

# Highvale End Land Use Area Structure Plan



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## Executive Summary

### Overview

The Highvale End Land Use Area Structure Plan (ASP or Plan) establishes a planning framework for future land use in the area known as TransAlta's Highvale Mine and surrounding lands which include the Hamlet of Keephills. This ASP provides a future land use concept for the area; it integrates recreational uses with designated environmental areas, identifies a transportation network, and aligns with the community's vision:

*The Highvale area has a history that is celebrated, ecosystems that are healthy and biodiverse, a growing Hamlet in Keephills, active and passive recreational amenities for residents and visitors, and an economic base built on agriculture and strategically located commercial and industrial employment areas.*

The ASP is a statutory land use plan that replaces the 1997 ASP. An update to the ASP is required at this time because:

- the plan area has undergone substantial changes, including approval of the Sundance 7 gas fired power plant and the expansion of the mine boundary to include pits 8 and 9;
- reclamation plans for the mine were updated by TransAlta in 2015 and approved by the Alberta Energy Regulator (AER). ASP policies need to reflect the approved reclamation plan; and,
- ASP policies need to be regularly updated to align with existing municipal plans such as the Municipal Development Plan (MDP).

### Public Engagement

Extensive engagement was undertaken to complete the Plan update. This included the Steering Committee, three resident engagements, and departmental engagement. Staff from County departments were engaged throughout the project to ensure ASP policies align with existing County plans.

### ASP Policy Highlights

#### Land Use Concept

The proposed land uses for the Highvale mine (post reclamation) consist mainly of agricultural, recreational, and conservation lands, with potential strategic development of industrial and commercial nodes. Multi-parcel subdivision development will be prohibited in the plan area with the majority of residential development directed to the Hamlet of Keephills.

#### Agricultural, Residential and Hamlet Development

For lands within the current Highvale Mine permit boundary, a maximum of one residential lot may be subdivided from a quarter section, due to the nature of groundwater resources post reclamation and the desire to retain larger tracts of agricultural lands for agricultural purposes. For lands outside the current Highvale Mine permit boundary, a maximum of four residential lots may be subdivided from a quarter section, unless otherwise allowed in this Plan, other Statutory Plan, or Outline Plan. CFO's may be permitted in the Plan area when in compliance with provincial regulations, Parkland County's MDP and the Wabamun Lake Sub-Watershed Plan.

Residential, commercial, business industrial, and institutional uses will be directed to the Hamlet of Keephills. ASP policies acknowledge the importance of the Keephills library and school site as a community asset.



### **Commercial and Industrial Development**

Heavy industrial land uses will be prohibited in the plan area post reclamation. Future commercial and industrial development will be strategically located with local commercial development supported in the Hamlet of Keephills. The Keephills Generation Plant site will be retained for industrial uses. Future resource extraction operations can be considered in the plan area when operations comply with all provincial and municipal regulations and permit approvals, follow best management practices, and do not conflict with agricultural operations.

### **Environment**

ASP policies protect existing Environmentally Sensitive Areas (ESAs), and future end pit lakes and wetlands for their environmental and recreational value. The ASP also acknowledges existing (and future) wildlife and wetland habitats, reforestation opportunities, and setbacks for watercourses. The ASP policies will address invasive species, sedimentation, and the seepage of materials into groundwater systems.

### **Transportation Network, Servicing and Utilities**

The ASP outlines roadways which will remain open during mining operations, as well as roadways constructed after land reclamation. The ASP transportation network aligns with the County's Draft Transportation Master Plan mapping.

All future development in the plan area will require private on-site servicing. The ASP outlines several constraints to servicing, and advises how developments can overcome these constraints.

### **Recreation and Open Space**

The ASP proposes a conceptual recreational trail linking Wabamun Lake to the North Saskatchewan River through the Hamlet of Keephills. This non-mechanized trail would be developed as demand warrants and resources permit. The ASP also proposes a large park to be located south of Lake Wabamun. Park location, size and programming will be determined in the County's Parks, Recreation, and Culture Master Plan.

### **Development Staging, implementation, and Alberta Coal Reduction Strategy**

Final reclamation certification on mine lands will be completed by 2070. All reclamation activities are coordinated by the Alberta Energy Regulator (AER). The County will have land use jurisdiction over mine lands only once a reclamation certificate has been issued by the AER.

The ASP will require amendments to the Municipal Development Plan (MDP), and Land Use Bylaw. Agreements with TransAlta will need to be established for land acquisition, and an implementation strategy developed for the ASP.

Land reclamation and development staging may be expedited by the Government of Alberta's Coal Reduction Strategy. The ASP will be updated once more information is provided on the strategy.

### **Summary**

The ASP will guide future planning and development decisions within the Plan area. More detailed plans may be required for any future development in order to specifically address land uses, historical and environmental matters, as well as transportation and servicing requirements. The ASP will be updated on a regular basis to ensure consistency with provincial and municipal plans, and to best reflect development demand and community and resident input.



## 1.0 Plan Disclaimer

This Area Structure Plan (ASP) reflects current conditions as of March 2016 and the mining area licensed to TransAlta by the Alberta Energy Regulator. Due to the Government of Alberta's provincial policy to phase out coal extraction by 2030, alternative planning and reclamation of the Highvale Mine may follow to meet this goal. Accordingly, this ASP shall be updated with new information from TransAlta as it endeavours to meet provincial policy. At this time reclamation plans remain the same.



## 2.0

### Introduction

The purpose of the Highvale End Land Use Area Structure Plan (ASP or Plan) is to establish a framework for future land use planning for the area known as TransAlta's Highvale Mine and surrounding lands, including the Hamlet of Keephills. This ASP provides a future land use concept for the area that integrates recreational uses with designated environmental areas and a transportation network.

The County will have jurisdiction over lands outside the Mine and Mine lands once a reclamation certificate is issued by the Alberta Energy Regulator (AER). Until this happens, the County cannot impose a timeline for reclamation or reclamation conditions. This is the responsibility of the AER.

#### 2.1 Plan Preparation

The preparation of the ASP was a collaborative effort between County Council, Administration, the Project Planning Committee, and ISL Engineering and Land Services Ltd. This collaborative process included the following public engagement activities:

- A project launch was advertised on the County website, Parkland Communicator, Community Voice, Spruce Grove Examiner, and the Stony Plain Reporter;
- A Project Steering Committee was formed to oversee the preparation of the ASP. The Committee included representatives from Parkland County, TransAlta, and the Committee on Keephills Environment (COKE). The Steering Committee met three (3) times throughout the project;
- County staff and referral agencies were contacted to obtain input on current and future requirements;
- A public open house was held on May 28, 2015 to gather perspectives and obtain input on hopes for and concerns in the Plan area;
- A public workshop was held on November 5, 2015 to review the Plan vision and proposed policy directions;
- A public open house was held on March 1, 2016 to review the draft ASP;
- A letter of invitation was sent to all residents in and adjacent to the Plan area and the Paul Band First Nation to encourage attendance for each open house and the workshop. The events were also advertised on the Parkland County website, in the Parkland Communicator, and in ads placed in both the Spruce Grove Examiner and Stony Plain Reporter and other relevant newspapers (where applicable). In addition, social media (Facebook and Twitter) messages were distributed through Parkland County accounts; and
- Formal input at each open house and the workshop was gathered via feedback sheets and/or workbooks that respondents could fill out and submit at the event or return by fax or email. The materials were also available online on the project website.

A summary of the public engagement activities and the feedback provided to date is contained in a separate document titled "Highvale End Land Use Area Structure Plan Public Engagement: What We Heard Report".



## 3.0 Policy Context

Future development in the Plan area will be subject to the relevant provincial legislation and County plans and policies that apply to the Plan area. The ASP must meet the requirements of the *Municipal Government Act*, conform to the principles and policies of the *Capital Region Growth Plan*, and meet the intent of the County's plans and policies. The following information describes the applicable requirements of the legislative context and directs the ASPs response.

### 3.1 Municipal Government Act

The *Municipal Government Act* (MGA) allows municipalities, such as Parkland County, to create a detailed framework for the subsequent subdivision and development of an area of land through a planning document called an Area Structure Plan (ASP). Section 633 of the MGA states that an ASP must describe:

- The sequence of development proposed for the area;
- The land uses proposed for the area;
- The density of population proposed for the area;
- The general location of major transportation routes and public utilities; and,
- May also contain any other matters that County Council considers necessary.

This ASP meets the requirements of the MGA by describing that:

- Development will occur on Highvale Mine lands after reclamation certificates have been issued and on surrounding lands within the Plan area in accordance with market demand;
- Land uses for the Plan area are primarily agricultural, and new residential development will be directed to the Hamlet of Keephills, and recreational and environmentally sensitive areas will be identified;
- The projected population for the Plan area is 3,313. The population in the rural portion of Plan area will be 3,108 (based on one farmstead/quarter section), while the Hamlet will be 205 residents. These population totals include existing and projected new residents;
- The transportation network is composed of Highway 627 and Highway 759 and local roads that provide east/west and north/south connections. Development is served by private water and sanitary servicing; and
- The ASP reflects TransAlta's current mining locations as of 2016, reclamation plans and obligations; and responds to the interests and concerns expressed by area residents as an outcome of the consultation process for the ASPs development.

### 3.2 Capital Region Growth Plan

The Highvale End Land Use ASP complies with the relevant principles and policies of the *Capital Region Growth Plan* (CRGP). The following table identifies applicable CRGP Policies, and the corresponding Highvale End Land Use ASP policy response.



Table 3.1: Capital Region Growth Plan and ASP Policies

CRGP Policies	ASP Policies
Preserve and Protect the Environment	The ASP protects six identified environmentally sensitive areas by requiring those lands to remain in their natural state. These lands may be dedicated as municipal and environmental reserve, or acquired by the County where budgeting permits. Resource extraction operations may occur within these areas provided they meet Provincial and County requirements.
Preserve Agricultural Lands	The ASP preserves agricultural lands by designating lands with Canada Land Inventory (CLI) Class 1 to Class 4 agricultural capability for agricultural development and prohibiting country residential development.
Minimize the Impact of Development on Regional Watersheds	Lands directly adjacent to Wabamun Lake and the North Saskatchewan River shall remain in their natural state. Development setback provisions have been established to protect the integrity of these natural features. Development may be for agricultural use or natural resource extraction provided they are developed in accordance with applicable federal, provincial, and municipal policies and regulations.
Minimize the Impact of Heavy Industrial Developments	Light and medium industrial development is intended for the Plan area only.
Identify, Protect and Prioritize Lands for Regional Infrastructure	The integrity of Regional Transportation Infrastructure (Highway 627 and Highway 759) and regional power infrastructure (bulk system substations and 138kV, 240kV, and 500kV power corridors) will be maintained. Policies have been included to protect these rights-of-way and future widenings.
Allow Growth Outside of Priority Growth Areas	The Plan area is currently designated for agricultural, residential, commercial, and industrial purposes in the County's MDP. The ASP does not introduce new residential, commercial, or industrial land supply to the Capital Region.
Create Inclusive Communities	The ASP directs new population to the Hamlet of Keephills to support its viability and optimize the use of existing community amenities including the community hall which provides space for community programming and education.
Support Healthy Communities	The ASP identifies environmentally sensitive areas and historic resources within the Plan area, providing policies to protect these features. The ASP designates lands for economic development, encourages the sustainability of the Hamlet of



CRGP Policies	ASP Policies
	Keephills, and locates a proposed trail network around the Plan area to link the Hamlet of Keephills to Wabamun Lake and the North Saskatchewan River.
Support Innovative and Affordable Housing Options	The ASP contains policies that encourage the provision of a range of housing options within the Hamlet.
Integrate Transportation Systems with Land Use	Residential, commercial, and industrial areas are located adjacent Plan area highways.
Design Integrated Physical Infrastructure within the Region	Lands adjacent to Regional Transportation Infrastructure and Regional Power Infrastructure will be developed with required development setbacks to minimize land use conflicts.
Maximize Utilization of Existing Infrastructure	The ASP locates future residential, commercial, and industrial development adjacent and proximate to existing infrastructure.
Ensure a Supply of Land to Sustain a Variety of Economic Development Activities	The primary land use within the Plan area is agriculture; however there are lands designated for commercial and industrial development to accommodate a range of economic development activities.

### 3.3 Municipal Development Plan

The *Municipal Development Plan* (MDP), Bylaw 37-2007, as amended, is the primary municipal land use policy document for the County. The MDP provides a framework for the future growth and development of Parkland County. The MDP guides future development by describing the County's overall development vision, goals, objectives and corresponding policies to implement the vision. The primary goals of the MDP are to protect agricultural lands, identify locations for residential growth, accommodate heavy industry and resource extraction activities, identify environmentally significant areas for protection, and maintain an efficient roadway system.

The ASP complies with the relevant policies and maps of the Parkland County MDP. In accordance with the MDP the ASP:

- Encourages ongoing agricultural operations around the Highvale Mine;
- Prohibits new country residential development in the Plan area;
- Designates lands for commercial and industrial development; and
- Identifies environmentally significant areas and encourages their protection.



### 3.4 County Plans

This section outlines other relevant plans, studies and reports that have been reviewed as part of the preparation of this ASP and identifies how the ASP complies with those plans, studies and reports.

#### 1. Existing Highvale End Land Use Plan Bylaw No. 28-97

The existing *Highvale End Land Use ASP*, adopted in 1997 by Bylaw No. 28-97, created policies for Highvale Mine after reclamation. The new ASP generally follows the format of the existing ASP, and identifies the following key policy areas: Agricultural Development; Commercial and Industrial Development; Recreation, Parks and Open Space; Environment; Transportation Network; and Servicing and Utilities. The new ASP also includes new policy areas, such as Lands Adjacent to the Highvale Mine, Hamlet of Keephills, and Heritage, which were not considered in the 1997 ASP. The policies identified within each of these key policy areas address identified constraints to development.

#### 2. Environmental Conservation Master Plan

The *Environmental Conservation Master Plan* (ECMP), June 2014, presents a portfolio of Environmentally Sensitive Areas (ESAs) within the County, and provides best management practices for land development activities to protect and/or restore ESAs. The ECMP identifies six ESAs within the Highvale Mine site. This ASP identifies these ESAs and encourages their protection.

#### 3. Wabamun Lake Sub-Watershed Land Use Plan

The Wabamun Lake Sub-Watershed Land Use Plan (WLSLUP) will be completed in mid-2016. The WLSLUP study area shares lands with the northern portion the Highvale End Land Use ASP. Consequently, the policies of the two plans will be aligned to ensure consistency of approach and policy and a healthy watershed and lake.

In summary, the WLSLUP describes historical activity at Wabamun Lake, the state of surface water quantity and quality, wildlife and fish potential, invasive species, vegetation cover, as well as wetland and riparian areas.

#### 4. Transportation Master Plan

The *Draft Transportation Master Plan* (TMP), December 2014, presents the ultimate roadway classification for the County and interim (2031) roadway classification. For the ASP area, the ultimate scenario proposes a north/south minor collector road along Range Road 52 and east/west minor collector roads at Langley Road and Burtonsville Road. The interim scenario proposes the same minor collector roads, with the exception of the southern portion of the north/south minor collector road along Range Road 52. The new ASP provides a road network that meets the ultimate and interim roadway classification identified in the TMP.

#### 5. Recreation, Parks and Open Spaces Master Plan

The *Recreation, Parks and Open Spaces Master Plan*, May 2009, presents a long term view and strategic plan for recreation and parks planning in the County. The goals of the plan describe that the County should: provide a greater diversity of leisure opportunities; optimize its supply of municipal reserve lands; and, sustainably manage environmentally sensitive areas. The new ASP meets the intent of these goals by: identifying lands for trails and parks, working to retain the Keephills Community Hall, and identifying environmentally sensitive areas and encouraging their protection through environmental reserve designations or other means. The Plan is currently being updated by the County. Updates to the ASP shall consider the new Master Plan in future planning.



## 6. Fire Services Master Plan

The *Fire Services Master Plan*, July 2009, provides a comprehensive assessment of Parkland County's Emergency Service. A portion of the ASP is located within Zone 4 – Wabamun, Zone 6 – Tomahawk, and Zone 7 - Seba Beach; however, the majority of the ASP lands including the Hamlet of



Wabamun Lake near Sundance Generating Plant.  
Courtesy of TransAlta

Keephills are located outside the boundary of any other Zone. The *Fire Services Master Plan* assesses risks related to: the Highvale Mine and its generating plants; lake rescues; and structural fires. Adequate response times for lands within the ASP boundary will need to meet County requirements.

The Fire Services Master Plan is currently being updated by the County. Subsequent updates to the ASP shall consider the Master Plan in future planning.



## 4.0

### Regional and Local Context

This section describes the regional context and existing physical conditions for the ASP lands and how mining operations have affected lands in the Highvale Mine area. An understanding of these conditions is necessary to identify opportunities and constraints for development.

#### 4.1 Size and Location

The Plan area is located in the western portion of the County, as shown on Map 1, and consists of 28,924 ha. The Plan area is bound by Sundance Road, Wabamun Lake and Wabamun Indian Reserve (Paul Band First Nation) No. 133A to the north, the North Saskatchewan River to the south and southeast. The most eastern and western portions of the Plan area are bounded by Range Road 32 and Range Road 61, respectively. The Plan area includes the Hamlet of Keephills and TransAlta's Highvale Mine (Pit 03 – Pit 09).

#### 4.2 Land Ownership

The Plan area currently contains a mix of private, Crown and County ownership. The following table describes the ownership in the Plan area.

Table 4.1: Land Ownership

Ownership	Land Area (ha)	Percentage of Plan Area
TransAlta	15,595	53.9
Private	12,416	42.9
Crown	808	2.8
County	105	0.4
<b>Total</b>	<b>28,924</b>	<b>100</b>

#### 4.3 Constraints to Development

This section identifies and summarizes the constraints to development in the Plan area. The constraints are addressed in Section 5.0, Development Plan.

##### 4.3.1 Current Mining Activity

The mining activity at Highvale is considered a temporary land use; however, the Mine's current life expectancy, subject to market demand and provincial approvals and policy, is 2056. Individual pits may be dormant or active over the course of this timeframe and then closed out and reclaimed in phases. This has impacted and will impact agricultural operations and the transportation network within the Plan area. It is anticipated that all mined lands will be reclaimed and reclamation certification provided by 2070. TransAlta has advised that reclamation will follow the tentative schedule outlined in the following table (**Note: timelines may be expedited by the AER due to the Government of Alberta's provincial coal reduction policies which may see coal phased out by 2030**).



Table 4.2: Tentative Reclamation Schedule

Pit	Reclamation	Anticipated Certification
Pits 03-08	2016 to the mid-2020s	2030s
Pit 09	2022 - 2056	2070
Note: Timelines may be expedited by the AER and Provincial reduction strategy		



Pit 08, located south of Keephills Generating Plant. Courtesy of TransAlta

#### 4.3.2 Infrastructure

TransAlta will remove all physical infrastructure from the Mine area, including generating plants, sewage lagoons, and waste storage facilities and incinerator. Each of these sites must be remediated to an agricultural capability standard established by the AER.

#### 4.3.3 Transfer of Land Ownership

Subsequent to TransAlta's reclamation of the Mine and the issuance of a reclamation certificate from the AER, TransAlta will transfer ownership of reclaimed land to a prospective owner. The prospective owner should be made

aware of existing site conditions and requirements of those lands through formal written notification prior to the finalization of sales agreements by TransAlta. After which, the prospective owner may develop the land in accordance with the policies and land use designations identified in the Parkland County MDP, Land Use Bylaw (LUB) and the Highvale End Land Use ASP.

#### 4.3.4 Geology

The Plan area is underlain with clay deposits, namely: the Paskapoo Formation; Paskapoo Formation Ardley Coal Zone; Battle Formation; and Horseshoe Canyon Formation. The end result of the mining process provides a new topography and geology consisting of a mixture of clay, silts and sands with shale, siltstone and sandstones.

The topography of the Plan area after reclamation will consist of a northern and southern area that is created by an east/west ridge. The highpoint of the ridge, at a surface elevation of 850 m, is located at the approximate intersection of Range Road 43 and Township Road 514. In the north portion of the Plan area surface elevations are lowest at Wabamun Lake (730 m), and in the south, the North Saskatchewan River (670 m). A composite image of the Plan area's topography is shown on Map 2.

The behavior of the new geology within the Highvale Mine lands will be variable and subject to settling and gradual saturation by groundwater.



#### 4.3.5 Ground Water

The groundwater resources in the Plan area may not be equivalent to the pre-mining situation. Findings from Worley Parsons in March 2016 conclude that there will be three separate possible sources of groundwater in the post-mining period:

1. From within the mine spoil within the mining footprint - Groundwater in this area is unlikely to provide a reliable post-mining supply due a generally low hydraulic conductivity and water quality that is not suitable for domestic or livestock use<sup>1</sup>;
2. From soil stratigraphic intervals deeper than the coal zone either within or outside of the mining footprint - Soil stratigraphic intervals beneath the Ardley Coal zone will remain intact following the completion of mining. Of these, the two remaining shallowest aquifer intervals are: the Lower Scollard Aquifer; and the Upper Horseshoe Canyon Aquifer. The permeability of the Lower Scollard Aquifer is generally low, with limited water supply potential. Sandstones within the Upper Horseshoe Canyon Aquifer represent the best potential post-mining groundwater source in bedrock below coal. To obtain this supply will likely require a more sophisticated exploration strategy than groundwater extraction from the shallower aquifers; and
3. From intact surficial and bedrock aquifers outside of the mining footprint - The water supply potential of the intact aquifers outside of the mining footprint, both above and below coal will not be, with a few exceptions, materially changed by mining. Groundwater levels that may be drawn down in aquifers outside of the mining footprint will recover upon reclamation.<sup>2</sup>

#### 4.3.6 Surface Water

The Plan area is within the Wabamun Lake sub-watershed and North Saskatchewan River Watershed and contains existing waterbodies. The Highvale Mine lands will result in a reclaimed landscape consisting of six end pit lakes, ponds, and wetlands of varying sizes distributed throughout the reclaimed Mine area.



Wetland located on reclaimed land within Pit 03. Courtesy of TransAlta

The new waterbodies, lakes, ponds, and wetlands should be protected in the ASP as they will re-establish natural drainage patterns in the Plan area, control storm water runoff to Wabamun Lake or natural watercourses in the North Saskatchewan River basin, provide aquatic and fisheries habitat, and integrate wetlands and other drainage characteristics in the post-mining landscape. These characteristics are attractive to wildlife and will contribute to the re-establishment of natural systems and wildlife movement corridors when accompanied with natural plant communities. Map 3 illustrates a composite image of the waterbodies, specifically end pit lakes and cooling ponds, after reclamation inside and outside the Mine area.

<sup>1</sup> The low hydraulic conductivity and water quality of the spoil are mainly a result of the natural salinity of the overburden materials and the overburden handling practices.

<sup>2</sup> The movement of lower quality mine spoil groundwater into adjacent unmined areas is considered unlikely due to the low hydraulic conductivity of the spoil, which will limit the downgradient release of spoil-derived compounds (which are naturally occurring in any case).



#### 4.3.7 Environmentally Sensitive Areas

The six environmentally significant areas (ESAs) shown on Map 4 contain species of management concern or important wildlife habitats. These include species such as the flat-topped white aster and the Sturgeon spawning grounds within the Sundance Natural Area ESA and the North Saskatchewan River ESA, respectively. Each of the six areas should be recognized as environmentally sensitive and managed appropriately.

#### 4.3.8 Agricultural Land Uses

The Plan area prior to mining was an agricultural land base. Today, 46.3% of the Plan area is under agricultural production and 50% is used for mining. After reclamation of the Highvale Mine, 71.2% of the lands in the Plan area will have an agricultural capability of Class 3 and 4, while the balance of the lands will have an agricultural capability of Class 5, 6 and 7, as shown on Map 5. Consequently, the majority of the Plan area will be suitable for agriculture once reclamation has been completed.

#### 4.3.9 Population in the Rural Area

Between 2001 and 2011, the rural area's population, which excludes the Hamlet of Keephills, declined from 408 to 249<sup>3</sup>. This represents an average annual population decline of 4.8%, and translates to a sparsely populated area of 0.86 people/km<sup>2</sup> or 0.42 dwellings/km<sup>2</sup>.

A residential density of one farmstead/quarter section is recommended for the Highvale Mine permit boundary area to prevent fragmentation of these future agricultural areas. This equates to a population potential of 458 residents (183 dwellings) within 115.8 km<sup>2</sup>, or residential densities of 4.0 people/km<sup>2</sup> or 1.6 dwellings/km<sup>2</sup>.



Crops near the Keephills Generating Plant. Courtesy of TransAlta

Lands within the rural area beyond the Highvale Mine permit boundary may be developed at a residential density of four farmsteads/quarter section. This equates to a population potential of 2,650 residents (1,060 dwellings) within 167.9 km<sup>2</sup>, or residential densities of 15.8 people/km<sup>2</sup> or 6.3 dwellings/km<sup>2</sup>. This approach is supported by the Plan area's historical land use, regional planning policy, and current MDP policy.

The total rural area, excluding the Hamlet of Keephills, therefore has a population potential of 3,108 residents (1,243 dwellings) within 283.7 km<sup>2</sup>, or residential densities of 11.0 people/km<sup>2</sup> or 4.4 dwellings/km<sup>2</sup>.

<sup>3</sup> The rural area population counts were derived from Statistics Canada's federal census dissemination blocks. At the time this project started, Statistics Canada only published population counts by dissemination blocks from its three most recent municipal censuses – 2011, 2006 and 2001. The ten-year period of 2001 through 2011 therefore represents the longest period of census data that was readily available for analysis. Note that Statistics Canada has since discontinued publishing the population counts by dissemination block from the 2001 census, so we are fortunate to have a longer sample size of analysis (ten years instead of five) for this project.



#### 4.3.10 Hamlet of Keephills

The Hamlet of Keephills measures 64.9 ha in size and was established on its existing site in 1982. Currently, 16.9 ha of the Hamlet has been developed including 13.6 ha of net residential land subdivided into 33 privately serviced lots that are currently developed with 20 dwellings. The remaining 3.3 ha is developed with a community hall, a library and playing fields. The Hamlet currently has a population of 50 residents, which generates an average of 2.5 people per household. Assuming eventual full development of all 33 privately serviced lots, the subdivided portion of Keephills has a population potential of 83 residents living within 33 dwellings, and a residential density of 2.43 dwelling units/net residential hectare (du/nrha).

The Hamlet has 28.6 ha of gross developable land remaining within its boundaries that are partially treed and partially under agricultural production. This land area translates to 20.0 ha of net residential land assuming 30% dedication for municipal reserve, public utilities and roads. Based on the residential density of 2.43 du/nrha and existing land use districting, Keephills could accommodate another 122 residents and 49 dwellings, resulting in a total potential of 205 residents and 82 dwellings at full subdivision and build-out.

The balance of the Hamlet is located within a heavily vegetated ravine in the northeast that is protected as environmental reserve and within the Wabamun Creek ESA.

Future growth of the Hamlet is possible given its available land and existing community amenities. As well, lot sizes could be reduced in size in the future to increase residential density and population to support a more efficient use of land and existing services should alternatives to existing private water and wastewater services become available. The Hamlet would also benefit from a connected trail network through the Wabamun Creek ESA.

#### 4.3.11 Country Residential

The lands located between the Sundance Generating Plant and Wabamun Lake are currently designated Country Residential (CR) District in the County's Land Use Bylaw. These lands consist of approximately 16.4 ha or 0.07% of the Plan area and are currently developed with buildings accessory to the Sundance Generating Plant. TransAlta will demolish the buildings and remediate the site to an agricultural standard.

The County has sufficient country residential land and conventional country residential land supply to absorb projected population growth into the 2050s and 2080s, respectively. In addition, with a Hamlet within the Plan area it would be appropriate to preserve the agricultural lands and direct new residential development to the Hamlet rather than reduce the agricultural land supply in the Plan area.

#### 4.3.12 Conservation

There are no existing municipal reserve or environmental reserve parcels dedicated in the Plan area, excepting the environmental reserve lands in the Hamlet of Keephills. In addition, the only lands currently districted Conservation (PC) District in the County's Land Use Bylaw, lie adjacent to the south side of Burtonsville Road, and between Pit 09 and the North Saskatchewan River. These lands represent approximately 19.2 ha or 0.07% of the Plan area, and are undeveloped and heavily vegetated.





Beaver Creek Conversation Site located near Rosewood Beach.

The County's Community Scan and Analysis Report identified that the County has a deficiency of active and passive park space – areas traditionally designated as municipal reserve or environmental reserve parcels. Given the presence of Wabamun Lake, the North Saskatchewan River and valley, and the many watercourses and natural features of the Plan area, it would be appropriate to designate these lands as natural and wildlife conservation areas and open space for future parks and/or trail purposes.

#### 4.3.13 Resource Extraction

Lands within the central portion of the Plan area, known as the Highvale Mine, have been or will be reclaimed by TransAlta in accordance with requirements of federal and provincial statutes and the requirements of the Alberta Energy Regulator.



Highvale Mine Truck and Shovel. Courtesy of TransAlta



Five sand and gravel extraction operation exists along the south boundary of the Plan area on the North Saskatchewan River. Any existing and future sand and gravel extraction operations will be required to comply with provincial requirements, Land Use Bylaw regulations and current best practices to mitigate nuisances and reclaim the lands.

#### 4.3.14 Heritage Sites

The Plan area currently contains four cemeteries (Keephills, Highvale, Sundance and Woodlands) and four provincially identified archeological and/or paleontological sites (one additional site, located in Pit 08, was removed with mining activity). Alberta Historic Resources Branch has advised that the majority the Plan area has not been assessed for archeological or paleontological resources. Given the history of the area and proximity to lakes and watercourses the Branch has advised that there are likely more significant sites in the Plan area. Developers will be required to prepare historical assessments to identify the presence of archeological or paleontological resources prior to future development occurring.

The Hamlet of Keephills, founded around the turn of the 20th century, was originally located 2 km east of Range Road 40 and 2 km north of Township Road 512. The Hamlet consisted of: a school, community hall, telephone exchange, a teacherage, and four private residences. The original Hamlet location should be recognized as an important historic site.

#### 4.3.15 Transportation Network

The existing road network within the Plan area consists of Provincial highways (759 and 627), County Township and Range Roads, and mine haul roads. The network is somewhat connected in the east and south, however mining activities limit connectivity throughout the Plan area. To maintain existing roadway connectivity throughout mining operations a number of County roads should remain open, as identified in Policy 6.9.2. To establish future connectivity after reclamation, an east/west Township Road near Pit 03, 04 and 05, and north/south connections between Range Road 42 and Range Road 52 are needed.



Haul Road near Sundance Generating Plant.  
Courtesy of TransAlta

#### 4.3.16 Servicing Network

There are two locations in the Plan area, TransAlta's Sundance Generating Plant site and TransAlta's Keephills Generating Plant site, where water, sewer, stormwater, solid waste and utility infrastructure has been developed. TransAlta will decommission and remove this infrastructure and these sites will be remediated as per its approved reclamation plan. However, until these sites and their associated infrastructure are remediated, provincially legislated setbacks, such as a 300 m setback for a sewage lagoon, landfill and waste station still apply.



#### 4.3.17 Energy Infrastructure

The Plan area contains a mix of pipelines, wells and power lines, as illustrated on Map 6. The majority of the energy infrastructure is located south of Highway 627. As a requirement of reclamation, and in accordance with Alberta Energy Regulator (AER) requirements, pipelines and powerlines within TransAlta's mine area will be decommissioned and removed, and the wells will be capped.



In 2017 a major power transmission corridor will be developed outside the eastern edge of the Plan area. The Capital Region Energy Corridor Master Plan conceptually identifies this corridor as “Genesee to Fort McMurray, 500kV” and its alignment originates at the Genesee Generating Plant and terminates in Fort McMurray. The development of the corridor and its alignment is subject to change. Development setbacks from this infrastructure in accordance with provincial regulations and AER requirements will apply.

Power lines, located east of Keephills Generating Plant.  
Courtesy of TransAlta



## 5.0 Development Plan

This plan for future land use and development is based on a clear understanding of existing conditions, a vision of the future for the Plan area, and clear goals and objectives directing what must be accomplished to implement that vision. Sections 2, 3, and 4 described the Plan area's existing conditions.

This section will describe the County's vision, goals and objectives and policies, which will establish the planning framework to guide how the Highvale area will develop.

### 5.1 Community Vision Statement

The Community Vision Statement for the ASP states that:

The Highvale area has a history that is celebrated, ecosystems that are healthy and biodiverse, a growing Hamlet in Keepphills, active and passive recreational amenities for residents and visitors, and an economic base built on agriculture and strategically located commercial and industrial employment areas.

### 5.2 Goals and Objectives

This section outlines the goals and objectives of the Plan. Based on a technical review of the Plan area and the consideration of community feedback on values and ideas for the Plan area obtained during public engagement activities, the following goals and objectives were identified:

- Make agriculture a priority by protecting lands with CLI Class 1-4 agricultural capability rating from non-agricultural related development;
- Designate lands with CLI Class 5 agricultural capability rating as agriculture and conservation areas;
- Designate lands with CLI Class 6 and 7 agricultural capability rating as recreational and wildlife areas;
- Confined Feeding Operations shall be permitted within the plan area in accordance with Provincial regulation, Parkland County's MDP and Wabamun Lake Sub-Watershed Plan;
- Focus new residential growth in the Hamlet of Keepphills;
- Provide commercial and industrial use opportunities along Highway 627 and around the Keepphills Generating Plant site;
- Recognize and celebrate the history of the Plan area;
- Protect environmentally sensitive areas within the Plan area;
- Identify a conceptual trail network; and
- Provide a connected transportation network.



## 6.0

### Land Use Policies

The land use concept for the Plan area accommodates a pattern of agricultural cultivation, new residential growth in the Hamlet of Keepphills, and a reflection of the County's past land use pattern, current community values, and desired future. The future land use concept is illustrated on Map 7.

#### 6.1 Detailed Plans

Detailed Plans may be required for any future development in order to specifically address land uses, historical and environmental matters, as well as transportation and servicing requirements. Applicant's proposing development within the Plan area may be required to prepare an Outline Plan. At a meeting with the applicant, Parkland County will identify application submission requirements.

#### 6.2 Agricultural Development

1. **Agricultural** – Lands with CLI Class 1 to Class 4 agricultural capability rating, as shown on Map 7, shall be developed for primarily agricultural related land uses. Non-agricultural related uses may be permitted on lands with CLI Class 1 to Class 4 agricultural capability rating provided that they:
  - a. Are resource extraction, public utilities, or extensive recreational uses;
  - b. Are not within identified Environmentally Sensitive Areas;
  - c. Do not impact existing agricultural operations; and
  - d. Have sufficient road access.
2. **Redistricting Agricultural Lands** – The re-districting and subdivision of these lands for non-agricultural related uses shall be prohibited, unless otherwise allowed for in this Plan, other Statutory Plans, or an Outline Plan.
3. **Agricultural/Natural Use** – Lands with CLI Class 5 agricultural capability rating, as shown on Map 7, shall be considered as a transition between agricultural lands and wildlife and wetland areas. Where appropriate, these lands may be developed for agriculture.
4. **Agricultural Subdivision** – The County may approve the consolidation of lands with CLI Class 1 to Class 5 agricultural capability rating for agricultural purposes.
5. **One Lot** – For lands within the current Highvale Mine permit boundary, a maximum of one residential lot may be subdivided from a quarter section, unless otherwise allowed for in this Plan, other Statutory Plan, or Outline Plan. These lands shall be districted AGR – Agricultural Restricted District in the County's Land Use Bylaw.
6. **Four Lots** – For lands outside the current Highvale Mine permit boundary, a maximum of four residential lots may be subdivided from a quarter section, unless otherwise allowed for in this Plan, any other Statutory Plan, or Outline Plan. These lands shall be districted AGG – Agricultural General District in the County's Land Use Bylaw.
7. **Fragmented Lands** – The County may approve the subdivision of fragmented lands consistent with the policies of the Municipal Development Plan and the following criteria:



- a. Legal and physical access are available;
  - b. The lot is not subject to erosion, flooding or subsidence; and
  - c. The proposed lot is inaccessible from the balance or is inconvenient to farm.
8. **Confined Feeding Operation (CFO)** – CFO's may be permitted in the Plan area when in compliance with Provincial Regulations, Parkland County's MDP and the Wabamun Lake Sub-Watershed Plan.
9. **Natural Resource Conservation Board (NRCB)** – Parkland County shall work with the NRCB to share information and ensure appropriate environmental management of CFO's within the plan area.
10. **Agricultural Buildings** – Agricultural Buildings greater than 108 ft<sup>2</sup> in size shall require a development permit within the mine permit boundary in accordance with Policy 6.7(7) of this plan.
11. **Agricultural Management Practices** – The County will support the best management practices for the reduction of fertilizer use and phosphate production on agricultural lands as outlined in "Beneficial Management Practices: Environmental Manual for Crop Producers in Alberta".
12. **Minimize Tillage and Crop Selection** – The County will support the reduction of tillage and choice of crop yields which require low phosphate and fertilizer inputs to reduce potential erosion, runoff and contamination of surface and groundwater source.
13. **Naturalization of Agricultural Lands** – Where designated agricultural lands are not needed for agricultural purposes, the County will support the naturalization of these lands using native vegetation.
14. **Country Residential Development** – The development of new multiple lot country residential subdivisions shall be prohibited in the Plan area unless already provided for in a Statutory Plan or Outline Plan.
- a. Lands south of Sundance Road, districted CR – Country Residential in the County's Land Use Bylaw shall be redistricted to AGR – Agricultural Restricted at the time of reclamation certification.

### 6.3 Hamlet of Keephills

1. **Area Structure Plan (ASP)** – Parkland County may prepare an ASP for the Hamlet of Keephills. The need for and timing of an ASP will be reviewed by the County during the next update of the Highvale End Land Use ASP.
2. **Hamlet Development** – The following types of development within the Hamlet shall be encouraged by the County:
- a. A range of residential uses and types;
  - b. Local neighbourhood commercial uses;
  - c. Institutional uses such as churches, community halls, and schools;
  - d. Business industrial uses; and
  - e. Recreational uses.

Adequate separation distance and landscaping and/or fencing shall be provided between residential and non-residential uses.



3. **Hamlet Growth** – Population growth in the Plan area shall be directed to the Hamlet of Keephills.
  - a. The County may consider the potential for smaller lot sizes in the Hamlet of Keephills to coincide with the lot sizes in the County's other hamlets. The review of lot sizes shall consider the need to maintain fire and protective services and infrastructure servicing.
4. **Keephills Community Facility** – The Keephills community hall and library are key Hamlet and County assets and community facilities. The County shall develop partnerships with organizations, including the local community with an interest in maintaining and sustaining these facilities. Potential uses may include (but are not limited to), a homeschool support centre and a distance learning centre as a means to fully utilize these facilities.
5. **Hamlet Servicing** – All Hamlet developments shall utilize private water and sanitary systems and be developed in accordance with the requirements of Alberta Municipal Affairs and Parkland County.
6. **Requirements for Supporting Documents** – Developers may be required to provide supporting documents at the time of subdivision, outline plan or development permit application as outlined in the MDP or LUB. Such documents may include (but are not limited to) biophysical assessments, geotechnical and environmental assessments, and traffic impact assessments.



## 6.4 Commercial and Industrial Development

1. **Highway and Hamlet Commercial** – The establishment of local commercial development along Highway 627 at Range Road 32A, and commercial development at Highway 759 and Township Road 530, or local commercial within the Hamlet may be permitted, if the applicant can demonstrate:
  - a. The proposed use is compatible with adjacent uses;
  - b. The site is suitable in terms of soil stability, groundwater level, and drainage;
  - c. That impacts on the transportation network are addressed; and
  - d. Conformity with relevant Statutory Plans, Outline Plan and the LUB.
2. **Requirements for Supporting Documents** – Developers may be required to provide supporting documents at the time of subdivision, Outline Plan or development permit application as outlined in the MDP and LUB. Such documents may include (but are not limited to) biophysical assessments, geotechnical and environmental assessments, and traffic impact assessments.
3. **Development, Signage and Landscaping** – Highway 627 and Highway 759 for commercial or industrial developments are the primary gateways into the Highvale Plan area and any development, landscaping, or signage adjacent to these road rights-of-way shall be of a high standard.
4. **Home Based Businesses** – Home based businesses are encouraged as prescribed in existing County's LUB districts. Issues of compatibility with adjacent uses shall be addressed at the time of development permit application.
5. **Business and Medium Industrial** – Industrial land uses shall be business-oriented to medium in nature. Heavy industrial land uses shall be prohibited within the Plan area.
6. **Alternative Energy Use Site** – Subject to a feasibility study, the County may develop the lands designated as Business and Medium Industrial for an alternative energy use site and pilot project.
7. **Location and Mitigation** – Industrial development shall not be permitted to locate on Class 1 to Class 5 soils, except where the proposed use:
  - a. Is designated for industrial development by a Statutory Plan or Outline Plan;
  - b. Is located on the Keephills Generating Plant site, or adjacent to a railway right-of-way; and
  - c. Does not conflict with adjacent land uses in terms of appearance, emissions, noise, or traffic generation, unless suitable buffers are provided, and has a closed loop sewage disposal system.
8. **Industrial Clusters and Spur Line** – Parkland County encourages:
  - a. The clustering of similar and compatible industrial businesses on business and medium industrial sites; and
  - b. The creation of spur lines by accommodating businesses that require rail transportation and proximity to railway rights-of-way.
9. **Resource Extraction** – New resource extraction operations can be considered in the Plan area provided that they:
  - a. Have sufficient road access;
  - b. Has mitigated impacts, or has no impact on existing agricultural operations;



- c. Follow the best management practices identified in the County's *Environmental Conservation Master Plan*;
- d. Comply with existing County and Alberta Environment and Parks statutory and non-statutory plans, approved policies, regulations and permit approvals; and
- e. Are reclaimed to the satisfaction of the County and Alberta Environment and Parks.

10. **Mitigation** – The County may require the use of landscaping, screening, setbacks, the strategic location of outdoor storage or other controls to mitigate nuisance impacts between industrial and non-industrial development.

## 6.5 Recreation, Parks and Open Space

1. **Recreation** – A new north/south recreational trail network that links Wabamun Lake to the North Saskatchewan River through the Hamlet of Keephills shall be developed by the County.
  - a. The trail network, as shown on Map 7, is conceptual and the general alignment shall be determined by directions, recommendations and standards identified in the Parkland County *Parks, Recreation, and Culture Master Plan*. The conceptual alignment is located adjacent to or following the Wabamun Creek ESA and end pit lakes, along road and utility rights-of-way, public utility lots, and aligned with park and natural areas. The ultimate alignment will be determined by a Functional Planning Study.
  - b. Trail lands will be acquired through the use of the Alternative Land Use Services program, and Municipal Reserve and Environmental Reserve dedication at the time of subdivision.
  - c. Trail sections shall be built as resources and demand warrants, and will be for passive use only (i.e. no mechanized vehicles such as quads or skidoos).
  - d. Trail connections, where possible, may be made to the Sundance Natural Area, the Modeste Saskatchewan Natural Area and the Burtonsville Island Natural Area, as determined by the Recreation, Parks, and Open Space Master Plan.
2. **Parks** – A large park located south of Wabamun Lake shall be developed by the County. The location and programming of the park shall be determined in the County's *Park, Recreation, and Culture Master Plan*:
  - a. Lands around end pit lakes may be designated for parks, day use areas, or privately operated campgrounds and/or trails, and shall not conflict with agricultural land uses in terms of trespass, noise, traffic generation. The County's *Parks, Recreation, and Culture Master Plan* shall provide more specific guidance on these facilities;
  - b. Public access to shoreline areas shall be facilitated through the dedication of Municipal Reserve and/or Environmental Reserve; and
  - c. The County shall partner with Alberta Environment and Parks and Alberta Fish and Game Association to assist in the development of the park and in land acquisition.
3. **Open Space** – As a condition of subdivision approval, the County shall require the protection and conservation of environmentally sensitive areas, specifically those lands around the Sundance and Keephills Ponds, adjacent to end pit lakes, and along Wabamun Lake and the North Saskatchewan River, by dedication of Municipal Reserve and Environmental Reserve, the provision of Environmental Reserve Easements or Conservation Easement agreements, or by other statutory means as such identified in the *Municipal Government Act*, or the *Alberta Land Stewardship Act*.



## 6.6 Heritage

1. **Keeping History Alive** – The archeological, paleontological, and historical sites and cemeteries within the Plan area, as shown on Map 7, signify the history of the people and events within this portion of County. These sites and cemeteries shall be:
  - a. Protected and programmed as interpretative parks and maintained; and
  - b. Connected to the transportation and/or open space/trail network.

Any proposed development or expansion to an existing development may require the completion of a Historic Resources Impact Assessment, as per the requirements of the Historic Resources Management Branch.

2. **Hamlet of Keephills** – The original Hamlet of Keephills, identified in the location shown on Map 7, shall be recognized as an important historic site through the placement of interpretive signage.

## 6.7 Environment

1. **Waterfowl Habitat** – Lands around the Sundance Cooling Pond and the Keephills Cooling Pond, as shown on Map 7, shall be identified as waterfowl habitat and designated as Environmental Reserve through the subdivision and development process, or protected through Environmental Reserve Easements, Conservation Easement agreements, and/or County acquisition through the Alternative Land Use Services (ALUS) program.
  - a. These lands may be developed for recreational purposes in accordance with a local Statutory Plan or Outline Plan.
2. **End Pit Lakes and Wetlands** – Lands around end pit lakes, wetlands, and lands with Class 6 and Class 7 agricultural capability, as shown on Map 7, are considered riparian and unsuitable for agricultural production. These lands:
  - a. Shall be classified as ESAs;
  - b. Shall be designated as Environmental Reserve through the subdivision and development process, or protected through Environmental Reserve Easements or Conservation Easement agreements and/or the ALUS program; and
  - c. May be developed for recreational purposes in accordance with a Statutory Plan or Outline Plan.
3. **Environmentally Sensitive Areas** – The ESAs described in the County's ECMP and by TransAlta, as shown on Map 7, shall be designated as ESAs. The ESAs should remain in a natural state unless otherwise identified:
  - a. The North Saskatchewan River ESA shall be designated as a habitat and movement corridor for wildlife, recreation corridor, and include designated public access areas;
  - b. The Wabamun Creek ESA shall be protected as a movement corridor for wildlife between the North Saskatchewan River valley and Wabamun Lake along Wabamun Creek;
  - c. The County encourages landowners to follow best practices for the management of natural areas, as identified in the County's *Environmental Conservation Master Plan*; and
  - d. The County shall protect ESAs through the subdivision and development process by designating these lands as Environmental Reserve, or entering into Environmental Reserve Easement or Conservation Easement agreements, and/or through the ALUS program.



4. **Environmental Reserve** – Environmental Reserve shall be taken where the Subdivision Authority requires lands to be dedicated as outlined in the *Municipal Government Act*.
5. **Targets and Programs** – The County may develop or initiate:
  - a. Programs for riparian reclamation;
  - b. Through partnership with Alberta Environment and Parks, targets or thresholds for air and water quality to monitor changes to the environment and methods to mitigate or eliminate a local or regional effect for the Plan area;
  - c. Long-term monitoring programs for water quality and riparian health assessments; and
  - d. Initiatives to reduce energy consumption and promote water conservation, including cogeneration and the use of biomass energy sources for the Plan area.
6. **Wetland Inventory** – Upon reclamation of the Highvale Mine, the County shall create a wetland inventory in order to accurately account for any future wetland losses. Funds from wetland losses derived from development activities may be integrated into local stewardship and restoration efforts.
7. **Geotechnical Reports**
  - a. Development adjacent to the Highvale Mine lands should maintain a minimum separation distance from the Mine boundaries, as established by a geotechnical report prepared by a qualified professional. The report shall define setback areas with a Factor of Safety for property, development, and infrastructure.
  - b. Prior to development on lands within the Highvale Mine, the applicant shall provide the County with a geotechnical report prepared by a qualified professional. The report shall define setback areas with a Factor of Safety for property, development, and infrastructure.
8. **Flood Plains and Slopes** – Permanent development shall not be permitted on:
  - a. Lands that are contained within a 1:100 year flood plain. Development on such lands may only be considered after site assessments are provided and prepared in accordance with the Land Use Bylaw; or
  - b. Slopes exceeding 15% or on land that is subject to erosion. Development on such lands may only be considered after sufficient geotechnical investigation has demonstrated that the site in question is suitable for development in accordance with Alberta Environment and Parks guidelines.
9. **Setbacks from Watercourses** – Any development shall be set back a minimum 6 m from watercourses; however, an additional setback may be required based upon watercourse characteristics, land use, topography, vegetation community composition, and riparian community composition as directed by the County. Setbacks for each subdivision or development will be determined based upon the provision of recommendations prepared by a qualified biologist through a biophysical impact assessment, or as determined through the County's Riparian Setback Matrix Model. The setbacks are designed to protect against erosion, flooding, loss of fish and wildlife habitat, and damage to natural features.
  - a. All setbacks shall be measured from the top of bank of a ravine or valley, with or without a watercourse;
  - b. The top of bank will be identified during the subdivision and development process to the satisfaction of the County; and
  - c. Lands subject to a waterbody setback shall be dedicated as Environmental Reserve, Environmental Reserve Easement or Conservation Easement, or through the ALUS program.



10. **Reforestation** – Reforestation within the Highvale Mine lands shall be supported and protected through Environmental Reserve, Environmental Reserve Easement, or Conservation Easement taken at the time of subdivision.
11. **Wildlife Connectivity** – To provide sufficient wildlife movement corridors, a setback of 150 m from the shoreline of a waterbody or watercourse for any development is recommended. The specific setback for any development will be determined based upon the provision of recommendations prepared by a qualified biologist through a biophysical impact assessment, or as determined through the County's Riparian Setback Matrix Model.
12. **Invasive Species and Sediment Control** – Landowners shall:
  - a. Manage the spread of invasive species in accordance with Parkland County standards and the Alberta Weed Control Act;
  - b. Monitor erosion and sediment flowing towards Wabamun Lake and the North Saskatchewan River. Landowners shall, if required by the County or Alberta Environment and Parks, construct and maintain sediment control devices to minimize the flow of sediment; and
  - c. Require on-site containment systems for all developments to minimize the seepage of oil, gas, and other materials into the groundwater. Costs for all containment systems shall be borne by the landowner/developer.

## 6.8 Crown Land

1. **Land Use** – The County shall support the use of Crown Lands for resource development, limited grazing, conservation, and recreational use.
2. **Notification** – The County will notify relevant government agencies of any proposed use of Crown Lands, and/or of lands containing wetlands prior to development.

## 6.9 Transportation Network

1. **Road Connections** – TransAlta will, as per the 2003 Memorandum of Understanding (MOU) and 2008 MOU with the County, provide rights-of-way to create roadways throughout the Plan area, as shown on Map 8, as part of the mine reclamation.
  - a. The location of any additional arterials, major collectors, or minor collector road rights-of-way shall:
    - i. Meet the requirements of the County's Transportation Master Plan;
    - ii. Minimize start-stop-movements in future road alignments; and
    - iii. Consider continuous road alignments rather than multiple corners and intersections and connections to existing transportation networks outside of the Plan boundary area.
  - b. The County will make improvements to Sundance Road to ensure it meets County design guidelines, such as widening and horizontal and vertical curves.
2. **Existing Roads Connections** – The following rights-of-way, as identified on Map 8, shall remain open during mine operations and after reclamation.
  - a. Township Road 524 from Highway 759 to the edge of the realignment;
  - b. Range Road 55 from the south mine boundary to Township Road 524;
  - c. Township Road 523A from Range Road 55 to Range Road 54 (portions may be closed for mining purposes, subject to approval from Parkland County and the Province);



- d. Range Road 52 from the south mine boundary to Township Road 524;
  - e. Township Road 524 from Range Road 53 to Range Road 52;
  - f. Range Road 45 from Highway 627 to where the road ends to the north (portions may be gated for mining purposes, subject to approval from Parkland County and the Province);
  - g. Range Road 42 from Highway 627 to Sundance Road; and
  - h. Sundance Road from Highway 759 to Range Road 42.
3. **New Memorandum of Understanding (MOU)** – Parkland County shall enter into a new Memorandum of Understanding (MOU) with TransAlta to finalize the future road network for the Plan area. The MOU may consider, but is not limited to the following:
- a. New roads in addition to the roads outlined in Map 8 – Transportation Network
  - b. Improvements to existing roads, and the realignment of existing roads where required
  - c. Financial arrangements in developing the final road network
4. **Update of Map 8 – Transportation** – Map 8 – Transportation, shall be updated in a timely manner when new roads are added to the Plan area, or when existing roads may be realigned to better connect the road network.
5. **Water Crossings** – All water crossings (i.e., watercourses, wetlands, lakes) within the Plan area shall be constructed in accordance with Parkland County standards.
- a. The design of crossings shall consider the locations of existing wildlife corridors as well as the presence of fish and fish habitat. The crossing shall also incorporate any necessary features to maintain natural habitat connectivity and ecological integrity.
  - b. All water crossings require *Water Act* approval or notification (i.e., Code of Practice pursuant to *Water Act*) and potential consultation with Alberta Environment and Parks (AEP) prior to construction. Other environmental regulatory considerations may also apply including but not limited to the *Migratory Birds Convention Act*, *Fisheries Act*, *Wildlife Act*, *Public Lands Act* and/or the Alberta Wetland Policy.
6. **Road Right-of-Way Widening** – Rights-of-way adjacent to subdivision and development proposals may require widening. In such cases, dedication by caveat or plan of survey will be required at a width specified by the County if the site is located:
- a. At the corner of a Township Road or a Range Road that meet. The right-of-way will be located along the frontage of the subdivision as well as the balance of the quarter section along both the Township Road and Range Road; or
  - b. In the middle of the quarter section or bordering another quarter with no road between them. The right-of-way will be located along the frontage of the subdivision and the balance of the quarter that runs along the particular Township Road or Range Road.
7. **Site Access** – All subdivision and development proposals shall have a physical access to a developed roadway. Provision of access shall be the sole responsibility of the developer.
8. **Off-site Levy** – The County may consider the development of a future Highvale off-site levy to fund infrastructure improvements.



9. **Off-site Improvements** – As part of an agreement associated with the approval of a subdivision or the issuance of a development permit, the County may require that the developer pay for all or a portion of any public roadway or trail system.
10. **Design Standards** – All road rights-of-way shall be developed in accordance with the specifications of the County's design standards.
11. **Road Use Agreement** – A Road Use Agreement with the County will be required to address haul routes, maintenance and/or upgrading, dust control, and any other matters relative to the road use.
12. **Development Referral** – The County shall refer all ASP, ASP amendment, redistricting, subdivisions and development applications that include land located within 800 m of a highway to Alberta Transportation for comment.

## 6.10 Servicing and Utilities

1. **Site Servicing** – All developments shall be serviced by on-site water, sewer and all necessary shallow utilities. The County shall not support redistricting, subdivision, or development that does not address site servicing needs. All servicing shall comply with applicable federal and provincial regulations, County standards, and the policies of this section.
  - a. All costs associated with the construction of water, sewer, stormwater and utility infrastructure on a site shall be borne by the landowner/developer.
2. **Water Servicing**
  - a. Development on lands within the Highvale Mine footprint shall rely on local surface water or other sources (a piped system or cisterns) as post-mining water quality is unlikely to provide a reliable post-mining supply due to a generally low hydraulic conductivity and water quality that is not suitable for domestic or livestock use. However, water may also be available from stratigraphic intervals deeper than the coal zone.
  - b. Development on lands outside the Highvale Mine footprint shall be serviced through on-site systems which may include existing domestic wells.
  - c. The County shall require developers to demonstrate proof of water supply if accessing groundwater, or identify proposed method of water servicing, for all developments within the Plan area.
    - i. Where lots are proposed to be served by cisterns, restrictive covenants shall be registered as a condition of subdivision approval, prohibiting the use of wells or other means of groundwater collection.
  - d. The County encourages all well users to register their use of groundwater under the *Water Act*.
  - e. The County may provide additional waterpoints and waterfills in strategic locations.
3. **Sanitary Servicing** – Any development shall install a septic tank, lagoon or treatment facility for sanitary servicing in accordance with provincial requirements.
  - a. As part of a subdivision or development permit application, the County shall require that developers submit information respecting the proposed location and type of sewage disposal system intended to serve the proposed development. The County may require that soil tests be undertaken by the developer to determine that the soils are suitable to accommodate on-site sewage disposal systems.



- b. The County will not support any future development which does not comply with County or provincial standards as they relate to sanitary servicing.
  - c. The County may request additional information about a private sanitary system to ensure adequate compliance with County and provincial standards.
- 4. **Stormwater Management** – All multi-parcel subdivision and major development applications are required to submit a stormwater management report. The Subdivision or Development Authority may require the submission of a stormwater management plan for any other subdivision or development proposal within the Plan area.
  - a. The construction of stormwater management facilities shall adhere to the County's Stormwater Naturalization Policy C-ES04.
  - b. The construction and operation of all stormwater facilities shall comply with Alberta Environment and Parks requirements and/or approvals.
- 5. **Stormwater Discharge** – All developments shall retain stormwater on site and discharge at a post-development rate that does not exceed pre-development release rates.
- 6. **Green Technologies** – The County will encourage developments to use green building and servicing technologies, such as LEED, BUILT Green or other green building standards for development. All new buildings shall strive to meet green building standards from a recognized standards program and use green infrastructure such as: green roofs, constructed wetlands, bioswales, landscaped ditches, rainfall harvesting, bio-retention cells, xeriscaping and permeable surfacing materials.
- 7. **Alternative Energy** – The County may undertake studies to consider the need and best locations for solar, geothermal, wind farm, or a greenhouse gas waste heat diversion projects. The County shall consider the feasibility of such uses on the business and medium industrial site on the Keephills plant site.
- 8. **Energy Conservation** – The County will promote alternative energy methods, and/or energy conservation practices through educational programs or public awareness campaigns.
- 9. **Setbacks from Utilities and Oil and Gas Facilities** – Until such time that TransAlta's Mine infrastructure is decommissioned and reclaimed, any development shall adhere to the setbacks identified in the following table.
  - a. Any development shall be referred to TransAlta and/or the applicable utility provider to ensure setbacks are addressed and/or future plans for the utility or facility is considered.
  - b. Developers will be responsible to notify the County and adhere to any other setbacks or regulation not mentioned in the table below.



Table 6.1: Development Setbacks

Utility/Facility	Setback
Sewage Lagoon	300 m (S. 12, Subdivision and Development Regulation)
Landfill	300 m (S. 13, Subdivision and Development Regulation)
Waste Transfer Station	300 m (Waste Control Regulation AR 192/96)
Power Lines	In accordance with the Alberta Electrical Utility Code
Pipelines	Pipeline Right-of-Way
Abandoned Well	5 m radius around the well (AER Directive 079)
Power Plants	In accordance with Alberta Utilities Commission Rule 007

**10. Emergency Service** – The County shall:

- Review the *Fire Services Master Plan* to ensure the plan reflects the service demands, anticipated development and call volumes of the Plan area; and
- Liaise with the RCMP to ensure police servicing levels are maintained in the Plan area.

**11. FireSmart and Wildfire Protection** – the County shall require developers to incorporate FireSmart principles and standards when preparing Outline Plans and multi-parcel subdivision plans to minimize the potential from wildfire damage. This includes, but is not limited to:

- Locating recreational facilities along the outer perimeter of future developments so that built up areas are separated from forested or natural areas;
- Including a fire guard which will buffer built up areas from surrounding forested or natural areas to a width recommended by FireSmart and Parkland County; and
- Locating trails between developments and surrounding forested or natural areas which may be used for fire prevention.

**12. Fire Prevention –low density areas** – the County shall require the following as conditions of development approval for developments within the Plan area:

- The provision of an on-site water supply for firefighting and suppression purposes;
- Building to Alberta Building Code standards. New lots adjacent to forested or natural areas may require additional standards or requirements to suppress wildfire spread;
- The installation of fire resistant and suppression materials on new lots adjacent to forested or natural areas; and
- The maintenance of setbacks under the Land Use Bylaw to maintain an emergency access route and to prevent property damage and potential loss of life

## 6.11 Referrals

- Notification** – The County shall notify an adjacent municipality and/or First Nations if any development and/or planning initiatives are located adjacent to a municipality or First Nation boundary.



## 7.0 Plan Statistics

The Plan area currently contains a mix of agricultural, Hamlet, commercial, industrial, recreation, and environmentally sensitive areas, as shown on Map 7. The distribution of these uses is identified in the following table.

Table 7.1: Future Land Use

Land Use	Hectares (ha)	% of Total Area
Agricultural Land	21,508.9	74
Agricultural Mixed Use	2,859.1	9.9
Environmentally Sensitive Areas	3,274.6	11.3
Waterfowl Habitat, Recreation, End Pit Lakes	471.0	1.6
Wetlands (including End Pit Lakes)	338.2	1.2
Business and Medium Industrial	277.5	1.0
Provincial Natural Area	128.6	0.4
Hamlet	64.9	0.2
Commercial	1.0	0.0
<b>Total</b>	<b>28,924</b>	<b>100</b>



## 8.0

## Development Staging and Implementation

### 8.1 Development Staging

Although the Mine's current life expectancy is 2056, it is anticipated that all mined lands will receive a reclamation certification by 2070. However, Pits 03-08 will receive reclamation certificates by the early 2030s or sooner, depending on current provincial approaches to resource extraction and development. By the 2030s, 74% of the Mine area will be reclaimed. Concurrent with the TransAlta reclamation timeline, the County will implement the following actions or initiatives, as identified in the following table, for each stage of reclamation.

Due to the Government of Alberta's approach to phase out coal extraction by 2030, alternative planning and expedited reclamation of the Highvale Mine may follow to meet this goal. Accordingly, this ASP shall be updated with new information from TransAlta as it endeavours to meet the Provincial approach. At this time reclamation plans remain the same.

Table 8.1: Post Reclamation Activities (anticipated as of March 2016)

Pit/Area	Reclamation	Reclamation Certification	Actions or Initiatives by the County (Post Reclamation)
Pits 03-08	2016 to the mid-2020s	2025 to 2030s	<ul style="list-style-type: none"> <li>74%, or 8,433 ha of the 11,331.1 ha, of Mine lands available for sale.</li> <li>Wabamun Creek Trail, from Wabamun Lake to the North Saskatchewan River through Keephills, is near complete.</li> <li>Road network near complete.</li> <li>Alternative energy production site identified.</li> </ul>
Pit 09	2022 - 2056	2070	<ul style="list-style-type: none"> <li>The remaining 26%, or 2,898.1 ha of 11,331.1 ha Mine lands, available for sale.</li> <li>Wabamun Creek Trail, complete.</li> <li>Road network complete.</li> </ul>

### 8.2 Implementation

- Coal Phase Out 2030** – The ASP will be updated when additional information on the Government of Alberta's approach to coal phase out has been provided. Appropriate changes to the ASP policies and land use mapping will be undertaken where applicable.
- MDP Amendments** – To implement the ASP, the following MDP amendments are required:
  - Lands within the Highvale Mine permit boundary designated as Industrial Commercial in the County's MDP shall be redesignated Agricultural, Environmentally Significant, and Industrial/Commercial, as outlined in this Plan, at the time of reclamation certification, excepting the Keephills Generating Plant site which shall remain Industrial/Commercial.



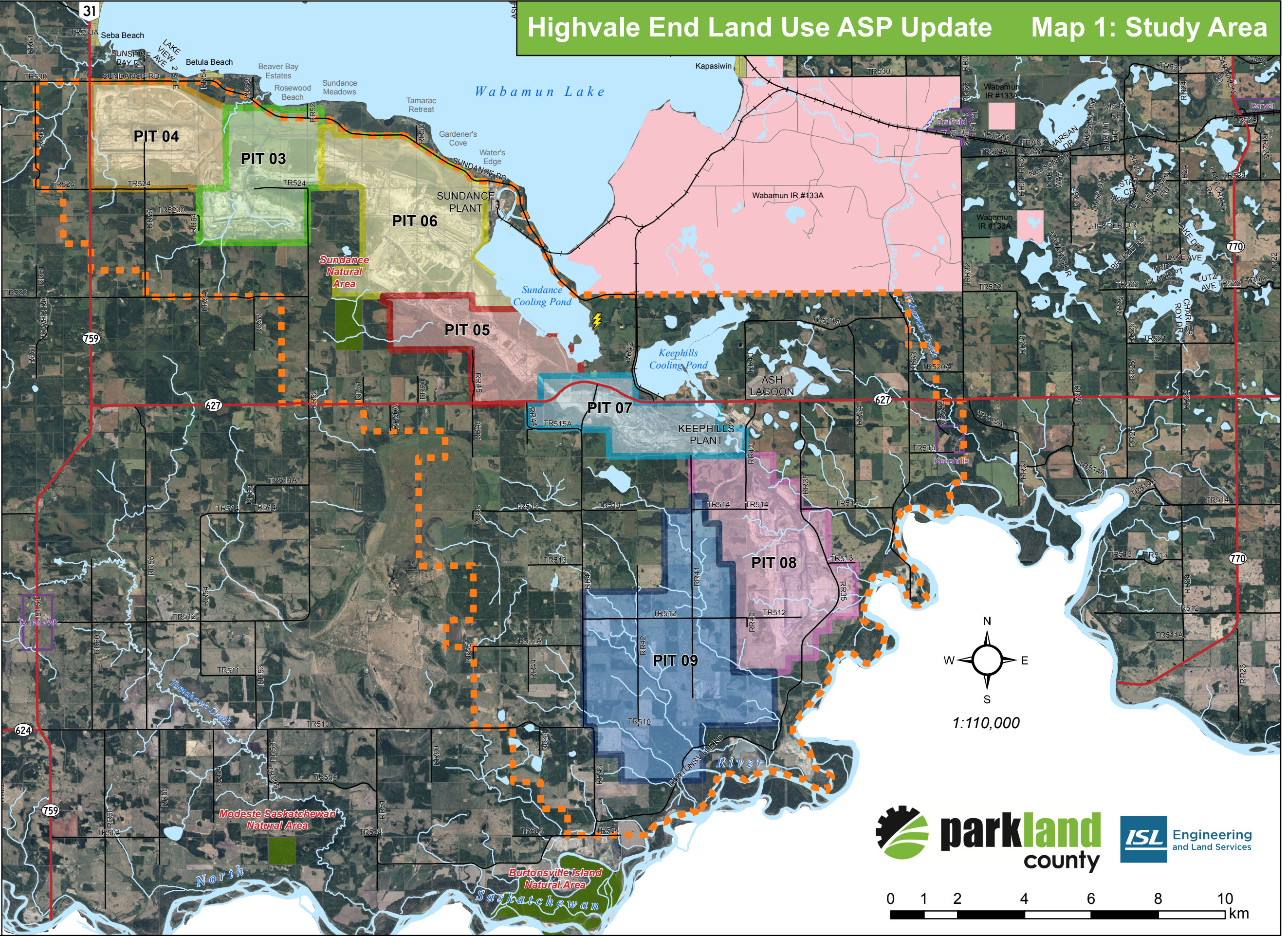
- b. The Confined Feeding Operation Overlay (Map 4) of the MDP shall be amended to account for the location of the future waterbodies, and, where applicable, findings from the Wabamun Sub-Watershed Land Use Plan.
  - c. The MDP shall identify that Keephills will accommodate future residential growth.
3. **LUB Amendments** – To implement the ASP, the following LUB amendments are required:
- a. Lands within the Plan area that are located south of Sundance Road and designated in the LUB for Country Residential development shall be redesignated to AGR – Agricultural Restricted District.
  - b. Lands identified as Highvale Mine Pits 08 and 09 shall be redesignated to Direct Control Area 2.
4. **ASP Review** – The Highvale End Land Use ASP shall be reviewed every five years, and amended as necessary, to reflect provincial (i.e. Provincial coal policies), regional (i.e. Capital Region Growth Plan policies) or municipal policy (i.e. Transportation Master Plan updates), updates to the Parkland County/TransAlta Memorandum of Understanding, or TransAlta’s mining timing timelines, sequence of mining or reclamation plans, or any relevant new information.
5. **First Right of Refusal** – TransAlta and Parkland County shall establish a protocol that allows the County “first right of refusal” to purchase reclaimed lands, unless prior contractual agreements with landowners are in place. The County would use this approach for acquiring lands for Municipal or Environmental Reserve purposes, park lands, and/or trail networks and recreation uses for the benefit of County residents.
6. **Sales Agreements** – A sales agreement between TransAlta and a prospective owner shall include conditions describing the following: the responsibilities for disclosure of mine activities; liability of responsibility; the preparation of an environmental site assessment and a geotechnical assessment; the provision of title caveats, encroachments, and leases; municipal reserve requirements, infrastructure and servicing requirements, PUL locations, and future levies owed.



# Highvale End Land Use ASP Update

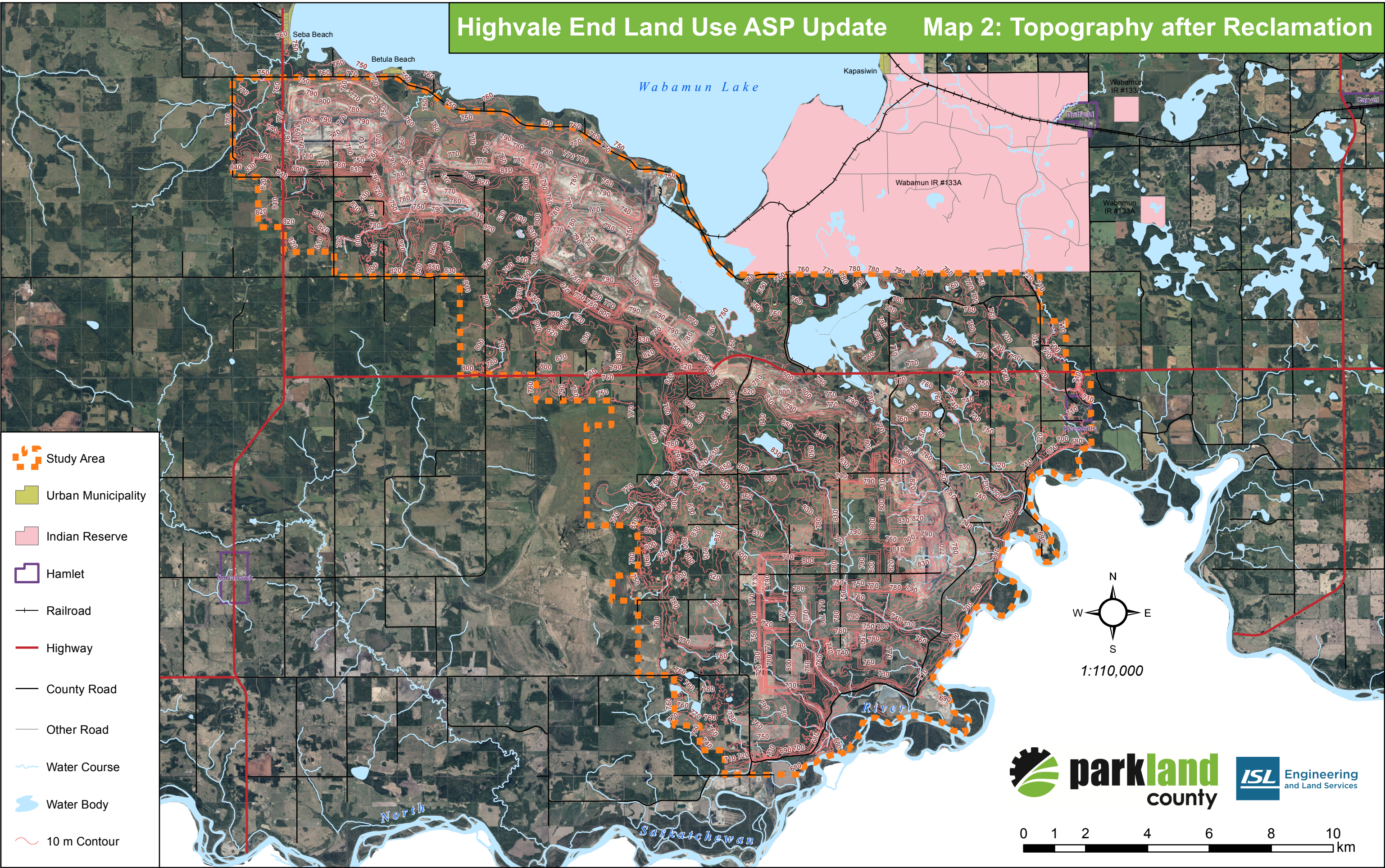
## Map 1: Study Area

- Study Area
- Summer Village
- Indian Reserve
- Hamlet
- Railroad
- Highway
- County Road
- Other Road
- Water Course
- Water Body
- Provincial Natural Area
- Future Natural Gas-fired Electricity Generating Plant
- Mine Permit Lands**
  - Pit 03
  - Pit 04
  - Pit 05
  - Pit 06
  - Pit 07
  - Pit 08
  - Pit 09



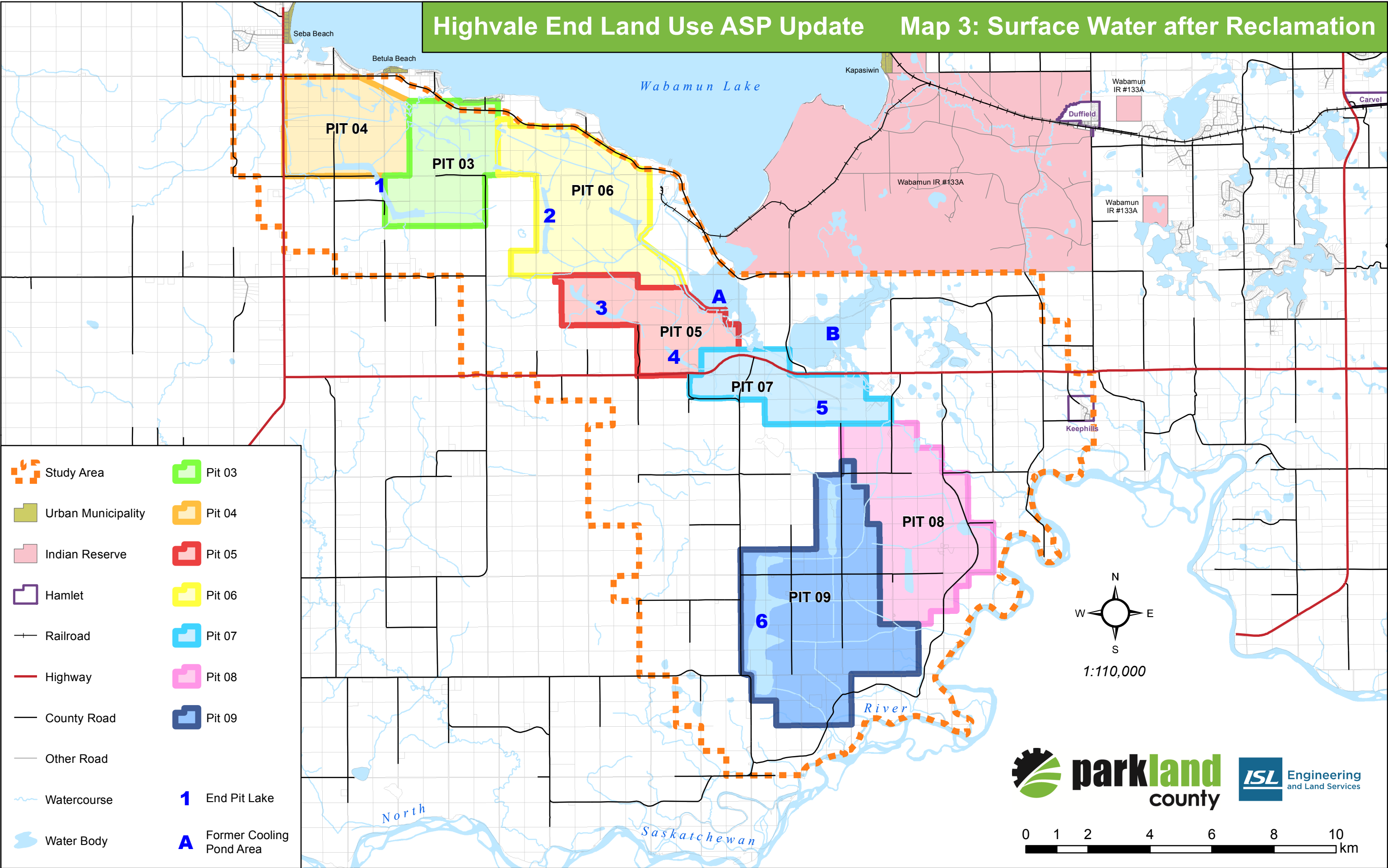


# Highvale End Land Use ASP Update    Map 2: Topography after Reclamation





# Highvale End Land Use ASP Update    Map 3: Surface Water after Reclamation

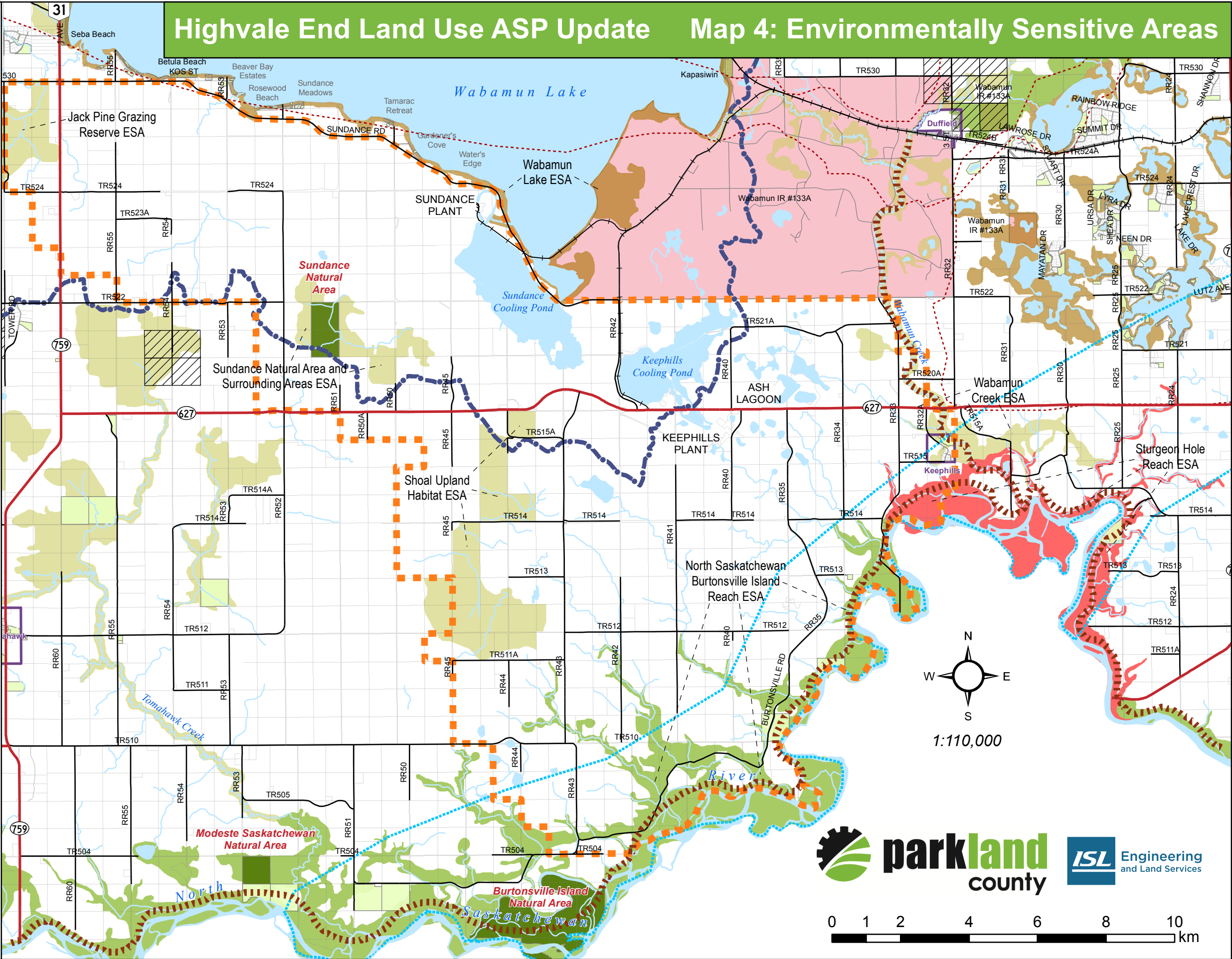




# Highvale End Land Use ASP Update

## Map 4: Environmentally Sensitive Areas

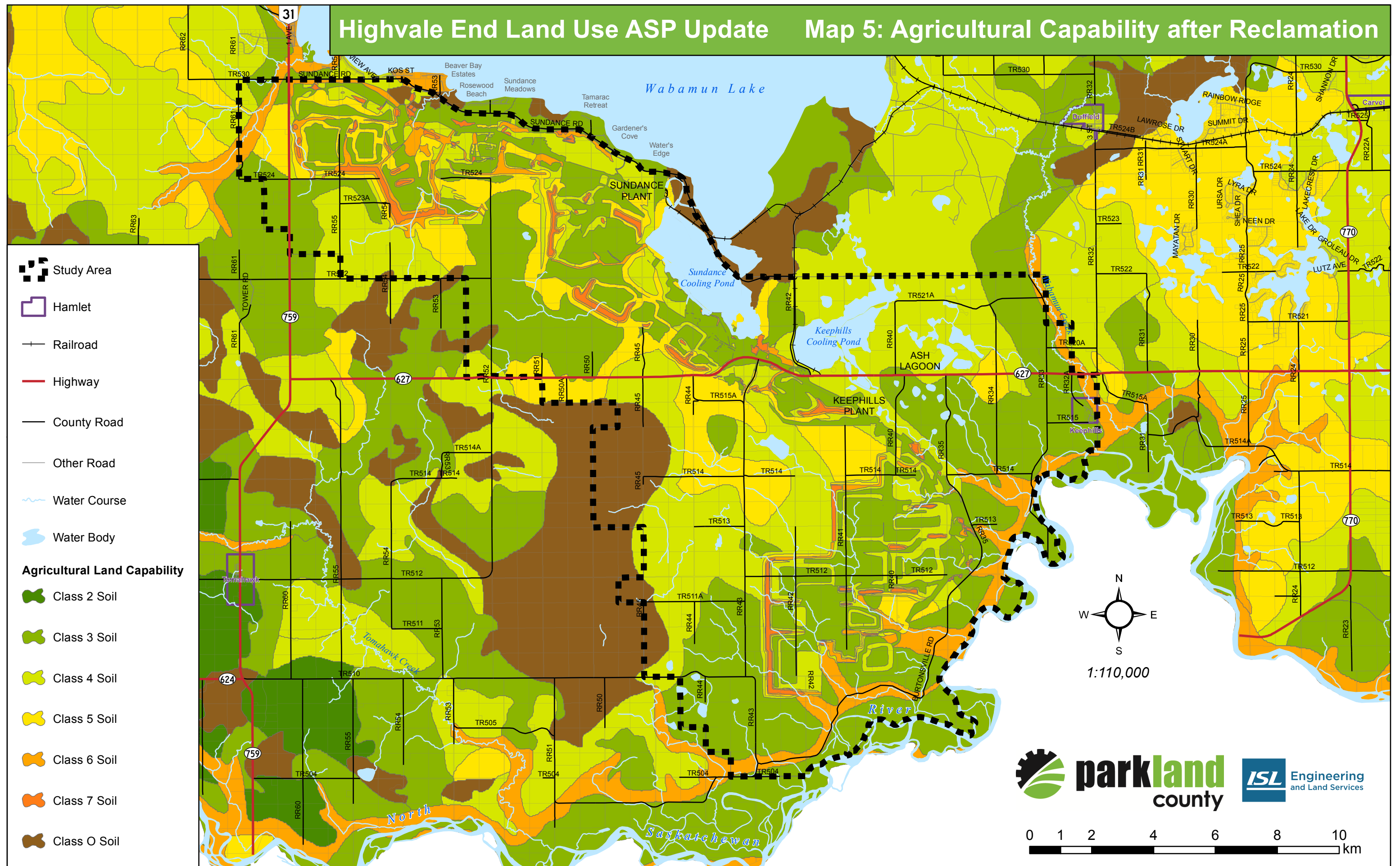
- Study Area
- Summer Village
- Indian Reserve
- Hamlet
- Railroad
- Highway
- County Road
- Other Road
- Water Course
- Water Body
- Major Wildlife Corridor
- Groundwater Exploration Restricted Area
- Goundwater Buried Valley Aquifer
- Wabamun Subwatershed
- Minor Local Significance Priority Landform
- Protected Area (Municipal Conservation)
- Provincial Natural Area
- Provincial Park
- Other Crown Lands
- Environmentally Sensitive Area (ESA)\***
  - National Significance
  - Provincial Significance
  - Regional Significance
  - Local Significance



\* From 2014 Parkland County Environmental Conservation Master Plan.

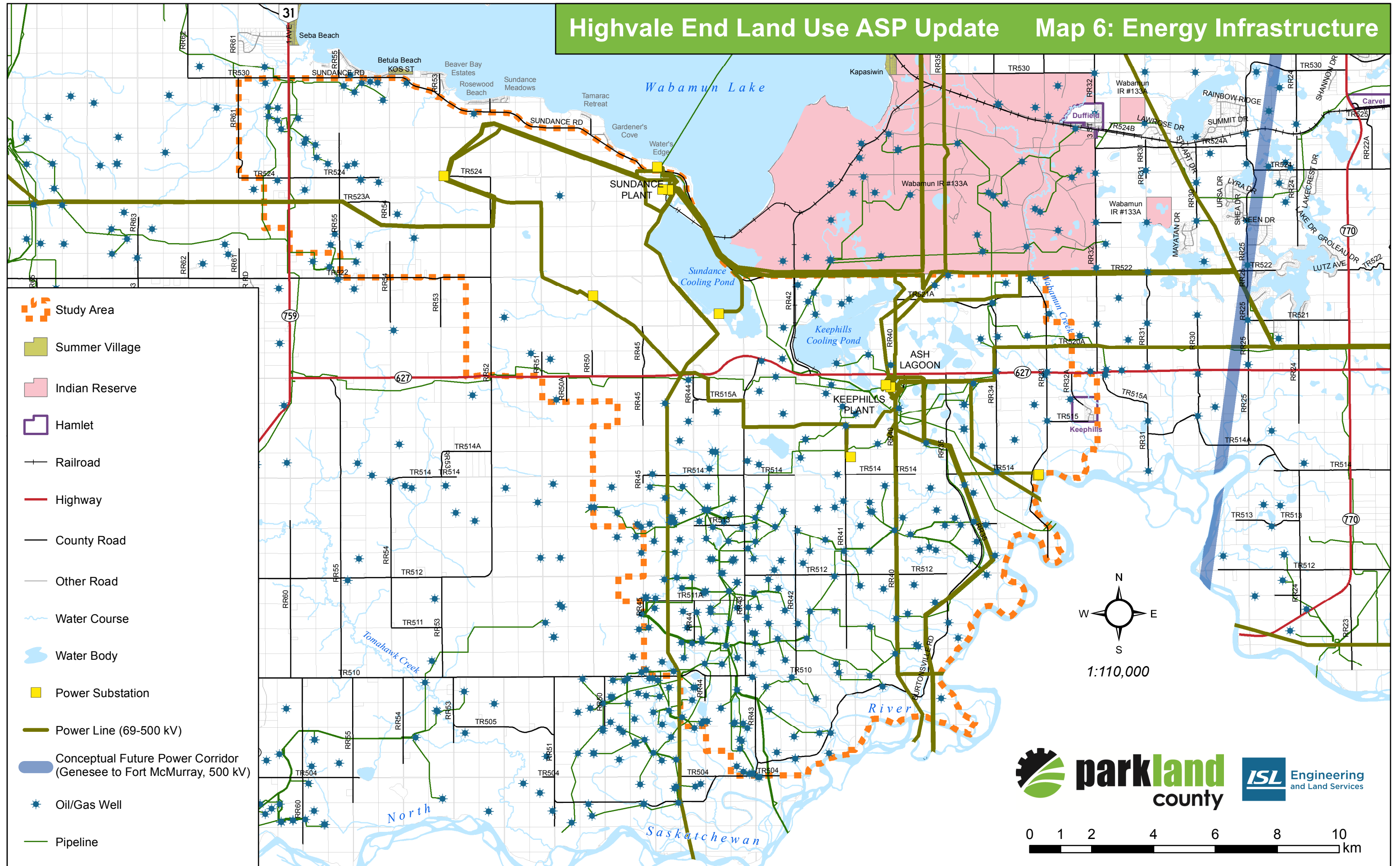


## Map 5: Agricultural Capability after Reclamation



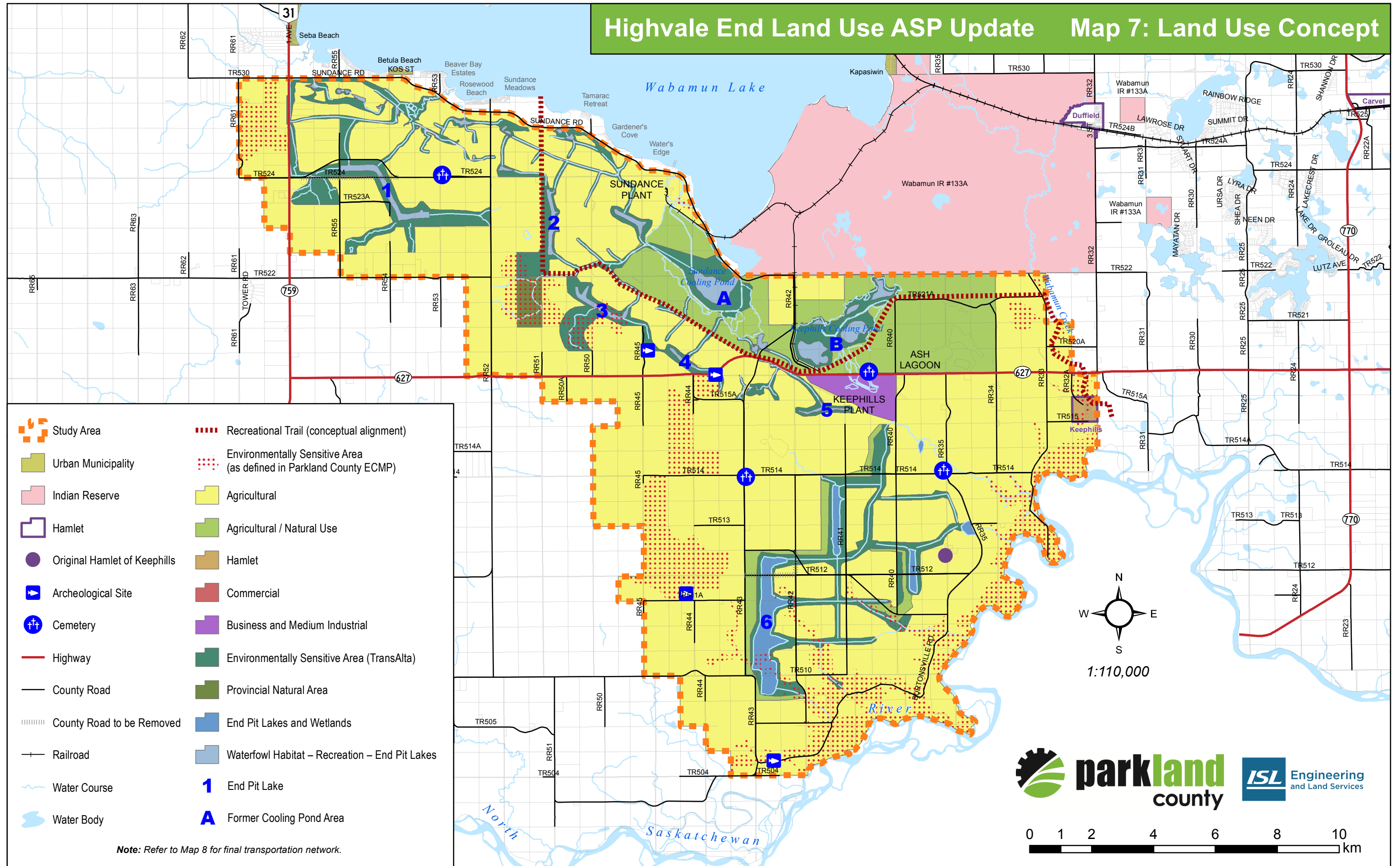


## Highvale End Land Use ASP Update      Map 6: Energy Infrastructure





## Highvale End Land Use ASP Update      Map 7: Land Use Concept





## Highvale End Land Use ASP Update      Map 8: Transportation Network

