



State of the Environment

2016 Supplemental Report

LACOMBE
COUNTY

www.lacombecounty.com

THE STATE OF THE ENVIRONMENT 2016 SUPPLEMENTAL REPORT

Lacombe County would like to acknowledge the contributions of the following people in preparing this report on the state of the environment:

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- Alberta Biodiversity Monitoring Institute (ABMI)
- Sylvan Lake Management Committee (SLMC)
- Sylvan Lake Watershed Stewardship Society (SLWSS)
- Alberta Environment and Parks (AEP)
- NOVA Chemicals Corporation

To obtain additional copies of the report:

On the web:

- The 2013 State of the Environment in Lacombe County, the 2014 Supplemental Report the 2015 Supplemental Report and the 2016 Supplementary Report are available on our website:
- www.lacombecounty.com

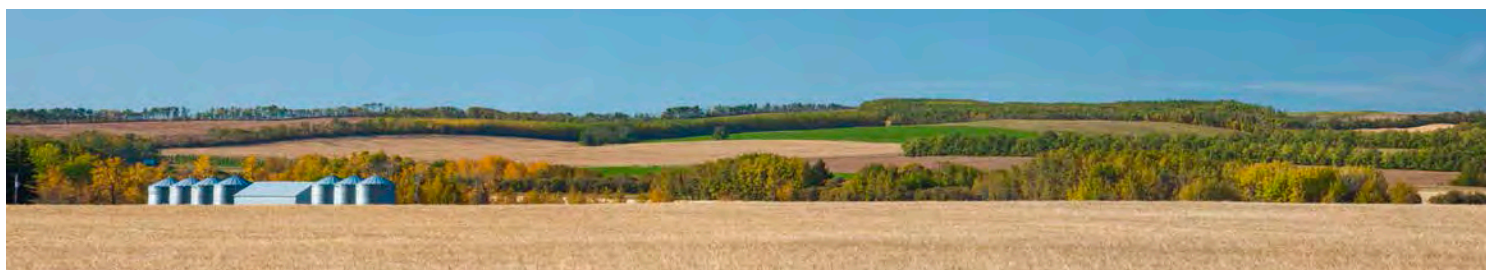
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Bentley hills

INTRODUCTION

The State of the Environment (SOE) report is an important tool for Lacombe County as it provides a snapshot of the current conditions of the environment and the stresses that impact it. This report examines the state of the environment in Lacombe County throughout the year of 2015 through a scientific and socio-economic planning structure. The first SOE report was released in the winter of 2013 with the promise of annual updates tracking changes over the next five years. At the end of the five years, a full updated SOE will be written. The purpose of this 2016 Supplemental Report is to provide updated information that is now available since the release of the initial SOE report during the winter of 2013 and the supplemental reports that followed in 2014 and 2015.

Lacombe County is making progress in environmental management, while also balancing social and economic needs. The first few years of the SOE were focused on setting up the framework for the system, whereas this supplementary report is intended to exemplify the hard work that is being undertaken by Lacombe County staff and Councillors. It is therefore anticipated that this will inspire residents to take a proactive approach to reducing their footprint on the environment.

It is hoped that this document will help support Lacombe County's Environmental Management Plan which provides a broad strategic direction to where the County would like to be in the next 5, 10, 20 years.

To help exemplify changes over the last year the following data is being presented:

- Department Updates
- Lacombe County Program and Policy Highlights
- Partnership Accomplishments; and
- Environmental Conditions



East bridge

DEPARTMENT UPDATES

Highlights in the Agricultural Sector

The Alberta Weed Control Act has continued to be administered in Lacombe County. The Act is intended to protect agricultural lands from prohibited noxious weeds causing economic impacts to the area's producers. It also protects natural ecological areas from invasive species. Six noxious weeds continue to be the concentration of Lacombe County's efforts including: Yellow Toadflax, Scentless Chamomile, Leafy Spurge, Common Tansy, Tall Buttercup and Canadian Thistle.

Jimsonweed, a highly toxic plant to humans and animals, was discovered in two fields in 2015. Jimsonweed currently has no official status under the Alberta Weed Control Act, the two cases are considered isolated occurrences but ongoing monitoring is required to prevent the establishment within Lacombe County.

The County has also been working very hard to combat Clubroot. Clubroot is a serious soil-borne disease of canola and other crops. It is caused by a microscopic, soil-borne plant pathogen called *Plasmodiophora brassicae*. Most varieties of canola, mustard and cole crop vegetables currently being grown in Alberta are highly susceptible to Clubroot. This disease is capable of significantly reducing crop yield and quality, and may destroy a crop if infestation levels are high. In Alberta, Clubroot is being spread mainly through soil infestation. Infested soil can be carried from field to field by farm machinery, wind and water erosion. In spring 2007, Clubroot was added as a declared pest to Alberta's Agricultural Pest Act. This Act is the legislative authority for the enforcement of control measures for declared pests in Alberta. By the end of 2014, Clubroot was present in 30 municipalities in Alberta, mainly in central Alberta. To help understand what you can do to protect against Clubroot please visit the Agriculture section of the Lacombe County website.

Table 1
Prohibited Noxious Weeds

| Prohibited Noxious Weeds | Total Weed Cases in 2015 |
|--------------------------|--------------------------|
| Yellow Toadflax | 60 |
| Scentless Chamomile | 190 |
| Leafy Spurge | 35 |
| Common Tansy | 170 |
| Tall Buttercup | 65 |

Table 2
Clubroot Inspections

| Clubroot Inspections | Total Clubroot Inspections in 2015 |
|------------------------------|------------------------------------|
| Total Clubroot Inspections | 155 |
| Confirmed Clubroot locations | 19 |



Canola field

Highlights in the Environmental and Protective Services Sector

Aquatic Invasive Species

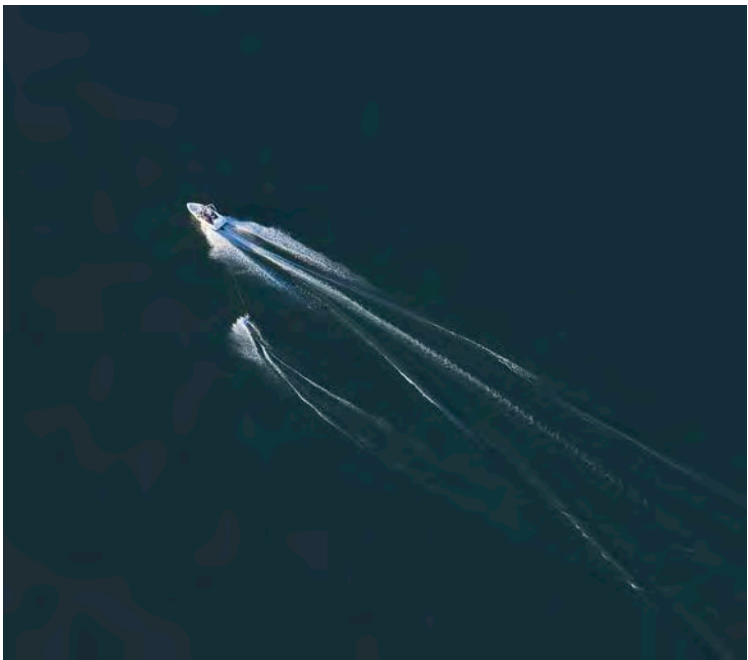
- Lacombe County is continuing its efforts to keep its lakes free of aquatic invasive species (AIS) including Eurasian Watermilfoil, Quagga Mussels and Zebra Mussels which, if introduced to Alberta lakes, could cause extreme damage. These species are almost impossible to eradicate and if introduced could cause millions of dollars in damage to water-operated infrastructure as well as aquatic ecosystems.
- In an effort to reduce the spread of invasive species, Lacombe County partnered with Alberta Environment and Parks (AEP) and the Summer Villages around Gull Lake in 2015 to undertake boat inspections at Aspen Beach and Sunbreaker Cove. No invasive species were found on any of the boats inspected. However water users were educated and encouraged to reduce the spread of invasive species by following these recommendations:
 1. Clean and inspect watercraft, trailer and gear. Remove all plants, animals and mud at the access area or dock. Rinse, scrub or pressure wash your boat away from storm drains, ditches or waterways.
 2. Drain equipment on land before leaving the water body. Never release live bait into a water body or transfer aquatic plants or animals from one water body to another.
 3. Dry the watercraft and gear completely between trips and allow the wet areas of your boat to air dry. Leave compartments open and sponge out standing water.



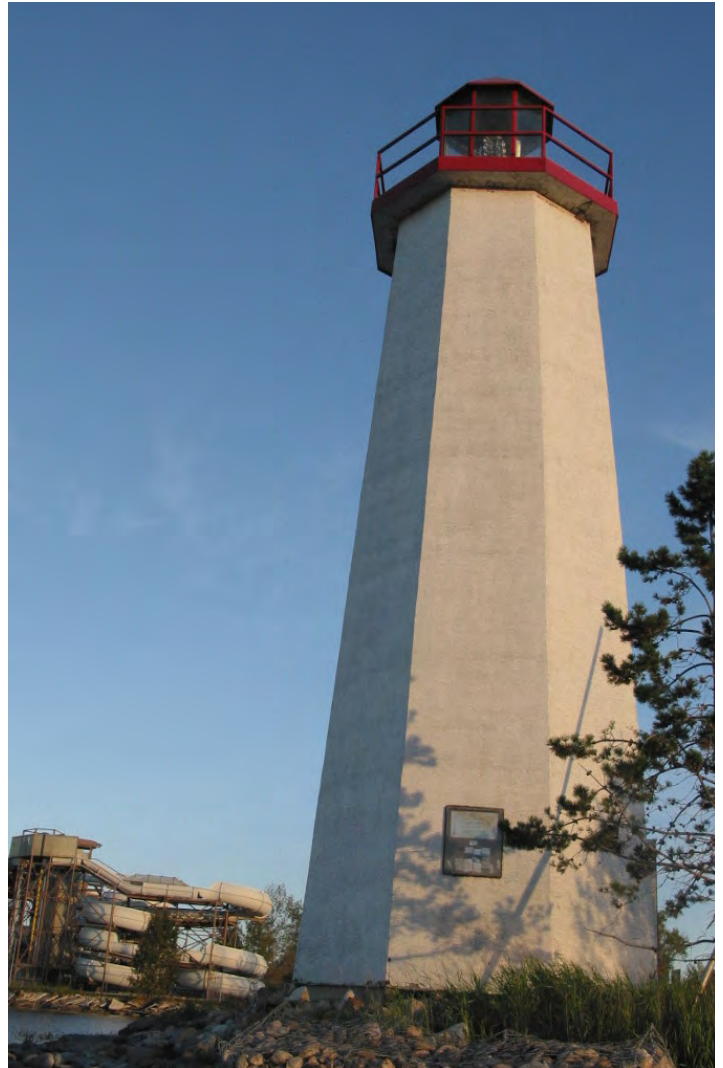
Difference between quagga and zebra mussels

Communal Sewage System at Sylvan Lake

- Lacombe County has completed the Communal Servicing Project at Sylvan Lake which connected the communities of Blissful Beach, Kuusamo Krest, Yuill, and Palm Bay. A total of 69 lots are now serviceable and homeowners have until October 30, 2020 to connect to this system.
- A set of holding tanks and low pressure piping makes up each system and allows homeowners to connect their current sewage systems simply by the addition of a low pressure grinder pump and tank where needed. The operation of this system is governed by a County Bylaw and the project was funded by a Federal Building Canada Fund Grant, Lacombe County and the residents affected by this project.



Boating on Sylvan Lake



Sylvan Lake lighthouse



Sylvan Lake

Highlights in the Operations Sector

Wetland Review for Road Construction

In 2015 Lacombe County hired a consulting company to complete wetland evaluations on road construction projects to determine how wetlands could be affected and how we could avoid, mitigate or compensate for wetland impact due to road construction. Lacombe County undertook the study and subsequent environmental approvals in order to adapt procedures to address the new Wetland Policy and to provide the County with an understanding of the timelines and requirements of the new policy to support future road project planning.



Road construction

Crooker Pit Reclamation and Wetland Compensation Project

In 2015 construction continued at Crooker Pit to transform the pit into a natural habitat and wetland. The final reclamation and wetland development plan was finalized and the final grading work was accomplished in 2015. All contour work and topsoil placement was completed in November 2015. Topsoil placement included 16,000 cubic meters of topsoil. The Operations department also created bird breeding beaches throughout the wetland area.



Crooker wetland

Remote Shops

General growth on the west side of Lacombe County near the Sylvan Lake area and an extensive gravel road system on the east side of Lacombe County have created additional demands on the Operations department. Remote shops will reduce travel time for snow plows and other equipment substantially, and will allow for better servicing and maintenance of equipment without hauling equipment back to Lacombe. This will substantially reduce the amount of greenhouse gases produced by County equipment. The shops will also have solar power to supplement power requirements. The remote shops will be completed in 2016.



Operation's equipment

Kuhnen Park

Lacombe County was gifted 120 pristine acres of natural area around Lacombe Lake (between Lacombe and Blackfalds) to be preserved as a public natural/recreational area. The County started work on planning for the development of this public park with the provision for trails, parking areas and day use areas. The park is known as Kuhnen Park in recognition of the family that donated this exceptional piece of recreational property



Kuhnen Park grand opening



Environmentally Sensitive Areas at Gull Lake

- Areas of high environmental value run parallel along the communities of New Saratoga, McLaurin Beach and Wilson's beach. Some of these parcels are owned and managed by Lacombe County, and some are further designated Environmental Reserve. This area acts as a riparian edge along the lake giving it significant importance. There have been several issues in the area with residents and visitors accessing the lake through the use of motorized vehicles along unauthorized trails. As such, the area has seen extensive environmental degradation and damage caused by the OHV's. This damage has been ongoing for years and various options have been considered.
- Access to the lake via OHV's for residents and visitors is currently through two designated trails located at the communities of New Saratoga and Wilson's Beach.
- In 2015 Lacombe County built an OHV trail for community use at McLaurin Beach. This trail is intended to decrease unauthorized access in sensitive areas and increase OHV access to the lake through designated trails.



County Reserve Land, Gull Lake

Highlights in the Planning Sector

Subdivision and Development Activity

- Considered 238 Development Permit applications, and 44 subdivision applications in 2015.
- Created approximately 27 residential lots, 1 commercial lot, and 35 agricultural parcels in the County.
- Development activity within the County's commercial and industrial parks continues to diversify the County's economic profile and provide a strong tax base.
- Endorsed the first phase of subdivision of The Slopes residential development on Sylvan Lake. This first phase includes 16 semi-detached villa lots, and 9 single family dwelling lots. The Slopes is the first residential community developed under the Sylvan Lake Area Structure Plan. The development includes a comprehensive trail system around a constructed wetland and a sport court amenity with parking
- Endorsed the concept plan and rezoning for the Deer River Estates development along the Red Deer River, south of the Hamlet of Joffre. The re-designation is to allow for a 506 lot clustered style residential development and an 18 hole golf course.



Country residence



Farm yard



Rural subdivision



Rural subdivision

Table 3
Land Use Changes from Agriculture
in Lacombe County, 2014-2015

| Description | Total Acres in 2014 | Total Acres in 2015 |
|----------------------|---------------------|---------------------|
| Residential | 157.13 | 399.11 |
| Industrial | 241.05 | - |
| Commercial | - | 14.90 |
| Recreational | 705.63 | 167.28 |
| Sand and Gravel Pits | 41.47 | 188.85 |

35 agricultural parcels created

Reserves

- Lacombe County promotes the development of a healthy environment and healthy workplace through the dedication of Municipal and Environmental Reserves in multi-lot developments. The Municipal Reserve space allows for the development of trail systems, park areas and other public amenities.
- Table 4 and 5 provides more detail on the total acres of reserves in 2012, 2014, and 2015.

Table 4
Environmental Reserves in Lacombe County

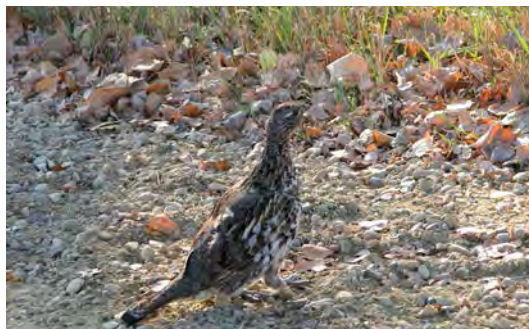
| Year | Number of Properties | Total Acres |
|------|----------------------|-------------|
| 2012 | 20 | 134.55 |
| 2014 | 29 | 158.87 |
| 2015 | 29 | 158.87 |

Table 5
Municipal Reserves in Lacombe County

| Year | Number of Properties | Total Acres |
|------|----------------------|-------------|
| 2012 | 47 | 54.18 |
| 2014 | 59 | 191.91 |
| 2015 | 61 | 202.43 |



Porcupine



Grouse



Gilby Gas Plant



Industrial development

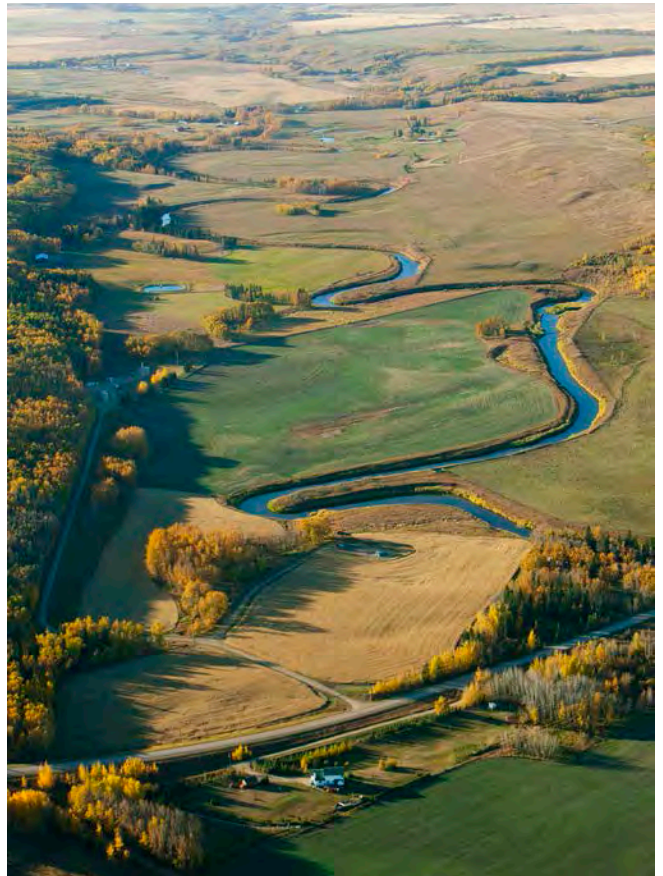
Long Range Planning

- Long range planning is in full swing. Plans such as Intermunicipal Development Plans (IDP's) and Area Structure Plans (ASP's) guide future growth and development within Lacombe County. Table 6 provides more detail on Lacombe County's Long Range Planning Program for 2015-2017. Highlights from 2015 include:
 - Adopted the updated Hamlet of Mirror ASP. The ASP was developed based on direction from Council, input received from the community, comments received from various government agencies, an analysis of the plan area, and policies in the County's planning documents. The plan identifies lands within the boundary of the Hamlet of Mirror for new industrial, recreational, commercial and residential development.
 - Some of the major updates to the ASP included the creation of a new H-R3 Mirror Residential Estate District which provides areas for country residential style development, a main street section which includes initiatives designed to revitalize 50th Avenue, and opportunities for campgrounds in both the H-PR Public Recreation and H-C Commercial Districts.

Table 6
Long Range Planning Program, 2015-2017

| Topic | 2015 | 2016 | 2017 |
|--------------------------|---|--|--|
| Carryover Studies | Mirror Area Structure Plan Lacombe/Lacombe County Intermunicipal Development Plan Review | City of Lacombe/Lacombe County Intermunicipal Development Plan Lacombe County Municipal Development Plan and Land Use Bylaw | Lacombe County Municipal Development Plan and Land Use Bylaw |
| Updated Planning Studies | Lacombe County Municipal Development Plan Land Use Bylaw | None Scheduled | Gull Lake Parks, Recreation and Open Space Plan |

- Adopted the updated Buffalo Lake Intermunicipal Development Plan (IDP). The IDP borders Buffalo Lake within the jurisdiction of five municipalities - County of Stettler No. 6, Lacombe County, Camrose County, the Summer Villages of Rochon Sands and White Sands. The IDP is to ensure responsible future management of Buffalo Lake and the surrounding shoreline area. The update included administrative changes to clarify the intent of the plan, with a focus on Environmental and Municipal Reserve requirements adjacent to the lake.
- The City of Lacombe/Lacombe County Intermunicipal Development Plan is in the process of being updated. The IDP outlines the future use of lands adjacent to the City of Lacombe. The updated plan is expected to be completed in 2017.
- Lacombe County is also reviewing the Municipal Development Plan (MDP) and Land Use Bylaw (LUB) between 2015-2017.



Blindman River

The MDP is a long-term planning document that sets out a vision for the future development of the County. The MDP provides a comprehensive long term land use policy framework within which current and projected growth and development may take place over a ten year period. It contains policies on land use, transportation, utilities, recreation, economic development, community services, the environment, quality of life and intermunicipal planning and cooperation.

The LUB is the regulatory document which outlines specific rules and regulations for the development of land and buildings within the different districts of the County. Every property in the County is zoned under a specific land use district.

During the review of the MDP and LUB there is numerous rounds of public consultation to engage the community's vision for future growth in Lacombe County.



Buffalo Lake

Stormwater Management

Management of stormwater is a major concern for municipalities. Any hard surface results in increased volumes of runoff compared to pre-development conditions, with a potential for significant input of contaminants to receiving water bodies. Major contaminants include suspended solids, organic matter, nutrients, coliform bacteria, heavy metals, hydrocarbons, pesticides and herbicides. In order to effectively manage stormwater on Lacombe County owned properties mitigating measures have been implemented at the following locations: South Aspelund, The Slopes, Sandy Point and Iron Rail.



South Aspelund



LACOMBE COUNTY PROGRAM AND POLICY HIGHLIGHTS

Environmental Policy

- Lacombe County's Environmental Policy states that Lacombe County is committed to a healthy environment for current and future generations. The Environmental Policy is intended to unify Lacombe County's vision in order to guide the actions of the County, the staff, the Councillors and the consultants that work for us to ensure the environment is conserved, protected and enhanced as well as in balance with social and economic needs.
- The Environmental Policy has been enacted by Lacombe County through a number of education and extension programs. The highlights for 2015 include:

Environmental Improvement Grant Program

- Lacombe County is committed to supporting local community organizations to develop and implement projects which benefit the community through improving the environment.
- Through the 2015 program Lacombe County supported six community organizations with environmental projects.
- The Village of Alix received \$2,000 through the grant program. Their 2015 project involved purchasing new garden beds to plant vegetables, fruits and herbs for the community to enjoy.
- Ellis Bird Farm received \$2,000 through the grant program. Their 2015 project involved creating a yard and garden design which would showcase diverse and sustainable landscapes and would provide habitat to a wide array of wildlife.



Ellis Bird Farm 2015 project



Wetland

- Gull Lake Community League received \$2,000 through the grant program. Their 2015 project was aimed at restricting Off Highway Vehicles (OHV's) from leaving designated trails which was in turn leading to continued disturbance and thereby the degradation of the riparian area. The grant was used to construct a barrier to protect and enhance the environment.
- École Secondaire Lacombe Composite High School received \$2,000 through the grant program. Their 2015 project funded the Lacombe Educational Aquaponics Foods System (LEAFS) a student led project consisting of students researching, building and running an aquaponics system.
- Medicine River Watershed Society received \$1,100 through the grant program. Their 2015 project involved planting riparian trees in order to improve the health and functionality of the riparian areas within demonstration sites
- Lacombe Lake Watershed Stewardship Society received \$900 through the grant program. Their 2015 project funded a ceremony which was used to publicize the work done by Lacombe County, the Alberta Lakes Management Society and the Battle River Watershed Alliance for the protection of Lacombe Lake.

Environmental Management System

- In 2015 the Environmental Management Plan (EMP), which is a guiding document that helps to provide direction to Lacombe County staff and Councilors in regards to environmental management, was focused on two priority areas including energy consumption and efficient use of water. The EMP is internally focused meaning that targets, goals and expectations are placed on the County to adhere to and not the general public. However, the EMP provides the residents of Lacombe County with the opportunity to become more familiar with environmental programing and clearly identify what the priorities and actions of the County are.

Energy Consumption

- The goal of the energy consumption priority was to understand Lacombe County's impact on the environment regarding energy and identify areas for change. As part of the energy consumption priority, a Standard Operating Procedure for Fleet Vehicles was written to examine how Lacombe County manages fleet vehicles with regards to procurement, day to day operations, fuel purchasing and consumption and driver choices such as route optimization. The County recognizes the need to always strive for excellence and based on that principle, the report provides opportunities for improvement where possible.
- The annual greenhouse gas emissions associated with operating fleet vehicles were determined to be 3,548 tonnes of CO₂ per annum on average, with 88% of greenhouse gas emissions associated with diesel consumption and 11% with the consumption of gasoline. The amount of CO₂ produced per annum average is 26 tonnes less than 2013 values.



Operation's fleet vehicles



Lacombe County shop

Efficient use of Water

- The efficient use of water was identified as a priority area for 2015. It was chosen by the Environmental Management Steering Committee as one of the first areas to be implemented. As such, one of the goals of the efficient use of water was understanding water use in Lacombe County internal services. To achieve this goal two sets of data were collected. The first was the collection of quantitative data which collected the actual amount of water used in all County operations. The second was to conduct a qualitative survey of employee perceptions, attitudes and behaviours regarding efficient use of water. The intent of the research was to understand water use in Lacombe County which will help identify opportunities to aid employees in adopting and implementing supply and demand management to promote efficient use and conservation of water resources.

PARTNERSHIP ACCOMPLISHMENTS

Sylvan Lake Management Committee

Take it Off Program

The Take it Off Program was formed by the Sylvan Lake Management Committee which consists of eight municipalities around Sylvan Lake including Lacombe County. The program is voluntary, in which fish huts are registered and are assigned a number. The registry is intended to reduce the number of fish huts left on Sylvan Lake after the March 31st deadline to remove them. The huts that were being left on the ice had the potential to cause serious environmental and health issues through causing boating and swimming hazards and contamination to fish and waterfowl habitat. The remaining debris included wood, gasoline, plastic and metal supplies. The program has been running for 5 years now and has seen the number of fish huts that have been abandoned on the lake go from 25 in 2011 to 0 in 2015. The long term goal of this program is to have mandatory fish hut registry provincial wide.



Ice huts on Sylvan Lake

Sylvan Lake Boat Launch Access Strategy

The Sylvan Lake Boat Launch Access Strategy and Action Plan for Recreational Lake Access was completed, in cooperative effort between Lacombe County, the Town of Sylvan Lake, Red Deer County, and the Summer Villages of Sylvan Lake. The report reviews the existing studies, evaluates the existing and potential locations for suitable recreational lake access, and develops an Action and Implementation Plan for recreational access to Sylvan Lake. The intent of the Action and Implementation Plan is to incorporate the public's needs, safety and environmental values of the area, and develop decision-making criteria that will enable the municipalities to prioritize and justify locations for new recreational areas or provide justification for reduced recreational access at specific locations.

Cumulative Effects Management System

In 2011, the Cumulative Effects Management Plan (CEMP) for Sylvan Lake Watershed was developed. The plan aims to assess, prioritize and address environmental, economic and social needs in the watershed to achieve a balance between development, nature and recreation. Phase I of the plan consisted of the management framework and was completed in 2013. Phase II of the plan consisted of the implementation actions for the CEMP and was completed in 2015. Additional highlights coming out of the completion of Phase II in 2015 included an overview of the current conditions in the watershed and a gap analysis of the existing watershed initiative. The Sylvan Lake Watershed Committee is now in the process of implementing the actions outlined in Phase II of the plan.

Idle Reduction

In partnership with the Parkland Management Zone (PAMZ), Lacombe County continues to run a pilot project that targets the reduction of idling within County operations. Work completed in 2015 included the delivery of an educational campaign that aimed to reduce idling behaviour, vehicle emission testing workshops and ongoing data collection which will continue through 2016. The Idle Reduction Initiative in Lacombe County will also be used as an example pilot project in the PAMZ Idle Reduction Toolkit that is planned to be released to the public in 2017.



Emission testing



Community Nature Trail

NOVA Chemicals completed their Community Natural Trail in 2015. This trail is unique in many ways and demonstrates how wildlife habitat, agriculture, industry and recreational land uses can exist harmoniously together. This area also supports a wetland that offers great habitat for birds and other wildlife. A stormwater management system built to the west of the area boosts the wetland and habitat capability. The trail provides an exceptional opportunity for people to connect with nature and learn about local wildlife, plants and the area's history.

Amenities include the following:

- 5 km of looped trails
- Parking area and trail head
- Picnic area
- Bridge crossing
- Interpretive signage and reforestation



NOVA Chemicals Community Nature Trail

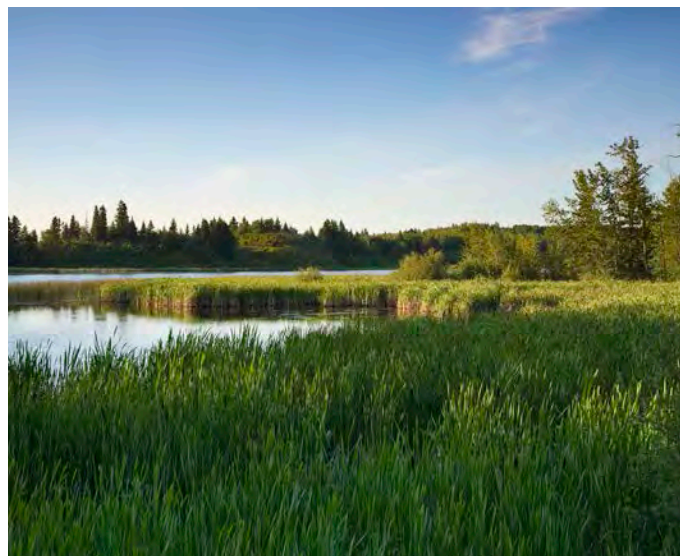
ENVIRONMENTAL CONDITIONS

Water Quality

- Both Gull Lake and Lacombe Lake were monitored in 2015 by LakeWatch, a volunteer-based water quality monitoring program offered through the Alberta Lake Management Society (ALMS). Sylvan Lake, Lacombe Lake and Gull Lake will be monitored by LakeWatch in 2016. LakeWatch reports can be used to educate lake users and guide water restoration and management efforts. Full reports on the water quality of Lacombe County's lakes can be found on the ALMS website.

Lacombe Lake Survey

- Lacombe Lake has dense macrophyte growth. In the 1960's a weir was constructed on Whelp Creek to control and direct the flow of the creek into Lacombe Lake. In the years previous to 2008, residents noticed that the water quality of the lake was starting to deteriorate, and excessive macrophyte growth had occurred across the lake. As a result, the diversion was stopped and it was concluded that the diversion might have brought in excess nutrients.
- In 2015, the ALMS in collaboration with other partners completed a macrophyte survey on Lacombe Lake. Many of the specimens inventoried were determined to be important in aquatic systems as food for waterfowl and cover for invertebrates and small fish. All aquatic plants play a part in the lake's ecosystem and provide essential ecosystem services. They produce oxygen required by other aquatic life and they bind lake sediments to improve water clarity and take up nutrients that could otherwise be used by green algae and cyanobacteria. The majority of the species collected by ALMS have been located in other Alberta lakes during macrophyte surveys, however this survey was the first to encounter floating leaf pondweed.



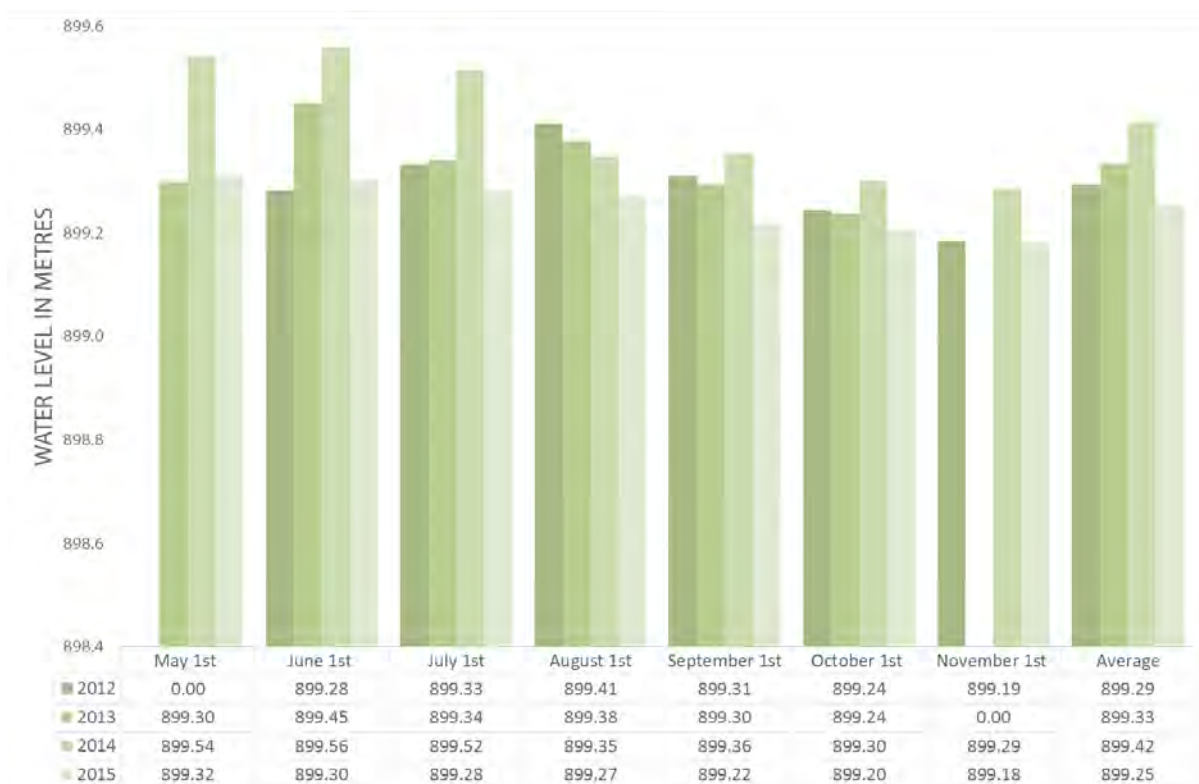
Lacombe Lake

Water Quantity

Gull Lake

- Gull Lake fluctuated from 899.41 metres in 2014 to 899.25 metres in 2015.
- No pumping of water from the Blindman River into Gull Lake occurred in 2015. Water levels need to drop to well below the full supply level of the lake to a water level of 898.93 metres before pumping is triggered. The average level of water maintained in Gull Lake in 2015 was 899.25 metres.

Figure 1
Water Levels Gull Lake, 2014-2015

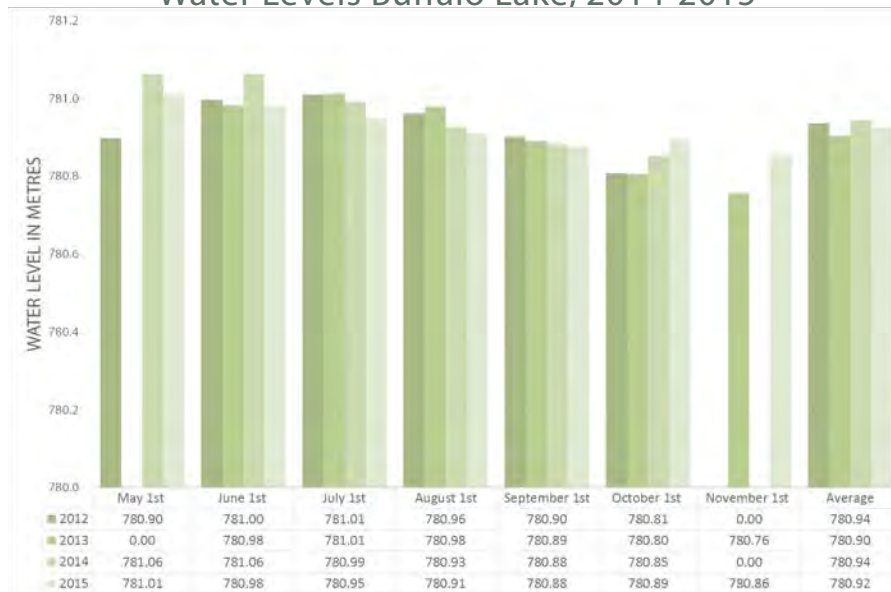


Buffalo Lake

- Buffalo Lake fluctuated from 780.94 metres in 2014 to 780.92 metres in 2015.
- No pumping occurred in Buffalo Lake in 2015 due to an average water level of 780.92 metres being maintained in 2015. In order for pumping to occur the water level would have to drop well below the full level of the lake to 780.60 metres.

Figure 2

Water Levels Buffalo Lake, 2014-2015

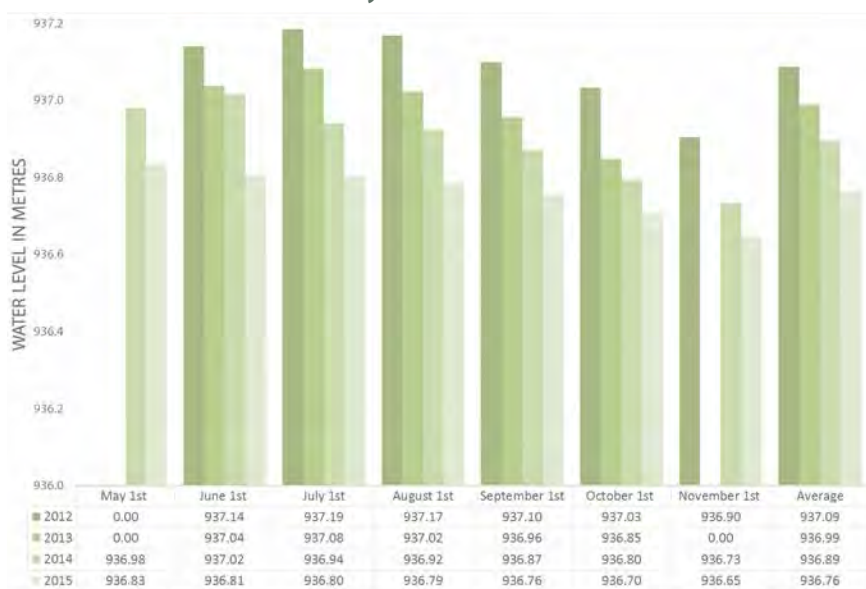


Sylvan Lake

- Sylvan Lake fluctuated from 936.89 metres in 2014 to 936.76 metres in 2015.

Figure 3

Water Levels Sylvan Lake, 2014-2015



Air Quality

- The Alberta government is responsible for monitoring, evaluating, and reporting on key air, water, land, and biodiversity indicators. The information collected informs environmental decision making by policy makers, regulators, planners, researchers, communities, industries, and the public.

Fine Particulate Matter

- Central Alberta has an issue with air quality. We are not alone by any means but we are in the midst of needing to take some serious action to improve our current and future air quality. Between 2009 and 2013, the ambient air quality in Central Alberta area exceeded Canadian standards for fine particulate matter. Fine particulate matter or PM_{2.5} is airborne particles less than 2.5 microns in diameter. To put that into perspective, a human hair is 60 microns in diameter.
- Fine particulate matter can be from both natural and human-caused causes. An example of a natural source is forest fires. However, in Central Alberta, human causes are the main source of fine particulate matter and may include: transportation, industrial processes, home heating, and biomass burning.
- The Alberta government and stakeholder groups like Parkland Airshed Management Zone (PAMZ) are concerned about fine particulate matter because they can affect human health by getting into the lungs and bloodstreams of Albertans as a result of their small size.



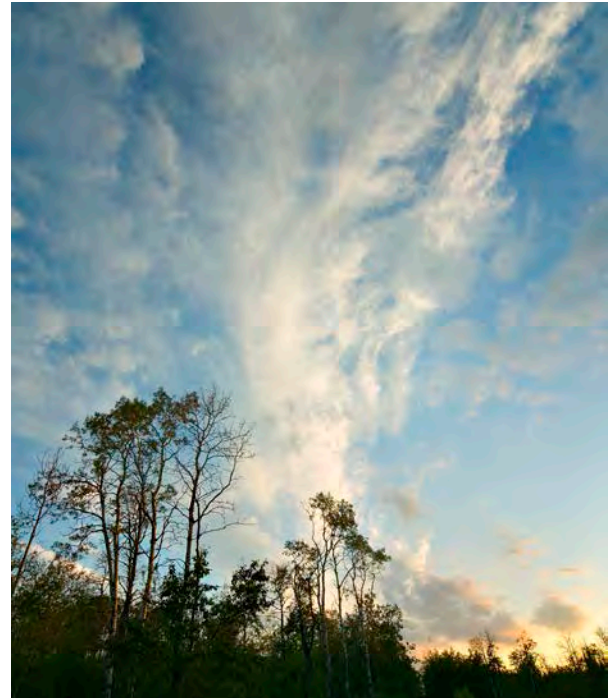
Night sky, Lacombe County

Management Plan

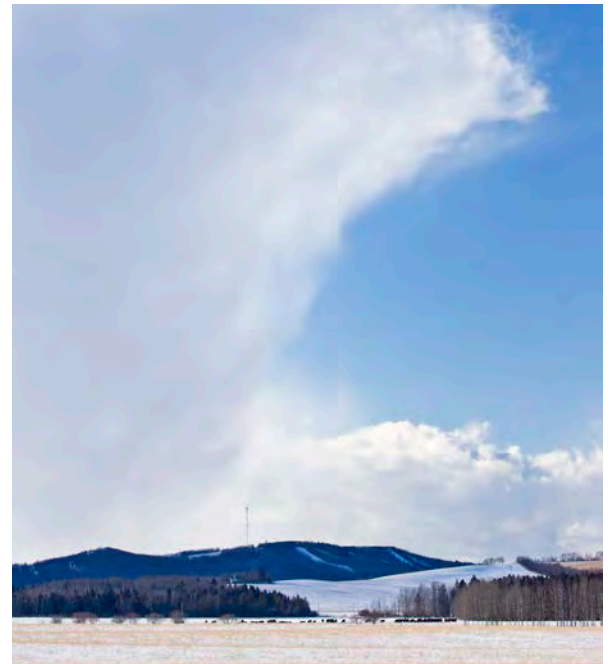
- As a result, since November 2014, the Alberta government have been working with multiple stakeholders from industries, municipalities, airsheds, and the public including Lacombe County to develop an air quality management plan to reduce fine particulate matter levels and improve our region's ambient air quality. The air quality management plan was published in the spring of 2016 . The plan is a science-based, effective, and implementable management response to reduce fine particulate matter below national standards with clear commitment to action from the Alberta government and stakeholders.
- Lacombe County has also worked closely with PAMZ to monitor ambient air quality in the region to better understand the air quality issue in the area. Through these partnerships, Lacombe County has successfully implemented its Idle Reduction Campaign to target the reduction of idling within County operations. Furthermore, Lacombe County continues to collaborate with Alberta government in implementing the plan to improve current and future ambient air quality in the area.

Learn More

- To help understand what you can do to protect your health, visit the Air Quality Health Index (AQHI) on the Alberta government webpage or get involved with your local airshed.



Magee Lake sunset



Clouds over Bentley hills



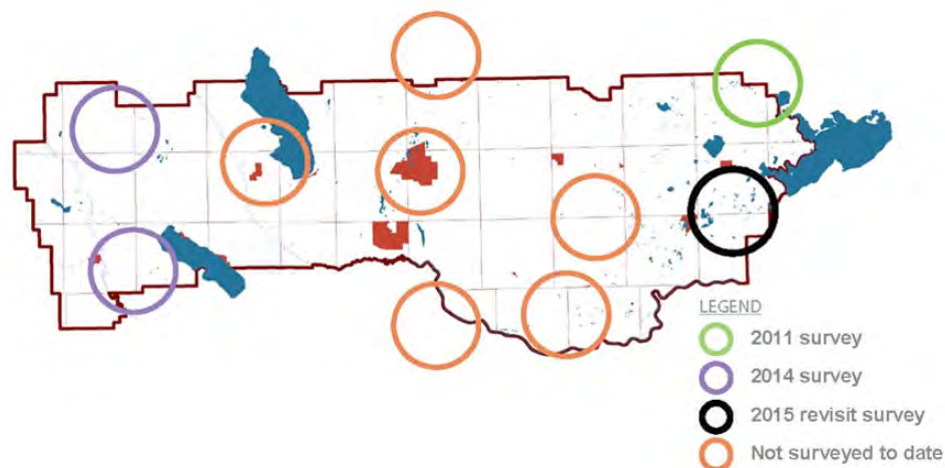
Air Quality Health Index (AQHI)

Biodiversity Survey

- The Alberta Biodiversity Monitoring Institute (ABMI) is an arm's-length, not-for-profit scientific organization. The business of the ABMI is to monitor and report on the status (current condition) and trends of Alberta's species, habitat, and human footprint. The goal of the ABMI is to provide relevant scientific information on the state of Alberta's biodiversity to support natural resource and land use decision making in the province.
- The ABMI reports on a range of biodiversity indicators that act as a guide for establishing biodiversity-related management goals and tracking performance against those goals. The ABMI generates value-neutral, independent, publicly accessible data, and presents knowledge derived from the data in a value-neutral format.

Figure 4

Biodiversity Survey Sites



- To date, ABMI has recorded data for over 1656 sites across Alberta. In 2015, one of the four sites previously surveyed in 2011 in Lacombe County was resurveyed. At this site data was collected on habitats such as land use, wetlands, and species identification.
- Common Wetland Vascular Plants included: Beaked Willow, Water Sedge, Red Osier Dogwood and Common Horsetail.
- The most common bird species recorded included: Red-winged Blackbird, Vesper Sparrow, Savannah Sparrow and House Wren.
- Highlights from the species data collected include the identification of: 50 species of wetland plants, 12 species of terrestrial plants, 2 species of soil mites, 5 species of mammals, 42 bird species and 13 species of aquatic invertebrates.

50 wetland plants identified

Human Impacts

Waste Generation and Disposal

- The Lacombe Regional Solid Waste Commission (LRSWC) is responsible for the management of solid waste within the boundaries of Lacombe County. The Commission consists of the following member municipalities:
 1. Lacombe County
 2. Alix
 3. Lacombe
 4. Eckville
 5. Clive
 6. Bentley
 7. Mirror
- Table 7 illustrates the overall waste generation for the LRSWC area over the years of 2010-2015.
- Waste that is quantified under the “compactor” disposal column is household waste. This waste is compacted into containers and transferred from the Prentiss landfill site to the Dried Meat Lake waste facility.
- The waste column labeled “landfill” is for dry rubble materials disposed at the Prentiss Landfill facility.

Table 7
Waste Generated by LRSWC, 2010-2015

| Disposal | 2015 | 2014 | 2013 | 2012 | 2011 | 2010 |
|-----------|--------|--------|--------|---------|-------|--------|
| Compactor | 9,284 | 9,964 | 9,844 | 9,743 | 9,856 | 11,372 |
| Landfill | 10,890 | 12,984 | 10,387 | No Data | 9,839 | 9,162 |

*Weight is represented in Tonnes

- In addition to the overall amount of waste to landfill the authority also tracks the amount of recyclables generated (Table 8). The data collected and depicted below is for the entire commission and is not necessarily only Lacombe County. The waste is also collected co-mingled and as such data regarding the amount of cardboard, plastic and paper is not separated out.

Table 8
Recyclables Generated by LRSWC, 2010-2015

| Recyclable Item | 2015 | 2014 | 2013 | 2012 | 2011 | 2010 |
|---------------------------------------|--------|--------|---------|---------|--------|----------|
| Metal | 469.46 | 452.14 | 412.44 | 382.92 | 421.88 | 490.32 |
| Cardboard, plastic & paper co-mingled | 1352.2 | 900.18 | No Data | No Data | 987.98 | 1,239.47 |

*Weight is represented in Tonnes

STATE OF THE ENVIRONMENT

Evaluation Form



Thank you for your interest in the State of the Environment 2016 Supplemental Report for Lacombe County. To help ensure continuous improvement in our publications and communications with the community we are looking for your feedback.

Please take a few minutes and provide us feedback on the SOE. Please scan and email or post the feedback form back to Monica Boudreault, Environmental Coordinator at Lacombe County.

Email: mboudreault@lacombecounty.com

Post: Attention: Monica Boudreault

Lacombe County

RR3 , Lacombe AB

T4L 2N3

Please rate the two statements below on a scale of 1 to 10, with 1 being strongly disagree and 10 being strongly agree.

1. The layout for the State of the Environment 2016 Supplemental Report for Lacombe County was well thought out and easy to read.

Please circle your answer:

1 2 3 4 5 6 7 8 9 10

Strongly disagree

Strongly agree

2. The information presented in the State of the Environment 2016 Supplemental Report for Lacombe County was clear and understandable.

Please circle your answer:

1 2 3 4 5 6 7 8 9 10

Strongly disagree

Strongly agree

3. Was there any information missing from the State of the Environment report that you would have like to have seen reported on?

4. Did you learn anything new from the State of the Environment report? If yes, what are some examples?

5. What do you think Lacombe County should do with the information presented in the report?

6. How did you hear about the State of the Environment Report?

THANK YOU FOR YOUR FEEDBACK



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