



Air Quality and You in the Beachville Area

A Citizen's Survey

February 6, 2015

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I. EXECUTIVE SUMMARY

Oxford County Public Health has a duty to prevent or reduce the burden of illness by ensuring increased public engagement in practices and activities that reduce exposure to hazardous conditions and factors, and help protect the environment.

On June 25, 2014, a group of concerned citizens requested that a comprehensive air monitoring and air quality study of the Beachville area air shed be conducted to provide information about local air emissions in the region. To confirm that this request was representative of community interests, Oxford County Public Health conducted the *Air Quality and You in the Beachville Area* citizen's survey to explore what residents think about air quality in the Beachville area.

In total, 103 self-administered surveys were received between July 23 and September 9, 2014. Eighty-six surveys were fully completed and 17 were partially completed. Results show that:

- Almost 72% of respondents reported air quality in Beachville area as poor or very poor;
- 36% reported that air quality has gotten worse in the last 10 years;
- 23% reported that they don't know how to rate the air quality in Beachville area; and
- 35% reported that air quality in Beachville area affected their health or the health of a family member.

At the same time, almost 20% of respondents reported that air quality has improved in the last 10 years; another 18.9% reported that air quality has stayed the same; and 14.5% of respondents reported air quality in Beachville as good or very good. These results demonstrate that perceptions about air quality in the Beachville area are variable.

Comments provided in the open-ended portion of the survey confirm frustration with the lack of commitment to the *Source Emissions Monitoring Program* demonstrated by quarry operations, namely Carmeuse, LaFarge, and Federal White, and express disappointment with the Ministry of the Environment and Climate Change for creating the program then failing to enforce it. Oxford County Public Health has determined that further air monitoring and improvement efforts in the Beachville area air shed are warranted.

Out of concern for themselves and their family members, particularly the children, respondents to the *Air Quality and You in the Beachville Area* survey have asked for a long-term air quality improvement program.

Based on results of the survey, a work plan to guide air quality improvement efforts in the region should contain the following components:

- real-time monitoring of ambient air quality;
- frequent public reporting of ambient air quality; and
- the implementation of risk mitigation strategies.

This recommendation serves as a roadmap towards developing an assessment plan that represents community interests and provides information on which to base risk management decisions about air quality in the Beachville area.

II. INTRODUCTION

Oxford County Public Health has a duty to prevent or reduce the burden of illness from health hazards in the physical environment. Part of this duty is ensuring increased public engagement in practices and activities that reduce exposure to hazardous conditions and factors, and help protect the environment.

On June 25, 2014, a group of Beachville area community members expressed concerns about local air emissions and requested that a comprehensive air monitoring and air quality study of the Beachville area air shed be conducted to support efforts to improve local air quality (*Report No. CAO (CS) 2014-08*). To confirm this interest throughout the community, Oxford County Public Health conducted the *Air Quality and You in the Beachville Area* survey to explore what residents think about the air quality in Beachville area.

Information gathered through the survey will be used to help support air quality improvement efforts in the Beachville air shed. Engaging the public in the air quality improvement process early on is one of the ways that Oxford County Public Health supports the County's vision to be *A County that Works Together, Thinks Ahead and Wisely Shapes the Future*.

III. METHODS

Oxford County Public Health conducted a citizen's survey following a Public Information Session held on July 23, 2014 at the Beachville Colombo Club. The target population was residents with an interest in the Beachville area air shed. The study population included attendees at the Public Information Session and residents who accessed the survey through the *Speak Up, Oxford!* section of the Oxford County website. No sampling frame was generated and multiple surveys were accepted from individual households.

Using principles drawn from the standard Tailored-Design Method for mail and internet surveys (*Dillman 2000*), a self-administered questionnaire was developed (Appendix I). Distribution included:

- Handing out the questionnaire to all attendees at the Public Information Session.
- Providing pens, drop-boxes, instructions, and support during this time to enable potential respondents to complete the questionnaire onsite.
- Providing stamped return envelopes upon request for potential respondents who wished to complete their surveys at a later point in time.
- Providing the web address of an online version of the survey on printed hard copies of the questionnaire so that potential respondents could consider this option for completion.
- Posting the online version through the *Speak Up, Oxford!* section of the Oxford County website.

Potential respondents were given seven weeks to respond to the survey and online responses were accepted from July 23 through to September 9, 2014.

The online version of the survey was created using Fluid Surveys Enterprise software. Data from questionnaires that were completed in hard copy were input using the online version of the survey. All quantitative data from Fluid Surveys were exported using Microsoft Excel 2010 and analyzed using SPSS version 22. Univariate analyses were completed for each question. All percentages and average ratings were calculated using the total number of respondents as the denominator. Qualitative responses were collated and reviewed using QSR Nvivo 10.

IV. RESULTS

In total, 103 surveys were received between July 23 and September 9, 2014. Eighty-six surveys were fully completed and 17 were partially completed. Surveys were returned in-person, online, and by mail. Responses received are summarized below.

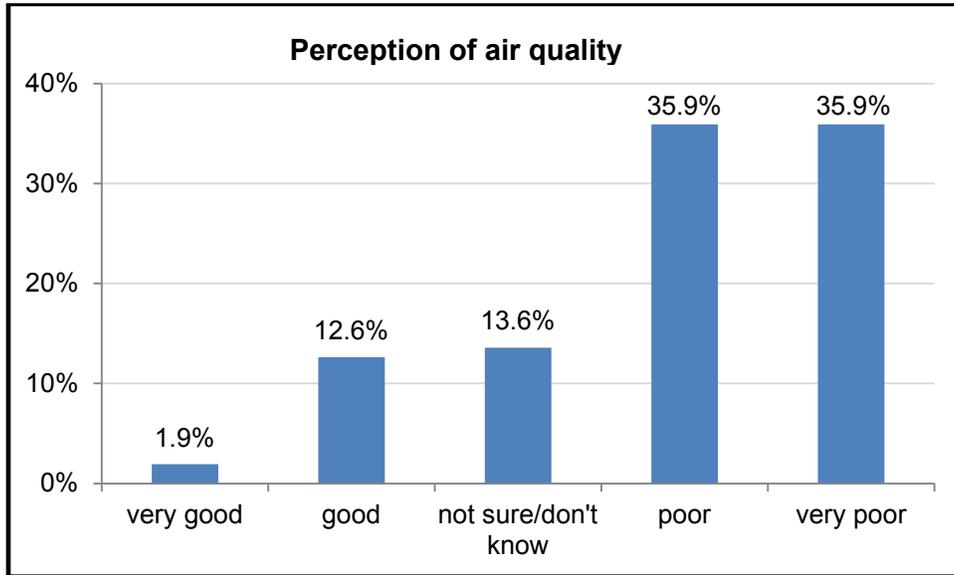
Question 1: In which municipality do you live?

City/Township/Village	Percentage
East Zorra-Tavistock	3.9%
Ingersoll	37.9%
South-West Oxford	40.8%
Tillsonburg	1.0%
Woodstock	2.9%
Zorra	8.7%
Outside Oxford	4.9%
Total	100.0%

Key messages

- Forty-one percent (40.8%) of respondents reported living in South-West Oxford; 37.9% reported living in Ingersoll; 8.7% reported living in Zorra; and 3.9% reported living in East Zorra-Tavistock.
- The remaining respondents reported living in Tillsonburg, Woodstock, or outside Oxford County.

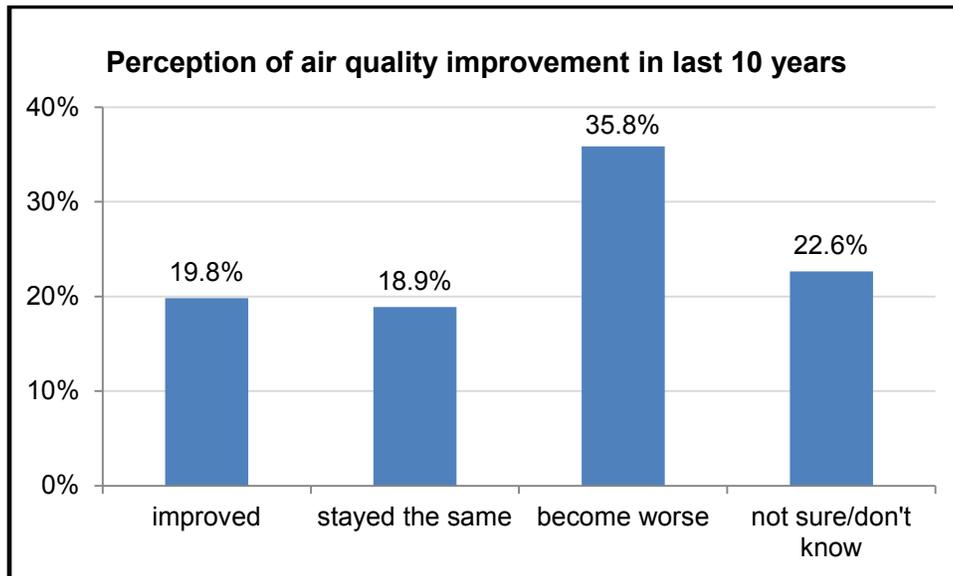
Question 2: In general, would you say that the air quality in the Beachville area is very good, good, poor or very poor?



Key messages

- Almost 72% of respondents rated air quality in Beachville area as poor or very poor.
- About fifteen percent (14.5%) of residents rated air quality in Beachville area as good or very good.
- Fourteen percent (13.6%) of respondents answered that they were not sure or didn't know, when asked to rate the air quality in Beachville area.

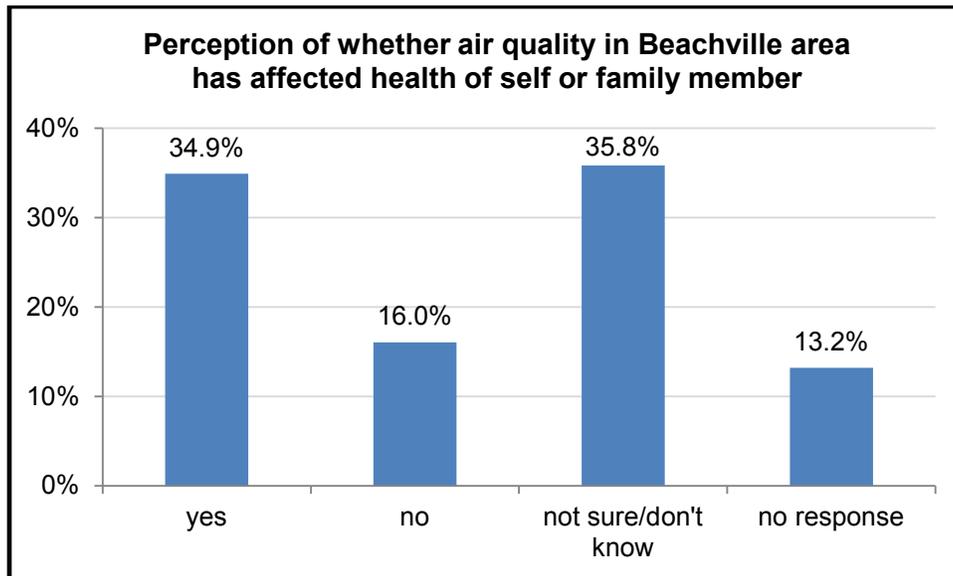
Question 3. Do you think that the air quality in the Beachville area has improved, stayed the same, or become worse in the last ten years?



Key messages

- Thirty-six percent (35.8%) of respondents responded that they think air quality in the Beachville area has become worse.
- Twenty percent (19.8%) of respondents responded that they think air quality in Beachville area has improved and 18.9% responded they think air quality has stayed the same in the last ten years.
- Twenty-three percent (22.6%) of respondents answered not sure/don't know, when asked if they think that air quality in the Beachville area has improved, stayed the same, or become worse in the last ten years.

Question 4. A) Has air quality in the Beachville area affected your health or the health of your family in any way?



Key messages

- Thirty-five percent (34.9%) of respondents responded *yes* when asked if air quality in the Beachville area affected their health or the health of their family in any way.
- Sixteen percent (16.0%) responded *no*, when asked if air quality in the Beachville area affected their health or the health of their family in any way.
- Thirty-six percent (35.8%) of respondents responded *not sure/don't know* when asked if air quality in the Beachville area affected their health or the health of their family in any way. An additional 13.2% of respondents gave no response.

Respondents who answered *yes* or *not sure/don't know* were then asked the following open-ended question:

B) If yes, how has air quality in the Beachville area affected your health or the health of your family? Please explain:

Responses varied widely. They can be divided into three themes:

- i. assertion that the air quality is poor;
- ii. poor health outcomes; and
- iii. the source of poor air quality in the Beachville area is local quarry operations.

i. Assertion that Air Quality is Poor (15 responses)

While the question did not explicitly ask respondents to rate the air quality in Beachville area, many respondents implied or asserted that the air quality was poor. Some respondents commented on the presence of characteristics that demonstrate that air quality is poor, including visible air pollution, dust, clouds blowing across the road, and respiratory symptoms upon acute exposure to air in the area. No one provided a positive comment suggesting that air quality in Beachville area positively affected their health or the health of their family members, but one respondent noted that the air quality in Beachville is better than that experienced in Toronto.

ii. Poor Health Outcomes (29 responses)

The most prevalent theme voiced by respondents was that they attribute poor health outcomes in themselves and their family members to poor air quality in the Beachville area. Some of the poor health outcomes reported included death of a family member. The majority of health outcomes reported consisted of respiratory conditions, such as asthma, chronic obstructive pulmonary disease (COPD), emphysema, and lung disease. Non-respiratory chronic conditions were also reported, including multiple sclerosis, cardiovascular disease, and chronic headaches. A long history of allergies and non-specific symptoms, such as sore, itchy eyes; congestion; cataracts; coughing; shortness of breath, and increased phlegm production was reported to affect the lives of several respondents and their families. Many respondents identify this history into their childhood or highlight it currently affecting the lives of their children. The following comments were shared:

“...I had severe asthma. My Dad campaigned with a group to stop the air pollution but ultimately ended up moving our family when I was 7 years old further away....I now live in Woodstock.”

“We camp for 6 weeks in the spring and again in the autumn. We notice that our lungs feel a lot clearer when away.”

These quotes demonstrate two important and related themes that appear in a number of responses. First, they show that community members associate poor respiratory health with poor air quality in the Beachville area by implying a link between their physical presence in Beachville and their poor respiratory health. The impact of these conditions seem to be most strongly felt during childhood, whether it is the respondent his/herself or out of concern for other children in the family. Second, some respondents moved or vacationed away from Beachville and noticed an improvement in their health. Perceived improvement in health while away from Beachville area seems to validate pre-existing concerns about the effect that local air quality has on human health. As a result, respondents also attribute their improved health to distance from the Beachville air shed. Both themes illustrate that residents of the Beachville area believe that local air quality has led to poor health in themselves and members of their family.

iii. Factors Contributing to Poor Local Air Quality (12 responses)

While not explicitly asked to identify factors contributing to air quality in the Beachville area air shed, respondents pinpoint local quarries as a source of poor air quality in the region, thereby impacting on human health. Some respondents simply stated that local quarries are the cause of poor health outcomes, without mentioning a link to poor air quality and many comments suggest that quarries have been the cause for a very long time. For example, the following

quotes demonstrate the deep-held notion of quarries historically causing poor health in community members:

“I used to live in Beachville and [I] suffer from lung-related issues. My father suffered from the same being an employee of Carmeuse.”

“Yes. Many of the men who have worked at the quarry died of lung cancer in the mid 1980s. Not much has changed in the last 30 years. Identify the source of the pollution and specifically, what is in the contaminants.”

These quotes are not unique. They represent a group of comments expressing frustration directed towards quarries by respondents who feel that local quarries have the power to improve air quality in the region and, therefore, improve health outcomes in the community.

Key messages

Responses can largely be divided into three themes described below:

- The general perception is that air quality is poor in the Beachville area.
- Many respondents attribute poor health outcomes in themselves and family members to poor air quality in the Beachville air shed.
- Some respondents pinpoint local quarry operations as the source of poor air quality in the Beachville area.

Question 5. What do you think contributes most to air quality in the Beachville area?

The majority of respondents listed local quarry operations as the factor that contributes most to air quality in the Beachville area (60 responses received).

Under this theme, quarry-related factors identified include:

- Carmeuse, Federal White, and Lafarge have been named specifically (20 responses)
- Lime, cement, and gravel (26 responses)
- Dust, including fine and coarse particulate matter (11 responses)
- Traffic (i.e., transport traffic, traffic from the 401) (15 responses)
- Prevailing winds carrying dust from quarries (6 responses)

Other factors listed not related to local quarry operations include:

- Agricultural activities (4 responses)
- Lawn mowing (1 response)

Key messages

- The majority of respondents listed local quarry operations as the factor that contributes most to air quality in the Beachville area, with Carmeuse, Federal White, and Lafarge being named specifically.
- Traffic from the 401 and agricultural activities have also been listed as major contributors to local air quality.

Question 6. Are there any other ideas, thoughts, or comments about the air quality in the Beachville area that you would like to share with us? If so, please describe below:

Respondents shared many different ideas, thoughts and comments about air quality in the Beachville area. Once organized by theme, a highly structured pattern emerged. Themes are organized below:

Scoping out the problem

Numerous comments served to scope out the problems surrounding poor air quality in the Beachville area. Aspects of the problem include:

- Extensive frustration over continually having to clean white powder or a film off everything outdoors, including glass surfaces, roofs, and furniture; accepting that windows must remain closed at all times; and dealing with the film on vegetation.
- Concern expressed about the impact that visibly poor air quality may have on the health Beachville area residents.
- Concern that the proposed landfill will cause further deterioration of local air quality.
- Improvement noticed over the last 15 years, but there is still room for improvement.
- Other factors that impact on air quality need to be considered.

Historical support for the problem

Respondents express general frustration over the lack of support towards dealing with perceived poor air quality in the Beachville air shed.

- Local quarry operations (Carmeuse, LaFarge, and Federal White) have been specifically identified by respondents as failing, and even deceiving, the residents of Beachville area. Respondents describe frustration over monitoring that was not performed as expected and outlined through the industry-led Source Emissions Monitoring Program.
- Dissatisfaction with the Ministry of the Environment and Climate Change (MOECC) has been described in detail. Firstly, respondents are disappointed that the MOECC allowed the Source Emissions Program to be industry-led because it meant that the quarries were monitoring themselves. Second, respondents expressed frustration that the MOECC did not follow through with its own commitments, as outlined in the 2003 report [titled, "*A Summary of Air Monitoring in the Beachville Area*"], including enforcing industry-led monitoring and reporting.

Asking for help

Through the survey, respondents have asked Oxford County Public Health for help in improving air quality in the Beachville area, including Ingersoll. Some respondents considered the citizen's survey and Public Information Session held on July 23, 2014 as early steps towards improving air quality in the region. They thanked Oxford County Public Health and Public Health Ontario for working towards an air quality improvement work plan, giving community members a voice, taking action, and keeping the community informed.

Specific about help being requested

Respondents were very specific about how Public Health could help improve air quality in the Beachville area. When reviewing and organizing these comments, the following plan emerged:

Vision: The development a long-term air quality improvement program in the Beachville area with the following elements.

1. Real-time monitoring of ambient air quality, including particulate matter levels
2. Public reporting of ambient air quality
3. Implementing risk mitigation strategies based on monitoring data, including:
 - a. Establishing a warning/alert system
 - b. Recommending enforcement to control local air emissions

Oxford County Public Health will use information collected through the assessment to support the development of a long-term air quality improvement program in Beachville Area. Public Health will work towards implementing a risk mitigation strategy that includes a formal recommendation process in collaboration with the MOECC, the lead government agency with primary responsibility for enforcing the Environmental Protection Act.

V. DISCUSSION

The 2003 report titled, “*A Summary of Air Monitoring in the Beachville Area*” set the stage for what Beachville area residents could expect from local quarry operations through the industry-led Source Emissions Monitoring Program between 2003 and 2013 (*Parker et al.*).

Concerns about failed expectations were voiced by a group of Beachville citizens to County Council in the spring of 2014. To confirm that these concerns were representative of community interests, Oxford County Public Health conducted the *Air Quality and You in the Beachville Area* citizen’s survey to explore what residents think about air quality in the Beachville area.

Results from the survey provided confirmation and showed that residents also believed that the program would be enforced by the Ministry of the Environment and Climate Change. While some parts of the program have been implemented, the monitoring and public reporting components were not completed as expected.

Respondents express frustration with non-reporting or partial reporting, leading to the belief that monitoring has not taken place, the community has been deceived, or their concerns have been dismissed. They explicitly describe frustration with the lack of commitment to the Source Emissions Monitoring Program demonstrated by quarry operations, namely Carmeuse, LaFarge, and Federal White, and express disappointment with the Ministry of the Environment and Climate Change for creating the program and failing to enforce it.

History of monitoring, reporting, and enforcement set aside, respondents outline a plan to move forward that can be used to inform the development of an air quality assessment plan representative of community interests. Out of concern for the health and well-being of community members, respondents specifically ask for help from Oxford County Public Health and Public Health Ontario in the form of a long-term air quality improvement program.

Results show that almost 72% of respondents reported air quality in Beachville area as poor or very poor, 36% reported that air quality has gotten worse in the last 10 years, 23% reported that they don’t know how to rate the air quality in Beachville area, and 35% reported that air quality in Beachville area affected their health or the health of a family member.

At the same time, almost 20% of respondents reported that air quality has improved in the last 10 years; another 18.9% reported that air quality has stayed the same; and 14.5% of respondents reported air quality in Beachville as good or very good.

These results demonstrate that perceptions about air quality in the Beachville area are variable. Comments provided to open-ended questions in the survey support these findings. Oxford County Public Health has determined, therefore, that air quality monitoring and improvement efforts in the Beachville area are warranted. Respondents’ further request that monitoring be conducted in real-time and that public reporting occurs frequently.

Finally, some respondents took the plan one step further and suggested how information collected during monitoring could be used to implement risk mitigation strategies. One suggested strategy includes a warning/alert system, where advisories are issued when air quality levels pose a risk to human health. Another proposed strategy includes an approach to enforcement involving chief contributors to poor air quality in the Beachville area. A summary of the plan outlined by respondents follows:

Vision: The development of a long-term air quality improvement program in the Beachville area, including Ingersoll, with the following components:

1. Real-time monitoring of ambient air quality, including particulate matter levels
2. Public reporting of ambient air quality
3. Implementation of risk mitigation strategies

VI. CONCLUSION

Respondents to the *Air Quality and You in the Beachville Area* citizen's survey have asked for a long-term air quality improvement program out of concern for themselves and their family members, particularly the children.

Oxford County Public Health has determined that further air monitoring and improvement efforts in the Beachville area air shed are warranted. Based on results of the citizen's survey, an assessment plan to guide air quality improvement efforts in the region should contain the following components: real-time monitoring of ambient air quality, frequent public reporting of ambient air quality and the implementation of risk mitigation strategies.

This recommendation serves as a roadmap towards developing an assessment plan that represents community interests and provides information on which to base risk management decisions about air quality in the Beachville area.

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