

What we heard Wood smoke in Whitehorse neighbourhoods

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Background

Air pollution is typically seen as an issue for big cities with heavy traffic and large amounts of industry. Conversely, Whitehorse has previously been praised for having some of the cleanest air in Canada. However, the Whitehorse Air Quality Monitoring Study (WAQMS) monitored ambient air quality in nine Whitehorse neighbourhoods from 2015-2017. Results showed that air pollution is a concern in Whitehorse. In particular in four neighbourhoods: Kopper King, Hidden Valley, Range Road North and Riverdale, experienced exceptionally high levels of air pollution during winter months due to wood being burned for home heating. Thermal temperature inversions during winter months are also a relatively common phenomenon in the City of Whitehorse. This is where air pollution in the cold air is trapped close to the ground by warmer air above it.

While there are initiatives throughout Yukon aimed at reducing the amount of wood smoke in the air during cold months, more could be done to ensure residents of Whitehorse can breathe clean air, all year long.

The Government of Yukon, in partnership with the City of Whitehorse and the Office of the Chief Medical Officer of Health (the working group), organized public engagement sessions throughout Whitehorse to increase awareness and seek feedback and innovative recommendations from community members. At no point during this engagement process was there any intention to discourage the use of wood heating in homes. We recognize that wood provides a primary heat source for many people in Yukon and, if burned appropriately, can reduce Yukon's greenhouse gas emissions. However, there is work to be done to ensure people who use wood for home heating, do so with minimal expense to the quality of air.

Air pollution can be harmful to human health. This includes smoke that comes from natural sources such as wood. Burning wood creates very small particles that can irritate lungs and airways. These particles can worsen chronic conditions such as heart disease, bronchitis, emphysema and asthma and can be particularly harmful to populations such as children, seniors and people with pre-existing respiratory illnesses.





Engagement process

Purpose

The goals of this engagement process were to:

- provide the results of the Whitehorse Air Quality Monitoring Study (WAQMS);
- hear from City of Whitehorse residents about their perspectives of residential wood smoke; and
- gather key considerations to be used in future air quality management.

Process

The working group consulted with the residents of Whitehorse in the fall of 2018 for their opinions and ideas to improve air quality throughout the city. For this, four targeted open houses were held in the neighbourhoods most affected by wood smoke, and at the Fireweed Farmers Market. For people who were not able to attend the inperson sessions there was a public opinion survey available online.



Notification

The working group used a variety of different communication tools to reach as many City of Whitehorse residents as possible. This included social media posts, newspaper advertisements, email notifications to community organizations, website advertisements on the Government of Yukon and City of Whitehorse webpage, radio announcements and mailed invitations to select neighbourhoods where open houses would be held.

Participation

- 498 people responded to the public opinion survey.
 - o 37 per cent of respondents resided in Riverdale,
 - Eight per cent were from the other neighbourhoods with high levels of air pollution in the winter months: Hidden Valley, Kopper King and Range Road North.
 - The majority of remaining respondents were from other neighbourhoods in Whitehorse, with only a few respondents from other Yukon communities.
- 60 people attended neighbourhood open houses.
- 43 people engaged with the table at the Fireweed Farmers Market.

The working group was able to interact with all of the participants and listen to their stories, ideas and feedback. The survey provided the working group with an opportunity to reach people who were not able to attend the in-person engagement sessions. We would like to thanks all the participants who took the time to provide their input. The results of the engagement will help develop the 'Yukon Air Quality Improvement Report', which will be prepared by the Office of the Chief Medical Officer of Health.

Key topics

Main topics throughout the engagement process included:

- Perception of air quality and contributors to poor air quality;
- How homes are currently heated;

- Awareness of the health effects of wood smoke; and
- Possible or suggested initiatives to improve the air quality in Whitehorse.

Limitations and challenges

Open houses were held at four neighbourhoods in Whitehorse: Kopper King, Riverdale, Hidden Valley and Range Road North. This decision to host open houses in these communities was made in an effort to reach the people who are most impacted by poor air quality. We received valuable information from those that attended.

These engagement initiatives were provided as follow up to the WAQMS study. One of the future plans of the working group is to set up monitoring in other communities throughout Yukon. We hope to reach the rest of Yukon through future initiatives to ensure all Yukoners can appreciate healthy air in the coming years.



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What we heard

This report describes the communication process and feedback obtained during a series of public engagement initiatives regarding air quality and wood smoke in Whitehorse. Although we heard conflicting opinions during the engagement, all responses were taken into account for future planning purposes.

Personal home heating practices

- 61 per cent of respondents use wood or wood pellets to heat their homes. Most of these people use a wood stove. A small percentage of people use pellet stoves, fireplaces and boilers for heat.
 - Most of these people have wood stoves that meet EPA/CSA standards.



- Approximately half of the survey respondents said that they damp down their fire to make it last longer.
- Approximately 18 per cent use five to six cords of wood, 40 per cent use three to four cords of wood each burning season, and 25 per cent use one to two cords of wood. Very few respondents used less than one cord or more than six cords per season.
- While most respondents used newspaper and wood in their wood burning appliance, a notable amount of people used products in their stoves that are not recommended for burning, such as white office paper, cardboard, glossy paper and treated wood.
- Most respondents buy wood from a supplier, however many people gather their own wood each season.
- 67 per cent of respondents let their wood sit six months or more to dry before use.

Perceptions of air quality

- While 94 per cent of respondents rated the air quality in their neighbourhood good or very good in summer months, only 65 per cent thought the air quality in their neighbourhood was good or very good during the winter.
- Only 21 per cent of survey respondents believed wood burning appliances had a high or very high impact on the air quality in their neighbourhood. Conversely, the majority of open house attendees thought wood burning appliances had a high or very high impact on air quality and ranked it the type of air pollution of most concern, above vehicle emissions and industry contributions.

Air quality and health

- Most respondents (77 per cent) said wood smoke could affect health. However, 10 per cent felt that wood smoke had no effect on a person's health.
- Some respondents thought wood smoke was only harmful if:
 - o people were exposed for long periods of time;
 - o people have pre-existing health conditions;
 - o clean burning practices are not followed; and

- \circ smoke is inside a person's home (smoke outside is not as harmful).
- Other respondents recognized there is a health concern to wood smoke but thought:
 - o ther pollution sources are equally or more important (car exhaust, cigarette smoke etc.); and
 - wood burning is an important part of the culture in the North.
- Approximately half of the people who responded to the survey suffer from a health condition aggravated by wood smoke. Most commonly, people experienced sensitivity to wood smoke, including coughing, throat irritation, headaches and breathing difficulties. The next most commonly reported condition was asthma. Others reported allergies, sensitivity to chemicals, lung or chest infection (pneumonia or bronchitis), diabetes, lung cancer or Chronic Obstructive Pulmonary Disease (COPD).

Improving air quality

Here is a summary of ideas that participants had for improving air quality throughout Whitehorse.

Educational initiatives

- Provide information to the public on best residential wood burning practices.
 - In particular, provide targeted information to homes and neighbourhoods that produce significant amounts of wood smoke.
- Provide information on clean wood burning practices to people procuring wood.
- Inform the public when temperature inversions are taking place and air quality is poor.
- Work with retailers selling wood stoves to distribute information on installation, permits, clean burning practices and safety information for home wood heating.
- Distribute communication materials or infographics that provide a brief overview of the WAQMS results.
- Promote the use of moisture meters so that people can know how dry their wood is before they burn it.



Incentives and grants

- Implement home heating grants/initiatives that do not include payment of personal taxes as a pre-requirement. For example:
 - provide affordable or free dry wood;
 - o fund chimney cleaning programs;
 - provide wood shelters for wood drying;
 - implement programs for affordable or free CSA/EPA approved stoves, and
 - provide affordable or free home insulation options.
- Make the Yukon Housing Improvement Loan application process easier and allow for mobile home owners to apply.
- Increase incentives for people to upgrade conventional wood stoves to EPA or CSA approved stoves that burn clean.
- Subsidize dry, split wood.
- Additional programming and support for people just over, at, or below the poverty line.
- Pellet stoves:
 - More incentive for installing pellet stoves.
 - Fewer incentives should be pushed for pellet stoves, as we have to ship pellets into the territory.
- Partner with local NGOs to help supply clean wood burning services, (i.e., clean, dry wood delivery).
- Make other methods of home heating more accessible (i.e., renewable energy, electric).

Governance

- Bylaws were a topic that attracted controversy. Currently air pollution-related bylaws do exist, however, they are not well known and rarely enforced. Responses we received include:
 - There should be bylaws for using residential wood burning devices for burning anything apart from wood and newspaper and these bylaws should be enforced through fines.

- Create a public system, where people can report when they think someone in their neighbourhood is burning anything apart from wood or newspaper.
- Do not implement bylaws that enforce clean burning, it unfairly targets people who cannot afford to burn dry wood.
- Wood smoke is a necessary part of home heating for many Yukoners. Do not make rules around this cost-effective and renewable heat source.

Information gathering

- Determine the main sources of particulate matter in the air (i.e. contribution of wood smoke, motor vehicles, industry, or commercial pollution to overall air pollution).
- Continue air monitoring for another year so we can make more robust conclusions and compare data against Canadian and international standards.
- Seek solutions and innovative initiatives from experts from other jurisdictions to improve air quality.



Next steps

The responses given and time taken by people who attended open houses, completed the survey or both were greatly appreciated. The feedback we collected from the open houses, door-to-door conversations, and the survey will help inform future air quality management planning for the City of Whitehorse, Government of Yukon and air quality recommendations from Yukon's Chief Medical Officer of Health.

The working group is continuing to monitor the air quality throughout Whitehorse and now in Dawson City.

