

Billy Bishop Toronto City Airport

Noise Management Sub Committee Meeting 6 Summary

May 29th, 2019
7 pm-9 pm

Billy Bishop Airport Boardroom
(Mainland Passenger Transfer Facility, above Aroma Café)

PARTICIPANTS

Hal Beck – Co-Chair (York Quay Neighbourhood Association)
Angela Homewood – Co-Chair (PortsToronto)
Gary Colwell (PortsToronto – Noise Management Office)
Bryan Bowen (City of Toronto, City Planning - Waterfront Secretariat)
Wayne Christian (York Quay Neighbourhood Association)
Lesley Monette (Bathurst Quay Neighbourhood Association)
Max Moore (Bathurst Quay Neighbourhood Association)
Alex Lavasidis (Lura Consulting - Notetaker)
Jim Faught (Lura Consulting – Observer)

SUMMARY OF DISCUSSION

The following section provides a summary of discussion at the Noise Management Sub Committee (NMSC) Meeting 6. This is not a verbatim account of the discussion. This summary is organized by discussion topic. The agenda for NMSC Meeting 6 is available in Appendix A.

Welcome and Agenda Review (All)

- Bryan Bowen, City of Toronto, provided an update from the Ministry of Environment, Conservation, and Parks (MECP). He confirmed that MECP staff can attend the next meeting. He noted that the NMSC will need to finalize and send the list of questions for the MECP in the next 3 weeks. The Senior Noise Engineer with the MECP will answer questions next meeting as well as complete a small presentation on NPC 300.
- Hal Beck, York Quay Neighbourhood Association, noted that he will provide draft questions to Bryan and Angela in 2 weeks for their review and editing.
- Angela Homewood, PortsToronto, noted that there are draft questions for the MECP included on the reverse of the agenda provided to each NMSC member. Some questions are compliance related while others are related to the standards.
- Hal noted that the NMSC is not only interested in NPC 300, but also in how existing policies and regulations are written, whether compliance is reactive or proactive, and why. He noted that it will be good to have the right people from the MECP present to provide their perspective.

- Bryan suggested that the questions be sorted under themed headings to make it simple for the MECP to identify which branches should be represented at the next NMSC meeting, or at least whose contact information should be shared with the NMSC for follow-up questions.

Master Plan Public Meeting Update (Angela Homewood)

- Angela noted that the Master Plan Public Meeting would take place on June 12. Advertisements for the meeting have been sent to local community representatives to share with their networks. Angela noted that this method of advertising seemed to be the most effective means to ensure people in the community who care about the Master Plan receive the meeting information. She noted that the meeting was also being advertised through Councillor Cressey's newsletter and that PortsToronto were briefing Member of Parliament Adam Vaughan on the Master Plan.
- Max requested printed copies of the electronic Master Plan Meeting flyer for his community. Hal also agreed to receiving printed copies of the flyer to advertise the meeting in his community.
- Gary arranged to provide Max and Hal with printed copies.
- Lesley Monette, Bathurst Quay Neighbourhood Association, inquired if the meeting would be recorded.
- Angela responded that Lura will take notes during the meeting. These will be posted online once they are complete. She also noted that the materials shared during the meeting will be posted onto the project website within about 24 hours.

Update on the Status of Noise Assessment Scope of Work (Angela)

- Angela noted that all the comments submitted on the Noise Assessment Scope of work were put into a table. Angela will respond to each comment and circulate the table back out to the group. This will occur the week after the public meeting.
- Hal noted that the draft proposal for noise monitoring locations will not be discussed tonight, noting that he has not had an opportunity to read the report on the suggested monitoring locations. He suggested Mike Karsseboom attend a future meeting to present on potential location for noise monitors.
- Gary Colwell, PortsToronto, noted that Mike Karsseboom, PortsToronto, would like the NMSC to select two monitoring locations as soon as possible to allow for set up of the monitoring sites to begin.
- Lesley noted that her Condo Board is happy to host a monitoring site on the 6th floor of their building. They are interested in measuring the noise impacting residents. They understand there was concern about putting the noise monitors in spaces where noise reflection can occur, but believe any noise reflection that results in increased noise experienced by residents needs to be recorded and measured, as any noise measurement should address the *actual* noise experienced in the community.
- Gary noted that the intent of PortsToronto is to place both monitors on locations to begin monitoring soon. The monitors can be relocated if the locations selected prove to be suboptimal.
- Hal suggested that the monitors be placed in the areas that NPC 300 designates as the worst areas for noise (the areas that should be the loudest in the area around the airport). He noted that his building board is also interested in hosting a noise monitor.

- Lesley suggested a building located close to the tail end of the runways also be contacted as a potential location for a noise monitor. This location reflects Lesley's concern about what point of a plane's ascent and decent is being measured by noise monitors.
- Hal noted that Lesley's concern ties into the difference between stationary source and flyby noise.
- Gary reiterated that the location for noise monitors will be whichever two locations the NMSC decides are best.
- Hal reiterated that a presentation on the suggested locations (from the study) would be helpful in aiding the NMSC members with identifying the best locations for the monitors.
- Max noted that Kings Landing seems a prime location for a noise monitor as it is nearby aircraft takeoff noise sources.
- Hal noted that measurements should include stationary source noise and fly by noise.
- Lesley added that noise that accumulates due to reverberation off the grain silos should also be included in the noise study.
- Bryan noted that Kings Landing is the building is the closest to the 25 NEF line and would therefore be a good location for a noise monitor.
- Hal noted that his building, on the 5th to 6th floor, would also be a prime location for a noise monitor. Hal would like to know what the actual background noise in the neighbourhood is, as well as the total noise, as this would enable a better understanding of the magnitude of noise created by the airport in the community. Hal noted that his building, compared to the City Side PortsToronto building is shielded from the lakeshore-based noise sources.
- Wayne suggested the Amsterdam Brewery as a good location for a noise monitor because of the confluence of several noise factors.
- Hal noted that a monitor at the Amsterdam Brewery would result in too much additional noise being measured from crowds of people in the area.
- Wayne noted that there is a noise monitor in place at the Marine Police building. Gary confirmed.
- Hal noted that using data from the Marine Police building (emergency vehicle noise), Amsterdam Brewery (crowd noise), or on top of a building (ambient City noise) wouldn't be fair to the airport, and that he would like the monitors and noise study to focus on airport's impacts.
- Wayne noted that the monitors should collect noise carrying over the water, as the committee knows that noise travels differently over water.
- Angela suggested having the noise subject matter expert host a community walk in September to discuss 3 to 4 potential monitoring locations.
- Gary noted that he will send an email to the noise expert to confirm availability.
- Hal inquired if more than two monitors may be required.
- Angela inquired (to Gary) if existing monitors could be relocated.
- Gary noted that he will investigate the potential to relocate existing monitors.
- Angela noted that monitor relocation can also be discussed with the subject matter expert.
- Hal inquired what the noise monitor over Algonquin Island is intended to capture.
- Gary responded that the noise monitor is intended to capture noise from planes flying over the island, including itinerant aircraft.

- Angela reminded the committee that anything the NMSC recommends around noise monitors would be brought to the CLC for approval and comment.
- Gary inquired if it would be reasonable to wait until the September community walk with the noise expert before the locations for noise monitors are selected. He also noted that Billy Bishop Airport will be coordinating with other southern Ontario airports to make a bulk purchase of noise monitors. Gary added that PortsToronto also own a portable noise monitor that can be deployed.
- Jim Faught, Lura Consulting, noted that Pearson Airport published the location of their noise monitors on their website.
- Bryan inquired what Pearson Airport uses their noise monitoring data for.
- Jim responded that they have used the noise data collected to inform changes to flight paths, set turning limits, and overall shift how they are routing the planes to reduce noise experienced in the community.
- Bryan noted that Pearson Airport's Master Plan, included specific language describing the limits of NEF contours and that NEF contours are a dated model. He noted that it is clear by Pearson Airport's practice that they are moving away from using NEF contours as a tool for noise management.
- Jim noted that Pearson Airport is currently conducting tests each weekend where they systematically change the direction of plane takeoffs and landings to better understand noise impacts on the community.
- Hal noted that he is against flight path changes. He explained that when people buy a property, they buy the property with the expectation that the home is built to create a suitable noise setting. Therefore, there should not be any need for programs that reroute planes due to their noise impact on communities. NEF contours do equate to a set decibel level; the goal should be to reach a point where the noise experienced around airports reflects the intended noise decibel levels related to the appropriate NEF contour. Hal noted that he has read in depth and done the calculations to understand exactly how the NEF formula should be used. Essentially, Billy Bishop Airport growing to the maximum control contour limit, which should reflect a noise decibel limit. Past engineer and architectural guides need to be referenced so that intended decibel levels at each NEF contour can be established and followed.
- Bryan noted that only by measuring can one determine if the NEF contour has been accurately set, as that is the only way one can ensure the intentions of the NEF contours align/are applied correctly.
- Hal added that whether observing fly by or stationary noise source, the average noise experienced should reflect the decibel level related to the set NEF contours.
- Hal noted that Helios, an informed consultant, studied flight paths at Pearson Airport two to three years ago. They provided a good presentation relating to flight paths and spacing of planes. They explained that eventually, based on flight path planning software, as the number of flights and related noise grows, there will be a flip where flights from Pearson are send out over Lake Ontario, impacting the communities along the waterfront.
- Max noted that more complex computer software technology is what has allowed for more planes to fly closer together; that was a key outcome of that presentation by Helios. He noted that enabling more planes to fly (e.g. out of Billy Bishop Airport) has created more noise for nearby communities.

- Lesley added that additional flights have also led to additional pollution and carbon emissions worldwide.
- Gary noted that another technology advancement in the aviation world is that currently, only 40% of the world is covered by radar; in the future, satellites will allow radar to cover 100% of the world, enabling tracking of planes everywhere.
- Max inquired if this new technology will result in an increase in volume of flights.
- Angela noted that Nav Canada have started calculating what the GHG reductions will be based on refined flight paths. She explained that those can be provided in the new Master Plan. She noted that PortsToronto are looking to become more environmentally sustainable in their operations, as reflected by the ferry electrification. PortsToronto will outline their long-term sustainability vision and plan in the upcoming Master Plan.
- Max inquired if PortsToronto are considering increasing the number of flight slots at the airport.
- Angela responded that it is not something PortsToronto are looking to do in the short term. They are looking to complete operational improvements to get to a place where they could consider introducing more slots in the long term.
- Hal stated that he would like a presentation on slot regulation at the next CLC meeting. He would like to better understand how slots are regulated, and if airplane type makes a difference in relation to slot use.
- Angela noted that PortsToronto hires a company based in Montreal to do the analysis to provide slot scenarios to the airport.
- Bryan noted that currently, he believes that Billy Bishop Airport is operating at less than half of their maximum allowed slot limit.

Review Original and Primary Meteorology Definitions List (Wayne)

- Wayne provided a handout of meteorological definitions, sourced from Environment Canada (see Appendix B). He noted that the most important definitions are:

<ul style="list-style-type: none"> ○ Atmospheric and barometric pressure ○ Dry bulb temperature ○ Humidity ○ Precipitation ○ Relative humidity ○ Wind 	<ul style="list-style-type: none"> ○ Wind direction ○ Wind speed ○ Humidity ○ Inversion ○ Lake breeze ○ Relative humidity
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- Wayne noted that MANOBS (available here: http://publications.gc.ca/collections/collection_2013/ec/En56-238-2-2012-eng.pdf) also provides a list of all meteorological terms related to aviation.
- Wayne explained the importance of understanding meteorological terms to enable further discussion as a committee. He noted that a similar set of definitions should be provided for noise terms (e.g. noise absorption, dispersion, refraction, and reflection). He noted that AIRBIZ report (p 72-93) provides a good explanation of these terms.
- Hal requested that a divider between the two sections of the definitions be added (see Appendix B).
- Max noted that he is interested in understanding how and why, when the airport has the same amount of traffic, some days are noisier than others.

- Hal noted he is also interested in knowing if there are certain terms in the resources Wayne provided that are often misused.
- Wayne noted key meteorological terms may not be understood; thus, they could be misused. Wayne also noted that he is disappointed that people tend not to take meteorology's connection to sound/noise seriously. He reiterated that meteorology is an extremely important factor, especially wind direction, temperature and humidity. He noted that temperature inversions over water bodies, which tend to occur on days above ten degrees Celsius, result in inversions that create a noise ceiling.
- Hal inquired if inversions dampen noise over the water.
- Wayne explained that noise moves more easily over water (less friction) than land and when water is warmer, the noise traveling over it could be amplified.
- Hal inquired how elevations factor in, and if there is a uniform gradient for this amplification at set elevations.
- Wayne responded the question is beyond his level of understanding and a professional would need to provide a response.
- Gary responded that air temperature cools by two degrees per thousand feet. An inversion is the opposite; as altitude rises, air becomes warmer. It is possible to see inversions on a clear day by looking at the brownish smog line in the sky, and where it is positioned. It is also possible to calculate the elevation of the line between cool and warm air, as this occurs at the dew point, where clouds form (above the line is cold air and below is warm air).
- Bryan inquired why the sound bounces back off the point of inversion instead of accelerating (since the point of inversion is where the temp gets warmer).
- Max responded that there is a vibrational quality to sound, so the difference in temperature may impact the vibrations and create a tunneling effect.
- Wayne agreed that this tunneling of sound does occur (below the dew point). The NMSC is not certain of why.
- Wayne noted, the summer higher temperatures creates a lake to land movement of air; as heat rises over the city the cooler air near/over the water will move onshore, replacing the rising warmer air in the city. When the above takes place sound/noise will generally move in the direction to where the wind is blowing and the distance the sound/noise can be projected further into the city depending upon also wind speed.
- Hal inquired what is being inverted in the inversion.
- Wayne responded that temperature is being inverted.
- Hal inquired if this is similar to an inversion in a lake. He also noted that it is interesting to look at the impacts to sound of meteorology. Hal would be interested in seeing stats from the airport to understand which weather is the worst for the community's noise experience and how statistically likely those weather conditions are.
- Max agreed that it would be interesting to compare the decibel readings at loud moments to weather conditions.
- Gary agreed that noise is impacted by weather, especially wind and humidity as sound travels better through moisture.

- Hal noted that for years' people have complained that overcast conditions made airport noise worse.
- Wayne explained that the impact of clouds on noise will depend on the height of the clouds and the cloud type.
- Hal noted that policy makers forgot about the simple common knowledge about how well noise travels across the water when they signed the original Tripartite Agreement.
- Hal inquired if the airport has data on the cloud coverage around the airport over time.
- Wayne noted that there is an automatic weather operating system around the airport, but that it does not collect data on the cloud type. This information can be requested from Environment Canada; however, it is unclear if this would be an average based on recent data.
- Gary will send out a cloud chart to the NMSC. Alex will attach that to the minutes along with all handouts provided by Wayne.
- Wayne noted that the need for data reflects the need for there to be a noise study that occurs most hours of the day, every day of the year for a year, in order to identify true highs and lows.
- Hal inquired if some conditions more prominent in different times of year.
- Wayne replied that on hot days it is noisier, the winds also switch directions different times of the year which has an impact on noise experiences in the community. May to early October are peak times for wind coming into the City; Wayne suggested these may be the times of the highest noise complaints.
- Lesley has noted that recently, winds have been coming out of the east, resulting in planes taking off in the opposite direction, which is good for her building in terms of sound impacts.
- Max noted that a strong wind also gets rid of the vibrational quality of noise faster.
- Hal inquired if there is a set of meteorological conditions that are likely to negatively impact sound experience in the community that NMSC members would like to understand the statistical likelihood of (e.g. how many days a year those meteorological conditions are likely to take place).
- The NMSC would find this helpful. Though there is uncertainty over whether cloud cover should or could also be included.
- Wayne noted that the Environment Canada weather station does track cloud cover, however the method it uses is not as accurate as weather observations (especially 6:45 to 11 am). Wayne noted that Billy Bishop Airport is the only Canadian airport (top 10 by commercial passengers) not to have 'Human aviation observations'.
- Hal noted that it would be interesting to understand how different frequencies travel based on sound's relationship to temperature and humidity.
- Gary explained that clouds, and associated pressure and temperature fronts, also impact sound experience. For example, high pressure systems tend to get rid of clouds. Cold fronts tend to result in a line of stratus clouds coming in from over the lake. These clouds are mid-level clouds that amplify plane noise. Really low clouds or mist would be the optimum scenario for greatest noise transmission. The opposite is also true, as a clear and stable night also results in high levels of noise transmission. Additional impacts include the temperature in the City during the daytime; hot days' result in a heat transfer from the city towards the lake at night, resulting in winds that move from the city out onto the lake (instead of the sound carrying inward).
- Wayne noted that he will attempt to find additional answers to the questions discussed during this NMSC meeting.

- Hal stated that he would like the minutes to reflect the following request for information: That the NMSC be given information that establishes the statistical likelihood in any given month for the worst-case weather settings (as they pertain to noise transmission) to exist. He noted that the NMSC should think about how this information can be used to inform noise management.
- Bryan inquired what human weather observers provide that instruments do not.
- Wayne noted that there are many measures of atmospheric condition that should be measured, some of which are more effectively measured by human (e.g. cloud type). Overall, Wayne suggested that hourly measurements include cloud type and height, temperature, humidity, winds, humidity, pressure, precipitation, timing of different weather events, and more.
- Gary noted that he will send the NMSC an aviation weather report in both plain and aviation language.
- Angela inquired if Nav Canada do human observations of the cloud ceiling.
- Gary responded that he believed those are done by radar. He also noted that the jet stream has a large impact on weather. In the winter, the jet stream usually lower in altitude, which results in stronger winds in the community. Wind patterns, and turbulence of wind off buildings impacts sound transmission from planes. The turbulence of wind off buildings can create both dead spaces where there is low noise and areas of high noise due to noise transmission.

2016 Noise Exposure Contours Report for Billy Bishop Airport (Angela)

- Angela noted that through email, Bryan had suggested that PortsToronto share Transport Canada's Noise Exposure Contours. PortsToronto posted the contours to the airport website yesterday (<https://portstoronto.com/portstoronto/media-room/community-notices/2016-noise-exposure-contour-report-for-billy-bisho.aspx>). Angela explained that the contours are something the NMSC can discuss at the next meeting. She suggested that NMSC members review the contours and identify any questions they would like subject matter experts to explain or review. She explained that these reports have been occurring for years, to ensure that airport operations are in compliance with Noise Exposure Contours. Typically, the report is individually tendered out, but a few years ago, two years of reporting was tendered out as two separate reports and prepared by the same consultant.
- Bryan noted that he wanted this topic tabled and discussed because the report should help to decipher the terms in the Tripartite Agreement and help the NMSC reach conclusions on the intentions and meanings behind different portions of the Agreement. Bryan suggested the NMSC evaluate this report compared to the Agreement, and then discuss whether they agree with the conclusion in the report.
- Hal noted that he agrees with how the report is presented from an engineer's perspective.
- Bryan noted that interestingly, the actual NEF 28 contour exceeds the control 28 contour (the control 25 contour matches the actual NEF 28 contour). The report still finds the airport in compliance. He noted that this is the point of contention the NMSC has had, as the control 28 contour is not the actual NEF 25 contour. Figures 4 and 5 in the report represent that difference.
- Max noted that he assumes they are making incorrect assumptions due to discrepancies in their modeling formula.
- Bryan noted that this topic will be a valuable discussion at the next meeting.

- Hal suggested the NMSC focus on stationary source noise. He asserted that NEF contours should not apply to the airport because does not have a continuous flight path in operation; the airport is all single, fly-by noise.
- A NMSC member inquired when the report was received.
- Bryan noted that the secretariat just received the report.
- Hal noted that Statistics Canada data isn't available until 3 to 4 months after the end of the year, which in-part reflects how late the 2016 report is released (now in 2019).
- Angela explained that PortsToronto tendered the report 18 months after the end of the fiscal year (waiting until January of the following year). Angela is not certain about why there is such a long delay in the tendering process.
- Bryan noted that Billy Bishop Airport is the only airport to run this compliance check.
- Max suggested that the reason that Billy Bishop Airport may run the compliance checks is to help plan for future expansion.

Other

- Lesley noted that the article she shared with the NMSC through email (regarding noise barriers) is an example of a noise barrier that can also be used to reduce air pollution. The barrier is Canadian-made and being sold to China.
- Gary provided three short airport updates:
 - The Ground Run-Up Enclosure is reducing noise complaints related to run ups; with run up complaints only received when the GRE is not used (e.g. due to wind conditions).
 - To reduce noise in the community, the airport's wildlife program stopped using the bangers to deter animals from entering the area around the airport.
 - Billy Bishop Airport is the first airport to now have a 100% electric trash-vacuum cart.
 - Hal noted that based on the topics of the questions for the Ministry, it may be useful to set up different meetings for different topics, to ensure the correct experts are present.

Action Items

- All NMSC members will provide any additional questions for the Ministry through group email in the next 2 weeks along with any suggested edits for the Noise Assessment Scope of Work.
- Gary will confirm availability of a noise expert to lead a community walk with the NMSC in September.
- PortsToronto will consider a presentation on slot regulation for an upcoming BBA CLC meeting.
- Gary will send out a cloud chart to the NMSC. Alex will attach that to the minutes along with all handouts provided by Wayne.
- Gary will send the NMSC an aviation weather report in both plain and aviation language.