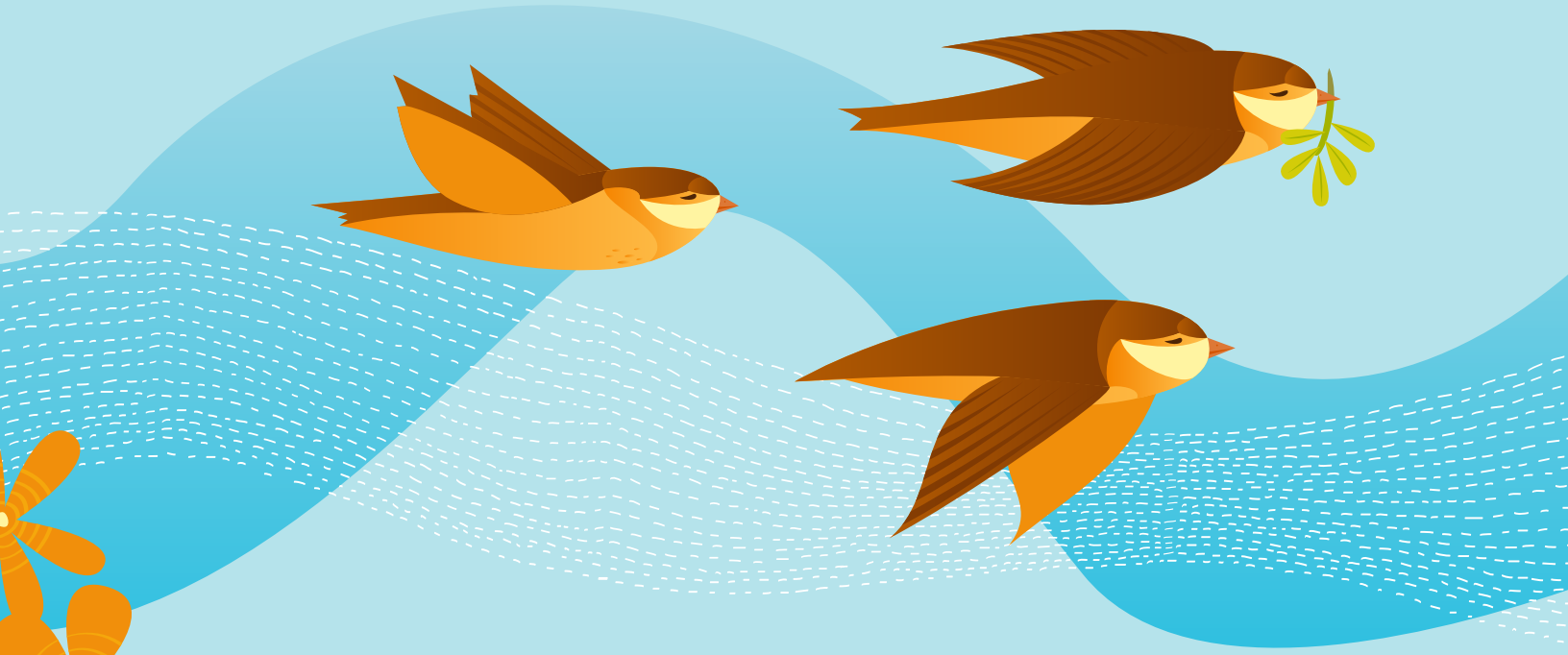


# FORT AIR PARTNERSHIP

## REPORT TO THE COMMUNITY 2016

Fort Air Partnership monitors the air local residents breathe in and around Alberta's Industrial Heartland. Our work is transparent, guided by a scientific advisory group and driven by national and provincial standards.

Our 66 monitoring sites measure and report on 25 different substances and meteorological conditions. Continuous one-minute data is collected 24 hours a day, seven days a week and is available to anyone. Visit **fortair.org** for daily and forecast air quality readings or to learn more about Fort Air Partnership.

FORT AIR PARTNERSHIP

*We Monitor the Air You Breathe*

# Message from the Chair

Fort Air Partnership enjoyed a fruitful year in 2016, making several important changes to our network that enhanced our monitoring and reporting capabilities. The most significant of these was the opening of a new continuous air monitoring station in Gibbons. We will expand to 10 stations in 2017 when we add our first portable station.

The on-going growth and maturity of our regional network is complemented by expansion of our communications and education efforts. During the year we updated our website and on-line educational materials to make it easier to find information about air quality and air monitoring and reporting, and easier to understand the science and processes regarding our work. A successful trial led to confirming station school tours as a permanent program for 2017.

Our leadership role within the Alberta Airsheds Council (AAC) continued through the year with Executive Director Nadine Blaney acting as Council Co-chair. How we and other airsheds operate may be impacted by the outcome of discussions between the AAC and the Government of Alberta regarding a province-wide air monitoring framework. We believe the current Airshed model in Alberta works for stakeholders and should be retained and supported by the province.

Our data reporting performance again exceeded provincial expectations. Our uptime was 98.9% compared to the provincial minimum requirement of 90%. Within our airshed, exceedances were down substantially as were the number of hours with high or very high Air Quality Health Index ratings.

Our annual achievements are a credit to the Board, staff and Committee volunteers who give their time and expertise to Fort Air Partnership. We are one of the best Airsheds in Canada because of their efforts. And everything that we do is made possible by our funders. Only 15% of our 2016 funding came from the provincial or federal government. The remaining revenue is provided by local industry and municipalities. We are grateful for their on-going confidence in us and commitment to the community.

**Keith Purves**

## Public Members Wanted for Board

Interested in having direct input into the monitoring and reporting of air quality in your community? Then consider joining our Board of Directors as a public member.

For more information go to our website, email info@fortairmail.org or call 1-800-718-0471.

*Gibbons Deputy Mayor Louise Bauder helped FAP Chair Keith Purves cut the cake marking the grand opening of our new Gibbons air monitoring station.*

# The People of FAP (as at December 31, 2016)

## BOARD OF DIRECTORS

**Keith Purves** (Chair)
Public Member

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

**John Cocchio**, P.Eng.
(Secretary-Treasurer)
Public Member

**Laurie Danielson**, Ph.D., P.Chem.
Northeast Capital Industrial Association, Industry Representative

**Virginia Differenz**
Town of Bruderheim Councillor
Public member

**Mike Fedunec**, BES, CET, CRSP
Northeast Capital Industrial Association, Industry Representative

**Darcy Garchinski**, M.H.A.
Alberta Health Services Representative

**Andrew Maile**, P.Eng.
Northeast Capital Industrial Association, Industry Representative

**Paul Smith**
Strathcona County Councillor
Alberta's Industrial Heartland Association, Elected Representative

**Carrie Trenholm**, LPN
Public Member

**Joy Wesley**, P.Eng., M.Sc.
Public Member

**Kelly Williams**, B.Sc.
Alberta Environment and Parks Representative

## STAFF

**Nadine Blaney**, B.Sc.
Executive Director

**Harry Benders**
Network Manager

**Godfrey Huybregts**, ABC
Communications Director

## 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.

**Patrick Andersen** B.Sc.
Andersen Science Consulting

**Shea Beaton**
Auditor
Alberta Environment and Parks

**Harry Benders** (Chair)
Network Manager
Fort Air Partnership

**Heather Belyk**, B.Sc.
Environmental Advisor
Agrium Redwater Fertilizer Operations

**Nadine Blaney**, B.Sc.
Executive Director
Fort Air Partnership

**Michelle Camilleri**, B.Sc.
Cenovus Energy

**Jeff Cooper**, C. Tech
AQM Operations Manager
WSP Group

**Paula Horn**
Environmental Technologist
Shell Scotford Manufacturing

**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) Inc.

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

**Adam Polzen**, B.Sc.
Environment Specialist
Pembina Pipeline Corp.

**Ryan Power**
Air Quality Technician
Environment and Climate Change Canada

**Keith Purves**
Public Member
Fort Air Partnership

**Marianne Quimpere**, B.Sc., EP
Environmental Advisor
Sherritt International Corporation

**Darcy Walberg**
Operations Environmental Specialist
Northwest Redwater Partnership

**Alan Wesley**, B. Comm., B.Sc., M.A.
Public Member
Fort Air Partnership

*Gibbons Station ribbon cutting*

# 2016 Highlights

## NETWORK UPGRADES

Several changes and upgrades were made to the network in 2016 to improve our ability to meet regional network monitoring objectives.

### New station in Gibbons

The most significant change was the addition of a new continuous monitoring station in Gibbons just south of the Town of Gibbon's administration building at 50 Avenue and 48 Street.

The station began operating in February, 2016, with a grand opening on June 16. It is monitoring and reporting data on seven substances including sulphur dioxide, hydrogen sulphide, nitric oxide, nitrogen dioxide, ozone, oxides of nitrogen and particulate matter, as well as weather information. This data enables a current and forecast Air Quality Health Index (AQHI) to be calculated for the local area.

North West Redwater Partnership provided funds for the purchase of the station and the first year of operation. The station's on-going operation will be funded by the Northeast Capital Industrial Association, of which North West Redwater Partnership is a member.

### Bruderheim station moved

Our continuous air monitoring station in Bruderheim was moved in March to make way for new commercial development in the town centre. The station remained in town though, moving to a location just north of Bruderheim School on 48 Street, about 650 metres from the old location.

The Town of Bruderheim generously provided the new site without lease costs to FAP. The Bruderheim station has been part of our air monitoring network since 2010 and collects data on nine substances. These include sulphur dioxide, nitric oxide, nitrogen dioxide, ozone, total hydrocarbons, non-methane hydrocarbons, methane, oxides of nitrogen and particulate matter, as well as weather information. Like Gibbons, this data enables a current and forecast AQHI to be calculated.

### Equipment upgrades

We replaced several pieces of equipment in the network in 2016 as part of our capital equipment replacement plan. We installed new non-methane hydrocarbon and fine particulate matter analyzers, as well as a dilution calibrator. All mechanical wind systems were upgraded with new sensors. A new shelter was purchased for the Redwater station but will be put into place once the new location for the station is finalized in 2017.

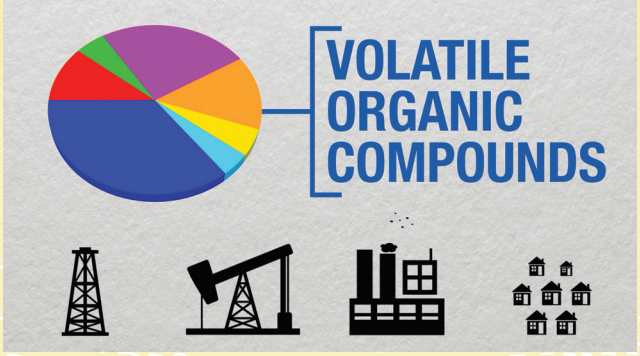
### Network plans

Full implementation of our multi-year network plan will near completion in 2017. The network itself will be bolstered by the addition of a portable continuous air monitoring station. This station will move around the airshed, staying several months in one place, to monitor air quality in areas previously underserved. The new station will enable triangulation to identify sources and source locations, as well as identify upwind concentrations coming into the airshed.

Also in 2017, one of our permanent stations will be relocated closer to the Town of Redwater. This move will allow monitoring of ambient air quality where people live, a primary monitoring objective for our regional network. Currently, the station is next door to industrial facilities several kilometres south of Redwater. Known as fence line monitoring, the data currently collected is very localized and does not provide an accurate picture of regional air quality.

Thanks to additional funding received in 2016, we will be able to move forward with three important projects in 2017. These projects include:

- Completion of a Volatile Organic Compound Speciation Project at Bruderheim. This study will provide a better understanding of the impact of all emissions on regional air quality, including smaller sources such as oil and gas wells.
- A three year Particulate Matter Speciation Project in Fort Saskatchewan. While we already monitor particulate matter concentrations throughout the region, this program will provide more detailed information on what these particles consist of.
- Customized reporting that will summarize several years' worth of air monitoring data into a colour-coded diagram. This will provide an illustration of the trends and seasonal variability of some of the substances monitored by FAP.




## Alberta Airshed Council

Throughout 2016, we continued to work as a member of the Alberta Airsheds Council (AAC) to develop a provincial air monitoring framework. The AAC represents all nine Airsheds in Alberta and provides a forum for Airsheds to work and learn together, contribute to provincial policy development, provide leadership in the monitoring of air quality, and promote education and engagement on air quality issues that impact Albertans.

In March, a Memorandum of Understanding was established between the AAC and the Government of Alberta. It is a formal commitment to work together to strengthen and better integrate province-wide and regional air quality monitoring, evaluation and reporting. The AAC's current priorities also include developing a new website and expanding a communication and education toolkit. In partnership with the Government of Alberta, the group is developing approaches to educate Albertans about air monitoring and air quality, and about the current issue of fine particulate matter.

It is AAC's and our position that the current Airshed multi-stakeholder governance and operating structure is a good air monitoring and reporting model. Key elements of this model have proven to be successful including being placed-based, collaborative and using a multi-stakeholder engagement and a consensus based decision-making process. We also have the support of highly skilled and knowledgeable people, continually invest in education and outreach and have committed, sustainable funding.

## Capital Region Fine Particulate Matter Management Plan

We continued in 2016 to participate on the Capital Region Oversight Advisory Committee. The Committee is overseeing implementation of the Capital Region Particulate Matter Response Plan.

Implementation of the Plan is being evaluated and reported against new Canadian Ambient Air Quality Standards that have been adopted nationally. Measurements of particulate matter taken by us and other airsheds will be compared to these new standards.

## Education and Outreach

As a public organization, it's important that we help people understand the science of air monitoring and the impact of air quality on their everyday lives. In 2016, we regularly produced a number of information products including technical reports, fact sheets, news releases and presentations, and disseminated them broadly across a number of platforms so stakeholders could easily access them.

Also in 2016 we completely revamped our website. In addition to being current and mobile friendly, it is now much easier to find information. Similarly, our educational fact sheets were rewritten to bring them up-to-date and reflect changes in terminology, operations and reporting. To complement current and forecast Air Quality Health Index (AQHI) readings that are provided on our website, we are now also posting a weekly report of the AQHI results that come from the five FAP stations that produce this information.

The biggest change in 2016 was the development of a school tours program. Piloted as part of the Gibbons station grand opening celebrations, the success of the tours led to a Board decision to support making the program a permanent part of our educational offerings.

We continued our partnership with the Life in the Heartland organization, which is committed to enhancing communications with residents within Alberta's Industrial Heartland. We provided information and maintained positive relationships with local municipal and provincial leadership, and are actively engaged with many stakeholders on issues of common interest regarding air quality.

# 2016 Monitoring Results

## Air Quality Health Index (AQHI) Ratings

The higher the Index number, the greater the health risks. Go to our website for more information. Five of FAP's nine continuous air monitoring stations monitor substances whereby AQHI can be calculated.

| Station Name | AQHI Hours Monitored | Low Risk (1-3) | Moderate Risk (4-6) | High Risk (7-10) | Very High Risk (Above 10) |
|---|---|---|---|---|---|
| | | % | % | % | % |
| Bruderheim | 5603 | 99.25 | 0.75 | 0.00 | 0.00 |
| Elk Island | 8491 | 98.65 | 1.35 | 0.00 | 0.00 |
| Fort Saskatchewan | 7827 | 93.96 | 5.97 | 0.06 | 0.01 |
| Lamont County | 8484 | 96.62 | 3.18 | 0.20 | 0.00 |
| Gibbons | 5964 | 97.27 | 2.67 | 0.07 | 0.00 |
| Edmonton* | 8784 | 91.50 | 8.39 | 0.11 | 0.00 |

**Edmonton is not a FAP station but provided as a comparison.*

## Hours with a High or Very High Risk AQHI Rating

This table shows the number of hours of high or very high AQHI rating during 2016, when they occurred and the likely cause. The Bruderheim and Elk Island stations are not shown here as they had only low or moderate readings throughout the year. The data FAP collects is compared to Alberta Ambient Air Quality Objectives (AAAQO) set by the Government of Alberta. Total hours where AAAQO exceedances were recorded were substantially lower (down 67%) when compared with 2015.

| AIR QUALITY EVENT DATES | Fort Sask. | | Lamont County | | Gibbons | | TOTAL HOURS | AIR QUALITY EVENT CAUSE |
|---|---|---|---|---|---|---|---|---|
| | High Risk | Very High | High Risk | Very High | High Risk | Very High | | |
| Jun 22 | | | 1 | | | | 1 | Wintertime Inversion |
| Feb 8 | | | 1 | | | | 1 | Local gravel pit operations |
| May 9 | | | 2 | | | | 2 | Undetermined |
| May 12 | | | 3 | | | | 3 | Forest fire smoke |
| May 18-20 | 6 | | 6 | | 4 | | 16 | Forest fire smoke |
| Jun 8 | | | 1 | | | | 1 | Undetermined |
| Nov 11 | | | 1 | | | | 1 | Brush burning Elk Island Park |
| Nov 17 | | | 1 | | | | 1 | Undetermined |
| Nov 30 | | | 1 | | | | 1 | Brush burning Elk Island Park |
| TOTAL HOURS | 6 | 0 | 17 | 0 | 4 | 0 | 27 | |

## Summary of Exceedances

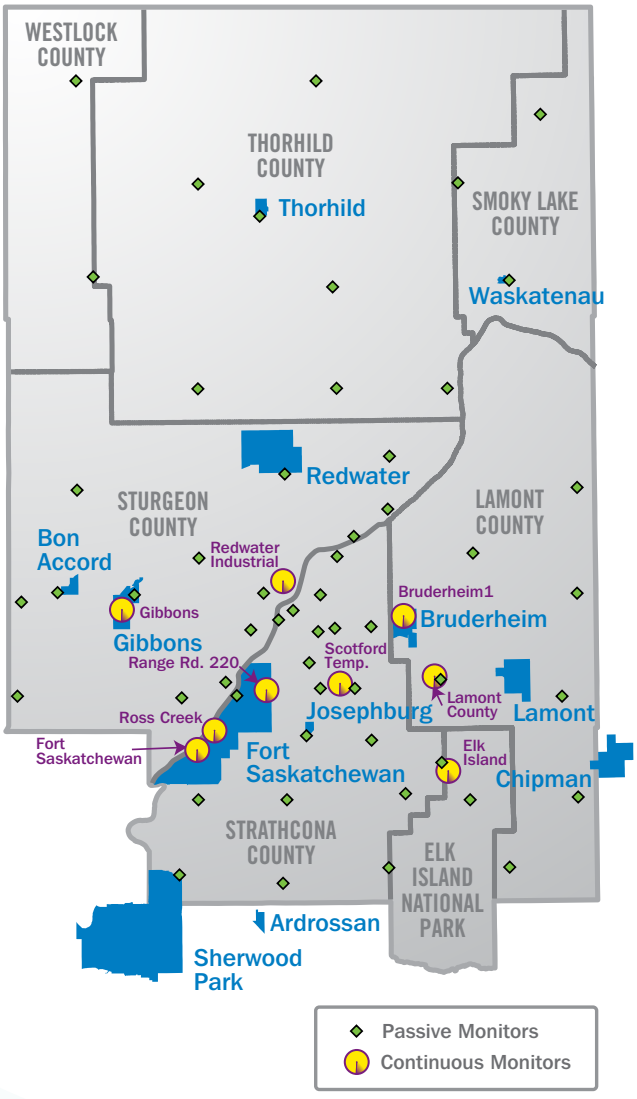
Exceedances are immediately reported and follow up information provided within seven days if required. If the source is likely local, industry operators nearby are notified so they may take whatever corrective action may be necessary.

| Parameter Measured | Time Frame | 2016 | 2015 | 2014 | 2013 | 2012 |
|---|---|---|---|---|---|---|
| Ammonia ($NH_3$) | 1-hr | 0 | 4 | 0 | 0 | 0 |
| Benzene ($C_6H_6$) | 1-hr | 0 | 2 | 5 | 0 | 1 |
| Carbon Monoxide (CO) | 1-hr | 0 | 0 | 0 | 0 | 0 |
| | 8-hr | 0 | 0 | 0 | 0 | 0 |
| Ethyl Benzene ($C_6H_5CH_2CH_3$) | 1-hr | 0 | 0 | 0 | 0 | 0 |
| Ethylene ($C_2H_4$) | 1-hr | 0 | 0 | 0 | 0 | 0 |
| | 3-day | 0 | 0 | 0 | 0 | 0 |
| | Annual | 0 | 0 | 0 | 0 | 0 |
| Hydrogen Sulphide ($H_2S$) | 1-hr | 0 | 3 | 0 | 147 | 163 |
| | 24-hr | 0 | 1 | 0 | 29 | 28 |
| Nitrogen Dioxide ($NO_2$) | 1-hr | 0 | 0 | 0 | 0 | 0 |
| | 24-hr | 0 | 0 | 0 | 0 | 0 |
| | Annual | 0 | 0 | 0 | 0 | 0 |
| Ozone ($O_3$) | 1-hr | 0 | 3 | 0 | 0 | 0 |
| Styrene ($C_6H_5CH=CH_3$) | 1-hr | 0 | 0 | 0 | 0 | 0 |
| Sulphur Dioxide ($SO_2$) | 1-hr* | 51 | 34 | 26 | 6 | 7 |
| | 24-hr | 9 | 6 | 3 | 2 | 0 |
| | 30-day | 2 | 0 | 0 | 0 | 0 |
| | Annual | 0 | 0 | 0 | 0 | 0 |
| Particulate Matter Fine ($PM_{2.5}$) | 1-hr | 35 | 144** | 13 | 15 | 28 |
| | 24-hr | 11 | 27 | 12 | 11 | 9 |
| Toluene ($C_6H_5CH_3$) | 1-hr | 0 | 0 | 0 | 0 | 0 |
| Xylenes (o-, m- and p- isomers) | 1-hr | 0 | 0 | 0 | 0 | 0 |
| **Totals** | | **108** | **224** | **59** | **210** | **236** |

** The annual increase of ambient $SO_2$ exceedances over the last few years is specific to the Redwater station that is adjacent to Agrium. Agrium is aware of the issue and during its August 2017 turnaround, Agrium will be making major equipment replacements in its sulphuric acid plant. This is expected to significantly reduce these ambient air events.*

*** The majority of the $PM_{2.5}$ exceedances in 2015 were caused by forest fire smoke during 3 days in July of 2015.*

# FAP Airshed Monitoring Network



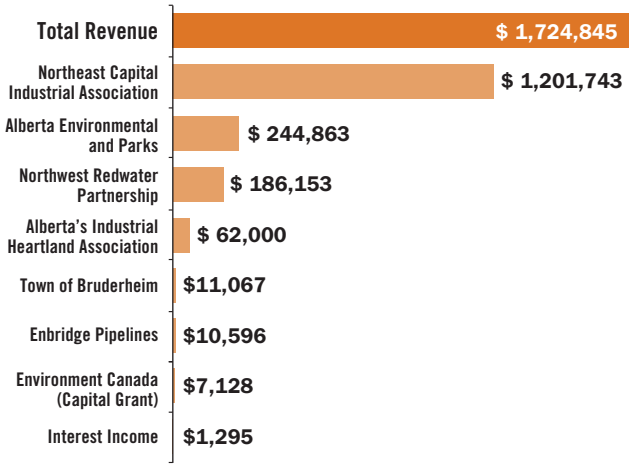
# 2016 Financial Statements

## FORT SASKATCHEWAN REGIONAL AIR MONITORING SOCIETY

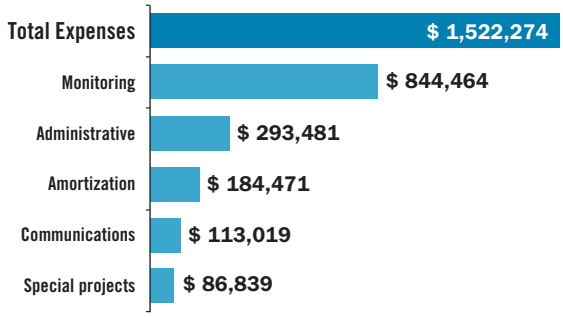
The following statement of financial position and the statement of operations, both for the year ended December 31, 2016, were prepared without "audit or review" by Kelly and Thomas, Chartered Accountant on March 20, 2017. These statements were compiled from information provided by FAP. A FAP Internal Audit Committee conducted a review of bank statements, cash disbursements, cash receipts, and equipment purchase records as well as the general ledger and concluded that documentation is representative of the 2016 financial transactions.

## 2016 Statement of Operations

### Where the Money Came From




### Where the Money Went




## 2016 Statement of Financial Position

| | |
|---|---|
| **CURRENT** | **$1,288,269** |
| Cash | $1,014,708 |
| Guaranteed Investment Certificate (Wind-Up Reserve) | $225,000 |
| Accounts receivable | $43,380 |
| Prepaid expenses | $5,181 |
| **EQUIPMENT** | **$894,986** |
| Air monitoring equipment | $892,599 |
| Computer and office equipment | $1,043 |
| Communications equipment | $1,344 |
| **ASSETS** | **$2,183,255** |
| **LIABILITIES** | **$1,084,961** |
| Accounts payable and accrued liabilities | $113,502 |
| Deferred contributions | $782,825 |
| Long term deferred contributions related to equipment | $188,634 |
| **NET ASSETS** | **$1,098,294** |
| **LIABILITIES AND NET ASSETS** | **$2,183,255** |

E: info@fortairmail.org
P: 1-800-718-0471
**fortair.org**

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