



NSWA MUNICIPAL FORUM

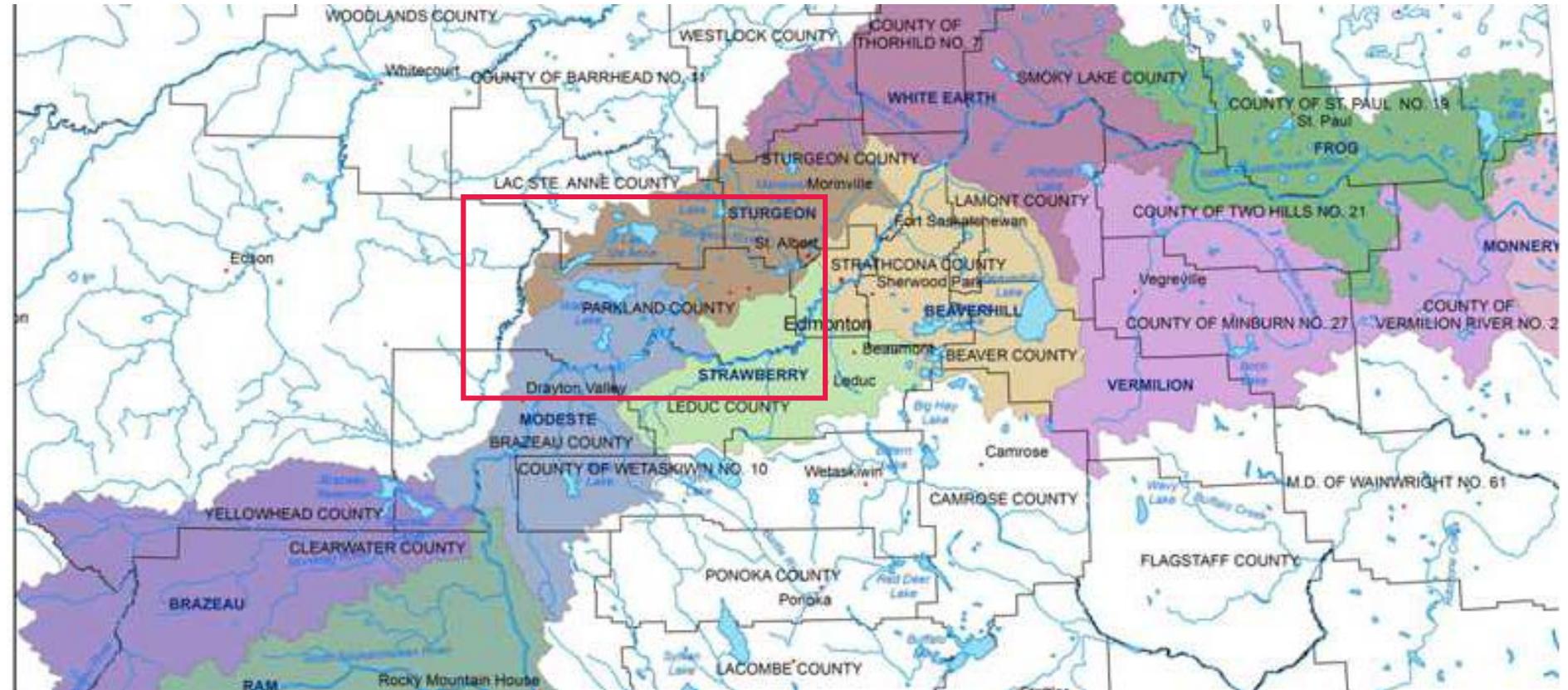
WATERSHED STEWARDSHIP, A FAMILIAR FAIRYTALE



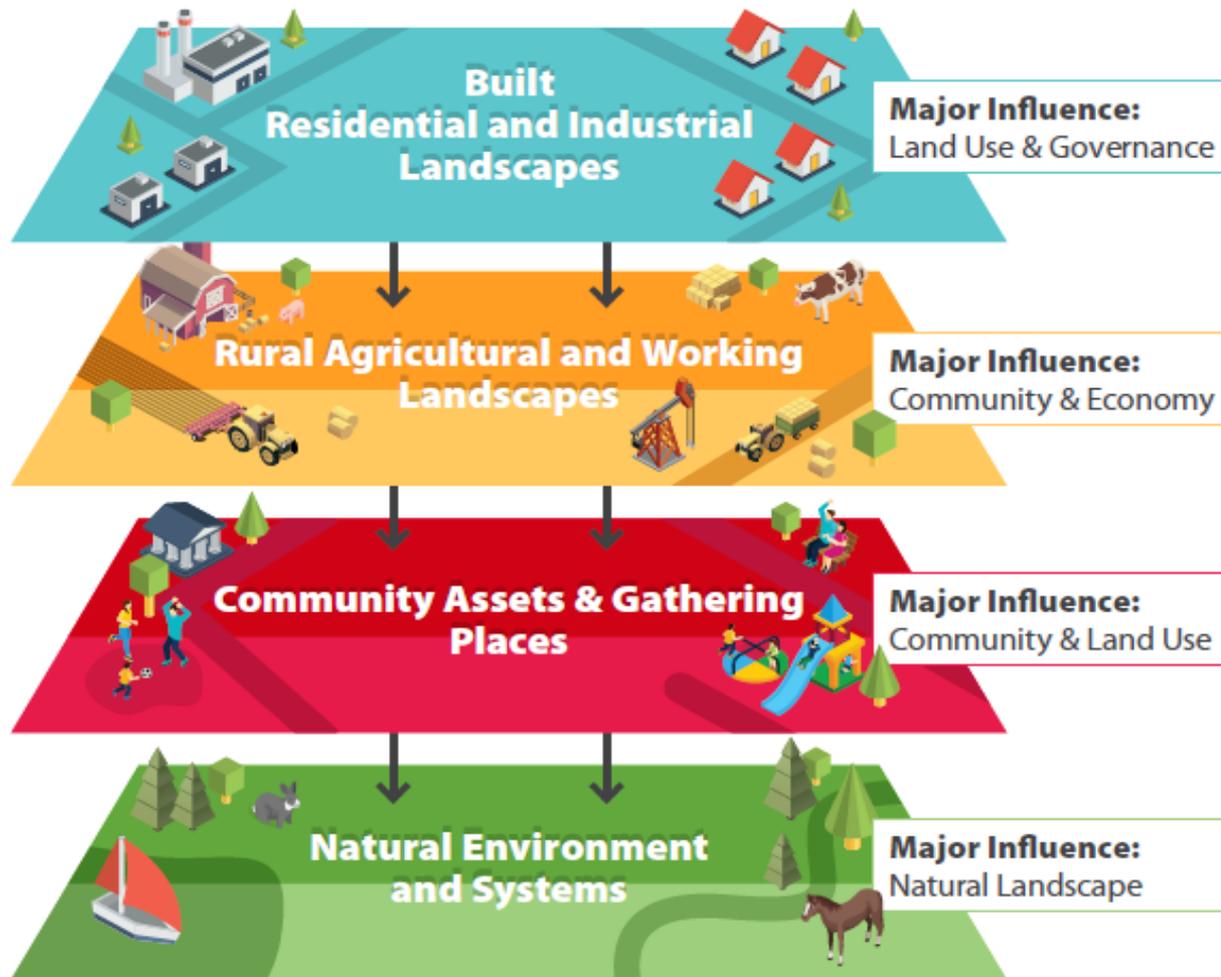
ONCE UPON A TIME...



A BEAUTIFUL AND UNIQUE LANDSCAPE

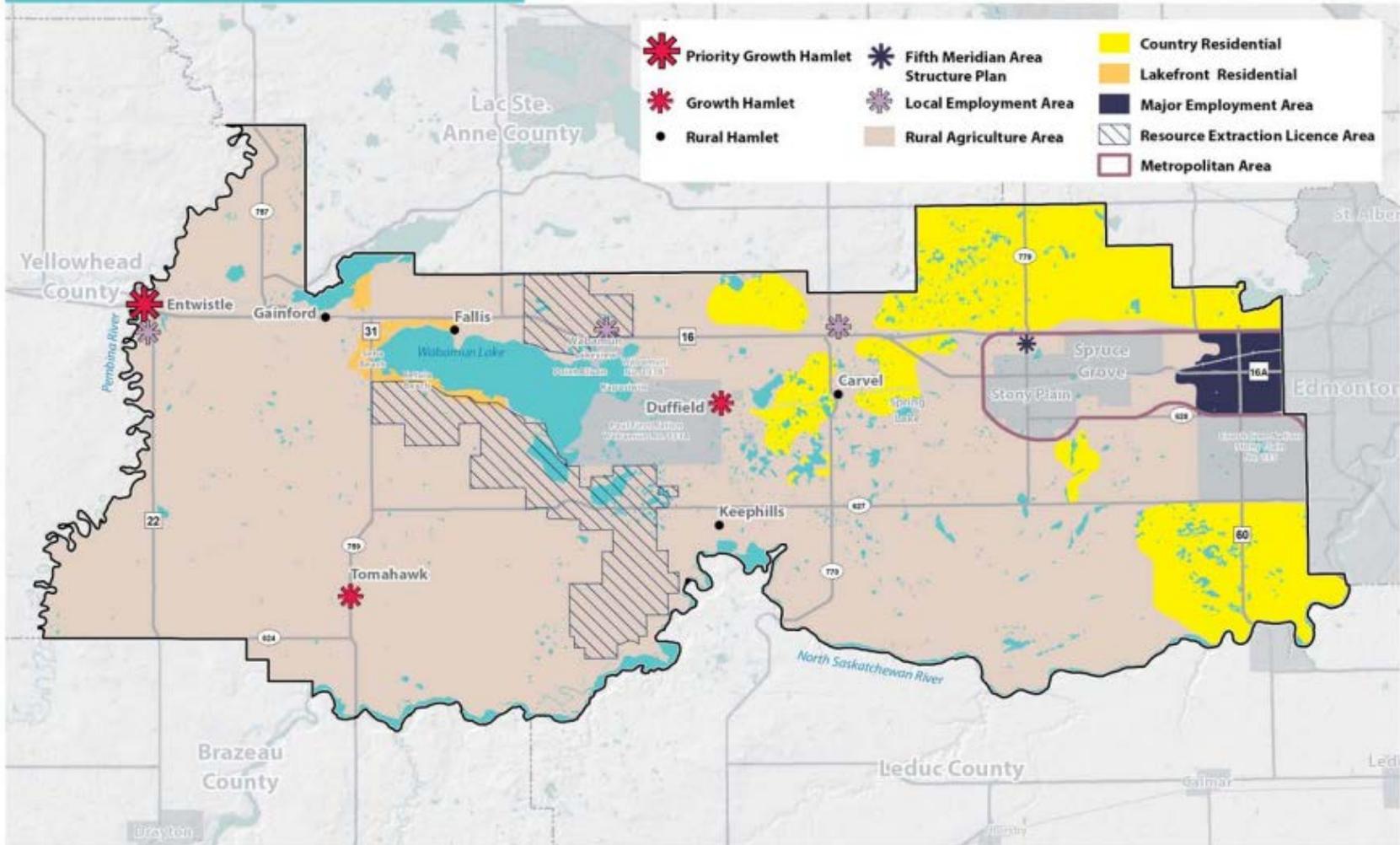


RURAL LANDSCAPE



FACED WITH A NUMBER OF CHALLENGES

FIGURE 7 | DEVELOPMENT CONCEPT



FACED WITH A NUMBER OF CHALLENGES



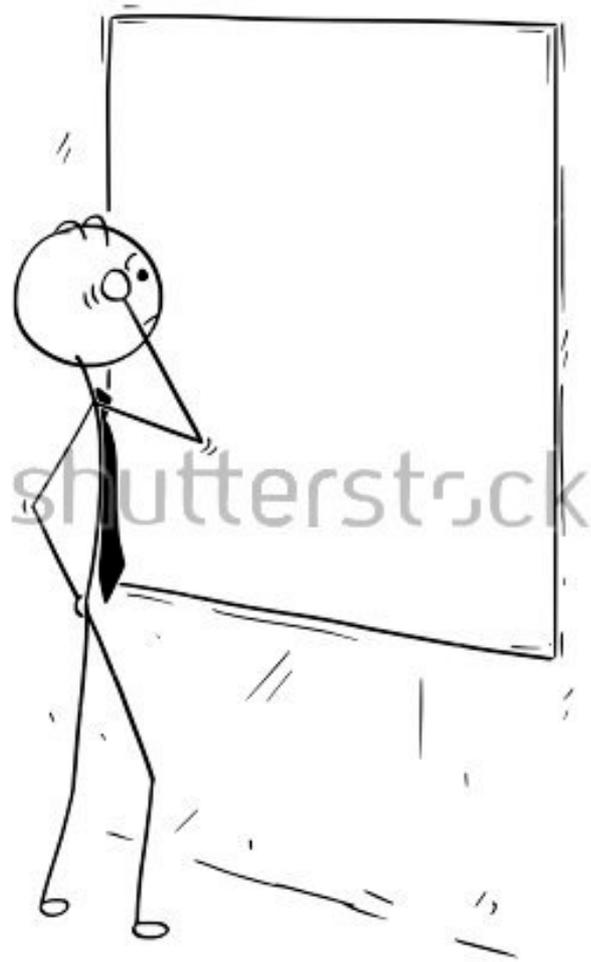
management Councils by the North Saskatchewan Watershed Alliance on January 30, 2015.

The information presented here is based on high resolution videography that was captured in August of 2014. As well, the orthophotographs captured in 2013 were provided by Parkland County. Funding for the project was provided by the Land Stewardship Centre





THE DRAWING BOARD





Parkland County Environmental Conservation Master Plan

Phase 1 Background Technical Report



Phase 1 Report

Prepared by : O2 Planning + Design Inc.

For: Parkland County

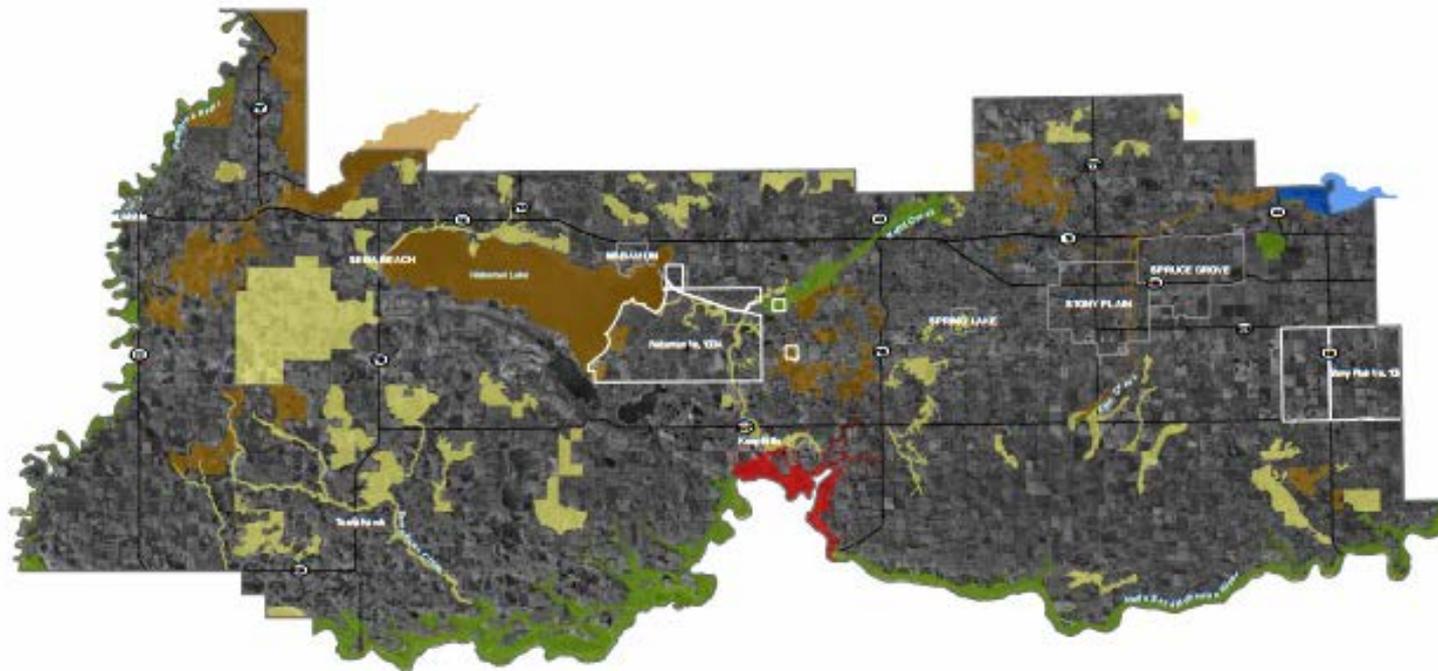
Submitted: June 18, 2014



ECMP

- **Goal:** To identify priority areas for conservation based on inherent environmental significance or sensitivity.

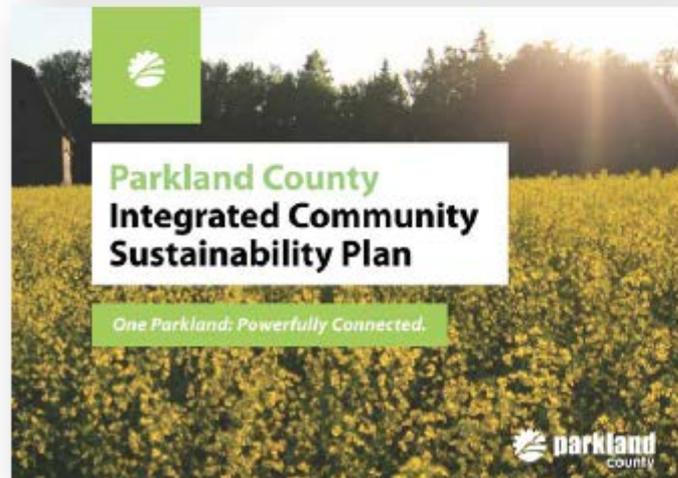
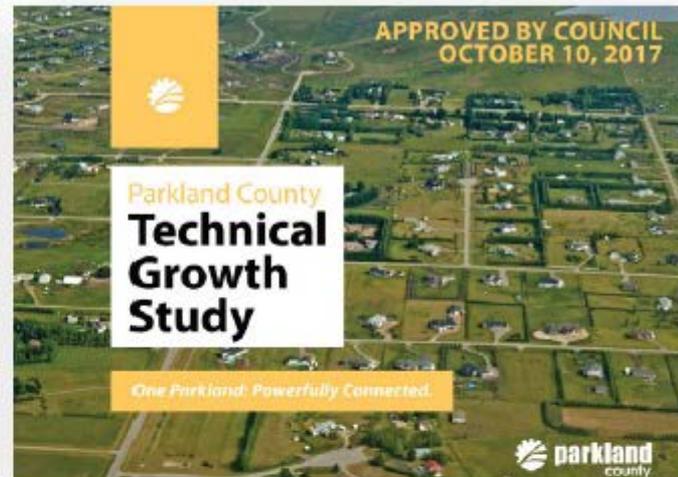
MAP 14: ENVIRONMENTALLY SIGNIFICANT AREAS OF PARKLAND COUNTY (NEW 2013)



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PLANNING FOR WATERSHED MANAGEMENT





WATERSHED & STEWARDSHIP POLICY

Council's Strategic Plan



BROAD OBJECTIVE: Ensuring the completion of watershed plans and developing practical, reasonable implementation schedules.

ICSP



BROAD OBJECTIVE: Functioning natural ecosystems.

STRATEGY: Take an ecological network approach to land use planning that protects valuable natural capital, critical wildlife habitat, and unique biodiversity.



BROAD OBJECTIVE: Quality water supplies supported by healthy and resilient watersheds.

STRATEGY: Support land use and development that protects and maintains ground water and surface water supplies, minimizes loss of wetland and riparian area, and supports aquatic ecosystems.



WATERSHED AND STEWARDSHIP POLICY

- MDP -10.4 Surface Water, Groundwater & Wetlands
- Maintaining Biodiversity on Public Lands Policy
- Maintaining Biodiversity on Private Lands Policy
- Wabamun Lake Subwatershed Land Use Plan



INTER-MUNICIPAL COLLABORATION



- Sturgeon River Watershed Alliance
- Headwaters Alliance
- Lake Management Plans



WHO WILL DO THE WORK?

COMMUNITY SUSTAINABILITY

POOF!

Community Sustain
Coordinator

ist

ALUS Farmer Liaison

Environment &
Community Sustainability
Student

Environmental
Compliance Student





WETLAND INVENTORY AND HISTORICAL LOSS ASSESSMENT

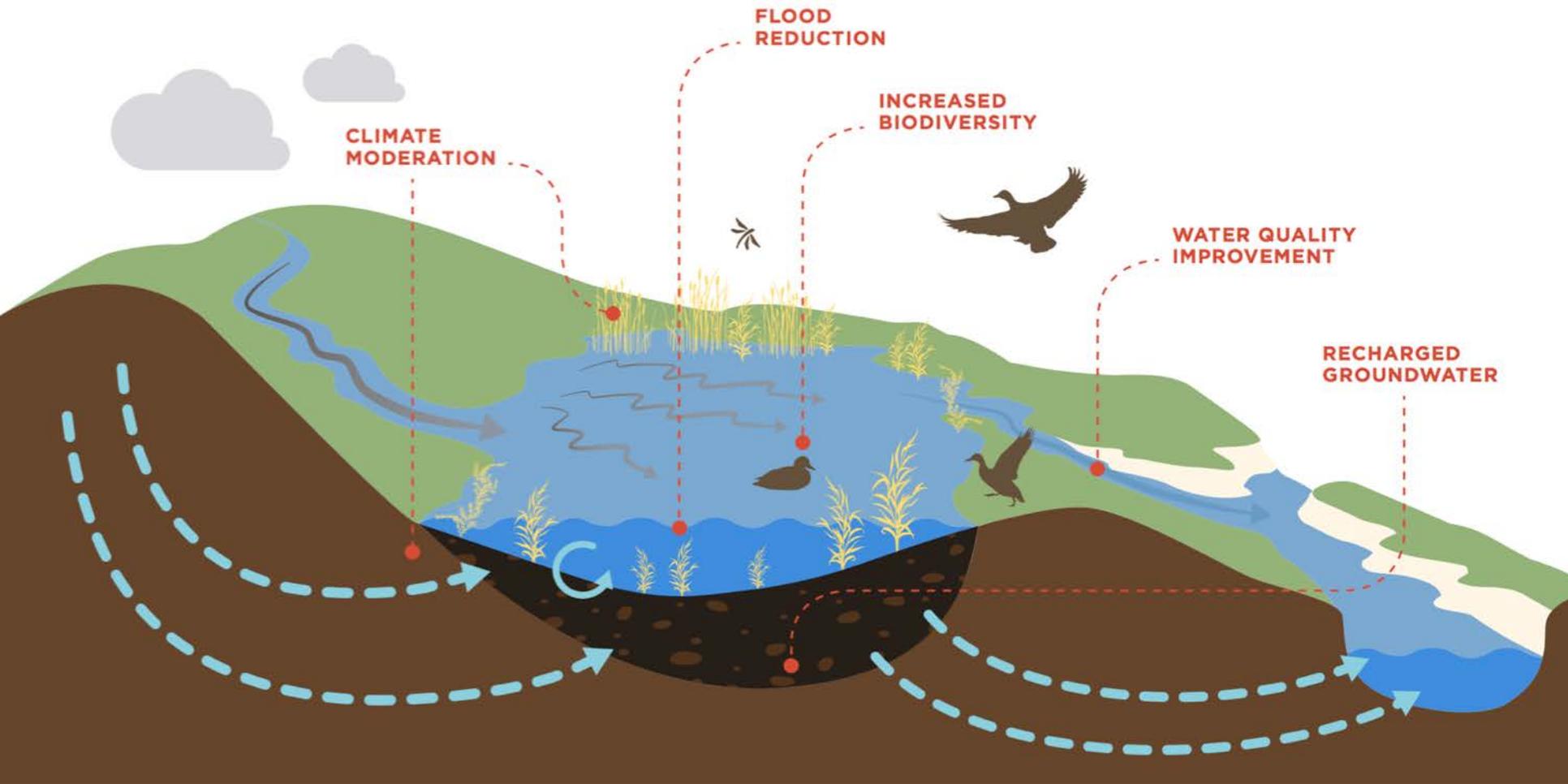
GOAL: To provide a thorough assessment of the current and historical status of wetlands in Parkland County

OBJECTIVES:

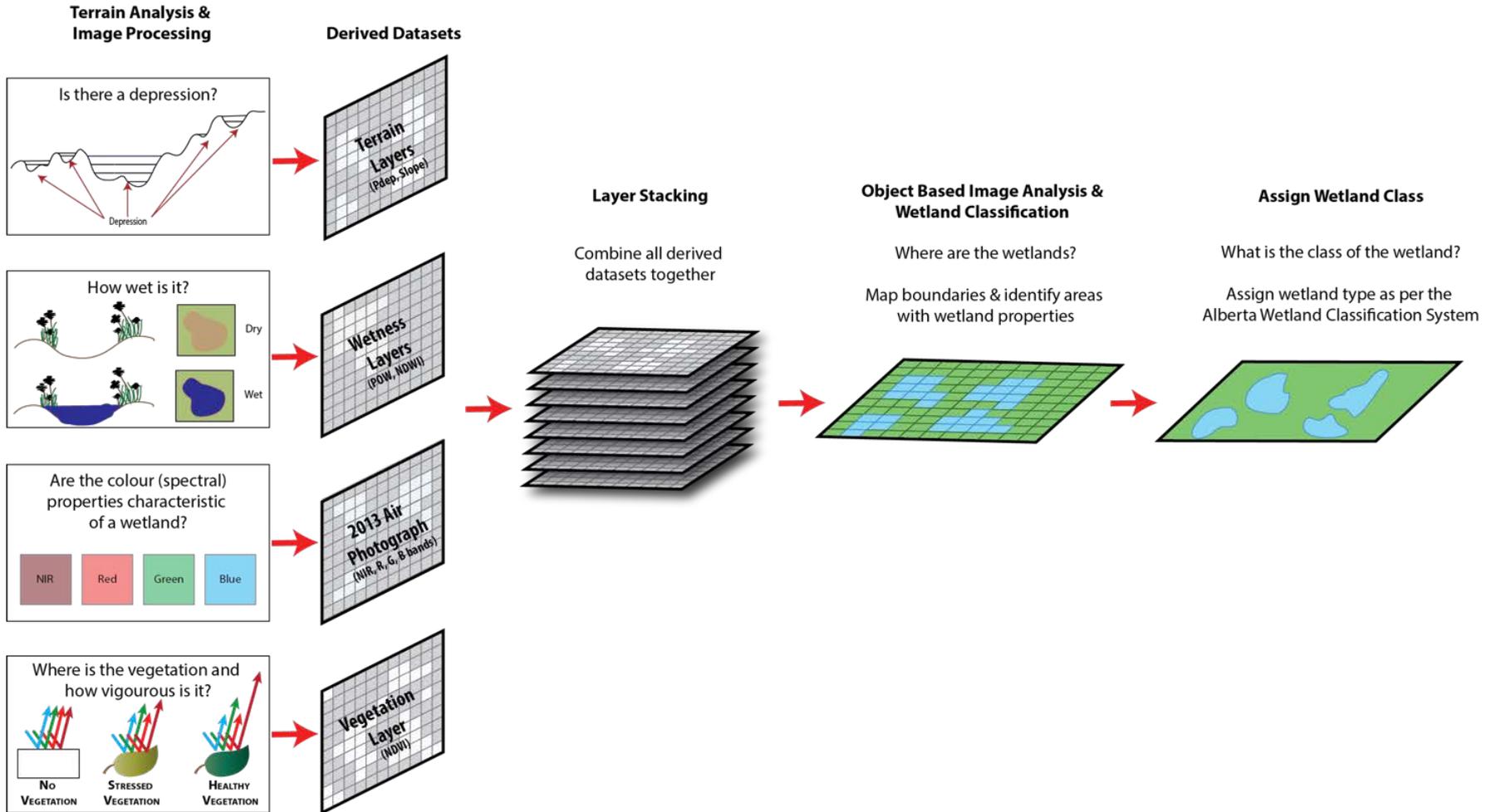
1. Create an accurate and up-to-date wetland inventory
2. Assess the condition of each wetland using a scientifically valid framework that aligns with the provincial relative wetland value assessment
3. Determine the historical distribution of wetlands and calculate the number and area of wetlands that have been lost



The Importance of Wetlands: Ecosystem Services



CREATE A CURRENT WETLAND INVENTORY



Wetland Ecological Value

CRITERION 1: Biodiversity Value

Wetlands that provide suitable habitat for:

- Fish
- Birds
- Amphibians
- Rare or Threatened Species

CRITERION 2: Ecological Function

Wetlands with a high degree of ecological function:

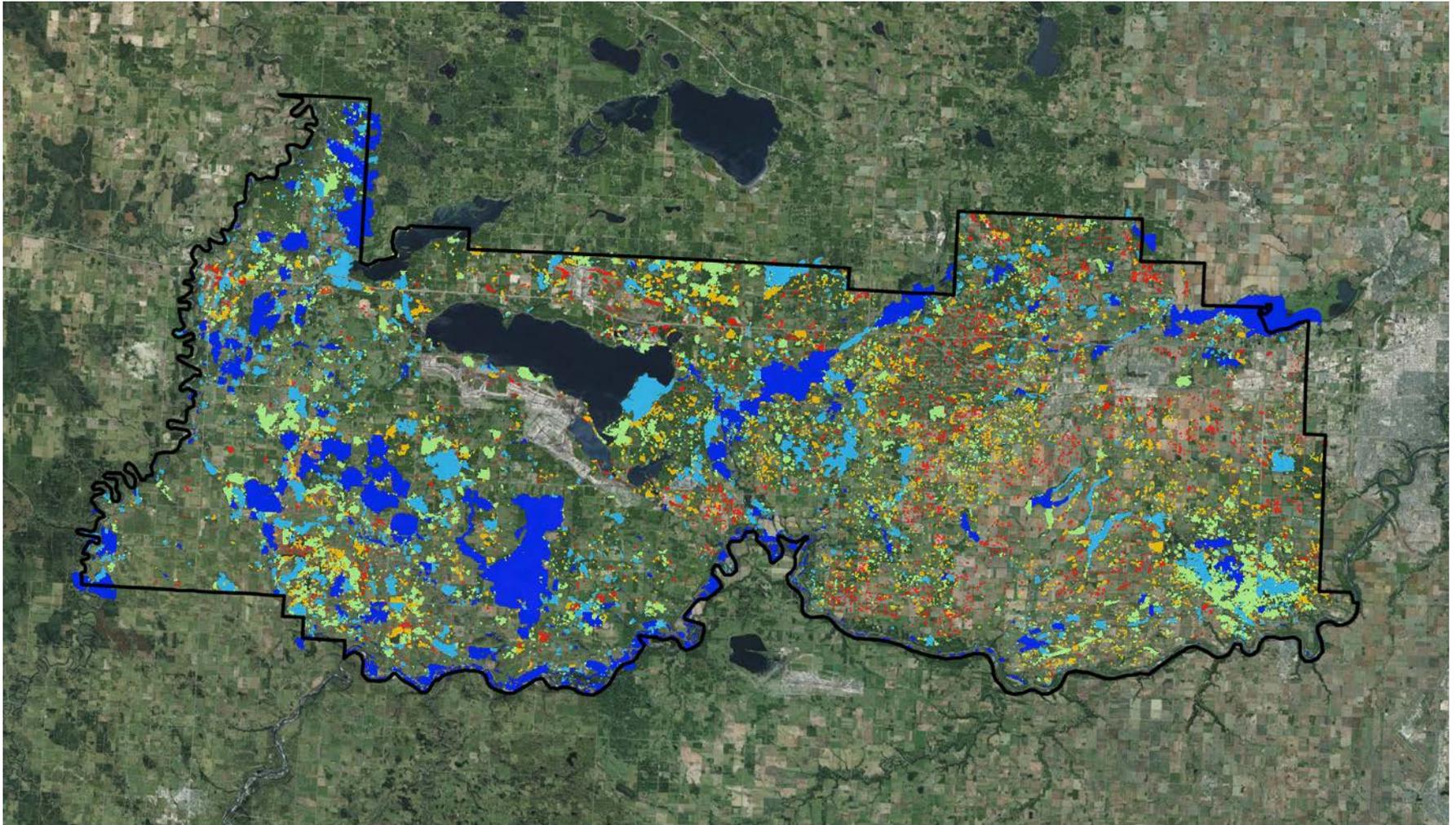
- Minimal disturbance within & near the wetland
- Close to other undisturbed natural areas
- Close to other wetlands

CRITERION 3: Hydrologic Function & Water Quality Improvement

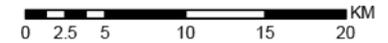
Wetlands with a high degree of hydrologic function:

- Wetlands that store water and reduce flooding
- Wetlands that are hydrologically connected to other aquatic habitats
- Wetlands that intercept sediment & nutrients

RESULTS: WETLAND ECOLOGICAL VALUE



Parkland County: Wetland Ecological Value
FINAL AGGREGATED SCORE



HISTORICAL WETLAND INVENTORY (1950)

- Remote sensing techniques were used to automatically identify wetland boundaries from the Alberta Biodiversity Monitoring Institute (ABMI) Historical Orthophoto
- Once boundaries were created, wetlands were identified and extracted by air photo analysts



QUANTIFY HISTORIC WETLAND LOSS

An aerial photograph of a wetland landscape. A prominent, winding river flows through the center, surrounded by various water bodies and marshy areas. The terrain is a mix of light and dark green, indicating different types of vegetation and water levels. The overall scene is a complex network of water and land.

Understanding historical loss is critical for:

1. Informing contemporary approaches to wetland management
2. Providing insights into what land uses or activities drive loss in Parkland County
3. Identifying potential locations for wetland restoration

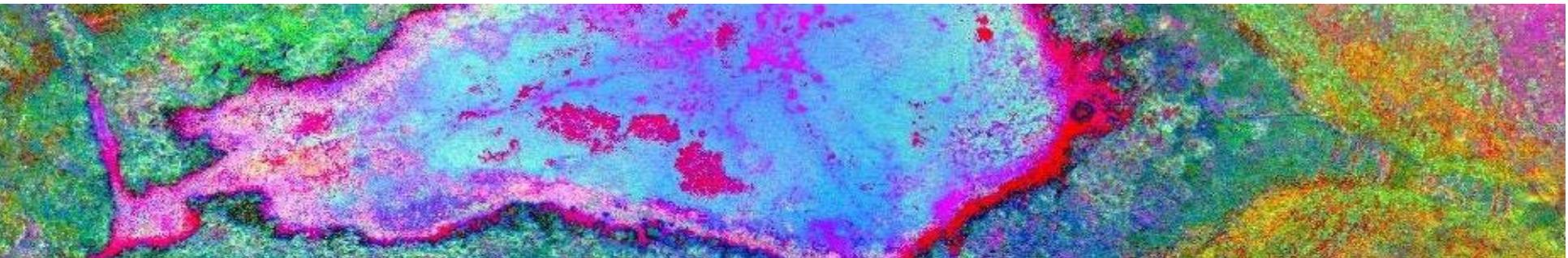
QUANTIFYING HISTORIC WETLAND LOSS

- Wetland loss within Parkland County was quantified by comparing the *Current* Inventory to the *Historic* Inventory
- Any areas where there was a change in area $>40\%$ was identified and used in the calculation of historic loss
- Change was characterized as either complete or partial loss, and summarized by wetland type



CONCLUSIONS

- There has been an estimated 56% change in wetland area in Parkland County between circa 1950 and 2013
- Wetland losses have been primarily driven by partial losses of treed wetlands and complete losses of marsh and open water wetlands
- Wetlands classified as “Excellent” or “Good” Ecological Value are good candidates for conservation
- Wetlands classified as “Poor” or “Moderate” are good candidates for restoration
- Improving the condition of remaining wetlands, and restoring wetlands that have been lost, will ultimately improve the overall ecological and hydrological condition of the watersheds within the County





AVAILABLE POLICY INSTRUMENTS

- Outreach/Education
- Incentives
 - Non-financial
 - Financial
- Regulation

Increasing potential for impact

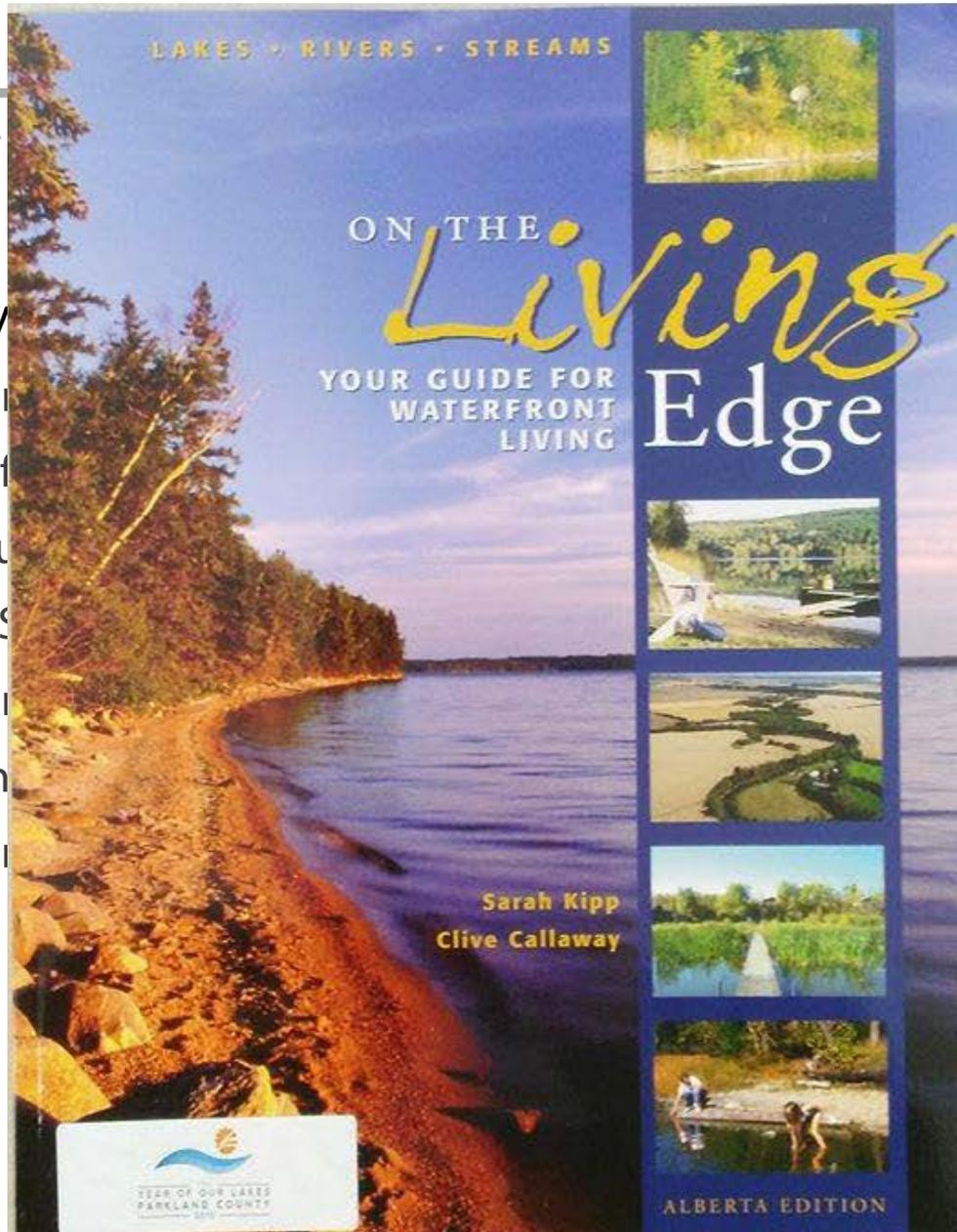


Decreasing potential for buy-in



EDUCATION

- Interactive
 - Shoreline
 - The Buffer
 - Construction
 - Septic Systems
 - Shoreline
 - Erosion
 - Shoreline
 - Whose



NON-FINANCIAL INCENTIVES

- Sustainability Awards

Residents, Businesses, Schools, Producers, Non-profits



**SUSTAINABILITY
AWARDS**

ALTERNATIVE LAND USE SERVICES (ALUS)

OVERVIEW

“Conservation will ultimately boil down to rewarding the private landowner who conserves the public interest” -Aldo Leopold, 1934

Footer

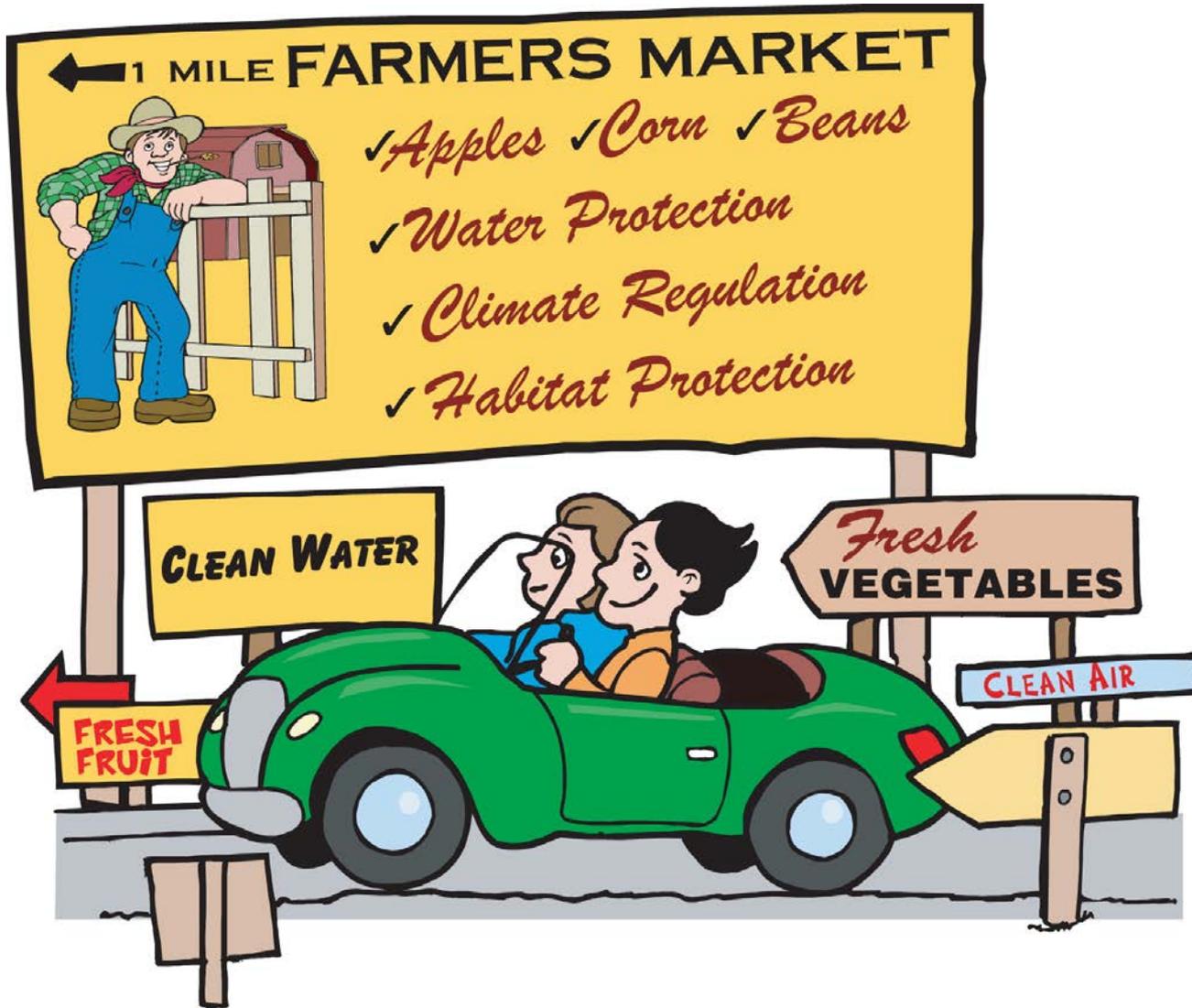
WHAT IS ALUS?

VISION

Alternative Land Use Services (ALUS) has a simple, yet revolutionary goal...create a healthy landscape that sustains agriculture, wildlife and natural spaces for all Canadians.

MISSION

ALUS is a community-developed, farmer-delivered program that provides support to farmers and ranchers to enhance and maintain nature's benefits.



Project Types

- Wetland Creation, Enhancement, and Restoration
- Riparian Area Protection/Enhancement
- Exclusion Fencing
- Alternative Watering Systems
- Native Prairie/Pollinator Habitats
- Nesting Structures
- Reforestation
- Shelterbelts

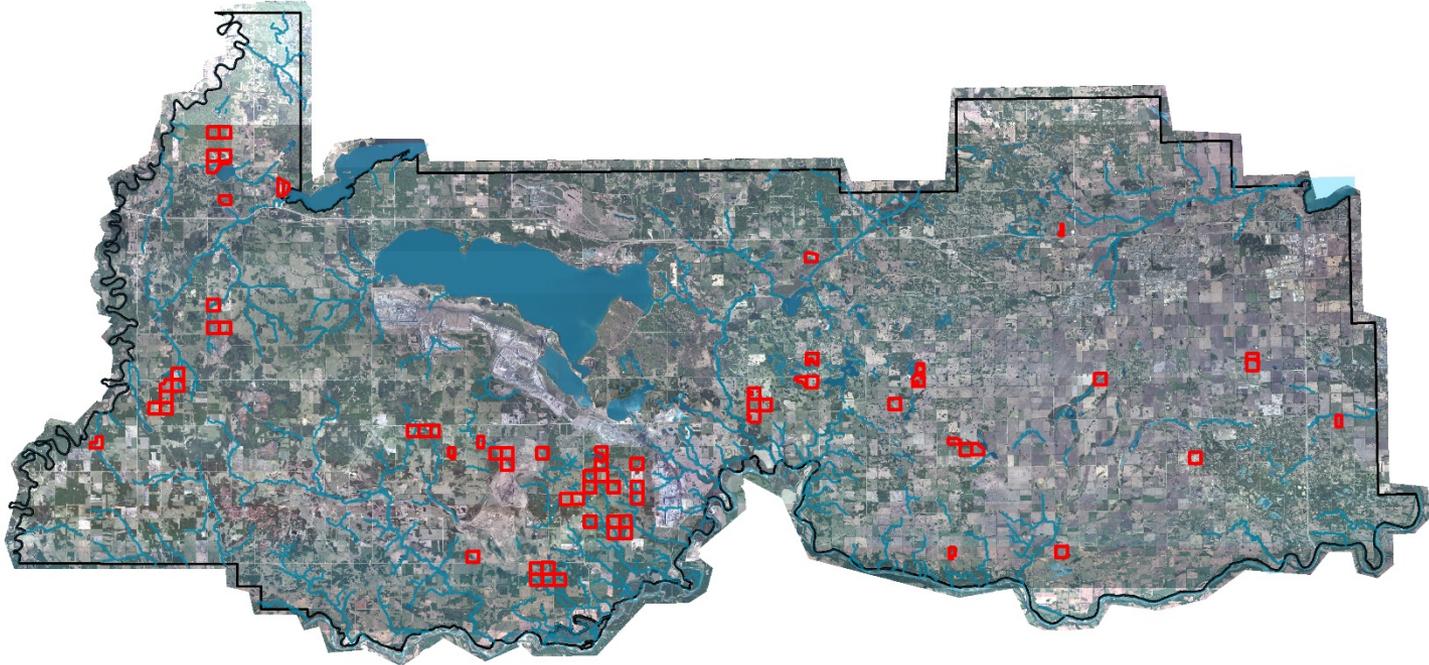


PROJECT EXAMPLE: LAKE ISLE CREEK

3300 METERS OF FENCE

- 1 SOLAR WATERER (3 TROUGHS)
- 3 GATE SYSTEMS
- 43 ACRES RIPARIAN AREA

Program Growth



32 Producers

924.71 total acres enrolled



Green Acres

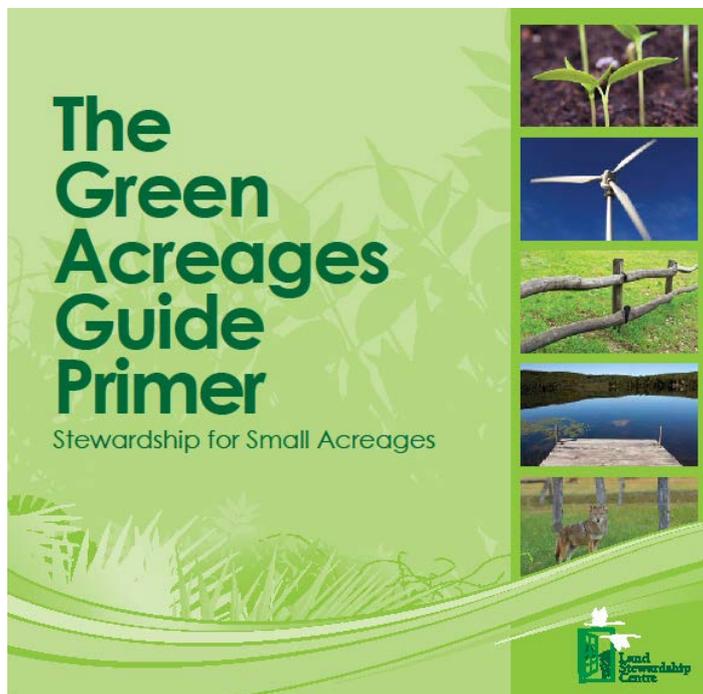
Stewardship for Small Acreages



Education and incentive program for acreage owners in Parkland County.

The program has three goals:

1. Help acreage owners identify environmental issues on their land.
2. Help residents develop plans to address those issues.
3. Help them put those plans into on-the-ground action through incentives resulting in environmental benefit.





PROGRAM DETAILS

- Workshops to increase acreage owner's knowledge of natural resource management
- Staff-assisted project proposal development
- Project establishment costs shared: 60% County/40% landowner- up to \$2000 or \$3000 for septic improvements



PROJECT TYPES FOR LAKEFRONT PROPERTIES



- a. Riparian Revegetation/Enhancement
- b. Wildlife Habitat
- c. Rain Garden/Bioswales
- d. Septic System Replacement
- e. Shoreline Restoration
- f. Other innovative projects



REGULATION-BIOPHYSICAL ASSESSMENT PROGRAM



Big Picture (Planning Processes)
Management Planning Tools

Landscape (regional context)
Sensitivities assessed at regional level –
cumulative effects
Landscape management triggers

Ground Level (Development Processes)
Biophysical Assessment

- Site-specific (local context)
- Sensitivities assessed at a local level
- Site-specific triggers



High Level Assessment

Development Activity

- Area Structure Plan
- Outline plans
- Subdivision (multiparcel)
- Resource Extraction

Comprehensive Biophysical Assessment Required

- Stripping, filling, excavation, grading
- Vegetation clearing
- Creating ponds or dugouts
- Subdivision (simple)

Desktop Biophysical Assessment may be Required

Decision Process

Landscape Level



- High priority landscapes
- Environmentally significant areas
- High value wetlands

Ground Level



- Sensitive terrain/soils
- Listed plant/wildlife species
- Weed species/Vegetation clearing
- Surface or groundwater hydrology/water quality
- Wetlands/water bodies/watercourses

Interpretation and Evaluation

Management Toolbox

- Plan or design modifications
- Application of setbacks (buffers) including use of RSMM
- Designation of ER/MR
- Mitigation plans
- Monitoring plans/on-going monitoring
- Additional field surveys

LOOKING TO THE FUTURE...



Biophysical Assessment Policy

Biophysical Assessment Procedures

MDP Updates

Land Use Bylaw

...and they lived
happily ever after.

ONGOING WORK

- Stewardship targeted to priority areas
- ALUS monitoring program that quantifies ecosystem services
- Wetland Management Plan and Policy
- Inter-municipal tools for riparian health
- Finalize Biophysical Assessment Procedures
- Climate resilience planning
- Land conservation policy and program
- Critical wildlife corridor assessment...

QUESTIONS

