: Environmental Features**.

The dominant landform is level to gently undulating, fine textured lacustrine and till plains. Major surficial features are lowland glaciofluvial and glaciolacustrine deposits and upland moraines. The southern portion of the Boreal Forest Natural Region, which includes the Subject Area, drains primarily into the North Saskatchewan River system. Especially in the south-central areas of the Natural Region, wildlife diversity is high.

The North Saskatchewan River forms the northwestern boundary of the Plan area. The River Valley and adjacent natural areas provide a significant area of forested lands and wildlife habitat. Additional significant areas include Astotin Creek, the Astotin Natural Area and the Bruderheim Natural Area. The Bruderheim Natural Area, portions of which are identified for conservation within the Plan, is significant for its upland sand dunes and lowland wetlands. Over 140 flowering plant species are found in the area and wildlife includes white-tailed deer, moose, elk, beaver, coyote, and black bear. The area is also home to 92 recorded species of birds. The Provincially protected environmentally significant areas are provincial crown land protected and administered by the Government of Alberta.

There are two protected areas within the boundaries of the Subject Area: North Bruderheim (Sandhills) Natural Area and Northwest of Bruderheim Natural Area. These areas are protecting important environmental features (e.g., pine stands, sand dunes and groundwater recharge areas) and are depicted by transparent green in **Map 2: Environmental Features**. To improve the habitat and functioning of the protected areas it is recommended to leave connections and corridors between them intact. Historically Northwest of Bruderheim Natural Area was larger

and more connected and Astotin Natural Area protected sensitive habitat bordering Astotin Creek. It is recommended that the historical boundaries be considered when determining how to connect the remaining Natural Areas. The Prioritized Landscape Ecology Assessment was used to identify intact upland and wetland habitats within and between the protected areas to act as corridor connections; they are depicted by dark green and orange in **Map 2: Environmental Features**. By conserving the protected areas and the connections between them, deposits supporting unique habitats and landscape features such as sand dunes will also be conserved.

Astotin Creek links Edmonton's North Saskatchewan River Valley and Elk Island National Park (Chen, 2009). It flows from Astotin Lake to Beaverhill Creek, which then flows into the North Saskatchewan River. Additionally, Astotin Lake, located in Elk Island National Park, is within the Beaver Hills moraine. Therefore Astotin Creek provides a critical linkage from the unique and sensitive moraine to the River Valley. While it is an intermittent stream, it has been identified through the desktop study in the Prioritized Landscape Ecology Assessment report, the Environmental Significant Areas report, the Survey of Wetland Wildlife Resources, and the Significant Natural Features and Landscapes report as an important hydrological and environmental feature on the landscape. The ACIMS search identified occurrences of non-sensitive plant species along the creek's extent. Human activities already influence the creek but future developments should take into account the importance of this feature and prevent further degradation to the creek. The meander belt width should also be taken into account. The approximation is depicted by dark blue in **Map 2: Environmental Features**.

Riparian and upland areas surrounding water features have a direct impact on the functioning of the water feature; they impact the health through filtering functions, they provide vital habitat, and they mitigate the impact of surrounding land use. The extension of the riparian area to the upland area that contributes to the functioning of the water feature can be described through the functional upland zone (FUZ) and should be considered within the planning process. As per the MDP, A minimum 50 metre setback from the top of bank of the North Saskatchewan River and 30 metre setback from other water bodies is required; completion of a geotechnical report shall further delineate the setback requirement. No buildings or structures will be allowed within the minimum setback requirement, except under unique and appropriate circumstances as determined by Strathcona County. The recommended buffer surrounding Astotin Creek acknowledges the setback described in policy but also takes into account the importance of the FUZ to the functioning of the creek along with its tributaries and the North Saskatchewan River.

The wetlands highlighted in the Significant Natural Features and Landscapes report should be conserved and protected along with the functional upland zone. Additionally, development impacting wetlands in conjunction with Astotin Creek should be avoided. Further wetland conservation can be achieved by following the earlier recommendation of connecting the protected areas. Priority wetlands that meet these criteria are depicted on **Map 2: Environmental Features**.

One of the conservation tools available is the use of environmental reserve dedication, should subdivision occur. Lands that would qualify as environmental reserve, include hazard lands (e.g., land that is frequent to flooding or is unstable; a strip of land next to a lake, river, stream or other body of water; a swamp, gully, ravine, coulee or natural drainage course). Astotin Creek, wetlands and wetland wildlife habitat may all be areas that could potentially qualify as environmental reserve. If subdivision occurs, the County could also take municipal reserves, which could potentially include the FUZ. Drainage or other activities within a wetland require a *Water Act* approval and may require compensation. The developer will also be subject to Strathcona County's Wetland Policy, which requires compensation for all impacted wetlands.

Habitat connectivity is important to consider, especially along travel corridors, such as connectivity between intact habitats, the priority conservation areas, and the North Saskatchewan River. Future development in the Subject Area should consider these connections rather than creating barriers. Potential habitat connections are illustrated in **Map 2: Natural Environment** with black arrows.

As Class 1 and Class 2 soils have limited restrictions for agriculture, it is recommended that the land use zoning on these classes should remain in sustainable agricultural use as long as possible.

## Strategic attributes of Alberta's Industrial Heartland:

- Significant energy / resource sector investment and activity in Alberta;
- Excellent connections with markets and customers;
- Availability of raw materials and resources;
- International education institutions and a skilled workforce in the region;
- World-scale production and processing facilities;
- Excellent transportation access, including major highways and rail lines, airports, and intermodal facilities;
- Industrial sites linked by major existing pipeline networks, infrastructure, and utility access;
- Lower costs and higher standard of living for cost competitiveness; and,
- Supply of larger tracts of land for future large-scale facilities.

## Eco-Industrial Opportunity

The concentration of existing and future heavy industrial development and its proximity to existing and potential complimentary uses provides an ideal opportunity of eco-industrial development and synergies between uses. Components of eco-industrial development include the following principles:

### Land Use

- Long-term land use planning and coordination
- Maximizing environmental conditions, while protecting environmental features and promoting environmentally friendly initiatives
- Sharing by-products and services, including re-use and recycling of wastes
- Locating uses for enhanced compatibility and cooperation between businesses
- Standardized risk management

### Transportation

- Coordinated and shared long-term transportation infrastructure

### Services and Utilities

- Coordination and sharing of ecologically friendly services, including water, wastewater and stormwater management, pipeline corridors, utilities, and power generation / corridors

### Community

- Supporting the health and safety of surrounding communities

### Benefits of eco-industrial development include:

- Improved productivity of human and natural resources
- Less waste introduced into the environment
- Land is conserved and developed sustainably
- New efficiencies and market opportunities are developed
- Compatibility and connection of industry with nearby communities

## Alberta's Industrial Heartland Association

Alberta's Industrial Heartland Association (AIHA) was established in 1998 as a new model in intergovernmental and industry cooperation. Its membership currently includes the City of Fort Saskatchewan, Lamont County, Strathcona County, Sturgeon County, the City of Edmonton, the Town of Bruderheim, the Town of Gibbons, and the Town of Redwater. AIHA was established to develop and promote the region as a global leader in processing, manufacturing, and responsible industrial development.



# Appendix B

# Public Engagement

## Consultation Process

In September of 2015, the planning process to amend the Strathcona County Alberta's Industrial Heartland ASP was initiated on behalf of Strathcona County. All landowners in the subject area were notified prior to plan initiation and invited to participate in the process. Stantec prepared a Public Engagement Program (PEP), which set out the means by which key stakeholders and the public were to be engaged in the preparation of the Plan. This program included personalized contact with stakeholders, online media, and public engagement events.

All affected and adjacent landowners in the area, as well as adjacent municipalities, have been notified in accordance with both the *Municipal Government Act* (MGA) and the County policy requirements for new statutory plans.

The following public engagement events were held as part of the consultation process.

## Public Engagement Meeting 1

An Open House was held on October 14, 2015 at the Moyer Recreation Centre Hall in Josephburg, Alberta, inviting the public to discuss proposed changes to the ASP and associated transportation study updates, confirm opportunities and challenges, and provide input. The event was advertised in the Sherwood Park / Strathcona County News. A notice was also mailed out to the affected landowners, stakeholders, and nearby municipalities. Approximately 60 people attended the open house.

## Public Engagement Meeting 2

A second Open House was held on January 28, 2016 at the Moyer Recreation Centre Hall in Josephburg, Alberta, inviting the public to discuss the proposed ASP development concept options, associated updates to the transportation network, and provide further input to guide the development of proposed changes. The event was advertised in the Sherwood Park / Strathcona County News. A notice was also mailed out to the affected landowners, stakeholders, and nearby municipalities. Approximately 50 people attended the open house.

## Public Engagement Meeting 3

A third Open House was held on April 11, 2018 at the Moyer Recreation Centre Hall in Josephburg, Alberta, inviting the public to discuss the proposed ASP development concept options, and provide further input to guide the development of proposed changes. The event was advertised in the Sherwood Park / Strathcona County News. A notice was also mailed out to the affected landowners, stakeholders, and nearby municipalities. Approximately 40 people attended the open house.

