
Sturgeon County

**Alberta's Industrial Heartland
Area Structure Plan
Bylaw No. 1118/07**



Prepared for



**HUDEMA
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GROUP LIMITED**

in association
with



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Utility Master Plan

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1.0 INTRODUCTION

1.1 Purpose and Scope

The purpose of the Alberta's Industrial Heartland Area Structure Plan (ASP) is to review and update ASP Bylaw No. 900/00 in accordance with Sturgeon County's Terms of Reference. The scope of the review included:

- analyzing existing policies related to Quality of Life to ensure that a Quality of Life element is created for existing neighbouring residents of industrial sites;
- analyzing existing policies related to heavy industrial uses to ensure that an adequate land base for future heavy industrial uses is maintained;
- identifying lands and reviewing the applicability of existing heavy industrial land; and
- identifying any required revisions to the ASP and any reclassifications or policy / regulation amendments to other related County planning documents.

1.2 Planning History

Alberta's Industrial Heartland Association (AIHA) was established in 1998 as a new model for intergovernmental and industrial cooperation. Its membership includes the municipalities of the City of Fort Saskatchewan, Lamont County, Strathcona County, and Sturgeon County, as well as the industries belonging to Northeast Capital Industrial Association. AIHA was established to develop and promote the Heartland region as a global leader in processing, manufacturing and eco-industrial development. Complementary area structure plans were developed by the four AIHA municipalities to ensure a coordinated and responsible approach to land use planning and growth throughout the Heartland region.

Key events leading up to this ASP include:

- Alberta's Industrial Heartland ASP Bylaw 900/00 was approved by Sturgeon County Council on April 10, 2001.
- Bylaw 1009/04 was passed by Sturgeon County Council amending the Municipal Development Plan Bylaw 818/96 on June 8, 2004.
- Bylaw 1010/04 was passed by Sturgeon County Council amending the Land Use Bylaw 819/86 for the Alberta Industrial Heartland on June 8, 2004,
- Sturgeon County initiated a review of the Alberta's Industrial Heartland Area Structure Plan Bylaw 900/00 in December 2005.
- On January 19, 2006 Sturgeon County held two public meetings refining proposed choices.
- Resident landowner discussion groups facilitated by Equus Consulting Group Inc. were held on February 21, 22, and 27, 2006.
- Bylaw 1079/06 was passed by Sturgeon County Council amending the Municipal Development Plan Bylaw 818/96 on March 3, 2006.

- Bylaw 1080/06 was passed by Sturgeon County Council amending the Land Use Bylaw 818/96 on March 3, 2006.
- Bylaw 1081/06 was passed by Sturgeon County Council amending Alberta's Industrial Heartland Area Structure Plan Bylaw 818/96 on March 3, 2006.

1.3 Duration

This ASP sets forth the proposed pattern of land use within the Alberta's Industrial Heartland area to the year 2017. While the ASP is meant to be a long range planning document, it is intended that regular monitoring, review and periodic amendments may be required for policies in the ASP to remain current with changing trends, technologies and growth within the Industrial Heartland area.

Amendments to the ASP may be undertaken where it is deemed to be in the overall interests of Sturgeon County in keeping with the goals and objectives of the ASP. Refer to Policy 6.1.17 -Reviewing and Updating the ASP. A systematic review of the ASP should be undertaken at five-year intervals from the date from which the ASP comes into effect.

1.4 Regional Setting and Influences

Sturgeon County covers an area of 2,100 sq km is just north of the City of Edmonton (see *Map 1 Regional Setting*). Its land base consists primarily of farmland and industry. The County is part of Alberta's Industrial Heartland - a 194 km² (75 mi²) area that includes a portion of Sturgeon County, the City of Fort Saskatchewan, Strathcona County and Lamont County. The Heartland area is one of Canada's largest processing centers for petroleum, petrochemicals and chemicals, with over \$11 billion in existing investment. It provides an important processing link from the Athabasca Oil Sands in northeastern Alberta to market destinations in North America and overseas. Over thirty companies are located in Heartland, including leading international petrochemical corporations such as: Agrium, Air Liquide, BP, Chevron, Degussa-Huls, Dow Chemical, Fort Hills, Imperial Oil, Praxair, Shell Canada, Shell Chemicals Canada, Sherritt International and Williams Energy.

Alberta's Industrial Heartland has been identified as one of several Canadian locations with excellent potential for additional eco-industrial development. The strategic advantages of the Heartland area include:

- Low cost feed stocks of natural gas, oil and salt
- Supply of fresh water and low cost electricity
- Excellent transportation access and storage facilities or road, rail, pipeline, salt caverns and warehousing
- Affordable and available land
- Educated and efficient workforce
- Low taxes and favourable business environment



Date: June 12, 2007
 Base map compiled from the Provincial
 Title Mapping Digital Base January 2007

MAP 1

REGIONAL SETTING

Alberta's Industrial Heartland
 Area Structure Plan Bylaw 1118/07

The North Saskatchewan River forms the eastern boundary of Sturgeon County's portion of the Heartland area. Several other significant watercourses enter the North Saskatchewan River near the Plan area, including the Sturgeon and Redwater Rivers.

Within the Sturgeon County portion of the Heartland area, the majority of the land can be characterized as agricultural with a cluster of heavy industrial uses in the vicinity of Secondary Highway 643 and the Canadian National Rail line. Much of the ASP area is used for mixed agricultural purposes such as pastureland and potato and grain farming. Most of the residences are single-family dwellings associated with farms.

A small industrial cluster located in Sturgeon County abuts the Canadian National Rail Line near Secondary Highway 643. It consists of William Energy (natural gas liquid midstream business), Degussa-Huts Canada (hydrogen peroxide plant) and Agrium (fertilizer plant).

Secondary Highway 643 and Highway 38 provide the main access routes to this area of the Heartland. Rail access is provided by Canadian National Railway. The area is serviced by several pipelines.

1.5 Plan Area

The amended ASP area is shown on *Map 2 Plan Area*. The ASP area boundaries are as follows:

- North - 1 mile north of Highway 38 and Township Road 570.
- East - North Saskatchewan River and Range Road 205 in the northeast.
- South - 2 miles south of Township Road 560.
- West - 1 mile west of Highway 825 and Opal Road.

The Plan area covers approximately 16,500 ha (40,772 ac) of land and has a perimeter of about 63 km. It is noted that the southwest boundary has been revised to not cross the Sturgeon River, as shown in *Map 2 Plan Area*.

1.6 Land Ownership

Over the years, the pattern of land ownership has changed from a large number of individual agricultural farm holdings to a small number of very large industrial land owners. Land ownership is shown on *Map 3 Land Ownership*. Historically, the Plan area was owned by many individual interests that used the lands for crop production and care of animals. In the past three years industry has acquired lands that now total about 32% of the land base in the ASP.

Figure 1 – Land Ownership

	<u>Hectares</u>	
Major Industry Ownership	5,324	32%
Other	11,176	68%
TOTAL ASP Area	16,500	100%

Source: Sturgeon County 2006 Assessment Records - February 2007

1.7 Summary of Issues

An extensive public consultation process was completed in the early part of 2006 by Sturgeon County as part of an earlier review of Alberta's Industrial Heartland ASP. An Ad Hoc Committee - composed of residents, industry representatives and County Council - was created in September 2006. The Hudema Consulting team was selected to complete the ASP update based upon terms of reference approved by County Council. Background information and analysis were completed between September and November 2006.

Issues identified during the consultation process are summarized as follows:

Municipal Plans

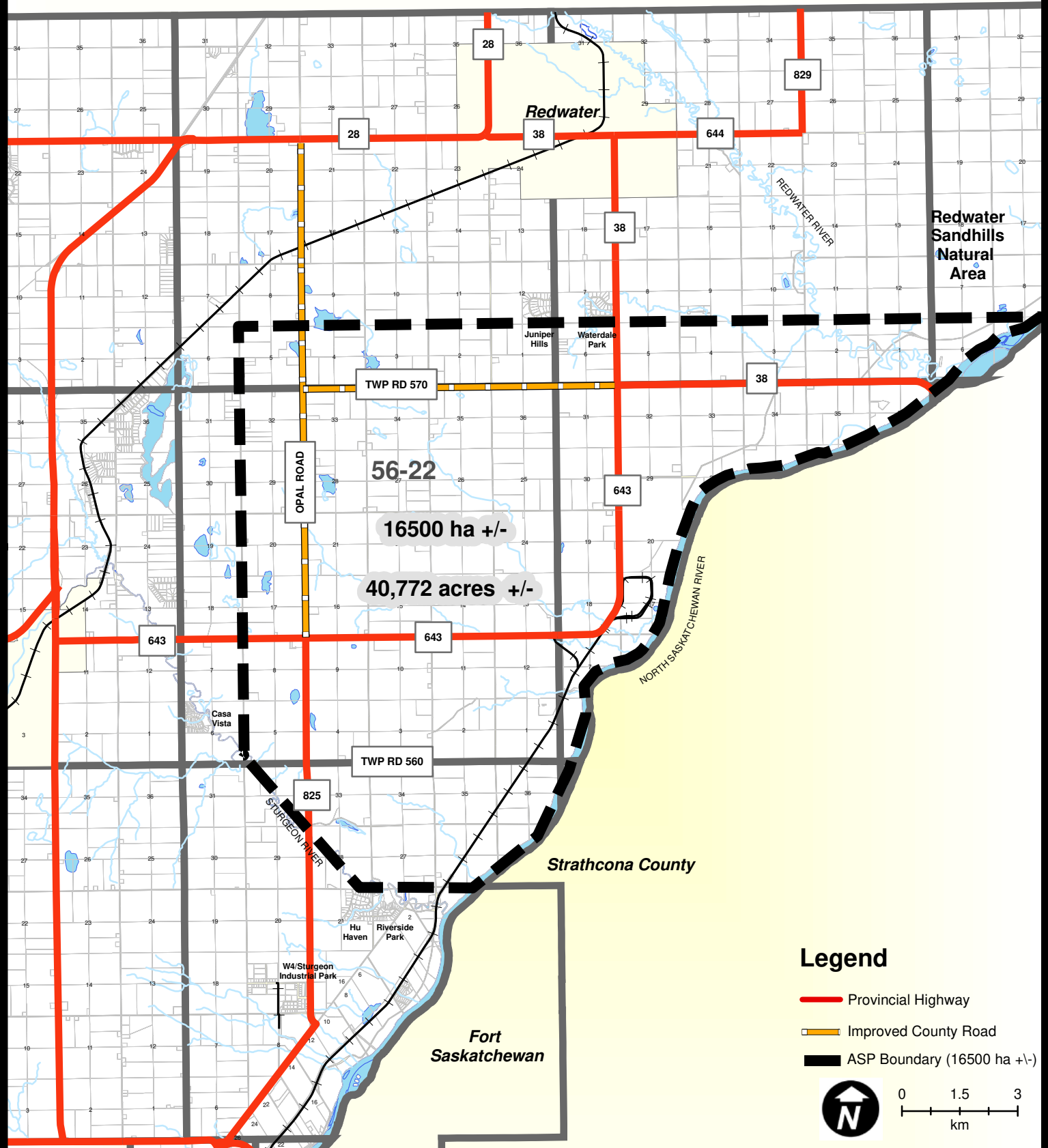
Updating the ASP and ensuring consistency among the MDP, ASP and the LUB is the right thing to do, and is urgently required. However, there were issues related to the potential content and direction of the ASP:

- Industry will be allowed to operate safely in close proximity to existing residences.
- The minimum setback distance from industrial facilities to residences should not vary throughout the Plan area.
- If there is a "buffer area" provided outside the heavy industry district, then that area should be restricted to agricultural uses or green belt. but should not restrict the owner's current land use rights unless the owner is compensated.
- The LUB does not describe the same boundaries as the ASP. The differences between the two creates uncertainty for property owners.
- Utility corridors and rail corridors could fragment the land.

Municipal Preparation for Major Industrial Construction and Development

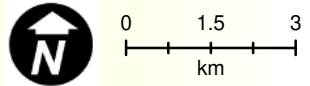
Residents were concerned that major industrial construction could begin in less than three years. Sturgeon County must undertake urgent preparations prior to this construction period. Existing roads cannot support the amount of vehicle traffic (especially buses and heavy transport trucks) that will come into the area. People felt that roads were inadequate for current use. Other development issues included:

- Rail crossing over Highway 643 creates significant traffic delays that will get worse.
- People want the County to develop sufficient emergency response capability in conjunction with new industrial development and operations.
- There is concern about increased traffic safety issues and increased potential for crimes such as theft and property damage.
- People are not adequately informed about changes as they develop.
- People are concerned about tax increases.



Legend

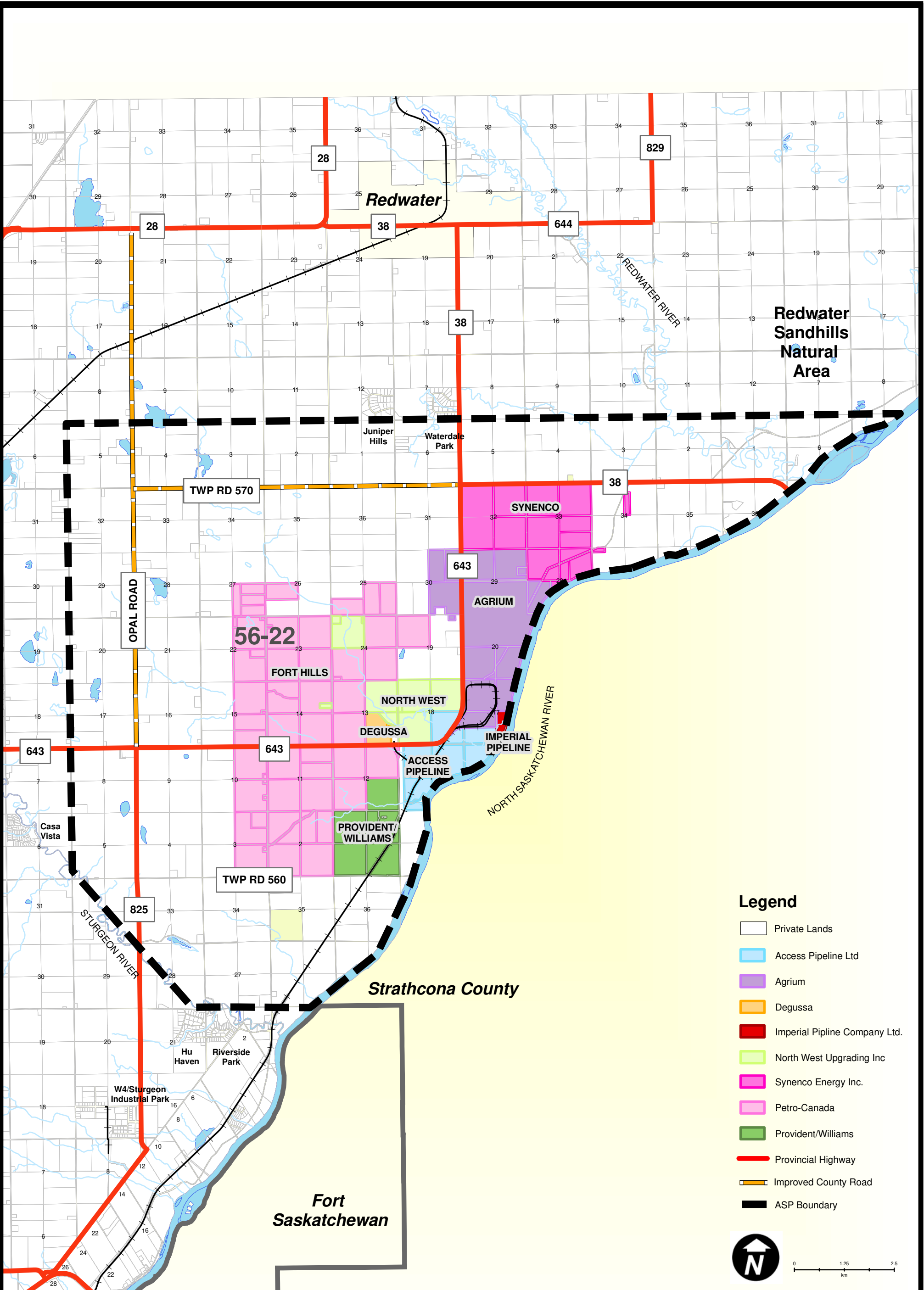
- Provincial Highway
- Improved County Road
- ASP Boundary (16500 ha +/-)



Date: June 12, 2007
 Base map compiled from the Provincial
 Title Mapping Digital Base January 2007

**MAP 2
 PLAN AREA**

Alberta's Industrial Heartland
 Area Structure Plan Bylaw 1118/07



Health and Environmental

The proposed rapid increase in industrial capacity in the area raised concerns about impacts on air, water and soil:

- If industry increases significantly within Alberta's Industrial Heartland, citizens in the area could be exposed to increased risks to their health.
- Industrial activities could lead to contamination of groundwater, or depression of the groundwater table.
- Industries must be prepared to work together to provide adequate information to people, and first-rate health and safety notification and services to surrounding residents.
- Air quality monitoring in the area is not adequate to ensure protection of citizens.

Other Matters

Current interest in acquiring lands for industrial development in the area has raised concerns about fairness, opportunity, land values and quality of life:

- People in the immediate area were concerned about land values. Their concerns fell into two categories: overall concern that properties in the area will lose value, and concern that some property owners received "the industry price" for their land, while others cannot get that price.
- Stranded properties: Some property owners are surrounded by industry and do not feel they have fair prospects to sell their land.
- People who live near the expanded industrial area feel they are bearing the brunt of the impacts, with little or no benefit.
- People who live near the expanded industrial area are concerned about losing aspects of country living and quality of life that they have enjoyed.

1.8 Plan Organization

The amended Alberta's Industrial Heartland ASP is organized into six sections:

Section 1.0: **INTRODUCTION** provides an overview of the purpose of the ASP, planning history, plan area boundaries, regional setting and influences, and summary of stakeholder issues.

Section 2.0: **PLANNING PROCESS** describes the enabling legislation, planning process followed in reviewing the ASP and a summary of public comments on key issues and strategies.

Section 3.0: **STATUTORY AND POLICY CONTEXT** summarizes the policy context of the existing policy framework, drawing upon other relevant statutory plans and planning documents.

Section 4.0: **SITE CHARACTERISTICS AND DEVELOPMENT CONSIDERATIONS** describes the land uses, site characteristics and development considerations that influenced the ASP policies.

Section 5.0: GOALS, OBJECTIVES AND POLICIES describes the proposed development concept and goals, objectives and policies that support each policy area.

Section 6.0: IMPLEMENTATION discusses the policy amendments and actions necessary to implement the ASP.

2.0 PLANNING PROCESS

2.1 Enabling Legislation

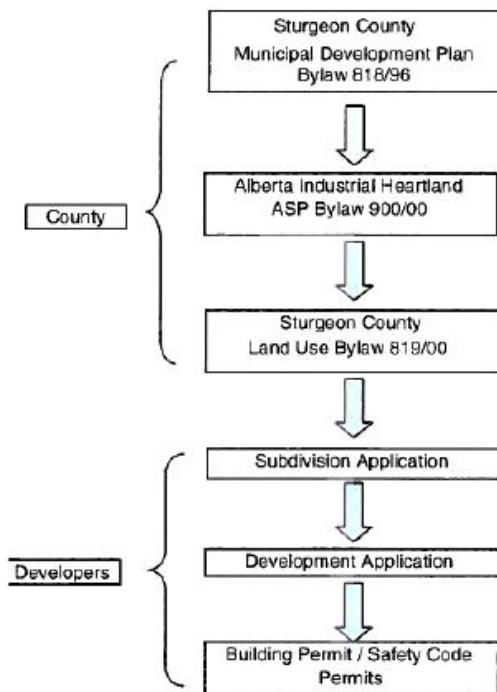
Alberta's Industrial Heartland ASP has been prepared in accordance with the *Municipal Government Act* (Statutes of Alberta, 1994, Chapter M-26.1). The Act enables municipalities to prepare and adopt area structure plans to provide a framework for future subdivision and development of an area. Sections 633, 636, 638, and 692 of the Act relate specifically to area structure plans requirements. Section 633(1) states that an area structure plan must describe:

- the sequence of development proposed for the area,
- the land uses proposed for the area, either generally or with respect to specific parts of the area,
- the density of population proposed for the area either generally or with respect to specific parts of the area, and
- the general location of major transportation routes and public utilities, and may contain any other matters the council considers necessary.

2.2 Planning Framework

Figure 2 below shows the Hierarchy of Planning Documents in the municipal planning approval process.

Figure 2 — Hierarchy of Planning Documents



Source: Alberta's Industrial Heartland MDP and LUB Amendments Terms of Reference – Sept 2, 2003 Public involvement November and December 2006

Prevailing over any statutory municipal plans are authorizations granted by the Natural Resources Conservation Board, Energy Resources Conservation Board and Alberta Energy and Utilities Board. Section 619(1) of the Municipal Government Act addresses such authorizations. These provisions are especially pertinent in the Heartland Area, as the energy and petrochemical industries are highly regulated by these provincial Boards. Statutory plans require a clear definition of the responsibilities and jurisdictions of all levels of government. Section 691(1) states:

"a license, permit, approval or other authorization granted by the NRCB, ERCB or AEUB prevails, in accordance with this section, over any statutory plan, land use bylaw, subdivision decision or development decision by a subdivision authority, development authority, subdivision and development appeal board, or the Municipal Government Board or any other authorization under this Part."

2.3 Complementary Master Plans and Initiatives

This ASP was developed in parallel to Sturgeon County's master planning process. Initiated in 2006, the County completed Master Plans for Transportation, Utility, and Emergency Services in 2007. Master Plan concepts and directions have been incorporated into this ASP. The County is also undertaking a Financial Assessment and Strategy in 2007 to examine the impact of proposed industrial upgraders - during both construction and operational phases - on Sturgeon County's infrastructure and finances.

This ASP also acknowledges the County's commitment to maintaining and enhancing the quality of life for its residents. First, it identifies a 'Quality of Life Framework' and policy recommendation for the County to establish a quality of life monitoring system in the Heartland area. Second, this ASP establishes policy for the Community Enhancement Program. It is intended that this program would be funded by taxes collected from heavy industry, will be used to finance capital projects and community improvements that provide maximum benefit to residents affected by heavy industry. Complementing this quality of life initiative is a Community Services Master Plan planned for 2008 to identify parks and recreation needs County-wide.

2.4 Ad Hoc Committee

The Ad Hoc Committee provided overall community representation and feedback to the Project Consultants and the County during development of the ASP policies. They also provided guidance and feedback on the public involvement process. This Committee was comprised of:

- Eight public members (Sturgeon County residents)
- Three public members from Alberta's Industrial Heartland
- Six industry members
- Two County Councillors
- Mayor of Sturgeon County (ex-officio)

A Technical Advisory Committee provided further input to the planning process, attending Ad Hoc Committee meetings in an advisory capacity as necessary and providing technical and planning advice throughout the review process.

2.5 Public Engagement

Public engagement was designed to incorporate previous stakeholder comments and inputs as identified in Section 1.7 of this Plan. The methods used to involve residents, property and business owners, and other stakeholders in the ASP review process are summarized below:

Stakeholder Meetings

Meetings were held with specific groups and representatives of landowners; industry; and Alberta's Industrial Heartland Association and its related sub- committees.

Public Information Program

- County Website: Public storefront events and information summaries were posted on the Sturgeon County web site.
- County Newsletter: Storefronts were advertised in the County Connection newsletter which was sent to all Sturgeon County households in October 2006.
- Newspaper Ads: Storefronts were advertised on November 15 and 22 in the Morinville Mirror and Redwater Tribune.

Storefront Events

Drop-in storefronts were held on November 29, 2006 in Gibbons and December 6, 2006 in Redwater. The storefronts were open between 11:00 to 1:00, 3:00 to 5:00 and 7:00 to 9:00 pm each day. They provided stakeholders and residents an opportunity to review the ASP plans and policy concepts, provide comments, ask questions and discuss issues with County representatives and consultants. Display boards included previous public comments, the draft ASP concept and maps to provide a catalyst for discussion. Storefront participants were given an exit survey to provide written comments on the proposed plans and ASP ideas.

In total 136 people attended the storefronts. Generally participants found the events helpful, indicating that they received the information they needed, had their questions answered and issues identified. Generally, written and verbal feedback received at the storefronts indicated that the revised ASP has acknowledged and addressed many of the key issues and concerns identified in earlier public involvement activities related to the Heartland ASP.

Draft Plan

The draft ASP was delivered to Council and the Ad Hoc Committee on January 9, 2007. Comments on the first draft were generally positive on all major issues with the exception of the setbacks. Industry representatives indicated that the one-mile setback proposal would make it very difficult if not impossible to accommodate future industrial upgraders to the north and west of the Fort Hills property. In addition, the proposal to include residents within a one mile distance outside the ASP boundary in the Alberta Industrial Heartland Land Trust Voluntary Property Purchase Program area was not feasible. After receiving comments in January and February 2007 through a variety of consultations with various stakeholders in the County, as well as with and between County staff and Consultants, this revised

draft was prepared and delivered to Sturgeon County and the Ad Hoc Committee in March 2007.

Public Hearing

Public involvement activities and results were incorporated into a draft ASP. The ASP draft was made available to the public in April 2007 and a public hearing was tentatively scheduled for May 22, 2007.

2.6 Summary of Comments on Key Issues and Strategies

A summary of the key issues that emerged from public engagement activities up to the end of February 2007 includes:

Working Boundary

During the course of public consultation and review of the first draft, the ASP boundary was extended one mile to the west of Highway 825/Opal Road, one mile north of Highway 38/Twp Rd 570, and approximately two miles south of Twp Rd 560. This boundary extension permits heavy industry to locate as intended and also has the benefit of allowing residents surrounding the heavy industrial zone to be considered under the Land Trust Voluntary Property Purchase Program.

Separation Distance

The central principle of setbacks is to limit the number of residents in proximity to heavy industry and where feasible to increase the distance between residents and heavy industry. Both of these will have a net effect of increasing the livability and quality of life for County residents. The proposed setback for industrial development, identified as a separation distance within the Plan area, was thought to be a good way of addressing separation between industry and residents.

The proposal for setbacks addresses both residents Located in the Heavy industrial Policy Area (see *Map 10 Future Land Use Concept*) and those in the Heartland Agricultural Policy Area. For the residents in the Heavy Industrial Policy Area, a 457 m (1,500 ft) setback would be maintained between process portions of an upgrader facility and residences, in a manner similar to the ASP Bylaw 900/00. Over time, as the Plan area is built out with heavy industry, the number of residents would decline and those residents remaining at their choosing would have a minimum of 457 m (1,500 ft) separation distance maintained from heavy industry.

Discretionary vs. Permitted Uses

A number of stakeholders raised the issue of whether heavy industrial development should be a discretionary or permitted use in the LUB. Some residents feel discretionary use allows an opportunity to become more engaged and informed about future project approvals. Permitted use arguments suggest defining the use in advance, thus clearly identifying heavy industrial as a permitted use will allow for approval certainty.

Current ASP and Voluntary Property Purchase Program

There was concern the ASP changes would negatively affect those landowners currently involved in the application process with the Voluntary Property Purchase Program. A general recommendation was to ensure that residents living in the current ASP area should be eligible for consideration under the Voluntary Property Purchase Program. The boundary location and uses in the proposed ASP ensure that property owners with residences within one mile of the Heavy Industrial Policy Area will be eligible to apply under the Alberta Industrial Heartland Land Trust Voluntary Property Purchase Program. In addition, Sturgeon County commits to developing a vacant land purchase program for properties without residences, for the following properties only:

1. E1/2 Section 27-55-22-W4M
2. NW 26-55-22-W4M
3. All that portion lying west of CN rail line on the SW 26-55-22-W4M
4. All that portion lying west of the CN rail line on the NE 26-55-22-W4M

This program is valid only if the subject lands remain undeveloped (i.e. without residences).

3.0 STATUTORY AND POLICY CONTEXT

The following documents provide important direction and policy context for Alberta's Industrial Heartland ASP.

3.1 Sturgeon County Municipal Development Plan Bylaw 819/96

The existing MDP for Sturgeon County shows that within the Industrial Heartland ASP area the following policy areas apply: Industrial, Agriculture and Environmental Protection. The stated purpose of each policy area is as follows:

Industrial

This policy area encourages heavy industrial uses to be concentrated in those areas designated Heavy Industrial in the LUB to ensure these uses are in areas with low population densities are removed from residential subdivisions, compatible with adjacent land uses and where possible located on poorer agricultural land.

Agricultural

Agricultural policies generally allow for the enhancement and protection of valuable agricultural lands while providing for a diversity of opportunities for agricultural development and rural residents. Several policies are stated for residential subdivisions, Confined Feeding Operations and specialized farming operations. For residential subdivisions, agricultural parcels must be a minimum of 32 ha (80 ac). A maximum of three subdivisions is permitted per quarter section including two residential subdivisions.

Environmental Protection

The purpose of this policy is to protect environmentally significant areas including the North Saskatchewan, Sturgeon and Redwater Rivers, which are present in the ASP area (refer to *Map 6 Environmentally Sensitive Areas*). Policies of relevance include a 30 m (98 ft) development setback from the valley crest and no permanent structures within the 1:100 year flood plain of major rivers. Furthermore, the Policy Area encourages new and expanding livestock operations to adhere to the setbacks from rivers, streams and water bodies as stated in the Code of Practice. Within this Policy Area, the Agricultural-Natural Conservation Land Use District will continue to apply along Sturgeon County's major rivers.

3.2 Sturgeon County Land Use Bylaw 819/96

Sturgeon County's LUB includes the following land use districts within the ASP study area: Industrial -Heavy (I-H), Agricultural (AG) and Agricultural - Nature Conservation (A-NC) (refer to *Map 7 Existing Zoning and Land Use*). The stated purpose of each land use district is as follows:

Industrial - Heavy (I-H)

The purpose of this land use district is to identify areas for heavy industrial development and reserve land for this purpose. Of note are some permitted uses including extensive agricultural and livestock operations and

discretionary uses such as public use and residences on a lot that existed prior to this Bylaw. Regulations include a maximum of 50 percent of the site for principal and accessory building and a heavy industrial setback from residential, urban/hamlet or institutional uses of 457 m (1,500 ft) which is consistent with the policies in the MDP regarding compatibility of land uses.

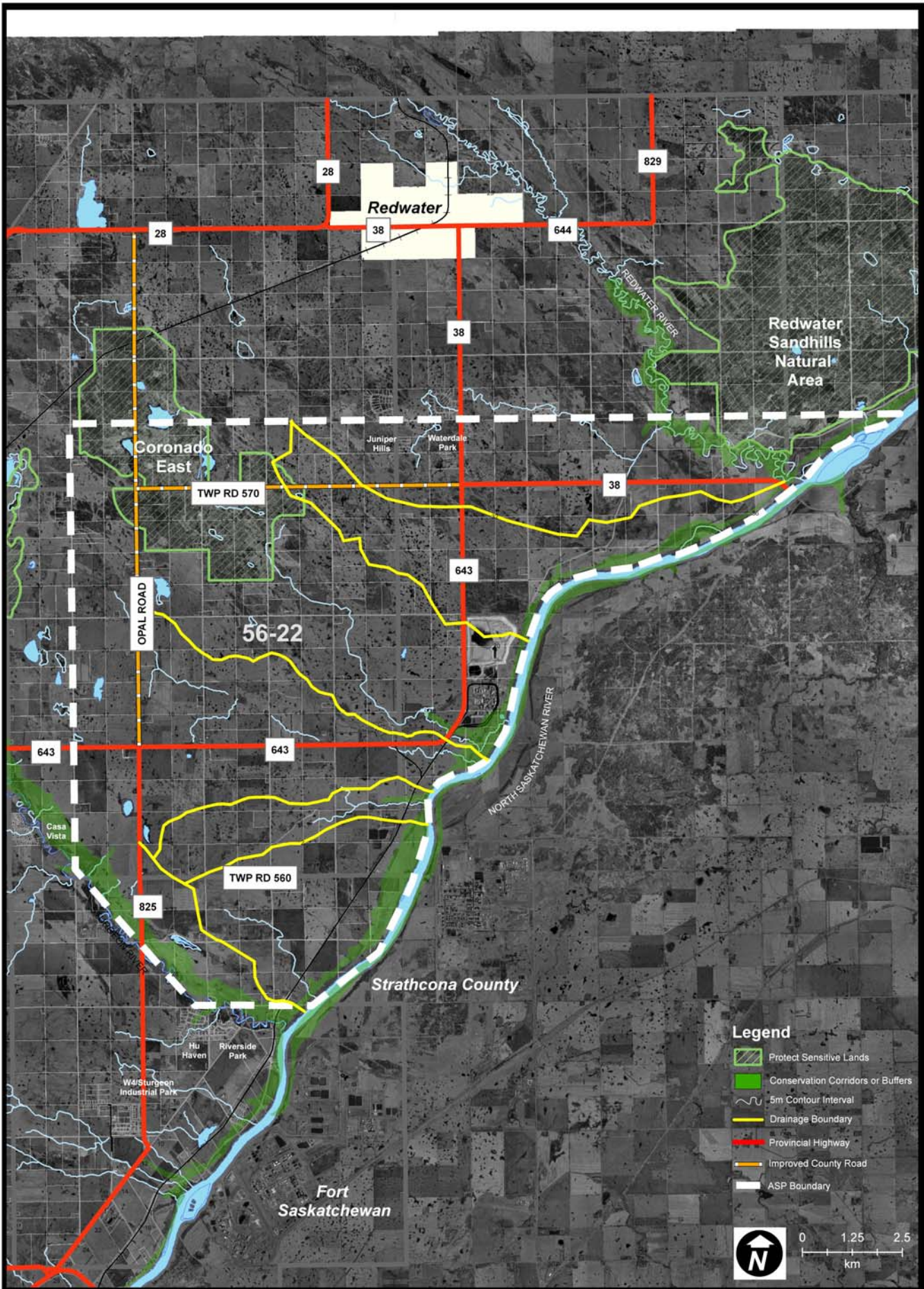
Setbacks from pipeline and other utility corridors are in accordance with the directives of the Alberta Energy and Utilities Board. Minimum setbacks from sour gas wells and pipelines are also detailed in the General Regulations of the LUB.

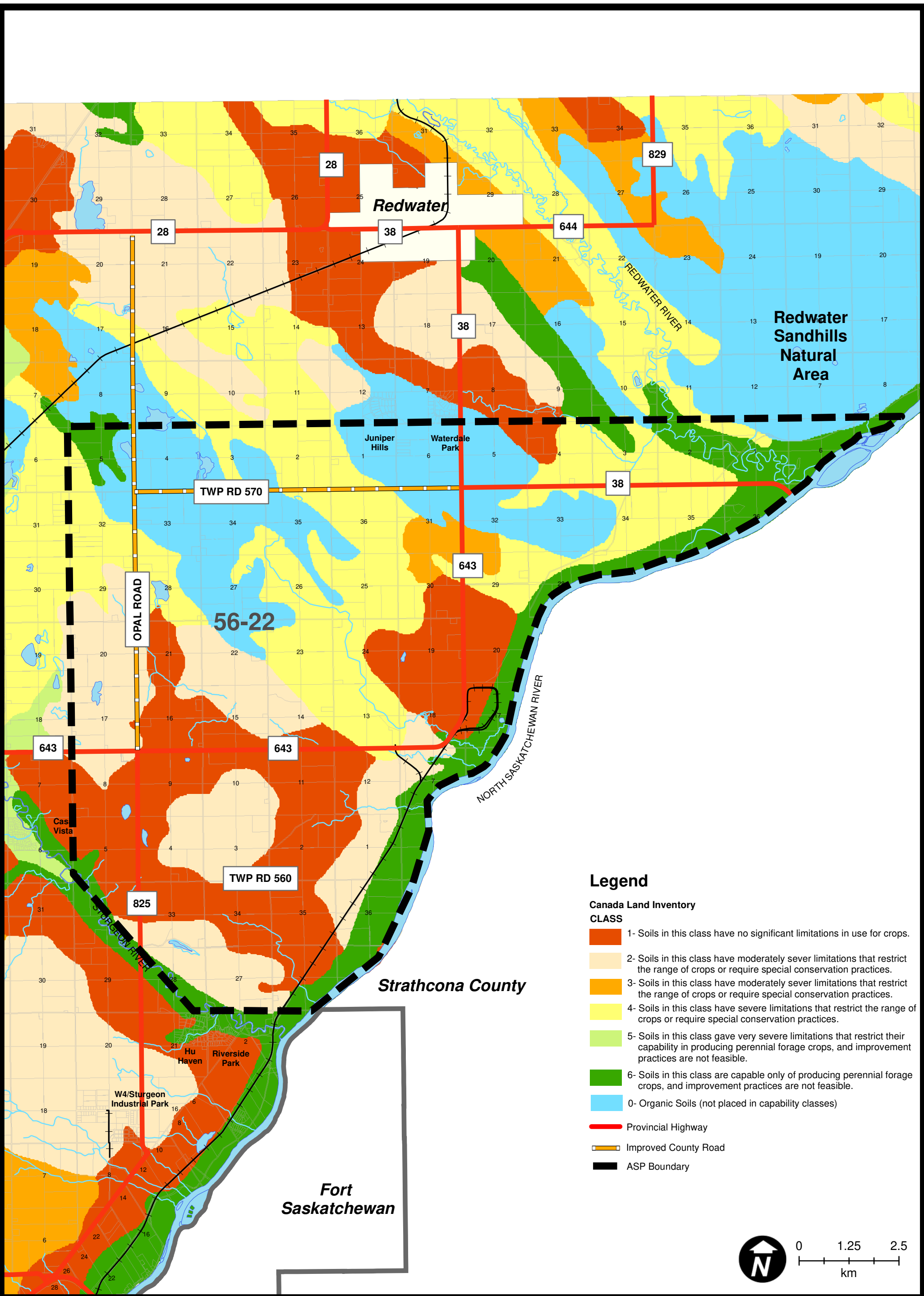
Agricultural (AG)

The purpose of this land use district is to provide areas to accommodate agricultural land uses and include residential, home occupation and Confined Feeding Operations. Regulations address parcel density (a maximum of four parcels per un-subdivided quarter), residential subdivisions, minimum parcel size for extensive livestock and extensive agricultural uses (32 ha or 80 ac), maximum parcel size, and yard and roadway setbacks.

Agricultural - Nature Conservation (A-NC)

The purpose of this land use district is to protect unique natural areas and environmentally sensitive areas and to provide for the development of recreational uses. Permitted and discretionary uses include residential, home occupation, agricultural, recreational, institutional and nature conservation. Regulations generally follow those set for the Agricultural (AG) Land Use District, with the following exceptions. A minimum buffer strip of 30 m (98 ft) preserved for environmental reserve from the top of bank of the North Saskatchewan and Sturgeon Rivers. No permanent structures are permitted within the 1:100 year flood plain. The Development Approving Authority may require an environmental impact assessment with a development permit application. Site design, siting, landscaping, screening and buffering should minimize and/or compensate for any objectionable aspects of a development.



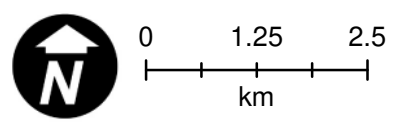


Legend

Canada Land Inventory CLASS

- 1- Soils in this class have no significant limitations in use for crops.
- 2- Soils in this class have moderately severe limitations that restrict the range of crops or require special conservation practices.
- 3- Soils in this class have moderately severe limitations that restrict the range of crops or require special conservation practices.
- 4- Soils in this class have severe limitations that restrict the range of crops or require special conservation practices.
- 5- Soils in this class have very severe limitations that restrict their capability in producing perennial forage crops, and improvement practices are not feasible.
- 6- Soils in this class are capable only of producing perennial forage crops, and improvement practices are not feasible.
- 0- Organic Soils (not placed in capability classes)

- Provincial Highway
- Improved County Road
- ASP Boundary



4.0 SITE CHARACTERISTICS AND DEVELOPMENT CONSIDERATIONS

4.1 Natural Features

Map 4 Natural Features shows the Plan area's natural features. Below is a description of the area's key biophysical features.

Topography and Drainage

The area is generally level to gently and moderately undulating and rolling. The majority of the Plan area drains in a southeast direction to the North Saskatchewan River. The northeast and southwest corners of the ASP area are drained by the Redwater River and Sturgeon River respectively.

Soils

Data on Soils in the Sturgeon County Industrial Heartland Area Structure Plan (ASP) was last collected in 2002, and published in the Alberta's Industrial Heartland Complementary Area Structure Plans, Background Report, January 2002. *Map 5 Soils*, shows the different types of soils according to the Canada Land Inventory (CLI) Soil Capability Classification for Agriculture. Approximately 60% of the ASP area is comprised of Class 1 and 2 soils.

The CLI Soil Capability Classification for Agriculture can help to formulate decisions on land improvement and farm consolidation. The assumptions on which agricultural classification is based are:

- The soils will be well managed and cropped, under a largely mechanized system.
- Land requiring improvements, including clearing that can be made economically by the farmer is classed according to its limitations or hazards in use after the improvements have been made. Land requiring improvements beyond the means of the farmer is classed according to its present condition.
- The following are not considered: distances to market, kind of roads, location, size of farms, type of ownership, cultural patterns, skill or resources of individual operations, and hazard of crop damage by storms.
- The classification does not include capability of soils for trees, tree fruits, small fruits, ornamental plants, recreation, or wildlife.
- The classes are based on the intensity, rather than kinds, of their limitations for agriculture. Each class includes many kinds of soil, and many of the soils in any class require unique management and treatment.
- Land given a capability classification of 6 or 7 will never warrant irrigation since the benefits derived from irrigation would be negligible. For this reason, capability Classes 6 and 7 will always appear in the non-irrigated portion (Classes A to C) of a land unit classification. The classes indicate the degree of limitation imposed by the soil in its use for mechanized agriculture.
 - Class 1: Soils have no significant limitations in use for crops.
 - Class 2: Soils have moderate limitations that restrict the range of crops or require moderate

conservation practices.

- Class 3: Soils have moderately severe limitations that restrict the range of crops or require special conservation practices.
- Class 4: Soils have severe limitations that restrict the range of crops or require special conservation practices or both.
- Class 5: Soils have very severe limitations that restrict their capability to producing perennial forage crops, and improvement practices are feasible.
- Class 6: Soils are capable only of producing perennial forage crops, and improvement practices are not feasible.
- Class 7: Soils have no capability for arable culture or permanent pasture.
- Class 0: Organic Soils (not placed in capability classes).

As the Plan area is part of the region's glaciated area, the soils have developed on glacial till, and deposits were produced by postglacial sortation, such as lacustrine, alluvial, and aeolian materials. These Pleistocene deposits are almost entirely of Edmonton formation origin. In discussing the kinds of soils found in the Edmonton area, the basis of separation is the order, as used in the Canadian System of Soil Classification. The characteristics of each order are briefly described as follows:

- Chernozemic Order – about half of the area has soils in this order. They are predominantly black in colour, and are found on practically all the types of parent material previously mentioned. In general, they are high quality agricultural soils and are found throughout the area. Many of the Chernozemic soils have been placed in Capability Class 1.
- Solonetzic Order – this group of soils is found throughout the area on all types of parent material. Here the till is thin and is underlain by the Bearpaw shale formation. Generally they are considered to be in Capability Class 2 or lower, depending on degree and kind of development of the Solonetzic characteristics.
- Podzolic Order – they are mainly Dark Gray Wooded and Gray Wooded soils. These soils are considered to be no better than Capability Class 3.

The remaining three orders found in this area are Gleysolic, Regosolic and Organic. They are scattered throughout, generally in association with other soils. They are generally marginal for agriculture or in the pasture classes.

Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESAs) within the Plan area are shown on *Map 6 Environmentally Sensitive Areas*. Data on ESAs in the ASP area was last collected in 2002 and published in the Alberta's Industrial Heartland Complementary Area Structure Plans, Background Report, January 2002. This report identifies lands important to plant and animal diversity in four categories:

- nationally or internationally significant (limited to the best or only example of their kind in Canada or the

world)

- provincially significant (limited, unique or best example of their kind in the province)
- regionally significant (limited, unique or the best example of their in the planning area)
- locally significant (limited, unique or the best example of their kind in the local area)

The report also describes hazard lands that would impose significant constraints on development in their natural state, including floodplains, permanent wetlands and water features, seasonal flows, and unstable slopes. Each ESA was judged as to its relative sensitivity to changes and disturbance. The following three sets of characteristics were indicative of land units sensitive to disturbance:

- high susceptibility to erosion,
- severe limitation to re-vegetation, and
- mixture of landform and vegetation that would make the land unit of important significance to wildlife.

Dominant attributes of an ESA are as follows (Environmentally Sensitive Areas: County of Strathcona and M.D. of Sturgeon 1989):

- areas which perform a vital environmental, ecological or hydrological function,
- areas which contain unique geological or physiographic features,
- areas buildings or features which are important for cultural or historic reasons,
- areas which contain significant, rare or endangered species,
- areas which are unique habitats with limited representation in the region or remnant of once larger habitats which have virtually disappeared,
- areas which contain an unusual diversity of plant and/or animal communities due to variety of geomorphological features and microclimatic effects,
- areas which contain large and relatively undisturbed habitats and provide sheltered habitat for species which are intolerant of human disturbance,
- areas which contain plants, animals or land forms which are unusual or of regional, provincial or national significance,
- areas which provide an important linking function and permit the movement of wildlife over considerable distance.

Provincially Significant Areas

Sturgeon River Valley

North Saskatchewan River Valley

- inter-provincially important river
- diverse riparian habitat
- provides key habitat for white tailed deer

- diverse sites of interpretive and educational value relative to geological and paleontological history as well as present day fluvial processes
- exposures to gravel pits in the valley have in past shown interesting periglacial features such as fossil sand wedges; in addition these sites have yielded paleontological discoveries such as bones of dinosaur, woolly mammoth, bison, etc.

Regionally Significant Areas

Coronado East

- Large area of well developed sand dunes located in the northwest Plan area. These large dunes are not found elsewhere in the region.
- The dune field is relatively undisturbed. Within the area is a Provincial Natural Area and a Ducks Unlimited waterfowl project.
- Hosts a very diverse vegetation mosaic due to the various plant responses to the changing edaphic conditions.
- Good upland wildlife habitat especially in the more mesic sites along the lower slopes of the dunes and in poorly drained blowouts.

Redwater Sandhills Natural Area

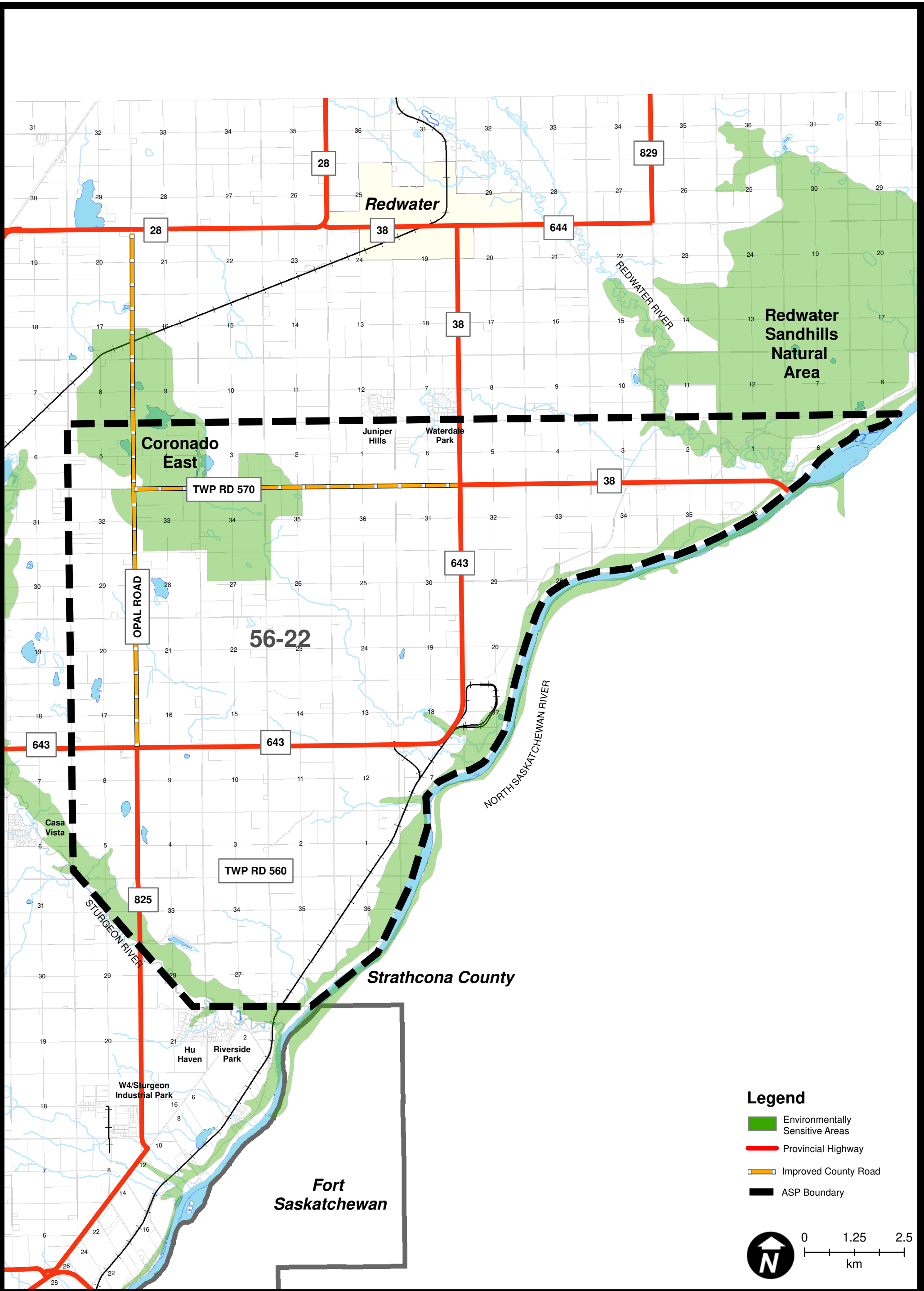
- Located northeast of the Plan area, with a small segment inside the ASP boundary. This area is a large sand dune field.
- Contains significant remnant natural forest and possesses good wildlife habitat values, reinforced by its proximity to the North Saskatchewan River Valley.

4.2 Existing and Surrounding Land Uses

The existing land uses within and surrounding the ASP area are illustrated in *Map 7 Existing Zoning and Land Use*. Specific land use districts within the area include Agricultural, Agricultural-Nature Conservation, and Heavy industrial. Land uses within and surrounding the ASP area are described below.

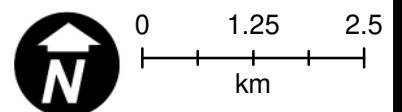
Agricultural - Over half of the Plan area is zoned Agricultural. Much is actively farmed in extensive and intensive agriculture operations, including cropping, livestock grazing and some Confined Feeding Operations. Some land is still in tree cover or not used for agricultural purposes. Much of the zoning surrounding the Plan area is also Agricultural.

Agricultural-Nature Conservation (A-NC) – Agricultural-Nature Conservation is included to protect natural and environmentally sensitive areas in the Plan area. This land use is found on both sides of the Sturgeon River Valley and the west side of North Saskatchewan River Valley except for the Agriurn and Synenco lands which are zoned Industrial Heavy (I-H) to the river's edge.



Legend

- Environmentally Sensitive Areas
- Provincial Highway
- Improved County Road
- ASP Boundary



Industrial Heavy (I-H) — The largest land use district is Industrial Heavy accounting for about 5,330 ha. Industrial Heavy (I-H) lands are located in the central, eastern and southern parts of the ASP area. A range of heavy industrial operations are located in the ASP area including oil and gas refining, petrochemical operations, hydrogen peroxide and fertilizer manufacturing. Major industrial facilities are operated by Agrium, North West Upgrading, Degussa, Provident Williams, PetroCanada and Access Pipeline. Synenco is also planning a major upgrader.

Urban Fringe (UF) — Two Urban Fringe Districts are just outside the Plan area. To the west north of Twp Rd 643 is Urban Fringe land for the Town of Gibbons, and north of the Plan area a large Urban Fringe District surrounds the Town of Redwater.

Industrial-Rural (I-R) — To the southwest of the Plan area is a large Industrial-Rural District which includes the W4/Sturgeon Industrial Park.

County Residential (CR) — There are no Country Residential subdivisions within the ASP boundary. Six Country Residential subdivisions, each on approximately 160 acres of land, surround the Plan area. They are the Juniper Hills and Waterdale Park subdivisions on the northern perimeter of the ASP boundary, Hu Haven and Riverside Park on the southern boundary, Casa Vista 1 km west of the boundary on the Sturgeon River, and an unnamed subdivision south of Twp Rd 570 on the west boundary.

Approximately 137 individual residences are located within the ASP area.

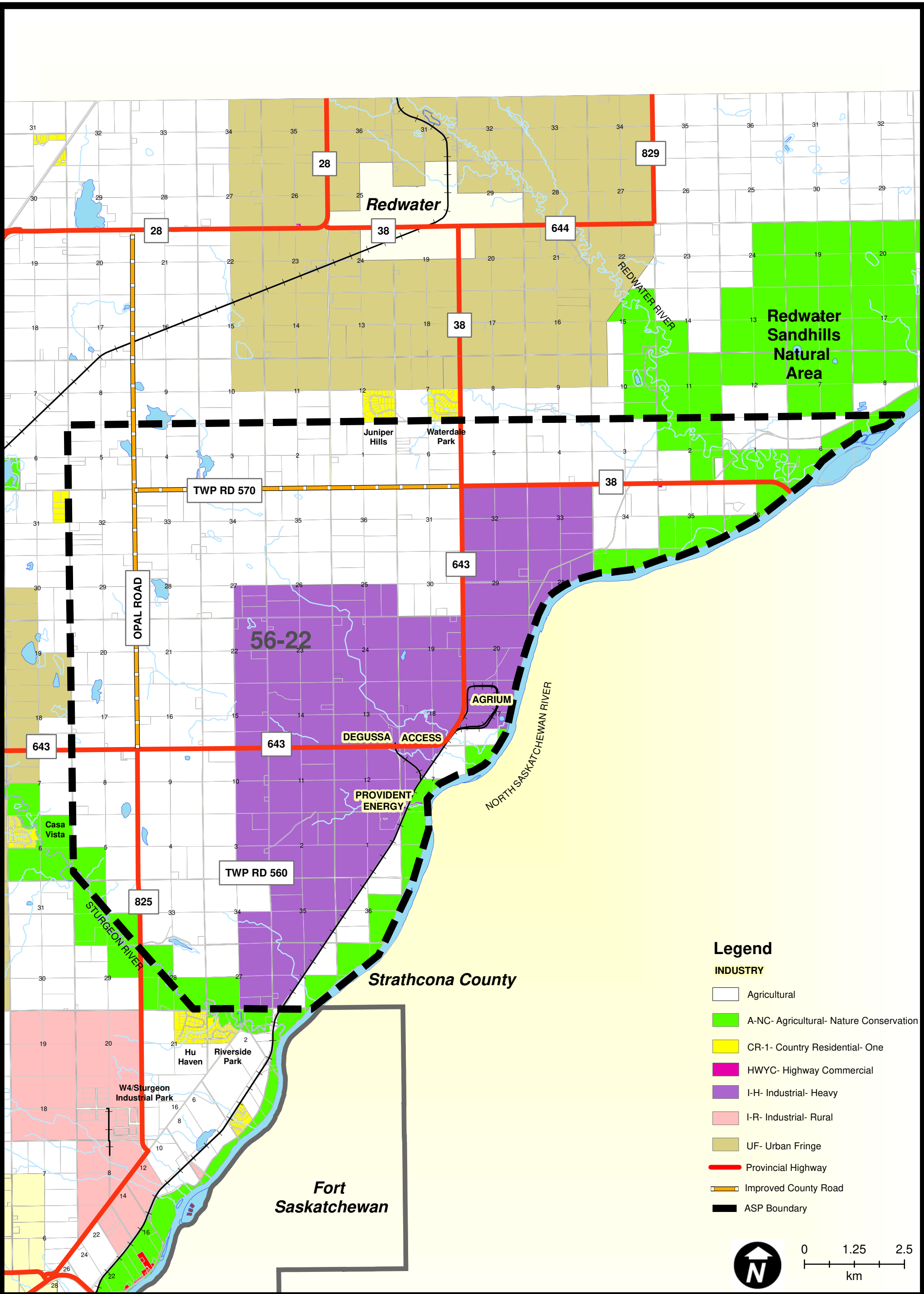
4.3 Natural Constraints

Natural constraints in the ASP area are related to topographical and environmental constraints of the North Saskatchewan and Sturgeon River Valleys.

4.4 Man-Made Constraints











Map 8 Man-Made Constraints illustrates the significant man-made constraints within the Plan area. They include the CN line that runs parallel to the North Saskatchewan River and a network of pipelines carrying a variety of liquid and gaseous materials crosses the Heartland area. The extent and complexity of this pipeline network, which provides feedstock to Heartland industries and conveys product to Heartland markets, is illustrated in *Map 8*. Linkages with key supply and market areas such as Strathcona Industrial Area, the oil sands region, Joffre, Medicine Hat and other areas, have been and will continue to be developed. There are also a series of inter-industry pipeline linkages within Heartland itself.

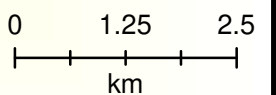
The issue of land sterilization by pipeline routes is compounded by the limiting distances, which define setbacks from pipelines. These setbacks vary with the volatility, concentration and pressure of materials being conveyed. These "regulatory shadows" can result in a further sterilization of land for development, and it is wise land use planning to try to concentrate these land use impacts to the extent allowable by regulatory and safety considerations.

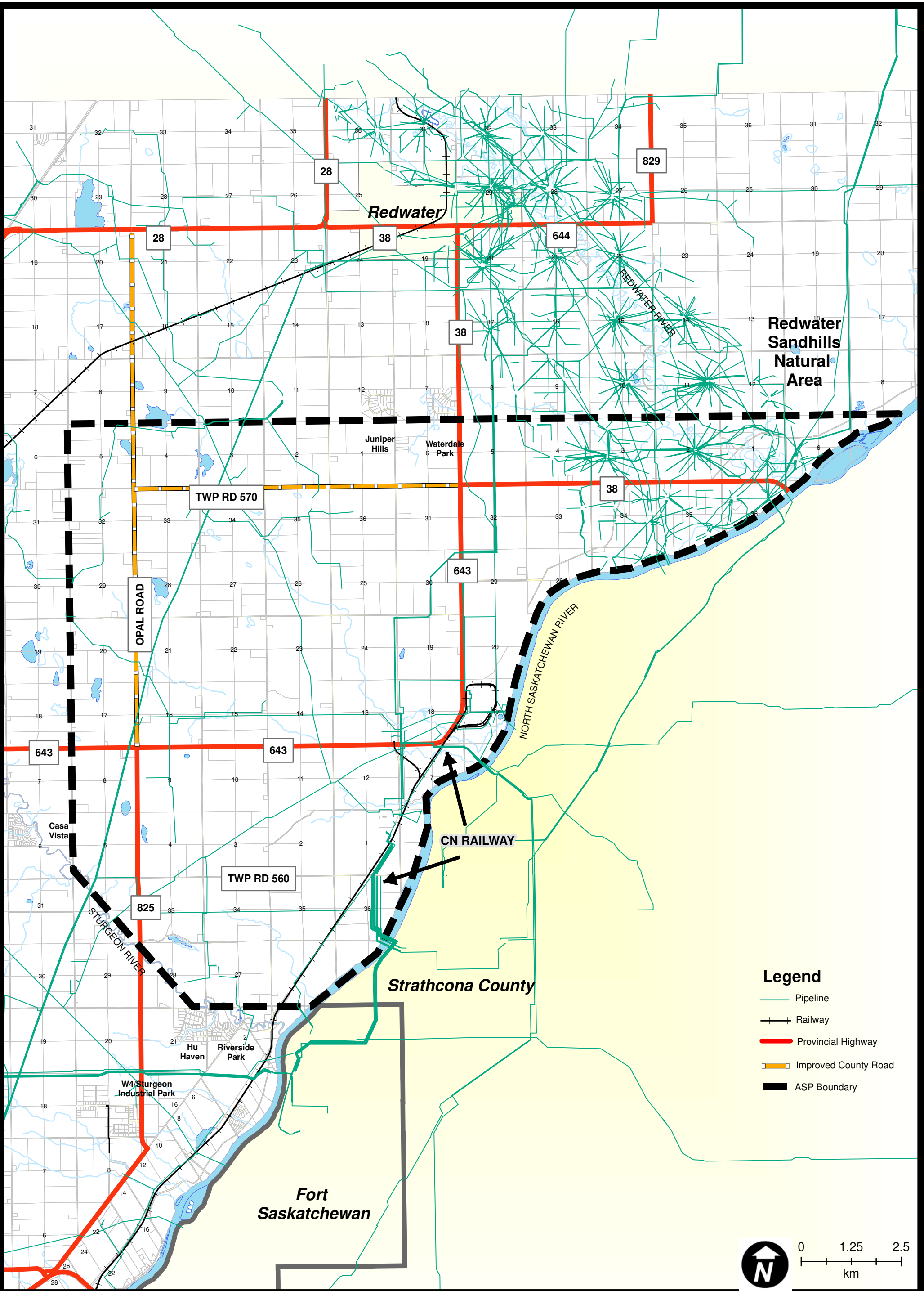


Legend

INDUSTRY

-  Agricultural
-  A-NC- Agricultural- Nature Conservation
-  CR-1- Country Residential- One
-  HWYC- Highway Commercial
-  I-H- Industrial- Heavy
-  I-R- Industrial- Rural
-  UF- Urban Fringe
-  Provincial Highway
-  Improved County Road
-  ASP Boundary





While the pipelines and their setbacks may impose a constraint to development, they also provide an opportunity for the provision of linked open spaces and/or wildlife corridors.

4.5 Parks, Recreation, Open Space and Trails

Sturgeon County's Open Space Plan Update 2004 Strategic Plan Report was prepared and approved by County Council in March 2004. A number of policy directions and strategies within the plan have relevance to this ASP. They include the following:

- 3.1.1 Acquire environmental greenways along major river corridors
- 3.1.3 Protect designated natural areas and environmentally sensitive areas
- 3.1.4 Control development adjoining major rivers, lakes and ravines
- 3.2.2 Create conservation easements
- 3.2.4 Consider various open space dedication and acquisition techniques
- 3.5.1 Maximize acquisition of Environmental Reserve (ER)
- 3.5.2 Maximize Acquisition of Municipal Reserve (MR)
- 3.5.3 Criteria for Acquisition of Municipal Reserve (MR)
- 3.9.1 Create trails in conjunction with land development
- 3.9.3 Confirm alignment of preferred corridors along major rivers
- 3.9.6 Acquire important corridors of private land for trail development

Relevant recommended trail links include:

Gibbons to North Saskatchewan River	18.1km
Redwater Sand Hills to North Saskatchewan River	4.3 km

4.6 Schools

Given that additional residential development is limited to the Heartland Agricultural Policy Area, the area's population is not expected to change significantly in future years. There are no additional requirements for schools within the Alberta's Industrial Heartland Area Structure Plan boundary.

4.7 Historical and Archaeological Resources

Historical and archaeological resources within the ASP area were identified after reviewing Alberta's Industrial Heartland Complementary ASP Background Reports, January 2002 and information from the Heritage Resource Management Branch at Alberta Community Development. *Map 9 Historical Resource Inventory* shows the relevant areas. A number of archaeological resource areas are located along the North Saskatchewan River and a paleontological resource area occupies a section of land in the southern Plan area.

Alberta Community Development classifies Heritage Resource Sites into one of four categories: Archaeological Resource, Historic Resource, Paleontological Resource or Historic and Archaeological Resource. Within these classifications, the sites are given a Historical Resource Value that is based on a 1-5 point scale, with 5 being most significant. Figure 3 below profiles the location, classification and value of each of the 18 heritage and archaeological sites within the Plan area.

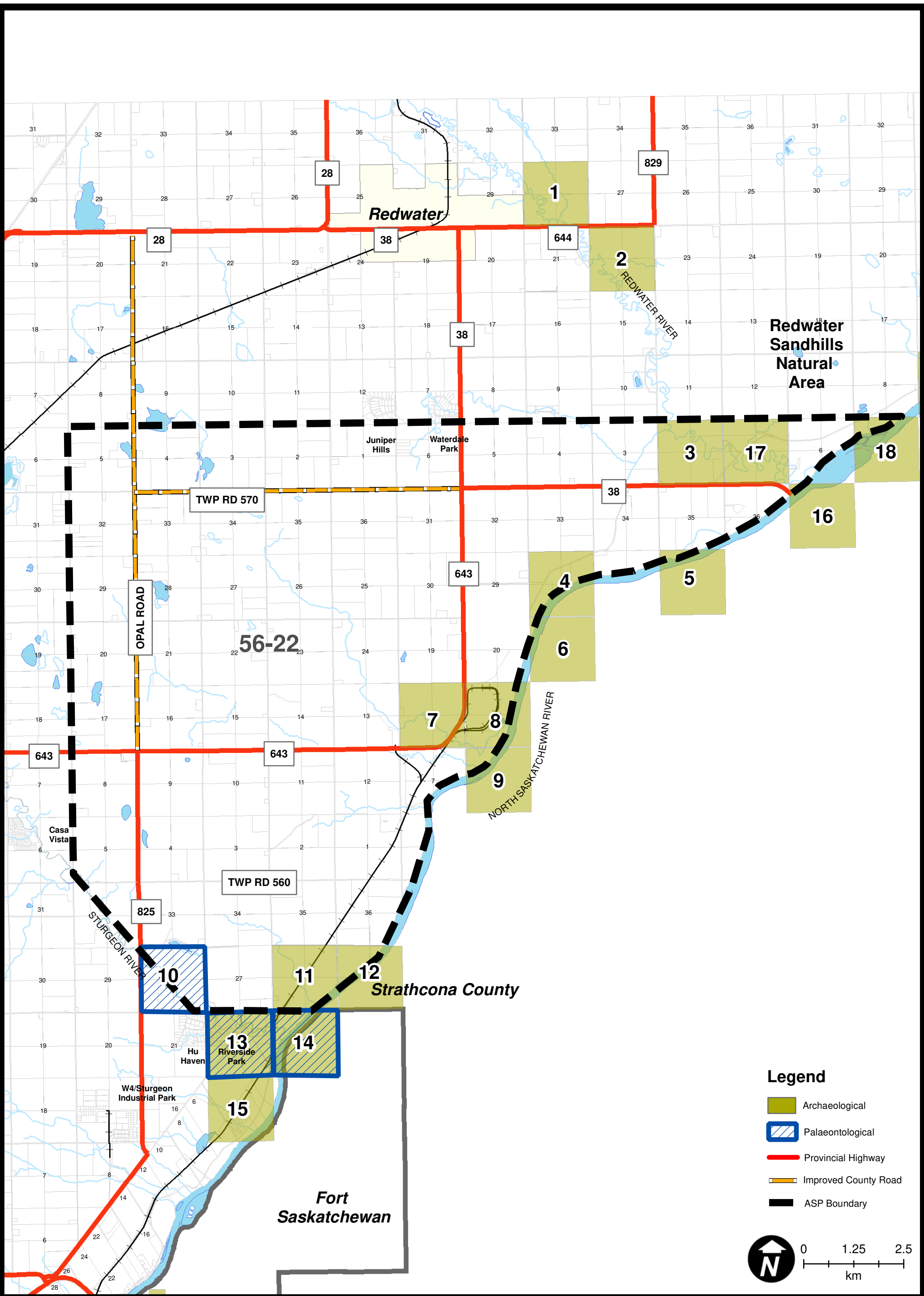
Figure 3 – Historical Resource Inventory

#	Meridian	Range	Township	Section	Quarter Section	LSD	HRV	ATS	Category
1	4	21	57	28	All	1-16	4	W4-R21-T057-S28	A
2	4	21	57	22	All	1-16	4	W4-R21-T057-S22	A
3	4	21	57	2	All	1-16	4	W4-R21-T057-S02	A
4	4	21	56	25	All	1-16	4	W4-R21-T056-S28	A
5	4	21	56	26	All	1-16	4	W4-R21-T056-S26	A
6	4	21	56	21	All	1-16	4	W4-R21-T056-S21	A
7	4	21	56	18	All	1-16	4	W4-R21-T056-S18	A
8	4	21	56	17	All	1-16	4	W4-R21-T056-S17	A
9	4	21	56	8	All	1-16	4	W4-R21-T056-S08	A
10	4	22	55	28	All	1-16	5	W4-R22-T055-S28	P
11	4	22	55	26	All	1-16	4	W4-R22-T055-S26	A
12	4	22	55	25	All	1-16	4	W4-R22-T055-S25	A
13	4	22	55	22	All	1-16	4	W4-R22-T055-S22	A
13	4	22	55	22	All	1-16	5	W4-R22-T055-S22	P
14	4	22	55	23	All	1-16	4	W4-R22-T055-S23	A
14	4	22	55	23	All	1-16	5	W4-R22-T055-S23	P
15	4	22	55	15	All	1-16	4	W4-R22-T055-S15	A
16	4	20	56	31	All	1-16	4	W4-R20-T056-S31	A
17	4	21	57	1	All	1-16	4	W4-R21-T057-S01	A
18	4	20	57	5	All	1-16	4	W4-R20-T057-S05	A

Category Descriptions:

- A: **Archaeological resource:** a work of humans that is primarily of value for its prehistoric, historic, cultural or scientific significance, and is or was buried or partially buried in land in Alberta or submerged beneath the surface of any watercourse or permanent body of water in Alberta, and includes those works of humans or classes of works of humans designated by the regulations as archaeological resources.
- H: **Historic resource:** any work of nature or of humans that is primarily of value for its paleontological, archaeological, prehistoric, historic, cultural, natural, scientific or esthetic interest including, but not limited to, a paleontological, archaeological, prehistoric, historic or natural site, structure or object_
- P: **Paleontological resource:** a work of nature consisting of or containing evidence of extinct multi-cellular beings and includes those works of nature or classes of works of nature designated by the regulations as paleontological resources.

As part of the Environmental Impact Assessments (EIA) for major petrochemical projects, detailed Historic and Archaeological Impact Assessments are required by the EUB. Sturgeon County may also request a Historical Resources Impact Assessment in accordance with the *Historic Resources Act* (1987).



4.8 Industrial Development Strategy

Proper planning of new development in Sturgeon County's Industrial Headland ASP area is strategically important to help the County achieve its goal of diversifying its economic base and creating more intensive value-added employment opportunities.

4.9 Transportation

Existing Transportation System

The industrial area is directly served by provincial Highways 38, 643 and 825. The area is connected to the rest of the provincial highway system via Highways 15, 28/28A, 37 and the two bridges on the North Saskatchewan River (the Fort Saskatchewan Bridge on Highway 15 and the Vinca Bridge on Highway 38). All provincial highways in the study area have paved surfaces.

The County roads in the study area range from Twp Rd 560 to Twp Rd 570 and Range Rd 211 to Range Rd 224 (Opal Road). The location of County roads and Provincial highways in the area are shown on *Map 11 Transportation Concept*.

Of the two major railway companies, CN Rail and CP Rail, only CN serves the ASP area. As shown in *Map 11*, the Beamer Spur of CN's Vegreville Subdivision serves the existing heavy industries (Access Pipelines, Agrium, Degussa, Imperial Pipelines, and Provident Williams) as well as the W4/Sturgeon Industrial Park. To the west of the industrial area, CN's Coronado Subdivision rail line passes through Gibbons and Redwater on its way north. However, this line is not directly connected to the Beamer Spur and does not currently serve the existing industrial developments in the study area.

Main Transportation Issues

The Transportation Master Plan study prepared by EBA Engineering Consultants Ltd. provides details of the current issues and future strategies regarding the transportation system for the industrial area. The following are some of the key transportation issues in the area:

- Highway 643 and Highway 825 are the main routes serving the industrial area. They also serve the through traffic to Redwater and east of the river on Highway 38 across the Vinca Bridge. The proposed heavy industrial/upgrader developments will cause Highway 643 to become congested as early as 2008. Upgrading and paving Opal Road (Range Rd 224) and TWP Road 570 would relieve the pressure on Highway 643 by providing a bypass around and access to the industrial area.
- The intersection of Highway 15, Highway 37, and Highway 825 at the southern end of the study area is sub-standard, particularly for industrial traffic to and from Highway 825.
- The traffic from Edmonton to Highway 63 to Fort McMurray is funneled via Highway 28 west of Gibbons, and Highway 28A through Gibbons on to Highway 28 north of Gibbons. The Highway 825/Opal Road corridor is an alternative for the through north-south traffic that needs to be studied.
- None of the highways in the study area are connected to the provincial High Wide Heavy Load corridors, and the two bridges on the North Saskatchewan River connecting the study area to the east side of the

river cannot accommodate high/wide/heavy loads.

There are various general and local safety issues, such as safety at various highway and County road intersections, railway grade crossings with highways and County roads, the Highway 825 bridge over the Sturgeon River and its steep approaches, the intersection of Boysdale Road and Highway 825 where the southbound traffic on Highway 825 encounters a STOP sign.

4.10 Utility Services

The Utility Master Plan prepared by Sameng Inc. provides details of the current issues and future servicing strategies and infrastructure framework for Sturgeon County's Industrial Heartland ASP area. The following summarizes the current situation and issues related to utility services.

Potable Water Supply

The existing Northeast Water Services Commission (NEWSC) line runs northeast along the Canadian National railway from W4/Sturgeon Industrial Park to the Agrium Fertilizer Plant near the turn of Highway 643. At Highway 643, the 300 mm diameter pipe downsizes to 250 mm and changes alignment to run north towards the Town of Redwater along Highway 38. The entire ASP area will require potable water servicing for both construction of the plants as well as for normal plant operation. To secure the supply of potable water, it is necessary to:

- assess existing infrastructure capability with NEWSC and, its baseline demand projections;
- confirm water availability with EPCOR water service;
- define issues and needs of existing customers, and
- define the potable water needs of the project proponents.

Wastewater Collection

The Plan area has an existing wastewater collection pipeline jointly constructed by Agrium and Sturgeon County. This pipeline originates at the Agrium plant site as a 300 mm diameter forcemain which is increased to 500 mm at Twp Rd 560. Agrium is the only user of this pipeline which is used to discharge some of its contaminated stormwater runoff. The pipeline has been designed to accommodate additional flows.

Wastewater issues to be addressed include:

- define the layout of the ultimate sewer configuration to service the entire study area;
- define what flows (domestic and/or process) must be accommodated; and
- coordinate with the Alberta Capital Region Wastewater Commission to determine downstream upgrade requirements.

Stormwater Management

The Sturgeon County Heartland area encompasses a number of distinct sub-basins (see *Map 14 Stormwater Management Concept*). The majority of the basins form a dominant watercourse discharging into the North Saskatchewan River. There are also a number of catchment areas that exhibit overland flow and do not have defined drainage channels. All of the existing watercourses are stable and research to date does not reveal historic drainage problems.

Protection of major watercourses and flow routes is needed to allow orderly development of the Heartland area and to maintain riparian right of flows from outside the study area. The following stormwater issues have to be addressed:

- identify major natural water courses and flow routes;
- identify erosion protection requirements and costs; and
- determine maximum permissible post development discharge rates.

Process Water Supply

Process water supply is not a traditional municipal utility service. There are advantages to sharing some process water supply infrastructure:

- shared storage to supplement supply during low river flow periods would improve operational reliability and reduce impact on the North Saskatchewan River;
- one or two shared river intakes would reduce the environmental footprint of the required infrastructure; and
- to allow better utilization of the Heartland area if process water supply is provided.

Shallow or Franchise Utilities

There are other major utility service providers to this area. These typically include natural gas, electric and communications services. As the infrastructure of these are owned and operated by private third parties, the County's role is one of coordination. Throughout this planning process, utility right of ways are being planned while taking some of the franchise utility needs into consideration.

4.11 Emergency Services

The Emergency Services Master Plan by Evolution Integrated Solutions Inc. reviewed fire and ambulance services in the area. It looked at current levels of service as well as forecasting future needs. Currently, ambulance services are provided out of Fort Saskatchewan and Redwater under contract to Sturgeon County. Volunteer fire departments, located in Redwater and Gibbons, are the first responders into the Industrial Heartland and Sturgeon Industrial Park (W4) areas of Sturgeon County. The Emergency Services Master Plan identified that the expectations of County residents exceeded the capabilities of the current volunteer fire responders. This will be further compounded by industrial growth in the Industrial Heartland area and Sturgeon Industrial Park (W4), necessitating enhanced response capabilities in the future.

5.0 GOALS, OBJECTIVES AND POLICIES

5.1 General Development Framework

Goal: To provide a general development framework for evaluating and approving developments within Sturgeon County's Industrial Heartland Area in a manner that balances both quality of life and economic development considerations.

Intent

Sturgeon County's MDP attempts to strike a balance between economic development, quality of life and environmental objectives to achieve compatible and sustainable land use patterns. Sturgeon County's Industrial Heartland ASP can be used in two ways. First, when prospective industrial proponents are assessing the County as to whether it is the appropriate area for industry to locate, they will be able to refer to the development framework contained herein. By referring their initial plans to the set of considerations (municipal, provincial, federal, resource and stakeholder), the eco-industrial development principles and goals and objectives of the plan, and their respective application to the lands within Sturgeon County, these industrial interests will develop an understanding of the requirements they will have to meet to develop their planned operation. With this general knowledge they will be able to better understand the implications of locating in that particular portion of the Heartland area.

Once the preferred site has been selected, the second application of this ASP can be employed. The industrial interests will be able to proceed with the detailed planning and development associated with that particular site.

This approach reinforces the responsibility of Sturgeon County for the lands within Alberta's Industrial Heartland area. It enables the County to serve as the main window in dealing with industry regarding the lands within its own jurisdiction. It also reinforces the responsibility of the County to work collaboratively with provincial and federal agencies in ensuring that industry meets the necessary requirements of other levels of government for their development and subsequent operation plans.

Objectives

- to avoid and minimize potential land use conflicts with heavy industrial development;
- to better integrate federal, provincial and municipal and environmental review and approvals;
- to promote eco-industrial development practices amongst industries; and
- to maintain and enhance the quality of life of residents by providing adequate separation distances between residential and heavy industrial uses to minimize risk to public safety and nuisance associated with heavy industrial uses.

Policies

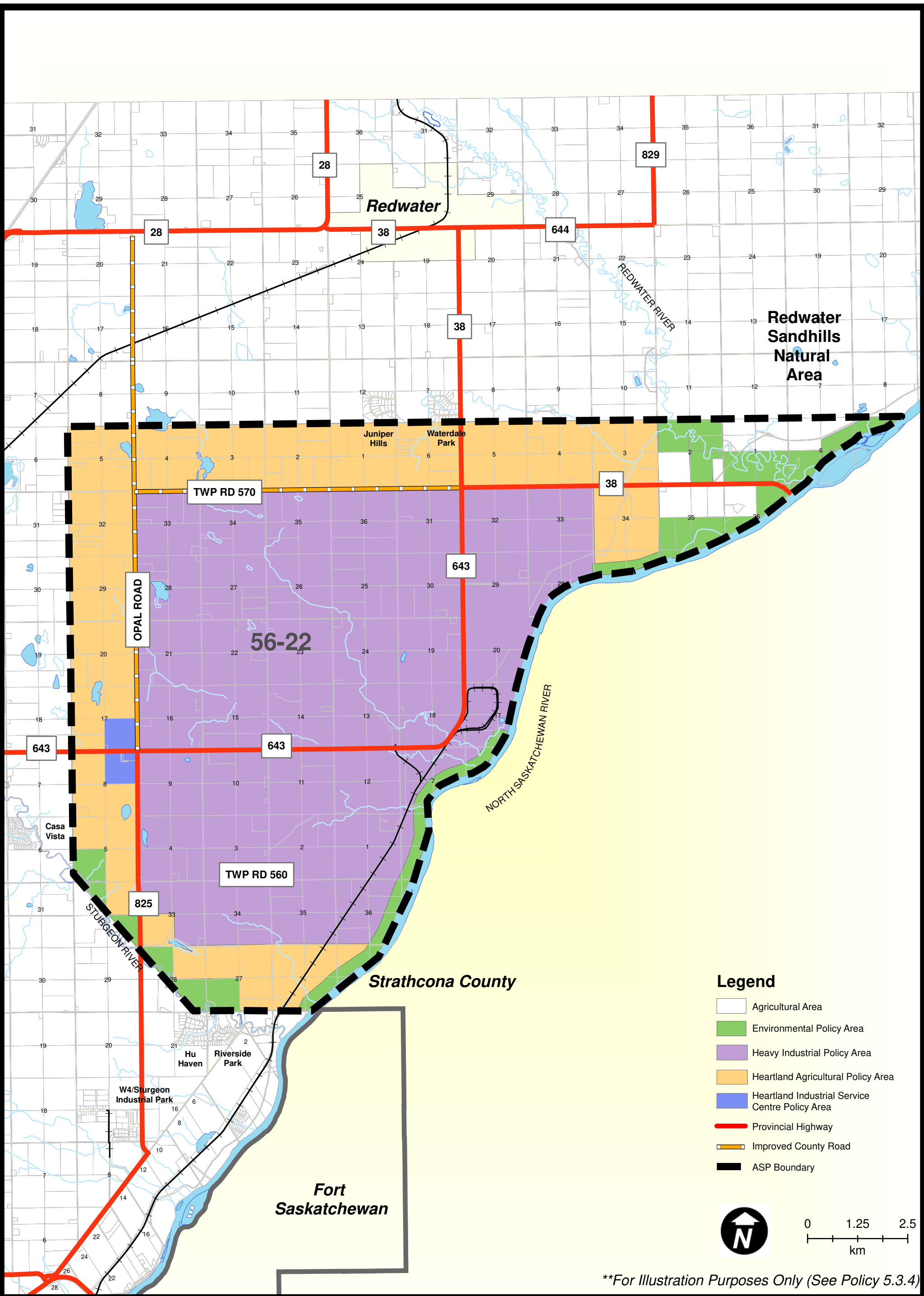
- | | | |
|--------------|---|--|
| 5.1.1 | Compliance with Statutory Plans | Any subdivision and development applications shall need to comply with land use designations contained in Sturgeon County's MDP, LUB and this ASP. |
| 5.1.2 | Policies, Codes of Practice, Regulations Controls and Standards | Any development involving the storage or transmission of hazardous substances shall be sited to comply with all relevant federal and provincial legislation. A license, permit approval or other authorization granted by a federal or provincial agency or Crown-controlled organization may prevail over this bylaw or a development decision Development Approving Authority and/or subdivision and development appeal board pursuant to federal or provincial legislation. When an application is received by the County for a LUB amendment or development permit and the application is consistent with such a license, permit, approval or other authorization granted by a federal or provincial agency or Crown-controlled organization, the County shall approve the application to the extent that it complies with the license, permit, approval or other authorization granted. |
| 5.1.3 | Avoiding Duplication and Streamlining Development and Approval Process | To avoid unnecessary duplication and streamline the development review and approval process, Sturgeon County shall coordinate its requirements for an Environmental Nuisance and Health Impacts Assessment and/or Industrial Risk Assessment by consulting with provincial and federal agencies regarding these requirements as part of the terms of reference for applications being submitted by industrial proponents for federal or provincial approvals. |
| 5.1.4 | Eco-Industrial Development Principles | Sturgeon County will encourage industry and agricultural operations to work together in employing eco-industrial development principles, and practices whenever possible. |
| 5.1.5 | Separation of Heavy Industrial Uses and Other Land Uses | Sturgeon County shall maintain and enhance the quality of life of citizens by adopting a risk-based land use planning approach to provide for adequate and safe separation between heavy industrial development and other land uses. The purpose of industrial risk management is to reduce the risks to public safety and minimize nuisance associated with heavy industrial development and to facilitate timely emergency response in the event of an industrial incident. |

5.2 Future Land Use

The Future Land Use Concept for the Plan area is shown on *Map 10*. The land use concept and accompanying goals, objectives and policies were determined giving regard to the following:

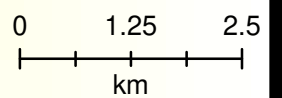
- economic development goals and strategies of Sturgeon County;
- policies contained in the Sturgeon County MDP and other relevant plans and studies;
- existing land use patterns;
- natural features;
- man-made constraints;
- existing and planned improvements to the transportation network;
- input received from property owners, residents, industry and other stakeholders;
- utility servicing constraints and opportunities;
- environmental considerations;
- recreation, open space and trail opportunities; and
- sound, long range planning practices that support orderly, economic and beneficial development.

Future land uses within the Plan area include Environmental Policy Area, Heavy Industrial Policy Area, Heartland Agricultural Policy Area and Heartland Industrial Service Centre Policy Area. Policies for each are presented in Section 5.3 to 5.6.



Legend

- Agricultural Area
- Environmental Policy Area
- Heavy Industrial Policy Area
- Heartland Agricultural Policy Area
- Heartland Industrial Service Centre Policy Area
- Provincial Highway
- Improved County Road
- ASP Boundary



***For Illustration Purposes Only (See Policy 5.3.4)*

5.3 Environmental Policy Area

Goal: To protect natural and environmentally sensitive areas and promote environmentally responsible and sustainable development practices.

Intent

The basic intent of the Environmental Policy Area is to conserve environmentally sensitive areas within the North Saskatchewan River and Sturgeon Valleys and to enhance preservation of the character of these areas through managing growth and development in a manner that is congruent with the goals and objectives of this plan. In doing so, the area will accommodate future activities in an environmentally sustainable manner. This ongoing accommodation will be instrumental in establishing the Heartland Area as a truly eco-industrial development. The area will also continue to reinforce the North Saskatchewan River and Valley as a significant regional and national, natural feature. Policy directions for the Environmental Policy Area reflect environmental and open space policies already in place through the MDP and Sturgeon County's Open Space Plan adopted by County Council. The preservation of open spaces and enhancement of outdoor recreation opportunities are important to maintaining and enhancing the quality of life for Sturgeon County residents.

Objectives

- to conserve environmentally sensitive areas;
- to conserve and enhance the integrity of the North Saskatchewan River Valley;
- to conserve wildlife habitat and corridors;
- to conserving recreational and educational opportunities consistent with the setting while protecting and enhancing the river valley character; and
- to allow current land uses to continue where and as appropriate.

Policies

- | | | |
|--------------|--|--|
| 5.3.1 | Environmentally Sensitive and Significant Areas | Sturgeon County shall require any developer to identify and prepare landscape management plans to effectively nurture the evolving character of these environmentally sensitive areas. |
| 5.3.2 | Enhancing Wildlife Habitants and Areas of Cultural Significance | Sturgeon County should encourage landowners to participate in landscape management initiatives that foster appropriate conservation of habitat and areas of cultural significance. |
| 5.3.3 | Hazard Lands | Sturgeon County shall not permit permanent development in areas that are prone to erosion, subsidence or flooding particularly in the 1 in 100 year event. |

- 5.3.4 Control of Development Adjoining the North Saskatchewan and Sturgeon Rivers** Sturgeon County will require a 50 m (164 ft) lot or development setback from the top of the bank of the North Saskatchewan and Sturgeon River Valleys to provide for an environmental buffer. Upon subdivision, this should consist of 30 m (98 ft) Environmental Reserve (ER) dedication as required by the MDP, with the balance of 20 m (66 ft) taken as Environmental Reserve (ER), Municipal Reserve (MR) and / or conservation easement. The 30 m (98 ft) generally commences from the 1:100 year flood line unless a discernable top of bank exists beyond this. The embankment is often a geotechnical constraint and therefore the 50 m (164 ft) setback should generally commence beyond this.
- Notwithstanding the foregoing, an alternative lot or development setback of 50 m (164 ft) from the established 1:100 year event flood line from the North Saskatchewan River may be considered if it is supported by a geotechnical report signed by a certified member of APEGGA (P.Eng Designation) and to the satisfaction of Sturgeon County. Any portions of the lands outside of this setback districted as Agricultural-Nature Conservation Heartland District (A-NC-H) may be redistricted to Heavy Industrial or Specific Development Control to reflect this setback (i.e. site-specific zoning).
- 5.3.5 Top of Bank Survey** To enable the determination of top of bank setbacks or 1:100 year floodplain setbacks (if the notwithstanding clause is invoked) in Policy 5.3.4, each industry proponent shall undertake a top of bank survey (or a 1:100 year floodline survey from the North Saskatchewan River in the alternate case) for the North Saskatchewan River and Sturgeon River as a condition of the development permit.
- 5.3.6 Historical and Archaeological Resources Assessment** Sturgeon County shall refer any rezoning, subdivision or development applications for review and comment to Alberta Community Development. Where deemed necessary, a Historical Resources Impact Assessment would be required as part of the application submission.
- 5.3.7 Extensive Agriculture** Sturgeon County shall allow extensive agricultural pursuits such as grazing and cropping to continue both on top of the bank and below the bank while ensuring that all appropriate controls and codes of practice are utilized as need be in the continuance and modification of existing operations.

- 5.3.8 Intensive Agriculture** Sturgeon County shall allow intensive agricultural operations to continue to operate and expand where appropriate. Additions and modifications to current operations will be allowed if necessary to the continued viability of the operation. Consistent with Policy 5.3.11, no new residences will be allowed. New intensive agricultural operations, such as sod farms and market gardens, will be permitted upon completion of an environmental assessment considering such things as setback from the top of the bank, slope stability, and integration with possible recreation uses such as trails.
- 5.3.9 Passive Recreation** Sturgeon County shall require where feasible the development and maintenance of greenway corridors both through the North Saskatchewan and Sturgeon River Valleys and along the top of the bank to accommodate a series of trails for both hiking and biking as well as connecting with other corridors within the County and adjacent to the County.
- 5.3.10 No Multi-Lot Residential Subdivisions** Sturgeon County shall not allow any new residential multi-lot subdivisions or mobile home / manufactured home parks within the Environmental Policy Area to minimize potential conflict between residential intensification and nearby heavy industrial uses.
- 5.3.11 Existing Residences** Within lands encompassed by the Environmental Policy Area (with the exception of those lands east of Range Road 212), no new dwellings shall be permitted on previously undeveloped land. Dwelling units existing at the time of the adoption of this Bylaw shall be allowed to be upgraded or expanded and rebuilt if destroyed.
- 5.3.12 Utility Corridors and Crossings** Sturgeon County will review applications for utility installations, corridors and crossings within the Environmental Policy Area on a case-by-case basis. Appropriate Environmental Impact Assessments will need to be prepared with input from County, Provincial, and Federal agencies in accordance with their respective regulatory responsibilities. This will necessitate on a provincial level reference to the Alberta's Water Act and associated regulations and codes pertaining to pipelines and telecommunication lines crossing the North Saskatchewan River. On a federal level this will include reference to the Canadian Environmental Assessment Act as administered by Environment Canada, the Fisheries Act as administered by Fisheries and Oceans Canada and the Navigable Waters Protection Act as administered by Fisheries and Oceans Canada - Coast Guard.

5.4 Heavy Industrial Policy Area

Goal: To promote and support continued industrial development in areas designated for this purpose in the ASP area within a sustainable community development framework.

Intent

The basic intent of the Heavy Industrial Policy Area is to accommodate heavy industry such as petrochemical processing and manufacturing, oil and gas refining, and directly associated support service industries. The latter could include cogeneration power facilities, air separation units and carbon dioxide purification plants. Extensive agricultural operations will also be permitted to operate in the Heavy Industrial Policy Area. Accommodating these activities will be done in an ecologically and economically sound way. This will allow for processing, manufacturing and servicing industries seeking enhanced environmental and economic performance to work collaboratively in managing resources involving energy, water, air and materials.

Objectives

- to accommodate heavy industry in an environmentally sound and economically efficient manner;
- to maintain required separation and setbacks between industrial activities and other non-industrial land uses in the area, based on acceptable risk standards;
- to encourage maintenance and incorporation of agricultural activities with the heavy industrial activities in mutually compatible and supportive ways; and
- to minimize the residential population living in close proximity to heavy industrial operations.

Policies

- 5.4.1 Regulatory Approvals** Prospective heavy industrial activities shall comply with all municipal, provincial and federal approvals as required. This will include preparation of appropriate environmental impact assessments (EIA) as required in Alberta Environment's Environmental Protection and Enhancement Act (EPEA) to fully identify all potential impacts relative to the site in question and adjacent area and regions, if need be. This includes the requirement for Conservation and Reclamation Plans under EPEA for the development and closure of plant sites and associated pipelines. Reference will also be made to the Canadian Environmental Assessment Act and Canadian Environmental Protection Act where required. This will be for both

biophysical and socio-economic impacts. The assessment will also contain mitigative measures to be implemented in a manner that actively incorporates County input in effectively addressing impact mitigation and benefit enhancement. The assessment will be coordinated with other provincial and federal departments and agencies as needed, such as the Alberta Energy and Utilities Board (EUB). Sturgeon County shall work closely with proponents of heavy industrial activities to ensure effective impact management and benefit enhancement.

5.4.2 Environmental Standards

Sturgeon County is concerned about air quality, noise, flaring, light pollution, odour and surface drainage which are regulated by Alberta Environment and the EUB. Prospective heavy industrial activities shall comply with all Alberta Environment and EUB regulations, approval conditions, codes of practice and standards and guidelines such as those pertaining to surface water quality and deep well disposal of wastewater, discharge to the North Saskatchewan River, and maintenance of airshed.

5.4.3 Provisions for Accessory Services and Infrastructure

Industrial services accessory to / or integral to the heavy industrial activities such as air separation units and cogeneration power units will comply with Alberta Environment in a manner similar to heavy industry, also with the Energy and Utilities Board (EUB) for noise-related matters, power transmission and pipelines. This shall include establishment and maintenance of necessary rights of way and setbacks for all lines in accordance with set standards. Consideration will be actively given in consultation with proponents of pipelines, the EUB, Alberta Environment and other government agencies to the development and maintenance of corridors to accommodate pipelines.

5.4.4 Requirements for Industrial Risk Assessment

In accordance with the provisions of the LUB, Sturgeon County shall require safety, risk and environmental nuisance and health impact assessments as part of the development application process for heavy industrial uses, if not already completed to the County's satisfaction as part of a provincial or federal approval.

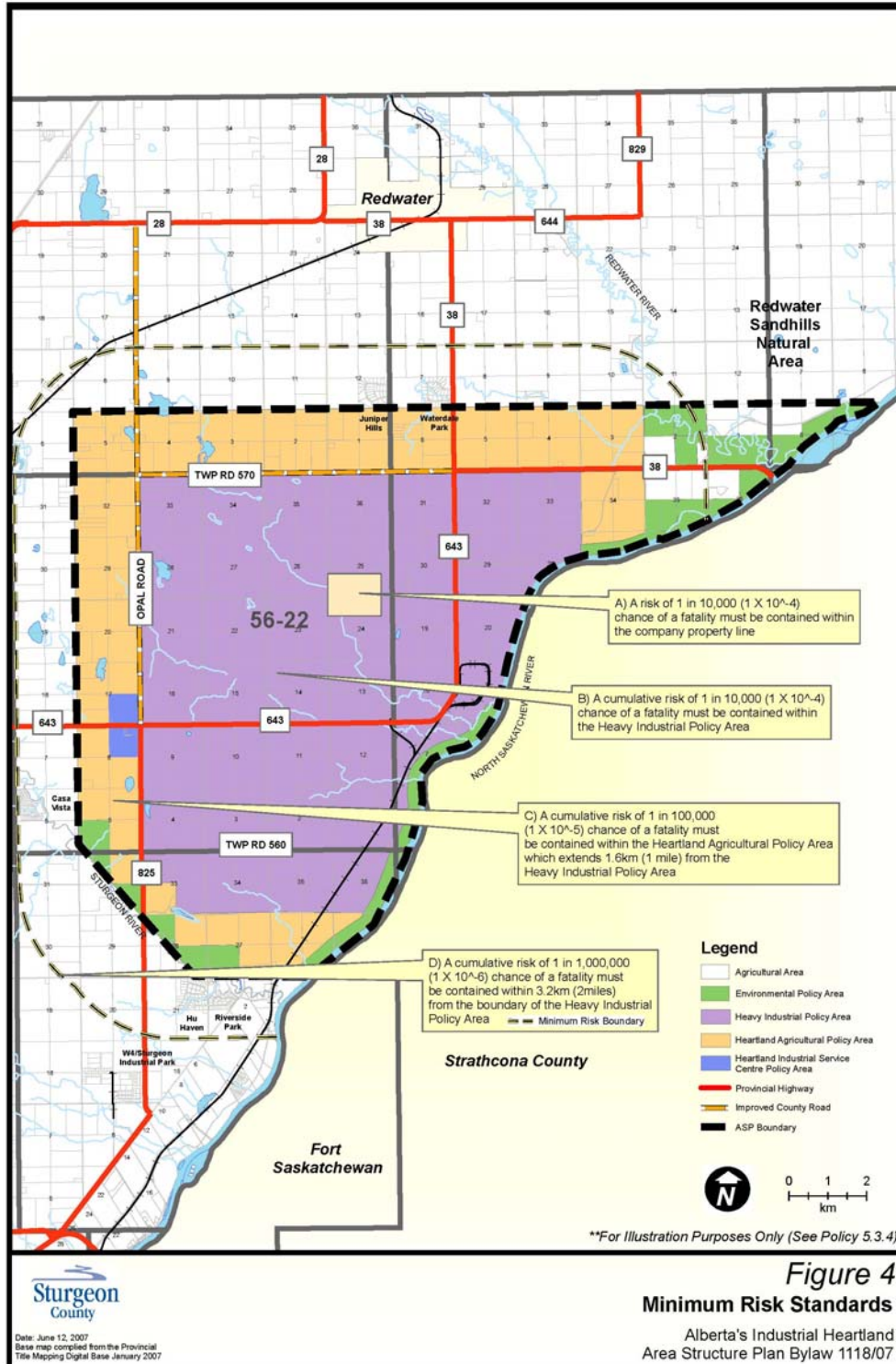
5.4.5 Minimum Industrial Risk Standards

The County shall ensure that heavy industry meets the following Major Industrial Accident Council of Canada (MIACC) criteria for acceptable levels of industrial risk based on a Risk Assessment that complies with the provisions of the LUB.

- a) A risk of 1 in 10,000 (1×10^{-4}) chance of a fatality must be contained within the company property line.
- b) A cumulative risk of 1 in 10,000 (1×10^{-4}) chance of a fatality must be contained within the Heavy Industrial Policy Area.
- c) A cumulative risk of 1 in 100,000 (1×10^{-5}) chance of a fatality must be contained within the Heartland Agricultural Policy Area, which extends 1.6 km (1 mi) from the boundary of the Heavy Industrial Policy Area.
- d) A cumulative risk of 1 in 1,000,000 (1×10^{-6}) chance of a fatality must be contained within an area not exceeding 3.2 km (2 mi) from the boundary of the Heavy Industrial Policy Area.

Cumulative risk is defined as the aggregate of all risks in that area. Figure 4 illustrates the boundaries of the above risk zones. Background information on risk assessment is in Appendix A.

Figure 4 – Minimum Industrial Risk Standards

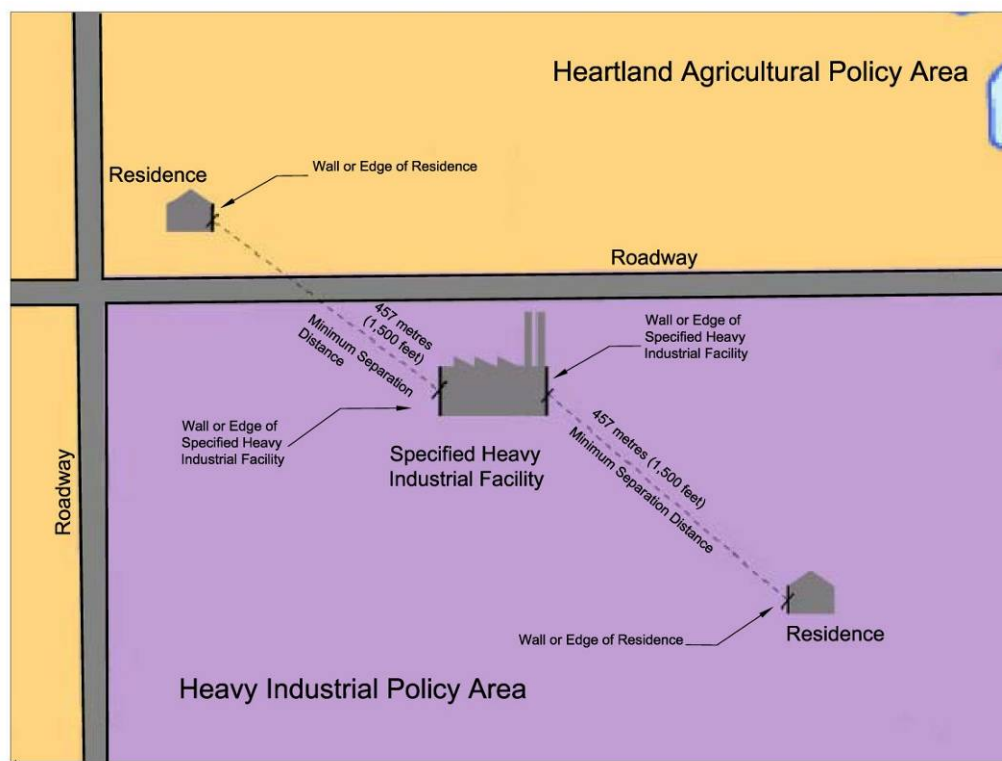


- 5.4.6 Separation Distance Between Existing Residential Dwellings and Heavy Industrial Facilities** A minimum 457 m (1,500 ft) separation distance will be maintained between the wall or edge of the nearest heavy industrial facility on a heavy industrial site to the outside wall or edge of a residential dwelling as illustrated in Figures 5 and 6. This distance is subject to further increase based upon Policy 5.4.4 Requirements for a Risk Assessment and must comply with Policy 5.4.5 Minimum Industrial Risk Standards. A minimum 45 m (150 ft) landscaped area is to be situated within the 457 m (1,500 ft) separation distance.
- 5.4.7 Variance to Separation Distances** Notwithstanding Section 5.4.6, the separation distance may be varied as deemed appropriate based on a risk assessment and environmental assessment, and level of safeguard provided in site and building design to ensure acceptable levels of risk based on MIACC guidelines are not exceeded.
- 5.4.8 Landscape Management Plan for Transition Zone** Sturgeon County shall require proponents to prepare a landscape management plan, to the satisfaction of the County, with details of the proposed land uses and landscape treatments for the area between the outer boundary of the Heavy Industrial Policy Area and the wall of the processing facility. The area will be able to accommodate a variety of low risk activities as agreed upon by the proponent and the County, such as grazing, cropping, wildlife habitat and uses accessory to the heavy industrial operation.
- 5.4.9 Access to North Saskatchewan River** Sturgeon County will encourage industry to use existing access routes to the North Saskatchewan River via existing agricultural accesses to the river to avoid the environmental impact of creating new access points.
- 5.4.10 Preservation of Better Agricultural Land** Heavy industrial activities in this policy area are encouraged to develop poor land for industrial uses whenever possible, and to retain good agricultural land as a buffer for lease to agricultural purposes. Development approvals will require prospective heavy industry to address the conservation of Canadian Land Inventory Classes 1 and 2 (CLI 1 and 2) agricultural capability soils. Conservation and reclamation plans will be as required by provincial regulatory agencies. Stockpiling and reuse of good capability soils will be required through the municipal development process.

- 5.4.11 Extensive Agriculture** Sturgeon County will allow extensive agricultural pursuits such as grazing and cropping to be allowed in this Policy area. Additions and modifications to support structures will be allowed that are necessary for the continued viability of the operation. Consistent with Policy 5.4.13, no new residences shall be permitted.
- 5.4.12 Intensive Agriculture** Sturgeon County will consider intensive agricultural uses such as sod farms, green houses, market gardens and Confined Feeding Operations to continue. Future expansions of intensive agricultural uses need to comply with all pertinent agricultural management guidelines and codes of practice. Additions and modifications of support structures will be allowed if necessary to the continued viability of the operation. Consistent with Policy 5.4.13, no new residences shall be permitted. Subject to required approvals from the National Resources Conservation Board (NRCB) Confined Feeding Operations (CFOs) existing at the time of the adoption of this Bylaw will be a permitted use in the LUB. No new residential development would be permitted with agricultural operations. Surveillance suites are a discretionary use in the Heavy Industrial District.
- 5.4.13 No New Residential Development** On lands encompassed by the ASP boundary, no new residences shall be permitted on previously undeveloped land. Where a dwelling unit existed prior to the date of passing this Bylaw, the dwelling shall be allowed to be upgraded, expanded or rebuilt if destroyed.
- 5.4.14 Interim Land Uses** Sturgeon County shall allow interim agricultural uses and limited outdoor storage uses to be located on undeveloped lands designated for heavy industrial uses, providing it does not preclude or infringe upon long term heavy industrial development. Premature subdivision, land fragmentation, or incompatible uses, which preclude the potential for heavy industrial uses, shall not be allowed.

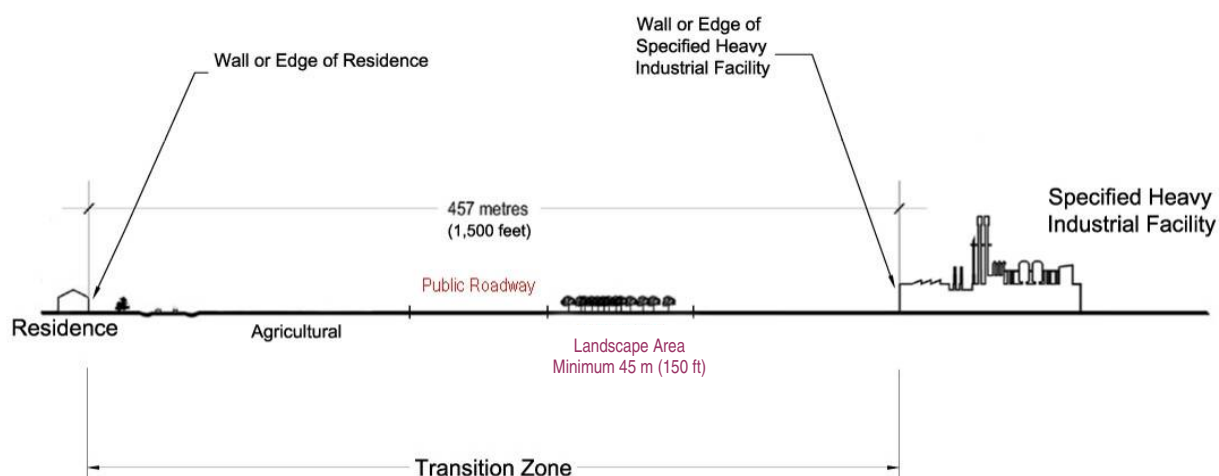
- 5.4.15 Heavy Industrial B Land Uses** Sturgeon County shall, within 2 years of adopting this bylaw, adopt a set of regulations acceptable to the Council of Sturgeon County to govern Heavy Industrial B Land Uses. These regulations shall be similar to the regulations of the Natural Resources Conservation Board, the Energy Resources Conservation Board, the Alberta Energy and Utilities Board, and any other provincial or federal agencies pertaining to the Heavy Industrial A Land Uses.
- 5.4.16 Control of Development Adjoining the North Saskatchewan and Sturgeon Rivers (Agriculture/Synenco Lands Only)** Sturgeon County will require a 50 m (164 ft) lot or development setback from the top of the bank of the North Saskatchewan and Sturgeon River Valleys to provide for an environmental buffer and recreation corridor. Upon subdivision, this should consist of 30 m (98 ft) Environmental Reserve (ER) dedication as required by the MDP, with the balance of 20 m (66 ft) taken as Environmental Reserve (ER), Municipal Reserve (MR) and / or conservation easement. The 30 m (98 ft) generally commences from the 1:100 year flood line unless a discernable top of bank exists beyond this. The embankment is often a geotechnical constraint and therefore the 50 m (164 ft) setback should generally commence beyond this. Notwithstanding the foregoing, an alternative lot or development setback of 50 m (164 ft) from the established 1:100 year event flood line from the North Saskatchewan River may be considered if it is supported by a geotechnical report signed by a certified member of APEGGA (P. Eng. Designation) and to the satisfaction of Sturgeon County. Any portions of the lands outside of this setback districted as Agricultural-Nature Conservation Heartland District (ANC-H) may be redistricted to Heavy Industrial or Specific Development Control to reflect this setback (i.e. site-specific zoning).
- 5.4.17 Top of Bank Survey (Agriculture/Synenco Lands Only)** To enable the determination of top of bank setbacks or 1:100 year floodplain setbacks (if the notwithstanding clause is invoked) in Policy 5.3.4, each industry proponent shall undertake a top of bank survey (or a 1:100 year flood line survey from the North Saskatchewan River, in the alternate case) for the North Saskatchewan River and Sturgeon River as a condition of the development permit.

Figure 5 – Plan View of Separation Distance Between a Residence and a Heavy Industrial Facility



This figure is not to scale.

Figure 6 – Cross Section of Separation Distance Between a Residence and a Heavy Industrial Facility



This figure is not to scale.

5.5 Heartland Agricultural Policy Area

Goal: To accommodate agricultural land uses while having regard for the rural, agricultural character of the area, while recognizing the proximity to nearby heavy industrial land uses.

Intent

The Heartland Agricultural Policy Area is 1.6 km (1 mi) wide and surrounds the Heavy Industrial Policy Area. Property owners will be eligible to participate in the Voluntary Property Purchase Program.

Objectives

- to provide and maintain a diversity of land uses within the ASP area; and
- to allow property owners to participate in the AIH Land Trust Voluntary Property Purchase Program so that they can apply to have their home purchased at fair market value if they feel that industry is affecting the value of their property.

Policies

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|--------------|---|---|
| 5.5.1 | Agricultural Operations | Sturgeon County shall permit for the continuation and expansion of both extensive agriculture (grazing, cropping) and intensive agriculture (greenhouses, market gardens) in accordance with other regulations and codes of practice. |
| 5.5.2 | Confined Feeding Operations | Subject to the required approvals from the NRCB, existing Confined Feeding Operations will be a permitted use in the LUB subject to all pertinent agricultural management regulations and codes of practice. |
| 5.5.3 | Subdivision | Sturgeon County will allow an un-subdivided quarter section to be split into two (2) 32.4 hectare (80 acre) parcels more or less, and one small residential parcel out of each (maximum size will be 1.0 hectares (2.47 acres) as per the Agricultural Heartland Land Use District). The municipality may exercise some degree of variance in terms of parcel sizes. |
| 5.5.4 | Encouraging Cooperation Between Industry and Agricultural Operations | Agricultural operations shall be encouraged to work with adjacent heavy industrial operations in an attempt to define mutually beneficial operating procedures in keeping with eco-industrial planning principles described in Appendix A of this ASP. This could include shared waste management treatment facilities and processes for utilizing waste heat or steam. |

- 5.5.5 No Institutional Uses** Given proximity to heavy industry, no institutional uses shall be allowed in the Heartland Agricultural Policy Area.
- 5.5.6 Eligibility for Voluntary Purchase Program** Property owners within the Heartland Agricultural Policy Area shall be eligible for the Voluntary Property Purchase Program through the Heartland Land Trust Society.

5.6 Heartland Industrial Service Centre Policy Area

Goal: To strategically locate an industrial service centre at the intersection of Highway 825/Opal Road and Highway 643 to provide commercial, emergency response and community services to the Plan area.

Intent

There will be a large work force in the Plan area both during the construction and operational phases of Alberta's Industrial Heartland development. The Industrial Service Centre concept provides a centralized centre for commercial services such as a truck stop with service station, restaurants and other amenities. Given proximity to heavy industry, hotel and motel development should not be allowed. The Industrial Service Centre may also provide an opportunity for Sturgeon County to develop a new Emergency Services Building for fire protection and emergency response at the same location, which could provide a focal point and community centre for the surrounding community.

Objectives

- to provide commercial and community services to the Heartland area;
- to optimize use of transportation facilities and infrastructure;
- to avoid conflicts with servicing land uses; and
- to strategically locate a new Emergency Services Building for timely emergency response.

Policies

- | | | |
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| 5.6.1 | Heartland Industrial Service Centre | Sturgeon County shall promote and support the concept of developing a Heartland Industrial Service Centre in the location conceptually shown on <i>Map 10 Future Land Use</i> . |
| 5.6.2 | Permitted Land Uses | A special Heartland Industrial Service Centre District shall be created and adopted through the LUB that will permit a range of community uses and emergency services. Motel, hotel and institutional uses, which could increase the residential population near heavy industry, shall not be permitted. |
| 5.6.3 | Enhanced Landscaping for Site Development | Given the Industrial Service Centre's high profile highway location enhanced landscaping, screening of yard storage, attractive signage and higher quality architectural treatments of buildings should be required. |

- 5.6.4 Requirement for a Risk Assessment** Sturgeon County may require applicants to prepare a Risk Assessment as part of the development application process to ensure that proposed land uses are compatible with nearby heavy industrial uses.
- 5.6.5 Existing Dwellings** For lands located in the Heartland Industrial Service Centre Policy Area, no new dwellings shall be allowed on previously undeveloped land. Where a dwelling unit existed prior to the date of passing this Bylaw, the dwelling shall be allowed to be upgraded, expanded or rebuilt if destroyed.

5.7 Agricultural Policy Area

Policy as per Section 2.0 Agriculture in the Municipal Development Plan. The corresponding land use district shall be the Agricultural District (AG) and all permitted and discretionary land uses and regulations of the AG district shall apply.

5.8 Parks, Open Space and Trails

Goal: To plan, develop and maintain an open space system to meet the present and future recreational, environmental, aesthetic, educational and quality of life needs of Sturgeon County residents.

Intent

Sturgeon County prepared the Sturgeon County Open Space Plan Update 2004 Strategic Report which identified opportunities to enhance the County's recreation assets in augmenting recreation, open spaces and trail development throughout the County and within and adjacent to the ASP area. Sturgeon County is also a member of the North Saskatchewan River Valley Alliance that is collaborating with other member municipalities to enhance recreational opportunities and trail development from Devon to Fort Saskatchewan. The intent is to implement policy directions coming out of these two initiatives through provisions in this ASP.

in order to contribute to an improved quality of life for County residents in or near Alberta's Industrial Heartland. Sturgeon County plans to reinvest a portion of the tax revenues in community facilities and amenities as part of a Community Enhancement Program for Alberta's Industrial Heartland.

Objectives

- to protect environmentally sensitive lands;
- to maintain the County's scenic character and setting;
- to identify ways of linking and integrating parks, trails and open spaces between Sturgeon County and adjacent municipalities;
- to strategically acquire additional reserve lands; and
- to develop and invest in a Community Enhancement Program to maintain and enhance the quality of life for County residents.

Policies

- 5.8.1 Acquire Environmental Greenways Along the North Saskatchewan River Valley Corridor** Sturgeon County shall acquire lands through environmental and municipal dedication and conservation easements along the North Saskatchewan and Sturgeon River Valley corridors for a multi purpose greenway through the subdivision and development permit application processes. Wherever feasible, integrate and link to major river corridors, sustainable natural areas, existing parks and open space systems.

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| 5.8.2 | Criteria for Acquisition of Municipal Reserves | Municipal Reserve will be taken at the time of subdivision in accordance with Policy 3.5.5 in the Sturgeon County Open Space Plan Update as may be amended from time to time. |
| 5.8.3 | Acquire Important Corridors of Private Land for Trail Development | Where possible, Sturgeon County will negotiate potential acquisition of significant sections of land, especially river frontage to provide a corridor for future trail development. |
| 5.8.4 | Environmental Management Issues | Ensure that safety, risk, and environmental management issues associated with potential recreational and trail development within, or in proximity to, heavy industrial areas, pipeline/utility corridors, well sites and seismic operations are addressed to the satisfaction of the County, other regulatory agencies, and industry. |
| 5.8.5 | Community Enhancement Program | The County will develop a Community Enhancement Program commencing in 2008, as described in Policy 6.1.13. |

5.9 Transportation

The Transportation Master Plan provides details on the transportation upgrades required to meet ASP goals and objectives.

Goal: To plan and develop the necessary transportation network to meet the needs of residents and industrial development in Sturgeon County over the next 25 years.

Intent

A Transportation Master Plan for the industrial and surrounding area is being developed by EBA Engineering Consultants Ltd. The intent of the Transportation Master Plan is to project the traffic needs of industry and other users and recommend improvements required on highways and County roads in the area. *Map 11 Transportation Concept* shows the hierarchy of provincial highways and County roads that serve the Plan area. Details of the recommended future improvements are provided in the Transportation Master Plan.

Objectives

- to provide a high level of transportation (highways, County roads and rail) access and service to the industries and County residents in the area;
- to work closely with Alberta Infrastructure and Transportation to ensure capital funding is available for required highway upgrades; and
- to implement the required upgrading of County roads in the capital budget process.

Policies

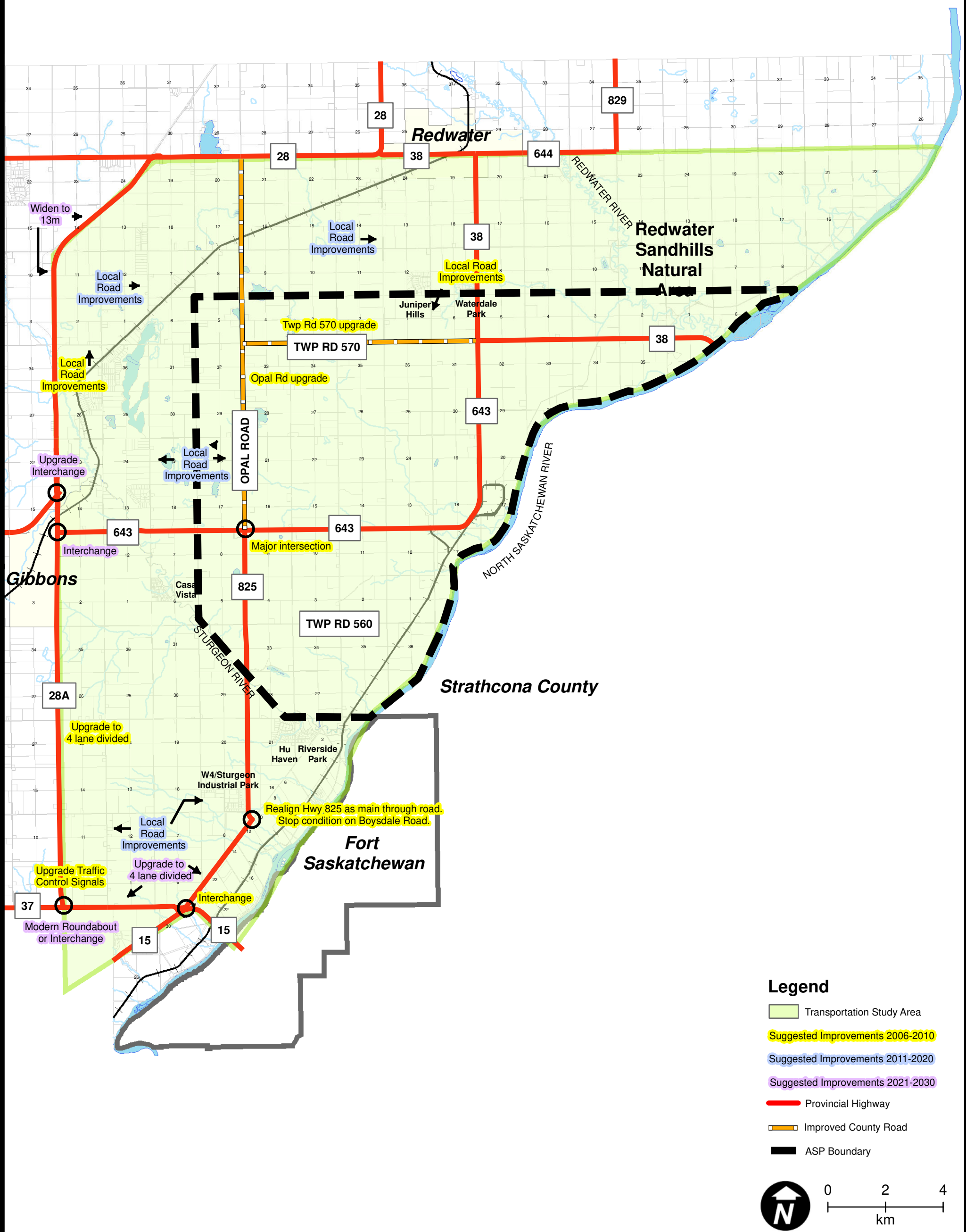
- | | | |
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| 5.9.1 | Provincial Highways | The County shall work with Alberta Infrastructure and Transportation to ensure that the provincial highways serving the industrial area are upgraded in a timely manner as recommended in the Transportation Master Plan. |
| 5.9.2 | Upgrading of Opal Road and Township Road 570 | To relieve the congestion on Highway 643, the County should implement the Transportation Master Plan's recommendation to upgrade and pave Twp Rd 570 and Opal Road to provide access to the northern and western limits of the heavy industrial area and to provide an alternative to Highway 643 around the heavy industrial area. |

5.9.3 Potential Road Closures

Some of the County roads that are internal to future industrial development sites will need to be closed to public access. When reviewing road closure applications, the County should keep in mind the need for right of way for common utility and transportation (road/rail) corridors that may be required to serve future industrial developments in the area.

5.9.4 Local Roads

Local roadways should be developed in accordance with Sturgeon County's Municipal Services Standards as may be amended from time to time.



5.10 Utility Services

Goal: To develop utility servicing strategies that are technically feasible, financially viable and environmentally sustainable.

Intent

The intent of the Heartland Utility Master Plan being prepared by Sameng Inc. is to provide servicing strategies for potable drinking water, wastewater, process water and stormwater based on consultation with project proponents, municipal partners, regional commissions and existing utility companies. The engineering concept plans and implementation models incorporate appropriate measures to ensure that development is sustainable.

Objectives

- to ensure an adequate water supply for residents, industry and agricultural users;
- to ensure wastewater and stormwater discharge is treated with appropriate care and environmental sensitivity;
- to encourage cooperation amongst industrial projects in developing joint infrastructure for process water; and
- to coordinate demand and supply with the appropriate potable water and wastewater commissions.

Policies

- 5.10.1 Potable Drinking Water** A potable drinking water servicing concept is illustrated on *Map 12 Potable Water Servicing Concept*. The proposed servicing scheme would involve the construction of a new water supply line starting from the Capital Region Northeast Water Services Commission (CRNWSC) reservoir and pump station located in W4/Sturgeon Industrial Park and, connecting back into the existing line on Highway 643 near Degussa. The CRNWSC reservoir and pump station facility will need to be upgraded as part of this initial phase of potable water servicing. Phase 2 of the water servicing concept provides a loop to extend the network north to Twp Rd 570. All of the proposed projects can be serviced through this concept plan without any negative impact on existing customers.

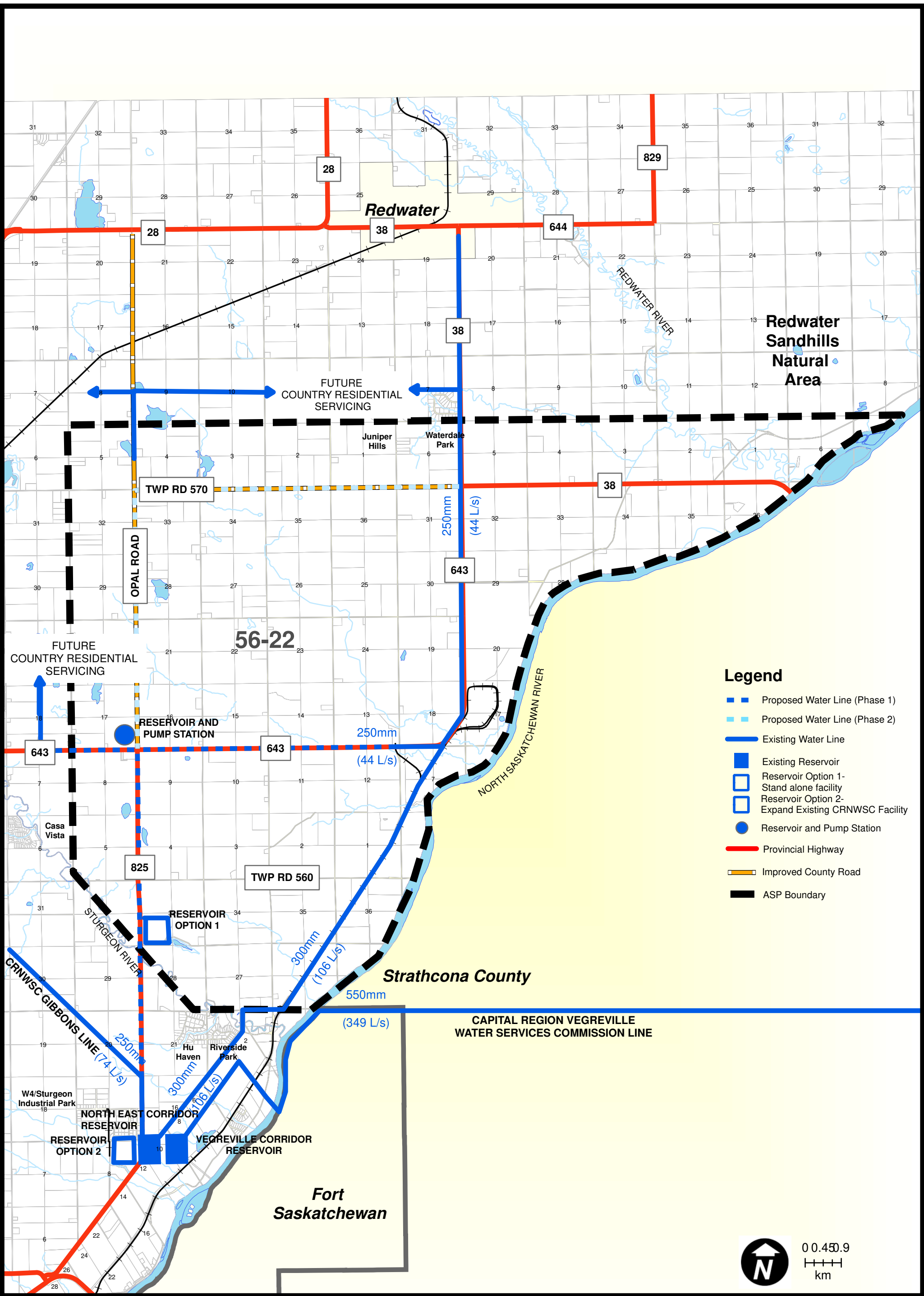
- 5.10.2 Wastewater Collection** A wastewater collection servicing concept is illustrated on *Map 13 Wastewater Servicing Concept*. The proposed servicing concept will require the extension of the 300 mm diameter forcemain north along Highway 643 to accept flows from Synenco's Northern Lights project. This will allow servicing of all current project proposals including the Sturgeon Upgrader by the Fort Hills Partnership and the Northwest Upgrader by Northwest Upgrading Inc. A later phase extension is planned along Opal Road/Range Road 224. The wastewater servicing concept conveys all flow to the Alberta Capital Region Wastewater Commission's Wastewater Treatment Plant located to the south of the City of Fort Saskatchewan for treatment.
- To ensure operating reliability, two significant upgrades to the existing pipeline are proposed:
- two pigging stations on the embankments of the Sturgeon River to ensure clear passage of flow through this inverted siphon section of the line and,
 - an odour and corrosion control facility near the tie-in location of the forcemain to the existing gravity trunk sewer.
- 5.10.3 Stormwater Management** The Stormwater Management Concept for the Plan area is shown on *Map 14*. The stormwater management plan focuses on preserving the current conditions. Each industry will be required to collect and retain the runoff from their developed areas. Discharge of this runoff is subject to both water quality control (mandated by Alberta Environment) and rate control (to be set by Sturgeon County). The combination of these control policies will preserve the adequacy of existing infrastructure and, to maintain zero impact on the receiving streams.
- 5.10.4 Process Water** A Process Water Servicing Concept is illustrated on *Map 15*. Process water is needed for all proposed projects. The proposed servicing concept would provide a shared process water supply system in order to reduce environmental impacts and to increase the development potential of all industrially zoned lands. As process water supply is not a traditional municipal service, the proposal endeavours to ensure that the County's interests and the environment are considered by project proponents.

The current proposal is aimed at achieving two major objectives:

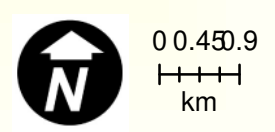
- Reduce environmental footprint on the North Saskatchewan River by reducing the number of individual intake structures. By sharing common transmission pipelines, a comparable reduction should also result.
- Water withdraw management through storage reservoirs. A series of storage reservoirs can help reduce water withdrawals when the North Saskatchewan River experiences low flows. These reservoirs can be shared facilities or located on individual project sites.

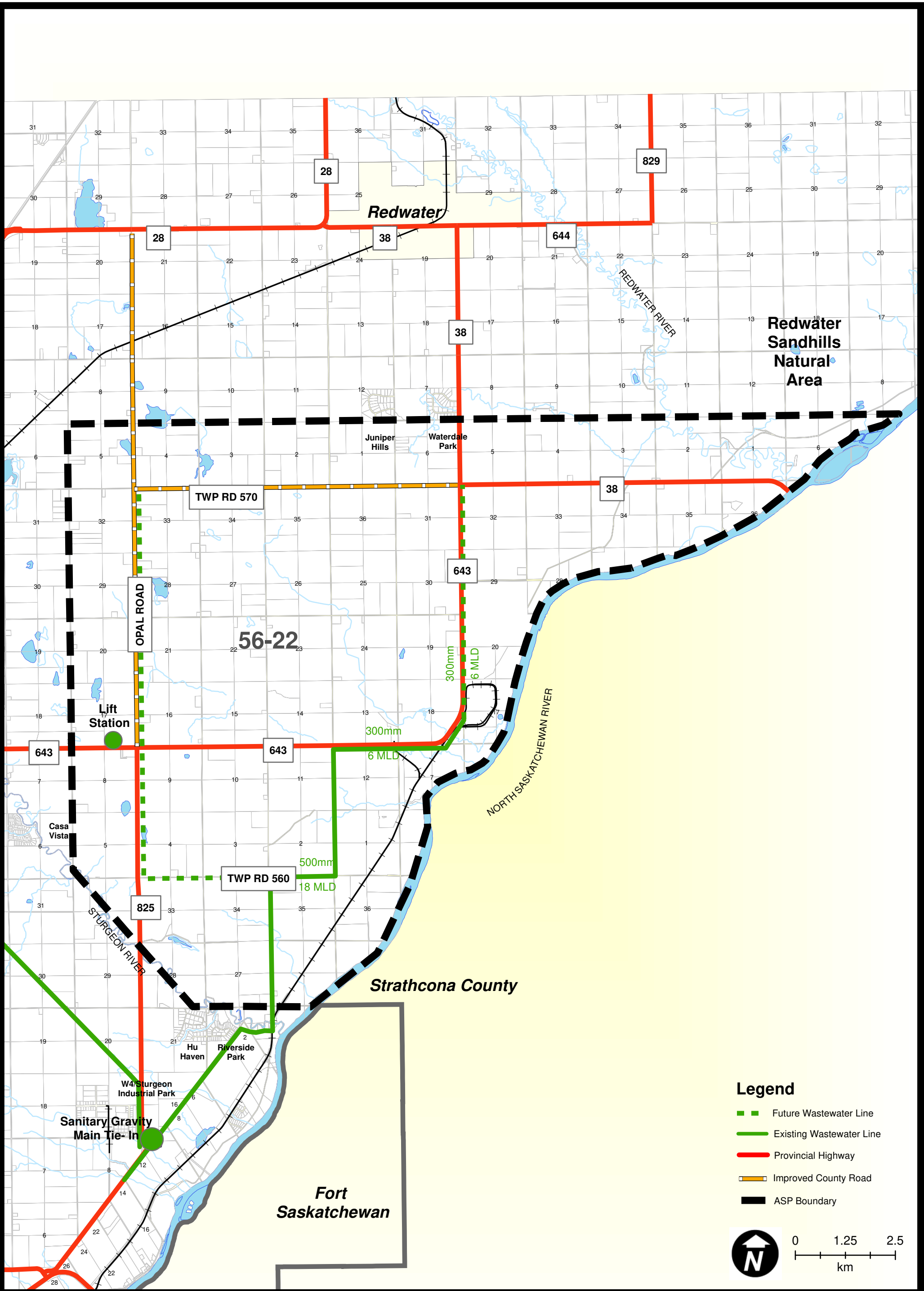
5.10.5 Shallow Utilities

It is proposed that gas, power and communications will be coordinated and extended as needed by the respective utility companies. Sturgeon County has considered its utility easement needs in the context of regional linear utility corridor requirements. The County has reserved some additional right-of-ways which will prove useful in accommodating some of the franchise utilities.



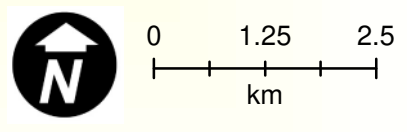
- Legend**
- Proposed Water Line (Phase 1)
 - Proposed Water Line (Phase 2)
 - Existing Water Line
 - Existing Reservoir
 - Reservoir Option 1- Stand alone facility
 - Reservoir Option 2- Expand Existing CRNWS Facility
 - Reservoir and Pump Station
 - Provincial Highway
 - Improved County Road
 - ASP Boundary





Legend

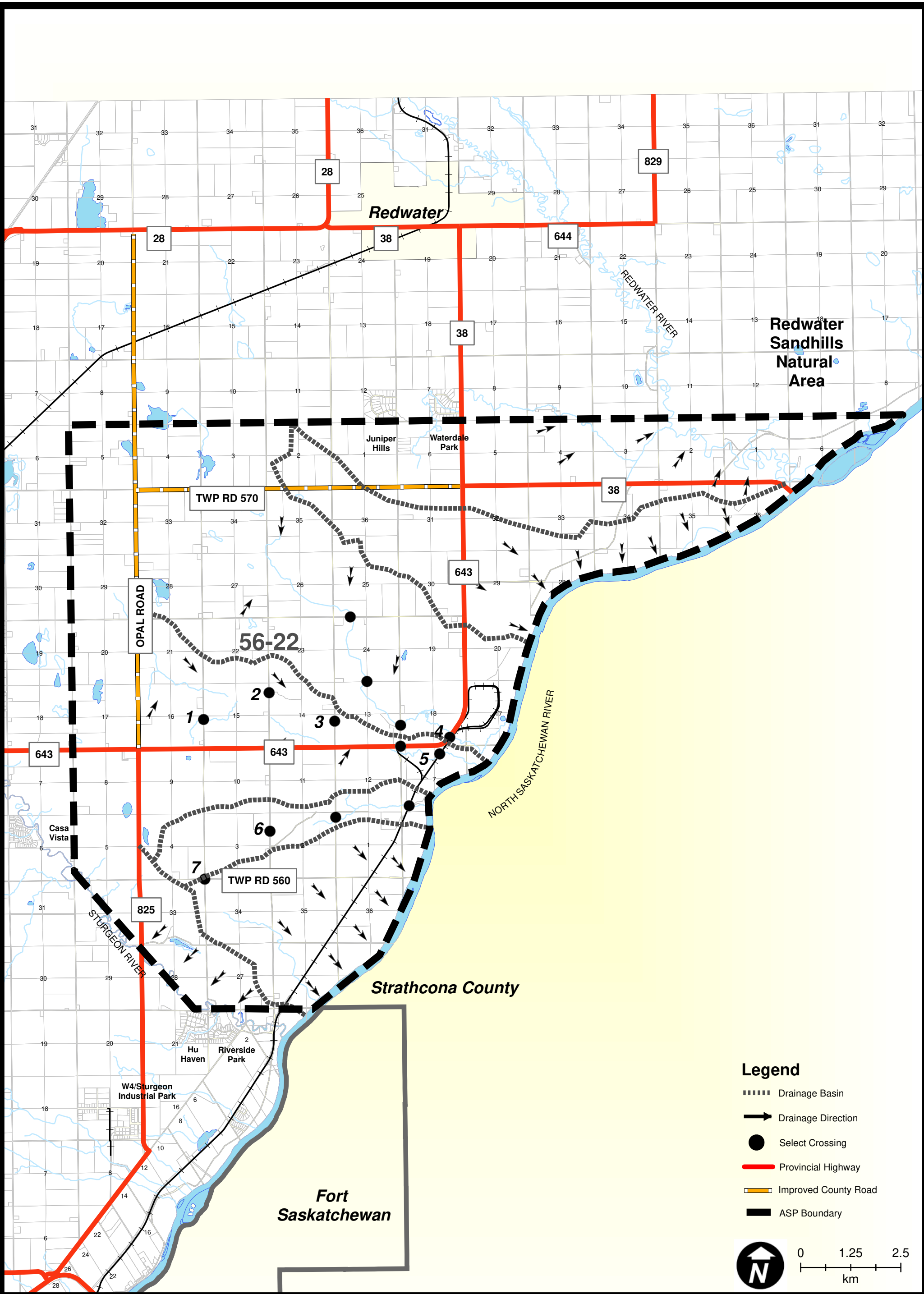
- — — Future Wastewater Line
- — — Existing Wastewater Line
- — — Provincial Highway
- — — Improved County Road
- ASP Boundary



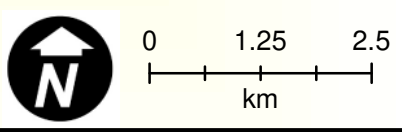
MAP 13
WASTEWATER SERVICING CONCEPT

Alberta's Industrial Heartland
Area Structure Plan Bylaw 1118/07

Date: June 12, 2007
Base map compiled from the Provincial
Title Mapping Digital Base January 2007



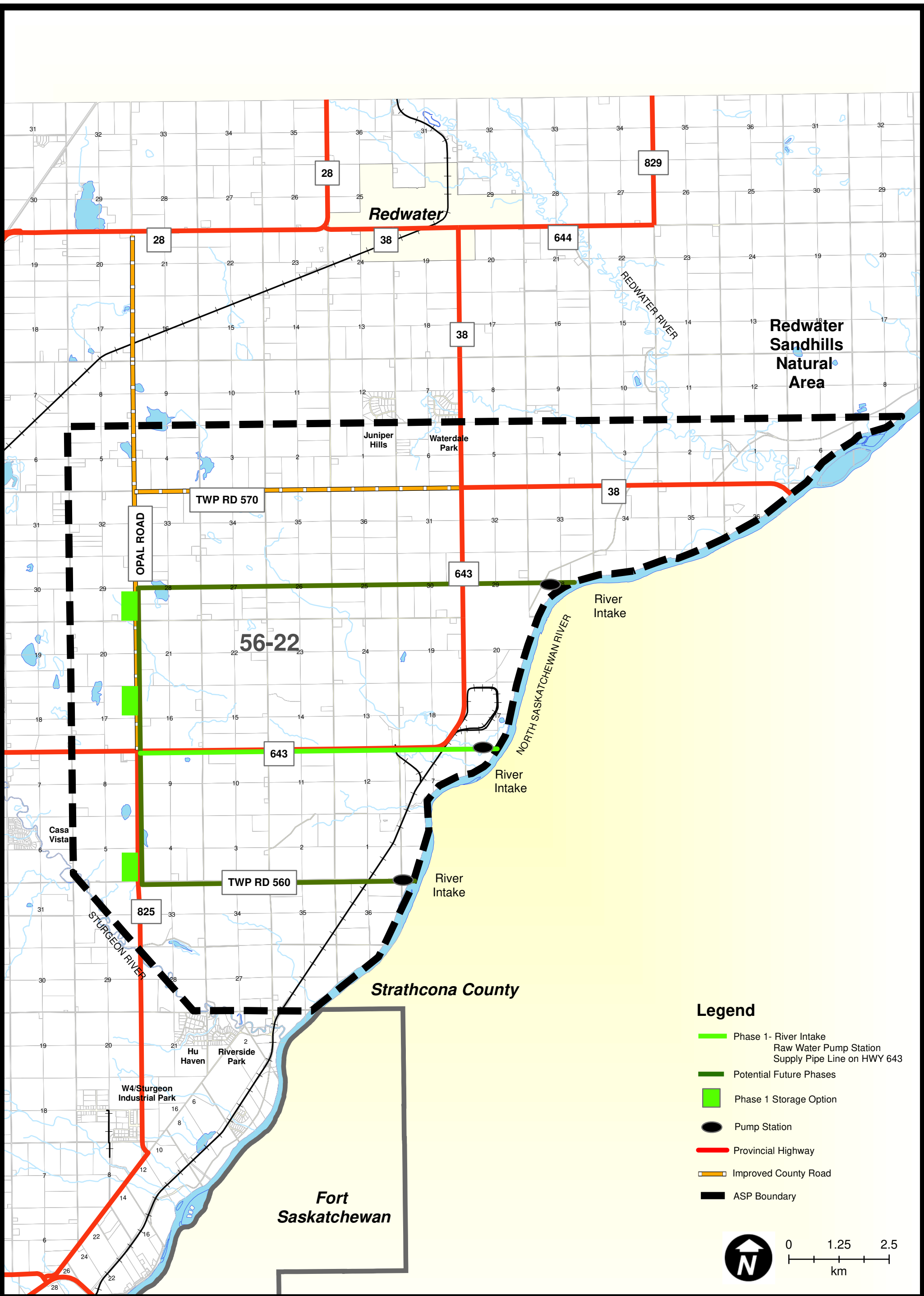
- Legend**
- Drainage Basin
 - ➔ Drainage Direction
 - Select Crossing
 - Provincial Highway
 - Improved County Road
 - ASP Boundary



MAP 14 STORMWATER SERVICING CONCEPT

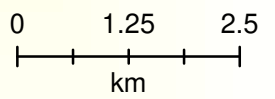
Date: June 12, 2007
 Base map compiled from the Provincial
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Alberta's Industrial Heartland
 Area Structure Plan Bylaw 1118/07



Legend

- Phase 1- River Intake
- Raw Water Pump Station
- Supply Pipe Line on HWY 643
- Potential Future Phases
- Phase 1 Storage Option
- Pump Station
- Provincial Highway
- Improved County Road
- ASP Boundary



MAP 15

PROCESS WATER SERVICING CONCEPT

5.11 Emergency Services

Goal: To ensure that both adequate preventive and emergency response measures are in place to the maintain safety of residents and businesses.

Intent

With increased heavy industrial development in Sturgeon's Industrial Heartland, it is important that resources and emergency response measures are in place to provide for a safe living and working environment. The first step is to require Risk Assessments from proponents of heavy industrial developments. Sturgeon County will also endeavor to work with industry and neighbouring municipalities to ensure adequate emergency response plans are in place.

Anticipating major industrial growth in Sturgeon County, the Emergency Services Master Plan prepared by Evolution Integrated Solutions Inc. analyzed the industrial risk potential and provided recommendations to ensure that emergency services (fire, rescue, and ambulance components) requirements are met.

Objectives

- to require a Risk Assessment to evaluate new heavy industrial applications; and
- to work cooperatively with industry, residents, neighbouring municipalities and local authorities to develop and implement appropriate emergency response.

Policies

- | | | |
|--------|---|--|
| 5.11.1 | Risk Assessment for Heavy Industry Proponents | As a condition of a development permit, Sturgeon County shall require proponents of heavy industrial applications to provide a Risk Assessment undertaken by a qualified professional in accordance with the provisions of the LUB. |
| 5.11.2 | New Emergency Services Building | Sturgeon County will develop an Emergency Services Building whose primary function is to support the emergency incidents expected from increased industrial growth. The location of the Emergency Services Building will comply with MIACC guidelines. |
| 5.11.3 | Emergency Response Plans for Industry Proponents | Sturgeon County shall require Emergency Response Plans of each industry proponent as a condition of the development permit. |

**5.11.4 Sturgeon County
Emergency Response
Planning**

Sturgeon County will develop and maintain an emergency response plan for Alberta's Industrial Heartland and Sturgeon Industrial Park (W4) areas once site-specific industry plans have been reviewed. Synergies for delivering the required emergency services will be explored and identified.

6.0 IMPLEMENTATION

Goal: To adopt and use Sturgeon County's Alberta Industrial Heartland ASP as a policy framework for evaluating development proposals within the Plan area and establishing priorities for the required municipal and community infrastructure improvements.

Intent

This ASP will be implemented through a range of statutory and non-statutory mechanisms available to municipalities and through the respective statutory and regulatory instruments of provincial and federal governments. Applicable statutory planning mechanisms under the Municipal Government Act include:

- Municipal Development Plan
- Land Use Bylaw
- Subdivision Review Process
- Development Permitting Process
- Development Agreements

A number of supporting master plans for Sturgeon County will provide the basis for making strategic investments in the required municipal infrastructure and services. These include:

- Transportation Master Plan
- Utility Master Plan
- Emergency Services Master Plan
- Financial Assessment and Strategy (to be completed in 2007)
- Community Services Master Plan (to be completed in 2008)

This ASP and the other master plans and studies provide a basis for determining priorities and resource allocation for the needed capital improvements through the County's budget approval process. The ASP is meant to be a living planning document that needs to be periodically reviewed and updated in an orderly way, having regard to economic, social and physical changes that may arise.

Objectives

- to implement policies within the ASP to effectively manage development and capital improvements;
- to work with the federal and provincial governments and Heartland partners in implementing this ASP;
- to balance economic development with quality of life consideration; and
- to maintain the ASP as a current planning tool, updating it through an orderly amendment procedure to reflect changing conditions and opportunities.

Policies

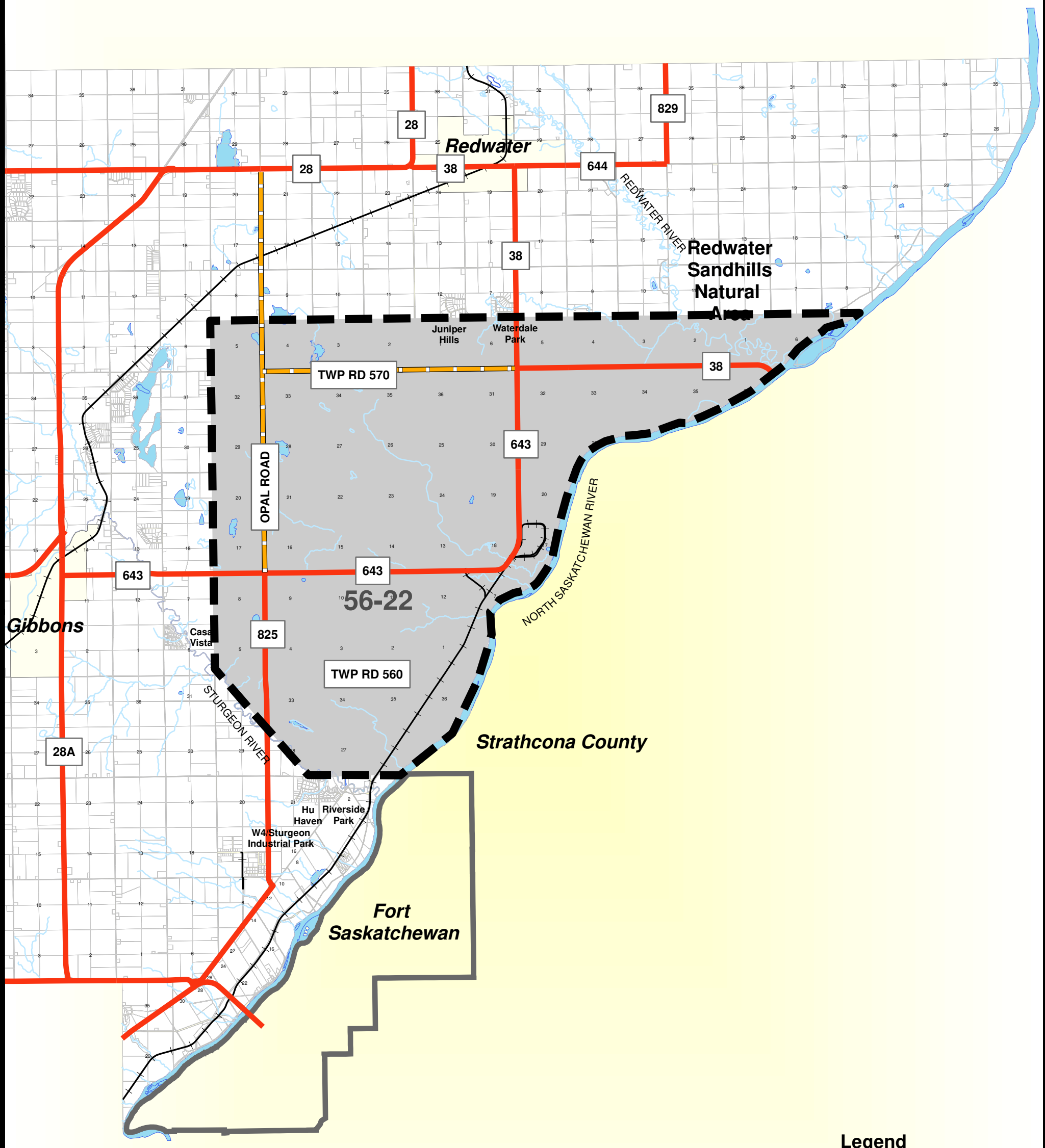
- 6.1.1 Development Staging** Staging of development within the ASP area will be determined by locational preferences and site selection processes of individual firms and organizations, as well as by the economic expansion of regional and local infrastructure.
- 6.1.2 Municipal Development Plan Amendments** Sturgeon County will prepare the necessary amendments to the Sturgeon County Municipal Development Plan Bylaw 818/96 to ensure consistency amongst statutory plans as required by Section 638 of the Municipal Government Act.
- 6.1.3 Amendments to Land Use Bylaw** Sturgeon County will prepare the necessary amendments to the Land Use Bylaw 819/96 in light of policies in Section 5.0. Specific areas to be considered include:
- changes to the ASP boundary and new land use districts;
 - amendments to Section 6.1 Non-Conforming Uses and Buildings;
 - creation of a new Agricultural Heartland District;
 - creation of a new Agricultural - Nature Conservation Heartland District;
 - creation of a new Industrial Service Centre - Heartland District;
 - revisions to the Industrial Heavy District;
 - amendments to regulations regarding separation distances and setbacks; and
 - updated requirements for environmental and risk assessments.
- 6.1.4 Amendments to the Area Structure Plan** An amendment to this ASP shall be required. if in the opinion of the County, a development proposal results in a significant change in the general land use pattern of an area or site.
- 6.1.5 Subdivision** The subdivision approval regulations and approval processes will be reviewed relative to the policies stated in Section 5.0.
- 6.1.6 Development and Servicing Agreements** Sturgeon County will require on-site and off-site costs associated with servicing new developments with roadways, utilities, community services and other infrastructure to be borne by the developer through development charges and levies in accordance with specific development agreements.

- | | | |
|---------------|---|---|
| 6.1.7 | Coordination with Federal and Provincial Authorities | To avoid unnecessary duplication and streamline the development review and approval process, Sturgeon County will coordinate the instances when it requires an Environmental Nuisance and Health Impact Assessment and/or Risk Assessment with the responsible provincial and federal authorities regarding requirements for the subject application. |
| 6.1.8 | Eco-Industrial Planning Principles | Sturgeon County shall encourage industry to employ whenever possible the Eco-Industrial Planning Principles described in Appendix B of this ASP. |
| 6.1.9 | Capital Improvements Plan | Sturgeon County will prepare and implement a Capital Improvements Plan through the capital budgeting process to implement on a staged basis the outcomes of the various master plans and studies. |
| 6.1.10 | Quality of Life Monitoring | Sturgeon County will establish a system for monitoring changes to quality of life for residents in the Heartland area based upon the Quality of Life Framework using the Federation of Canadian Municipalities reporting system as described in more detail in Appendix C of this ASP. |
| 6.1.11 | Voluntary Property Purchase Program | Sturgeon County will recommend to the Alberta Industrial Heartland Association that the Voluntary Property Purchase Program through the Land Trust Society be expanded to include property owners within the original and newly expanded ASP boundaries, as shown on Map 16 Voluntary Property Purchase Program. |

- 6.1.12 Vacant Land Property Purchase Program** Sturgeon County shall develop a program for vacant land property purchase for property owners of bare quarter sections (land without residences) for the following properties only:
1. E1/2 Section 27-55-22-W4M
 2. NW 26-55-22-W4M
 3. All that portion lying west of CN rail line on the SW 26-55-22-W4M
 4. All that portion lying west of the CN rail line on the NE 26-55-22-W4M
- This program is valid only if the subject lands remain undeveloped (i.e. without residences). This program is to compensate property owners for lost opportunity costs as a result of their property being “downzoned”.
- 6.1.13 Provincial Support for Purchase of Properties** Sturgeon County Council shall make representation to the Province of Alberta for provincial financial support to significantly increase the pace of property purchases within the Heavy Industrial and Heartland Agricultural Policy Areas.
- 6.1.14 Community Enhancement Program** Sturgeon County shall initiate and fund a Community Enhancement Program to provide additional services and facilities to enhance the quality of life for residents affected by nearby heavy industrial development. The Community Enhancement Program should utilize the Quality of Life Indicator Framework in evaluating community needs and enhancements. Details of the Community Enhancement Program will be specified as the program is more fully developed. Complimenting the Community Enhancement Program is a Community Services Master Plan planned for 2008 to identify parks and recreation needs County-wide.
- 6.1.15 Potential Tax Relief** Sturgeon County shall consider tax relief for those property owners directly affected by the construction and operation of nearby heavy industrial sites.
- 6.1.16 Plan Amendments** Provide for an orderly amendment process, consistent with requirements of the Municipal Government Act that includes community consultation. Applicants applying to amend the ASP must provide a supporting technical report so that Sturgeon County can properly evaluate the merits and impacts of the proposed amendment.

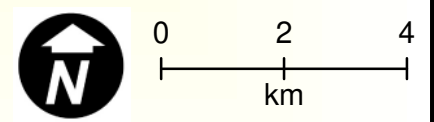
**6.1.17 Reviewing and
Updating the ASP**

Undertake a review of the ASP, and update if necessary, at five-year intervals from the date of its adoption.



Legend

- VPP Area
- Provincial Highway
- Improved County Road
- ASP Boundary



7.0 GLOSSARY OF TERMS

Accessory, Building	Means a building or structure, normally incidental, subordinate and located on the same lot as the principal building, but does not include a building or structure used for human habitation.
Accessory, Use	Means the use of a building or land which is normally incidental to and subordinate to the principal use of the site on which it is located
Agriculture	All forms of farming except for Confined Feeding Operations.
Agricultural Land Use	Refers to the use of lands, buildings or structures for the raising of non-domestic animals and/or the growing of plants for food or other production.
Airshed	Refers to a geographic area where air pollutants from sources "upstream" or within the area flow and are present in the air.
Archaeological Resource	Refers to "...a work of man that (i) is primarily of value for its prehistoric, cultural or scientific significance, and (ii) is or was buried or partially buried in land in Alberta or submerged beneath the surface of any watercourse or permanent body of water in Alberta." As recognized by Alberta Community Development.
Area Structure Plan (ASP)	Refers to a plan adopted by Council as an area structure plan bylaw pursuant to the Municipal Government Act that provides a framework of future subdivisions and development of an area.
Bed and Breakfast	Means a privately owner-occupied house where four or fewer guest rooms are rented for periods of fourteen (14) days or less with one meal provided on a daily basis to registered guests where such meals are prepared in a residential kitchen.
Buffer Strip	Means a landscaped or natural area intended to visibly separate and screen one use from another to improve land use compatibility and environmental quality by reducing noise, lighting glare and other nuisances, or facilitating natural drainage and wildlife movement.
Cogeneration	Refers to joint generation of electricity and thermal energy (usually steam). A steam turbine may be bedded to produce more energy from high-pressure steam recovered for the hot flue gases from first stage gas turbine.
Highway Commercial	Refers to development that includes those activities that are principally for either the sale of goods or the provision of services, or both.

Community	Refers to two or more neighbourhoods which share infrastructure and a broader range or magnitude of facilities including those typical of neighbourhoods as well as churches, emergency services, libraries, business ventures, expanded commercial opportunities, drop-in centers, seniors' facilities and/or a variety of schools.
Confined Feeding Operation	Means a facility, which is capable of confining a specified minimum number of livestock for growing or finishing for market at a housing density of more than one livestock manure unit per 2,000 ft ² .
Corridor	Refers to a continuous strip of land connecting two geographically separate points and containing two or more facilities for the conveyance of people, energy, information or materials, Such a definition covers railways, highways, pipelines, communication, transmission and water collection facilities
Density	Refers to the number of dwelling units or the square metres of floor space in commercial and industrial buildings per acres (or hectares).
Development Approving Authority(s)	Means that person(s) designated and known to be the Development Authority to exercise the duties and powers and perform the functions prescribed in the Land Use Bylaw pursuant to By-law 801/95.
Development Permit	Means a certificate or document permitting a specified development and includes, where applicable a plan or drawing, or a set of plans or drawings, specifications or other documents.
Discretionary Use	Means the use of land or a building provided for in the municipal Land Use Bylaw for which a development permit may be issued upon an application having been made and subject to enabling conditions for each discretionary use being satisfied.
Dwelling, Agricultural	Means a single detached dwelling or mobile home on a non-permanent foundation, which is to be occupied by person(s), who are employed full time (for at least six months of each year) in an agricultural or intensive agricultural operation and the residence is located on the farmstead site occupied by the principal residence.
Dwelling, Permanent	Means a single detached dwelling that is supported on a permanent foundation or base extending below the frost level, which is to be used as a residence for a household.
Dwelling, Single Detached	Means a development consisting of a dwelling containing only one dwelling unit, which is separate from any other dwelling unit or building and is supported on a permanent foundation or full basement. It has a minimum floor area of 95 m ² (1000 ft ²) and meets the requirements for a residence as specified within the Alberta Safety Codes.

Eco-Industrial Development	Means a community of manufacturing and service businesses seeking enhanced environmental and economic performance through collaboration in managing environmental and resources issues including energy, water and materials. By working together, the community of businesses seeks a collective benefit which is greater than the sum of the individual benefits each company would realize if it optimized its individual performance only (source: Lowe, Moran and Holmes, 1996).
Emergency Services	Means public protection of persons and property from injury, harm, or damage, together with the incidental storage of emergency development, which is necessary for the local distribution of utility services. Typical uses include gas equipment and vehicle storage, police stations, fire stations and ancillary training facilities.
Environmentally Sensitive Areas	Refers to an undisturbed or relatively undisturbed site that because of its natural features, has value to society and ecosystems worth protecting, but is susceptible to further disturbance.
Extensive Agricultural Use	Means livestock grazing or a system of tillage, which depends upon large areas of land for the raising of crops or animals. Extensive agricultural uses include buildings and other structures incidental to farming as well as farm related uses.
Farmstead	Means a dwelling, which is used in connection with the raising or production of crops, livestock or poultry and is situated in connection with such farming operations. A farmstead may include a single detached dwelling, modular home or a mobile home.
Feedstock	Refers to material converted to principal product(s), by-products and/or waste. Does not include energy inputs to processor plant.
Goal	An idealized end towards which planned action is directed, and which provides an indication of what is to be achieved.
Greenhouse and Plant Nursery	Means the development used primarily for the raising, storage and sale of produce, bedding, household, ornamental plants and related materials such as tools, soils and fertilizers.

Heavy Industrial Use A

Means a large scale manufacturing or processing facility requiring a license, permit or authorization granted by the Natural Resources Conservation Board, Energy Resources Conservation Board, Alberta Energy and Utilities Board. Without restricting the generality of the foregoing, these uses would generally be related to the oil and gas industry and would include for example: upgraders, plants for the manufacture of petroleum products, fertilizers, chemicals and the processing of natural gas and its derivatives. A heavy industrial use may require large amounts of land, energy, water and other natural resources in its operation. It may also have impacts that extend beyond the boundaries of the site, such as high volumes of heavy vehicle movement; potential for pollution of air, soil or water, or nuisance as a result of noise, smoke, odour, dust, fumes, glare or humidity; or hazard arising from fire explosion, radiation or contamination.

Heavy Industrial Use B

Means a large scale manufacturing or processing facility not requiring a license, permit or authorization granted by the Natural Resources Conservation Board, Energy Resources Conservation Board, Alberta Energy and Utilities Board and where development approval rests with the municipal Approving Authority. Without restricting the generality of the foregoing, these uses would generally be related to the oil and gas industry and would include for example: upgraders, plants for the manufacture of petroleum products, fertilizers, chemicals and the processing of natural gas and its derivatives. A heavy industrial use may require large amounts of land, energy, water and other natural resources in its operation. It may also have impacts that extend beyond the boundaries of the site, such as high volumes of heavy vehicle movement; potential for pollution of air, soil or water, or nuisance as a result of noise, smoke, odour, dust, fumes, glare or humidity; or hazard arising from fire explosion, radiation or contamination.

Historical Resource

Means a work of nature or of man that is primarily of value for its paleontological, archaeological, prehistoric, historic, cultural, natural, scientific or aesthetic interest. As defined by Alberta Community Development.

Infrastructure

Refers to the services and facilities in which the municipality has capital investment and maintenance responsibilities, including roadways, sidewalks, bridges, street lights and traffic signals, transit buses, solid waste management systems, potable water distribution system, storm sewers, sanitary sewers, sports fields, playgrounds, arenas, pools, police and emergency response stations, vehicle and equipment, civic buildings, parks, boulevard trees and computer and telecommunications equipment.

Intensive Agricultural	Means a commercial agricultural operation other than a confined feeding operation which, due to the nature of the operation, require smaller tracts of land. Without restricting the generality of the foregoing, this shall include: nurseries, greenhouses, market gardens, tree farms and specialty crops.
Landscaping	Means to preserving, enhancing or incorporation of vegetative and other materials in a development and includes combining new or existing vegetative materials with architectural elements, existing site features or other development features including fences, walls or decorative walks.
Land Use Bylaw (LUB)	Refers to the bylaw that divides the municipality into land use districts and establishes procedures for processing and deciding upon development applications. It sets out rules that affect how each parcel of land can be used and developed and includes a zoning map.
Land Use District	Means an area designated for a particular type of use as designated in the Land Use Bylaw.
Light Industrial	Refers to industrial uses that conduct their operations such that no nuisance factor is created or apparent outside an enclosed building that would make the use compatible with adjacent non-industrial uses.
Linkage	Means a physical way of pedestrian related connection of one building or activity center with another, by means of walkway, pedway or sidewalk.
Low Risk Activities	Means those activities that are permitted in the buffer zones surrounding heavy industrial plant sites. They minimize the exposure of dense human populations to potential upset events (i.e. release of chemicals, explosions) associated with petrochemical and other manufacturing/processing plants by restricting permanent human habitation.
MIACC	Major Industrial Accident Council of Canada (1987-1999) was a voluntary organization with the primary objective of minimizing the risk from major accidents involving hazardous substances. Standards, guidelines and interactive forums were developed.
Modular Home	Means a prefabricated, factory built modular unit, which is transported to a site to be placed and/or assembled. A modular home has neither a chassis, running gear nor its own wheels. Modular homes must be built to CSA A277 standards.
Municipal Development Plan (MDP)	Refers to a plan adopted by Council as a municipal development plan pursuant to the Municipal Government Act.

Municipality	Means Sturgeon County.
Natural Area	Means remnant or self-sustaining areas with native vegetation, water, or natural features.
Nature Conservation	Means land areas set aside for outdoor recreation, or education, or to protect sensitive natural features and or areas of cultural or scenic value. Without restricting the generality of the foregoing, this would include for example: parks, environmentally sensitive areas, wilderness areas, natural areas, ecological reserves and archaeological sites.
Non-Conforming Use	Means a lawful use of land or a building, that on the date the Land Use Bylaw or any subsequent amendment becomes effective, will not or, in the case of the use of a building under construction, would not, comply with the Land Use Bylaw.
North Saskatchewan River Valley	Means the North Saskatchewan River Valley, its banks and the banks of its tributary systems.
Objective	Directional statements that are usually phrased in measurable terms for given time frames.
Paleontological Resource	Means "...a work of nature consisting of or containing evidence of extinct multi-cellular beings and includes those works or classes of works of nature designated by the regulations as paleontological resources." As defined by Alberta Community Development.
Passive Recreation	Means recreation activities that require limited physical exertion on behalf of the participant. Examples of passive recreation activities include bird watching, walking or photography.
Permitted Use	Means a use listed in a specific district as a permitted use for which a Development Officer must approve a development permit for that use if it complies with the Land Use Bylaw.
Policy	A statement identifying a specific course of action for achieving objectives.
Quality of Life	Means the sum of factors that contribute to the social, environmental and economic well-being of citizens.

Recreation Use	Means development of a public character including natural open space, improved parkland and active and passive recreational areas, and any facilities or buildings associated with recreation, serving the needs of a municipality, area or region. Recreation does not include large-scale commercial entertainment facilities such as drive-in movies, motor raceways, shooting ranges, or similar uses that may be incompatible with surrounding recreational uses, or may be difficult to integrate with the natural environment.
Residence	Means a residential building containing one dwelling unit.
Residential	Refers to development that includes all manner of dwellings intended for habitation by person and their associated ancillary uses.
Risk	Means a measure of the likelihood and severity of an adverse effect to health, property or the environment. Risk is often estimated by the mathematical expectation of the consequences of an adverse event occurring, i.e. the product of expected frequency x consequence.
Rural Industrial Use	Means to provide for agricultural and rural-related services, storage, repair, processing and minor manufacturing uses on isolated sites outside established business industrial parks, requiring minimal servicing, to serve primarily rural residents.
Screening	Means a fence, earth berm, or hedge used to visually and/or physically separate areas.
Separation Distance	Means an area of land established around an industrial activity to separate other adjacent land uses, particularly residential areas, from the potential effects of an industrial accident. These distances should be determined based on risk. Also refers to the minimum separation distance to be maintained between specified incompatible land uses.
Setback	Means the distance that a development must be set back from a property line or any other features of a site.
Site	Means one or more lots or parcels for which an application for a development permit is being made, and may include streets, lanes, walkways and any other surface upon which development is proposed.
Sod Farm	Means a commercial growing of sod through seeding and stripping of topsoil to selling of the final product.

Specified Heavy Industrial Facility	Means a processing facility for a heavy industrial operation that includes storage tanks, processing equipment, processing ponds, waste or product storage, loading areas, staging areas, and power sub-stations (where specific to the industrial facility). A specified heavy industrial facility does not include a pipeline, power line or railroad right of way; aesthetic landscaping; parking lots; administration buildings, maintenance buildings and public utilities (including power sub-stations that serve the area).
Statutory Plan	Means a Municipal Development Plan, Area Structure Plan, Area Redevelopment Plan or Inter-Municipal Development Plan adopted by Municipal Council pursuant to the Municipal Government Act.
Stormwater	Means surface run-off that is the result of precipitation.
Subdivision and Development Appeal Board	Means a subdivision and development appeal board appointed pursuant to the Act.
Sustainable Development	Means the development that meets the needs of the present without compromising the ability of future generations to meet their own needs (definition by the World Commission on Environment and Development).
Trail	Refers to a linear recreation corridor and associated facilities that are marked, mapped and maintained and allows for travel by people in one or a combination of non-motorized and motorized modes.
Transition Zone	Means a land area where compatible land uses buffer heavy industrial development from other land uses such as residential, institutional and agricultural. Objectives: Eliminate and/or reduce potential conflicts between multi-lot country residential developments, agricultural and industrial land uses.
Wetland	Refers to areas in the landscape where water is the primary factor controlling the environment and associated plant and animal life, Wetlands are transitional habitats between upland and aquatic environments where the water table is at or near the surface of the land, or where the land is permanently or temporarily inundated by water.
Voluntary Property Purchase Program	An independently administered fund with money from industry, municipalities and the province, where homeowners within the Alberta Industrial Heartland area can apply to have their home purchased at fair market value if they feel industry is affecting their property.

**APPENDIX A
BACKGROUND ON INDUSTRIAL RISK
ASSESSMENT**

BACKGROUND ON INDUSTRIAL RISK ASSESSMENT

Land-use planning based upon using a risk based approach began with the Bhopal India incident in 1984 where 2500 people were immediately killed as a direct result of an industrial release of a highly toxic material (methyl isocyanate). The number of fatalities has grown to well over 20,000 since. The community of Bhopal allowed for unrestricted development to take place right up to the fence-line of the Union Carbide plant site. Originally Union Carbide had constructed the facility several kilometres away from the community in order to control any risks they might impose. However, as there were no legal requirements around development residences were soon able to locate next to this "heavy industrial" facility.

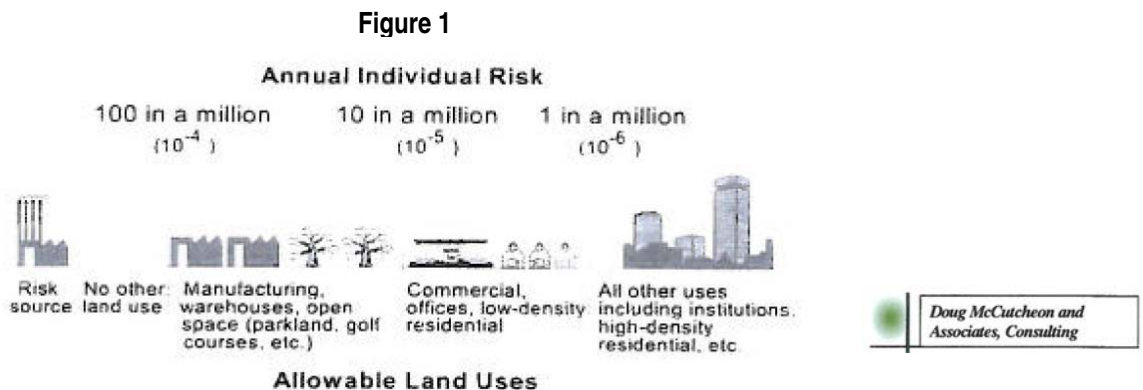
Globally one of the lessons taken from this incident was a need to understand the risk industry can impose on a community beyond their fence-lines and to incorporate these learnings into land-use planning regulations. Countries began to discuss this topic very quickly after Bhopal using governments, industry and the best knowledge from around the globe.

One question was to define what the "Acceptable Level of Risk" might be for industrial risks being imposed on the public (an involuntary risk). Such a value was necessary to allow for calculating risk levels and setting in place criteria to measure the risk with, The outcome that was verified in courts in the United Kingdom as well as discussion around the world was: "if an individual was to stay in one location for an entire year and if they were to be exposed to an industrial incident the probability of a fatality to that person is one in a million." An extremely small number when compared to the many other risks we live with daily.

Further it was characterized that everything we do has some element of risk involved with it. In order to have all the benefits of society we enjoy today we must be willing to accept some risk and one in a million (1×10^{-6}) is where society has come to agreement on.

Canada's approach was to bring together our own experts from across the country and from industry and government to develop our approach to "risk based land-use planning". The result is the MIACC Criteria which is recognized through-out Canada as the best practice and guidance. Several regulatory authorities such as the Canadian Environmental Protection Act (CEPA), Alberta Energy and Utilities Board (EUB), and Canadian Standards Association (GSA) for example refer to it. As shown in Figure 1, the criteria clearly defines what can be included within risk zones beginning with the risk within the company fence-line cannot be higher than 1/10,000 (1×10^{-4}) of a fatality.

(M/ACC - Major Industrial Accidents Council of Canada)

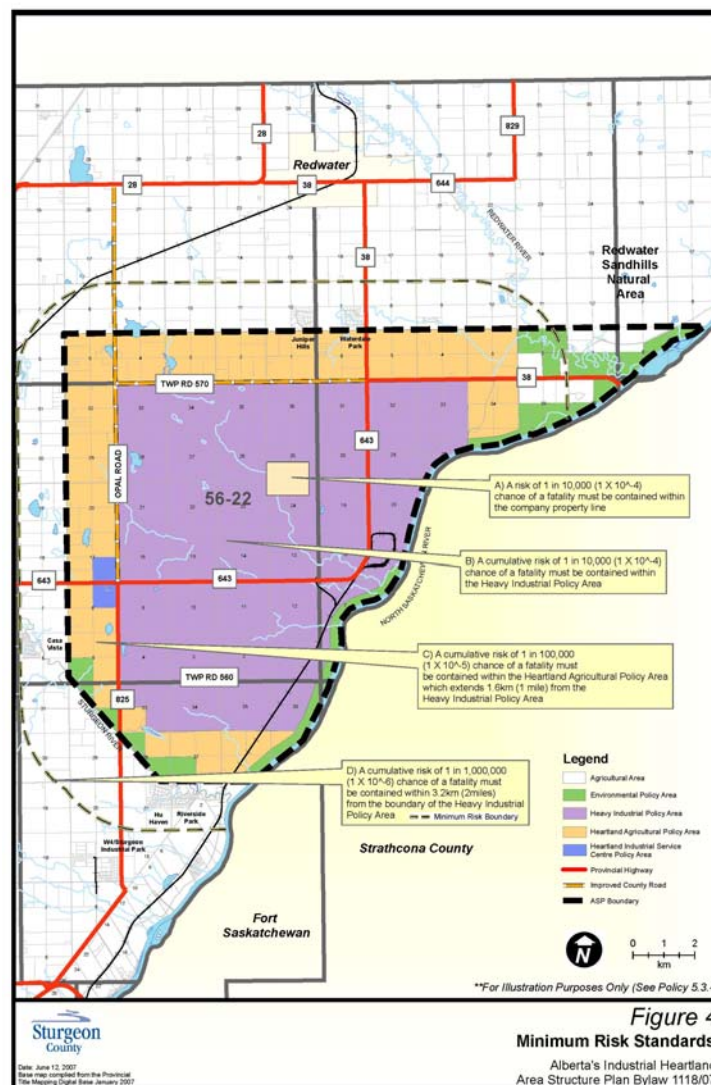


By defining the boundary for "Heavy Industrial Policy Area" as (1 X 10⁻⁴) of a fatality, and the boundary for "Heartland Agricultural Policy Area" as (1 X 10⁻⁵) of a fatality the implementation of the MIACC criteria will be met.

This will:

- Meet the requirements for protection of nearby residential communities.
- Work towards ensuring the quality of life for residents in the County will be protected.
- Provide developers and County Council and Administration with criteria for approving appropriate development in the area.
- Give industry the firm criteria to which they need to design their facilities to no matter what they put into the area.
- And finally the determination of correct emergency response needs for the area including early detection, reasonable response times, manageable evacuation plans, etc.

Figure 2



**APPENDIX B
ECO-INDUSTRIAL PLANNING
PRINCIPLES**

ECO-INDUSTRIAL PLANNING PRINCIPLES

There are several terms in use in the literature, which mean more or less the same thing such as industrial ecosystem and eco-industrial development. For the purposes of the Industrial Heartland, the term eco-industrial development will be used. Other related terms such as industrial symbiosis and by-product synergy have a more limited perspective although they are important components of an eco-industrial development complex.

Although the field of industrial ecology is a relatively new field of study, there is some consensus developing on the major concepts and strategies. An eco-industrial development is interpreted as a "community of manufacturing and service businesses seeking enhanced environmental and economic performance through collaboration in managing environmental and resources issues including energy, water and materials. By working together, the community of businesses seeks a collective benefit which is greater than the sum of the individual benefits each company would realize if it optimized its individual performance only" (Lowe, Moran and Holmes, 1996). The President's Council on Sustainable Development of the United States also recognizes that:

- a) the community of businesses must cooperate with the local community;
- b) the resources that should be shared include information, infrastructure and the natural habitat; and
- c) the sharing must be equitable.

In their seminal work "Discovering Industrial Ecology – An Executive Briefing and Sourcebook", Lowe, Moran and Holmes identify a number of principles of industrial ecology:

Connect individual firms into industrial ecosystems:

- close loops through reuse and recycling;
- maximize efficiency of material and energy use;
- minimize waste generation; and
- think of wastes as potential products.

Balance inputs and outputs to natural eco-system capacities:

- reduce the environmental burden created by releases;
- design the industrial interface with sensitivity to the natural environment; and
- minimize creating and transporting toxic and hazardous materials.

Design industrial use of materials and energy:

- redesign processes;
- substitute technologies and materials; and
- do more with less.

Align policy with a long-term perspective.

The study by McCann et al and the Alberta By-Product Synergy project have identified a number of possible ways of closing loops and using by-products. From a planning point of view, there remains much to be done in reducing the environmental burden of releases a designing the industrial interface with the natural environment of the area. However, there are ideas that can be considered. These would include setting aside land for plantations that would serve as carbon dioxide sinks. Such plantations would not be large enough to compensate for the CO2 emissions of the Industrial Heartland but they would play a role not only in mitigating effects but also providing some employment and renewable materials. They could also serve to further protect significant natural areas such as wetlands and watercourses.

The principles put forward by Lowe et al focus almost exclusively on technical matters. The human and social dimensions receive no consideration. This area has been addressed by Cote and Cohen-Rosenthal among others. They identify a number of networking possibilities that should be considered in eco-industrial development. In addition to symbiotic relationships involving materials and energy, they point to networking in transportation (car pooling), human resource management (training), information and communications (management information systems), marketing (joint promotions), environment, health and safety (emergency response planning), production (equipment pooling), and quality of life (integrated volunteer programs).

Lowe et al, Cohen-Rosenthal and Cote all agree that industrial ecosystems must be more than:

- a local waste exchange;
- a recycling business cluster;
- a district heating or cogeneration project;
- a collection of environmental technology companies;
- environmentally sensitive landscaping;
- environmentally friendly infrastructure; and
- an industrial park developed around a single environmental theme.

Cote has suggested some characteristics of an industrial park operating as an ecosystem, some of which are applicable to the Industrial Heartland area. An industrial area operating as a mature ecosystem would involve the following principles:

- the industrial activity would take into account the ecological capacity of the area, paying particular attention to the assimilative capacity of the air, water (surface and ground), and soil to absorb emissions;
- energy production would be based increasingly on renewable resources, and at least increase the efficiency of current energy production and use through cogeneration and district heating;
- buildings would be designed and built to optimize conservation of heat and water, while enabling disassembly for reuse and recycling at the end-of-life;
- landscaping would use indigenous plants and be designed to support building heating and cooling;
- industries and businesses would be selected based in part on their compatibility for symbiosis and include the potential to integrate agricultural and industrial activities and where appropriate residential land uses;
- management of the development would encourage a web of businesses involving not only producers and consumers but scavengers and decomposers to support cycling of materials;
- redundancy in materials sources would be built into the structure of the system;
- dissipative uses of materials and energy would be discouraged;
- management would establish a common information management system that would facilitate networking;
- identification and incorporation of opportunities for cooperative ventures among industries and businesses such as

transportation planning, infrastructure development, combined waste management including recovery and treatment, environmental monitoring and emergency response;

- construction, operation and maintenance of infrastructure in an environmentally friendly manner;
- generation of a diverse choice of local employment;
- improved coordination within each level of government; and
- education about regulatory approval processes at all levels of government.

APPENDIX C
QUALITY OF LIFE INDICATORS

QUALITY OF LIFE MONITORING

An integral part of community planning is the assurance that County residents (and others) maintain and enhance their quality of life while in Sturgeon County. A good Quality of life framework is an important tool in promoting sustainable community planning at the local level. As such, QOL is important in bringing together the social, environmental, and economic aspects. The unprecedented level of industrial interest and activity that has occurred in the County in the past three years has placed increased demands on ensuring that quality of life monitoring is implemented.

The intent of this Area Structure Plan is not to carry out a Quality of Life assessment, but rather to provide the next set of policy directions to support the development of a detailed Quality of Life framework for Sturgeon County. It is recommended that the Quality of Life framework form part of the Community Enhancement work that Sturgeon County will carry out in the 2007-2008 time frame.

The Quality of Life framework recommended follows the Federation of Canadian Municipalities reporting system and implementation is intended to:

- "Identify and promote awareness of issues affecting quality of life in Canadian communities;
- better target policies and resources aimed at improving quality of life; and,
- support collaborative efforts to improve quality of life."

Quality of Life indicators should be understandable and used by all stakeholders in the community. The measures should be:

- Directly applicable to Sturgeon County both in the ASP and at large;
- Relevant to the Sturgeon County;
- Credible from a community perspective;
- Measurable with a minimum of technical assistance;
- Comparable to other communities.

Used on a consistent basis, Quality of Life measures and indicators can provide warning of degradation in the quality of life and more importantly can set assist in setting targets to enhance the quality of life for those throughout Sturgeon County and beyond.

The Quality of Life measures used by the Federation of Canadian Municipalities include the following:

1. Population Resources Measures (PRM):

This is a profile of population characteristics, population growth, education and literacy levels, cultural diversity, immigration and the age structure of the population. It provides a basis for the monitoring of long-term demographic changes.

2. Community Affordability Measures (CAM):

These measures compare levels of income with the cost of living. A higher affordability measure (CAM) occurs when average incomes are relatively higher than average costs of living.

3. Quality of Employment Measures (OEM):

These measures monitor employment dimensions and trends, such as equity and the distribution of employment, partial

employment and unemployment among population groups.

4. Quality of Housing Measures (QOHM):

These measures include the affordability of housing to rent (relative to prevailing incomes), percentage of homes in need of repair, vacancy rates and housing starts.

5. Community Stress Measures (CSM):

These measures reflect social problems and they examine variables related to vulnerable groups. They include the incidence of low income, the incidence of lone-parent families, and the incidence of crisis calls, bankruptcies and suicides.

6. Health of Community Measures (HOCM):

These measures reflect the rate of premature deaths (before age 75), infant mortality, the percentage of babies born with low birth weights, and workdays lost due to illness or disability.

7. Community Safety Measures (CSFM):

These measures reflect rates of crime and violence, youth crime, and the rate of unintended injuries.

8. Community Participation Measures (CPM):

These measures reflect the involvement of citizens in their community, and include political participation (voter turnout), daily newspaper circulation, charitable giving and support for community projects as measured by contributions to the annual United Way campaign.

TABLE 1: Illustration of the Quality of Life (QOL) Template: Measures and Indicators

Population Resources	Community Affordability	Quality of Employment	Quality of Housing	Community Stress	Health of Community	Community Safety	Community Participation	Quality of Environment (under development)	Social Infrastructure (under development)
Population age groups	CAMI1 CAMI2	Employment and unemployment rates	Incomes relative to housing costs	% lone-parent families and incidence of low income	Infant mortality	Young offender charges per 100,000 residents	Voter turnout	Number of smog days	Proportion of labour force employed in "community services"
Population growth	Patterns of change in family incomes	Permanent, temporary and self-employment	Rental affordability, % of renters paying 50% of more of income for rent	Teen births per 1000 teen women	Low birth weight babies	Violent crimes per 100,000 residents	Charitable donations	Amount of municipal waste generated per capita	Per capita annual expenditures on parks, recreation and cultural facilities
Multiculturalism, immigration and visible minority population	Public transportation cost as % of minimum wage	Families receiving Employment Insurance or Social Assistance as % of all taxfilers	Substandard dwellings, % of housing needing major repair	Suicide rates per 100,000 residents	Premature mortality	Property crimes per 100,000 residents	United Way contributions per resident	Weight of collected recyclable goods per resident	Per capita annual expenditure and/or per capita holdings in public libraries
Internal migration	Government transfer income by source	Median hourly wages by gender and age	Real estate sales per capita	Business and consumer bankruptcies	Hospital discharges	Injuries and poisonings per 100,000 residents	Recycling per resident	Quality of raw water meant for use as drinking water	Child care spaces per resident
Labour force replacement ratio		Long term employment	Vacancy rates	Crisis calls	Work hours lost due to injury or disability		Daily newspaper circulation	% of population served by treated water	Pupil-teacher ratios
Education levels		Employment income as % of all income						% of environmentally significant land that is protected	
Literacy									

