

Leduc County

Genesee Area Structure Plan

Recreation • Economy • Geotechnical • Environment • Transportation • Aggregate



June 2013

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Part A:

INTRODUCTION

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1.0 INTRODUCTION

1.1 Purpose of the Area Structure Plan

The purpose of the Area Structure Plan is to identify suitable land use that will respect the existing community while providing for the accommodation of future rural and resource development. The Area Structure Plan addresses residential development, protection of agricultural land, river access, recreational needs, multi-modal transportation linkages, resource extraction, economic development and protection of environmentally sensitive areas (this is discussed in further detail in Section 7.0).

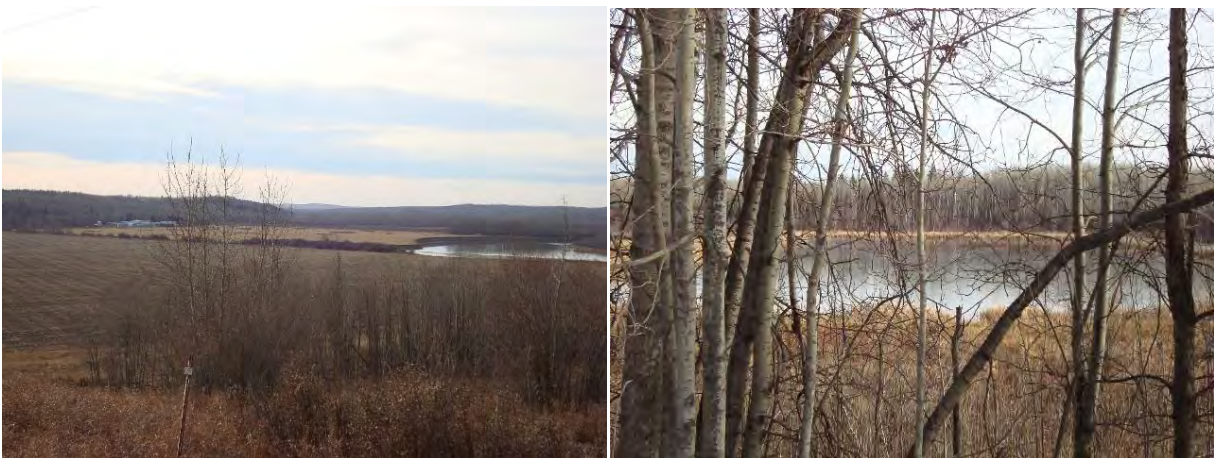
The plan is driven by the need to protect the environment as well as preserve the agricultural land, while integrating resource extraction in a responsible manner. The Genesee Area Structure Plan is adopted by bylaw, all future redistricting, subdivision and development permit application decisions will be guided in part by the Plan.

1.2 Vision

The Genesee Area is a place where the natural environment is cherished and protected, a place where people can live, farm, and recreate, in a way that is safe, and conserves the health of natural eco-systems and wildlife.

The Genesee Area is a place with a strong community and identity, which derives from the character of the natural setting, and the relationships, connections, disposition, and layout of homes, farms, conservation lands, trails, and recreational areas.

The Genesee Area is a place for healthy and safe recreation, including a wide range of activities, passive and active, water-based and land-based which serve local and regional communities.



1.3 Guiding Principles

- a) **Protect the long-term health of Genesee's natural environment** – conserve the quality of water and other natural systems, the integrity of the river valley, biodiversity, and wildlife habitat.
- b) **Conserve the cultural heritage of the Genesee area** – including the agricultural ways of life and the tranquil character of the setting.
- c) **Support a strong sense of community and identity** – with people living, working, farming, and visiting the Genesee area.
- d) **Support diverse, year-round opportunities for recreation** – sensitive to the natural environment, to the local community, prioritizing safety and identify recreational opportunities for residents and visitors.
- e) **Sustain a strong sense of place** – ensure development has consideration for the natural environment and the area's unique character and identity.
- f) **Improve public access to the river and connectivity** – especially for passive recreational uses.
- g) **Celebrate the farming culture and the resource history found in the Genesee area** - protect environmentally sensitive areas; plan gravel extraction and associated road use, analyze the need for residential land uses.



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Genesee Area Structure Plan



Part B: BACKGROUND

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2.0 BACKGROUND

2.1 History

“Genesee”, meaning ‘**Beautiful Valley**’ or ‘**Pleasant Valley**’ (*Origin is Native American*)



The Genesee community was settled in 1905 and has a rich history in natural resource extraction and agriculture. Genesee District was officially named after Tom Fletcher, a local school teacher, and his friend Joe Lenehan, who petitioned the Canadian Government to open up a local Post Office in the area. The early settlers moved from Genesee, Idaho and began homesteading the area.



Early settlers farmed the land, cleared the tree logs for locally operated saw mills or floated the logs downstream to mills in Edmonton. Various coal seams throughout the area allowed local settlers to pursue mining ventures in the early years. In the 1960's, Edmonton Power, began the largest coal mining venture that resulted in construction of a power plant that operates to the present day.



[Miners & Shaft near Genesee, Alberta, Photographer - C. M. Tait] [Note: Duplicate photograph of A5496. J. A. L. MacDougall and others in front of a coal mine entrance. J. A. L. MacDougall is standing with a pick in the top of the mine, which shows the depth of the seam." Norah MacDougall, 1965]

Genesee is an agricultural based community with gravel extraction occurring along its periphery, within the banks of the North Saskatchewan River. At the heart of the community are the Genesee Community Hall and the Genesee Heritage Park. The area has always remained community centered, with agricultural, hunting and fishing activities, sporting events, community dances and drama nights.



2.2 Plan Location, Area and Major Features

The Genesee study area is located approximately 71 km southwest of the City of Edmonton and approximately 20 km north of the Village of Warburg. Highway 770 is located with the Genesee area and Highway 622 and St. Francis are located 8 km to the south. The Genesee community is located in the northwest quadrant of Leduc County and is in close proximity to the North Saskatchewan River. In total the study area encompasses approximately 4,526 hectares of land. Genesee is an agricultural based community with gravel extraction occurring within the banks of the North Saskatchewan River. **(refer to Appendix A at the back)**

2.3 Plan Focus

The Genesee Area Structure Plan is a long range planning document that looks into the future. It provides a policy framework to manage growth, resource extraction and land use in the Genesee area. Best practices are identified in the Genesee ASP to assist landowners, private industry and the County in making long-term land use decisions. The Genesee Area Structure Plan identifies suitable land uses (i.e. residential, recreational, agricultural, resource extraction and conservation) that celebrate the existing community while providing for the accommodation of future rural and resource development. The plan addresses residential development, protection of agricultural land, resource extraction, transportation linkages, economic development, recreational needs and protection of environmentally sensitive areas.

The Genesee Area ASP planning process engaged local residents, landowners, industry, adjacent municipalities, area associations and other stakeholders. Open houses, stakeholder interviews, workshops and agency meetings provided opportunities for the public and all stakeholders to provide input into the preparation of this County plan.

2.4 Servicing

There is no existing water distribution infrastructure within the Genesee Plan Area. Water wells are the source for water for agriculture and residential homes throughout the Plan Area. The Geotechnical and Hydrogeological Assessment provides the drilling logs for the 101 drilled wells but also information regarding the groundwater location and suitability for the future development of the study area. The process for the evaluation and installation of water wells that is prescribed by Alberta Environment shall be implemented.

The soils within the study area are suitable for on-site septic disposal fields or mounds if a private sewage system is proposed. However, it should be noted that all systems proposed must be in compliance with the Alberta Private Sewage Systems Standard of Practice-1999, Handbook. Further soil assessment will be required for the specific area where private sewage disposal systems are proposed.

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Part C: PUBLIC ENGAGEMENT

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3.0 PUBLIC ENGAGEMENT

The Genesee Area Structure Plan planning process has engaged local residents, landowners, industry, adjacent municipalities, area associations and other stakeholders. Open houses and stakeholder interviews have provided opportunities to provide valuable and local knowledge input into the preparation of this County plan.

3.1 First Public Input Meeting

The initial meeting for the Genesee Area Structure Plan was held November 30th, 2011, and was well attended by residents of Leduc County, Parkland County, private industry and local government officials.

A presentation was made that explained and depicted:

- a) What is an Area Structure Plan
- b) The Area Structure Plan process
- c) Early objectives for the Genesee Area Structure Plan
- d) The proposed Plan boundaries
- e) The projected timeline for the Genesee Area Structure Plan
- f) How landowners can remain involved in the planning process

3.2 Landowner & Stakeholder Interviews

Leduc County conducted one-on-one interviews with stakeholders in the Genesee area, giving them the opportunity to help guide the preparation of the Plan by discussing its content and what should and shouldn't be included in the document. Questions were asked regarding environmental, transportation, recreation, cultural/historical, economy, geotechnical/ hydrogeological and general information.

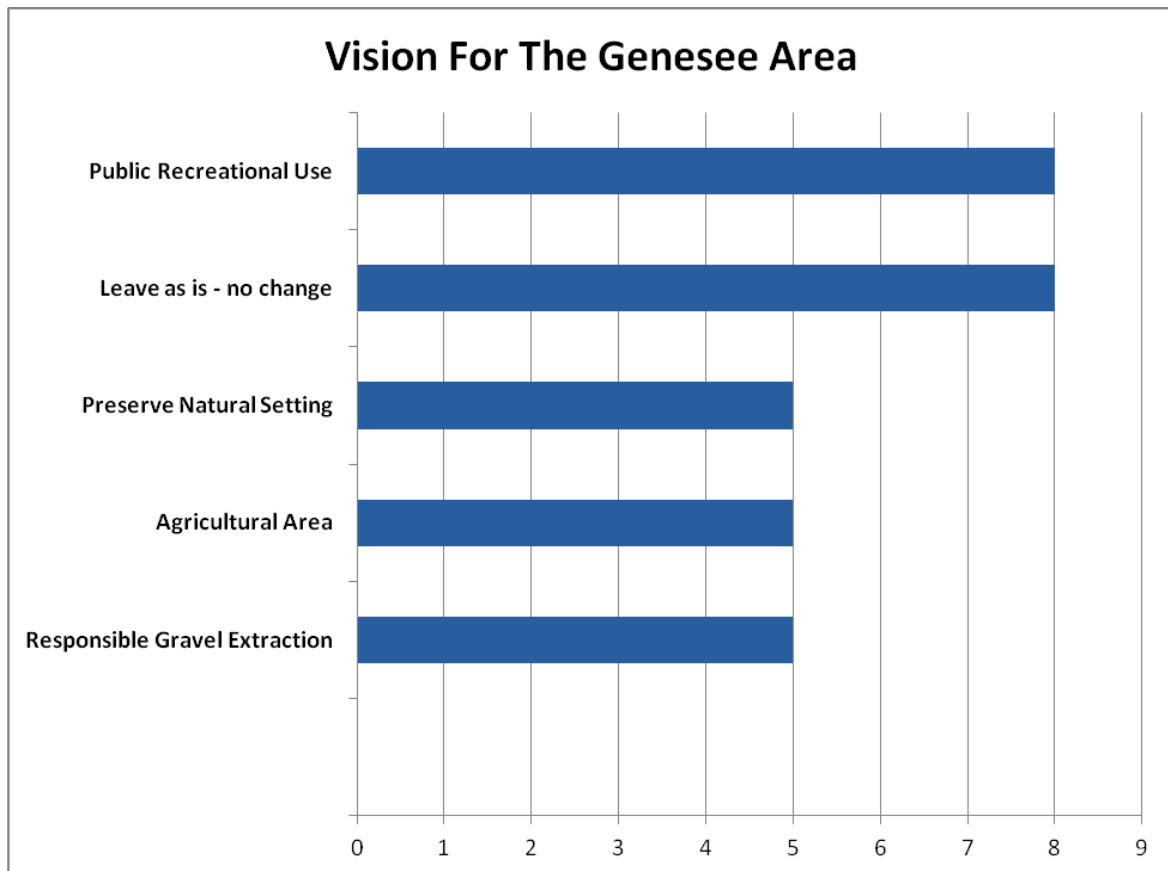


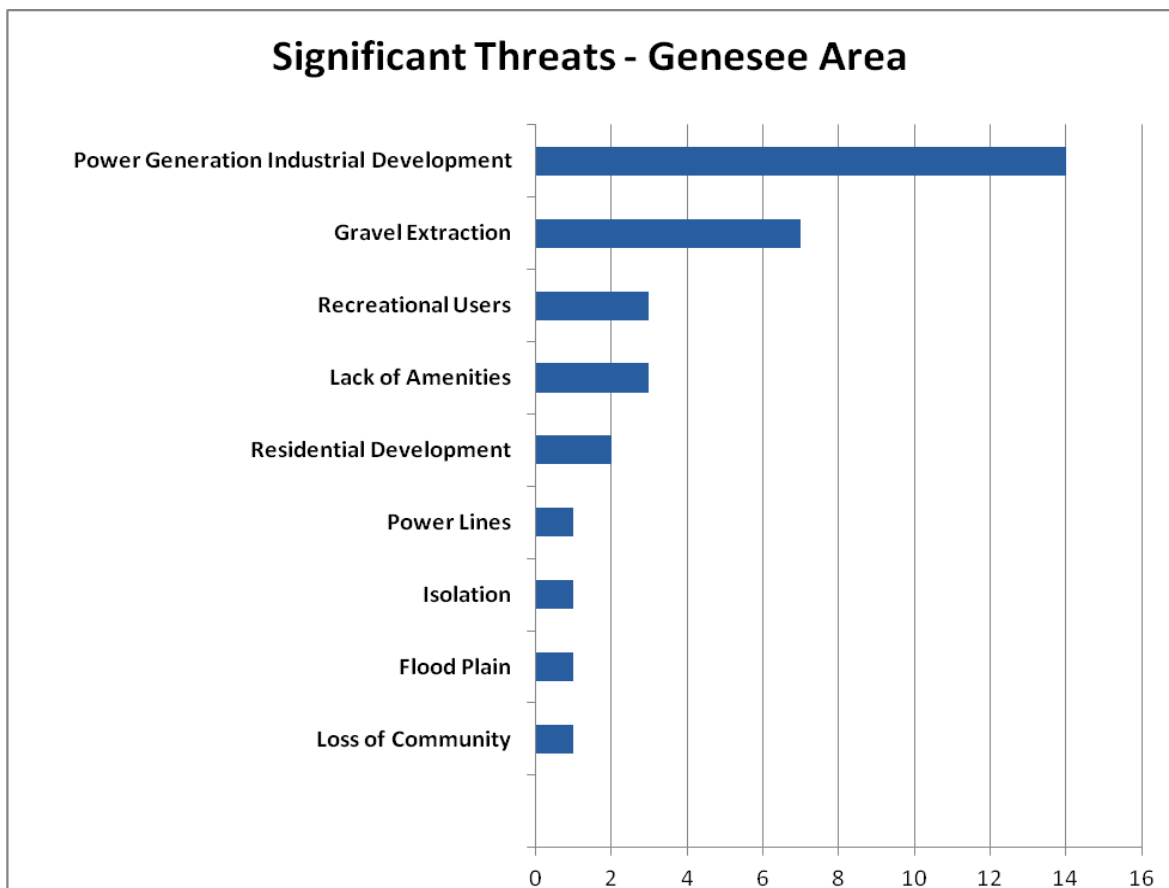
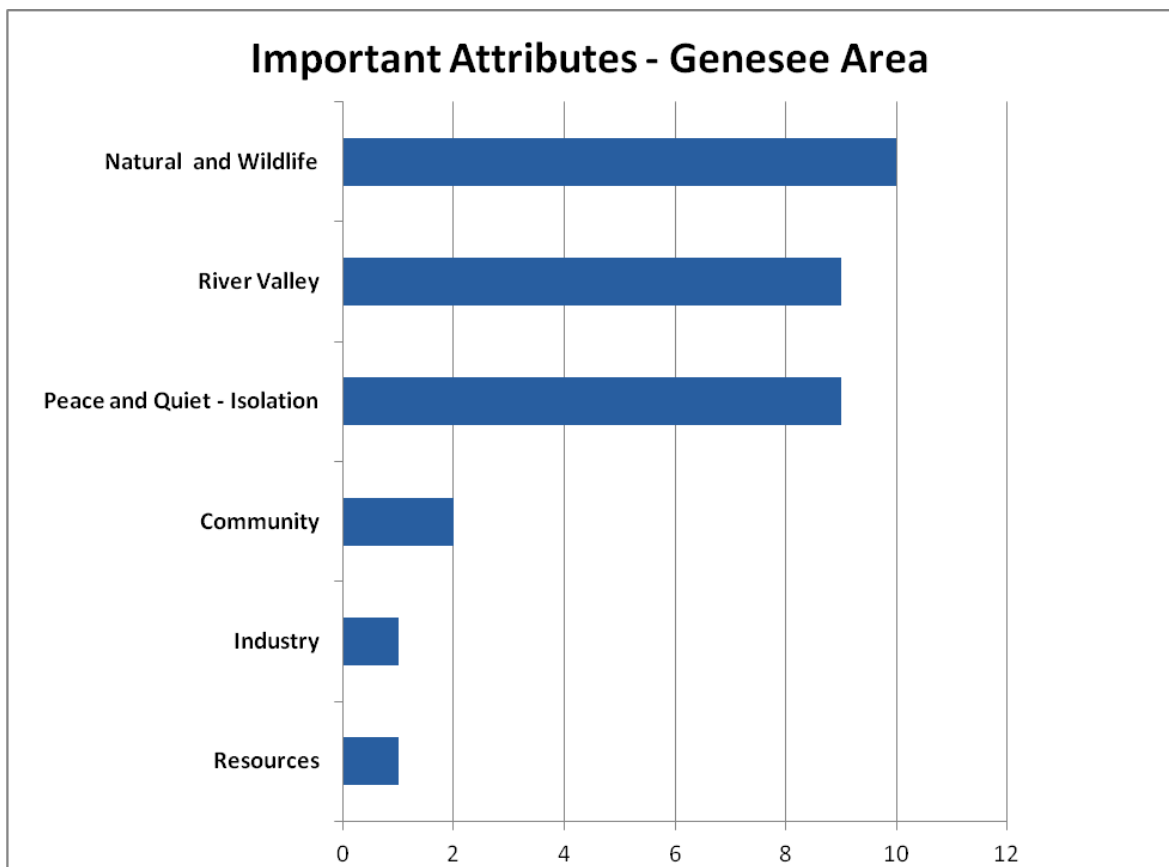
3.3 Workshop

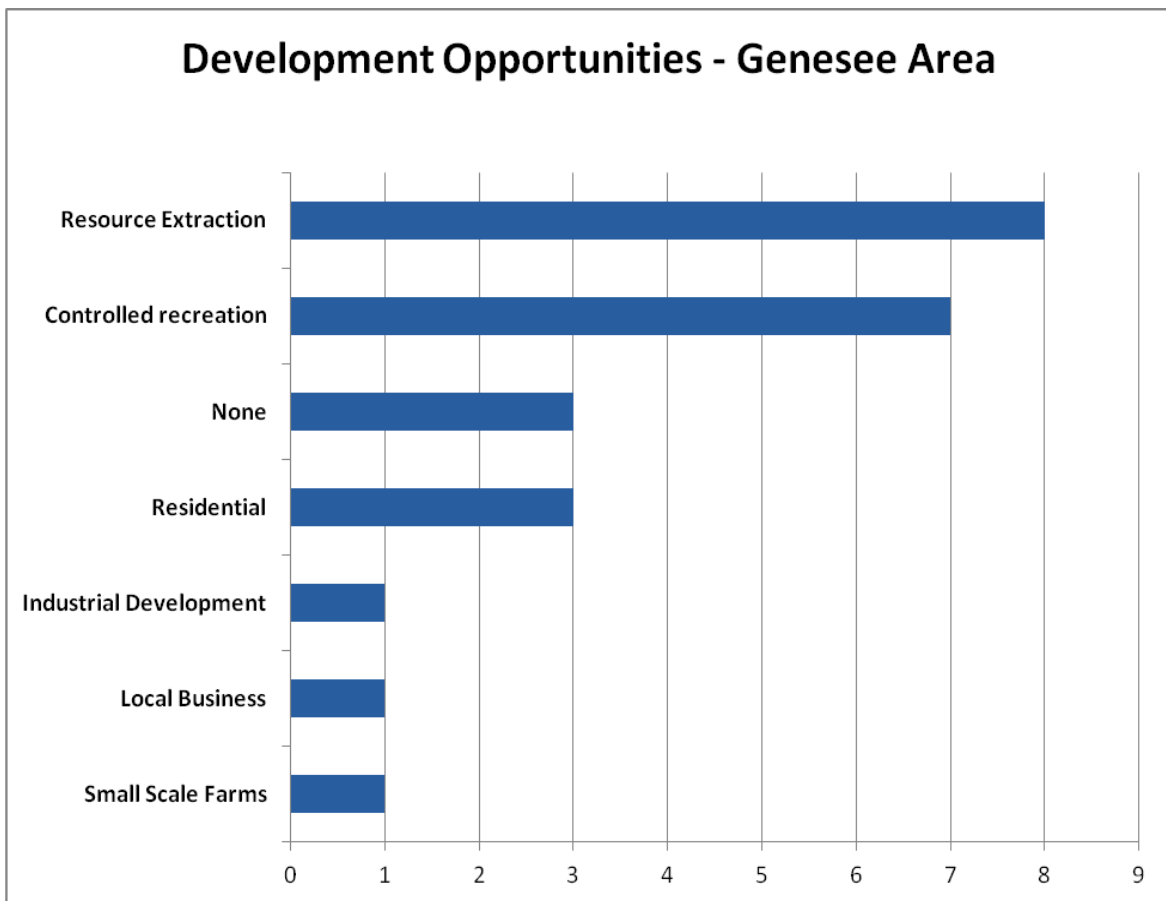
In March 2012, a workshop was held to liaise with stakeholders. Four questions were the focus of this exercise. The questions and a summary of responses received are presented below:

- a) What do you love about the Genesee Area?
The top responses highlighted the desire to preserve the most attractive attributes of the Genesee area, such as its natural features, wildlife, peace and quiet.
- b) What special areas are in need of protecting?
A buffer zone to the river and protecting farm land were the most popular answers.
- c) What land uses do you NOT want in the area?
50% of the stakeholders do not want to see gravel extraction expanded. There was also a great concern over unsupervised recreation such as camping and ATV use.
- d) What would you like to change about the area?
By far, the top responses all involved roads. The stakeholders interviewed want paving as well as enforced road use agreements for noise and dust.

Figure A: Summary of Workshop







3.4 Summary

Overall, the consensus gathered from the open house attendants was positive, and no opposition to the Plan was made evident. A summary of the workshop is provided regarding the communities important attributes, vision for the Genesee Area, significant threats and development opportunities.



Leduc County

Genesee Area Structure Plan



Part D:

STATUTORY AND POLICY REVIEW

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4.0 STATUTORY AND POLICY OVERVIEW

4.1 Municipal Government Act

The Genesee ASP has been prepared pursuant to provisions in the Municipal Government Act (Revised Statutes of Alberta, 2000, Chapter M-26). Section 633(1), Part 17, of the Act (MGA) provides for a municipality to adopt an Area Structure Plan as a statutory planning document for the purpose of providing a framework for future land use, subdivision and development within the Plan Area.

The Acts states that:

633(1) For the purpose of providing a framework for subsequent subdivision and development of an area of land, a council may, by bylaw, adopt an area structure plan.

(2) An area structure plan

(a) must describe

(i) the sequence of development proposed for the area;

(ii) the land uses proposed for the area, either generally or with respect to specific parts of the area;

(iii) the general location of major transportation routes and public utilities.

(b) may contain any other matters the council considers necessary.

4.2 Environmental Protection and Enhancement Act (EPEA)

The purpose of the Act is to “support and promote the protection, enhancement and wise use of the environment” while recognizing a number of other objectives, such as providing for Alberta’s economic growth and prosperity in an environmentally responsible manner and a need to integrate environmental protection and economic considerations in the earliest stages of planning. As a priority, the Area Structure Plan takes into consideration minimizing the impact on the natural environment and maintaining the general rural character of Genesee.

4.3 Conservation and Reclamation Regulation (Pursuant to EPEA)

The objective of conservation and reclamation is to return land to an equivalent land capability. Security, in the form of monetary deposit, is required where an approval is required under the Regulation. Equivalent land capability means that the ability of the land to support a given land use after conservation and reclamation is similar to its ability prior to that activity and subsequent reclamation being conducted on the land, although the land uses may be different.

4.4 Water Act and Regulations

The purpose of the Water Act is to promote the conservation, management and allocation of water for the benefit of the environment, the people of the province, and the province's economic development. The Water Act affirms that the right to use and divert water is vested in the Crown, in right of the province. Therefore, the Act establishes a system of approvals and licenses to manage the use of water.

4.5 Public Lands Act

Section 3 of the Public Lands Act specifies that the bed and shore of any water body are vested in the Crown in right of Alberta. This provision is relevant to any application for sand and gravel extraction for an area which contains a water body, as defined in the Act.

4.6 Alberta Land Stewardship Act: The Land-Use Framework

The Alberta Land Stewardship Act (ALSA) is the enabling legislation that supports the Land-Use Framework (LUF). Pursuant to 638(1), Part 17 of the Municipal Government Act, all statutory plans must be in compliance with the ALSA; regional plans enacted under ALSA will prevail over any statutory plan to the extent of any conflict or inconsistency.

The purpose of the Land-Use Framework is to manage growth and to sustain Alberta's growing economy, but balance it with Albertans' social and environmental goals. The Land-Use Framework sets out an approach to manage public and private lands and natural resources to achieve long-term economic, environmental and social goals in Alberta. It provides a blueprint for land-use management and decision-making that will address Alberta's growth pressures.

Leduc County is situated within the North Saskatchewan Planning Region and there is currently no plan enacted for this region. However, the formulation of the Genesee Area Structure Plan has taken into account the desired outcomes of the Land Use Framework, which include:

- a) A healthy economy supported by our land and natural resources
- b) Healthy ecosystems
- c) People-friendly communities with ample recreational and cultural opportunities

4.7 Land Use Policies

Section 622(3), Part 17, of the Municipal Government Act stipulates that every statutory plan must be consistent with the Land Use Policies. However, it must be noted that pursuant to 622(4), Part 17 of the Municipal Government Act, the Land Use Policies will not apply to the Genesee Area Structure Plan once a regional plan for the North Saskatchewan Planning Region, which meets the requirements of the Alberta Land Stewardship Act Regulations, is enacted.

Several provincial departments have implemented policies that directly or indirectly affect land use planning throughout the province including Leduc County. Most significantly is the creation of the Capital Region Board Regulation which established the Capital Region Board. The Capital Region Board's purpose is to develop and manage the Capital Region Growth Plan. The Capital Region consists of 24 municipalities which includes the City of Edmonton, its surrounding five counties (Sturgeon, Parkland, Leduc, Strathcona and Lamont) and all of the municipalities embedded within those counties.

The Capital Region Board falls under the jurisdiction of Alberta Municipal Affairs. Under the Ministerial Order that establishes the Regional Evaluation Framework (REF), the list of conditions for which a statutory plan shall be submitted to the Capital Region Board (CRB) for review and approval. Six principles have been developed in the CRGP that the Capital Region Board and municipalities within the Capital Region will employ to guide future growth and development. The Land Use Policies are summarized as follows:

1. Protect the environment and resources
2. Minimize the development foot print
3. Strengthen communities
4. Increase transportation choice
5. Ensure efficient provision of choice
6. Support regional economic development

Some of the relevant policies that the CRB has adopted to actualize its vision include the following. To see a complete listing of principles and policies see the Capital Region Growth Plan, the Capital Region Land Use Plan (available at <http://capitalregion.board.ab.ca/index.php/capital-region-growth-plan>).

- Preserve and protect the environment
 - I. Any development which may cause detrimental effects such as erosion or pollution to lakes, rivers, water bodies and shorelines shall be prohibited unless appropriate mitigation measures are implemented.
 - II. Any development which fragments contiguous natural features, function and habitat - such as water systems, moraines, forests, wetlands and wildlife habitat and corridors - shall be discouraged.
 - III. Support governmental environmental initiatives and seek opportunities for coordinated initiatives between municipalities.
 - IV. Manage regional watersheds to protect, restore and ensure the sustainability of natural water systems.

- Allow growth outside of Priority Growth Areas if the following criteria are met:
 - I. It is contiguous to existing development.
 - II. It follows the principles and policies of the CRGP related to the form of development.
 - III. The level of services provided is appropriate to the form of development.
 - IV. Development in this area will not adversely affect the provision of regional infrastructure required to service the Priority Growth Areas (PGAs).

PGAs are defined in the CRGP. The Genesee ASP area is not included in any such designated area.
- Support Cluster Country Residential Area (CCRA) development.
While the Genesee ASP is not in a designated CCRA, the following policies pertaining to CCRA design will apply:
 - I. Country residential uses shall be allowed in designated areas in a clustered form in order to preserve environmental or open space features.
 - II. Such developments shall utilize municipal water and sanitary services.
 - III. Private communal services may be allowed at the discretion of the Municipality.
 - IV. Density targets are two units per gross hectare for CCRA's and a maximum of 50 lots per quarter section in areas outside CCRA's.

The Genesee Area Structure Plan makes every effort to meet and exceed the goals set out in the Land Use Policies.

4.8 Intermunicipal Planning

Section 636 (1) d of the Municipal Government Act, states that in the case of an area structure plan, where the land that is the subject of the plan is adjacent to another municipality, Leduc County must notify that municipality of the plan preparation and provide opportunities to that municipality to make suggestions and representations. The Genesee ASP area is adjacent to Parkland County and the two Counties have not implemented an inter-municipal plan. Parkland County administration and residents have been consulted and given the opportunity to provide input.

Leduc County

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Part E: MUNICIPAL JURISDICTION

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5.0 MUNICIPAL JURISDICTION

5.1 Municipal Development Plan

The Municipal Development Plan (MDP) provides the overall planning framework for the County. It outlines the following planning goals:

- a) Preservation and enhancement of the agricultural community
- b) Population growth in desirable areas
- c) Rural and alternative lifestyle choices
- d) A compatible and harmonious land development pattern
- e) Strong and sustained economic growth tax base
- f) Efficient and economic provision of municipal services and facilities
- g) Protection of significant environmental areas and prevention of land, water, air, noise, and visual pollution
- h) Mutually beneficial relationships with neighbouring municipalities

The Municipal Development Plan also provides objectives and specific policies for different land uses (Residential, Agricultural, Direct Control, etc.), infrastructure (Transportation, Community Services, etc.) and other services or issues (Economic Development, Tourism and Heritage Conservation). The Plan Area is located within the Municipal Development Plan designated Agricultural Area B, includes approximately three quarter sections of Crown land and five quarter sections within the Genesee Overlay. The purpose of Agricultural Area B is to conserve and protect extensive areas of land for agricultural uses, encourage and accommodate a broad range of agricultural related pursuits, and retain and enhance the County's agricultural community. The purpose of the Genesee Overlay is to provide for orderly development of the Genesee Power Plant Project as an interim land use.

5.2 Leduc County Land Use Bylaw

The Leduc County Land Use Bylaw (LUB) was adopted March 2008 and assigns Districts to lands within the County. Districts specify the permitted and discretionary uses, as well as other standards or regulations for the land. Lands within the Genesee Area Structure Plan area fall under one of four districts as defined under the Leduc County Land Use Bylaw (LUB) (see Figure 1: Existing Land Uses). The Genesee Area Structure Plan is comprised of lands designated as Agricultural District, North Saskatchewan River Valley District, Genesee Overlay District and Direct Control District.

The AG district provides for primarily larger agricultural operations, limited residential and other uses that have a secondary role to agriculture. The Genesee Overlay is to provide for the orderly development of the Genesee Power Plant Project as an interim land use. The purpose of the North Saskatchewan River Valley district is to provide for primarily agricultural uses as well as active and passive recreation activities, and limited non-recreational land uses in the North Saskatchewan River Valley area. In Leduc County gravel extraction sites are Districted Direct Control and this district provides for development that due to unique characteristics, unusual site conditions, or innovative design, require specific regulations unavailable in other land use districts.

The Plan Area is generally a rural, agricultural landscape. The western portion of the Plan Area comprises of the majority of the sand and gravel extraction activities. The eastern and northern portion comprises of the majority of the agricultural activities. The southern lower portion of the Plan Area comprises of the majority of the Capital Power Overlay, with the outer portion, comprising of the North Saskatchewan River Valley. The Plan Area contains rolling topography with environmental significant areas and has low population density. The density of population for the plan area is not expected to increase or decrease dramatically in the foreseeable future.

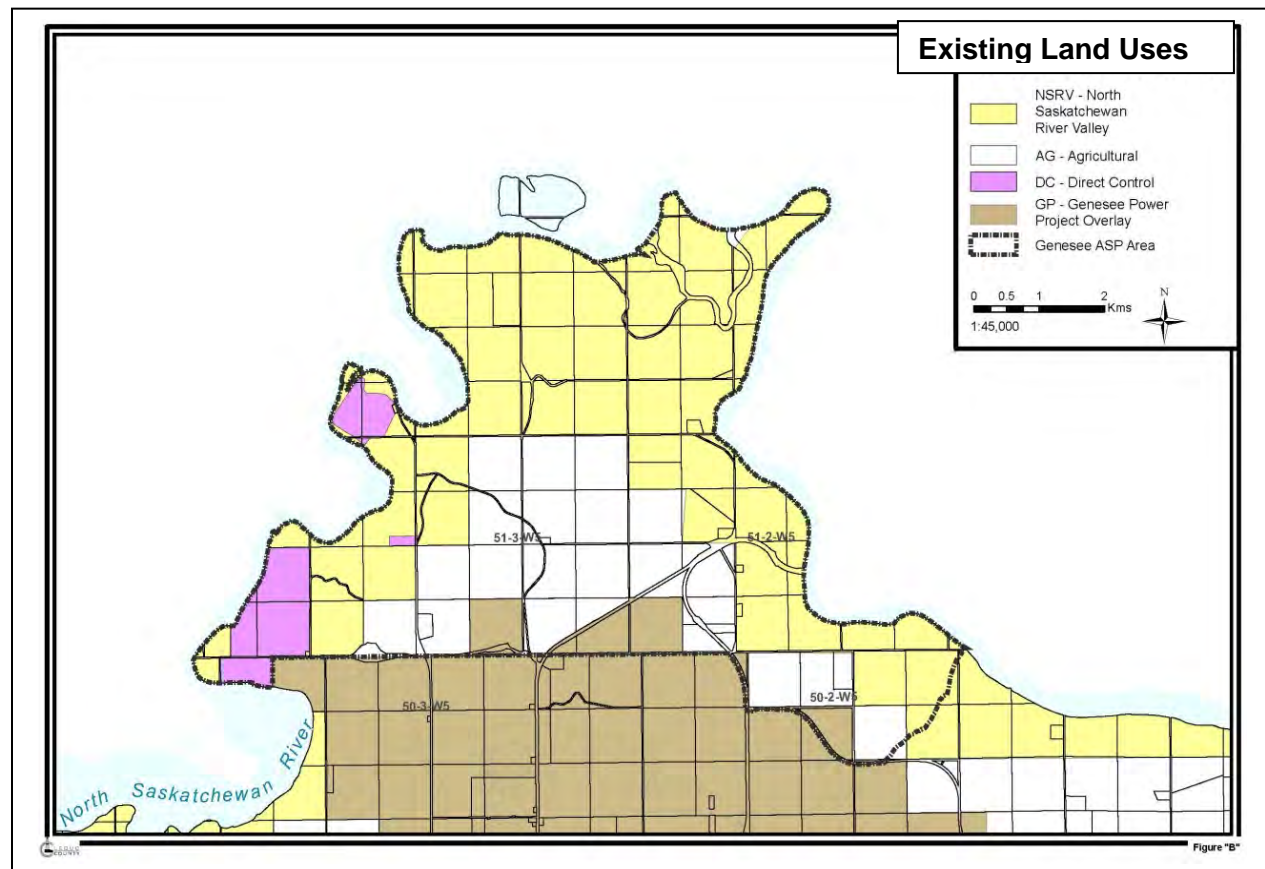


Figure B – Existing Land Uses: See Appendix B for larger illustration

Before development may be undertaken, amendments should be made to the Land Use Bylaw for lands within the Plan Area according to the content of the Genesee Area Structure Plan. The lands identified within the current Genesee Mine Permit will require a Land Use Amendment from Agricultural to Capital Power Overlay.

5.3 Development Permit Process

Any use or development of lands, buildings or signs in the Genesee ASP requires a valid development permit, unless it is specifically exempt from requiring a development permit under the Land Use Bylaw or by federal or provincial legislation. A development permit is required to be issued prior to commencement of development. The purpose of a development permit and the process involved in obtaining a development permit is to assure conformance with the district and development regulations under the Land Use Bylaw.

Once a development permit is obtained, construction must commence on the development within 12 months from the issue date or the permit will expire. Unless the land is designated direct control, the Development Authority is the development officer appointed by Council. In the case of Direct Control District, Leduc County Council is considered to be the Development Authority.

5.4 Subdivision Application Process

Subdivision is the process of dividing a parcel of land into any number of smaller pieces, each of which are given a separate legal title. Subdivision may also include lot-line adjustments. All subdivision is subject to Leduc County and Government of Alberta Regulation. The Genesee Area contains unique characteristics and topography which limits the subdividing of land. Not all land can be subdivided.

All approved subdivision applications are subject to certain conditions being met. These conditions will be listed in an official letter informing the applicant/owner of the Subdivision Authority's decision. The applicant/owner must satisfy all conditions before the County will endorse the Plan of Survey or Descriptive Plan (whichever is applicable). The endorsed plan may then be registered at the Alberta Land Titles Office by the Alberta Land Surveyor.

5.5 Leduc County Transportation Master Plan

The Transportation Master Plan analyzes the County's road network in the context of the long term, suggests improvements to the existing transportation system policies, and places priority on particular programs over the next ten years. All recommendations in the Transportation Master Plan are adhered to in the Genesee Area Structure Plan.

5.6 Leduc County – Roadway Management System

The Roadway Management System, Final Report, takes a comprehensive inventory of the existing roadway and bridge network and evaluates traffic activity, drainage and safety concerns, and all other pertinent roadway data. The report also defines strategies for development and preservation of the roadway network based on life-cycle costs, prioritizes capital projects and makes short and long term recommendations supported by cost scenarios.

The report reflects a preference for paved surface roads in terms of life cycle costs savings. Although the Area Structure Plan is in conformity with recommendations related to extending the life cycle of roadway networks, as a priority, the Area Structure Plan takes into consideration minimizing the impact on the natural environment and maintaining the general rural character of Genesee. As such, the appropriate use of road surfaces should vary according to location and context. The Area Structure Plan is more supportive of gravel roadways in general, with the exception of key access roads.

5.7 Leduc County Parks and Open Spaces Master Plan

The Parks and Open Spaces Master Plan provide policy direction and guide the future management of the County's parks and open spaces. The Parks and Open Spaces Master Plan is a non-statutory document that takes its overall direction from the Municipal Development Plan and the County Corporate Plan.

The Parks and Open Spaces Master Plan addresses population growth and the demand for more parks and open spaces. Walking and cycling trails were also identified through a facility Needs Assessment as a priority for new recreation facilities in the County. The Genesee ASP has taken this into consideration.

To satisfy the overall planning directions provided by the Municipal Development Plan and other relevant plans, specific visions, goals, and objectives for the County's parks and open spaces have been developed.

Parks

Vision

"People enjoying our parks for fun, relaxation and quiet contemplation."

Goal

To maintain the quality of life for residents and visitors by providing access to a variety of outdoor recreation opportunities.

Objectives

- i) Provide a variety of outdoor recreation opportunities to meet the needs of County residents on a year round basis.
- ii) Provide regional outdoor recreation opportunities to support economic development for tourism.

- iii) Ensure public access is available to all rivers within the County.
- iv) Identify and reserve lands that have potential to meet future recreation needs of County residents and visitors.
- v) Work cooperatively with other municipalities, agencies, organizations, and the private sector to provide a variety of outdoor recreation opportunities.
- vi) Locate major outdoor recreation facilities in attractive natural settings and in areas of high population concentration in the County.

Open Space

Vision

“Protected places providing the natural life support system for our community.”

Goal

To maintain environmental quality by protecting the natural environment for the benefit of existing and future generations.

Objectives

- i) Protect environmentally sensitive areas and provide a sustainable and biologically diverse open space system that represents the natural environment of Leduc County.
- ii) Protect riparian zones adjacent to water bodies and the valley systems associated with rivers and major streams.
- iii) Protect linear vegetation corridors to provide important ecological connections between existing and future open spaces.
- iv) Maintain the large blocks of forested areas and native grasslands that remain in the County.
- v) Identify natural features that may present environmental hazards to people.
- vi) Work cooperatively with other agencies, organizations, and landowners to protect the natural environment.

The Park Management policies within the Master Plan provide detailed principles which guide management of the existing County parks and provide direction for the addition of new parks in Leduc County.

5.8 Municipal Guide – North Saskatchewan Watershed Alliance

The Municipal Guide is a resource for municipalities and other land managers interested in voluntary watershed stewardship. It is a valuable educational and planning tool for municipalities, developers, residents, and other stakeholders interested in examining their role in the management of a healthy and sustainable watershed.

The primary purpose of the guide is to establish cooperation and collaboration between municipalities and other stakeholders, which is essential for achieving watershed stewardship success at the municipal level. It highlights opportunities for municipalities to improve and further develop their role as watershed stewards, as new information and resources become available.

This document also provides an overview of the issues facing both rural municipalities, such as the current threats to watershed health resulting from development pressures. It includes information about the components and values of a healthy watershed, and how decisions made and activities occurring in individual municipalities impact the overall watershed. The document also provides an overview of the current state and the threats to the health of the North Saskatchewan River Watershed.



Leduc County

Genesee Area Structure Plan



Part F: PLANNING TOOLS

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6.0 PLANNING TOOLS

This document includes “shall” and “should” statements and it should be noted that “shall” policy statements are considered mandatory. “Should” policy statements will be interpreted as generally expected, but there may be circumstances where compliance is not practical or technically possible.

6.1 Municipal and Environmental Reserve

The Alberta Municipal Government Act in Section 661 allocates to a Subdivision Authority the right to require the dedication of both environmental reserves and municipal reserves. The Act, in Section 664 (1), sets out the parameters defining lands that would be designated environmental reserve (ER). In Section 666 (2), parameters are outlined to calculate the amount of land that the Subdivision Authority can request for municipal reserve (MR).

Future Environmental Reserves will be requested by the Subdivision Authority as per the direction provided by the Municipal Government Act and County policy. Future Environmental Reserve and Municipal Reserve, especially those areas in close proximity to the North Saskatchewan River Valley area, are potentially suitable for Recreation/Day-Use areas should Leduc County residents illustrate a need for such in this area.



MR is expected to be primarily utilized for recreational amenity development, public access and circulation via trails through a particular development and between developments. MR may also be utilized to protect open spaces.

6.2 Municipal Reserve Strategies

- 1) Municipal reserve shall in all multi-lot subdivisions be taken in the form of land.
- 2) Municipal reserve dedication shall be used, where possible, to complement environmental reserve as well as public utility lots for such purposes as stormwater management facilities.
- 3) Any lands required for future regional municipal water and/or wastewater systems shall not be included in any municipal reserve dedication.

- 4) Public utility lot lands adjacent to municipal reserves shall not be counted towards the fulfillment of the required amount of municipal reserve dedication.
- 5) Municipal reserve lands may be used for both active and passive recreational purposes.
- 6) Municipal reserve lands should be configured such that they provide opportunities to develop a regional trail system.

6.3 AGRICULTURAL

Agriculture is a vital component of the Genesee Area. The Municipal Development Plan deems lands with a farmland assessment rating (FAR) of 41% and higher to be high capability agricultural land. The highest rating in the study area is 74.9%, which occurs only in pockets across the study area. In areas where existing farmland is poor in terms of food or forage production, alternative agricultural practices shall be permitted, particularly for farming areas that are close to sensitive natural resources.



6.3.1 Objective

Encourage the preservation of any high capacity agricultural land for continued agricultural use. It is important that all type of farming operations strive to increase their compatibility with the natural environment.

6.3.2 Policies

- 1) All agricultural lands and agricultural endeavors shall be protected.
- 2) Agricultural land shall not be given up for development unless it can be proven that agricultural uses are not feasible or sustainable.
- 3) Any new development must seek to achieve a healthy synergy with adjacent agricultural lands.
- 4) Utilize sustainable agricultural practices and seek out new techniques and innovative agriculture options toward the conservation of natural areas and systems.
- 5) Leduc County shall raise awareness for better use of pesticides and herbicides on agricultural lands.
- 6) Discourage any agricultural practice, such as cattle grazing adjacent to water bodies/lakes/streams/wetlands, that negatively impacts the natural environment.
- 7) Discourage built form or infrastructure development for the purpose of farming, which alters or fragments contiguous natural features, functions and habitat, such as water systems, forest woodlots, wetlands, stream habitats, water courses, wildlife habitat and corridors.
- 8) Agricultural uses should as much as possible integrate rather than alter natural features such as wetlands, woodlots, water courses, drainage and wildlife habitat; riparian setbacks shall be adhered to and natural landscape protective buffers provided.
- 9) Allow agricultural operations to diversify and intensify where appropriate in order to make them more economically viable.

6.3.3 Methods

- ✓ Municipal Development Plan
- ✓ Land Use Bylaw

6.4 COUNTRY RESIDENTIAL

Existing country residential developments are identified on the location map, and reflect the corresponding designations under the Municipal Development Plan and the Land Use Bylaw. The current policies, provisions and regulations of the Municipal Development Plan and the Land Use Bylaw will continue to apply to current and future country residential development.

6.4.1 Objective

To enable residential development in a manner that supports capacity of the human and biophysical environment.

6.4.2 Policies

- 1) Minimize disturbances to natural or sensitive areas.
- 2) Design new subdivisions using ecologically sensitive design practices and low impact development principles.
- 3) Additional environmental study shall be required to show lands are able to support multi-lot development. This study shall identify building envelopes and any mitigation required and shall be prepared by the applicant in support of an application for subdivision or developments.
- 4) No multi-lot residential development shall occur along the periphery of the North Saskatchewan River.
- 5) Further tree removal shall be avoided wherever possible.
- 6) No subdivision of land for residential purposes will be permitted within 400m of the boundary of the Direct Control District of the sand and gravel extraction operation unless there is developable site on each parcel a minimum of 400m from the gravel extraction operation.
- 7) No development permits for residential purposes will be issued within 400m of the boundary of a sand and gravel extraction operation.
- 8) The County may approve the subdivision and development permits for individual residences in areas where the reclamation of sand and gravel extraction areas have been completed and the lands redistricted to "Agricultural" or "Country Residential" Land Use District and where the lands which are subject to the subdivision or development permit application are more than 400m from an existing or planned sand and gravel extraction operations.

- 9) Sand and gravel extraction may be permitted within 400m of an individual residence where provision is made regarding site specific mitigation of noise, dust, visual, traffic, lighting and other effects of the sand and gravel operation as agreed to by the resident in writing.

6.4.3 Methods

- ✓ Municipal Development Plan
- ✓ Land Use Bylaw
- ✓ Genesee Aggregate Phasing Plan and Remediation Plan
- ✓ Road Use Agreements

6.5 RIVER ACCESS

There are number of constraints to river access in the Genesee Area that hinder the general public and residents from accessing the North Saskatchewan River Valley. Private ownership of a majority of the land as well as steep topography and environmental conditions all create a significant barrier. The few sites that do exist tend to be unofficial and undeveloped in nature which have the potential to cause negative effects on the environment and otherwise.



6.5.1 Objective

To explore and enhance upon river access opportunities within the Genesee Area .

6.5.2 Policies

- 1) Leduc County will explore the opportunities available for partnership with the correct officials when it comes to River access.
- 2) Leduc County will continue to explore areas to enhance river access and day-use sites.

6.5.3 Methods

- ✓ Review Leduc County Parks and Open Spaces Master Plan
- ✓ Monitoring program

6.6 RECREATION

The North Saskatchewan River is a popular recreational destination throughout its length. In the Genesee Area, it appears to be a focal point for existing recreational users even though formal sites and amenities are non-existent. Leduc County provides Genesee Heritage Park along HWY 770 which includes parking, picnic, education, and fishing opportunities. The natural features of the site also provide opportunities for wildlife and bird watching. The large expanses of natural vegetation and scenic vistas of the Genesee area create the opportunity for future recreation within the region.



Realizing the existing and potential recreational uses of the study area, we should:

- Assess the feasibility of boat launch construction or bank stabilization where existing users are camping and boating in order to control erosion and sediment delivery.
- Assess the feasibility of developing some recreational opportunities at one of the public access points to the river.
- Assess the feasibility of recreational campgrounds.

6.6.1 Objective

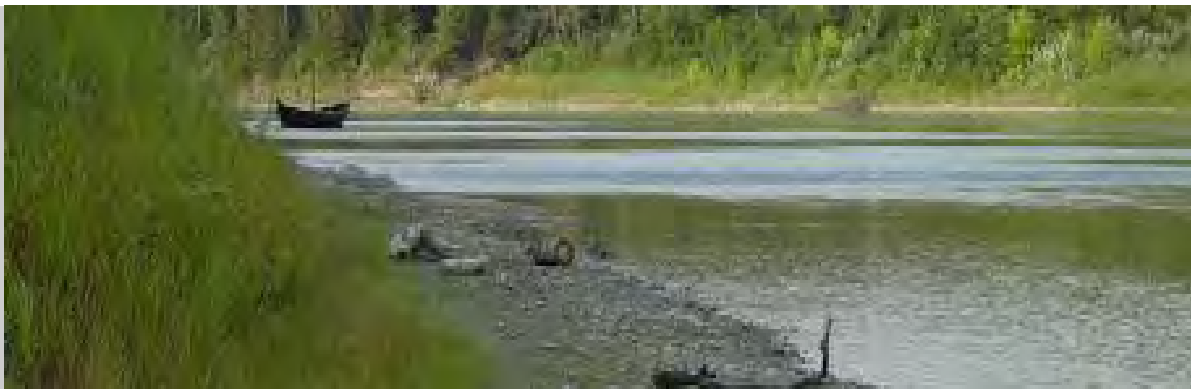
To maintain and enhance upon recreational opportunities within the Genesee Area Structure Plan.

6.6.2 Policies

- 1) Leduc County should seek to further enhance the Genesee Heritage Park as a destination point within the County.
- 2) Leduc County shall develop an education program plan on the recreational opportunities of the County that incorporates the Genesee area.
- 3) Leduc County should develop an awareness program as part of a County wide initiative on managing the interface between recreational users and private lands.
- 4) Leduc County should seek to further enhance public access points to the river.
- 5) Additional environmental study shall be required to show lands are able to support campground development. This study shall identify campsite envelopes, building envelopes and any mitigation required and shall be prepared by the applicant in support of an application for subdivision or development.
- 6) Leduc County shall develop a monitoring program on the use of existing recreational services in the area where problems exist and identify/implement solutions.

6.6.3 Methods

- ✓ Leduc County Parks and Open Spaces Master Plan
- ✓ Education program
- ✓ Monitoring program



6.7 ENVIRONMENTAL AND BIOPHYSICAL

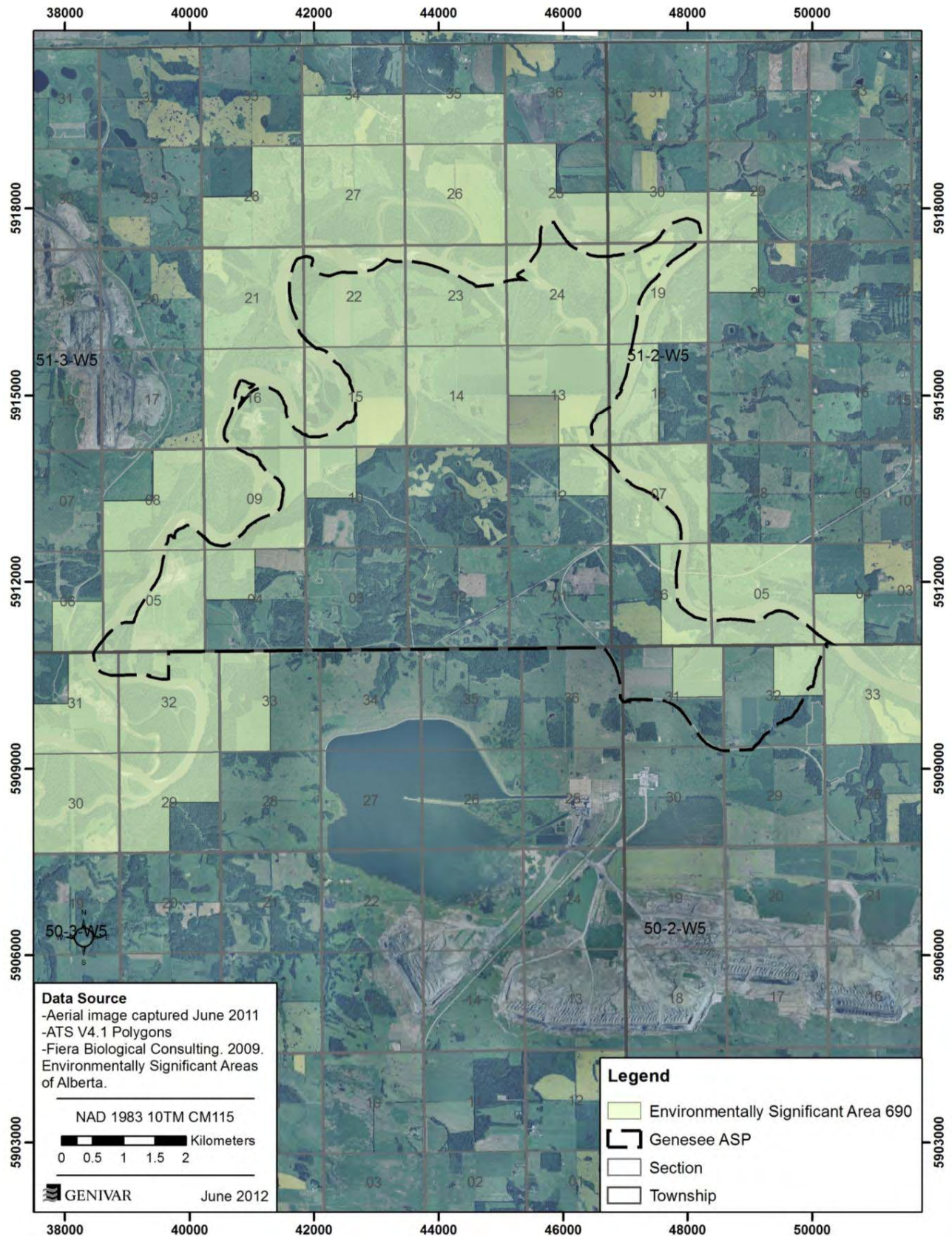
The existing data sources provided information on a comprehensive range of subjects. The fieldwork focused on limited validation of those sources, with special attention to assessing wetland functions.

The findings of the Environmental and Biophysical Assessment are:

- Wherever possible, conservation and reclamation of wetlands with adequate buffers should be promoted.
- It is recommended that the spent gravel pits should be restored as wetlands with adequate buffers.
- Few wildlife corridors in the study area were noted. Riparian corridors offer the most potential in this area as they provide habitat for wildlife as well as buffering the watercourse. The riparian buffer beside the North Saskatchewan River is very narrow or non-existent in some reaches. This is consistent with three previous environmental reports (DA Westworth 1990, Fiera 2009, and Sweetgrass Consultants 1997) that have identified the riparian area of the North Saskatchewan River in the Genesee ASP Area as having high conservation value.
- The island in Sec.24, Twp.51, Rge.3, W5 offers conservation potential. A high percentage is crown land and Price et al (2004) does not predict significant aggregate resources, the soil is poor and existing usage appears to be limited. The conservation value derives from the wetland, the large continuous size, and as a riparian buffer.



Figure C: Environmental Significant Areas



6.7.1 Objective

To minimize the impact of development on the biophysical environment.

6.7.2 Policies

- 1) Leduc County should seek to establish benchmarks on the ecosystem within the Genesee Area Structure Plan and establish an ongoing monitoring program to assist in measuring the incremental impact of future development.
- 2) Leduc County shall establish adequate setbacks and buffers from watercourses, wetlands and steep slopes in accordance with recommendations of Alberta Sustainable Resource and Development.
- 3) Leduc County shall implement a beaver management plan to manage impacts on infrastructure.
- 4) Leduc County should assist and encourage land stewardship practices to enhance water quality, wildlife, recreation, agricultural lands and woodlands.
- 5) Leduc County should work with Alberta Surface Rights Board in gathering groundwater information to assist in monitoring the impact from aggregate operations.
- 6) Leduc County shall encourage land use that do not undermine water quality and quantity.
- 7) Leduc County should carry out an analysis on identifying any wildlife corridors within the Genesee Area Structure Plan.

6.7.3 Methods

- ✓ Development of ecological benchmarks including identification of wildlife corridors within the Genesee Area Structure Plan and developing an ongoing monitoring program.
- ✓ Municipal Development Plan
- ✓ Land Use Bylaw
- ✓ Develop a Beaver Management Plan
- ✓ Work with Alberta Surface Rights Board
- ✓ Phase 1 Environmental Site Assessment (ESA)



6.8 ECONOMIC

The Genesee area is primarily a farming region and 42% of the area is in either pasture or cropland. The Genesee area contains oil and gas reserves and there are approximately 42 wells of which 24 are abandoned. Leduc County has issued several permits for home based business operating in the plan area.

There are significant sand and gravel resources in the Genesee Area Structure Plan region. The resources are becoming increasingly valuable with increasing demand. This is partly due to limited reserves and to increasing environmental and regulatory constraints regarding the development of pits in proximity to the North Saskatchewan River. Commercial factors such as haul distance, seasonal demand, proximity to Edmonton Capital Region and gravel quality, drive the demand of the commodity. There are two active gravel pits located in proximity to the North Saskatchewan River, and they are located along the west boundary of the Genesee Area Structure Plan area. There are also some other gravel extraction quarries which are inactive in the study area.



Capital Power operates a power station approximately 3 km south of the study area. It owns 120 quarters and is expanding to 180 quarters as part of a mine expansion. There are also coal deposits in the Genesee area. This facility has a gross production capacity of 1315 MW, and has a power line running east-west across the Plan Area. This Generating Station is not part of the Area Structure Plan, but will have a major influence on the long term development activities in the area. There is also a mine which is dedicated to the Genesee Generating Station that supplies approximately 5.5 million tonnes of coal per year.

6.8.1 Objective

To enhance the local Genesee economy and inform the community about the County's economic revenue and where it is invested within the community.

6.8.2 Policies

- 1) Leduc County shall encourage the development of agricultural, cottage industries, home based businesses, tourism, recreational activities.
- 2) Leduc County shall provide the public with information on where revenue is generated and spent within the County in context to the Genesee Area Structure Plan.

6.8.3 Methods

- ✓ Municipal Development Plan
- ✓ Land Use Bylaw
- ✓ County Website (www.leduc-county.com) and brochure material
- ✓ Development of a monitoring program
- ✓ Review of existing application process



6.9 GEOTECHNICAL AND HYDROGEOLOGICAL

The Plan Area is comprised of several sections of land surrounded by the meandering North Saskatchewan River which acts as the boundary of the Area Structure Plan on the west, north and east side. The meandering nature and erodible bank of the river are major concerns for the planning and development of the Plan Area.

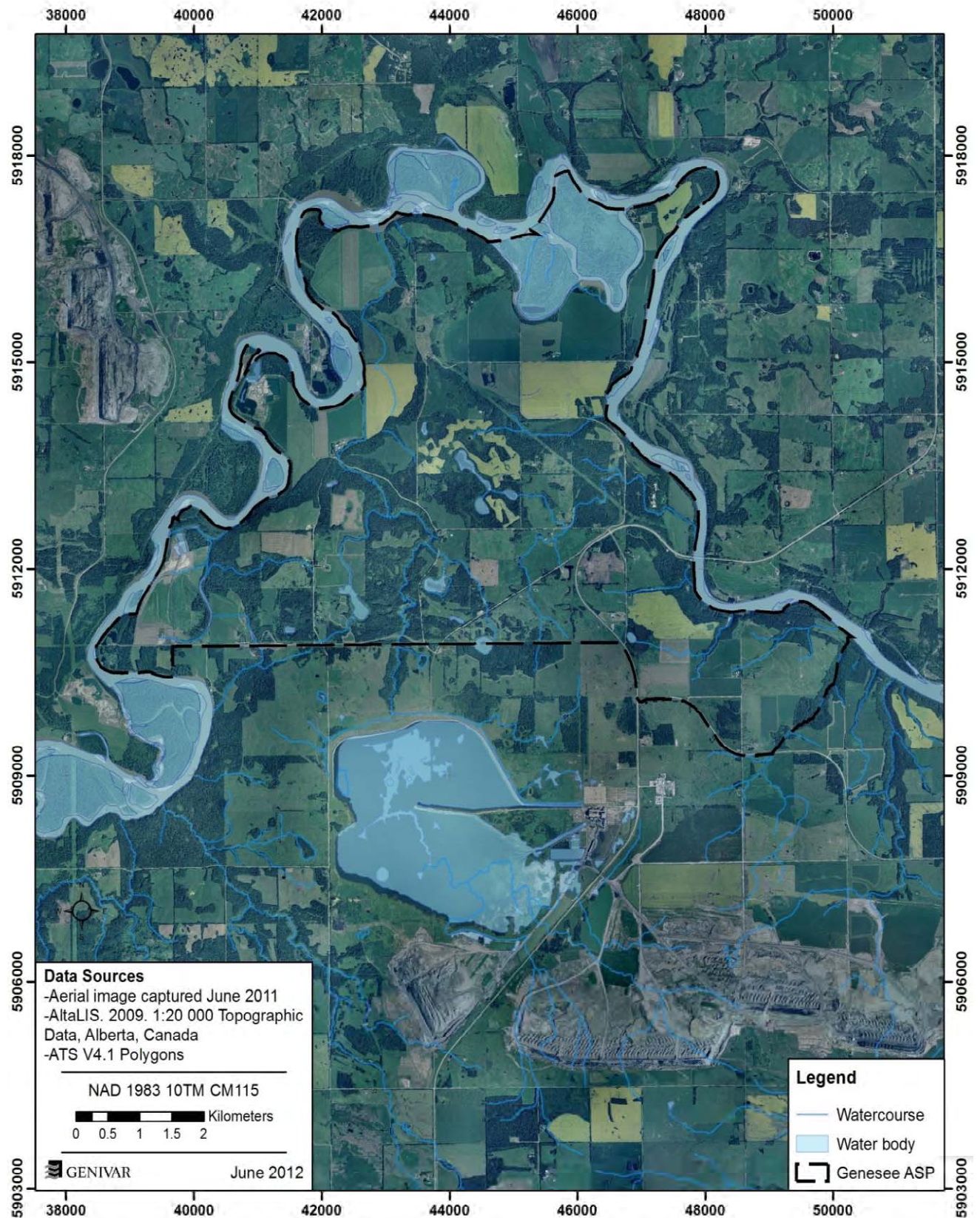
Total setback estimation (erosion setback, slope stability setback and structural setback) along the river bank is required for the planning of infrastructure within this area.



The findings of the Geotechnical and Hydrogeological Assessment are:

- There are some signs of landslides near the old road close to Range Road 32 and along the bank of the river.
- There are some unstable and erodible slopes along Highway 770, and close to the bank of North Saskatchewan River.
- There was extensive flooding in the area during 1986 and 1972 floods along the North Saskatchewan River bank. The highest flood plain boundary should be considered with further study.
- Routine assessment to remove beaver dam construction. Beaver dams can result in unpredictable stormwater flooding for both existing and future developments.

Figure D: Wetlands

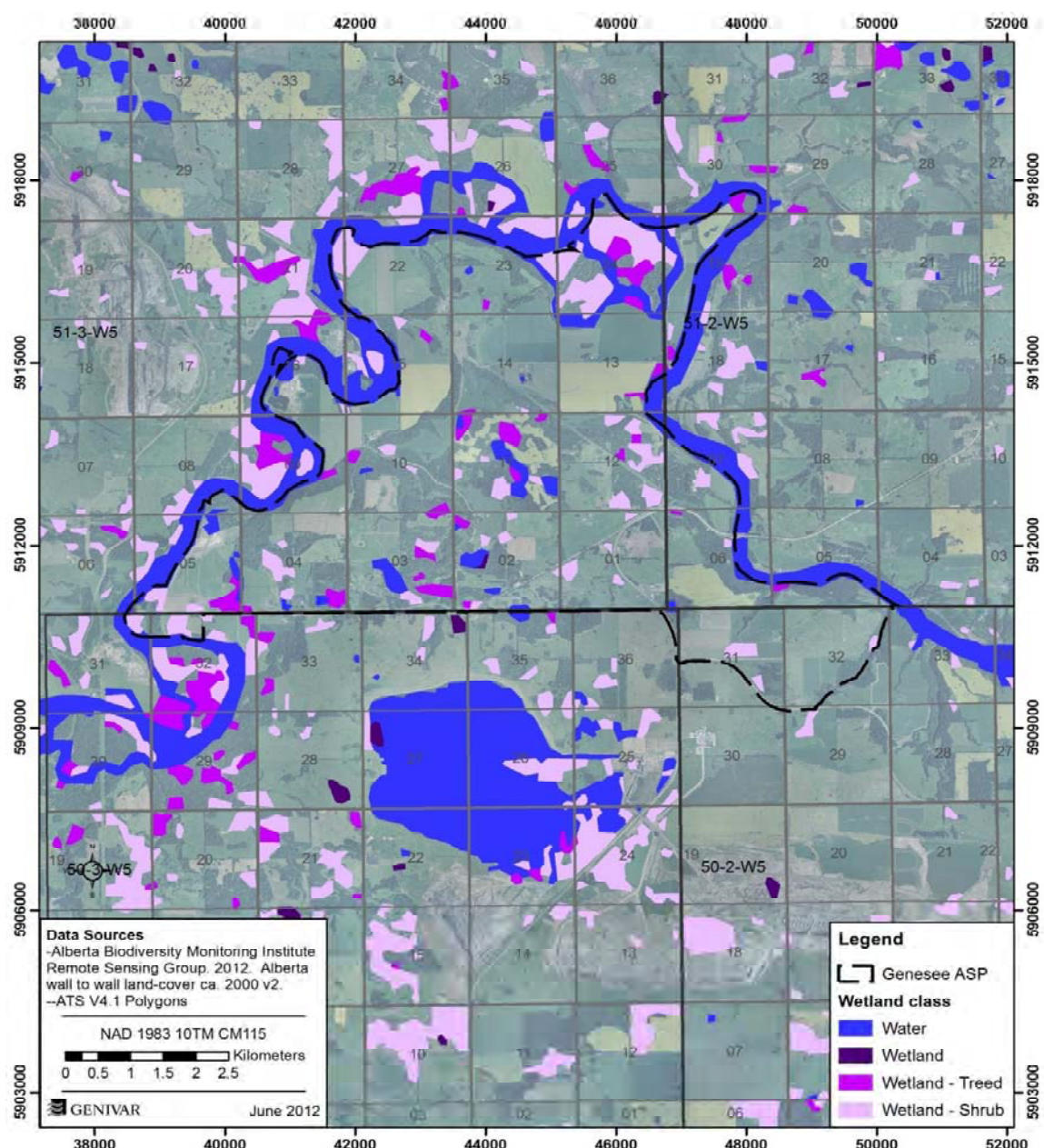


Two complementary approaches were used to assess wetlands in the Genesee Area: An existing GIS data source and a field assessment. Alberta Biodiversity Monitoring Institute Remote Sensing Group (2012) covers the Genesee Area and includes wetland land cover classes. ABMI (2012) has combined two classifications of land cover. Canadian Forest Service's Earth Observation for Sustainable Development (EOSD) map of the forested region, and Agriculture Agri-Food Canada's (AAFC's) map of the agricultural zone. Both are based on Landsat imagery. Wetlands make up about 10% of the total Genesee area according to ABMI (2012). The results are tabulated and mapped below (refer to Figures D & E).

Area of ABMI wetland classes

Land cover class	Area (m2)	Area (ha)	Percent
Wetland - Shrub	3093600	309.36	7
Wetland - Treed	1295200	129.52	3
Wetland	18800	1.88	0

Figure E: Wetland Class



6.9.1 Objective

To mitigate the impact of erosion on water catchment areas.

6.9.2 Policies

- 1) Leduc County shall establish (*non-disturbance*) buffers around watercourses, wetlands, steep slopes and drainage channels.
- 2) Leduc County shall encourage landowners to retain existing vegetation or re-vegetate along riparian buffers.
- 3) Leduc County shall avoid development being located in very poor drainage areas as identified in the Genesee Area Structure Plan that would adversely affect the ground water.
- 4) Leduc County shall establish a monitoring and maintenance program of the stormwater management system of the transportation infrastructure Right-of-way.
- 5) Leduc County shall discourage any development, aggregate operation or otherwise within the 100 year floodplain of the North Saskatchewan River.

6.9.3 Methods

- ✓ Municipal Development Plan
- ✓ Land Use Bylaw
- ✓ Financial or development incentives
- ✓ Environmental Conservation Easements
- ✓ Monitoring and maintenance program for the stormwater management system of the right-of-way

6.10 TRANSPORTATION

The Genesee Area Structure Plan is intended to identify the existing transportation network and future components based on the hierarchy established by the County's Transportation Master Plan (TMP). All components of the existing and future transportation network should be in compliance with the County's Roadway Management System (RMS).

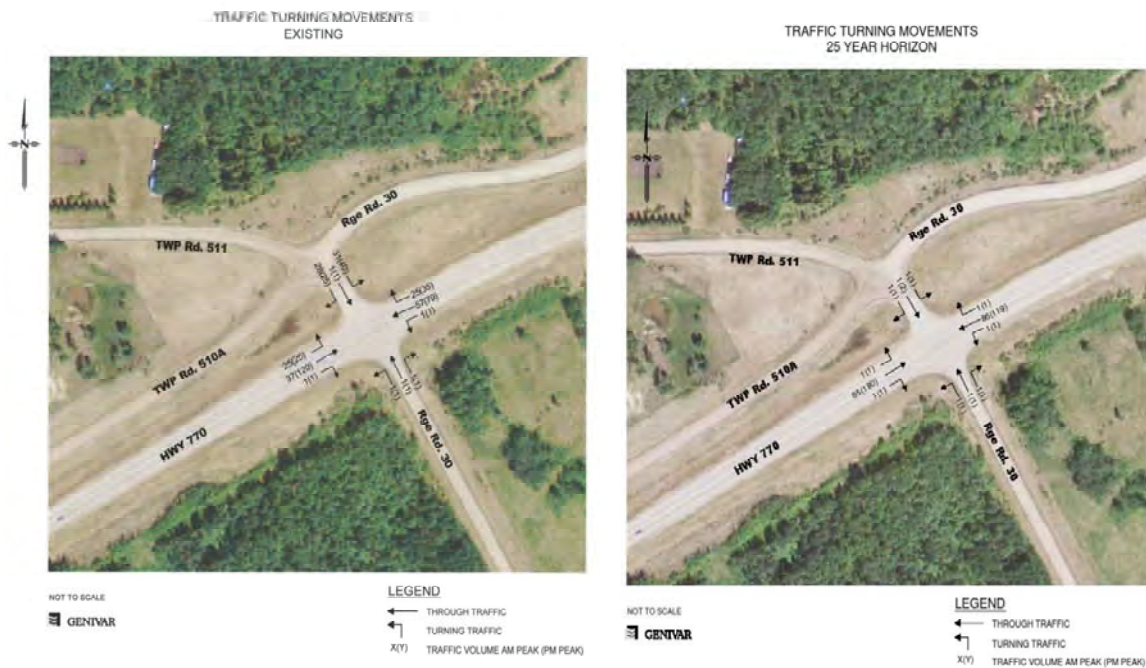


The findings of the Transportation Assessment are:

- The majority of traffic within the Genesee ASP area is comprised of gravel hauling trucks travelling from / to the active gravel pits. The local residence traffic and non-local visiting traffic is limited and comprises a small proportion of the overall traffic volumes.
- None of the roadways within the Genesee ASP area, with the exception of Highway 770 which is paved, will warrant a paved surface based on traffic volumes. The oiled surface is not desirable for high truck volume roads. Considering the construction cost of paving, GENIVAR recommends Township Road 510 and Township Road 510A should remain as gravelled and implementing dust control strategies on them.
- Gravel extraction and hauling as well as coal mining are major activities occurring within the study area which contributes to the dust issues on the predominantly gravel roads in the Area Structure Plan study area.
- The closure of Range Road 33 will not have significant traffic impacts on the adjacent roadways.

- The existing intersection treatment at the Highway 770 / Range Road 30 intersection will operate and be capable of accommodating the forecasted traffic at the 25 year planning horizon, based on the forecasted traffic volumes.
- Township Road 510A and Range Road 30 function as service roads to Highway 770. Bulbing is provided at the service road intersection (intersection with Township Road 511). Bulbing allows large vehicles to leave the service road and come to a stop at the Highway intersection without blocking the intersecting road.

Figure F: 25 YEAR HORIZON TURNING MOVEMENTS



- Traffic control signs are important in providing direction and warning to the travelling public. The County ensure the damaged signs are checked and replaced in a timely manner when required.
- It is recommended that dust control be applied on Township 510, Township 510A, and the segment of the truck route that runs in front of the local residences. The application of dust control materials is usually initiated late in the spring. Prior to the application of dust abatement material, the County shall identify the sections of roadway that need to be bladed and/or regavelled.

6.10.1 Objective

To provide a transportation network that meets the needs of residents and businesses.

6.10.2 Policies

- 1) Leduc County shall review the existing Transportation Master Plan to determine any changes required from the Genesee Area Structure Plan that will seek to sustain or improve the transportation network in correlation with increased development in the area.
- 2) Leduc County shall require business operations that involve heavy vehicle or machinery movement to enter into a Road Use Agreement.
- 3) Leduc County shall seek to improve directional and warning signage related to specific uses that involve heavy vehicular or machinery movement.
- 4) Leduc County shall require business operations with high levels of heavy vehicular or machinery movement to apply and manage dust suppression and monitoring systems along gravel haul routes.
- 5) Leduc County shall implement operational working days and hours on activities involving high levels of heavy vehicle movement.

6.10.3 Methods

- ✓ Transportation Master Plan (TMP)
- ✓ Implement signage standards based on Leduc County's Standards, Transportation Association of Canada (TAC) and Manual of Uniformed Traffic Control Devices (MUTCD) requirements in areas with heavy machinery.
- ✓ Road Use Agreements
- ✓ Directional signage implementation
- ✓ Municipal Development Plan
- ✓ Land Use Bylaw

6.11 DIRECT CONTROL

Direct Control is a land use tool for development that due to unique characteristics, unusual site conditions, or innovative design, requires specific regulations unavailable in other land use districts. According to Leduc County Land Use Bylaw 7-08, Natural Resource Extraction can take place only in a Direct Control District. A Direct Control District is laid out in a format similar to standard land use districts, which include the general purpose of the district, a list of uses for the site and any other regulations which apply. Council is the sole decision making authority on a development permit application within a Direct Control District. Decisions by Council regarding Direct Control Permits cannot be appealed.

For the Genesee ASP, the purpose of this district is to allow for the recovery, processing, and removal of natural extractive resources (sand and gravel) while ensuring the prevention of significant adverse impact on neighbouring land uses and environmentally sensitive areas.

This district shall only apply where all the following conditions are met:

- a) That the proposed development is in the opinion of Council considered appropriate for the site, having regard to the Land Use Bylaw, the Municipal Development Plan and the scale and character of the proposed development in relation to the surrounding area.
- b) In reviewing a redesignation request, the planning staff of Leduc County will prepare a tentative new district and accompanying schedule with respect to Subdivision and Development Regulations prior to the review by Council.
- c) All proposed developments shall also comply with all applicable policies outlined in this Area Structure Plan.



6.12 AGGREGATE EXTRACTION

Aggregates are a precious, non-renewable resource, much like oil or natural gas, and must be protected and respected. The aggregate mining industry is very tightly regulated in Alberta. Companies that mine aggregates must adhere to many environmental laws and regulations.

Sand and gravel extraction operations will only be authorized following re-districting to the Direct Control District and the issuance of a development permit by the County and authorizations by Alberta Environment.

Options to minimize potential impacts of gravel extraction include:

- Develop an Aggregate Phasing Plan within the Plan Area to manage the rate of the extraction from the area
- Increase frequency of dust abatement on access roads
- More restricted hours of operations
- A larger, more effective buffer between the pit and adjacent properties, the North Saskatchewan River and environmentally sensitive areas whether natural (through trees) or constructed (through a noise barrier)

Appendix C: Sand and Gravel Extraction Sites and Deposits (refer to Appendix C at the back)

6.12.1 Objective

To enable the extraction of aggregate resources in a manner that does not undermine the life supporting capacity of the human and biophysical environment.

6.12.2 Policies

- 1) Leduc County shall develop a Genesee Aggregate Phasing Plan within the Genesee Area Structure Plan to manage the rate of the extraction from the area.
- 2) Leduc County shall require the aggregate operator to carry out groundwater monitoring for both quality and quantity of neighbouring wells within the aquifer area of the quarry during the life of extraction.

- 3) Leduc County shall require the aggregate operator to carry out an environmental impact assessment approved by Leduc County if located in an environmentally significant area.
- 4) Leduc County shall impose strict design, buffering and reclamation standards, and the (extraction) operation will not be allowed where any adverse environmental impacts cannot be mitigated to the satisfaction of the County.
- 5) Leduc County shall require the aggregate operator to limit the exposed aggregate quarry area and carry out remediation progressively through the life of the quarry.
- 6) Leduc County shall develop a Genesee Remediation Plan that creates cohesion between different lands owners and incorporates future recreational opportunities.
- 7) Leduc County shall require the aggregate operator to prepare a remediation plan that is consistent with the Genesee Remediation Plan.
- 8) Leduc County shall require aggregate operators to demonstrate how they will minimize the visual, noise, smell and dust impacts on adjoining landowners arising from the operation. For instance, the use of potential remediation methods including, but not limited to berming, landscape and vegetative buffering.
- 9) Leduc County shall implement operational working days and hours on aggregate extraction.

6.12.3 Methods

- ✓ Municipal Development Plan
- ✓ Land Use Bylaw
- ✓ Requirements of permit applications
- ✓ Genesee Aggregate Phasing and Remediation Plan (Integrate into one Plan)
- ✓ Road Use Agreements
- ✓ Development of a monitoring program

Leduc County

Genesee Area Structure Plan



Part G: IMPLEMENTATION

7.0 IMPLEMENTATION

While the Leduc County Genesee Area Structure Plan provides the framework for land use change and development in the plan area, the County may require more localized plans to further articulate land use and development directions.

7.1 Amendments to the Municipal Development Plan

Upon adoption of the Genesee Area Structure Plan, the Municipal Development Plan of the County will need to amend the Map, to reflect the new area of the Genesee Area Structure Plan. Amendments to the Municipal Development Plan should recognize the Genesee Area as an important environmental and resourceful area, as well as the potential for recreational development which is associated with this role.

7.2 Amendments to the Land Use Bylaw

The Leduc County Land Use Bylaw will be amended to reflect new land uses and/or districts proposed in the future. Any new districts proposed will be consistent with the Area Structure Plan, and should prescribe appropriate setbacks, design standards and other regulations, based in part on the policies laid out in this document.

7.3 Plan Review

The Genesee Area Structure Plan is intended to be a living document. That is, the plan should evolve and respond to events that take place both within and outside of the plan area in Leduc County, which may affect the plan. To do so, the plan should be reviewed from time to time to ensure that it remains relevant and still reflects the vision and priorities of the Genesee community. Any review of this plan shall involve opportunities for public engagement. The anticipated form of such engagement will be outlined at the time of a formal launch of a plan review.



7.4 Policy Effectiveness

When proposing development related to a major environmental feature such as a river or trees, it is crucial to monitor the progress of the plan and ensure that development does not negatively impact the environment. In the Genesee Area Structure Plan, the highest priority is the environment. If, at any time, Leduc County Council is of the opinion that further development will seriously impose on the environment, a full review of this plan will be initiated. Results of this review may include mitigate measures imposed on existing developments and additional controls on any new development.

For a development area within the Area Structure Plan, depending on the level of detail and the nature of the proposed land use change or development, the County may require the preparation of an outline plan that shall address:

- (a) the suitability of the features of the site for the proposed use or uses;
- (b) the site design, including parcel sizes;
- (c) the impact on the site and adjacent lands, including land uses thereon;
- (d) the consistency of the outline plan with the Leduc County Genesee Area Structure Plan and any other applicable statutory plan, including explanations for variances which the County should address as part of the outline plan approval process;
- (e) the impacts on the environment and the proposed means to mitigate impacts;
- (f) the traffic impacts and the proposed means to mitigate impacts;
- (g) the provisions for road widening, road improvements and intersection improvements for access roads leading to the site;
- (h) the internal road linkages with adjacent lands;
- (i) the provisions for water supply and waste water disposal services;
- (j) the provisions for stormwater management;
- (k) the provisions for open space, including linkages with adjacent lands;
- (l) the dedication of land for environmental reserve, municipal reserve, school reserve, municipal and school reserve or money-in-place of land, and
- (m) any other matters required by the County.

7.5 Monitoring

Factors affecting land use, development, settlement, farming and resource use are dynamic, the effectiveness and continued relevance of this Plan shall be monitored on an ongoing basis and may be reviewed from time to time.

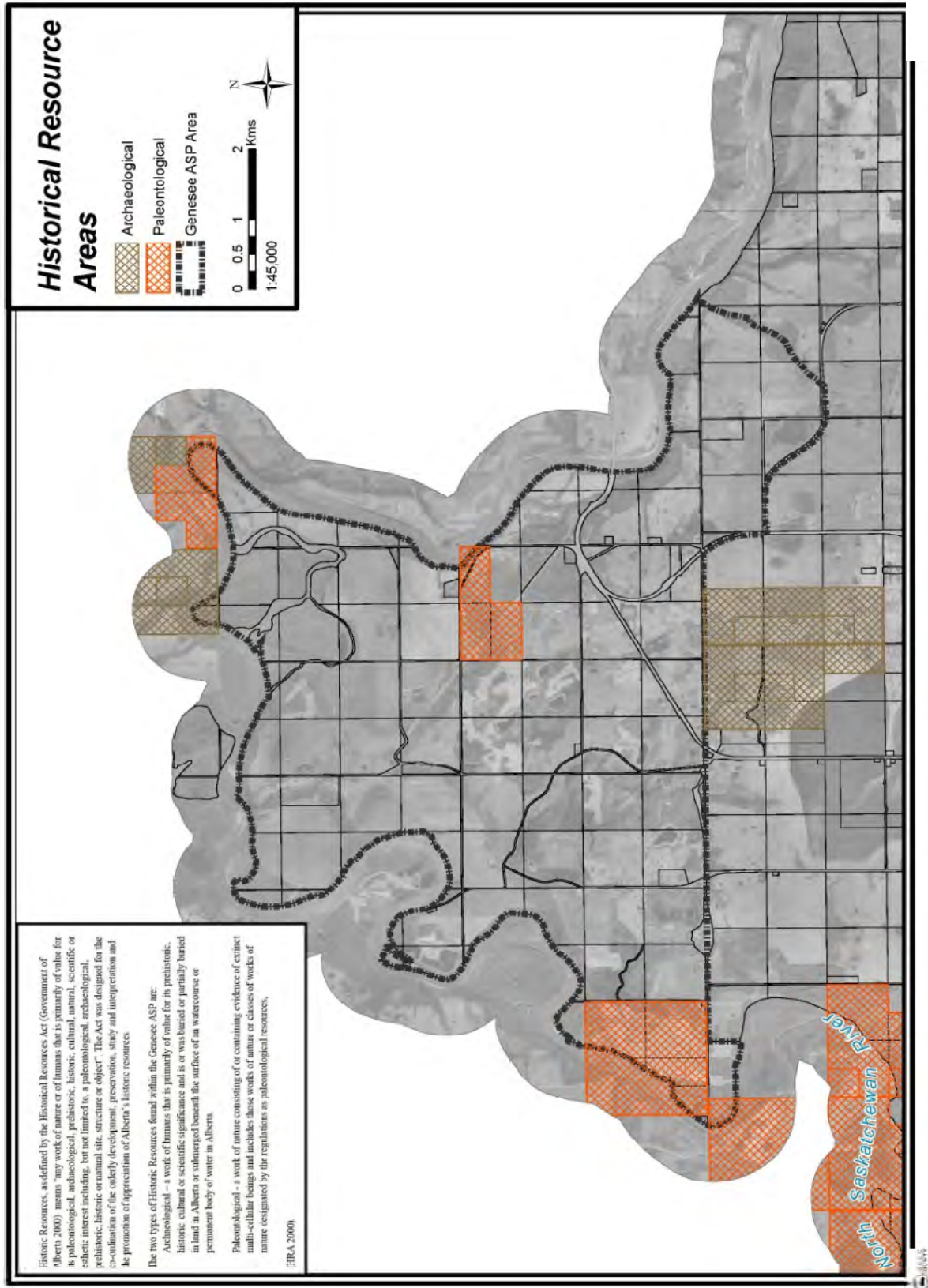
7.6 Plan Amendment

The dynamics of environmental and economic change, make it necessary from time to time to consider changes to the Leduc County Genesee Area Structure Plan. The Council of Leduc County or a person or persons having an interest in land in the area may initiate an amendment to the Leduc County Genesee Area Structure Plan.

If an amendment is initiated by a person or persons having an interest in land in the Plan area, prior to commencement of the bylaw amendment process the County may require the initiator to support the proposed amendment with a report or reports and other background information.

Once all the concerns have been addressed to the satisfaction of Leduc County administration and all supporting studies and material have been finalized, a public hearing date will be set and advertised. At the hearing, County administration will make a recommendation to County Council, who will also listen to final public comments, including any made by the applicant. Council will then vote on a bylaw to accept the amendment.

Figure G: Historical Resource Areas



DEFINITIONS:

Aggregate - Aggregate is the word used to describe sand, rocks, gravel, crushed stone, shale, basically any rock product that is mined out of the ground.

Environmental Remediation - Removal of pollution or contaminants from environmental media such as soil, groundwater, sediment, or surface water for the general protection of human health and the environment or from a brownfield site intended for redevelopment.

Equivalent land capability – The ability of the land to support various land uses after conservation and reclamation is similar to the ability that existed prior to an activity being conducted on the land, but that the individual land uses will not necessarily be identical. (*Conservation and Reclamation Regulation, EPEA Alberta Regulation*)

Excavation – An excavation of topsoil and subsoil for the purposes of extracting sand, gravel and coal.

Extraction – Removal of sand and gravel resources following excavation of topsoil and subsoil.

Groundwater – All water under the surface of the ground (*Environmental Protection and Enhancement Act, EPEA Alberta Regulation*)

Operations – Primary and secondary sand and gravel extraction activities.

Operator – Company or organization and its representatives involved in sand and gravel extraction.

Pit – An excavation in the surface made for the purpose of removing, opening up or proving sand, gravel, clay, marl, peat or any other substance, and includes any associated infrastructure, but does not include a mine or quarry. (*Environmental Protection and Enhancement Act, EPEA Alberta Regulation*)

Reclamation – Removal of equipment or buildings or other structures or appurtenances; the decontamination of buildings or other structures or other appurtenances, or land or water; the stabilization, contouring, maintenance, conditioning or reconstruction of the surface of land; and any other procedure, operation or requirement specified in the regulations (*Conservation and Reclamation Regulation*)

Remediation - Subject to an array of regulatory requirements, and also can be based on assessments of human health and ecological risks where no legislated standards exist or where standards are advisory.

APPENDIX A:

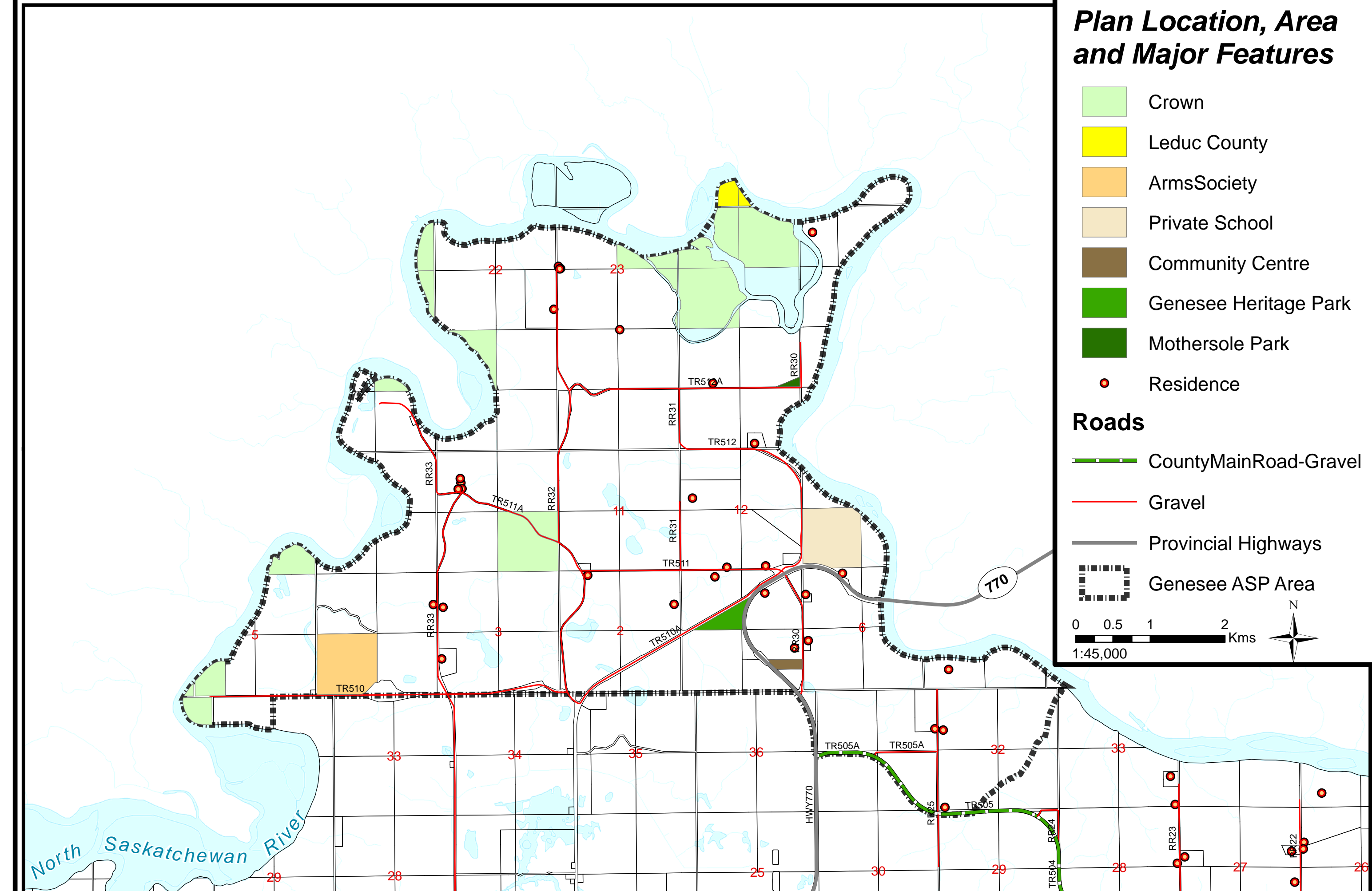
Plan Location, Area and Major Features

- Crown
- Leduc County
- ArmsSociety
- Private School
- Community Centre
- Genesee Heritage Park
- Mothersole Park
- Residence

Roads







- CountyMainRoad-Gravel
- Gravel
- Provincial Highways
- Genesee ASP Area

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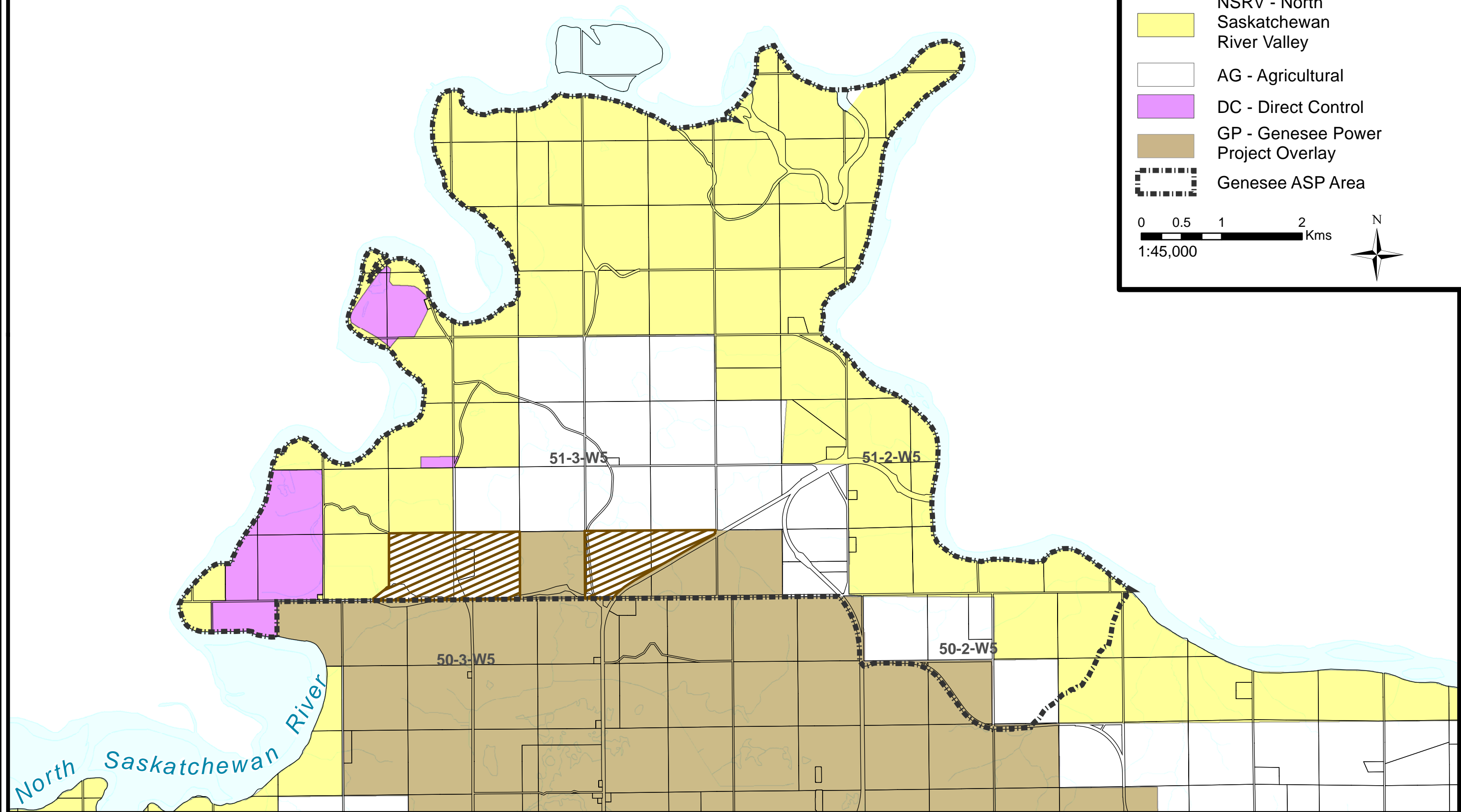


APPENDIX B:

Existing Land Use Districts





-  Capital Power Mine Permit
-  NSRV - North Saskatchewan River Valley
-  AG - Agricultural
-  DC - Direct Control
-  GP - Genesee Power Project Overlay
-  Genesee ASP Area

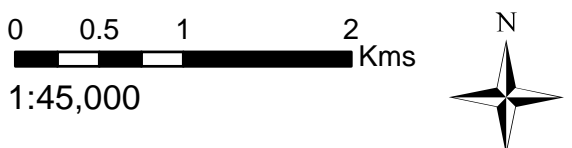
0 0.5 1 2 Kms
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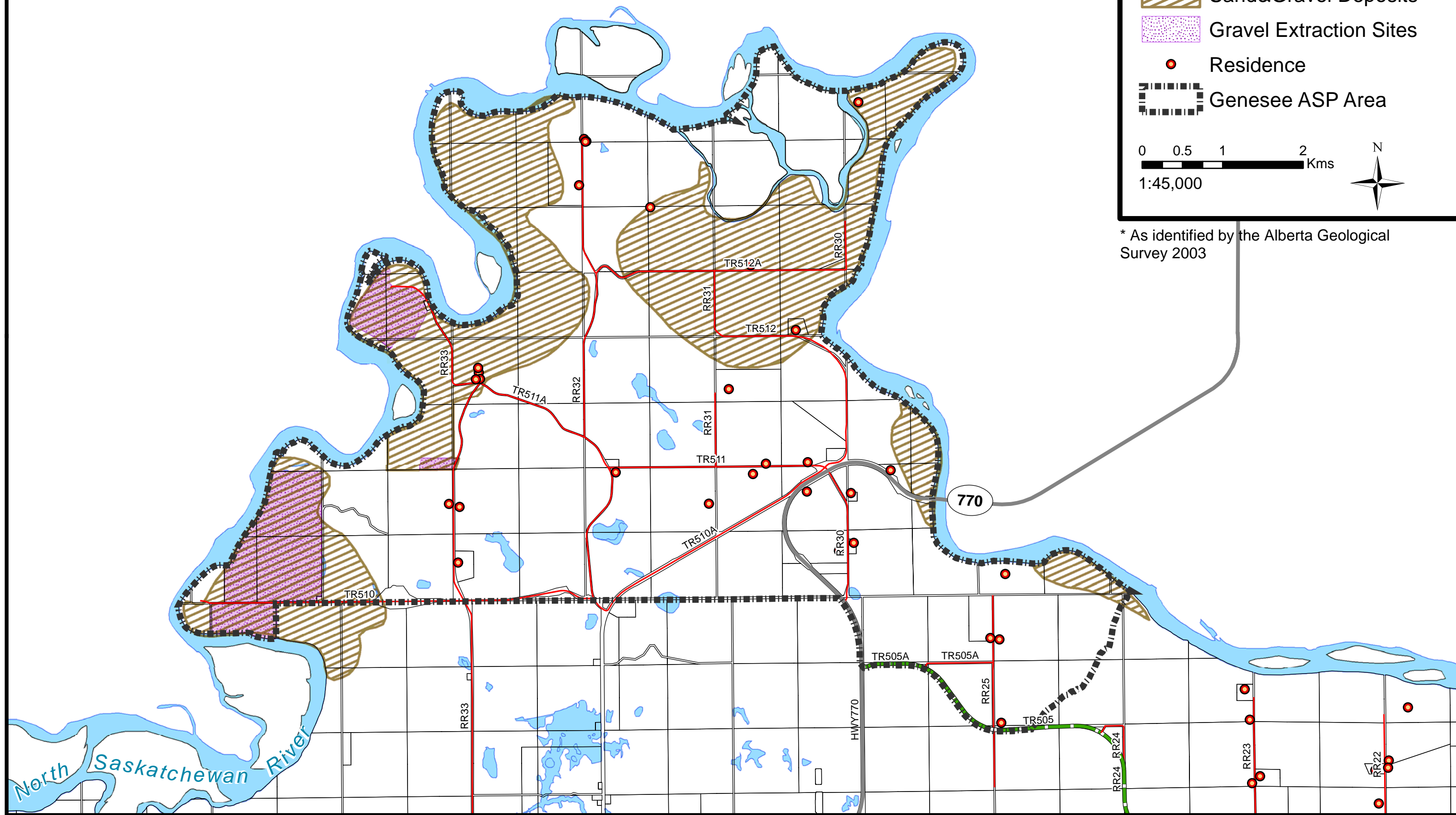
APPENDIX C:

Sand & Gravel Extraction Sites and Deposits

-  Sand&Gravel Deposits *
-  Gravel Extraction Sites
-  Residence
-  Genesee ASP Area



* As identified by the Alberta Geological Survey 2003



REFERENCES:

Technical Reports

Genivar Inc.

Transportation Assessment

Geotechnical and Hydrogeological Assessment

Environmental and Biophysical Assessment

Other References

Agriculture and Agri-Food Canada. 1998. The Canadian System of Soil Classification. Publication 1646 (3rd edition ed.). Ottawa, ON: NRC Research Press.

Agriculture and Agri-Food Canada. 2006. Alberta Soil Names File (Generation 3) User's Handbook. Edited by Bock MD, Brierley JA, Walker BD, Thomas CJ, Smith PE.

Alberta Biodiversity Monitoring Institute Remote Sensing Group. 2012. Alberta wall to wall land cover ca. 2000 v2.

Alberta Conservation Information Management System. 2010. Online data accessed April 2012. Alberta Tourism Parks and Recreation, Edmonton, Alberta.

Alberta Environment. 2003. Code of practice for watercourse crossings.

Alberta Environment 2009. Using the ESAR Document Publishing Application.

Alberta Soil Information Centre. 2001. AGRASID 3.0: Agricultural Region of Alberta Soil Inventory Database (Version 3.0). Edited by JA Brierley, TC Martin, and DJ Spiess. Agriculture and Agri- Food Canada, Research Branch; Alberta Agriculture, Food and Rural Development, Conservation and Development Branch.

Alberta Sustainable Resource Development. 2006. Code of practice for watercourse crossings management area maps.

Alberta Sustainable Resource Development, Alberta Environment, Alberta Community Development and

Agriculture and Agri-Food Canada. 2005. Natural Regions and Subregions of Alberta.

Alberta Tourism Parks and Recreation. 2011. Alberta Conservation Information Management System.

Castelle AJ, Johnson AW, Conolly C. 1994. Wetland And Stream Buffer Size Requirements—a Review. *Journal of Environmental Quality* 23: 878-882.

Cooke SS. 2000. Wetland and Buffer Functions Semi-Quantitative Assessment Methodology (SAM).

DA Westworth & Associates Ltd. Environmentally Sensitive Areas Study: County of Leduc. For Edmonton Metropolitan Regional Planning Commission. Edmonton.

Dunne T, Leopold LB. 1978. Water in environmental planning. San Francisco: W.H. Freeman and Co.

Ecological Stratification Working Group. 1995. A National Ecological Framework for Canada. Ottawa/Hull: Agriculture and Agri-Food Canada, Research Branch, Centre for Land and Biological Resources Research, and Environment Canada, State of the Environment Directorate, Ecozone Analysis Branch.

Faber-Langendoen D, Master L, Nichols J, Snow K, Tomaino A, Bittman R, Hammerson G, Heidel B, Ramsay L, Young B. 2009. NatureServe Conservation Status Assessments: Methodology for Assigning Ranks. Arlington, VA: NatureServe.

Fiera Biological Consulting. 2009. Environmentally Significant Areas. Provincial Update 2009. Report prepared for Alberta Tourism, Parks and Recreation. Edmonton, Alberta.

Fiera Biological Consulting. 2010. Aquatic Environmentally Significant Areas in Alberta. Report prepared for Alberta Environment, Edmonton, Alberta. Fiera Biological Consulting Report Number 9030-2.

Government of Alberta. 2000. Wildlife Act. Revised Statutes of Alberta 2000. Chapter W-10. Edmonton: Alberta Queen's Printer.

Government of Alberta. 2003. Water Act: Revised statutes of Alberta 2000 Chapter W-3.

Government of Alberta. 2009. Fisheries & Wildlife Management Information System Internet Mapping Tool.

Government of Alberta. 2000. Environmental Protection and Enhancement Act

Government of Alberta. 2000. Public Lands Act

Government of Alberta. 2000. Alberta Land Stewardship Act

Government of Canada. 2002. Species at Risk Act (S.C. 2002, c. 29).

Jenson SK, Domingue JO. 1988. Extracting Topographic Structure from Digital Elevation Data for Geographic Information System Analysis. Photogrammetric Engineering and Remote Sensing 54: 1593-1600.

Interagency Advisory Committee on Water Data. 1981. Guidelines for determining flood flow frequency. U.S. Geological Survey, Office of Water Data Coordination. Bulletin #17B of the Hydrology Subcommittee, revised September 1981.

Kemper JT. 2009. Alberta Natural Heritage Information Centre Vascular and Non-vascular Plant Tracking and Watch Lists. Edmonton: Alberta Tourism Parks and Recreation, Parks Division.

Natural Regions Committee. 2006. Natural Regions and Subregions of Alberta in Compiled by D.J Downing and W.W. Pettapiece, ed: Government of Alberta.

Price, MC, NL Clarke, EJ Waters. 2004. Alberta Sand and Gravel Deposits with Aggregate Potential. Alberta Geological Survey.

Raymond D, Semiltsch J, Bodie R. 2003. Biological criteria for buffer zones around wetlands and riparian habitats for amphibians and reptiles. Conservation Biology 17: 1219-1228.

Sweetgrass Consultants Ltd. 1997. Environmentally Significant Areas of Alberta. Report Prepared for Alberta Environmental Protection. Edmonton, Alberta.