

# Strathcona

RESIDENTS' ASSOCIATION

c/o Strathcona Community Centre  
601 Keefer Street Vancouver, BC V6A 3V8

December 3, 2018

## Strathcona Residents Association submission to Transport Canada's *Ports Modernization Review*

### RECOMMENDATIONS

- The federal government should take the lead in addressing the existing gap in environmental assessment and regulatory processes that currently leaves communities that are adjacent to the Port of Vancouver without the necessary protections against adverse air quality, noise and traffic safety effects of port operations;
- The federal government should take the lead in forming and funding a newly created *intergovernmental Community Health and Well-Being Agency* that manages and allocates funding to provide for much-needed mitigation, monitoring and compensation measures to address health and safety impacts on communities that are located adjacent to the operations of large marine terminals and related supply-chain corridors;
- At least 2% of the Vancouver Fraser Port Authority's ("VFPA") operational revenues should be set aside for management by a newly created *intergovernmental Community Health and Well-Being Agency* for programs and projects (including mitigation, monitoring and compensation measures related air quality, noise and traffic safety effects) aimed at the protection of community well-being; and
- Environmental review oversight for large projects should be provided by an arms-length, inter-governmental agency that has the jurisdictional authority to assess project-specific and cumulative environment effects of port-related projects and activities on the health and well-being of communities located adjacent to Port operations. This intergovernmental agency should have the authority and resources to undertake environmental reviews and set project conditions for all projects that currently qualify as "Category D" projects under the Vancouver Fraser Port Authority's Project and Environmental Review (PER) process in a manner equivalent to full-scale federal and provincial reviews under taken by the Canadian Environmental Assessment Agency or the BC Environmental Assessment Office.

### INTRODUCTION

We are writing on behalf of the Strathcona Residents' Association ("SRA"). The SRA is a community-based association that represents the voice of more than 6,000 residents of the

Strathcona neighbourhood located in the north-eastside of Vancouver, adjacent to the Vancouver inner harbour on the south shore of Burrard Inlet. The purpose of the SRA is to promote the health, safety and well-being of residents living in the Strathcona neighbourhood of Vancouver.

## **THE CHALLENGE**

We write to bring to your attention the failure of all levels of government to address the serious environmental and social impacts of the expanding activities of the Port of Vancouver on our community and other neighbourhoods in east Vancouver. Our community is directly impacted both by adverse environmental and traffic-related effects resulting from the operations of shipping terminals and integrated supply-chain corridors (rail and truck) in the nearby vicinity.

Strathcona residents live immediately in the shadow of three large shipping terminals: Centerm, Vanterm and the Alliance Grain Terminal (AGT). Major supply-chain corridors related to Centerm and Vanterm, two of the Port's largest container terminals that together process more than 1 Million twenty-foot-equivalent units (TEUs) annually, run directly through our community. Two significant new projects slated for the next few years that will result in the further intensification of health, social or economic effects on our community, , the Centerm Expansion Project and the twinning of the Burrard Inlet Line, are currently being proposed without the benefit of any meaningful assessment of effects or identification of measures to mitigate, offset or otherwise compensate our community for adverse effects. The Centerm Expansion Project, alone, will increase the number of container travelling by rail and truck through our community by more than 125% (from 500,000/year TEUs currently to as high as 1.3 Million) and double air emissions by nearly 100% - however, no mitigation, monitoring or compensation measures are being proposed!

Immediate risks posed by port operations to the health and well-being of residents of our community include, but are not limited to the following:

- Increased health risk in our community by the doubling of air emissions associated with the expansion of the existing Centerm facility, without any active proposed mitigation measures (see attached). This is in spite of our community already having been identified by Metro Vancouver as having some of the worst air quality in the Lower Mainland;
- Substantial increase of safety risks posed by rail and truck traffic throughout our community's streets, again, without any substantive mitigation measures;
- A range of serious noise and visual impacts to the neighbourhood during both construction and operations, again, without any substantive mitigation measures;
- The further "bisecting" of our neighbourhood by the proposed twinning of the Burrard Inlet Line, a project that is directly related to the expanding operational volumes of the two container terminals on Burrard Inlet.

*Effects on community health and well-being not assessed by federal and provincial authorities*

VFPA's existing Project and Environment Review ("PER") process, which the Federal Court recently ruled is not an environmental assessment ("EA") process under the *Canadian Environmental Assessment Act, 2012*, does not assess environment effects on health, social conditions, and the economy. Unlike a full-scale federal or provincial EA process, the VFPA process does not consider cumulative effects or make significance determinations on environmental, social, economic, health or heritage effects. Nor does it have the legislative authority to set and enforce conditions aimed at addressing impacts that occur within provincial jurisdictional lands, i.e., City of Vancouver lands that are adjacent to federal port lands. Additionally, because large port-related projects, including the Centerm Expansion Project, are located on federal lands, the provincial government is refusing to undertake EAs of projects such as the Centerm Expansion Project - even though they trigger a provincial EA. **In sum, our community is falling between the cracks of the federal and provincial processes that are supposed to safeguard the health and environmental impacts of major projects on Canadian citizens.**

## **THE OPPORTUNITY**

*Substantially Increase Allocation of Port Revenues for Mitigation and Compensation Measures for Impacted Communities*

In 2017, the operating revenue of the Vancouver Fraser Port Authority was \$256,452,000. In the same year, the Port of Vancouver reported spending only \$750,000, or 0.3% of its annual operating revenue in "community investment and channel dredging programs". Assuming conservatively that the proportion of that amount that was committed to channel dredging programs was 50% of the total, this would mean that \$375,000, or 0.15% of total annual operating revenue was spent on community investment. Further dividing that between the seven (7) of cities that front the Port of Vancouver – Vancouver, North Vancouver, Richmond, Surrey, Burnaby, New Westminister and Delta – the amount is reduced to the negligible amount of approximately \$50,000/community, or 0.02% of the Port's annual operating revenue. Notably, in the same year, the VFPA spent \$168 Million in capital investments, or more than 450 times what we estimate the VFPA on "community investment".

As our community members are daily forced to face the significantly adverse environmental conditions posed by the Port's operations for the sake of the "national interest", we believe it is not only reasonable, but essential and just, that a much larger portion of VFPA revenue be allocated for mitigating and compensation of these effects in order to ensure that our community residents are provided with the opportunity to enjoy the same health, safety and well-being enjoyed by other Canadians. **We recommend that 2% of VFPA operational revenue, or just over \$5 Million, annually be set aside for this purpose.**

*A new intergovernmental agency to address impacts on communities*

Moreover, the federal government should take the leadership in forming an **intergovernmental “Community Health and Well-Being” agency** that, working with impacted communities, would manage and allocate funding to provide for much-needed mitigation, monitoring and compensation measures to address health and safety impacts of large marine terminals and related supply-chain corridors. **For this committee to be truly representative, there must be a seat at the table for Strathcona residents, as well as other communities that are adjacent to the Port of Vancouver, to ensure that funding allocations are reflective of community needs and priorities.**

## **CLOSURE**

Thank you for the opportunity to make our submission on this serious matter. Any “modernization” of the Port of Vancouver must greatly improve how the federal government addresses the adverse effects of national trade priorities on local communities. Currently, the *status quo* is failing our communities. We look forward to receiving a positive and constructive response from Transport Canada to our ideas and recommendations.

Sincerely,

Dan Jackson “Signed”  
Richard Taplin “Signed”  
Trefor Smith “Signed”  
Penny Crawford “Signed”  
Wilson Liang “Signed”

**Council of the Strathcona Residents Association**

Attachments:

1. Letter from Metro Vancouver to VFPA, May 9, 2018, re: Air Quality Assessment for Centerm
2. Letter from Ministry of Environment and Climate Change Strategy to EAO, re: Air Quality Assessment for Centerm

## Attachment 1

May 9, 2018

File: CP-10-01-EIA  
Ref: 2016-03-26 - Per No. 15-012

Tim Blair  
Supervisor, Planning  
Vancouver Fraser Port Authority  
100 The Pointe, 999 Canada Place  
Vancouver, BC V6C 3T4

Dear Mr. Blair:

**Re:** Centerm Expansion Project Air Quality Assessment

Metro Vancouver staff have reviewed the revised Centerm Expansion Project Air Quality Assessment, which was brought to our attention via your letter of March 26, 2018. On behalf of our Air Quality and Climate Change staff, I am forwarding our technical comments for Vancouver Fraser Port Authority's consideration. These comments were also sent to you via email on April 20, 2018.

Please feel free to contact me if you have any questions.

Sincerely,



Laurie Bates-Frymel MCIP RPP  
Senior Regional Planner, Electoral Area and Environment  
Parks, Planning and Environment

LB/HM/vp

cc: Neal Carley, General Manager, Parks, Planning and Environment  
Heather McNell, Director, Regional Planning and Electoral Area Services  
Marcin Pachcinski, Division Manager, Electoral Area and Environment  
Roger Quan, Director, Air Quality and Climate Change  
Shelina Sidi, Senior project Engineer, Air Quality Planning and Assessment

Encl: Metro Vancouver Air Quality and Climate Change Comments on Revised Centerm Expansion Project AQ Assessment

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**CENTERM EXPANSION PROJECT**  
**METRO VANCOUVER COMMENTS ON THE AIR QUALITY ASSESSMENT**  
**APRIL 11, 2018**

Thank you for your letter of March 26, 2018 in response to Metro Vancouver comments on March 23, 2017, and the opportunity to comment on the revised Air Quality Assessment (February 2018).

As noted in your letter, the project is predicted to increase total annual air emissions across all air contaminants, which could adversely affect nearby residents in the community. Modelling for the project shows predicted exceedances of Metro Vancouver air quality objectives for both annual and 1-hour nitrogen dioxide (NO<sub>2</sub>), as well as 24-hour fine particulate matter (PM<sub>2.5</sub>). Emissions from the facility would also result in exceedances of the NO<sub>2</sub> Canadian Ambient Air Quality Standards (CAAQS), which come into force in 2020 and have not been considered in the assessment. Additionally, while it is understood that the Port's Project and Environmental Review Process requires that proponents only consider the Project footprint, it is evident that supply chain emissions related to the project would increase emissions of pollutants to the atmosphere and further impact air quality.

As indicated in your letter, in order to meet future air quality planning objectives, the terminal fleet would need to adopt and implement improved technologies at rates faster than normal turnover. We recommend that the Port consider additional opportunities to include Best Available Technology (BAT) measures for additional emission sources, including supply chain sources, to reduce emission of NO<sub>2</sub> and PM<sub>2.5</sub>. For example, Section 9 of the Environmental Air Assessment report indicates that BAT measures to electrify yard trucks and terminal support vehicles, hybridize the existing RTG crane fleet through retrofitting, and introduce full shore power to both berths could significantly reduce project emissions.

If approved by the Port, we agree that an Air Emissions Management Plan should be required for the project, including measures to reduce both PM<sub>2.5</sub> and NO<sub>2</sub> emissions, through expedited implementation of Best Available Technologies for emission sources within the terminal footprint, as well as the supply chain.

In addition, we provide the following technical comments on the environmental air assessment, for consideration:

**Centerm Expansion Project: Environmental Air Assessment**

1. Table 3-4: From this table, it does not appear that all of the sensitive receptors were identified, as requested previously. The applicant responded saying that concentrations can be determined by isopleths, but this is not appropriate when assessing the predicted concentrations at sensitive receptors. Isopleths do not always accurately represent the model's predicted concentrations and the range may be too large to discern what the true value is. Please consider adding additional schools and residences at a minimum.
2. Section 8: Based on the proposed modelling methodologies, more investigation into the source parameterizations should be done. For example, it would be useful to understand if using point sources in lieu of area sources leads to more conservative predicted results. The nature of the facility is transient, so it is challenging to accurately represent all the equipment movements but there may be instances where the model is being over conservative or under predicting based on where the stationary point sources are placed.

3. Pages 29-30 (section 8.2.3): While the dynamic nature of the container heights is understood, Figure A2-12 indicates modelling has not incorporated the full extent of the area where containers would be present. How was it determined that the container locations chosen actually provide a reasonable estimate of downwash? From satellite imagery and photos of the facility, it appears that there are usually containers across the full site. What consideration was given to employing an average height when developing the downwash? Was a sensitivity analysis conducted to determine the impact of modelling with building downwash?
4. Table 8-1 (page 33) and results: Canadian Ambient Air Quality Standards (CAAQS) for NO<sub>2</sub>, which were adopted in late 2017, have not been assessed in this report, but the results show that they will likely be exceeded significantly, even under the ARM scenario (both 1-hour and annual). Since the project would operate beyond 2020, please update the report to consider the NO<sub>2</sub> CAAQS for 2020.
5. Table 8-1: See comment 16 on application of the ARM method to annual averages.
6. Tables 8-1 to 8-3: The maximum 1-hour concentration should be compared to Metro Vancouver's SO<sub>2</sub> objective, which is based on a not to exceed statistical form.
7. Table 8-2 and Table 8-3: Do these tables include the background concentrations?
8. Table 8-4: The NO<sub>2</sub> results are very high, even under ARM and would exceed the new CAAQS. What geographic area would be predicted to exceed the CAAQS?
9. Section 11.3, Table 11-12: The rail activity shows one locomotive for the facility switching but 2 for transit. Where does the other locomotive go? Does it stay idling? Are its emissions included in the estimates?
10. Section 11.4.4: For the 24-hour modelling, was a variable emission file made for drayage? Based on the description, the hours of operation are well defined and therefore should not be distributed over the entire 24-hour period.
11. Section 11.9: Non-Road (other) equipment was not modelled as it was deemed "negligible" but are there times when non-road equipment would operate for an hour? This could have been included in the hourly dispersion modelling results. As an example, the 1997 T0 forklift operating for an hour has an emission rate comparable to a Tier 2 FCH operating over the hour and the FCH was included in the assessment.
12. Section 12.2.3.3: Given that this station is located in the middle of Georgia Strait, what is the rationale for how this is representative of English Bay? What sort of influence does the Halibut Bank station have over the waters in English Bay? Open water in the Strait is likely different than the waters which are fairly constrained by land in English Bay.
13. Table 12-5: See comment 16 about applying ARM for annual averages.
14. Section 12.3.1: As noted previously (comment 1), this report does not consider the appropriate number of sensitive receptors, in our view. Only one receptor in each of the categories was selected, and as a result the report doesn't consider that the Centerm facility extends over a large area and that there are a number of residences near the fence line. It is not appropriate to estimate the predicted concentration based on isopleths.
15. Section 12.3.4: The method proposed for developing an ARM curve for both the 1-hour and annual averaging periods is not appropriate, in our view. For the 1-hour curve, Figure A2-18 indicates that hourly data was pooled from eight stations across the western portion of Metro Vancouver; a more appropriate approach would be to develop the curve based on a single station and then "test" on other station data. By including all of the stations in the development of a trend line, it is not accurately capturing how NO<sub>x</sub> to NO<sub>2</sub> conversion happens in different areas.

16. Section 12.3.4: For the annual ARM, this is not an appropriate application of the methodology. There does not appear to be sufficient data available to create an appropriate curve.
17. Section 12.3.4: Why were “conversion bins” used? This is not the recommended approach to applying ARM. Additionally, how were background concentrations taken into consideration when applying the ARM method? The BC Modelling Guideline stipulates that the background NO<sub>x</sub> concentration should be added to the predicted NO<sub>x</sub> concentration and then the ARM curve is applied.
18. Section 12.4.1 and 12.4.2: During maneuvering how does a single stack location account for the movement over an area of the tugs and OGV? Why were point sources chosen for this portion of the emissions?
19. Section 12.4.3: Why were rail emissions put through a single, stationary point source? The report says that trains will be moved around through the course of loading/unloading and a single location doesn’t appropriately represent where emissions come from.
20. Section 12.4.6: Are the crane stacks releasing vertically?
21. Section 12.5.1: What is the geographic extent of the NO<sub>2</sub> exceedances if the new 1-hour and annual CAAQS are used for comparison?
22. For consideration, the following additional comments would typically be identified as part of Metro Vancouver’s air permit review process:
  - Section 12.6.3: Wind field plots are part of the QA process when reviewing prognostic data. While the MOE commissioned Exponent to run WRF, the model was run for the entire province and it is not possible for MOE or Exponent to guarantee sufficient model performance everywhere. Given the complex topography surrounding the facility, it is critical to assess the suitability of the prognostic data. Further, setting R1 to 0.5 km cannot be claimed to be a sufficient check on the validity of WRF as CALMET adjusts and downscales the WRF data. There have been documented cases of the hybrid method leading to donut holes in the wind fields.
  - Section 12.6.6: What investigation was done to ensure that the hybrid method has not resulted in artificial wind fields such as donut holes? The figures presented are too small to see what may be occurring near the surface stations. As an example, it appears that Figure 12-19 has lower wind speeds directly over T31 in a circular area around the station.
  - Section 12.6.6: Given the complex wind patterns which may exist over English Bay, it would be helpful to have a more zoomed in plot which focuses on the area near the facility.
  - Figure 12-22/Figure 12-26: As mentioned above, there is an area of increased wind speeds around the T31 stations.
  - Figure 12-27: What is the physical explanation for why the site would see higher wind speeds than YVR? As a specific example, the wind rose presented for summer indicates that over 10% of winds at the site were between 5.7 and 8.8 m/s while the airport had a negligible amount of winds in this category. Both locations are on the water and in general should experience similar land/sea-breezes.

## **Appendix 2**

1. Which rail spurs were modeled? Are the ones running under Main Street considered part of the project footprint?
2. The fence line changes between the base case and the project case yet there is no change in the receptor grid. The fence line receptors should be extended along the full fence line for both scenarios.

3. How was the GEO.DAT file modified to account for the build out of the facility? Please provide a zoomed in figure showing the land use and terrain for the area surrounding the facility. The Project case GEO.DAT should demonstrate a change in elevation and land use for the proposed area of infill.

### **Appendix 3**

1. It would be helpful to include a contour indicating the extent of exceedance compared to the new NO<sub>2</sub> CAAQS.
2. Please provide an estimate of the population which is predicted to be within the exceedance isopleth for the 2020 NO<sub>2</sub> CAAQS.

## Attachment 2

September 14, 2019

File: 21530-01

To: Kim Walters, Project Assessment Manager, EAO

From: Arvind Saraswat, PhD, P.Eng., Head, Air Quality Section (Assessments)

**Re: Centerm Expansion Project, VFPA**

I conducted a summary review of air quality related sections in the following documents related to this project:

- Project and Environmental Review Report date April 18, 2018
- Centerm Expansion Project: Environmental Air Assessment dated February 2019
- MetroVancouver Comments on the Air Quality Assessment dated April 11, 2018

I must clarify that this was not a comprehensive review and my comments must be considered in that context. A comprehensive review would require a lot more time and would include a review of input/output modelling files. Moreover, I do not consider that necessary as air emissions from this project have already been review by Metro Vancouver. Below is a summary of my review:

1. A significant increase (~75%) in NO<sub>x</sub> emissions is expected due to the proposed project. It is not clear whether proposed emissions will lead to non-attainment of NO<sub>2</sub> Canadian Ambient Air Quality Standards (CAAQS). Further analysis is needed to confirm that exceedances of NO<sub>2</sub> CAAQS will not occur at or around sensitive receptors.
2. Use of prognostic data in CALMET may lead to some discrepancies in the wind fields. Metro Vancouver's comment #22 touched upon this issue as well. Discrepancies in the wind field may lead to a shift in spatial distribution of high concentrations or maxima. Surface and upper air data alone (obs-only mode) may be used in CALMET to understand whether the use of prognostic data is changing spatial pattern of exceedances. I do not have the modelling (input and output) files at hand and therefore I do not know if that is happening or not. However, I do recommend verification of this aspect.

3. Additional clarification is also needed to ensure that the application of Ambient Ratio Method (ARM) is consistent with the BC Air Quality Dispersion Modelling Guideline. Metro Vancouver provided detailed comments on this already and I do not have anything else to add regarding the application of ARM.
  
4. It is my understanding that ambient air quality monitoring will be required as part of an air quality management plan. Such a plan would be imperative to ensure attainment of NO<sub>2</sub> CAAQS at sensitive receptors.

Feel free to contact me if you have any questions.

Arvind Saraswat, PhD, P.Eng.