



Airshed Management Plan

Alberni Valley

DRAFT

Port Alberni Air Quality Council
ALBERNI AIR QUALITY SOCIETY

EXECUTIVE SUMMARY

The Alberni Valley Airshed Management Plan (AMP) provides background information, guidance, and actionable items to improve air quality within the City of Port Alberni and the surrounding regions of the Alberni airshed. It details a vision, goals, specific initiatives, and performance measures to assist the community in achieving the best air quality possible for present and future generations.

In the spring of 2019, an airshed emissions inventory was conducted, with a primary focus on particulate matter less than 2.5 micrometers (μm) in diameter ($\text{PM}_{2.5}$). The Alberni Valley has exceedances of the provincial ambient air $\text{PM}_{2.5}$ air quality objective. The largest source of $\text{PM}_{2.5}$ is due to open burning and residential burning for home heating.

Actions that will reduce emissions of common local air contaminants are the focus of the AMP. Most actions specifically address the reduction of $\text{PM}_{2.5}$ but are not limited to this singular objective. For example, by working with local industry, to ensure best practices are observed, and opportunities for air contaminant reductions are taken.

Six key elements have been identified for action within the AMP including:

1. Elevate knowledge around the impacts of air quality on public health.
2. Reduce emissions from residential heating (wood stoves).
3. Reduce emissions from open burning.
4. Reduce point source pollutants.
5. Reduce vehicle emissions and promote alternative modes of transportation.
6. Formulate planning and perspective, on Green House Gas (GHG) emission reduction possibilities, and localized responsibilities related to climate change.

Over time, this plan will be implemented, assessed, and further developed by the Air Quality Council of Port Alberni (AQC). The AQC is a multi-stakeholder working group with broad representation from several organizations, institutions, government jurisdictions, and individual citizens.

ACKNOWLEDGEMENTS

The air quality management planning process has been funded by the British Columbia Ministry of Environment and Climate Change Strategy, the Vancouver Foundation, the Alberni Clayoquot Regional District and BC Healthy Community Society. The document was collated by the chair of the Port Alberni Air Quality Council in conjunction with the Alberni Air Quality Society.

Participants who have informed the Alberni Valley Airshed Management Plan include:

- Port Alberni City Council Representatives
- Alberni Clayoquot Regional District Electoral Board Representatives
- Alberni Clayoquot Regional District Staff
- BC Ministry of Environment and Climate Change Strategy Air Quality Meteorologists
- Island Health Environmental Health Officer
- Island Health Medical Health Officer
- First Nations Health Authority Environmental Health Officer
- Catalyst Paper Environmental Managers
- Alberni Air Quality Society
- Agricultural Representative
- Community members-at-large
- City of Port Alberni Fire Chief
- Hupacasath First Nation
- Keith Hunter
- MOE Conservation officers
- Vancouver Island University Mobile Lab
- Social Roots Consulting

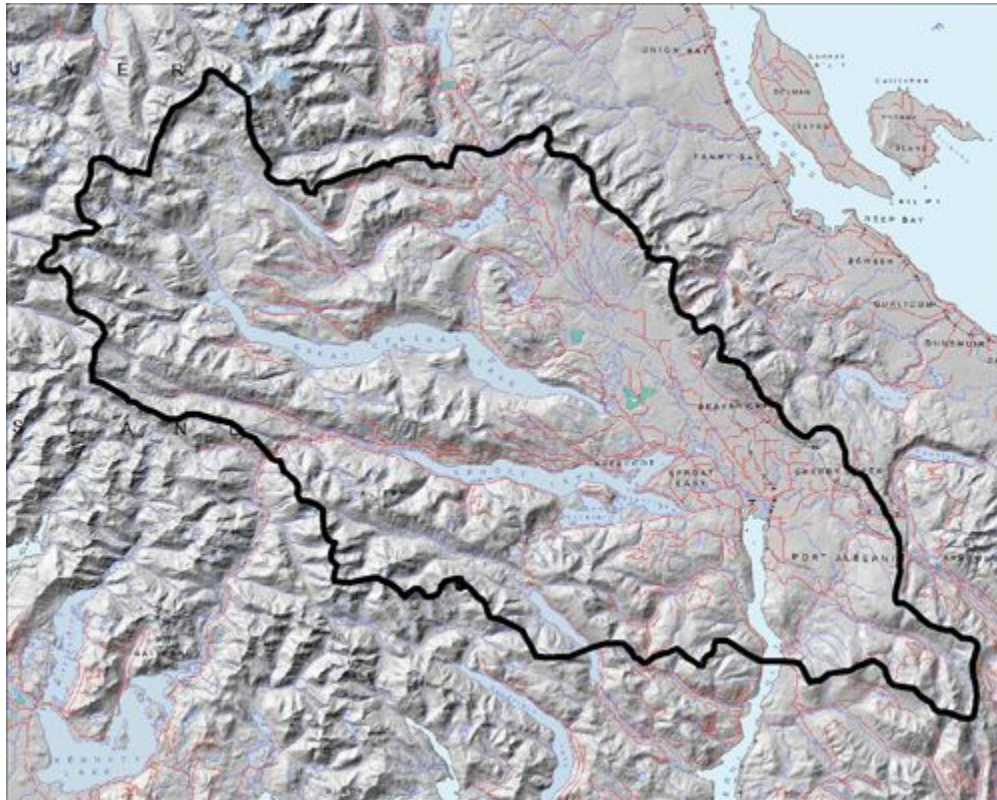
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BACKGROUND

The Alberni Basin Airshed

The Alberni Basin Airshed is a valley surrounded by mountains that opens at the southeastern end to marine influences. Resulting wind patterns exert a venting influence on the airshed, although seasonal inversions can trap air in the valley for multiple days.



The Alberni Valley stretches from the head of the Alberni Inlet in a northwest direction for 40 km and is 8 to 12 km wide. It lies near sea level at the head of Alberni inlet in a valley almost entirely encompassed by mountains.

The leeward mountains, known as the Beaufort Range, create an impressive eastern wall with Mt. Arrowsmith being its most prominent feature behind the town site. The windward Vancouver Island Mountains wrap around the west side, from which emerge Great Central and Sproat Lake. These lakes feed the Stamp and Somass rivers which cut through the middle of the valley floor.

Winds tend to follow the Stamp/Somass river valley, with dominant directions from the southwest and northeast, moving in and out of the valley via the Alberni inlet. Although local pollution, topography, climatology, and meteorology give rise to specific Alberni Basin airshed

characteristics, the air itself is transient and, on a larger scale, flows eastward into the Georgia Basin.

The mountainous terrain around Port Alberni inhibits air circulation which reduces the ability of the atmosphere to disperse pollutants. It makes the valley susceptible to the frequent temperature inversions, particularly during the cooler months. During a temperature inversion, cold air at the surface is trapped by warmer air above, resulting in poor vertical mixing and stagnation. Elevated levels of air pollutants can accumulate in the valley bottom during extended periods of stagnation.

Approximately 26,000 people reside in the airshed, three quarters of which live in and around the city of Port Alberni. The region falls within the jurisdiction of the Alberni-Clayoquot Regional District (ACRD) and is home to the Hupacasath and Tseshaht First Nations.

History of Air Quality in the Alberni Valley

For decades, the Alberni Basin Airshed was exposed to heavy industrial pollution that was generated within the main population base. Since 1989, there have been tremendous improvements made to air quality in the Alberni Basin. As individuals and companies are led into a new awareness of the links between air pollution and its health effects, increasing value is being placed on air as a common property resource, and on clean air as fundamental to human and environmental health.

Historically, Particulate Matter less than 10 microns (PM_{10}) was monitored at a single monitoring site (Harbour Quay) within the city from 1998-2010. Currently, Particulate Matter less than 2.5 microns ($PM_{2.5}$) is monitored at the Alberni Elementary School station. It has also been examined during:

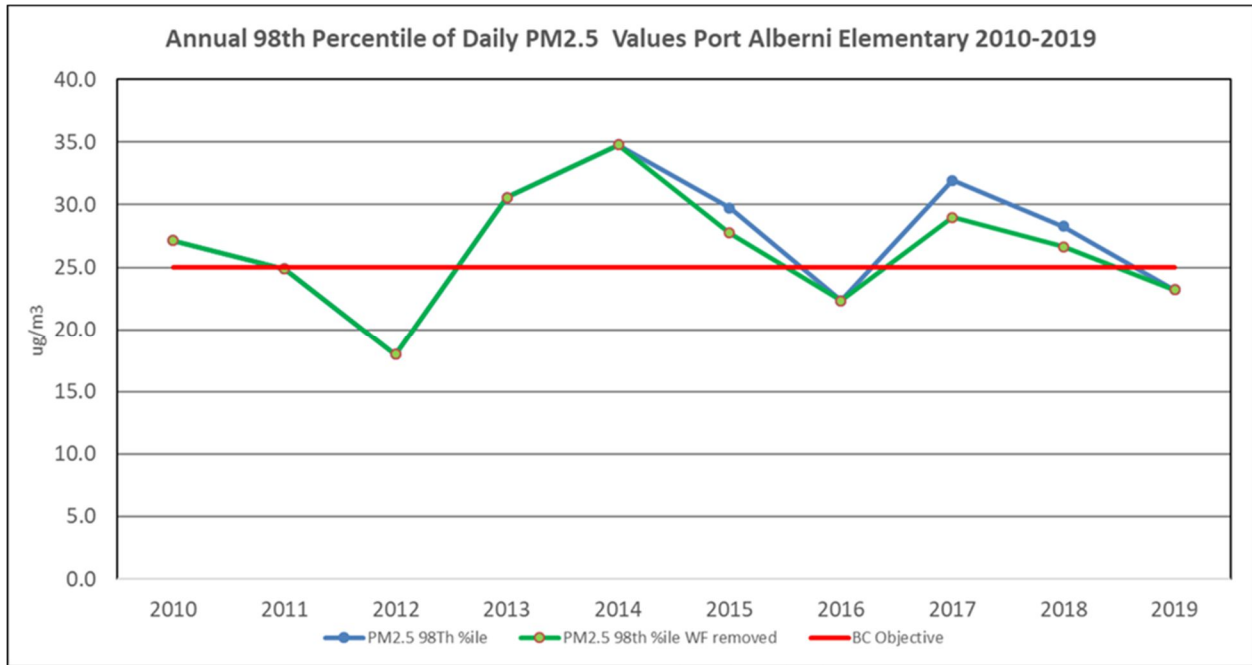
- a mobile nephelometer study in the winter of 2012/2013.
- a mobile air monitoring lab (MAML) study conducted during 2014 by the Ministry of Environment at the Port Alberni Fire Hall.
- monitoring at the Port Alberni Port Authority in 2018.
- a pilot project mapping volatile organic compounds (VOCs), conducted by the Vancouver Island University mobile lab in 2019.

The following table shows the annual average PM_{2.5} data from the MOE. It shows the consistency in which the Alberni Valley has been above the set provincial air quality objectives of an annual average of 8µg/m³ and a 98th percentile 24-hour value of 25 µg/m³.

Year	Annual Average ug/m3	Annual Average WildFire smoke removed	Annual 98 th %ile of daily ug/m3	Annual 98 th %ile of daily ug/m3 Wild Fire smoke removed	# of Daily values > 25 ug/m3	% of time > 25 ug/m3
2011	8.0	8.0	24.8	24.9	6	1.7
2012	6.2	6.2	17.9	17.9	1	0.3
2013	8.1	8.1	30.6	30.6	20	5.7
2014	8.1	8.1	34.7	34.8	15	4.1
2015	8.6	8.1	29.7	27.9	9	2.5
2016	7.2	7.2	22.3	22.3	3	0.9
2017	9.9	9.1	32.3	29.3	18	5.7
2018	10.4	9.3	28.3	26.7	18	5.0
2019	8.7	8.7	23.2	23.2	2	0.6

Highlighted cells have wildfire smoke impacts removed.

The following graph shows the BC air quality objective of the annual 98th percentile of daily PM_{2.5} with the Port Alberni exceedances. In Port Alberni, 2013-2015, 2017 and 2018 levels were above the provincial objective, while 2019 was the lowest recorded levels since 2012.

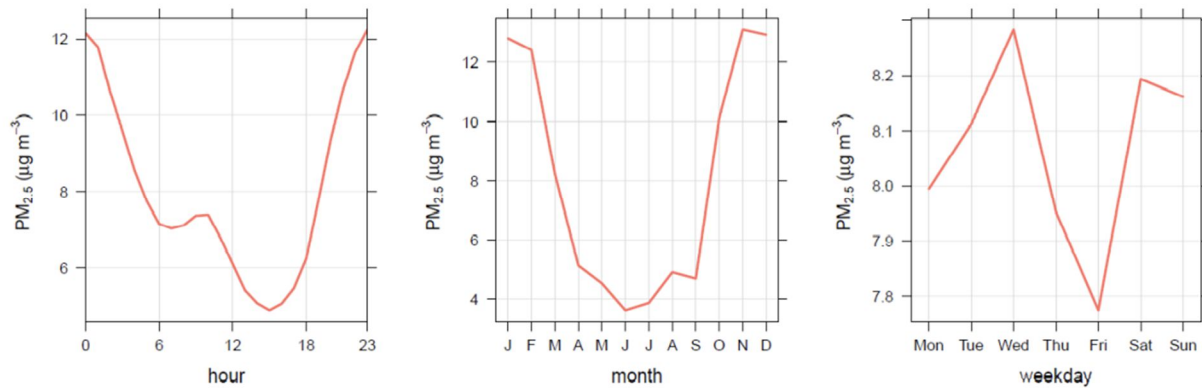


Data also shows that cooler months typically have higher PM_{2.5} values. Higher emissions are due to home, commercial, and industrial heating compounded by geography (inversions), while the summer months have better dispersion and lower emissions.

Observed trends:

- In summer months there is good dispersion.
- During winter months, hour of the day variation is typical of woodsmoke dispersion.
- There is ongoing exceedances of the Provincial Air Quality Objectives – Annual and Daily. Port Alberni met the Daily 98th Percentile Standard in 2019. This is the lowest recorded since 2012 and likely weather related.
- Highest PM_{2.5} values occur during the cold season due to meteorology and emission changes.
- Hebdomadal (day of the week) analysis indicates that weekend burning in springtime is a significant source of PM_{2.5}.

The following figures show the by-hour, by-monthly and Hebdomadal trends of PM_{2.5} data from the Alberni Elementary monitoring site from 2011 – 2021 (with wildfire smoke impacts removed)



The Air Quality Council of Port Alberni

The Air Quality Council (AQC) of Port Alberni was formed in 2003 to promote health by working to ensure the cleanest possible air for the Alberni Basin and its inhabitants. Within a few years this working group had official representation from the City of Port Alberni, the Alberni-Clayoquot Regional District (ACRD), the Ministry of Environment, First Nations, the medical community, and Catalyst Paper. The AQC is the lead steward in the development and implementation of the AMP.

Other specific goals of the AQC include the following:

- Seek the co-operation of all agencies and stakeholders in promoting and protecting clean air.
- Educate and inform the community regarding air quality issues and ways to mitigate pollutants to ensure a healthy airshed.
- Encourage clean air lifestyles and business practices.
- Integrate regional air quality goals into local government policies, including land use and transportation management.
- Ensure comprehensive monitoring of air quality.
- Take a responsible view for air quality within a regional, provincial, national and global context.
- Network with other agencies and organizations committed to the protection of air quality.
- Address the impacts of climate change and carbon dioxide increases in the atmosphere.
- Facilitate information sharing between public and private sectors.
- Obtain funding for future airshed planning and improvement.

Over the past two decades, the AQC has focused its work on a project-by-project including:

- Providing reports and recommendations related to air quality and the airshed
- Providing pamphlets and other media materials to reduce smoke pollution

- Establishing continuous air quality monitoring in Port Alberni
- Conducting several mobile and stationary site fine particulate sampling projects
- Promoting better burning practices and related protective bylaws
- Conducting research and stakeholder review for the promotion of better dioxin sampling at the paper mill
- Delivery of a primary school air quality education program
- Partnering with conservation officers to oversee compliance and communication related to outdoor burning,
- Developing an AQC component within the ACRD website.
Facilitating the Wood Stove Exchange Program (to date there have been almost four hundred uncertified wood stoves replaced with either certified wood stoves, propane or gas or heat pumps).
- Working with Environment Canada and the Ministry of Environment and Climate Change Strategy on a citizen science project which has seen the installation of 8 PurpleAir monitors in strategic areas of the valley.
- Facilitating the adoption of two air quality bylaws by the ACRD. One is a solid fuel appliance bylaw which addresses the age of wood stoves, and the second bylaw sets parameters and timeframes around open (backyard) burning.

Stakeholder Contributions

Agencies represented at the AQC have specific roles within the working group, ranging from providing information, drafting policy, and the review of information and measurement data. To be successful and accountable to each other, each one must take responsibility for the role their own sector can bring to airshed protection and management.

Island Health:

- Provide appropriate health data and literature.
- Offer advocacy to support educational outreach and campaigning.
- Bring a health lens to the table related to the implementation of AMP.

Ministry of Environment:

- Provide measurement data, resources, opportunities for engagement for the community.

City of Port Alberni:

- Local government can enable integration by incorporating air quality considerations into decision-making, including Official Community Plans (land-use zoning, climate change strategy).
- Fire department can follow up on bylaw complaints.

Alberni Clayoquot Regional District:

- Promote education and provide enforcement surrounding regional bylaws with regards to open burning and the use of solid fuel appliances.
Continue to co-facilitate the Wood Stove Exchange Program.
- Encourage composting; removing/reducing financial barriers associated with yard waste for electoral areas.

Catalyst:

- Provide updates regarding emission control programs.

Concerned Citizens:

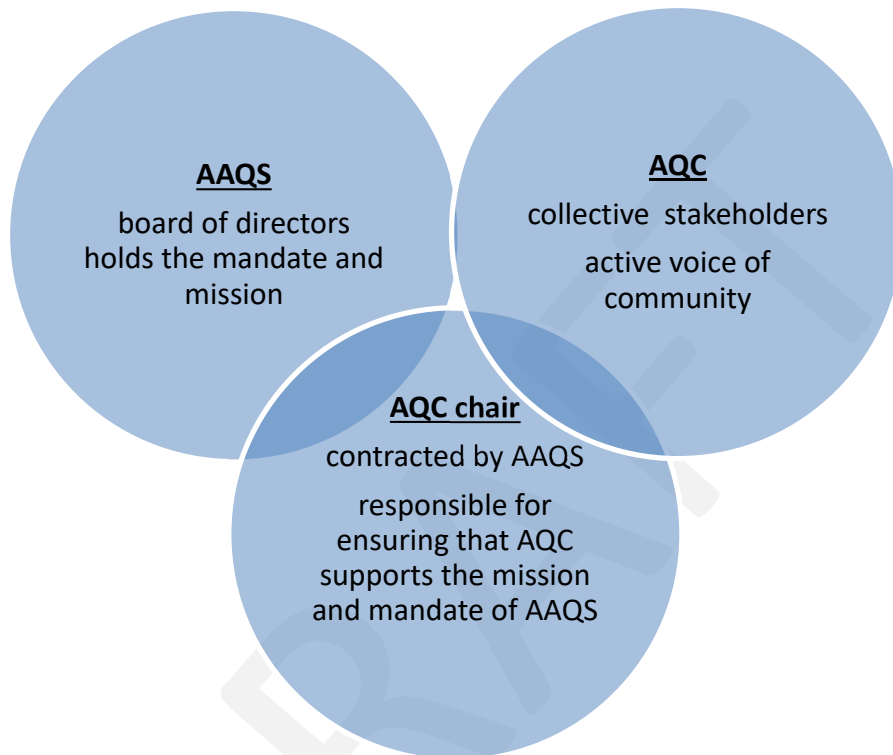
- Continue to voice concerns and participate on the AQC.

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Alberni Air Quality Society

In January 2017, the Alberni Air Quality Society (AAQS) was incorporated as a non-profit organization to function as the overarching governance body for the Air Quality Council and to serve as the financial vehicle through which funds can be directed. This role was previously fulfilled by the Citizens Stewardship Coalition (CSC). The society promotes information exchange and directs its activities and programs to the community through the AQC chair.

The AAQS oversees the activities of the AQC and shares the same purpose - to promote the cleanest possible air quality for the Alberni Basin and its inhabitants.



Air Quality and Human Health

PM_{2.5} is the primary criteria air pollutant in British Columbia that has elevated concentrations throughout the regions, which pose the most significant risk to human health. PM_{2.5} is small enough to be inhaled deep into the lungs and enter the bloodstream causing numerous health impacts.

WHAT ARE THE HEALTH RISKS OF PARTICULATE MATTER?

Particulate matter poses a serious health risk because it can travel into the respiratory tract. PM_{2.5} is especially dangerous because it can penetrate deep into the lungs and sometimes even into the bloodstream.

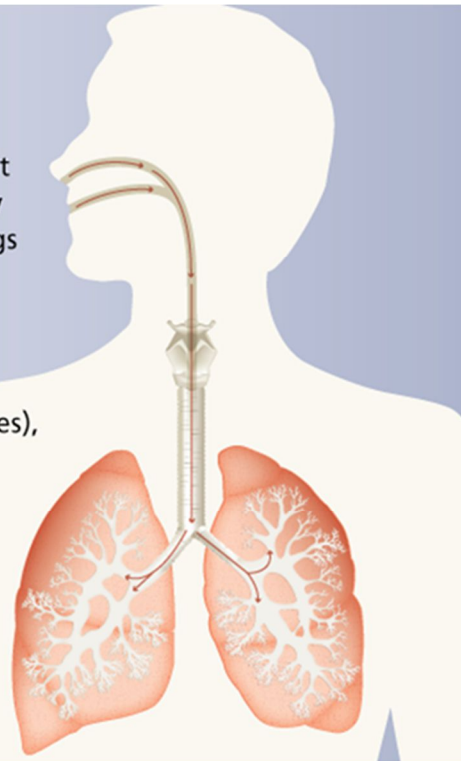
HEALTH EFFECTS

- » Decreased lung function
- » Chronic bronchitis
- » Increased respiratory symptoms
- » Cardiac arrhythmias (heartbeat irregularities),
- » Heart attacks
- » Premature death

GROUPS SENSITIVE TO PM_{2.5}

- » People with heart or lung disease
- » Older adults
- » Children
- » Pregnant women

Source: www.epa.gov



The health impact of air pollution has both short term and long term effects. With the link between air pollution and its health effects becoming more established, increasing value is being placed on air quality as a common property resource, and on clean air as a fundamental component of human and environmental health.

Some of the health impacts from air pollutants include:

- Increased sickness and related medical visits, missed work and education, to hospitalization and potentially death
- Increased inflammation in the body which can lead to heart problems: (such as cardiac arrhythmias, heart failure, angina, increased heart attacks).
- Breathing problems: (COPD, asthma, lung function, infections).
- Likely increased risk of: Lung cancer; stroke, ear infections, dementia, low birth weight babies.

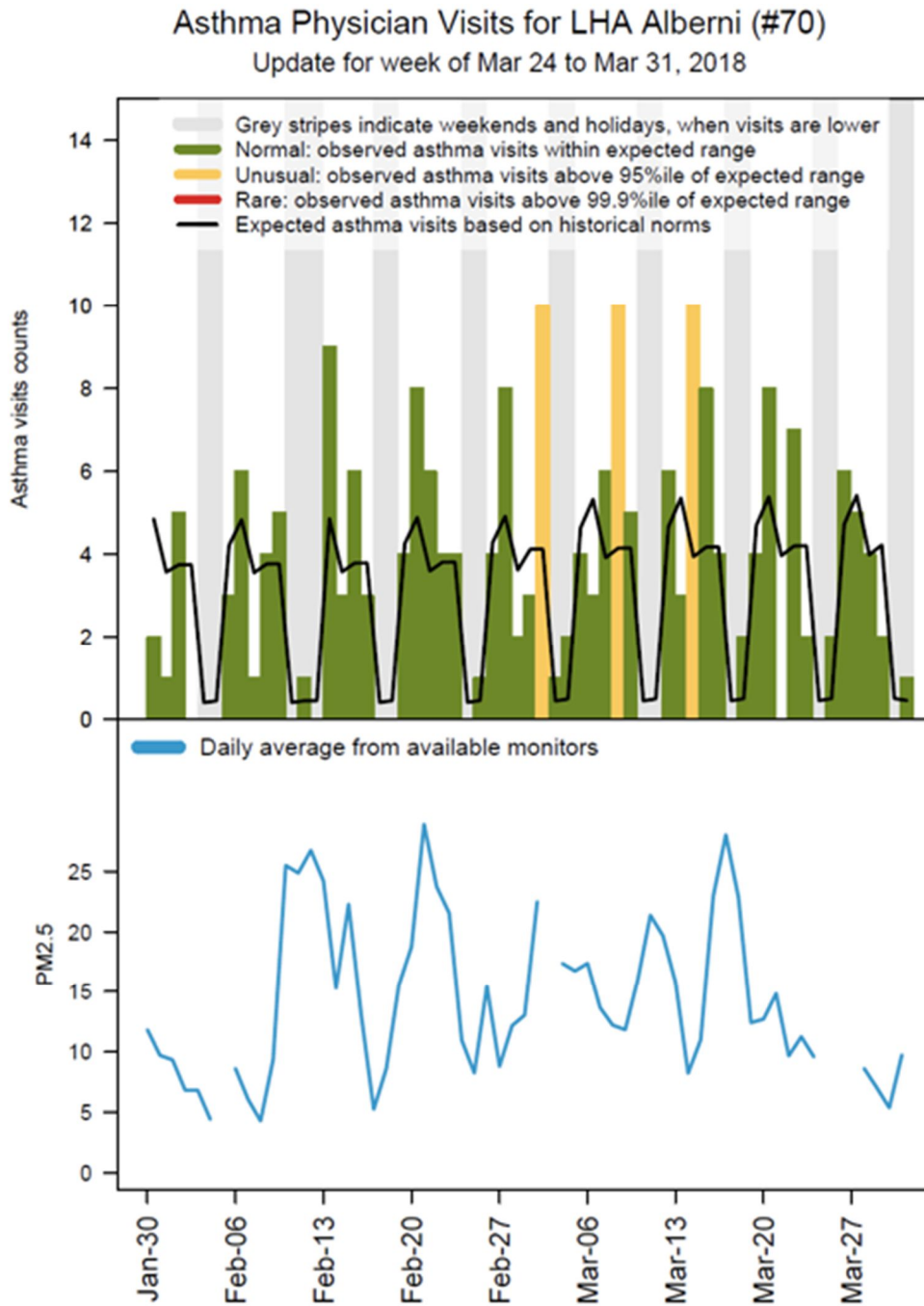
The Government of Canada estimates that 14,600 premature deaths per year in Canada can be linked to air pollution from fine particulate matter, nitrogen dioxide and ozone, as outlined in the technical report “Health Impacts of Air Pollution in Canada ([Health impacts of air pollution in Canada: estimates of morbidity and premature mortality outcomes, 2019 report.: H144-51/2019E-PDF - Government of Canada Publications - Canada.ca](https://www150.ca.gov/~/media/150/51/2019E-PDF-Government-of-Canada-Publications-Canada.ca)).

Major sources of PM_{2.5} include combustion in motor vehicles, agricultural and forestry burning, industrial activities, wood stoves, and fireplaces. Researchers have found that there are no safe levels of particulate matter, and that health effects increase with rising pollutant levels. Health

effects may be reflected in increased incidents of asthma, chronic lung disease, heart disease, and even premature death. The most at risk populations include the elderly, the very young, and people with preexisting heart and lung problems.

Research on Vancouver Island confirms that negative health impacts are occurring locally due to air pollution. Any efforts to improve air quality will reduce negative health outcomes. Linkages to health data in a local context can help us see the direct correlation between air quality and health impacts. The Comox Valley was one of three communities in BC which participated in a study which made the correlation of an increase in heart attacks due to woodsmoke exposure. During the cold season, when pollution from woodstoves is at its highest, the risk of heart attacks among subjects of 65 years and older increased by 19%. The study, Biomass Burning as a Source of Ambient Fine Particulate Air Pollution and Acute Myocardial Infarction, was published by the journal Epidemiology and can be found (http://journals.lww.com/epidem/Abstract/publishahead/Biomass_Burning_as_a_Source_of_Ambient_Fine.98888.aspx)

The graph below shows the correlation between high levels of PM_{2.5} and then a subsequent increase in physician visits related to asthma.



ALBERNI VALLEY AIRSHED MANAGEMENT PLAN

What Is an Airshed Management Plan?

An airshed management plan (AMP) is a living document which provides a blueprint to coordinate a collaborative community process to address the cumulative impact that a myriad of human activities and emission sources on air quality.

Air does not respect any jurisdictional boundaries thus it is important to have a collective approach to improving and maintaining air quality. The Alberni Valley AMP provides a foundation and sets the trajectory needed to preserve and improve regional air quality using a multipronged approach, considering input from various levels of government, business, industry, and community. It is not a legislative document, but one intended as a guide for stakeholders and residents.

An airshed management plan provides a focus to help communities manage development and control air contaminant sources. It also provides stakeholders with a clear understanding of community air quality priorities and how future growth may be accommodated. An AMP assists local and regional governments in their due diligence review of prospective projects. The time and resources spent in this proactive approach to air quality concerns is more secure and efficient than the ad hoc, reactive dynamics that have occurred in the past in the absence of a plan.

The technical component of an airshed management plan is an Air Emissions Inventory (AEI). Although the AEI is a key component of the AMP, it should not be utilized as a stand-alone document. It accounts for all sources of air pollution within a defined geographical area and provides information on the types of emissions, their sources, and the quantity of contaminants.

Vision of the Alberni Valley AMP

The primary vision of the AMP is to ensure continuous improvement in air quality throughout the Alberni airshed. It provides a formal structure for this goal and the work of the AQC. The vision also emphasizes that acceptable air quality is everyone's right and that protecting air quality is everyone's responsibility.

Parameter of Concern – PM2.5

Air quality objectives are limits on the acceptable concentrations of contaminants in the atmosphere. They are set by governments to protect human health and the environment and to drive continuous improvement in air quality.

Under the Canadian Environmental Protection Act (CEPA 1999), the federal government has established ambient air quality standards for several toxic pollutants, known as criteria air contaminants (CAC) including Particulate Matter, ground level Ozone, Nitrogen Dioxide, Sulphur Dioxide, and Volatile Organic Compounds. Information on industrial CAC emissions is collected

annually and summarized within the National Pollution Release Inventory (NPRI) reporting, which began in 2002.

In addition to the Alberni Elementary continuous monitoring station, a number of other air pollutant sampling regimes, including sampling performed by Levelton in 2001 and BCMOE in 2017 have confirmed that PM_{2.5} is the primary CAC of concern for the Port Alberni region and is the only one exceeding ambient air quality objectives. For these reasons, it is the primary focus for management in this AMP and is the only CAC examined in the AEI.

A comprehensive air quality report on the Port Alberni was released by the Ministry of Environment in 2016 (<https://www2.gov.bc.ca/assets/gov/environment/air-land-water/air/reports-pub/port-alberni-aq-report.pdf>.) The report identifies PM_{2.5} as the primary contaminant within the Alberni Valley airshed. Since 2016 there have been annual exceedances of the provincial and national standards for PM_{2.5}.

Air Emissions Inventory

An AEI is an accounting of all sources of air pollution within a defined geographical area and provides information on the types of emissions, their sources, and the quantity of contaminants emitted. It is based on actual measurements (if available), or the type of activity multiplied by an emission factor; or a scaled value from another inventory based on some common value (population, fuel sales, livestock numbers, etc.).

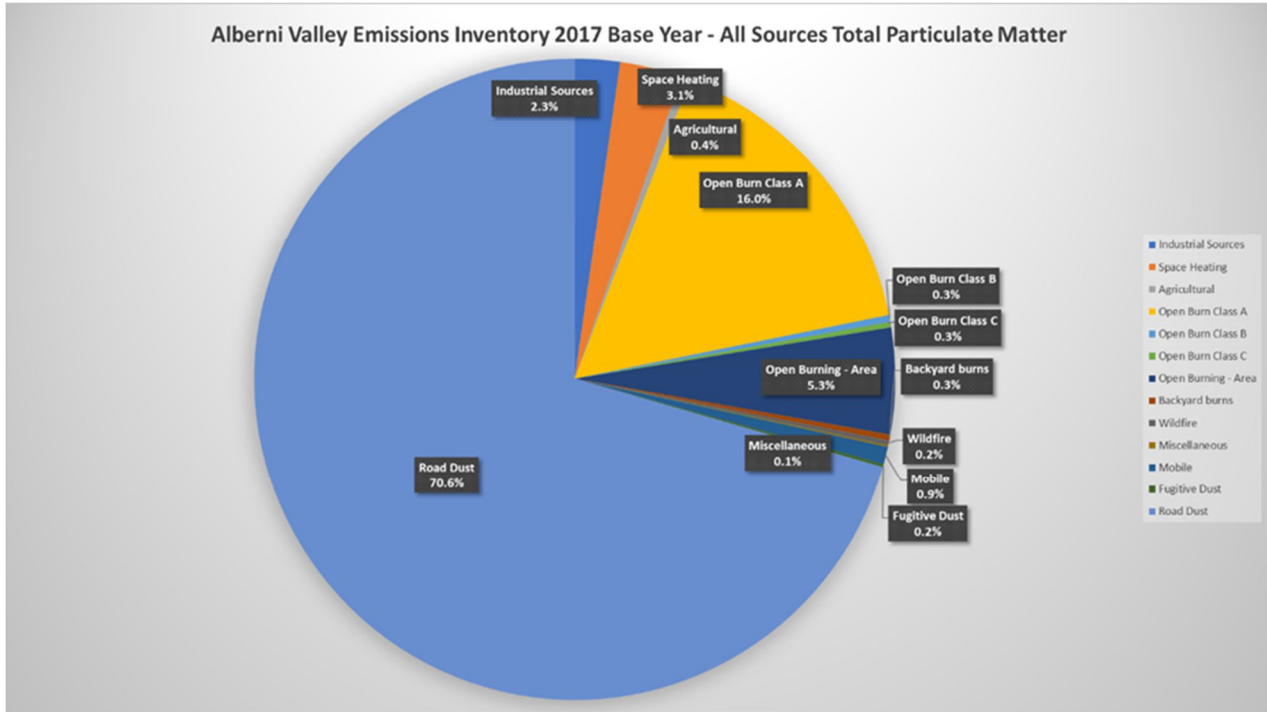
The AEI tabulates emissions from all sectors including point area, mobile, and natural sources for a specific year or range of years. The AEI for this management plan was completed for the Alberni valley in 2019, using 2017 as the base year.

Several commonly accepted emission quantification methods can be used to estimate emissions from a given source. Depending on the source, one or more of these methods may be needed for estimation. The following are the recognized quantification methods, in order from highest to lowest accuracy:

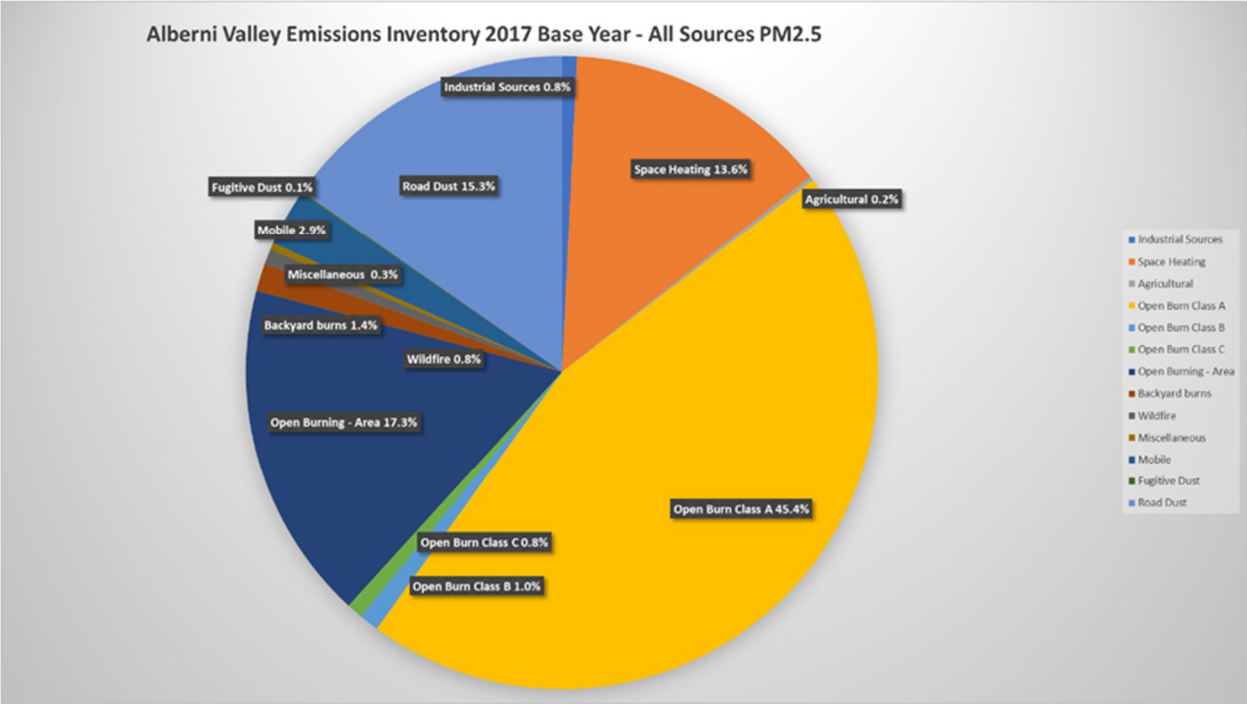
- Continuous Emission Monitors (CEMS)
- Predictive & Parametric Emissions Monitoring (PEMs)
- Stack Sampling
- Mass Balance Estimates
- Industrial Process Emission Models
- Vendor Supplied Emission Factors
- Industry Specific Emission Factors
- Generic Emission Factors
- Engineering Estimates

The AEI describes how emissions were derived for a source and geographic area. In the inventory PM is broken down into three categories:

- 1) Total Particulate Matter (TPM): refers to particle sizes that range from 0 to 100 μm in diameter. The mass of the particles in this size range are dominated by particles derived from mechanical grinding processes - erosion, crushing, grinding. Affected by gravitational settling.
- 2) PM_{10} : 0-10 μm in diameter - dominated by mass in the coarse particle range (2.5 -10 μm). Road dust a good example of a PM_{10} source.
- 3) $\text{PM}_{2.5}$: 0-2.5 μm in diameter - dominated by combustion sources and secondary particles formed by chemical reactions in the atmosphere.

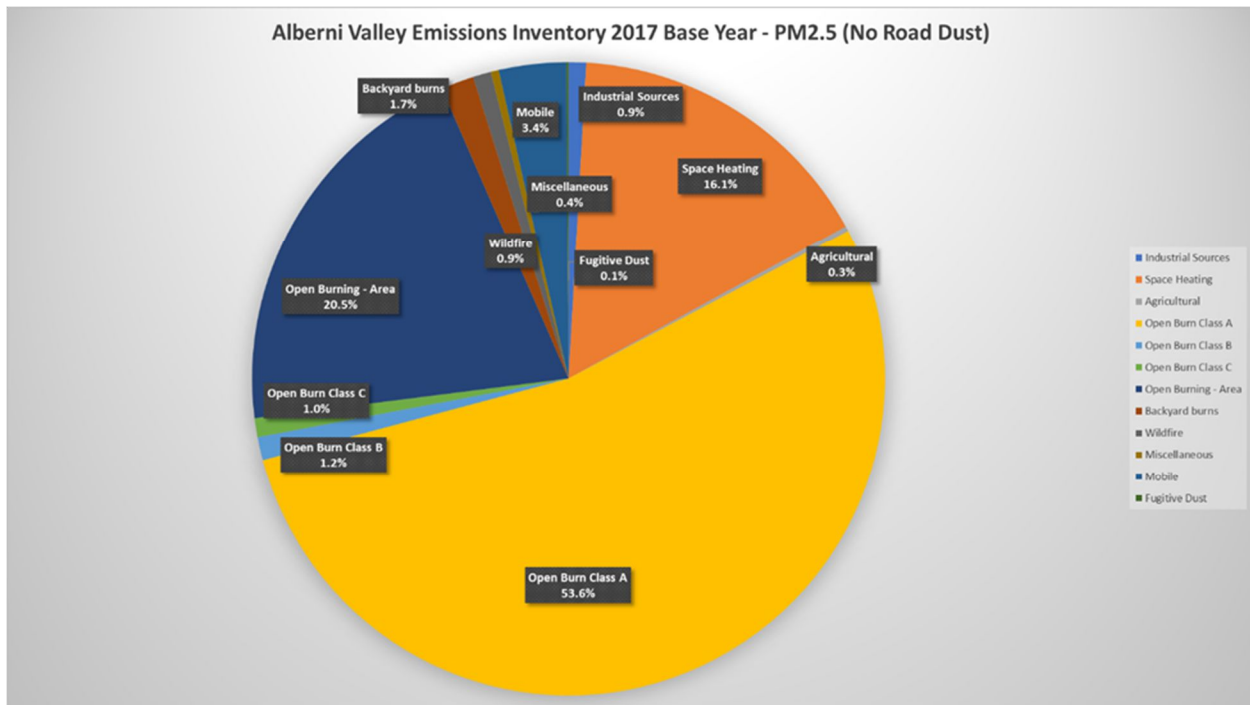


The graphs in the inventory are shown with and without road dust percentages, as $\text{PM}_{2.5}$ is the focus and road dust (generally particles 10 μm or greater) is not of primary concern.



The PM_{2.5} emissions chart shows space heating at 13.6% and open burning at 64.7% which indicates a need to focus on these two sources of wood smoke.

It is important to note the difference in the graph when the road dust is removed. An AEI provides more information that we can add to our weight of evidence approach to determine which sources need more focus.



Key conclusions derived from the AEI:

- Road dust is the dominant source for PM₁₀ and TPM. Dust is prominent during the dry warm days of spring and summer.
- Road dust contributions to PM_{2.5} is estimated at 15%, but is likely biased high due to methodology used and other uncertainties.
- Seasonal patterns in PM_{2.5} indicate that combustion sources are important, as exceedances occur during the cold season when dust is suppressed. Elevated PM_{2.5} levels do not occur during the spring and summer months (outside of wildfire impacts) when dust impacts would be expected.
- Open burning and space heating (wood heat) combine to contribute 78.3% of the overall PM_{2.5} emissions in the valley. If you exclude road dust (e.g., cool season impacts), open burning and space heating contribute 93.3% of the PM_{2.5} emissions in the Valley.
- Due to the geographical structure of the Alberni Valley Airshed, source location can have a significant impact on overall air quality.
- In the Alberni Valley, the main sources of PM_{2.5} include smoke from wildfires, commercial open-burning (forest harvesting, agricultural land clearing, land clearing for new property development), residential backyard burning, and emissions from residential/commercial heating (wood-heat generates a greater amount of PM_{2.5} than other forms of heating), vehicles, marine operations, and commercial/industrial operations.

GOALS OF THE ALBERNI VALLEY AIRSHED MANAGEMENT PLAN

AMP Objectives and Targets

The Alberni Valley is beginning to see an encouraging declining trend in PM_{2.5} levels, with recent annual levels being below federal and provincial guidelines. Continued actions need to be sustained as these recent trends are not far below current guidelines. The Alberni Valley still has some of the highest PM_{2.5} levels in the province, with the highest concentrations occurring in the fall-winter months primarily due to wood burning and poor venting.

The trajectory for moving forward includes a combination of strategies and actions. These six key areas have been identified for improvement and focus:

1. Elevate knowledge around the impacts of air quality on public health
2. Reduce emissions from residential heating (wood stoves)
3. Reduce emissions from open burning
4. Reduce point source pollutants
5. Reduce vehicle emissions and promote alternative modes of transportation
6. Formulate planning and perspective on Green House Gas (GHG) emission reduction possibilities, and localized responsibilities related to climate change

Goal 1: To elevate knowledge around the impact of air quality on public health

Indicator:

- Meet or exceed the Canada Wide Standards and/or provincial air quality objectives for PM_{2.5}

STRATEGY	ACTION
Create consistent messaging across the airshed on the impacts of air quality on public health	<ul style="list-style-type: none"> • Create brochure specific to Port Alberni or utilize existing BC Lung brochures (distribute to Doctors' offices and other public locations) • Work with SD70 to get information to teachers for inclusion in the classroom • Utilize the well-attended Bulldog hockey games to get message across to community • Increase social media presence • Host annual community forums, coffee meet and greets, etc. • Promote alternatives and best practice
Encourage citizen science	<ul style="list-style-type: none"> • Maintain and the PurpleAir Network within the Valley • Monitor the weekly and monthly reports from Environment Canada

	<ul style="list-style-type: none"> Expand network to include indoor monitors in public spaces
Promoting the implementation of enforcement, bylaws, and provincial legislation	<ul style="list-style-type: none"> Facilitate cooperation with all levels of government for continued comprehensive monitoring of air quality Encourage compliance and enforcement measures for woodstove burning bylaws. These should be reviewed to best fit community health needs Support conservation officers and their work related to the Open Burning Smoke Control Regulation (OBSCR) Work with ACRD bylaw officers to create easy to understand material for distribution when dealing with open burning complaints

Goal 2: To reduce emissions from residential heating from woodstoves

Indicator:

- Zero exceedances of air quality objectives and standards
- Reduction of severe asthma cases reported per year
- Number of uncertified woodstoves changed out increased and woodstoves exchanged to cleaner alternate sources of heat, fully utilizing funds from Wood Stove Exchange Program (WSEP)

STRATEGY	ACTION
Co-facilitate the Wood Stove Exchange Program	<ul style="list-style-type: none"> Promote alternatives and best practice (i.e., heat pumps) Find synergy with the CleanBC rebates Explore options to increase financial incentive of WSEP Work with woodstove retailers to elevate knowledge around the Burn it Smart program and best practices for utilizing woodstoves as primary heat source
Begin education around the new ACRD wood stove compliance bylaws	<ul style="list-style-type: none"> Investigate opportunities to increase implementation and compliance of the ACRD and City's Wood Burning Appliance (Solid-Fuel) Emissions Bylaw Communication with realtors regarding age and compliance of woodstove when selling a home Explore the possibility of a wood stove registry
Identify smoke pollution hotspots in the community and provide additional support to those areas	<ul style="list-style-type: none"> Utilize PurpleAir monitors to identify hotspots Adapt the parameters of the WSEP to focus on hotspot areas Disseminate information regarding hot spot areas identified by mobile nephelometer studies

Goal 3: To reduce emissions from open burning

Indicator:

- Zero exceedances of air quality objectives and standards
- Reduction of severe asthma cases reported per year
- Reduction of calls to RAPP line (due to people observing the OBSCR)

STRATEGY	ACTION
<p>Increase resident's knowledge of the ACRD open burning bylaw recently developed.</p>	<ul style="list-style-type: none"> • Get the daily venting index reported alongside the weather on local radio station • Increase knowledge of the venting index and promote the use of the Ministry of Environments and Climate Change Strategy interactive mapping tool • Create and disseminate clear, easy-to-understand messaging around daily air quality because although that information is available on the BC Provincial website it does not seem to be getting disseminated to residents and in a form that fosters a clear understanding (scientific versus layperson) • Work with fire hall personnel to put up sandwich boards regarding the venting index and allowed burn periods • Get information out to residents via utility and/or water bills as well as electoral directors' quarterly newsletters or social media accounts • Consider a 4-week education and compliance campaign (October/November, prior to when burning is permitted)
<p>Support enforcement</p>	<ul style="list-style-type: none"> • Work with ACRD bylaw officers to create easy to understand material for distribution when dealing with open burning complaints • Ensure that the ACRD explores ticketing as an option for infractions if education is not impacting repeat offenders • Work with Conservation Officers to make people aware of OBSCR and how it relates to their burning practices
<p>Promote alternatives to burning</p>	<ul style="list-style-type: none"> • Promote the organics curbside program as a way for residents to dispose of their yard waste without burning • Promote the yard waste programs of Earth, Land and Sea (free drop off) and the ACRD landfill (\$5/trailer load) • Promote the Firesmart opportunities as they come available for residents (i.e., Free chipping services or community yard waste bins)

Goal 4: Reduce mobile sources of pollutants

Indicator:

- Traffic count reduction within the inner city.
- Ozone and Nitrogen Dioxide levels continue to stay within current guideline levels.

STRATEGY	ACTION
Support alternate modes of transportation	<ul style="list-style-type: none"> • Increase bike lanes and walking trails • Explore ride share opportunities for the Valley
Work with local industry and government on fleet management	<ul style="list-style-type: none"> • Encourage hybrid/electric vehicles • Encourage alternative routes for diesel trucks using the inner-city transportation corridor • Improvements in the control of road dust and consistent implementation of best practices
Support monitoring	<ul style="list-style-type: none"> • Investigate possibilities to have VIU mobile lab conduct biannual testing

Goal 5: To monitor and ensure minimization of impact of point source emissions

Indicator:

- Reduction in odor complaints to Catalyst and City (sewage lagoon)
- NPRI comparative data

STRATEGY	ACTION
Ensure compliance with federal and provincial regulatory requirements by point source emitters	<ul style="list-style-type: none"> • Analyze the National Pollution Release Inventory for Port Alberni • Analyze the current MOE pollution permits for industry for Port Alberni • Review annual sustainability report from Catalyst
Continue to review and assess unregulated sources of pollution.	<ul style="list-style-type: none"> • Investigate emissions from small industry and collaboration on emissions reduction opportunities • Include marine emissions • Encourage and investigate the creation of an industrial park that is properly sited (away from residences and the waterfront) for industry that does not require water access

Goal 6: Formulate planning and perspective, on Green House Gas (GHG) emission reduction possibilities, and localized responsibilities related to climate change.

There is an important correlation between air quality and climate change. As the impacts of climate change and global warming become more pronounced, summers will become hotter and longer, leading to increased pollen and allergen related respiratory conditions. Higher

temperature will also cause increased ozone formation. Wildfire smoke and episodic events will increase, and the health will be impacted.

STRATEGY	ACTION
Support recommendations from the ICLEI Climate Adaptation Strategy developed for Port Alberni	<ul style="list-style-type: none"> • Work with local partners to expand emergency and community services offered to the community in the face of extreme climatic events • Improve communications to the public to reduce safety and health risks in the face of wildfire events and other air quality emergencies • Evaluate best practices and develop procedures to manage smoke events in public buildings and facilities
Increase awareness of correlation between climate change, human health, and air quality	<ul style="list-style-type: none"> • Host educational community forums
Support emergency preparedness at the household and community level	<ul style="list-style-type: none"> • To identify a city owned building which could be utilized as an emergency smoke refuge • Promote the homemade box fan filtration system for home use
Integrate regional air quality goals into all policies	<ul style="list-style-type: none"> • Participate in the municipal and regional OCP review process • Focus on land use planning, transportation, greenhouse gas management and energy management
Work with the Alberni Climate Action group to help address the climate crisis	<ul style="list-style-type: none"> • Promote electric vehicle infrastructure and support • Promote building code changes to support net zero energy buildings • Promote energy reduction and savings in existing buildings • Support City of Port Alberni and Alberni-Clayoquot Regional District climate action plans • Support public transit, cycling and other green transportation modes • Promote regenerative agriculture- enhance local food security and retain carbon in the soil through improved agricultural practices

CONCLUSION:

In the Alberni Valley, air pollution comes primarily from smoke due to open burning and residential wood heat, industrial emissions, and vehicle exhaust. These root causes are systemic and have been enabled by habit and a lack of overarching policy and regulation.

The health effects associated with air pollution should be a significant concern for all citizens. No one is immune to the effects, and some people are more vulnerable than others. It is important that we recognize this issue and make all efforts to reduce unnecessary risk. It has been shown that any reduction in air pollution improves health outcomes. An educational campaign is crucial for people to make the connections between air quality and their health.

The Alberni Valley AMP is a living document that provides a framework for effective, strategic policies and actions that will lead to improved environmental and human health. Although it does not have legislative or legal authority, it does provide sound advice and guidance to provincial, regional, and municipal governments, industry, other stakeholders, and the public.

Air pollution has an adverse effect on the health of the community. The mountainous geography and climatic conditions of the Alberni Basin airshed hinder the dispersion of emissions. There is no “safe level” of air pollution and any improvements to emissions locally will directly improve public health. We all share the air. With that founding principle, AQC members will continue to work in a collaborative way to refine and accomplish the goals of the Alberni Valley AMP in a timely way.

RESOURCES

Links to Local Reports, Bylaws

ICLEI Port Alberni Climate Adaptation Report (managing risk through community collaboration).

https://icleicanada.org/wp-content/uploads/2020/10/Port-Alberni-Climate-Adaptation-Report_FINAL.pdf

City of Port Alberni Bylaws

https://portalberni.ca/sites/default/files/bylaws/4802_SolidFuelBurning_tm.pdf

https://portalberni.ca/sites/default/files/bylaws/4906_FireControlBylaw2015Amend1_OutdoorBurning_tf.pdf

Alberni Clayoquot Regional District Bylaws

<https://www.acrd.bc.ca/dms/documents/bylaws/regulatory-bylaws/r1030.pdf>

<https://www.acrd.bc.ca/dms/documents/bylaws/regulatory-bylaws/r1032.pdf>

OBSCR

Website <https://www2.gov.bc.ca/gov/content/environment/air-land-water/air/air-pollution/smoke-burning/regulations/openburningregulation>

Bylaw https://www.bclaws.gov.bc.ca/civix/document/id/oic/arc_oic/0405_2019

Factsheet <https://www.acrd.bc.ca/cms/wpattachments/wpID589atID3483.pdf>

Ventilation Index

Ventilation Index Interactive Map

<https://www.arcgis.com/apps/webappviewer/index.html?id=6d288bc667b24528a5c1e3b4c0373d07¢er=1185577.1624%2C423985.7469%2C102190&scale=1155581.153>

Ventilation Index (search central Vancouver Island)

<https://www.env.gov.bc.ca/epd/epdpa/venting/>

Where to find local Health Data

Community Health Profiles (Provincial Health Services Authority)

<http://communityhealth.phsa.ca/HealthProfiles/HealthReport/port%20alberni?archiveYear=2019>

Island Health Local Health Area (LHA) <https://www.islandhealth.ca/about-us/medical-health-office/population-health-statistics/local-health-area-profiles>

BC Community Health Atlas <http://maps.gov.bc.ca/ess/hm/cha/>

BC Asthma Prediction Map <https://maps.bccdc.ca/bcaps/>

Air Quality Benefits Assessment Tool https://science.gc.ca/eic/site/063.nsf/eng/h_97170.html

Health Canada Information

[Wildfire smoke and air quality - Canada.ca](#)

[Stay informed during smoke events - Canada.ca](#)

[Wildfire smoke and air quality - Canada.ca](#)

Wildfire smoke resources for the public

1) Air Quality Maps

- <https://www.env.gov.bc.ca/epd/bcairquality/readings/find-stations-map.html>
- <https://cyclone.unbc.ca/aqmap/#5/64.979/-147.371> (includes corrected Purple Air data; developed by UNBC supported by ECCC)

2) Air Quality Summary https://weather.gc.ca/airquality/pages/provincial_summary/bc_e.html

3) Alerts https://weather.gc.ca/warnings/index_e.html?prov=bc

- Across BC: <https://agss.nrs.gov.bc.ca/subscription.html>

4) Forecast system https://weather.gc.ca/firework/index_e.htm

5) BCCDC Wildfire Smoke: <http://bccdc.ca/wildfiresmoke>

- [BCCDC WildFire FactSheet HealthEffects.pdf](#)
- [BCCDC WildFire FactSheet HowToPrepare.pdf](#)
- [BCCDC WildFire FactSheet PortableAirCleaners.pdf](#)
- [BCCDC WildFire FactSheet SmokeAndAirQuality.pdf](#)
- [BCCDC WildFire FactSheet CompositionOfSmoke.pdf](#)
- [BCCDC WildFire FactSheet OutdoorExercise.pdf](#)
- [BCCDC WildFire FactSheet SmokeAndTheAQHI.pdf](#)
- [BCCDC WildFire FactSheet BoxFanAirFilters.pdf](#)
- [BCCDC WildFire FactSheet FaceMasks.pdf](#)

5) More sites for information on wildfires

- <https://www2.gov.bc.ca/gov/content/safety/wildfire-status>
- <http://www.metrovancouver.org/services/air-quality/current-air-quality/wildfire/smoke/Pages/default.aspx>