

REPORT TO THE COMMUNITY 2019



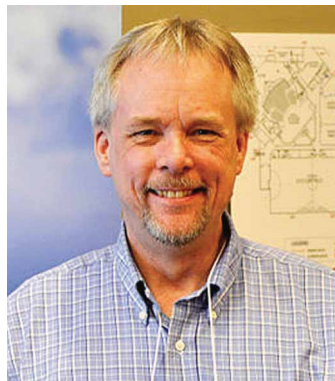
FORT AIR PARTNERSHIP

We Monitor the Air You Breathe

MESSAGE FROM THE CHAIR

As a Decision Sciences instructor at MacEwan University, I frequently remind my students that analyzing data in an objective, scientific way always paints a true picture. But I also remind them that having a true picture is of little value if others have trouble comprehending its meaning.

I joined the FAP Board as a public member in 2015 in part because I was interested in the details of how local air quality assessment was being done. My other interest lay in contributing what I could to communicating the collected data in a way that was understandable to our stakeholders, particularly the general public.



By all measures, FAP as an organization does a good job of painting a true picture of local air quality and being transparent with the data it collects. This is borne out by positive network audit reports, feedback from governments, industry and academics, public surveys, on-going funding support and other indicators.

FAP Board and staff understand however that communication of data and comprehension of what is being communicated is not a homogeneous exercise. The results of our Vision 2030 consultation emphasized that and illustrated areas where we could improve our communications efforts. We took that input to heart and in 2019 implemented many improvements to fill information gaps and add to our resource library. Researching and releasing a long-term air quality comparison and trending report, enhancing our live data web tool, reciprocal educational outreach through partner organizations like the Alberta Airsheds Council, and developing a school program for Grade 5 students are but four examples.

The spring of 2020 marks the end of our five-year Air Monitoring Plan. I am happy to report that at the close of 2019, all major aspects of the plan had been implemented. Our Technical Working Group will be studying the need for a new plan during 2020 for recommendation to the Board.

On a personal note, I would like to thank all of our volunteers (which include Board members), our hard working staff and contractors, and especially our funders, whose support is critical to the continuation of FAP's valuable and important work.

Allan Wesley
Chair, Fort Air Partnership

2019 HIGHLIGHTS

AIR MONITORING NETWORK

Passive Monitors



As part of the on-going refinement of our **air monitoring network**, FAP removed several passive monitors in January, 2019. We now have 47 passive monitors located in strategic locations throughout the Airshed.

A key reason for the change was an Alberta Environment and Parks analysis showed some of our passive monitors were statistically redundant. This redundancy was in part due to the addition in recent years of more continuous monitoring stations in our Airshed.

Continuous Monitoring Stations

Our portable air monitoring station was moved from Bon Accord to Chipman in 2019. The station wrapped up operations in Bon Accord at the end of February and began reporting data in Chipman on June 1. Chipman was selected as the current location for the portable station for several reasons, including being an area currently underserved by air monitoring.



In addition to weather information, the station is collecting and reporting data on 10 substances: sulphur dioxide, hydrogen sulphide,

nitric oxide, nitrogen dioxide, oxides of nitrogen, ozone, total hydrocarbons, non-methane hydrocarbons, methane and particulate matter. This data enables the calculation of an **Air Quality Health Index** for the local area.



Performance

The average monthly uptime in 2019 of all continuous monitoring equipment in the network was 99.38%. While the Alberta Government requires that monitoring equipment be fully operational a minimum of 90% of the time each month, our internal uptime target is 98.5%.

A partial audit of our network, conducted by Alberta Environment and Parks, was done in July, 2019. The second phase of the audit was scheduled for February, 2020. Results of the complete audit are expected in April, 2020.

A separate third-party audit of our Airshed's monitoring and reporting quality system was also completed in July, 2019. Findings from the audit were incorporated into a revised FAP quality assurance plan as well as related procedures and support documents.

KEY REPORTS

Data Trending and Comparison

In May, 2019, we released a **Data Trending and Comparison Report** that provided important information about how annual averages of five key substances that affect local air quality (fine particulate matter, sulphur dioxide, nitrogen dioxide, carbon monoxide and ozone) have changed over time in our Airshed. It also shows how our Fort Saskatchewan station compares to other cities in Alberta, Canada and around the world.

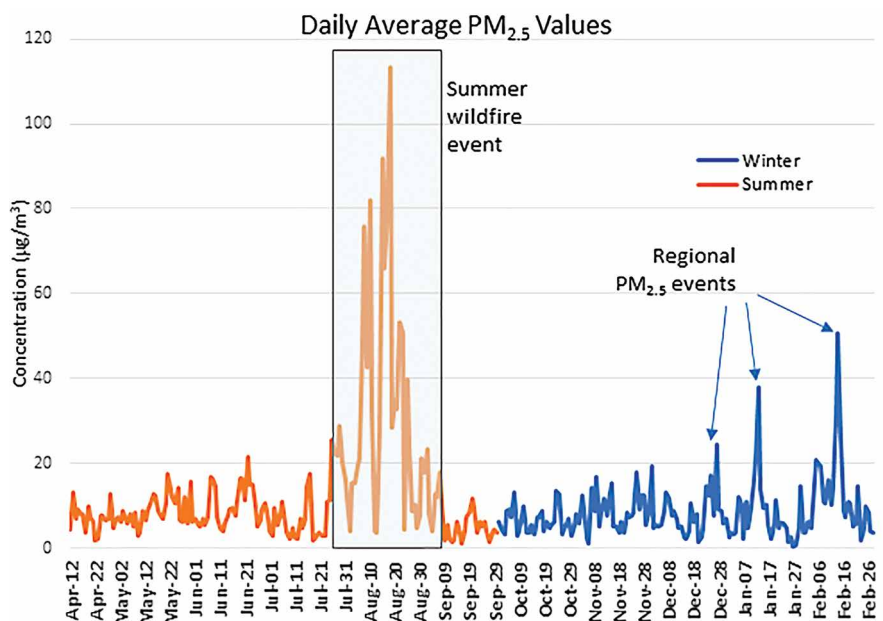


Data for some of the five substances show notable changes from year to year that can be tied to major natural events like wildfires. Some substances show changes over a longer period of time, which can be attributed to the introduction of environmental policies or the application of new technologies.

The report shows that the annual average trends for the five substances measured within our Airshed are comparable to or lower than most other Alberta, national and international jurisdictions used in the review.

Bon Accord

A **Bon Accord Portable Monitoring Project** report was released in October, 2019. It summarized the data collected at our portable air monitoring station while it was operating in the town from April 12, 2018 to February 28, 2019. This report provided the town with detailed information on local air quality, including local sources possibly impacting air quality, and how Bon Accord's air quality compared to other communities in the Airshed.



Survey

A July, 2019 **telephone survey of 400 people** in Alberta's Industrial Heartland showed more than 90% of residents rated air quality in the region as

AND THE SURVEY SAYS...



average or better, an upwards trend when compared to previous years. Within this group, 61% rated air quality in the region as excellent or good.

A large majority (85%) of those interviewed who were aware of Fort Air Partnership knew the organization monitored and reported on air quality in and around Alberta's Industrial Heartland. This level of recognition has trended upwards since 2015.

Among all respondents, the vast majority (94%) agreed FAP was very or somewhat important. Among those who offered an opinion, the majority were very or somewhat satisfied with FAP in all key areas. The level of importance and interest in local air quality among residents has increased since 2017, when the last survey was completed.

EDUCATION



Schools

In the spring of 2019, we partnered with the non-profit group **Inside Education** to develop and deliver an interactive classroom presentation to all Grade 5 students in our Airshed. The presentation and accompanying materials provided by FAP educates students on local air quality, FAP's role in air quality monitoring, how substances are measured, what the data we collect means, what influences air quality and the actions people can take to reduce their impact on local air quality.

Grade 5 students in the 13 elementary schools located within the Airshed were selected as the focus of the program, beginning in the 2019-2020 school year, as air quality fits well with the Weather Watch science curriculum unit for that grade.

Alberta Airsheds Council

We continue to actively participate in and support the Alberta Airsheds Council (AAC) in its efforts to strengthen and better integrate province-wide and regional air quality monitoring, evaluation and reporting. We are closely involved in AAC policy and program development, with membership on AAC's Executive, Technical and Communications committees.



work, provide air quality information and to promote clean air initiatives such as a **Stop Needless Idling** campaign.

Of note in 2019 was AAC's effort to significantly grow its library of videos and other educational resources to raise awareness of Alberta Airsheds and their

Fresh Air Experience

Our efforts to expose a broader and younger audience to Fort Air Partnership and share facts about local air quality continued in 2019 by repeating our Fresh Air Experience campaign in May. We added Instagram to our already-in-place



Facebook selfie picture campaign. The campaign realized a significant jump in participation and awareness compared to 2018. Our total reach for messaging to the 18-35 age group topped 55,000 and followers exceeded 7,600 during the month long event. As an added bonus we now have a collection of people photos in various Airshed locations to use in our communications.

MONITORING RESULTS

AIR QUALITY HEALTH INDEX RATINGS

Seven of FAP's 10 continuous monitoring stations collect data used to calculate an hourly and forecast Air Quality Health Index (AQHI) in and around Alberta's Industrial Heartland.

Overall, the AQHI risk to health rating in the region was significantly lower in 2019 when compared to 2018. In 2019, there were 177 hours of high or very high risk ratings, compared to 849 in 2018. The higher 2018 annual total was largely influenced by poor air quality conditions during much of August of that year caused by wildfire smoke, predominantly coming from British Columbia.

More than half (58%) of the 2019 high and very high risk ratings were caused by wildfire smoke that occurred in late May and early June. The second most frequent cause (25%) of high or very high ratings in 2019 was wintertime temperature inversions.

Overall, the region experienced low risk ratings an average of 94% of the time in 2019, a six percent improvement over 2018. Among FAP's permanent stations, Lamont County had the most low risk readings at 95.5% of the time, while Fort Saskatchewan had the least amount of low risk readings, at 90.8% of the time.

FAP (2019)		AQHI Risk Level (% of time)			
Station Name	Hours Monitored	Low	Moderate	High	Very High
Bruderheim	8,472	94.17%	5.44%	0.34%	0.05%
Elk Island	8,332	94.86%	4.72%	0.36%	0.06%
Fort Saskatchewan	8,198	90.77%	8.94%	0.24%	0.05%
Gibbons	8,403	92.41%	7.19%	0.33%	0.07%
Lamont County	8,558	95.54%	4.31%	0.11%	0.05%
Redwater	8,309	93.33%	6.29%	0.30%	0.07%
Bon Accord*	1,379	85.93%	13.56%	0.51%	-
Chipman**	4,434	100.00%	-	-	-
Total Hours	56,085	52,638	3,270	148	29

* The portable station operated at Bon Accord from January 1 to February 27, 2019.

** The portable station operated at Chipman from June 1 to December 31, 2019.



Hours with a High or Very High Risk AQHI Rating

This table shows the number of hours with a high or very high risk AQHI rating during 2019, when they occurred and the likely cause, when identifiable.

		FAP Continuous Air Quality Monitoring Station															
		Bruderheim		Elk Island		Ft. Sask.		Gibbons		Lamont County		Redwater		Portable*		Total Hours	Attributed Cause
January 13,14	10	-	16	-	-	-	-	-	-	-	-	-	-	-	-	26	Wintertime inversion
February 9,10	-	-	1	-	-	-	2	-	2	-	-	-	-	-	5		
February 14	-	-	-	-	-	-	8	-	-	-	-	-	7	-	15		
February 27	-	-	3	-	-	-	-	-	-	-	-	-	-	-	3	Local influence very near the station	
March 20	5	-	4	-	-	-	-	-	-	-	-	-	-	-	9	Wintertime inversion	
March 21	-	-	-	-	6	-	-	-	-	-	-	-	-	-	6		
March 22	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1		
March 23	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1		
May 28	-	-	4	-	2	-	-	-	-	-	-	-	-	-	6	Summertime smog	
May 30, 31	12	4	2	5	4	4	11	6	6	4	16	6	-	-	80	Smoke from wildfires	
June 1	2	-	-	-	3	-	3	-	1	-	6	-	-	-	15		
June 8	-	-	-	-	3	-	3	-	-	-	3	-	-	-	9		
November 3	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	Unknown	
Total Hours	29	4	30	5	20	4	28	6	9	4	25	6	7	-	177		

* The Portable station operated at Bon Accord from January 1 to February 27 and at Chipman from June 1 to December 31.



Summary of Exceedances

During 2019, there were 189 occurrences across FAP's 10 monitoring stations where air quality measurements exceeded **Alberta's Ambient Air Quality Objectives (AAAQO)**. There were various causes for these exceedances, but the majority (61%) were due to high concentrations of fine particulate matter (PM_{2.5}) caused by wildfire smoke. Other exceedances were attributed to wintertime temperature inversions (21%), summertime smog (12%), local industry (4%), wetlands (0.5%) and 1.5% were undetermined.

Air quality measurements are continuously compared to the AAAQOs. Any exceedance of an AAAQO is reported to the Alberta Government and the cause of the exceedance investigated.

One Hour AAAQO Exceedances – 2019			
Parameter	Exceedances	Date	Attributed Cause
Fine Particulate Matter (PM _{2.5})	2	February 9	Winter inversion
	1	February 10	
	1	February 13	
	12	February 14	
	2	March 21	
	1	March 23	
Hydrogen Sulphide (H ₂ S)	1	May 22	Local industry
	1	May 26	
Ozone (O ₂)	23	May 28	Summertime smog
Fine Particulate Matter (PM _{2.5})	55	May 30	Wildfire smoke
	30	May 31	
	5	June 1	
Hydrogen Sulphide (H ₂ S)	1	June 1	Local industry
Fine Particulate Matter (PM _{2.5})	9	June 8	Wildfire smoke
Hydrogen Sulphide (H ₂ S)	3	July 16	Local industry
	1	July 16	Local wetlands
	1	September 18	Undetermined
Fine Particulate Matter (PM _{2.5})	1	November 3	
Hydrogen Sulphide (H ₂ S)	1	December 9	
Total Exceedances	151		

24 Hour AAAQO Exceedances – 2019				
Parameter	Exceedances	Date	Attributed Cause	
Fine Particulate Matter (PM _{2.5})	7	January 13	Winter inversion	
	1	February 13		
	3	February 14		
	4	March 21		
	4	March 22		
	1	March 23		
	Hydrogen Sulphide (H ₂ S)	7	May 30	Wildfire smoke
		3	May 31	
		7	June 1	
Hydrogen Sulphide (H ₂ S)	1	July 16	Local industry	
Total Exceedances	38			

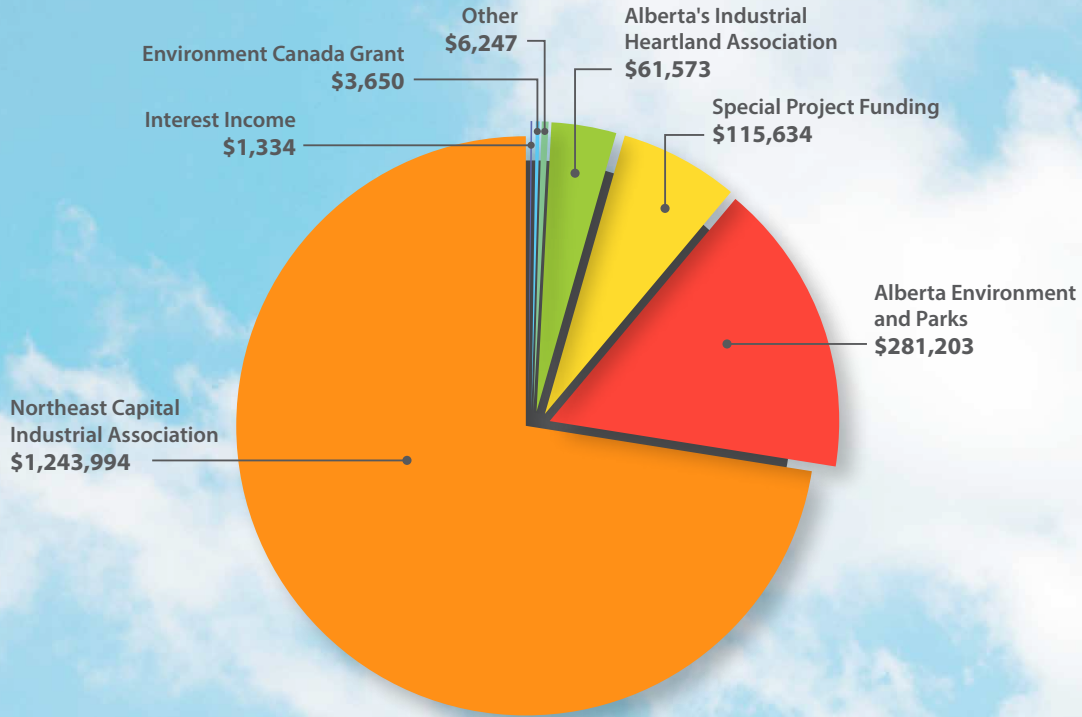


Our Elk Island station was blanketed by smoke on May 30, 2019. The picture below shows the station on a normal day.

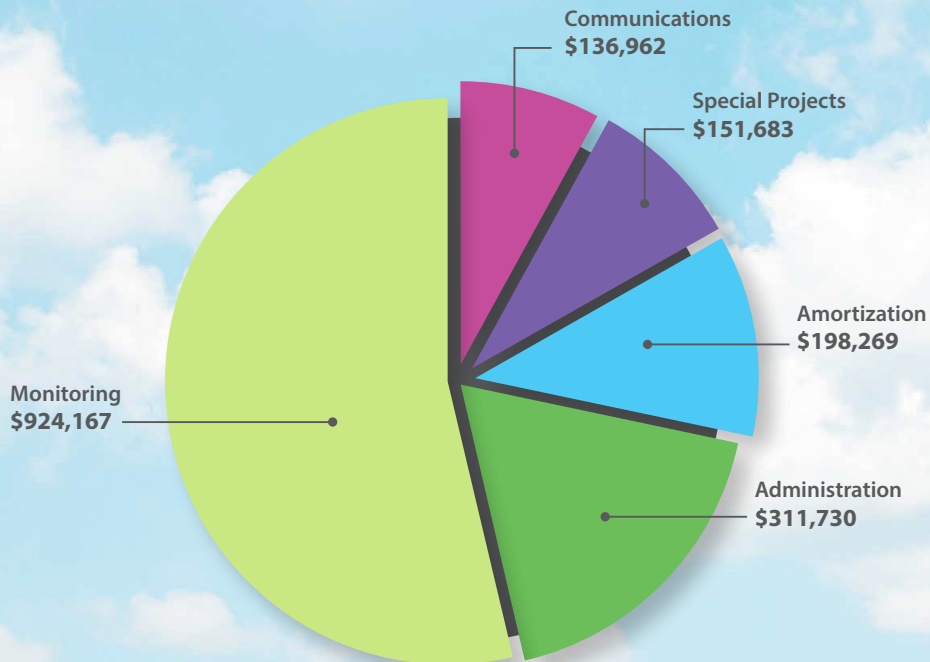


2019 FINANCIAL SUMMARY

WHERE THE MONEY CAME FROM - \$1,713,635



WHERE THE MONEY WENT - \$1,722,811



STATEMENT OF FINANCIAL POSITION

Current

Cash	\$264,380
GIC (wind-up reserve)	255,000
GIC	286,754
GST Recoverable	18,552
Accounts Receivable	18,001
Prepaid Expenses	4,890

Equipment

Air Monitoring Equipment	906,146
Computer and Office Equipment	213
Communications Equipment	688

Total Assets **\$1,754,624**

Liabilities

Accounts Payable and Accrued Liabilities	\$126,807
Deferred Contributions	397,981
Long Term Deferred Contributions Related to Equipment	96,582

Total Liabilities **\$621,370**

Net Assets **\$1,133,254**

THE PEOPLE OF FAP

(as at December 31, 2019)

Board of Directors

Allan Wesley, MA, B.Com., B.Sc.
(Chair) Public Member

Keith Purves
(Vice-Chair) Public Member

Mike Fedunec, BES, CET, CRSP
(Secretary-Treasurer: January to May, 2019)
(Treasurer: May to September, 2019)
NCIA

Carrie Trenholm, LPN
(Secretary: May to September, 2019)
(Secretary-Treasurer: October to
December, 2019)
Public Member

George Campbell
Town of Bruderheim Councillor
Public member

Laurie Danielson, Ph.D., P.Chem.
NCIA

Darcy Garchinski, MHA
Alberta Health Services

Tracey Hill
AIHA

Paula Horn, Dip.Chem.Tech.
Public member

Stephanie Kozey, P.Eng.
NCIA

Ed McConaghy, B.Sc., C.Eng.
Public member

Greg Norum
Public Member - *to October, 2019*

Greg Poholka, P.Eng.
NCIA

Paul Smith
Strathcona County Councillor
AIHA

Megan Wesley, P.Eng.
Public Member

Kelly Williams, B.Sc.
Alberta Environment and Parks

Staff

Nadine Blaney, B.Sc.
Executive Director

Harry Benders
Network Manager

Godfrey Huybregts, ABC
Communications Director

Alison Thiessen
Business Administrator

Technical Working Group

FAP's Technical Working Group provides overall direction in the implementation and operation of the regional air monitoring network. The committee is supported by representation from industry, government and the public, which allows for equal, in-kind technical support.

Harry Benders
(Chair), Fort Air Partnership

Patrick Andersen, B.Sc.
Andersen Science Consulting

Nadine Blaney, B.Sc.
Fort Air Partnership

Saminda Chandraratne, B.Sc., PGD., EP
Environment, Health and Safety Supervisor
Chemtrade Logistics

Michael Cody, M.Sc., RPF
Specialist, Land and Biodiversity
Cenovus Energy

Jeff Cooper, C. Tech
Network Consultant,
WSP

Doug Hurl, CRSP
EHS Manager
Umicore Canada Inc.

Stephanie Kozey, B.Sc.
EH&S Regulatory Specialist
Dow Chemical Canada ULC

Gerry Mason, CRSP
Manager, ESH
Oerlikon Metco (Canada)

Maxwell Mazur, M.Sc.
Air Quality Specialist
Alberta Environment and Parks

Christophe Nayet, Dip. CET
Senior Air Quality Technician
Environment and Climate Change Canada

Maurice Ouelett
Environmental Specialist
Pempina Pipeline Corporation

Keith Purves
Fort Air Partnership

Marianne Quimper, B.Sc., EP
Environmental Advisor
Sherritt International Corporation

Stephen Raye, BET (Environmental)
Regulatory and Advocacy Focal
Shell Scotford

Alicia Schweitzer, B.Sc., G.I.T.
Environmental Advisor
Inter Pipeline

Shane Taylor, Dip. Envir. Tech.
Air Monitoring Technologist
Alberta Environment and Parks

Quinton Thiessen, B.Sc.
Environmental Advisor
Nutrien

Jocelyn Thrasher-Haug, M.Sc., P.Ag., P.Biol.
Manager, Environmental Planning
Strathcona County

Darcy Walberg
Operations Environmental Specialist
Northwest Redwater Partnership

Alan Wesley, MA, B.Com., B.Sc.
Fort Air Partnership

Garry Zulyniak, P.Eng.
Environmental Lead
Accel Energy

Note: NCIA = Northeast Capital Industrial Association. AIHA = Alberta Industrial Heartland Association.