

ANNUAL REPORT



LAKELAND INDUSTRY
& COMMUNITY
ASSOCIATION

2016



Cover Photo:
Cheryl Collins
LICA 2016 Photo Contest

Opposite Page Photo:
Jeremy Hallett
LICA 2016 Photo Contest

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INTRO TO LICA (WHO WE ARE)

Lakeland Industry and Community Association (LICA) is a community based synergy group. We work together to actively support and promote a healthy and sustainable environment, as well as to support responsible resource development. We are a multi-stakeholder partnership between community, industry and government coming together to establish understanding, share information, and work toward mutually beneficial solutions to local concerns. Our work is undertaken through our offices in Bonnyville, Alberta, Canada.

OUR VISION

Lakeland Industry and Community Association is a balanced partnership actively supporting a sustainable environment.

OUR MISSION

LICA supports the community by gathering and sharing information relevant to the environment and development in our region.

OUR VALUES

LICA demonstrates these values as individuals and an organization:

RESPECT

HONESTY INTEGRITY

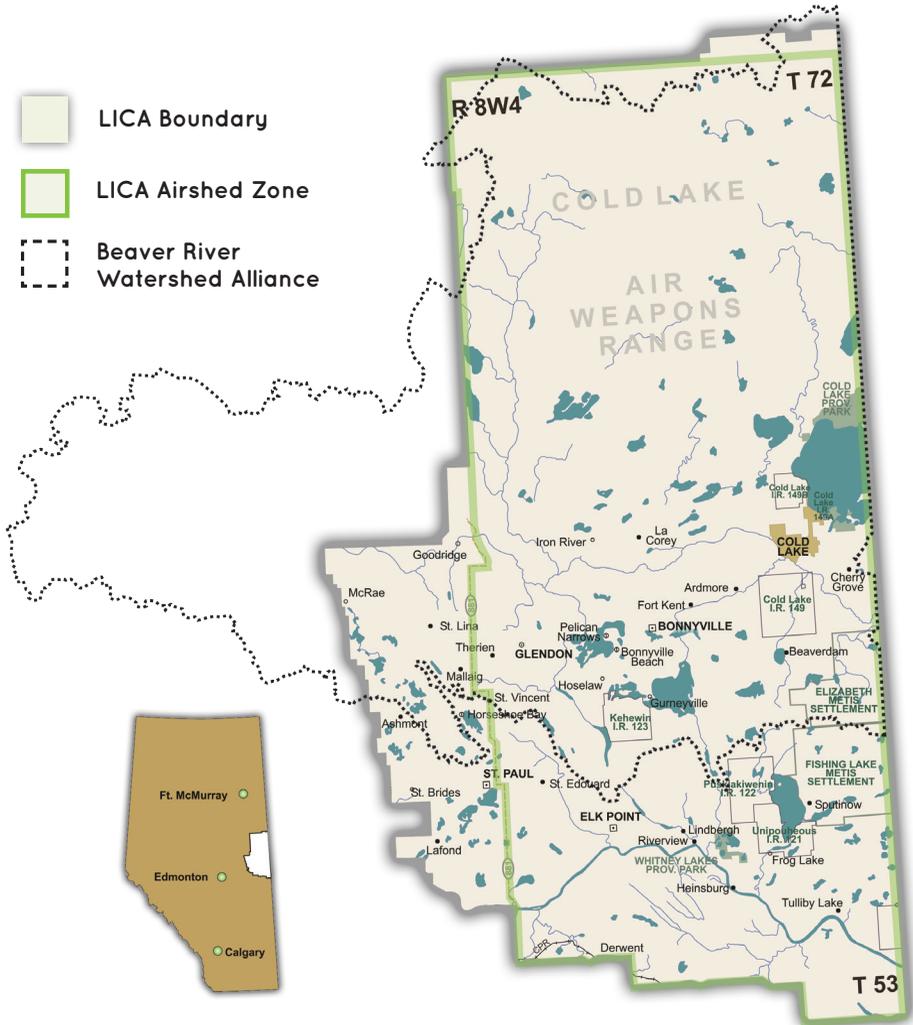
EQUALITY

COOPERATION

TRANSPARENCY

ACCOUNTABILITY

WHERE WE ARE



The area served by the Association is in Alberta: from the northern border of the Cold Lake Air Weapons Range to the western border of the Municipal District of Bonnyville No. 87 and the County of St Paul No. 19, and south to the North Saskatchewan River at Secondary Highway 881, south to Highway 45, then east to the Saskatchewan border. The area encompasses approximately 18,000 square kilometres.

WHAT'S IN IT FOR YOU?

Resource development is here - and it is a complex issue, involving access, compensation, transportation, health, community relations, and more. If you live, work, or operate in the Cold Lake / Bonnyville / St. Paul area, you have been or will be affected by or involved in resource development such as oil and gas, forestry, or sand and gravel.

Lakeland Industry and Community Association (LICA) is a not-for-profit association of community members, local and provincial government, oil, gas and other industries. As a synergy group, LICA works to build understanding, respect, and relationships; share information; and arrive at mutually beneficial solutions to local concerns, to support a healthy environment.

So what can you gain by coming to the LICA table?

- The chance to bring forward your concerns and become aware of emerging issues
- A way to build understanding, respect, and trust; while sharing information and knowledge
- The ability to sort out concerns before they become problems
- The opportunity to support and contribute to responsible resource development
- Better communication with the sectors that affect your life and business
- A forum for dialogue and discussion
- New contacts, relationships, and networks
- A conduit of communication between communities, government, and industries
- Accurate, science-based information
- Participation in airshed and watershed activities
- Involvement in activities and decisions with legislative and regulatory impacts

How can you take advantage of what LICA offers?

- Bring your knowledge, questions, and concerns to LICA
- Join LICA, as an individual, government, or industry member
- Participate at board, committee, airshed, and watershed levels; meetings are open to the public
- Attend LICA-sponsored information presentations and open houses
- Check out LICA's website (www.lica.ca), Annual Report and newsletters
- Use LICA as a forum to give and receive information and be updated on area concerns and best practices

OUR ORGANIZATION

LICA is an incorporated not-for-profit society. We have a Board of 12 Directors, some elected and some appointed, to provide direction and leadership to our organization. A number of Committees assist with the work of our association:

- Education & Information Committee
- Governance Committee
- Resolution Committee

In addition, LICA has two independent standing committees, both of which have a technical focus:

LICA Airshed Zone facilitates regional air quality monitoring and furthers and promotes an understanding of air quality, operating under contract with Alberta Environment and Parks.

Beaver River Watershed Alliance works to advance and update knowledge of the watershed with a focus on studies and communication.

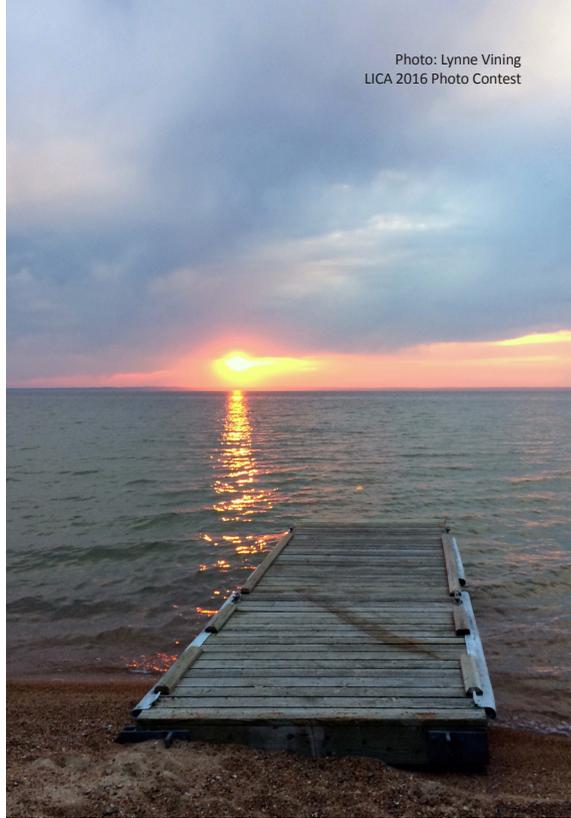
The Board employs an Executive Director, who is responsible for the successful management of LICA and is assisted in these duties by several staff.



BOARD OF DIRECTORS

The LICA Board of Directors features 12 members, some elected and some appointed, to provide direction and leadership to our organization.

They are (from left to right): Dana Swigart (Director), John Ilchuk (Director), Randy Parenteau (Director), Colin Woods (Director), Harold Ross (Director), Neil Young (Alt. Director), Darlene Gates (Director), Andrea Woods (Chairperson), Paul Kip (Alt. Director), Monty Moore (Secretary – Treasurer), Mildred Dunham (Alt. Director). Missing from photo: Directors Wayne Bamber and Randi Blackwell, Kristy Tetreau (Vice Chairperson) and Wilf Tomchek (Alt. Director).



OUR COMMITTEES

GOVERNANCE COMMITTEE

The Governance Committee's (GC) role is to ensure that the requirements of the Alberta Societies Act, under which LICA is incorporated, are met, and that the Bylaws and Policies are clear, easy to follow, and in the best interest of LICA. Our GC has begun an extensive review of LICA's Bylaws and Policies which will continue into 2017. LICA sincerely thanks our GC for their dedication to the organization and for their willingness to undertake such an arduous task.

EDUCATION & INFORMATION COMMITTEE (EIC)

The EIC is a committee that works closely with the Lakeland communities to source information through synergy groups, agriculture, industry and regulatory partners, and share that knowledge by hosting informative and educational events and activities.

Consisting of members from Community, Industry, the Regulatory Bodies and Aboriginal groups, the EIC is always looking for opportunities to engage the public and bring relevant environmental information to the people of our communities.

RESOLUTION COMMITTEE

One of the reasons that LICA exists is to ensure that all parties affected by such things as resource development end up with the best possible outcome. If you have been involved with or affected by resource development, you know that it is an intricate process involving many sectors, and sometimes it's hard to find needed information. While LICA's staff, being the first contact for questions, are almost always able to provide contact information for quick, effective answers, our Resolution Committee is sometimes required for more complex issues.

Although the need to rise to action is seldom required, the Resolution Committee is proud to offer an issue-resolution process that allows all affected parties to come together and work things out, without the need for regulatory hearings or court action.

Photo: Nicole Gillis | LICA 2016 Photo Contest



AWARDS + RECOGNITION

LICA was humbled to receive numerous awards and recognitions this past calendar year:

2016 Award of Excellence from Synergy Alberta recognizing LICA and the BRWA, an independent standing committee of LICA, for X-Stream Science as a special initiative or new program area that addresses the pressures and / or opportunities of energy / resource development at a community level.

2016 Business of the Year Award Nominee as Outstanding Not for Profit, presented by Cold Lake Chamber of Commerce

16 Years in Business Award, presented by Cold Lake Chamber of Commerce



OUR VOLUNTEER STRENGTH

LICA's active presence in the community would never be possible without the dedicated efforts of our many passionate volunteers. Thank you to the below group of individuals for providing us with your most precious gift - your time - over the past year.

Amanda Avery-Bibo	Gavin Hanusz	Randy Parenteau
Wanda Austin	Jayden Hanusz	Alana Phelps
Unas Balkhi	Kate Hanusz	Harold Ross
Wayne Bamber	Heather Harms	Colton Schmelzeisen
Randi Blackwell	Marsha Hayward	Sonja Schmelzeisen
Roger Boucher	Warren Hobart	Abdi Siad-Omar
Roxane Bretzlaff	Sean Humphreys	Don Sinclair
Aleesha Cabay	John Ilchuk	Susan Scott
Judy Cabay	Marie Ilchuk	Megan St. Amant
Katarazyna Cabay	James Ingle	Dana Swigart
Brittany Carey	Paul Kip	Jessica Tetreau
Avery Crook	Carmelle Kokonas	Kristy Tetreau
Nate Crook	Nestor Kunec	Mason Tetreau
Zayne Crook	Duane Lay	Megan Tilley
Alex Demmons	Katlyn Macdonald	Delano Tolley
Robert Deresh	Terry Martial-Fox	Nancy Tolley
Mildred Dunham	Elizabeth Michaud	Wilf Tomchek
Shawn Elgert	Carrie Millar	Kathryn Wiebe
Bill Fox	Monty Moore	Andrea Woods
James Gamblin	Geoff Montgomery	Colin Woods
Darlene Gates	Kellie Nichiporik	Connor Woods
Donna Gingras	Annette Ozirny	Neil Young
Jada Gingras	Donna Padlesky	Duane Zaraska

VOLUNTEER PROFILES

KRISTY TETREAU

A passion for quality air monitoring in our region is what first brought Kristy to LICA in 2014. Since then Kristy has been involved with the BRWA committee and currently holds the position of Vice Chairperson on the LICA Board of Directors.

Childhood summers at her grandparents' cottage and trips around the world exploring nature's wonders are what inspired Kristy to pursue an education in the environmental field. Kristy has earned a Diploma in Environmental Conservation and Reclamation and subsequently a Degree in Environmental Management making her a great asset to LICA and its committees.

Kristy lives near Ardmore with her husband and their two children. Along with her family, Kristy enjoys hobby farming, gardening, horseback riding, camping and living the small town hockey life.

With her education in Environmental Conservation Reclamation and Management Kristy is a valued contributor at the LICA table. Thank you for your ongoing commitment.



LEO PAQUIN

Leo started his environmental career in Fort McMurray as a Reclamation Coordinator, working with Suncor Energy for 16 years at the oil sand mining operations. At that time, Leo was involved in the Cumulative Effects Management Association (CEMA).

During 2008, Leo opted to move on and try his hand as a Reclamation Coordinator for 3 years at Teck Coal situated in the Rocky Mountains near Hinton. After nearly 20 years in the mining operation world, Leo wanted to expand to a different environmental career and in 2011 returned to the Lakeland region (he was born in St. Paul) to join Canadian Natural Resources as a Field Environmental Coordinator at their Primrose & Wolf Lake operations.

Leo is involved with LICA as an industry member and has had a role as an observer on the Airshed Zone Committee and currently chairs the Industry Group for the last year and a half. Leo firmly believes that environmental stewardship is key when it comes to sustainable development. Continued focus on education and environmental awareness will be fundamental to LICA's success.

Leo and his family enjoy hunting, fishing, camping and have found the time to produce a TV hunting show that has appeared across Canada.

LICA IN THE COMMUNITY

LICA ANNUAL GENERAL MEETING

On April 14, 2016 Lakeland Industry & Community Association hosted its 2016 Annual General Meeting (AGM) at the Bonnyville Centennial Centre, with 84 in attendance. It was a social evening of networking, live entertainment, great food, and of course the business and elections of an AGM. We were delighted to welcome guest speaker Martin Foy (pictured below) – Vice President, Environmental & Operational Performance Branch of Alberta Energy Regulator (AER). Martin's presentation on AER's regulatory overview and responsibilities and gave us a glimpse into the scope and concern of environmental monitoring in Alberta.

Each of LICA's committees reported on their work over the past year, as well as upcoming projects, highlighting successes and challenges. A question and answer period followed each presentation.

We welcome you to join us in 2017 for our 17th Annual General Meeting. Come and see what you can do to make a difference in our region as we work toward supporting a sustainable environment. Elections for the positions of Board Directors are held at the Annual General Meeting and you must be a member to run for office or vote, but membership is free. Watch for further details of the 2017 Annual General Meeting. The event is open to the public and is provided at no charge. We'll be looking for you there.



LICA PRESENTATION SERIES EVENT

On November 8, 2016 LICA's Presentation Series hosted Dr. Jen Russell-Houston, Geoscience Ph.D., Vice-President Geology OSUM Oil Sands Corp. speaking on Geology 101: How A Reservoir is Discovered, Appraised & Developed. The Presentation Series is part of LICA's ongoing commitment to present current and relevant information on oil and gas activity in the LICA region. Dr. Jen Russell-Houston's presentation focused on the geologic research, economic assessments and environmental impact studies that oil and gas companies conduct prior to the development of a project.



Photo: Brooke Vining
LICA 2016 Photo Contest

2016 EARTH DAY WRITING CONTEST

In recognition of Earth Day, LICA connected with students in grades 5 through 8 and inquired “how can you reduce emissions, and improve or maintain air quality in the LICA region?” The Education and Information Committee was overwhelmed by the 105 well-written entries we received, and Brooke Vining (pictured with LICA Chair Andrea Woods), the author of our winning essay and a fifth grade student from Holy Cross Elementary School, challenges us to accept digital entries for our 2017 writing contest. We look forward to reading the 2017 submissions, and once again being inspired by the thoughtfulness of our students.



CHRISTMAS AT LICA

On December 8, 2016, LICA opened its doors to host its 8th annual “Christmas at LICA.” 87 people took the opportunity to stop by LICA to enjoy food, refreshments and festive music. Guests were able to mingle with the people of LICA including staff, volunteers, industry and government representatives, all while learning what LICA contributes to our communities. Andrea Woods also announced the 2016 Photo Contest winners and the BRWA also presented one of the Youth Calendar Contest winners, Danielle Antoniu, with her prize. Once again LICA collected non-perishable food items for the local food bank to help out those less fortunate.

2016 EARTH DAY BIRTHDAY PARTY

LICA's Synergy Alberta award-winning Earth Day Birthday took place on April 23, 2016 at the Boys and Girls Club of Bonnyville. Children in grades 1 to 6 had the opportunity to learn what wildlife:

- Look like: motion camera images of area wildlife, accompanied by track graphics
- Sound like: audio animal sounds, with a birch bark call-making project
- Feel like: fur and skull "petting zoo"

As well, Carrie Millar, Seasonal Interpreter from Alberta Environment & Parks, provided a presentation on animal tracks while Chantelle Adams, Education & Outreach Coordinator with the Beaver River Watershed Alliance, shared a watershed model with our 42 guests.

Participants enjoyed Earth Day themed "dirt" cake and treat bags, after completing an assessment of all they had learned that afternoon.



LANDOWNER'S HANDBOOK ON RESOURCE DEVELOPMENT

LICA has developed and published an award-winning Landowner's Handbook on Resource Development, covering sixteen broad topics such as land agents, seismic, noise, and surveys, to assist in creating a positive interaction between landowners and resource developers. It includes a glossary of terms commonly encountered, fast facts, helpful hints, and references of additional sources, if more information is desired.

This valuable resource can be accessed through LICA's website at www.lica.ca or by picking up a copy from the LICA office, as shown on the back of this publication. Whatever your role in resource development, we hope that you will find this Handbook useful.

WATCH FOR US & JOIN US!

Lakeshore Clean-up - September 2017

LICA's Annual General Meeting - October 5, 2017

BRWA's 2018 Youth Calendar Contest - October 2017 (entry deadline)

Earth Day Writing Contest - April 2018

Photo Contest - 2018

Presentations / Events - TBD

PHOTO CONTEST 2016

Lakeland Industry and Community Association proudly held its biennial Photo Contest in 2016 and received a total of 59 entries, all of which highlighted the beauty and diversity of the LICA region. A wide variety of photos capturing agricultural plains, riversides and scenic landscapes impressed the Education and Information Committee and made the task of declaring the winners a challenging one.

After a rigorous review process, winners were declared in both the adult and youth categories. Each winner was awarded with a framed print of their image, along with a cash prize at our 8th annual Christmas at LICA open house. LICA thanks all participants for their great submissions. Watch for details on our 2018 Photo Contest.

ADULT WINNERS:

1st Place: "Sun Hitting Forest Floor"
by Jeremy Hallett (featured on pg. 1)
2nd Place: "Retired" by Eileen Hallett
(featured on this page)
3rd Place: "Serene" by Debbie Wooldridge
Honorable Mention: "Bumblebee on
Sunflower" by Dwayne Hasiuk

YOUTH WINNERS:

1st Place: "Pelican Shore" by
Brooke Vining (featured on pg. 12)
2nd Place: "A Stroll Around
Jesse Lake" by Harlie Hatton
3rd Place: "Sunset Over Field"
by MacKenzie Pretty

See all the winning images at www.lica.ca

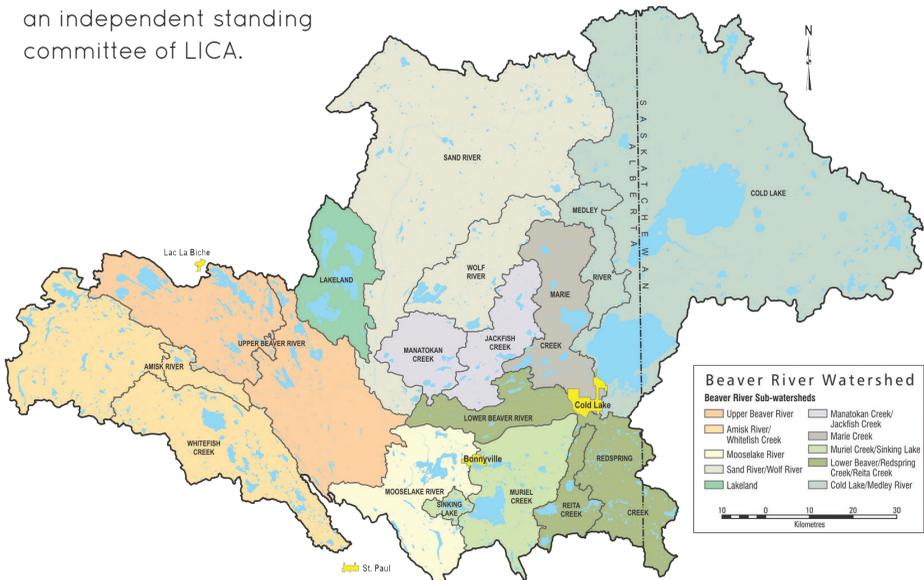


Photo: Eileen Hallett
LICA 2016 Photo Contest

WHO WE ARE

Under Alberta's Water for Life Strategy, the Beaver River Watershed Alliance (BRWA) is the designated Watershed Planning and Advisory Council (WPAC) for the Beaver River Basin. It is our mandate to educate and inform the community about watershed stewardship, to assess and report on the state of the watershed and to lead the creation and implementation of a watershed management plan.

BRWA is a multi-stakeholder partnership organization bringing together organizations and individuals in the region to work towards a healthier watershed. Members include agricultural producers, oil and gas producers, municipal and provincial governments, stewardship groups, First Nations, Metis, community members, and other key parties. We are an independent standing committee of LICA.



VISION >

The Beaver River Watershed is ecologically healthy and environmentally sustainable.

WATERSHED PLANNING & ADVISORY COUNCILS

Watershed Planning and Advisory Councils (WPACs) have been established across the province, for each of Alberta's major watershed basins to involve communities and stakeholders in watershed management and to carry out planning and education functions.

These councils are regional, multi-stakeholder, not-for-profit organizations that work with their greater watershed community to develop plans, make recommendations for policy and engage in adaptive management actions to benefit the health and sustainability of the watershed.

Currently there are 11 WPACs in Alberta. They are designated by the Government of Alberta to carry out planning and education functions through the Water for Life Strategy (2003) whose goals are:

- Healthy aquatic ecosystems
- Reliable, quality water supplies for a sustainable economy
- A safe secure drinking water supply



X-STREAM SCIENCE

X-Stream Science is an educational citizen science program developed in partnership with the Red Deer River and Battle River Watershed Alliances. The program provides youth with an opportunity to learn about a local stream and experience real field work, while also contributing to data collection and monitoring of watershed conditions.

The guiding questions of the program are: what is the health of my local river? What is the cause of its health? And what can we do to improve the health? To answer these questions, participants collect benthic macroinvertebrates (i.e. water bugs), conduct water quality and quantity tests and analyze their findings. The experience and knowledge gained by the students is invaluable and the data received will help to fill current knowledge gaps in the Beaver River watershed and aid in future watershed planning and decision making.

The program found success in its first year with nearly 200 students from three local high schools participating! X-Stream Science was also awarded an Award of Excellence from Synergy Alberta at the 2016 Synergy Alberta Conference.



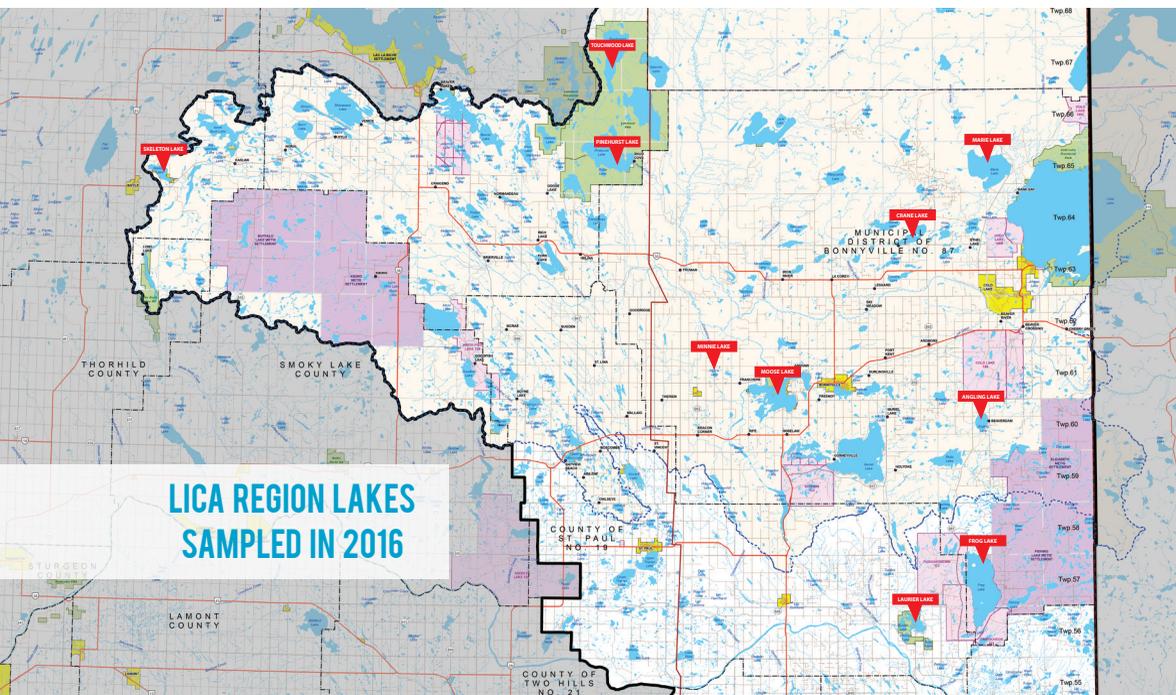
ALMS LAKEWATCH PROGRAM

LICA and the BRWA are proud to be partners with the Alberta Lake Management Society (ALMS) to support the Lakewatch program, dating back to 2002. LakeWatch is a volunteer-based water quality monitoring program offered to Albertans who are interested in collecting information about their local lake or reservoir.

Each year, monitoring of 10 lakes in the LICA region is conducted five times at each lake and encompasses numerous ecological parameters, including invasive zebra and quagga mussels, phosphorus, metals and microcystin.

Microcystins are toxins produced by cyanobacteria (blue-green algae) which, when ingested, can cause severe liver damage. In Alberta, recreational guidelines for microcystin are set at 20g/L. In 2015, microcystin was detected in all BRWA lakes except for Pinehurst and Crane Lakes. The highest microcystin concentrations observed in the province were in Muriel Lake, where concentrations exceeded 20 ug/L, more than double the next highest lake concentration.

The results are published in a summary report for each of the lakes tested and are available on the ALMS website at www.alms.ca. The reports also provide recommendations on how to deal with water quality issues that may have been identified.



EDUCATION & OUTREACH

The BRWA is committed to educating and informing residents of the Beaver River watershed on watershed stewardship. To do so we offer a series of education and outreach events and programs each year. Highlights this year include:

133

Number of entries into our Annual Youth Calendar Contest for students in Kindergarten to Grade 12. This year's contest theme was "What is your favorite memory in the Beaver River Watershed?"

42

Total classroom presentations provided to Lakeland area students in kindergarten to grade 12

18

Youth programs delivered to groups including Scouts, Brownies, Girl Guides, County of Lac La Biche's Mad about Science Camp, Bonnyville Boys & Girls Club, Bonnyville Centennial Centre Science Camp, Bonnyville Canadian Native Friendship Centre Science Camp and local libraries on topics such as watersheds, water quality, pollution and biodiversity in the Beaver River watershed

13

Community events participated in; such as shoreline cleanups, Know your Runoff workshop, LICA's Earth Day Birthday, Lac La Biche's Environment Festival, Cold Lake's Geocaching Megaevent, Festival of Words, Canada Day and Aqua Days, Sir Winston Churchill Provincial Park's Parks Day, campground programs and an interpreted birding hike.

9

Wetland Walk and Walking with Moose programs delivered to local grade 7 and 5 students, in partnership with Lakeland Agricultural Research Association and Moose Lake Watershed Society

7

X-Stream Science programs used to sample the water quality of local streams with high school students.

7

Explorer Day activities provided to local families through the Lakeland Nature Kids Club. Activities this year included birdhouse building, learning about pollinators, Muriel Creek Farm tour, archery and snowshoeing

3700 people reached throughout the Beaver River Watershed!

REGIONAL MONITORING & SAMPLING NETWORK

LICA's passive monitoring stations generally follow a 3 x 3 township grid pattern; samples are analyzed once per month. The data are used for understanding regional spatial patterns in air quality, long-term trend analyses, and for estimating acid deposition. Ozone, nitrogen dioxide, sulphur dioxide, and hydrogen sulphide are sampled for in the passive monitoring network.

Continuous monitoring involves drawing air through highly sensitive analyzers 24 hours a day, seven days per week, 365 days per year. These analyzers produce near-real time data.

Continuous monitoring in the LICA network is carried out in Cold Lake South (Cold Lake station), southwest of St. Lina (St. Lina station), and in the immediate vicinity of in situ oil sands operations approximately 10 kilometers southwest of Marie Lake (Maskwa station). The Portable Air Monitoring System (PAMS) was located east of Elk until May and in the Town of Bonnyville for the remainder of the year.

Sampling for volatile organic compounds and polycyclic aromatic hydrocarbons is carried out at the Cold Lake South and Portable stations. 24-hour integrated samples are collected every six days in accordance with the National Pollutant Surveillance

(NAPS) program; upwards of one hundred of compounds can be detected using these methods. Additional samples are also collected at the Portable station during high concentration hydrocarbon events.

Soil acidification sampling plots have been established in Moose Lake Provincial Park, Whitney Lakes Provincial Park, and southwest of Tucker Lake. LICA also samples a small set of acid sensitive lakes throughout the region. LICA's soil and lake acidification monitoring programs enhance already-existing regional sampling by other organizations including Alberta Environment and Parks, local industry, and Alberta Lake Management Society.

PASSIVE STATIONS (See Map)

- | | |
|---------------------|------------------------|
| 1. Sand River | 15. Frog Lake |
| 2. Therien | 16. Clear Range |
| 3. Flat Lake | 17. Fishing Lake |
| 4. Lake Eliza | 18. Beaverdam |
| 5. Telegraph Creek | 19. Cold Lake South |
| 7. Muriel - Kehewin | 20. Medley - Martineau |
| 8. Dupre | 21. Fort George |
| 9. La Corey | 22. Burnt Lake |
| 10. Wolf Lake | 23. Mahihkan |
| 11. Foster Creek | 24. Hilda Lake |
| 12. Primrose | 25. Town of Bonnyville |
| 13. Maskwa | 26. St. Lina |
| 14. Ardmore | 27. Portable Station |

2016 CONTINUOUS MONITORING RESULTS

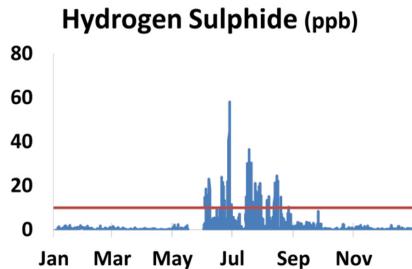
COLD LAKE SOUTH The Cold Lake Station is located in Cold Lake South near the Lakeland Humane Society. The station provides information about air quality conditions in the region's most populated centre and is equipped to report on the Air Quality Health Index (available on the LICA website). Data indicates that air quality at this location is largely influenced by urban emissions including home heating and vehicle exhaust. Nearly all combustion produces nitrogen dioxide; during the winter months, higher concentrations of nitrogen dioxide in Cold Lake are present because of stagnant meteorological conditions coupled with vehicle idling, and an increased demand for home heating. Forest fires in Fort McMurray created smoke which was carried into the region causing elevated particulate matter concentrations at this station and others.

MASKWA The Maskwa station is located southeast of Marie Lake in the immediate vicinity of insitu oil sands operations. The Maskwa station was operated by industry since the 1980's before LICA purchased it and took over its operation in 2009; as such, it represents an important link to historical air quality in the region. In the network's current design, its intended to represent air quality conditions in the area of the Airshed Zone that is dominated by multi-well pads for bitumen production.

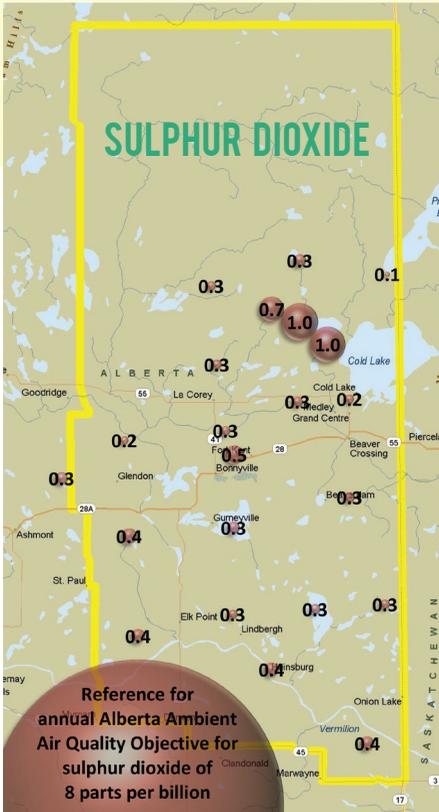
Parameter	Units	AAAQO		COLD LAKE				ST. LINA				MASKWA				PAMS - Elk Point				PAMS - Bonnyville			
				Summary		Exceed.		Summary		Exceed.		Summary		Exceed.		Summary		Exceed.		Summary		Exceed.	
		1H	24H	Avg	Max	1H	24H	Avg	Max	1H	24H	Avg	Max	1H	24H	Avg	Max	1H	24H	Avg	Max	1H	24H
Sulphur Dioxide	ppb	172	48	0.1	2.5	0	0	0.1	5	0	0	0.4	18.3	0	0	0.1	3.6	0	0	0	4.8	0	0
Hydrogen Sulphide	ppb	10	3	Not monitored				0.1	3.7	0	0	0.1	5.4	0	0	0.2	2.4	0	0	1.0	58.1	125	17
Nitrogen Dioxide	ppb	159	n/a	3.5	30.9	0	n/a	1.7	25.6	0	n/a	2.6	28.5	0	n/a	8.0	39.1	0	n/a	4.6	35.0	0	n/a
Ozone	ppb	82	n/a	23.6	63.7	0	n/a	28.3	64.6	0	n/a	Not monitored				24.9	58.9	0	n/a	21.7	67.7	0	n/a
Total Hydrocarbons	ppm	159	n/a	2.2	4.7	n/a	n/a	2	3.3	n/a	n/a	2.2	4.2	n/a	n/a	2.5	8.2	n/a	n/a	2.1	3.86	n/a	n/a
Methane	ppm	n/a	n/a	Not monitored				Not monitored				Not monitored				2.4	8.1	n/a	n/a	2.1	3.69	n/a	n/a
Non-Methane Hydrocarbons	ppm	n/a	n/a	Not monitored				Not monitored				Not monitored				0	0.36	n/a	n/a	0	1.30	n/a	n/a
PM _{2.5} Mass	µg/m ³	80	30	7	307.6	22	5	4.8	68.4	0	0	Not monitored				5.6	47.7	0	0	5.2	82.1	1	0
ppb - Parts per billion								n/a - Not applicable AAAQO for parameter															
ppm - Parts per million								Exceed. - Number of exceedances of the indicated AAAQO															
µg/m ³ - Micrograms per cubic meter								Not monitored - Parameter not monitored at site															
AAAQO - Alberta Ambient Air Quality Objective								PM _{2.5} Mass - Particles less than or equal to 10 micrometers in diameter															
1H - 1 Hour								PAMS - Portable Air Monitoring System															
24H - 24 Hour								NOTES:															
Avg - Annual average for 2016								PAMS Elk Point monitoring period: January 1 to May 16															
Max - Maximum 1 hour measurement of 2016								PAMS Bonnyville monitoring period: June 2 to December 31															

ST. LINA The St. Lina station is located just outside the western boundary of the LICA Airshed Zone, on Highway 867 a few kilometers south of the Hamlet of St. Lina. The station provides information about background air quality and the characteristics of air masses as they move into the region (predominant west to east air flows) and is equipped to report on the Air Quality Health Index. An interesting observation about ozone can be seen at St. Lina. Ozone formation is driven by two major classes of directly emitted precursors: nitrogen oxides (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. However, at nighttime, and in the vicinity of large emissions of NO (e.g. vehicles and home heating in Cold Lake), ozone concentrations are depressed or limited through the process of titration. For this reason, ozone often dips down close to concentrations of 0 ppb overnight in Cold Lake while remaining elevated at St. Lina due to the lack of NO sources in this relatively undeveloped part of the region.

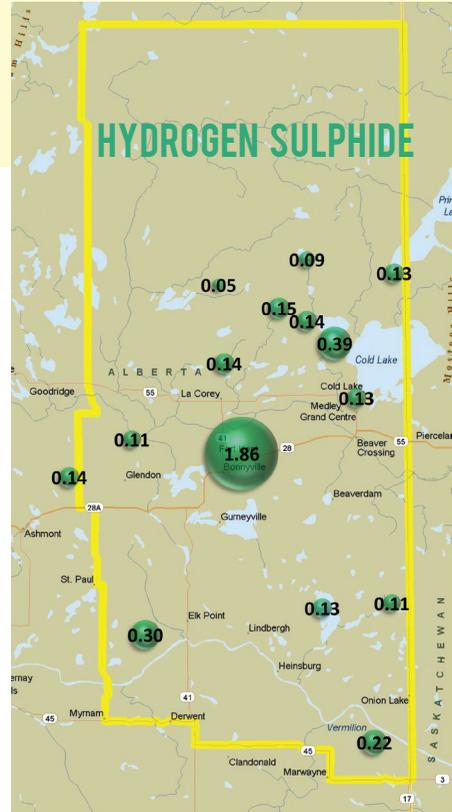
ELK POINT & BONNYVILLE The Portable Air Monitoring System (PAMS) was located at the Elk Point Airport until May 2016 and in Bonnyville starting in June 2016. It is equipped to report on the Air Quality Health Index. Unlike the other fixed monitoring locations, the PAMS is portable and can be moved around the region to collect data that may be used to address local air quality issues. The PAMS was moved to the Elk Point Airport in 2012 to gather data to address locally elevated nitrogen dioxide measurements detected by LICA's passive stations. While there, it was noted that hydrocarbon concentrations were also elevated at this location relative to other sites in the network. Over the course of monitoring in Elk Point, there was a very noticeable reduction in ambient hydrocarbon concentrations; this was the result of improved vapour recovery and leak detection and repair programs implemented by industry in the area. Once in Bonnyville, overall concentrations of the air pollutants we measured were comparable to those observed in Cold Lake, and air quality was good in all parameters except one – “the smell.” We recorded an unusually high number of exceedances of the Alberta Ambient Air Quality Objective for hydrogen sulphide (H₂S), see chart. This issue of frequent H₂S exceedances from an open area source is a new one for LICA, and we are working with our partners to determine if there is an appropriate management response.



The bubble charts below illustrate the regional patterns of the parameters measured by the passive monitoring network in 2016, with annual average concentrations in parts per billion (ppb). Each bubble represents the location of a passive monitoring station.



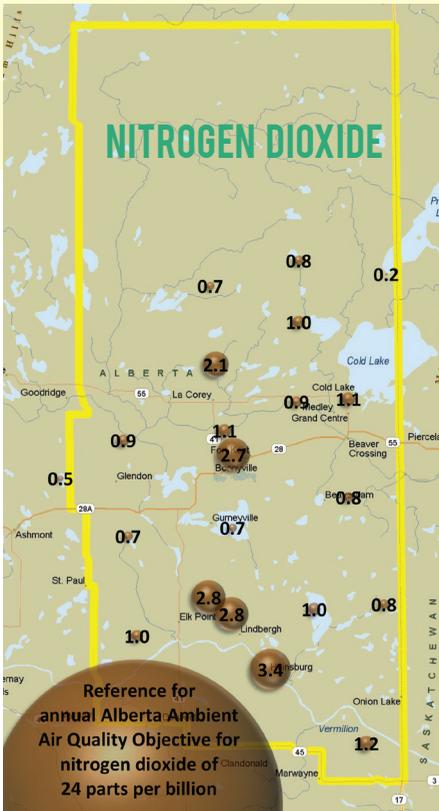
The highest concentrations of **SULPHUR DIOXIDE** were measured near the thermal heavy oil plants northwest of Cold Lake. These plants are the major point source of sulphur dioxide in the region. These elevated annual average concentrations were well below the annual Alberta Ambient Air Quality Objective of 8 ppb.



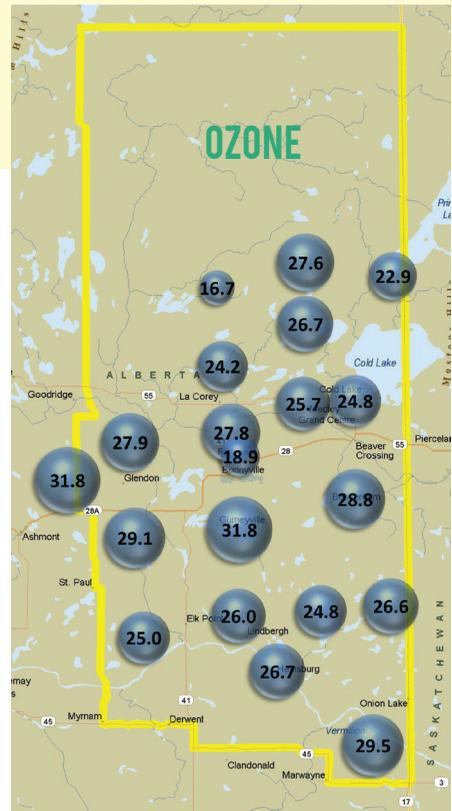
Elevated concentrations of **HYDROGEN SULPHIDE** were measured at the stations close to thermal recovery heavy oil plants; these facilities are a source of hydrogen sulphide in the LICA area. Elevated concentrations of hydrogen sulphide were also measured in the Town of Bonnyville near Jessie Lake; these higher concentrations were likely caused by decaying organic matter in the lake. There is no current annual Alberta Ambient Air Quality Objective for hydrogen sulphide.

PASSIVE MONITORING RESULTS

The number inside the bubble is the annual average concentration for the given location, and the width of the bubble is relative to the concentration. Where possible, a 'reference' bubble is shown to compare annual average network measurements to Alberta Ambient Air Quality Objectives.



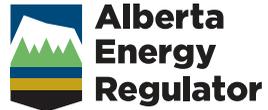
The highest concentrations of **NITROGEN DIOXIDE** were measured near major highways and in urban or built-up centers; the highest annual average concentration was measured in Bonnyville. In urban centers, the high density of combustion sources (automobiles, home and office heating, aircraft) are the likely cause for these elevated concentrations. All stations had annual average concentrations well below the annual Alberta Ambient Air Quality Objective of 24 ppb.



The annual spatial pattern of **OZONE** in the LICA area is subtle. The monitoring sites with the lowest concentrations are those closest to or downwind from combustion sources, including stations in Bonnyville, Cold Lake, and near Highway 55. This is due to the titration of ozone by nitric oxide which is emitted by vehicles, home heating, and other high temperature fossil fuel-burning processes. Higher concentrations were generally observed at rural stations. There is no current annual Alberta Ambient Air Quality Objective for ozone.

ALBERTA ENERGY REGULATOR

The Alberta Energy Regulator (AER) ensures the safe, efficient, orderly, and environmentally responsible development of hydrocarbon resources over their entire life cycle. This includes allocating and conserving water resources, managing public lands, and protecting the environment while providing economic benefits for all Albertans. The AER regulates:



- Over 174 000 operating wells and 431 000 km of pipelines
- 797 gas processing plants
- Nine oil sands mines
- More than 50 thermal in situ and 200 primary / enhanced schemes
- Five bitumen upgraders
- 7 producing coal mines
- Four coal processing plants

View AER's Annual Report visit their website at:
<http://www.aer.ca/documents/reports/AER2015-16AnnualReport.pdf>

SYNERGY ALBERTA

Synergy Alberta (SA) is the provincial association of synergy groups in Alberta, and has grown to also include associate organizations and individuals who, like us, strongly believe that multi-stakeholder collaboration is the most effective way to benefit all stakeholders involved in and affected by resource development. SA had an extremely successful fall conference in Calgary November 6-7, 2016, with the theme 'Shared Interest, Shared Understanding' in celebration of their 10 year anniversary.



ALBERTA AIRSHEDS COUNCIL

The Alberta Airsheds Council (AAC) facilitates communication, cooperation and sharing of best practices among the nine airsheds in the province and represents the airsheds in discussions with provincial funders, partners and stakeholders. The AAC and airsheds also contribute to provincial policy development by bringing regional perspectives to province-wide discussions. In partnership with the Government of Alberta, the Airsheds Council is developing approaches to educate Albertans about air monitoring and air quality, and about the current issue of fine particulate matter.



STATEMENT OF OPERATIONS

For the year ended
December 31, 2016
(unaudited)

Prepared by:
Ross & Sylvestre
LLP (Bonnyville, AB)

REVENUE	2016	2015
Agency funding	784,708	834,621
Government funding	195,922	188,636
Interest income	2,238	2,483
Memberships	49,250	50,250
Other receipts from members	228,127	88,901
Total Revenue	1,260,245	1,164,891

EXPENDITURES	2016	2015
Airshed	520,940	516,354
Amortization	41,224	41,707
Annual report	5,611	25,736
Board & committee	33,420	38,801
Contract services	179,694	199,089
Loss on disposal of property & equipment	818	-
Insurance	8,094	8,470
Meetings	6,808	12,383
Occupancy costs	48,334	56,108
Office	19,884	21,601
Professional fees	20,341	36,045
Property taxes	3,440	3,305
Public relations	10,521	14,645
Training & development	798	4,936
Travel	17,043	15,772
Wages & benefits	178,761	192,515
Watershed	94,797	76,100
Total Expenditures	1,190,528	1,263,567
Excess (deficiency) of revenues over expenses	69,717	(98,676)
Total Net Assets (beginning of year)	918,205	1,016,884
Total Net Assets (end of year)	987,922	918,206

OUR MEMBERSHIP

INDUSTRY MEMBERS / FUNDING PARTNERS

BAYTEX
ENERGY CORP.

Centennial Place
East Tower
2800, 520 - 3 Ave SW
Calgary, AB T2P 0R3



Canadian Natural

Bag 1003
Bonnyville, AB
T9N 2J7

cenovus
ENERGY

Bag 1015, Foster Creek
Bonnyville, AB
T9N 2J7

devon

Box 7905
7002 - 50 Avenue
Bonnyville, AB T9N 2J2

 **Husky Energy**

Box 6098
Bonnyville, AB
T9N 2G7

Imperial

Box 1020
Bonnyville, AB
T9N 2J7

osum

Box 8098
Cold Lake, AB
T9M 1N1

 **PENGROWTH**

2100
222 - 3 Avenue SW
Calgary, AB T2P 0B4

ASSOCIATE MEMBERS

AltaGas

1700
355 - 4 Avenue SW
Calgary, AB T2P 0J1

**Koch Exploration
Canada L.P.**

Suite 1500
111 - 5 Avenue SW
Calgary, AB T2P 3Y6

Inter Pipeline Ltd.

Box 7189
Bonnyville, AB
T9N 2H5

GOVERNMENT MEMBERS

**Municipal District
of Bonnyville**

4905 - 50 Avenue
Bag 1010
Bonnyville, AB
T9N 2J7

Town of Bonnyville

4917 - 49 Avenue
Bag 1006
Bonnyville, AB
T9N 2J7

City of Cold Lake

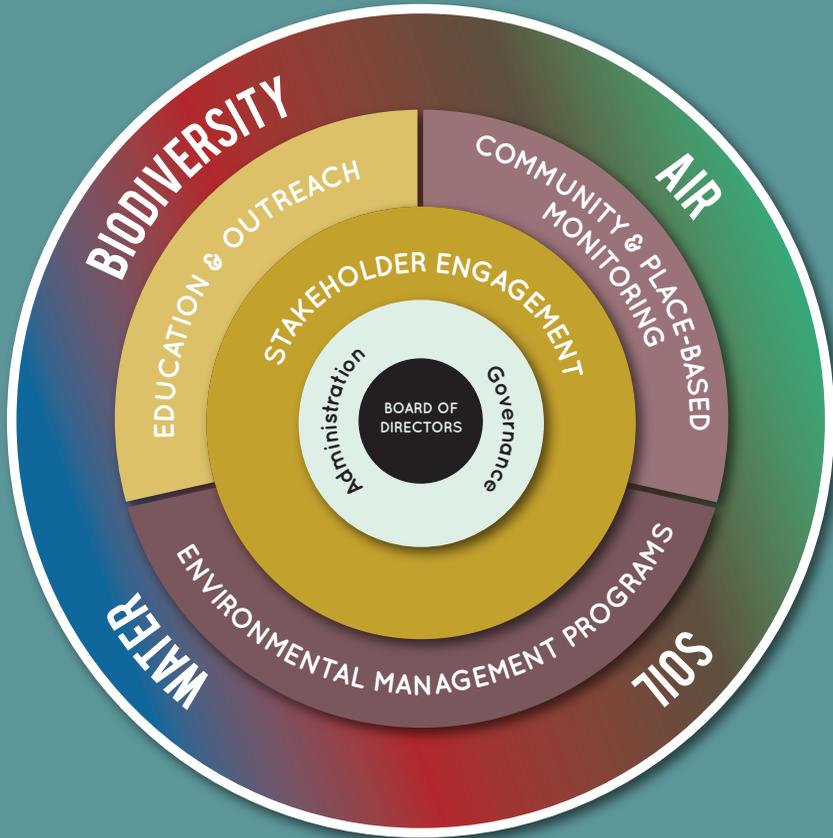
5513 - 48 Avenue
Cold Lake, AB
T9M 1A1

Village of Glendon

Box 177
Glendon, AB
T0A 1P0

WHAT'S NEXT?

On April 20, 2017, our membership voted in support of an organizational restructure. Since then, our Governance Committee has completed an extensive policy review and at our upcoming October 5, 2017 Annual General Meeting we will be electing a Board of Directors to implement these changes:





www.lica.ca

Lakeland Industry & Community Association

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Bonnyville, Alberta, Canada T9N 2J5

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