

Toronto Noise Mitigation Initiatives
Summary Report on Stakeholder Roundtables

Appendix A: Stakeholder Roundtable Summaries

Prepared by Lura Consulting
September 2015

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Toronto Noise Mitigation Initiatives
Stakeholder Roundtable – Summary Report

Burnhamthorpe Community Centre
July 29, 2015 | 7:00 – 9:00 PM

Between July 29th and August 24th 2015, NAV CANADA and the Greater Toronto Airports Authority (GTAA) hosted a series of 8 roundtable discussions with stakeholders to explore six concepts related to noise mitigation in the community. This report has been prepared by Lura Consulting to provide NAV CANADA, the GTAA and roundtable participants with a summary of the feedback captured at the stakeholder meeting held at Burnhamthorpe Community Centre on July 29th.

Attendance: 8
# of Individual Discussion Guides Submitted: 6

Questions of Clarification

Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. How was this meeting advertised?
A. The stakeholder roundtable meetings are by invitation only. We reached out to our networks to identify community groups and resident organizations that should be involved in this step of the process. We also reached out to elected officials in each community. To clarify, this is the beginning of the process; we are hosting conversations with community group leaders first followed by public meetings later in the process.

Q. Are the noise abatement procedures strict?
A. The Noise Abatement Procedures are regulations written and managed by Transport Canada. There is a regimented process to change the Noise Abatement Regulations.

Q. What is the general percentage of turbo props that fly into Pearson compared to jets?
A. It changes depending on the time of day.

Q. You stated that jets must climb to 3,000 feet before turning. We have observed jets turning below 3,000 feet.
A. To your point, there is an early turn program for smaller jets (e.g., corporate jets) that allows them to turn at 1,100 feet. That program has been in effect for over a decade.

Q. Are the images in the slides from 2013?
A. The images are from 2014.

Q. Where should noise complaints received by the offices of elected official be directed to?
A. You can direct questions to the GTAA Stakeholder Relations and Communications office. Residents are welcome to attend Community Environment Noise Advisory Committee (CENAC) meetings. We are also more than happy to set-up one-on-one meetings with residents.

C. I encourage you to circulate information to constituency offices to relay messages and communications from GTAA and attend community events.

Summary of Participant Feedback

The following summary reflects participant feedback received during the roundtable discussions as well as the written comments submitted by individuals after the session.

IDEA #1 – New approaches for night-time operations

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. How many runways will be used during the night-time hours?
A. The night-time preference option will be reviewed under Idea #6. In terms of the ability to use different runways, pilots need to know at least 15 minutes before landing that they will be using this approach.

Q. Can this concept be used on any of the runways?
A. Yes, as long as only one runway is in use.

Q. Is this the current approach that is being employed by FedEx (i.e., restrictions on arrivals)?
A. No, it is a different concept.

Q. Have you studied whether the changes made by FedEx resulted in a change in noise levels?
A. Those procedures [not specified] were in place when FedEx was flying 727 jets. They have since upgraded to 757 jets and stopped using those procedures. They currently operate according to the procedures that apply to all jet aircraft.

C. Ensure that Dr. Novak, CENAC's acoustician, studies the potential changes in noise levels for each of the six ideas. If there is no appreciable change in noise levels, then we're doing this for no reason. Also, consider the potential of these ideas to create noise issues in neighbourhoods where they currently do not exist.

Q. How does the GTAA noise monitoring program inform this process?
A. We have 17 noise monitoring terminals in communities around the airport. Any noise event that registers above a specified noise threshold is recorded and transmitted back to us. We then determine if the noise event was caused by an aircraft. We are aware of the need to measure existing and future noise levels to assess the potential benefit of these ideas. Through a separate process, we are reviewing where the noise monitoring terminals are located as well as opportunities to introduce more noise monitoring terminals in other locations.

Q. Do these ideas reflect noise data?
A. No, we have not layered any noise data in the proposed ideas.

Feedback on Discussion Questions

1. What do you like about this idea?

- Considers additional option for noise mitigation.
- Considers continuous descent as an option.
- GPS "segment" options.
- Thinking outside the box.
- Aircraft at higher altitude as they make final turns to align to runways.
- Sounds very logical and more efficient.

2. What concerns do you have…why?

- Concerned about extending the hours of operation due to the lower volume of aircraft that can be accommodated through this approach.
- Extending hours of high traffic operation.
- Need more information about how the number of flights will be managed during certain hours (e.g., night-time).
- Clarify how this concept fits with night-time preferential runways.
- Clarify whether this approach would vary by runway – should a preferential night designation review be completed first?
- Clarify whether this concept will shift noise from one neighbourhood to another.
- Concerned about pilots managing more of the approach at a busy airport like Pearson.
- Clarify whether aircraft use of GPS is being mandated within a certain timeframe.

3. What should be considered as this idea is studied further?

- Identify a volume threshold.
- Identify a volume threshold for noise from aircraft operations.
- Use GTAA noise monitors at night-time.
- Include GTAA noise monitoring data.
- Identify the change in noise impact that will be experienced; collaborate with CENAC's acoustic experts on this matter.
- Use Dr. Novak to his full capabilities.
- Consider how efforts to mitigate noise will change which communities are affected by aircraft noise (e.g., current vs. new).
- Narrow down hours of operation.
- Mitigate noise as much as possible.

IDEA #2 – New departure procedures for night-time operations

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. If runway 23 is not available for night-time departures, what is the next best option?
A. Our order of operations is 23, 33R, then 24R.

Q. The order of operations for the next best runway is chosen according to the noise abatement regulations managed by Transport Canada, not individual air traffic controllers, correct?
A. Yes.

Q. On a day like today with little wind, does it matter which runway you take off from?
A. Yes, for a number of different reasons (e.g., speed, weight, etc.).

Feedback on Discussion Questions

1. **What do you like about this idea?**

- It seems to keep aircraft in a narrower corridor; if you can keep the noise over the industrial area instead of the residential areas, you're doing a better job.
- Keeps aircraft on a narrower corridor and higher altitude prior to turning, over or near industrial areas.
- It is over an industrial corridor (away from residential areas).
- "Industrial Corridor".
- Industrial corridor option – a systems approach is very promising.
- Appears superior to current approach to climb to 3,000 feet.
- The noise benefit to residential areas of aircraft flying 40 percent higher. It would reduce noise from aircraft on households below the flight path.
- It works in tandem with Idea #1 and is not too complicated.

2. **What concerns do you have…why?**

- Only one runway is in operation; explore using other runways for take-off or landing at the same time (e.g., 23).
- Clarify the impacts on volume and whether volume thresholds will be set.

3. **What should be considered as this idea is studied further?**

- Clarify whether aircraft will be ascending at the same rate they currently do to reach 3,000 feet.
- Keeps noise levels down.
- The impact on new areas under the flight path.
- The percentage of complaints vs. departures – don't fix what isn't broken.
- How change will impact "new" neighbourhoods or neighbourhoods currently impacted.

IDEA #3 – Increase downwind arrival speeds

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. Do those speeds apply to all the ideas you presented?
A. Yes, we can only have one set of procedures in effect.
C. My concern is keeping the aircraft separated by a safe distance.

Q. Between Ideas #1-3, is there concern about giving pilots more decision-making autonomy (i.e., judgement calls)?
A. This idea proposes applying the procedures from a less busy airport to Pearson when it is appropriate to do so. Pilots would be using the same discretion, but applying it to different procedures.

Q. Are there concerns about communication barriers with international pilots (e.g., language)?
A. To clarify, we are not expecting pilots to make their own decisions. Air traffic controllers give pilots clearance for a particular flight path (i.e., set the aircraft trajectory); the pilot manages the aircraft on that pathway. English is the universal language of air traffic control.

Q. Have pilots been invited to these meetings?
A. Our customers (e.g., airlines, pilots) have already reviewed these ideas. Once the stakeholder and public consultations are complete, we will be completing a technical review which will include further participation from pilots.

Q. Is this idea about extending the hours of operation and the ability to increase operations at night-time without upsetting residents?
A. No; scheduling is undertaken through slot allocation. Our intention is not to stretch out the schedule. Rather we need to optimize operations to keep pace with growth.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- Appears to be logical.
- New ideas are good – examination will give us another opportunity for change.
- Another prudent review of potential possibilities to reduce noise.

2. **What concerns do you have…why?**

- Distance/separation between aircrafts (i.e., potential for air collision over residential areas).
- Safety is critically important.
- Clarify whether there are concerns about this idea from other stakeholders (e.g., flight deck)?
- There are many unknowns based on the mix of aircraft.
- Clarify whether different speed limits will produce noise impacts and on which neighbourhoods.
- As opposed to Ideas #1 and #2, this one seems less certain to yield any noise reduction.

3. **What should be considered as this idea is studied further?**

- Study the noise and safety impacts of this option.
- The noise impact should not exceed current levels.
- Discuss the impacts of this idea with flight deck.
- It should have an appreciable noise reduction.
- Ensure other stakeholders are given the opportunity to review these ideas (e.g., pilots).

IDEA #4 – Use new technology to reduce the need for low altitude leveling by arriving aircraft

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q, Is it possible to change the turning degree?
A. Technically yes, but it's not ideal as it will create more noise.

Q. How successful has the use of this technology been in Denver, CO?
A. It depends on the measure of success being used. About 100 flights use this procedure in Denver a day. Denver has three parallel runways that are much further apart and not as busy as those at Pearson. One of those runways is used primarily for aircraft using RNP. There are roughly 20 airports in Canada that use RNP, but not in a parallel operation. This idea proposes using RNP in a parallel operation in Canada.

Q. What has been the noise impact of using this technology in Denver, CO?
A. We don't have that data. Denver is a new airport located away from residential areas; there is not much noise to listen to. There is an opportunity to do some comparative analysis using data from other airports that use RNP.

Q. What would the engine settings be on that approach?
A. They are not completely idle, but close.

Q. What are the costs of implementing this idea?
A. There is a cost to the airline to equip their planes with the technology, there is a cost to NAV CANADA to develop the procedures and the cost of completing the study.

Q. Can you clarify the difference between performance-based navigation (PBN) and required navigation procedures (RNP)?
A. PBN is like a filing cabinet. RNP is like one folder in that drawer. It's a way of differentiating between capabilities based on the aircraft's equipment.

Q. What feedback did pilots provide about RNP?
A. The airlines like this idea because it allows a controlled automated approach well within the safety standard.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- Potential use of technology to move away from high/low operations at Pearson.
- Controlled/automated environment.
- The use of technology.
- Quieter approaches.
- Not much.

2. What concerns do you have…why?

- This is a hard one – you need all facts at hand to evaluate whether this is prudent.
- Clarify whether this is feasible – How many aircraft will truly be able to use this technology? Your projections are likely overestimations due to resource limitations (e.g., funding, personnel).
- Is there a noise benefit?
- How many aircraft flying in/out of Pearson can use this technology?
- Would be very costly for smaller aircraft operators.
- This may be a long-term solution if all planes do not already have GPS technology, let alone required navigation procedures (RNP). It also sounds costly, question whether airlines will finance this tool.
- Needs more study to address safety concerns due to Pearson runways being so close to each other.
- It will take too long to study before implementing this idea.

3. What should be considered as this idea is studied further?

- Consider shelving this idea until more information is available from other airports that use it (e.g., Denver, CO).
- Consider the financial implications and long-term trends – Is this a waste of money? Is this truly the future?
- Identify if the reduction in noise is worth the financial investment.
- Requirements to obtain regulatory approval.
- Gather data from other airports.
- The timeline should be considered as this could be the future of aircraft operations; be more proactive.
- Identify the cost-benefit of financial investment vs. noise abatement.

IDEA #5 – Establish weekend preferential runways

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. To clarify, there are no regulations that require aircraft to arrive on 24R and depart on 23?
A. No.

Q. If you change operations from what they currently are, will you be affecting a different segment of the population? Will they get upset at noise that they are not used to?
A. That is the kind of feedback we would like to hear from you.
C. People don't like change.

C. The impacts from noise are experienced the most during the summer months. When there is construction and no aircraft, the change is unbelievable – it is absolute bliss. That respite makes a big difference. The idea of sharing the pain should be carefully considered. There is a need to update the regulatory document from 1972, which was created when there weren't residences near Pearson.

Q. The discussion has focused on proposed changes to east/west arrivals and departures. What about changes to north/south arrivals and departures?

A. I am cognizant of the issues experienced by Rockwood and Malton. I would take them out of the plan if possible, unless it is a wind issue. They are inundated with aircraft traveling at such a low altitude (and therefore noisy) that they are special. They are treated differently for a good reason.

C. Consider changing the approach depending on the season (i.e., expect to receive more complaints during the summertime).

Feedback on Discussion Questions

1. **What do you like about this idea?**

- Very innovative, outside the box thinking.
- Thinking outside the box and looks at the impact.
- Innovative.
- This only seems fair as it shares the load evenly.

2. **What concerns do you have…why?**

- Don't inundate Rockwood in this – this community has unique circumstances.
- Rockwood is already inundated due to its proximity to Pearson.
- Changing current operations may lead to new issues for residents not accustomed to flight paths over their homes.
- Seasonal changes (e.g., summer vs. winter).
- Which "new" communities will be impacted?
- None as this gives respite to those who do not get any now.

3. **What should be considered as this idea is studied further?**

- Review relevant statistics.
- How will this affect residents with new noise?
- Would be interesting to see what other communities have to say.
- Seasonal changes.

IDEA #6 – Alternate night-time preferential runways

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

C. You are going to get the biggest bang for your buck by reducing noise in communities that are currently inundated with noise as opposed to shifting noise in communities where it is low. While you are reviewing the current night-time procedures (which are antiquated), consider that they may be working well. You need to figure out your criteria, for example neighbourhood impacts; flying them over Rockwood is not an ideal answer.

C. I have been on this committee for fifteen years to change the night-time preferential runway procedures – they were written when there were no residential areas near Pearson and need to be reviewed.

C. Include an education piece into criteria (e.g., safety, wind direction). Don't create problems where there aren't any.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- There has been a need for this kind of review since 1972.
- Fantastic, way overdue.
- Is there a rating or ranking system?
- More information on impact on homes.
- If it helps dissipate the noise it seems to make sense.

2. **What concerns do you have…why?**

- Impact to Rockwood.
- Consider the impact to residential areas.
- Affecting new neighbourhoods and creating new "wildfires".

3. **What should be considered as this idea is studied further?**

- Pick the ideal case for 50 percent of the time.
- Criteria to determine which runway should be used (e.g., safety, wind, construction, equitability of noise, emissions, fuel savings, etc.).
- What makes one runway better than another?

Process and Next Steps

1. **What are the most important factors you would like to see considered in evaluating the various noise mitigation initiatives? Please identify your top 3 factors.**

- Mitigating all safety and wind concerns.
- There has to be an appreciable noise change to consider.
- Consider all factors associated with the change – not just "make it fair" or NIMBYism, but the idea that if it isn't broken or if it currently works, do we leave it?
- There has to be consideration of what "new" impact there will be from the change.
- Nothing that will add more noise to existing communities that are already impacted. Spreading out "noise impact" is one thing, moving it or adding to it is another thing.
- They all seem positive. Is it too early to rank them from most practical/effective to least and then focus on those at the top of the list?
- Safety, wind.
- High/low reform of the parallel approach.

- Consider all factors using a systems approach.
- Collect more data and use CENAC/GTAA monitoring data.

2. What feedback or suggestions do you have regarding the community engagement process moving forward and next steps?

- There is not enough public knowledge about airport operations; there is a need for more public education.
- Produce a package for residents explaining in simple terms how the airport/runways operate (e.g., wind and weather limitations).
- Include in the package what is in the evaluation stage and what this means for residents.
- From an information perspective, it's very technical; use plain language.
- Be careful about messaging; suggest using the following:
    - We are committed to safety.
    - We are listening.
    - We are considering changes.
    - We are all in the same boat.
- Provide the public with more information.
- Curious to measure impact on communities.
- Be clear about what is doable and what the limitations are to making changes.
- Be clear that the airport is here to stay so people understand the limitations.
- This is a good process. MORA is little impacted little by these issues. Airport noise has never been raised at any of our annual general meetings (AGMs) over the 30 years I have lived there (we are bordered by the QEW/Credit River/Dundas and Springbrook Road).

Other Feedback

- Pursue all feasible options that prioritize noise mitigation.
- Provide materials that explain airspace design for arrivals/departures in plain language (e.g., Landing 101).

Toronto Noise Mitigation Initiatives
Stakeholder Roundtable – Summary Report

Eatonville Library, 430 Burnhamthorpe Road
August 4, 2015 | 7:00 PM

Between July 29th and August 24th 2015, NAV CANADA and the Greater Toronto Airports Authority (GTAA) hosted a series of 8 roundtable discussions with stakeholders to explore six concepts related to noise mitigation in the community. This report has been prepared by Lura Consulting to provide NAV CANADA, the GTAA and roundtable participants with a summary of the feedback captured at the stakeholder meeting held at Eatonville Library on August 4th.

Attendance: 8
# of Individual Discussion Guides Submitted: 0

Questions of Clarification

Questions are noted with Q, responses are noted by A, and comments are noted by C.

C. I liked your presentation, and I learned a lot from it. I feel that the questions should not be directed at homeowner groups; these are technical questions that should be shared with pilots and air traffic controllers. You should have a measurable decibel level change to bring the homeowners, and that will indicate whether it's worth doing or not. Homeowner groups will always say noise reduction will be worth it, but whether the implementation and cost will be worth it for a little bit of change is more of a technical question.
A. We have brought these ideas to major airlines operating in Toronto such as WestJet, Air Canada, and Jazz. They are aware of the concepts, but they do not have the information either. This is the preliminary phase of consultation to get a feel for what questions and ideas we should be pursuing.

Q. Is this the only consulting you are doing with Etobicoke residents? I would like to share this with the residents, but I do not feel completely qualified to relay this information among residents. This is why I would like access to the presentation slides, otherwise you would get only my opinion and not the residents' on this issue. To my understanding, we are trying to increase flights, and to figure out the worst of all evils.
A. For the flights that are already operating here, our goal is to make their flight paths less noticeable for residents. This is the earliest we have gone to talk with communities about ideas we are having for the future. When we propose flight path changes in early 2016, we will have a larger consultation process for all residents. This roundtable is a preliminary session to see if we are on the right track. Before any changes will happen, we will have a broad public consultation.

C. It would be better to focus on the environmental factors such as fuel consumption just as much as noise among all the other factors.
A. This is a litmus test for us because we want to know if everyone understands these things before we go ahead and study them in depth. We would not like to put a great amount of resources and time into studying the noise topic if the community consensus is on something else. So, these are some of the reasons why we are asking you in this preliminary phase as well.

Summary of Participant Feedback

The following summary reflects participant feedback received during the roundtable discussions as well as the written comments submitted by individuals after the session.

IDEA #1 – New approaches for night-time operations

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. If we had quieter planes, we would not need to worry about how the planes approached. The questions seemed to be all around the approach, but what about the aircrafts themselves?
A. There are different chapters of aircrafts. Over the years, aircraft have gotten quieter and airlines have made efforts to replace older models. As for the noise, for example, if you have a Tesla, it does not have a combustion engine, but it still makes noise from air movement as do aircraft. Airports have to work with the aircraft that they have today, but over time, they will get better. Toronto has the most modern fleet of any major airport in Canada.

Q. Have you done any modelling to see how much noise could be reduced with this approach? And does this approach mean that there are options to increase night-time traffic?
A. We don't know how much noise would be reduced yet. In order to measure, we need to put a lot more effort into analysis. This has not been done at any airport in Canada yet. If we think this is something worth pursuing, we would like to develop a design, hire consultants to model the noise, and that would take us back to public consultation. Logically we expect it should be quieter. The conversation today does not lead to implementation, but to further study to prepare for more broad public consultation.

Q. Where does Frankfurt fit in compared to Toronto in terms of how busy it is? Are you looking at this because you are going to be increasing night-time flights?
A. Frankfurt is slightly busier than Toronto. Increasing night-time flights is not part of the plan. We are currently looking at how we can improve these night flights. It is important to note that the airport is growing. In 2014 we had almost 40 million passengers and we are exceeding that now. Our night flight leger does increase. We are always looking toward being a better airport and that we are always operating in the most sustainable and least impactful way possible both day and night.

Q. I am a member of TANG (Toronto Aviation Noise Group), and we have representation from High Park to Scarborough. We do have strong criticisms about the proposals, and there was mention of additional proposals that have been condensed down to six. We would also like to see the slides of this presentation; there were a list of musts to satisfy each proposal that we would like to go over. Also, as residents who live under these flying aircraft, we are very interested and concerned about the safe operations of these aircraft. We don't want to compromise safety. Who is making the value judgements about what counts as unreasonable noise? Why does this idea have to be restricted to night-time flights?
A. Pilots need a specific amount of time to prepare for their landing procedure, and we have to examine the maximum traffic volume for which we can do this. We do not know that we cannot do this during the day due to the amount of aircraft coming and leaving. We need to have the aircraft far enough apart

to do this, and at night we have considerably less traffic. I will not promise that we cannot do this outside of night time hours, but we are not thinking about it right now.

C. We have not talked about fuel burning and environmental impacts. If all aircraft will be more efficient without levelling off during the landing procedure by saving fuel and limiting noise, why are we not doing this anyways? The business case moving forward should be to modernize the flight procedure.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- Less noise at night.

2. **What concerns do you have…why?**

- Increasing number of night-time flights is a concern.

3. **What should be considered as this idea is studied further?**

- Arrival routes and efficient operation during daytime to decrease number of arrivals at night.

IDEA #2 – New departure procedures for night-time operations

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. How is the noise currently measured and monitored, so that we get a better sense of how this is to be implemented moving forward?
A. We have 17 noise-monitoring terminals in communities around the airport. We are now studying criteria for terminals that were implemented in 2012, whether or not that criteria still stands due to operations changes since that time, and whether we should be exploring putting others in other locations. It is worth noting that airports are not governed by federal or municipal governments as far as noise levels are concerned, so there is no set maximum noise level that cannot be exceeded.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- Less noise at night.

2. **What concerns do you have…why?**

- Night-time operations should be kept to a minimum.

3. **What should be considered as this idea is studied further?**

- *[No comments provided]*

IDEA #3 – Increase downwind arrival speeds

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

C. Any measure that means the aircraft will come in clean is supported, whether it is 210 kts or something faster, but we would prefer to leave that up to the air traffic controllers to make that decision.

Q. Do you have a certain percentage of noise reduction for this procedure?
A. We expect it will be really difficult to discern the difference between speeds at the altitude of 3,000 feet or above.

Q. Do the pilots ever not follow the speed limit? Do you monitor this and are their fines? How is it enforced?
A. There are fines, and we do monitor it, but pilots are very good at complying. There are exceptions, but generally they follow it unless for reasons of maintaining distance of separation because the air traffic controllers are able to see these speeds at all times.

Q. Other airports have different speeds on arrival. What are the differences between them and ours?
A. Other airports have more runways, and they actually have slower planes landing on separate runways.

Q. Are there ways to manage the aircraft farther out so that the louder aircraft land on the runways that create the least impact, if there are such runways?
A. One thing we try not to do in Toronto is have planes coming from the north crossing over to the south. At Pearson, our arrival capacity is around the same as our arrival demand. At larger airports, Denver for example, the arrival capacity is a lot bigger than their arrival demand. This gives flexibility for changing runways around that we do not have at Pearson.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- This idea is supported if it results in noise improvements.
- Reduces vector time over populated areas.

2. **What concerns do you have…why?**

- *[No comments provided]*

3. **What should be considered as this idea is studied further?**

- Move arrivals over the lake as opposed to the shoreline.
- Implement higher altitudes to minimize noise.

IDEA #4 – Use new technology to reduce the need for low altitude leveling by arriving aircraft

Questions of Clarification
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Q. Why is this issue worth considering at this stage? It looks like the technology is a question for years down the road.
A. This technology is not necessarily years down the road. In the last two years, this technology has been deployed in a lot of other airports and we have seen a lot of uptake. If we want to do this, we need to start now.

Q. What benefit would this have on the airline?
A. There would not be a large fuel benefit, but what they gain is the consistency of the operation. We ask the pilots to get involved and run the program for the sake of efficiency, and from an aircraft carrier perspective, it increases repeatability.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- Constant, high speed descent is a good option.

2. **What concerns do you have…why?**

- Time to implement the idea.
- Safe separation of aircraft.

3. **What should be considered as this idea is studied further?**

- *[No comments provided]*

IDEA #5 – Establish weekend preferential runways

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. "Preferential" means it impacts the least amount of people, so why would we even consider changing to a different system that impacts more people? I do not think that spreading out the noise to impact more people is a very good idea.
A. We are not sure the current configuration actually impacts the least amount of people. It was developed by Transport Canada before the GTAA had ownership of the airport. The other question is

whether or not we should alternate between different groups of residents. We do not know the answer to that yet, but we have thought about this for some time and we are ready to consider it.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- *[No comments provided]*

2. **What concerns do you have…why?**

- Impacting more people is a concern.

3. **What should be considered as this idea is studied further?**

- *[No comments provided]*

IDEA #6 – Alternate night-time preferential runways

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. You have indicated that Pearson is the only airport enabled with preferential controls. To the residents, the night flight restriction program was a gift given to surrounding residents in 1996 that we really respect.
A. Restricted hours are defined as 12:30am to 6:30am, and this program restricts the number of departures and arrivals within this time.

Q. Do we know that changing preferential flight paths would actually be able to make less impact? I think we need to use a lot of care if we change flight paths, so we do not disturb whole new groups of people.
A. We could answer that question through consultation with the communities. My expectation is that through the consultation process, we will be able to develop a much better perspective.

C. It is important for you to understand that disturbing residents' sleep at night is a very sensitive issue. Make sure you pay great attention to how you determine new flight paths moving forward.

C. Some of us in Etobicoke are within the 1% zone of arrivals to Pearson. If and when spreading the noise out over Etobicoke at night, please be sure to take into account that we are dealing with the noise from all the departures and arrivals from Billy Bishop airport during the day.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- *[No comments provided]*

2. **What concerns do you have…why?**

- Moving noise impacts to new communities is a concern.
- How you determine who shares the noise will be a challenge.

3. **What should be considered as this idea is studied further?**

- Consideration of noise impacts from flight paths at Billy Bishop airport.

Process and Next Steps

1. **What are the most important factors you would like to see considered in evaluating the various noise mitigation initiatives? Please identify your top 3 factors.**

- Avoidance of creating new noise.
- Mitigating night-time noise.
- Environmental impacts.

2. **What feedback or suggestions do you have regarding the community engagement process moving forward and next steps?**

- Break down the pros and cons of each idea when presenting it to the public.
- Consider the perspective of passengers in the engagement process.
- Provide information on the environmental impacts of each idea during consultations.

Other Feedback

C. Sleep is as essential as clean water, or clean air. Sleep is so important, that is where we are coming from and that is what we are really seeking to protect.

C. There are certain principles that should guide the planning process, but we don't get the feeling that they've been made evident (e.g., health impacts). Medical perspective should be important aspect that guides development. If there is a list of other proposals, it would be helpful to explore this list.

Toronto Noise Mitigation Initiatives
Stakeholder Roundtable – Summary Report

Driftwood Community Centre
August 5, 2015 | 7:00 – 9:00 PM

Between July 29th and August 24th 2015, NAV CANADA and the Greater Toronto Airports Authority (GTAA) hosted a series of 8 roundtable discussions with stakeholders to explore six concepts related to noise mitigation in the community. This report has been prepared by Lura Consulting to provide NAV CANADA, the GTAA and roundtable participants with a summary of the feedback captured at the stakeholder meeting held at the Driftwood Community Centre on August 5th.

Attendance: 3
# of Individual Discussion Guides Submitted: 0

Questions of Clarification

Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. As part of this process are you planning to have discussions with various representatives of the different airlines to talk about of what you are proposing?
A. We have had preliminary discussions with them on the types of concepts we are looking at. Once we have the feedback from this round of consultation, they will have a role in some the technical studies that need to be done. They will be part of that process.

Summary of Participant Feedback

The following summary reflects participant feedback received during the roundtable discussions as well as the written comments submitted by individuals after the session.

IDEA #1 – New approaches for night-time operations

Questions of Clarification

Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. Would this idea have a much bigger impact on other neighbourhoods?
A. Yes. Today aircraft fly over certain neighbourhoods. Somewhere in the distribution of traffic, we have to pick a flight path. The advantage is we are managing the flight path so we don't have to add that power and noise should be reduced.

Q. Would this approach mainly affect areas further away from the airport?
A. Yes.

C. This approach seems highly technical and may be difficult to actually implement. Pilots are coming in from all over the world and the big learning curve might be a challenge.

A. This is a technology that is not new at smaller airports. It is not brand new in terms of global aircraft operations, but it is different than what is done at major airports. It would be programmed into the computer system.
A. The new Noise Consultation Protocol obliges NAV Canada to do things like noise modelling. When we come out for full broad public consultation we would share that information and data (e.g. metrics and analysis of the noise benefit and impact in various areas).

Q. Have you factored in that when the planes are banking, they are going to have to increase power?
A. The computer calculates the turn radius of the aircraft based on current wind conditions so theoretically they don't have to add power. The sophistication in the new aircraft is good at managing the descent with the power off as long as you let the computer fly a specific profile. This option is only viable during quieter traffic periods.

C. The future growth and capacity of the airport should be taken into consideration, especially if night time flight arrivals are increasing.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- *[No comments provided]*

2. **What concerns do you have…why?**

- Concentrating flight paths is a concern.

3. **What should be considered as this idea is studied further?**

- Future growth and capacity of the airport.

IDEA #2 – New departure procedures for night-time operations

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

C. The higher the aircraft go, the less impact there is.
A. We wouldn't be constraining how fast the aircraft get to a certain altitude. Before the aircraft turn off that initial track it would have to be higher.

C. I am not supportive of this idea. It would concentrate the noise in one neighbourhood. The noise impacts should be spread out.

Q. Isn't the intent to spread the noise out faster so that there is less of an impact?
A. The intent is to more closely follow the instrument landing system.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- *[No comments provided]*

2. **What concerns do you have…why?**

- Concentrating noise in one neighbourhood is a concern. Noise should be spread out amongst various communities.

3. **What should be considered as this idea is studied further?**

- Concentration of noise in a neighbourhood versus spreading out the noise impacts.

IDEA #3 – Increase downwind arrival speeds

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

C. This is very technical. The average person won't be able to provide much feedback on this.

C. I thought pilots would prefer to go faster, especially in colder temperatures.
A. In a de-icing scenario, pilots use the heat generated by the engine for de-icing so they use more power.

Q. You mentioned the idea of travelling further on the downwind leg before doing the turn on approach. Would this add time to flights?
A. Our base leg turn is in the 8-15 mile range. We don't think this will add a lot to the flight time.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- *[No comments provided]*

2. **What concerns do you have…why?**

- *[No comments provided]*

3. **What should be considered as this idea is studied further?**

- *[No comments provided]*

IDEA #4 – Use new technology to reduce the need for low altitude leveling by arriving aircraft

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

C. It seems that this idea would only apply to a small amount of aircraft and would be implemented a long time from now. I hope there are continually new technologies but this option seems like it would take a long time to develop.
A. There are about 20 airports in Canada that have this technology now. WestJet's fleet was equipped and we are starting to look at some of the busier airports now. We are going to proceed with one runway in Vancouver. There is global momentum.

C. Significant dollars would have to be spent on this. Realistically I don't know how much it would help in the next ten years with the noise abatement in our community.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- *[No comments provided]*

2. **What concerns do you have…why?**

- Cost and time to implement this idea is a concern.

3. **What should be considered as this idea is studied further?**

- Costs and noise benefit to residents.

IDEA #5 – Establish weekend preferential runways

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

C. This idea can work if you share the noise equally among all the quadrants of the airport. It won't help anyone on the east and west side if you don't include all the runways. Runway noise should be shared equally.

C. Where there is the flexibility; you should give consideration to all of the runways to give some people a break from the noise on the weekends. We realize the airport is there and is important but we need more compassion for the neighbours who are impacted every day. People would complain less if they felt that everyone was getting their fair share of the noise.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- Noise sharing is a supported approach.

2. **What concerns do you have…why?**

- Noise must be shared equally. There is concern for how this will be determined.

3. **What should be considered as this idea is studied further?**

- *[No comments provided]*

IDEA #6 – Alternate night-time preferential runways

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. Is there a specific reason for using one runway so much more than the others?
A. It is mandated. In the Canada Air Pilot, the order of preference for the runways is provided. It was last updated 1972.

C. The noise should be shared equally. People who moved into new neighbourhoods knew the airport was there. Many of the other neighbourhoods east of the airport were there long before runway 23 was built.

C. Where there is flexibility to shift runway use, the noise should be shared.

C. The residents south of the airport were always the most vocal. MPs were there to minimize the noise for those residents.

C. I hear fewer complaints now. The jets are quieter and there is more sharing happening. We are glad you are doing this. These are significant changes that could help the neighbourhood.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- Noise sharing is a supported approach.

2. **What concerns do you have…why?**

- *[No comments provided]*

3. **What should be considered as this idea is studied further?**

- Impact to all residential neighbourhoods of noise sharing

Process and Next Steps

1. **What are the most important factors you would like to see considered in evaluating the various noise mitigation initiatives? Please identify your top 3 factors.**

- Noise sharing around the airport.
- Time to implement solutions.

2. **What feedback or suggestions do you have regarding the community engagement process moving forward and next steps?**

- Language barriers need to be considered. Notifications and educational materials should be sent out to the public in languages other than English.
- Use the political process to help find solutions.

Other Feedback

N/A

Toronto Noise Mitigation Initiatives
Stakeholder Roundtable – Summary Report

Chris Gibson Community Centre
August 10, 2015 | 7:00 – 9:00 pm

Between July 29th and August 24th 2015, NAV CANADA and the Greater Toronto Airports Authority (GTAA) hosted a series of 8 roundtable discussions with stakeholders to explore six concepts related to noise mitigation in the community. This report has been prepared by Lura Consulting to provide NAV CANADA, the GTAA and roundtable participants with a summary of the feedback captured at the stakeholder meeting held at Chris Gibson Community Centre on August 10th.

Attendance: 6
# of Individual Discussion Guides Submitted: 1

Questions of Clarification

Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. The downwind approach is somewhat limited in where it can take place, yet there appears to be a fair amount of flexibility with the base leg. Why is that?
A. The downwind approaches have specific guidelines as do base leg approaches. Turns are commanded by an air traffic controller and executed by a pilot. The variation in base leg is designed so that air traffic is separated to ensure safety.
C. People who live below the downwind approach would therefore see a concentration of aircraft, whereas people who live under the base leg would see less of a concentration, correct?
A. It's hard to say how it is perceived; it depends on each individual's perspective.
C. The issue is not just the noise; it's the number of aircraft that is perceived as a nuisance.

Q. Should Transport Canada be present at these consultations?
A. Not necessarily. Transport Canada's role as the regulator in this process is to ensure safety. There is an 11-step process arbitrated by Transport Canada to review and approve any noise abatement strategies proposed as a result of this consultation process.
Q. Who is involved in the arbitration?
A. It is not a traditional arbitration; Transport Canada oversees the approval process to ensure we have completed our due diligence.

Q. Is there less air traffic at night-time?
A. Yes, there are a limited number of flights that can operate between the hours of 12:30 am - 6:30 am.

Q. It appears that Transport Canada has assumed a different role in air traffic management compared to 25 years ago.
A. Yes, their role has changed over the past 25 years. Today they function primarily as a regulator.

Q. How many noise monitoring stations are there around the airport?
A. There are currently 17 noise monitoring stations, but we are reviewing where they are located and if more are needed.

Summary of Participant Feedback

The following summary reflects participant feedback received during the roundtable discussions as well as the written comments submitted by individuals after the session.

IDEA #1 – New approaches for night-time operations

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. If you move more of the slower turbo props to the Island airport, would this not free up air space for the larger jets?
A. It would change some of the tools available to us, but it does not necessarily simplify the management of arrivals or departures at Pearson.

Q. Are the flight management systems of the turbo props up to date (e.g., GPS equipped)?
A. Yes, over the past few years many of the turbo prop operators have invested in new technology, enabling us to consider this idea and have this conversation.

Q. If I understand this idea, the base leg will become more concentrated, similar to the downwind approach? Where exactly will this happen?
A. Yes, that's correct for hours during which this procedure would be applied. I can't say for sure where it will take place over the GTA, but it would likely be west of Brampton's jurisdiction.

Q. The village where I live is below a flight path for aircraft arriving at Pearson. Would this idea change that?
A. It wouldn't change incoming traffic; there would be very little change.

Q. It seems that most resident complaints are about arrivals, not departures. Is that correct?
A. We are seeing an increase in the amount of complaints about arrivals. There was a change in the number of arrivals; this was done to balance the number of arrivals and departures.

Q. Was the last change in departures in February 2012? What about the early turns?
A. The early turn program was implemented in the early 2000s.

Q. Does the size of the plane impact the approach?
A. Not much. NAV aids, or beacons, were previously used to guide aircraft arriving or departing from Pearson, which created choke points in the flight path. We have since switched to GPS-based aids which help separate the aircraft more evenly.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- It will provide relief to residential areas under flight paths originating from runways 23/05 and 24/06.

2. **What concerns do you have…why?**

- This will introduce noise to areas that never experienced overflights. It negates the efforts of those who researched current flight paths and purchased their property accordingly. This could create a victim mentality in the affected communities. While dispersing noise, it is contrary to a long held principle of the Community Environment Noise Advisory Committee (CENAC) that controlling and mitigating noise is the paramount function; it just moves a problem to a different area/group. What process/procedures would be required to determine the parameters for implementation?

3. **What should be considered as this idea is studied further?**

- The process to engage and inform affected communities (e.g., provide virtual noise models to demonstrate the expected impacts).

IDEA #2 – New departure procedures for night-time operations

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. Would it not require the use of more power if the planes are required to climb to a higher altitude before turning?
A. Not necessarily. There are regulations in place that outline specific requirements for when an aircraft is in operation with respect to flaps, power, etc. This idea would not change those requirements.

Q. Would this idea apply to all aircraft?
A. Yes, it would apply to all aircraft. We currently do not allow early turns at night after 11:00 pm.

Q. How will aircraft with older technology keep pace with these new requirements?
A. This idea will require an aircraft to follow a particular flight path until it reaches the required altitude before turning. Departing aircraft will achieve different altitudes at different times based on their weight, size, etc.

Q. If an aircraft is at a higher altitude, is less noise perceived when it turns?
A. The higher the aircraft is, the less noise is heard on the ground; yes, that is the idea. We need to do some more modelling to answer those questions more thoroughly.

C. My concern is how this idea would be adopted by foreign aircraft operators (e.g., language, technological barriers).

A. Air traffic controllers control aircraft during turns in and out of the airport. We would issue a notice over a period of at least 9 months to inform operators of the change. English is the international language used for air space control.

Feedback on Discussion Questions*
[See feedback to discussion questions under Idea #1]

1. **What do you like about this idea?**

- This idea would make a positive difference in my village. The reading on the decibel meter on my phone goes up from 80 decibels to 95 decibels when aircraft turn. The turns make the noise significantly worse.

2. **What concerns do you have…why?**

- *[No comments provided]*

3. **What should be considered as this idea is studied further?**

- The noise models should be reviewed by CENAC's acoustician.
- Whether there would be any issues with uptake of this idea by foreign carriers.

IDEA #3 – Increase downwind arrival speeds

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. Does this idea have any impact on fuel consumption?
A. It may, but the change would likely not be measurable.

Q. This is the least understandable concept presented so far. It would be helpful to explain aviation terms and concepts such as flap noise so the average person understands the idea. What are the speed limit restrictions on pilots?
A. The rule is that pilots must fly within +/- 10 knots of the speed limit.

Q. What is the trend in the use of turbo-props?
A. They are increasing, but it is hard to guess which aircraft will be in use five years from now. The increase in fuel prices a few years ago led to the observed increase in turbo-props.

Q. Have any other Canadian cities studied this approach?
A. Yes. We do not have any acoustical data from cities that have adopted this change (e.g., Calgary).

Q. Are there any studies in progress?
A. In other places this is used strictly for operations purposes, but we are considering modelling noise.

Q. What is the conversion from knots to kilometers?
A. One kilometre is equal to about 1.85 nautical miles. So, 210 kts is about 390 km/h

Feedback on Discussion Questions

1. **What do you like about this idea?**

- The potential to create a situation where the majority of aircraft maintain a clean configuration, reducing noise.

2. **What concerns do you have…why?**

- The impact on certain classes of aircraft having to operate near the limits of their operational parameters. Would increasing throttle settings create increased trip speeds, generating more noise?

3. **What should be considered as this idea is studied further?**

- The net impact on the entire noise envelope. This benefit of this change is very closely related to the aircraft mix.

IDEA #4 – Use new technology to reduce the need for low altitude leveling by arriving aircraft

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. What's the deviation of the required navigation procedures (RNP)?
A. West Jet did a study and found the largest lateral deviation to be 106 feet (32.3m).

Q. What is the incentive for an aircraft carrier to have this technology on all its aircraft? I don't understand how you can incent someone to acquire this technology.
A. This is used at other airports that do not have parallel operations. Incentives include fuel savings, automated control, standardization – it's less risky.

Q. Are the fuel savings significant?
A. In mountainous regions there can be significant fuel savings, up to $1000 per flight. We wouldn't see that degree of savings at Pearson. The fact that this idea is being adopted at other airports makes the sell easier at Pearson. A carrier would not acquire the technology to use it only at Pearson, but it probably would if it could be used at other airports.

Q. Is it possible to require the use of this technology through legislation?
A. While the criteria exist for this technology to be used today, they do not exist for use in a parallel runway environment like Pearson.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- It would reduce the number of aircraft required to maintain a section of level flight during arrival.

2. **What concerns do you have…why?**

- The potential of increasing the workloads and complexity of managing air traffic.

3. **What should be considered as this idea is studied further?**

- Is there any potential to reduce safety margins?

IDEA #5 – Establish weekend preferential runways

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. Are there any growth forecasts for the number of aircrafts?
A. I have seen static forecasts for cumulative growth of the airport, but not daily growth. That data would be applied in the technical analysis of this idea to understand its potential benefits and costs.

Q. What happens if the current mix of aircraft changes to include an increased number of larger jets, which require longer runways?
A. The volume and mix of aircraft are key questions to be answered during the technical analysis.

Q. Is there any plan to change the number of runways?
A. No, we are working with what we have.

Q. My understanding is that flights arriving or departing from international destinations would use Pearson, while the balance would arrive or depart from Hamilton to balance the volume of air traffic.
A. **Pearson** is a hub for local and international destinations; many passengers who depart on international flights flew into Pearson via a connecting flight from Sault St. Marie for example. There are also no high speed connections between the airports that would enable that kind of balance.

Q. What is the timeline to implement these ideas?
A. A lot of these concepts are intended to be implemented within the short-term as part of a continuous improvement strategy. The longer-term changes will be studied through a master planning process. We are also studying scenarios that would be required at feeder airports if Pearson reaches capacity (e.g., Heathrow, Gatwick, Luton model).

Feedback on Discussion Questions

1. **What do you like about this idea?**

- It would disperse the noise in a fairer manner.

2. **What concerns do you have…why?**

- It would create expectations that might not be able to be met consistently.

3. **What should be considered as this idea is studied further?**

- The ability to provide consistent rotation given the variables of maintenance and traffic loads.

IDEA #6 – Alternate night-time preferential runways

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. Why was there a distinction between the left and right runways?
A. I don't know, but the preferential runway program has been operated that way since the runways were developed.

Q. So there is no technical reason why one runway is used 39 percent of the time, while the other is used 4 percent of the time.
A. No.

C. It is frustrating that to hear that some of these changes could take 5 years.
A. Some of these changes may not take 5 years; some changes can be implemented very quickly.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- Utilizes the entire east/west runway complex reflecting the current configuration.

2. **What concerns do you have…why?**

- It is going to annoy residents under 24/06 flight path and provide more fuel to resident group complaints.

3. **What should be considered as this idea is studied further?**

- Where is residential growth going to be located? Before you do anything, identify where growth is going to occur to avoid annoying a new community of people.
- Is there any benefit in distributing the noise among different neighbourhoods? It makes sense on preferential runways over industrial areas, but should the pain over residential areas be shared?
- Coordinate with local municipalities in terms of land use planning (e.g., new residential growth); avoid high growth areas.
- How to control and mitigate the affected community blow back.

Process and Next Steps

1. **What are the most important factors you would like to see considered in evaluating the various noise mitigation initiatives? Please identify your top 3 factors.**

- Key factors include changes in the number and mix of aircraft.
- The issue is also the number of aircraft that are flying overhead, not the noise from them.
- Maintain the existing flight paths; do not introduce modifications that would shift noise over adjacent communities. This could negate municipal planning and specifications for housing construction.
- Do not increase workloads or add complexities to airport operations.
- Complete a detailed analysis of the potential benefits and cost of changes before introducing these ideas to the public.

2. What feedback or suggestions do you have regarding the community engagement process moving forward and next steps?

- Increasing public education and awareness is key.
- Provide representation of the noise and frequency that people can relate to. It isn't always the noise that is the issue; it's the change between the ambient noise in the community and the flyover overhead.
- The presentation was excellent, though far too technical for the general public. Prepare a simpler presentation and expect more extensive questions.
- Prepare a package specific to the area concerned to facilitate the transfer of information.
- Enhance existing community outreach efforts - I was the only member of the public independent from CENAC or the City.
- Provide meaningful opportunities for participation and feedback – residents currently feel like they are not being listened to.

Other Feedback

- Prioritize noise mitigation initiatives for departures; most of the complaints originating from the Village of Churchville are about outgoing flights.
- The subdivisions west of Mavis and north of the 407 have noticed that flights have been lower, later and turn more quickly than they did a few years ago. Volumes of flights seem to be up significantly. It is not unusual to hear the next airplane as the noise from the previous airplane is dissipating. The prevailing flight path seems to have migrated about one kilometre to the north at Creditview Road.
- The height of the airplanes and the fact that many are turning over the village of Churchville significantly interrupts outdoor activity and makes sleeping difficult for many residents.
- The two large subdivisions were not warned about aircraft noise, as were the residents of Mississauga.
- The solution is to get the airplanes up higher and not to permit turns east of Heritage Road.

Toronto Noise Mitigation Initiatives
Stakeholder Roundtable – Summary Report

Gellert Community Centre
August 11, 2015 | 7:00 – 9:00 pm

Between July 29th and August 24th 2015, NAV CANADA and the Greater Toronto Airports Authority (GTAA) hosted a series of 8 roundtable discussions with stakeholders to explore six concepts related to noise mitigation in the community. This report has been prepared by Lura Consulting to provide NAV CANADA, the GTAA and roundtable participants with a summary of the feedback captured at the stakeholder meeting held at Gellert Community Centre on August 11th.

Attendance: 5
# of Individual Discussion Guides Submitted: 1

Questions of Clarification

Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. Why does air traffic travel in a straight line from the east, but turn in the west?
A. The standard arrival routes (STAR) serve as the gates in/out of Pearson. The arrival of aircraft is managed through one of the five STAR routes.

Q. Why aren't there two runways to the west?
A. The incoming/outgoing direction of air traffic is based on the origin/destination of the aircraft.
C. I've lived here since 1982; we didn't always get this noise.
A. This traffic pattern hasn't changed since 2000.

C. I believe what we are experiencing is more noise created as planes turn.
A. The data we have would indicate the opposite as aircraft are now permitted to stay at a higher altitude as they prepare to turn.
C. Something has changed. There has been significantly more noise from aircraft flying into Pearson since sometime last year.

C. You mentioned that aircraft are supposed to fly at a minimum of 3,000 feet above sea level. If Georgetown is 800 feet above sea level, then the planes are only flying 2,200 feet above our homes.
A. Yes, that's right.

Q. You mentioned that the one thing that has changed is that aircraft are allowed to fly into Pearson at a higher altitude. Is it possible that if they are doing a short turn toward the airport they are descending faster? I agree that since late last summer the noise has increased.
A. We have tried to discourage the use of flaps through STAR designs; flying at a higher altitude helps facilitate this.

Q. Are pilots being engaged as stakeholders in this process?
A. Yes, pilots and airline carriers are key stakeholders in this process. Investments in new aircraft technology by carriers have allowed us to explore the concepts being presented this evening.

Q. Has there been any noise monitoring in Georgetown?
A. There are 17 noise monitoring stations set-up in the communities around Pearson, however there aren't any in Georgetown/Halton Hills. We are currently reviewing whether new or additional noise monitoring locations are needed.
C. You should consider a noise monitoring station in Georgetown; you need scientific evidence to verify or substantiate complaints raised by residents.

Q. Can the ravine landscape in Georgetown echo or bounce aircraft noise making it seem louder?
A. Yes, it is possible that it can have that effect.

Q. Were pilots involved in the development of the six ideas?
A. Yes.

Q. I understand that older aircraft are noisier than newer aircraft. Is the age of the aircraft taken into consideration when an air traffic controller determines the flight path?
A. The ability to change the flight profile of a single aircraft during busy times is limited. There have been significant upgrades in recent years in terms of noise abatement in many carrier fleets (e.g., retiring cargo 727s).

Q. How does air traffic from Billy Bishop Toronto Island Airport (BBTIA) affect operations at TPIA?
A. There is some integration between the airports in terms of flight paths. They are coordinated to allow operations to continue safely and independently (e.g., departures from the Island Airport are integrated into Pearson's departures).

Summary of Participant Feedback

The following summary reflects participant feedback received during the roundtable discussions as well as the written comments submitted by individuals after the session.

IDEA #1 – New approaches for night-time operations

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. Will aircraft be turning over the same locations they currently do under this idea?
A. We have not done the modelling to determine exactly where those flight paths might be.
A. Arrival/departure flight paths are the same during the day and night. This idea proposes designing night-time specific procedures.

Q. During busy periods, is the preferred option to guide planes into Pearson using a short turn?
A. Our normal operation is to turn in the 8-14 mile range. Transport Canada's Noise Abatement Procedures drives the 8 mile minimum approach length.

C. At the public meeting in April, I was told that the short flight paths are chosen for environmental reasons (e.g., to save fuel). The environment is many things including noise pollution and air quality.
A. The level segments in a flight path are required for safety reasons; we cannot have planes turning toward each other.
C. From what I understand that is more prevalent during short turns as opposed to more gradual descents.
A. The variation in decent profiles depends on the sequence of other arrivals, which may require a longer flat segment (staying in level flight longer).
C. In addition to what you are proposing, there is an opportunity to design the base leg flight path so that it is not over a residential population (i.e., 12-15 miles out from Pearson at night-time before turning).

C. This seems like a good idea. What we see is aircraft in level flight, which we we're told is done for environmental reasons, when they should be flying at a higher altitude.
A. We do know that level flight requires thrust and burning more fuel; it is not done for environmental reasons.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- It makes sense. There are a lot of low level flights over Georgetown during the daytime. They should be drifting down like proposed here.
- In terms of noise abatement, this idea is moving in the right direction for Georgetown.

2. **What concerns do you have…why?**

- I don't understand why planes on parallel runways aren't staggered so they don't turn straight at each other.

3. **What should be considered as this idea is studied further?**

- Consider the full range of environmental impacts of this idea (e.g., noise pollution, air quality, etc.).
- Consider designing the base leg flight path so that it is further away from residential areas (in addition to what is being proposed here).

IDEA #2 – New departure procedures for night-time operations

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

C. The first daytime departure at Pearson is at 6:30 am and the last departure is at 12:30 am. In my opinion, the noise from arrivals is more of a problem in Georgetown, compared to departures, particularly at night-time.
A. The impact of noise from departures and arrivals varies and depends on the community. By the time departing aircraft are above Georgetown they are flying at a relatively high altitude compared to arriving aircraft which are flying quite low.

C. I agree that arrivals are a bigger problem in Georgetown.

Q. When do you engage municipalities in the planning process?
A. They are engaged at the draft design stage.
C. Municipalities should be engaged as early in the process as possible to ensure new residential areas are not planned beneath flight paths, etc.
A. Planning for that kind of zoning is provided in the airport noise exposure forecast (NEF) contours. They do not apply in Georgetown as the noise from aircraft flying over this community is not considered loud enough.

C. The noise from aircraft needs to be calculated and monitored, especially areas that are not so flat like Georgetown.
A. It is important to note that the level of noise is perceived differently based on the level of ambient noise at ground level.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- Departures are not a big problem in Georgetown, but this idea has the potential to be applied to arrivals to benefit residents in Georgetown.

2. **What concerns do you have…why?**

- The noise from arrivals is more of a concern for Georgetown residents.

3. **What should be considered as this idea is studied further?**

- Include Georgetown in the GTAA's current noise monitoring program for Pearson.
- Collaborate with municipalities to coordinate land use planning and implementing noise abatement initiatives.
- This idea is specific to departures, but could also be applied to arrivals. We would like to see the movement of aircraft further from residential areas in Georgetown.

IDEA #3 – Increase downwind arrival speeds

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. Will airlines buy into this idea if it will increase their fuel consumption?
A. The change in fuel consumption will likely not be measureable.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- *[No comments provided]*

2. **What concerns do you have…why?**

- Safety; the consequences of this idea are unknown.

3. **What should be considered as this idea is studied further?**

- *[No comments provided]*

IDEA #4 – Use new technology to reduce the need for low altitude leveling by arriving aircraft

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. Have you projected the numbers from 2012? Are those numbers are changing?
A. We have not projected the numbers.

Q. There has been a large increase in the number of flights over Georgetown since I moved into the community six years ago. How are you going to accommodate the increase in aircraft flying into Pearson? What is the current number of aircraft that fly into Pearson?
A. There will be about 430,000 flights to and from Pearson, carrying about 40 million by the end of this year. It is worth noting that this refers to passenger growth; year over year the movement of aircraft is not increasing proportionally. As Pearson grows and becomes more of a hub airport, there will be more of the larger aircraft so that while passenger growth is increasing, the movement of aircraft is not growing at the same rate.
C. The bigger aircraft are the problem.

C. This equipment is really sophisticated. Is this the trend?
A. There are other airports already using this technology, particularly in mountainous regions. Those airports do not use it in a parallel operation environment. We are trying to bring it to Pearson for use in parallel operations.

A. The flight path would be within the distribution of base legs, which will be determined through technical analysis.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- It is worth exploring further if it is already being used elsewhere.

2. **What concerns do you have…why?**

- The potential noise impact to residents who live below the single flight path.

3. **What should be considered as this idea is studied further?**

- If other airports around the world are using this technology, then it's worth looking at.
- If aircraft use this technology they would all be flying on one path; consider the impact to people living below that path.

IDEA #5 – Establish weekend preferential runways

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. Will there be any dispersion of flights to other airports (e.g., Hamilton)?
A. We don't have the right people here to answer that question.

Q. Georgetown has historically been outside the radius for noise monitoring, correct?
A. The GTAA's noise management program used to apply to the 10 nautical mile radius around the airport; that restriction was removed in 2014.

Q. Is the plan for a new airport in Pickering moving forward?
A. Transport Canada released information last fall that would suggest it is moving in that direction, but we cannot comment specifically on that. Pearson also has the capacity to grow to 60 million, which will happen over the next 15-20 years. The GTAA is already in discussions about what a regional airport system would look like (e.g., feeder airport, long-term master planning, etc.).

Feedback on Discussion Questions

1. **What do you like about this idea?**

- Seems easy to implement; share the noise.
- I like this idea – spread the noise around; it would be make a difference in Georgetown.

2. **What concerns do you have…why?**

- The number of aircraft arriving/departing from Pearson is increasing. This idea could make sense today, but may not be feasible in the long-term.

3. **What should be considered as this idea is studied further?**

- *[No comments provided]*

IDEA #6 – Alternate night-time preferential runways

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. Why were those two runways chosen?
A. I don't know, but the preferential runway program has been operated that way since the runways were developed.
C. It could be that most planes landing at night were cargo planes, headed toward Area 5.

Q. Why is there little comparable activity on the north/south runways?
A. There are differences in capacity between the runways. Transport Canada's noise abatement procedures also regulate what can be done.

C. Are the historical reasons for preferential runways based on residential growth?
A. Historically, the reason the preferential runways were established the way they are, was to avoid air traffic over residential areas as much as possible. Noise sharing is something that will be explored. It is also important to keep in mind that the area south of the airport (e.g., Rockwood) was never industrial and is closer to the airport than the communities located east or west of the airport.

C. A lot of communities that have been built were made aware of noise from aircraft operations at Pearson. Georgetown residents were not informed or made aware.

C. A lot of things have changed since the regulations were created. They are based on historical data that needs to be updated. Residents need to be assured that changes will be made for today as well as for the future, particularly as population growth continues. The noise abatement program should include regular updates.

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

1. **What do you like about this idea?**

- It would address outdated procedures; I agree you should review this idea.

2. **What concerns do you have…why?**

- *[No comments provided]*

3. **What should be considered as this idea is studied further?**

- Consider using the north/south runways to disperse the noise at night-time.
- Update the regulations using current data, taking into consideration trends in population growth and land use planning.

Process and Next Steps

1. **What are the most important factors you would like to see considered in evaluating the various noise mitigation initiatives? Please identify your top 3 factors.**

- Monitor noise levels in Georgetown to establish a baseline.
- Noise needs to be redistributed and shared amongst all the communities that surround Pearson; it should not be based on population size.
- Fairness should be a criterion for all communities surrounding Pearson.
- Signs are an important tool to inform residents of noise from aircraft operations.
- Engage municipalities early in the process so they can plan for noise in local land use planning processes (e.g., official plans, zoning).
- Plan for the future.
- Ensure pilots are consulted on the practicality and complexity of these proposals.

2. **What feedback or suggestions do you have regarding the community engagement process moving forward and next steps?**

- Consider opportunities to promote public meetings using a variety of tools (e.g., co-publish with municipalities, social media, etc.).

Other Feedback

N/A

Toronto Noise Mitigation Initiatives
Stakeholder Roundtable – Summary Report

Davenport Perth Neighbourhood Centre, Toronto
August 12, 2015 | 7:00 – 9:00 pm

Between July 29th and August 24th 2015, NAV CANADA and the Greater Toronto Airports Authority (GTAA) hosted a series of 8 roundtable discussions with stakeholders to explore six concepts related to noise mitigation in the community. This report has been prepared by Lura Consulting to provide NAV CANADA, the GTAA and roundtable participants with a summary of the feedback captured at the stakeholder meeting held at Davenport Perth Neighbourhood Centre.

Attendance: 22
# of Individual Discussion Guides Submitted: 3

Questions of Clarification

Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. In the flight path simulation depicted in the presentation, at what altitude was the plane flying over High Park?
A. That plane was flying a normal descent profile. It would have turned downwind at 7,500 feet, turned base at 4,500 feet and entered final descent at 3,000 feet.

Q. Why is it not possible to increase the operating costs of doing business – my understanding is that NAV Canada has a surplus?
A. NAV Canada is a non-profit organization; we generally set our rates to cover costs. In years where we generate profits, we lower our rates. We don't have shareholders to give profits to.

Q. What is the problem with increasing costs and making the flights longer?
A. Making flights longer will increase airline costs. They would have to be significantly longer to increase costs to NAV CANADA. We are not saying no to additional costs, but there is a need to be conscious of the potential material impacts to our carriers.

Q. The unit of measure used in the presentation was dBa – should it not be dBc?
A. dBa is the common metric used to measure noise from aircraft around the world. There is still some discussion about the use of dBc.
C. Generally, the rule is to add an extra 20 units to dBa measures to calculate dBc measures.
A. It is a good question to put to the Community Environment Noise Advisory Committee' (CENAC)'s acoustician.

Q. In terms of considerations or constraints, there does not appear to be a criterion to minimize the impact from noise on residential areas to the greatest extent possible. Can you speak to this?
A. These are the other considerations we'd like to discuss while designing new flight paths.

Q. You mentioned 737s, but most of what I see are A320s. What is the fleet mix arriving/departing from Pearson?
A. There is roughly an even split between the two aircraft types.

Q. Who makes the decision between the cost to airlines and prioritizing resident wellbeing?
A. The noise protocol released in June includes a strong commitment to minimize the noise impact on communities and to consulting and engaging broadly with communities on proposed changes to airspace. NAV Canada designs flight paths, while Transport Canada is the regulator.

Q. How many people are on NAV Canada's Board from the GTA?
A. Our Board is not divided up geographically; it consists of stakeholders using a formula that is part of the framework that established NAV CANADA. decided when the company was first established.
C. The last time I looked at it, there was one person from Oakville and the rest were from across the country. There is not enough representation on NAV Canada's Board from the GTA. There is a gap in decision-making.

Q. Is there any consideration given to the density of residential areas?
A. Absolutely.

Summary of Participant Feedback

The following summary reflects participant feedback received during the roundtable discussions as well as the written comments submitted by individuals after the session.

IDEA #1 – New approaches for night-time operations

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. What is considered night-time (e.g., 9:00 pm to 6:00 am)?
A. We're not sure exactly which hours this would apply to, but we are confident that there will be a subset of those hours.

Q. Why are you only focusing on night-time? Are there are other quiet periods which this idea could be applied to?
A. There are a few reasons: 1) the idea cannot be implemented during parallel runway operations; 2) in order to fly this procedure, pilots would have to program it into the aircraft before they arrive in Pearson airspace; and finally 3) different air space divisions are in effect at different times of the day/night.

Q. What is the earliest time this idea could be implemented?
A. That is still to be determined.
C. An ideal time would be 11:00 pm.

Q. What would the noise abatement impact be?
A. The change in noise levels will be studied during the technical analysis phase of this study. If altitudes are higher, there will be more opportunity for idle descent.

C. I represent a group of people who are very angry that this change was made, who cannot sleep at night or use their backyards during the day. What I'm hearing is that we are going to study something, but we're not sure how it will impact noise levels.

Q. You obviously have priorities and a limited budget. In addition to these six ideas, what about other considerations that could alleviate the problems?
A. If you have other ideas we would like to hear them. There is a section in the discussion guide where you can suggest other ideas.
C. There may be a solution that could solve everyone's problems which is to put the arrival flight path over the lake.

C. I live under a flight path – it is unbearable. It is up to you to manage the arrival/departure of aircraft with the least impact on residents. I do not feel equipped to talk – I want to see action.

Q. Why is it not possible to direct east/west air traffic over the lake at night-time, particularly as Billy Bishop Island Airport ceases operations after a certain time?
A. We're not sure that it is or is not possible. This process involves studying the flight profile to answer those types of questions. This is a different type of procedure to guide aircraft to the runway. We need to understand what the opportunities and constraints to design are.
C. It would be an easy solution to move the flight path over the lake.

C. If I understand correctly, the area navigation (RNAV) approach would be reduced from 12:30 am to 5:30 am.
A. We're not sure yet. That will be determined through further analysis, including simulation.
Q. When do parallel operations start/stop?
A. Parallel operations start at 6:30 am, but when they stop depends on a number of factors. By 11:00 pm we are not using the parallel runway program.
Q. What is the average operation in terms of the number of aircraft per night (e.g., 40)?
A. From 12:30 am to 6:30 am the number of flights varies per night and is very specifically managed.

Q. Does this idea get rid of the anchor altitudes?
A. The anchor altitudes would change. The pilot would switch from standard arrival routes (STAR) to flying this approach, which enables continuous descent.

C. There's a sense on this side of the room that the ideas being proposed are more in tune with keeping control on financial costs and less on human costs (e.g., health, population densities, etc.). In other jurisdictions, the airlines are shouldering a larger share of the cost to improve the wellbeing of citizens.
A. We have had preliminary discussions with airlines. They understand some of these ideas may lead to an increase in costs. These ideas were brought forward as they are the ones we that we think are reasonable and that will make a difference.

Q. Why is moving the flight path not being considered or studied (e.g. over the lake of Don Valley Parkway)?
A. It is on the table – the option exists to move some of the flight paths over the lake. Aircraft cannot make the turn from the Don Valley Parkway to the airport.
Q. What time does Billy Bishop Toronto Island Airport close/open?
A. It closes at 11:00 pm and opens at 6:45 am except for medevac aircraft.
Q. So there are no departures from there after 11:00 pm?
A. Yes, with the exception of medevac aircraft.
Q. It was mentioned that aircraft often fly over the lake, but why don't they always fly over the lake if there is limited activity at Billy Bishop Toronto Island Airport?
A. This suggestion involves designing a new flight path that is more sensitive of the community's needs. The proposed idea would code the flight path, instead of providing the pilot with a vectored path. Vectored flight paths are often not on a constant descent.

C. The change that was made in 2012 is a complete disaster. In other industries where there was a disaster, steps are usually taken to fix that disaster.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- It can be applied generally (e.g., specific night or single runway operations are not necessary to improve descent profiles).
- The variability in traffic provides opportunities for controllers to manage both turns and altitudes based on opposite parallel traffic.
- It is possible to achieve less drag and higher altitudes if published downwind altitudes are deleted and the descent is initiated by the controller.
- The opportunity to modify altitudes and flight paths to avoid residential areas is greatest during night-time operations.
- The RNAV approach.
- It is a reasonable proposal.
- It should be easy to implement without redesigning much.

2. **What concerns do you have…why?**

- This idea does not seem to provide much relief to residents in this area as it would occur during low traffic periods. High traffic periods are more of a concern for us.
- The proposed idea may have a modest impact on noise when preferential runways are not in use, but not the frequency of aircraft flying over our homes. We want to see improved descent profiles generally and liberate air traffic controllers to control traffic.
- Concerned about how changes in the fleet mix will impact the application of this idea.
- Concerned this will open the door to more air traffic in 10-15 years' time.
- Concerned about future engineering of aircraft and increasing air traffic. Perhaps what is learned here can be applied in other approaches.

3. What should be considered as this idea is studied further?

- Consider flying east/west over Billy Bishop Toronto Island Airport airspace when it closed for the night or during low traffic periods during the day.
- Consider guiding aircraft over the lake or highway corridors instead of over residential areas.
- Consider moving the flight path where it does not impact residents (e.g., over the lake of highway corridors).
- Consider a 5 mile offset for R23, moving it further north.
- Consider 11 pm as the starting time for implementing this idea.
- Consider using the remaining three runways on a rotating basis if one runway is used exclusively.
- Compile best practices in noise mitigation from other jurisdictions (e.g., Zurich, Munich, Frankfurt, and San Francisco) to highlight lessons learned and opportunities to replicate them at Pearson.
- I agree that the impact from daytime operations is more of a nuisance, but the nature of the disturbance from night-time operations is greater. There is a need to examine the health impacts of being woken up repeatedly and sleep disturbance to gain a better understanding of health the health impacts.
- Day time relief should be a key consideration.
- Establish a fixed time for night-time procedures (e.g. 10:30 pm or 11:00 pm) to begin or ensure no arrivals/departures before 6:00 am.
- Develop an approach that transitions from YOUTH direct to the base leg taking advantage of Continuous Descent Arrival.

IDEA #2 – New departure procedures for night-time operations

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. What did stakeholders at the Mississauga session think of this idea?
A. They generally liked the idea of tracking closer to an industrial corridor. There were generally positive comments about going to 5,000 feet.

Q. At what stage does power change in this idea (e.g., reduce climb power)?
A. That happens below 3,000 feet above ground.

Q. In the presentation, what height were the planes at Avenue Road and St. Clair? Is there anything that has changed during the last couple of weeks – there have been a lot of noise complaints about departures traveling east.
A. Nothing specifically has changed in the past few weeks. There have been more landings to the east due to weather conditions (e.g., long period high pressure systems). There are many things that affect how noise is perceived at ground level including cloud mass and wind levels. Stable air masses with flat cloud bases above 3,000 feet are more likely to bounce noise back to the ground.

Q. Are these six suggestions cumulative? They could all be pursued at the same time?
A. Yes.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- It seems logical, but concentrates the noise in one narrow corridor.
- This idea seems to have a benefit. Consider exploring this idea for daytime operation as well. We are heavily impacted by departures; sometimes they are noisier than arrivals.

2. **What concerns do you have…why?**

- Most departures take place in the west. This idea will have a minimal impact on residents in this area. This is an example of a trade-off as the proposed change will negatively impact some residents, while providing relief to others.
- The initial climb to a higher altitude simply means that more air traffic will be flying over the same homes that are currently affected.
- Concentrating noise is the wrong way to go – spread it out.

3. **What should be considered as this idea is studied further?**

- Consider extending the 3500 ASL to lessen the noise from acceleration.
- Follow routes on the ground that provide the least overflight impact such as those employed in Europe, not only at night-time but during all hours. Higher altitudes may offer some relief where ground level routes are not available.

IDEA #3 – Increase downwind arrival speeds

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. Are there plans to install noise monitoring equipment along these routes?
A. The GTAA does have a noise monitoring program in place. It is also possible to contract noise monitoring before/after a change is made.

Q. To clarify, you can contract noise monitoring at any location before/after a change is made to assess its impact?
A. The protocol released earlier this year includes a commitment to measure noise levels before and after any changes to flight paths are made.

Q. When you refer to modelling, it's not computer modeling but modelling using real data?
A. We use computer modelling on proposals because we cannot measure something that has not yet happened. We monitor flight paths before and after the proposal has been implemented to assess the change.

Q. If there is a negative effect, what happens?
A. The changes can be reversed.

Q. Will there be a trial period for the ideas being proposed?
A. There are provisions for how to conduct a trial, but the protocol does not specifically reference trial periods. We don't normally make a flight path change as a trials; it takes a lot of time to get the information out to the carriers.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- Out of the six ideas, this is the one that holds the most prospect of some kind of noise relief.
- This idea is a real win; go ahead with it as far as residents are concerned.
- Like it!
- This seems to produce more noise; however hopefully faster speeds mean noise for a shorter period of time.

2. **What concerns do you have…why?**

- Which residents get more noise if it is reduced in a different location?

3. **What should be considered as this idea is studied further?**

- I encourage you to go further and test this idea at higher speeds (e.g., 215-220 knots).
- 215 knots would be better.
- Consider the impact on fuel use and air pollution.
- What happens as the fleet mix changes?

IDEA #4 – Use new technology to reduce the need for low altitude leveling by arriving aircraft

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. Is this being used in Denver, CO? Has this been rejected by any cities?
A. Yes, Denver has a waiver to use it. There here have been some rejections, in those cases they were trying to make the final descent at too low an altitude. In other cities, like Seattle, they were able to go back and take advantage of some of the terrain features to avoid flying over residential areas.

Q. What is the best case scenario in terms of time for implementation?
A. It would be a few years. There are people working on this in other places. We have already started discussions with the regulator with respect to this idea.

Q. What is the position of the regulator?
A. The regulator needs to be assured of safety and is particularly interested in data. We are relying on the work being done in Australia, the United States and other jurisdictions to help us accumulate actual data. We would then have to work within our internal Canadian processes to get the proposed change approved.

Q. Is there anything that would discourage NAV Canada from pursuing required navigation procedures (RNP)?
A. If we heard that this is a terrible idea from a community impact perspective, we would probably step away.

Q. Could this be used to optimize flights away from residential areas by following highways ?
A. The minimum turning radius on this procedure and this phase of flight is 2.5 nautical miles. We would not be able to do that in this context – it's only 6 miles from the lake shore to highway 401.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- While the flight path would not change, the technology would give us a higher altitude with lower levels of noise. We like this option, move forward with it.

2. **What concerns do you have…why?**

- Concerned that new technology proposals will introduce low altitude, high drag, high recurrence approaches to even more and never before impacted residential areas.
- Once you have one path you will never change it; not in my backyard.

3. **What should be considered as this idea is studied further?**

- Controller managed descents to reduce low altitude leveling.
- Consider designing the flight path over the Greenbelt or around the new Pickering Airport.

IDEA #5 – Establish weekend preferential runways

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. If a sixth runway is proposed and implemented, how would it affect this idea?
A. If we add another runway, there would likely be more air traffic. This idea would have to be refreshed as time goes on.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- This idea seems to share the noise; we support this approach.
- Use all the runways to spread out the noise.

2. **What concerns do you have…why?**

- Anytime preferential runways are in use there is a need to ensure proper spacing between aircraft. This will mean the final approach is shared by alternating runways, but also that the downwind leg is short.
- It may produce more noise.

3. **What should be considered as this idea is studied further?**

- Consider at least a 5 mile downwind leg.
- Controller initiated descents will provide the best noise prevention on downwind and base legs.

IDEA #6 – Alternate night-time preferential runways

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. Do you have figures for 2015 to date and a comparison of night-time flights between 2012 and 2014?
A. We don't have that data with us this evening, but it's something we can talk about. The GTAA has some stats they can circulate.

C. Between 12:00 am and 1:45 am there are a large number of flights doing short turns over South Hill (Avenue Road/St. Clair Avenue). I have verified on WebTrak that they are not flying the full distance to Leaside.
A. There are big seasonal differences where aircraft are coming from at that time of the night.

Q. Has any consideration been given to descents from 6,000 feet being air traffic controller based instead of using STARS?
A. If we would go to a controller based scenario, what often happens is that the pilot descends more quickly. The desire of moving to this kind of program is to keep the aircraft higher for a longer period of time.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- This idea does not directly address our concerns. However given the profound impact of night-time flyovers, anything that lowers their impact is great.
- If this involves R24, then I am totally against it.
- It looks good the way it is, given the industrial/greenbelt components around the airport.

2. **What concerns do you have…why?**

- We don't anticipate this idea providing the benefit we are looking for.

- The same downwind width and controller initiated descent principles apply to night-time preferential runways as it would to the regular preferential runways program.
- Any changes to the existing preferential program.
- Impacts to residential populations.

3. What should be considered as this idea is studied further?

- The arrivals onto R23 are flying the STARS onto R24. Our concern is if you are going to do that the 5 mile offset should be shifted to north.
- Move the offset for R23 2 miles north.
- Noise is not really a problem in our community at night-time.

Process and Next Steps

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. How do you expect the aircraft profile to change in the future? If that profile begins to shift a lot of these tweaks will be meaningless.
A. Pearson is open 24/7; there is a budget for growth. Growth is an important factor that is being considered in relation to these ideas, especially if they are studied further.

Feedback on Discussion Questions

1. What are the most important factors you would like to see considered in evaluating the various noise mitigation initiatives? Please identify your top 3 factors.

- Ability to minimize the impact from noise on residential areas to the greatest extent possible.
- Moving flight paths over non-residential areas (e.g., industrial corridors, the lake, highway corridors).
- Population density (e.g., number of people adversely affected).
- Impact on residential areas.
- Impact on human health (e.g., non-audible noise, sleep disturbance).
- Daytime relief.
- Noise mitigation initiatives.
- Loudness.
- Frequency of flyovers.

2. What feedback or suggestions do you have regarding the community engagement process moving forward and next steps?

- Ensure meaningful stakeholder and public consultation at each step in the process regardless which ideas are put forward.
- Develop a meaningful consultation process to engage stakeholders and residents – the current process is not working.

- Prioritize transparency and accountability in the study process, particularly when decisions are made.
- Enhance opportunities for community engagement.
- Consider more innovative ways to involve the general population using tools a variety of tools.
- Consider best practices from other jurisdictions (e.g., public consultation for Heathrow runway expansion).
- Create a mechanism to provide independent/objective solutions to conflicts.
- Provide regular updates and report back to residents about the issue of consistent community involvement.
- Educate stakeholders and the public about the essentials of aircraft and airport operations.

Other Feedback

- Provide the public with the long list of ideas submitted by individuals, community groups and organizations (e.g., TANG Submission) to mitigate noise from aircraft operations to ensure traceability and transparency.
- Explain how the long list of ideas submitted by individuals, community groups and organizations was evaluated and which criteria were used.
- I am having trouble sorting out why we are discussing these six ideas, when I understand there were 39 other ideas. We don't know who chose or why these six ideas were picked. I am worried that drilling down into these six ideas is not a useful expenditure of our time. This narrow flight path is negatively impacting residents. The Minister has said that the lack of consultation last time was a disaster, the effect of human health should be studied, but it does not appear as a criterion. The public should be involved in choosing which ideas should be studied further. What happened in 2012 should not happen again.
- The public should be involved in choosing the ideas that should be studied from the longer list of ideas submitted by community groups and organizations.
- Any monitoring system should take into consideration the non-audible impact from noise that residents experience or are sensitive to.
- Descents from 6,000 feet should be controller based on actual traffic not prescribed by STARS. Only 4 of the top 25 airports in the world use prescribed downwind altitudes. This has been completely left out of documentation, yet it is an immediate risk.
- Downwind legs should be 5 miles wide during preferential runway operations.
- Review usage of cargo flights during night-time preferential hours to restrict their arrival/departures between the hours of 11:00 pm to after 6:00 am.
- What will happen with the shutdown of Buttonville Airport in terms of air traffic at Pearson?
- Is an airport in Pickering an option?
- What new technology is in development for new quieter aircraft engines?
- Consider exploring more substantive options to mitigate noise since these ideas are tweaks.

Toronto Noise Mitigation Initiatives
Stakeholder Roundtable – Summary Report

Leaside Gardens, 1073 Millwood Rd.
August 19, 2015 | 7:00 PM - 9:00 PM

Between July 29th and August 24th 2015, NAV CANADA and the Greater Toronto Airports Authority (GTAA) hosted a series of 8 roundtable discussions with stakeholders to explore six concepts related to noise mitigation in the community. This report has been prepared by Lura Consulting to provide NAV CANADA, the GTAA and roundtable participants with a summary of the feedback captured at the stakeholder meeting held at Leaside Gardens on August 19th.

Attendance: 20
# of Individual Discussion Guides Submitted: 1

Questions of Clarification

Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. Why do aircraft power up their engines to fly level before landing on the south runway?
A. The south runway is a dedicated arrival runway. The arrival capacity at Pearson Airport is such that there is room every hour for more planes to arrive on runway 24L than there is on runway 23. In order to maintain that arrival rate, we need to get the aircraft in a position where we are managing safe separation between them.

Q. The acceptable decibel level for a neighbourhood at night is 40 db. Do you measure the noise level in this area?
A. Noise in this area is not measured on an ongoing basis, but we have done measurements in the past.

C. In my area, the critical issue is the nature of the noise, not just the volume of noise. It is very annoying and prolonged.

Q. How many downwind leg routes fly over this community? Who makes the decision of which downwind leg is used in the night-time?
A. The downwind legs are determined by where the aircraft are coming from and what runway they are landing on.

Q. As an example, one night in May from 12:30am to 2:00am I had 20 flights go over my house. That is half of your downwind leg cap for the night. Why was the route over my house chosen that night?
A. What you are referring to is the base leg. There is only one downwind leg. Base leg is what varies according to when the controller issues the turn instructions. I can pull some traffic samples for you and we can assess what was happening.

C. It seems that most of the flights that go through Leaside are coming from the west. It seems to me when they are turning there is more noise and possibly more pollution right over us.

C. With the current design of the standard terminal arrival routes (STARs), they make the assumption that there is traffic on the other runway which makes the high/low procedure necessary. There are a number of times during the day when there is not a lot of traffic on the other parallel runways. It would make more sense to allow the controller to manage the descent like they do at many other large airports. In general, the controllers manage the descent based on traffic and distance to the runway. Where a continuous descent is available, it is used.
A. In some of the ideas we are presenting, we will look at what we can do when the airport is less busy and when the high/low procedure is not required.

Q. There are six ideas presented here. Where did these ideas come from? How did you get from a long list of ideas to six ideas? Were they generated internally, from industry, from TANG?
A. All of the above. There has been dialogue with a lot of the groups in this room, and groups in other areas of the city for quite some time. TANG has made a number of submissions to NAV Canada and the Minister. We looked at those ideas. We had responded to submissions in the past about what wasn't possible. We took a look at what is feasible in the near term and came up with six.

Q. I've seen about twenty to thirty ideas. What criteria are you using to determine what is feasible and who set those criteria? Was the community consulted on the criteria? I don't see the ideas that TANG has discussed with me in the six ideas.
A. There have been requests to see the longer list of ideas. We are happy to make that list available.

C. There is a huge gap here. If I understand correctly, the set of criteria that Kurtis went through in the presentation was used to whittle down the long list to the short list. Apart from the issue of safety, that list speaks only to the commercial interests of the GTAA and the airlines. It does not speak to the needs of the community.
A. The whole high level objective of this process is to look at ways that we can reduce noise over the residential communities. There are many factors that we need to assess and take into consideration.
C. As informed citizens, we ought to be in a position to understand how that longer list of ideas came to be reduced to the six ideas being presented.

C. This list of criteria you presented is not relevant today. David Suzuki published a report that says 9-10% of climate change is attributed to the way aircraft fly and the impact that has. Operating costs should not be isolated from climate change and resident health concerns. For example, Frankfurt airport will fly around certain areas and that costs airlines more money. We are saying that this is not an acceptable list of criteria. The nature of the debate has now changed. The list is lacking balance with environmental, noise, and health concerns.

C. You don't have the right to endanger our health. The health problems aren't only related to noise. There is evidence of more heart attacks, mental health issues, etc. In September 2012 there was a huge change. It is not acceptable. The new noise mitigation initiatives should have started before the changes to the flight paths.

C. Leaside not only has the arrival flight paths but it also has the departure flight paths. This is unfair. The noise we experience is every two minutes or less all day long.

C. Community consultation is about values. Your first value statement is about maintaining safety. We want more safety and we define it in terms of health factors. You should consult the community on the values we hold as citizens, residents and taxpayers. There are environmental costs. The reality is, if we want a clearer environment we will often have to pay for it.
A. This is precisely what we are consulting on and are looking for your feedback on the community values.

Summary of Participant Feedback

The following summary reflects participant feedback received during the roundtable discussions as well as the written comments submitted by individuals after the session.

IDEA #1 – New approaches for night-time operations

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. What does the GTAA consider to be night-time? I consider night-time to be 6:00pm onwards. Are you considering night-time 12:30am?
A. At this point, we don't know what time we can accommodate this operation.

C. I am surprised that there is a large focus at this meeting on night-time flights. I am more worried about the flights going over my house from 6:30am until 12:30am. Why are we not focusing more on that?
A. There are some initiatives that we will talk about shortly that would apply to day-time operations.

Q. One of the reasons we don't have as many complaints in the base leg community is because there is a dispersion of the impact. With this technical solution, there is more clustering within a small corridor and you will be exacerbating the issues.
A. This technology would narrow the flight path. One of the things we have to figure out is whether the benefit of the continuous descent outweighs the impact.
C. The core issue is narrowing the corridor and clustering the noise over a specific community. This idea would extend it over the base leg component.

C. The three cornerstones of noise are generation, attenuation and occurrence. I do not agree with the concept of using RNAV at night.

Q. With respect to the two mile level rule, do any airports have an exception to that?
A. For instrument landing systems (ILSs), there are no exemptions that I am aware of. For visual approaches that rule does not exist.
C. These landings should be managed by the controllers. I question the fact of the two mile level segment. I am surprised that there have been no exemptions filed.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- Constant descent may help reduce noise for the areas currently experiencing descent noise.

2. **What concerns do you have…why?**

- Clustering the noise within a small corridor will exacerbate the noise issues.

3. **What should be considered as this idea is studied further?**

- Constant descent profiles should apply to daytime flights as well.
- The number of flights should be reduced to allow constant descent to occur.

IDEA #2 – New departure procedures for night-time operations

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

C. Over the last two or three years, Leaside has experienced steady, repetitive noise. I am surprised that three of the six ideas are looking at night-time noise. I think there have been many other suggestions put on the table for daytime noise reduction that need to be considered.

C. One of the problems with this idea is that it increases noise recurrence for some areas. Some people will be subject to more noise whereas now between 3,600 feet and 5,000 feet the noise is spread out. Why aren't we doing RNAV departures where the routing follows areas that are less susceptive noise levels? There are lots of opportunities to go over less residential areas. The idea of going straight out is unimaginative.
A. There are a few things that need to happen before we are able to make that change. For us to depart on a track every aircraft has to be GPS equipped and we don't have that at our airport today. Also, Toronto's exemption to the 15 degree requirement is not applicable to the use of RNAV departures yet. This is something we are thinking about.

C. The first two ideas presented actually increase noise recurrence over new residential areas.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- Constant descent may help reduce noise for the areas currently experiencing descent noise.

2. **What concerns do you have…why?**

- Noise recurrence may be increased in some areas.
- The assumption that growth is desirable is a concern.

3. **What should be considered as this idea is studied further?**

- Passenger flight growth should be limited.

IDEA #3 – Increase downwind arrival speeds

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. Are you saying that at 200kts, pilots are not supposed to be using flaps?
A. We are saying that the ability exists most of the time for the aircraft not to have to use flaps. If a pilot chooses to put flaps out, that is a choice that they make.

Q. Can the controller tell the pilots not to deploy flaps?
A. How the aircraft chooses to meet the speed restriction is not communicated between air traffic control and the pilots. The thought process is that if they have a bigger buffer with increased speeds then pilots will be less likely to use flaps.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- Any measure to reduce flap and air brake use is desirable so long as increased power does not increase noise.

2. **What concerns do you have…why?**

- *[No comments provided]*

3. **What should be considered as this idea is studied further?**

- Higher elevation landing approaches should be considered.

IDEA #4 – Use new technology to reduce the need for low altitude leveling by arriving aircraft

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. TANG has investigated many ideas over that past three years. We have tried to learn about RNP. It has been widely opposed in every city it has been introduced to. There are many problems associated with this technology. It is receiving a great deal of criticism and push back.
A. It is in place today at 20 airports in Canada. WestJet went ahead because they are the only carrier in Canada capable of flying it.
A. There are some airports where is has been well accepted and others where it is more difficult. In the US, they often have capacity that exceeds demand. To manage the RNP, they segregate all the aircraft

onto one runway. We are not proposing to segregate RNP use. We don't think the frequency would match what we see at some other airports. At some airports, the flights are joining the extended centreline runway much closer. The noise abatement framework in Toronto limits our ability to do that.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- RNP deployment should be encouraged to increase constant descent opportunities if noise is reduced.

2. **What concerns do you have…why?**

- Too many aircraft are currently not capable of using this technology. It seems it would take long to implement.

3. **What should be considered as this idea is studied further?**

- Look at complaints at other airports about RNP use.

IDEA #5 – Establish weekend preferential runways

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- Flights should be shared more widely. 28% is too high for departures over North Toronto.

2. **What concerns do you have…why?**

- Concerns over sufficient balance of runway use.

3. **What should be considered as this idea is studied further?**

- *[No comments provided]*

IDEA #6 – Alternate night-time preferential runways

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. I have no objection to changing the runways. Arrivals should follow the five mile downwind rule. When using runway 23, the south downwind should be five miles offset and when you are using runway 05, the same thing should apply. Not only are the people on the final approach going to get some relief, so are the people on the downwind leg.
A. The RNAV approach gives us the capability at night to adjust the flight path based on where we can put it.

Q. I've heard a number of times during the presentation that you don't have answers to a lot of these questions regarding the impact of the initiatives. How long will it take to get the answers?
A. We are talking to you tonight at the concept phase. The next steps are to do technical review of the ideas in the fall followed by public consultation early in 2016. We will have more answers to your questions after the technical review. Some of the ideas can happen quickly and others require more time and regulatory change. The range of time it would take to implement varies based on the idea.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- Flights should be shared more widely. 28% is too high for departures over North Toronto.

2. **What concerns do you have…why?**

- Concerns over sufficient balance of runway use.

3. **What should be considered as this idea is studied further?**

- The overall number of night-time flights should be reduced.

Process and Next Steps

1. **What are the most important factors you would like to see considered in evaluating the various noise mitigation initiatives? Please identify your top 3 factors.**

- Altitude of flights.
- More balanced sharing of runways (i.e., less concentration of flight paths).
- Reduce number of passenger flights in general.
- Health and environmental impacts.

2. **What feedback or suggestions do you have regarding the community engagement process moving forward and next steps?**

- Provide wider and more frequent notice of consultation sessions.
- Give community members more time to speak.

Other Feedback

C. I'm glad that there is actually a process underway. I have grave reservations about the efficacy of the six ideas being put forward in terms of improving our quality of life. We will persist with this process. The Minister said in her announcement on June 17 that there would be a big place at the table for residents. A lot of what I heard tonight was very technical and could be interpreted as explaining why it is going to be next to impossible to fix this. I hope that these concepts are feasible and that there will be relief in midtown Toronto and Leaside.

C. From our perspective, we don't think NAV Canada has come to the table with meaningful solutions to provide the relief that we are seeking. During the bulk of the time, there is no shifting of the flight paths and no serious relief. The big idea is still missing. The CENAC process is broken and not constructive. I believe it does not give community groups a voice at the table. The values in this process need to be revisited. If the criteria are not correct, they need to be revisited to get a proper solution.

Toronto Noise Mitigation Initiatives
Stakeholder Roundtable – Summary Report

St. Volodymyr Cultural Centre
August 24, 2015 | 7:00 PM - 9:00 PM

Between July 29th and August 24th 2015, NAV CANADA and the Greater Toronto Airports Authority (GTAA) hosted a series of 8 roundtable discussions with stakeholders to explore six concepts related to noise mitigation in the community. This report has been prepared by Lura Consulting to provide NAV CANADA, the GTAA and roundtable participants with a summary of the feedback captured at the stakeholder meeting held at St. Volodymyr Cultural Centre on August 24th.

Attendance: 23
# of Individual Discussion Guides Submitted: 5

Questions of Clarification

Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. You talked about the complications of high/low operations. Did high/low operations exist prior to 2012?
A. The high/low procedures are standard and have been in place for a long time.

Q. Why was there a need for new flights paths if those same high/low procedures existed in the past? I don't understand what happened. I also feel that what has happened has nothing to do with safety or security. It has everything to do with enhanced capacity and fuel savings at the expense of residents.
A. With respect to the need for the new flight paths, the procedure design criteria gets updated from time to time as new technologies are introduced. Every four years we have to review and update our procedures. The downwind change wasn't about capacity or efficiency. The change was associated with the design criteria that talks about how far an aircraft has to be downwind and away from a final approach course before it can come back and land. That distance is five nautical miles.

Q. Why did you change that approach and put the flight path over our houses? I can't use my backyard and my property value has been impacted. I can't sell my house because there are planes constantly flying overhead. What happened in 2012?
A. Periodically the 'building code' gets changed and every four years we do a review to ensure our procedures follow the code. I can't speak to why the math was changed. NAV Canada doesn't maintain the standards. They are Transport Canada standards and they are based on international standards. The law says that when we design flight paths we have to design them in accordance with the standards. When we conducted our four year cyclical review in 2012, the standards required the distance between the instrument landing system glide path and the downwind to be five nautical miles.

Q. It appears that the changes were made with a complete disregard for the quality of life of the people who live underneath these flight paths. I am very concerned about the term 'equivalent

safety'. What does 'equivalent safety' mean? As an air traffic controller, do you feel that these current paths are as safe as they should be for passengers and those on the ground during all times? If not, how could they be safer?
A. In terms of equivalent level of safety, there are various standards we have to follow. Mathematicians develop these systems based on the performance of the aircraft and the air traffic control system and ensure that we meet that minimum safety requirement. From my point of view, the system is safe. When there are operational errors, we don't have issues with risk of collision. We have confidence that the various safeguards that are built into the system ensure that we always maintain safe separation. From an air navigation service standpoint, NAV Canada is in the top ten percent of air navigation service providers around the world.

C. My concern is that the specified decent altitudes on the standard terminal arrival routes (STARs) for Pearson are not a common standard around the world. In my opinion, during the many times of day when there is no traffic on the north side approaching from the west, there are many opportunities for air traffic controllers to start the descent at a later point with no risk of loss of separation.

Q. We have come to the conclusion that there is no way to change the flight paths. Tonight, we want to talk about the noise. There has been an increase in flight activity and the actual height of airplanes has been under 3,000 ft above ground. Can we increase that altitude back to 5,000 ft like it was two years ago? It would greatly reduce the noise.
A. The 3,000 ft noise abatement rule hasn't changed. Where we are aiming the aircraft and how we are trying to get established is consistent. In terms of maintaining higher altitudes, the ILS isn't something we can track beyond 21 miles from the airport.

C. It is unfortunate that this discussion and education didn't happen four years ago. If things have changed, why can't the 3,000 ft standard be made higher? If you added another 1,000 ft to the downwind leg I think we would have a significant reduction in noise. I don't see that in the six recommendations.

Q. In your development of the six ideas, have you had any participation with the airlines?
A. We have talked to the carriers about what we are presenting tonight. We have talked to them about what their fleet capability is and what their plans are so that we can try and harness that technology and match it.

Q. Have you consulted with other air traffic services overseas and in the US?
A. Yes. As you will see when we present the ideas we will talk about things happening in Europe and the US. We are looking at best practices around the world.

Q. Are the six ideas mutually exclusive or can they all be implemented at the same time?
A. They are not mutually exclusive but there may be some interaction between them that needs to be considered.

Q. Why wouldn't you come to us for feedback when you have a little bit more information on these ideas? It sounds like some of these may not be feasible.
A. We are trying to ensure we are putting our resources into ideas that people actually agree with. We will have a public consultation phase with more detailed information.

C. I appreciate what NAV Canada is doing to educate us. My concern is the relationship between NAV Canada/GTAA and our political representatives. There is a lack of communication and it appears to be an adversarial relationship. I would like to leave tonight with a feeling that there is a new understanding between our representatives and NAV Canada on what is going to happen.

Q. If you are changing the area that these flights are going over, how do you communicate with the people that will be impacted? People don't come out to consultations until after they are affected. How will you be targeting those new areas that might come under a flight path?
A. It is a very good question. We have found it challenging to engage people who don't think they are impacted. In June of this year, an Airspace Change Communications and Consultation Protocol was release which governs how the consultation process will work. It was something that the current Minister of Transportation challenged NAV Canada to do. Many of the changes we are talking about tonight will fall under that protocol and consultation will have to happen in accordance with it.

Q. Many of us don't understand a lot of what you are talking about. Do you talk with active and retired pilots to understand what can be done?
A. Absolutely. Airspace design is dependent on the type of aircraft in operation and we have an active dialogue with all the major carriers in Toronto.

C. It is hard to comment on each idea. Every measure that can reduce noise should be done. It is unclear that these ideas will make any difference. You need to have an option that looks at altitude on approach. Oakville would like to see increased altitude and increased speed on arrival.

C. My concern is that NAV Canada and GTAA don't have performance measures that monitor noise mitigation. Their performance contracts are based on capacity and fuel savings.
A. There is a noise abatement program in Toronto. When there are violations, they are investigated.

Summary of Participant Feedback

The following summary reflects participant feedback received during the roundtable discussions as well as the written comments submitted by individuals after the session.

IDEA #1 – New approaches for night-time operations

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. Why is this idea limited to night-time?
A. There are a number of reasons for this. It has to do with volume issues. The aircraft have to be further apart. Pilots are putting the information in computers quite a distance from Toronto. Also, during the day, we run parallel operations all the time and there is no existing standard anywhere in the world to do this approach during a parallel operation.

Q. What time do night-time operations start?
A. We don't know the answer yet as it relates to this idea. There will be a maximum traffic volume that we can accommodate with the approach. We need to study it further and determine how busy we can be to manage it.

Q. The one thing people are concerned about around here is the decibel level. No one is concerned about the visual impact. Is there one proposal that would drop the decibel level so it won't impact anyone in Oakville?
A. We expect this idea to result in fewer decibels on the ground. Once we have the design, we will do noise modelling and we will have data on what we expect the noise impact to be. All the ideas tonight are expected to deliver decibel improvements. When we come back with a full public consultation we will have data on what we expect the impact and benefit to be.

Q. Why haven't you done this already? You have had noise complaints from our community and others for years.
A. A number of airplanes didn't have GPS so it wasn't an option. Last October some sections were added to the standards that give us new capabilities and this is our first chance to apply these ideas.

Q. I've been dealing with this issue since 2008 when I was elected. I have studied this issue carefully. My constituents do not want aircraft over their homes at 3,000 feet at any time of day. What would happen if there was a regulation that said: 10 km from the airport you can't have flights any lower than 5,000 ft?
A. There is a standard descent gradient that the aircraft have to fly to get to any airport including Toronto.

Q. What about the greenspace north of Oakville where a small fraction of the number of people live? Why can't the flights travel across the greenspace and make two small turns to get back in line, rather than going over thousands of homes in Oakville, Etobicoke, and Mississauga? Wouldn't that be safer and quieter?
A. There are a lot of standards associated with getting an aircraft lined up to come in and land. We can pull up some maps and look at the area you are referring to.

C. I've done some research and you are allowed to approach at 5.000 ft. (e.g., San Francisco, Frankfurt). It would provide some relief.
A. There is a maximum distance from the airport that you can track the localizer.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- It is a great first step to accommodate the concerns of noise at night.
- Should reduce noise levels from 12:30am to 6:00am.

2. **What concerns do you have…why?**

- There is concern that reducing noise at night will facilitate increased night-time traffic volumes.
- The amount of time to implement this idea.

3. **What should be considered as this idea is studied further?**

- Cost of implementation.

- Increased technology must be used to have a smooth glide path. Higher altitude would be preferred.

IDEA #2 – New departure procedures for night-time operations

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

C. You mentioned you would move the track 5 or 10 degrees left on runway 23. By moving the track about 10 degrees to the left you are actually extending the time spent over residential areas.
A. When we fly the SID on departure, even though the centreline stays over the industrial area we are closer to the houses on the north side of the 407 then we are when we are landing on the runway. We are looking at getting further away from where people live before the aircraft start turning towards their destination.

Q. Is the exemption from Transport Canada and wider dispersion the reason we are getting more departures over Oakville?
A. No. Transport Canada said instead of having to be 15 degrees off, they allowed us to depart with 10 degrees of diversion.

Q. From my understanding, climbing power setting is not usually used until an aircraft is 10 km out. Is that correct?
A. There are Noise Abatement Departure Procedure (NADP) rules that exist which Toronto Pearson subscribes to. This gives the pilot the choice of flying the NADP 2 procedure, which is basically a schedule in terms of power and flap changes, or an NADP 1 procedure, which is slightly different.
C. Now that the noise limit has been extended, I wonder whether it would be quieter on departure if the climbing power setting was not used until the airplane was further away.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- Should reduce noise levels from 12:30am to 6:00am.

2. **What concerns do you have…why?**

- There is concern that reducing noise at night will facilitate increased night-time traffic volumes.
- Would this idea result in increased time over residential areas? Is there any consideration of residential growth?

3. **What should be considered as this idea is studied further?**

- Can this option be utilized during lower traffic times during the day?

IDEA #3 – Increase downwind arrival speeds

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. With regards to the high/low operation, it seems as though over my house the large aircraft are doing the low path and the small aircraft are doing the high path. Why can't that be reversed?
A. The aircraft may look like they are at different altitudes but because of the size it is sometimes hard to tell. Most of the time those aircraft are within a few hundred feet of each other vertically. Regarding whether we can flip it so the low altitude aircraft is on the north side, occasionally we do that. Runway 06R is a dedicated arrival runway based on the configuration of the airport. It is difficult to reverse it permanently based on the current rules.

Q. With respect to noise impacts, do you have some metrics to show the impact on noise based on airspeeds for this idea? Do you have noise sensors on the ground today to give any sense of the impacts?
A. From the nearest analysis, the numbers we have don't give us the ability to discern between these speeds. We need to get into the detailed analysis. There are so many factors that need to be considered.

Q. The proposed speed for this idea is 210 kts. Why not consider 220 kts?
A. There is a maximum speed that we are allowed to point aircraft at each other. It relates to how the Terminal Collision Avoidance System (TCAS) works.

Q. If you extend the speed, will it extend the outpoint distance as well?
A. We won't be sure until we simulate it but we don't think so.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- It will marginally lower noise levels.

2. **What concerns do you have…why?**

- How do you measure noise benefits? What is the indicator of a "real" benefit?

3. **What should be considered as this idea is studied further?**

- There seems to be a limited difference in speeds thus the benefits will be marginal.

IDEA #4 – Use new technology to reduce the need for low altitude leveling by arriving aircraft

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. You mentioned that 41% of aircraft are equipped to use this technology. Is it possible for the airport to require all aircraft to be equipped with this technology?
A. There are some airplanes that fly out of Pearson that can't be retrofitted with this equipment. Over time things will improve as Air Canada replaces their airbus fleet.

Q. How long would it take to implement this idea?
A. It would take about one year after consultation to publish the approach for the aircraft, but we don't know how long the regulatory approval for the separation standard will take. We have started discussions with our regulator and we are trying to pool resources with international bodies to expedite this as much as possible. Two years is the estimated minimum timeframe if all goes as planned.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- *[No comments provided]*

2. **What concerns do you have…why?**

- Even if there are new technologies, what guarantee is there that they will be implemented?
- There are concerns with safety.

3. **What should be considered as this idea is studied further?**

- Could there be government subsidies to enhance the advancement of these technologies?
- If you are heading to an RNP-based solution, hopefully the RNP tracks are planned over current low density residential areas.
- Is it possible to communicate to land use planners where the RNP flight tracks will be so they can match the land uses to be more compatible to withstand noise (e.g., industrial or greenspace uses)?
- How do you get the airlines on board for these advances?

IDEA #5 – Establish weekend preferential runways

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. Is the weekend preferential runway program in existence now? I've noted that usually at 6:30am on Saturdays and Sundays there are departures.
A. There is no formal program in effect.

Q. Isn't this example of the path which extends off the 401 and cuts along Bronte Road an example of increasing capacity with these new routes? Prior to that, you were going down Winston Churchill. On a Saturday morning, now you are using this new path over Oakville as well. This strikes me as increasing capacity after 2012.
A. The capacity in that scenario is dictated by how close the aircraft can be when they take off. When you see additional aircraft it means we are departing two runways.

C. The issue tonight is both the volume and frequency of noise. You should look at sharing the noise on the weekends. Why can't those flights going over south Oakville do a 5 degree turn and go out over Lake Ontario where they are not waking up thousands of people?

Feedback on Discussion Questions

1. **What do you like about this idea?**

- Sharing noise is a great idea.

2. **What concerns do you have…why?**

- What criteria will be used to determine the "preferred" runways?

3. **What should be considered as this idea is studied further?**

- Could alternating runways be applied to lower traffic times during the week?

IDEA #6 – Alternate night-time preferential runways

Questions of Clarification
Questions are noted with Q, responses are noted by A, and comments are noted by C.

Q. You mentioned that it takes approximately 18 months for regulatory changes. It doesn't make sense to me that you need regulations for decreasing noise.
A. It depends on the specific example. Idea #4 is the only idea we need regulatory change for. In addition, noise abatement procedures are enforced by Transport Canada and we don't know the length of time it takes to coordinate the change.

Feedback on Discussion Questions

1. **What do you like about this idea?**

- Sharing noise is a great idea.

2. **What concerns do you have…why?**

- What criteria will be used to determine the "preferred" runways?

3. **What should be considered as this idea is studied further?**

- Could alternating runways be applied to lower traffic times during the week?

Process and Next Steps

1. **What are the most important factors you would like to see considered in evaluating the various noise mitigation initiatives? Please identify your top 3 factors.**

- The time it takes to implement initiatives is an important consideration.
- Noise benefits all day and night.
- Ensure that you are not simply shifting the noise burden to other communities. Find a universal solution for the entire community.
- Non-winter noise levels (March-November) when people are more likely to be outside or have windows open.
- Weekend and evening noise starting at 6:00pm.
- Improving the communication of steps being taken by NAV Canada to the public.

2. **What feedback or suggestions do you have regarding the community engagement process moving forward and next steps?**

- Inform the public about consultations well ahead of time with numerous reminders in newspapers and other media.
- When presenting information, show maps of the expected change in noise levels along the flight paths so people understand which areas are affected or would be affected based on changes.
- The public would benefit from seeing a noise intensity diagram or map that shows decibel level and frequency for each of the ideas. Noise impacts relative to pre-2012 noise levels and current noise levels are important to understand. The public will be better suited to provide meaningful input if this information is available.
- It is important that NAV Canada comes back to the public in a reasonable amount of time and communicates the progress that has been made.

Other Feedback

- Controller managed descent is used around the world and should be considered as an idea and studied further. This could provide noise relief in the short-term as it does not require a major technological change. Aircraft should not be flying at 3,000 ft over residential areas if traffic levels are low.
- NAV Canada is requested to release a paper to the public summarizing the specific changes that were made in 2012 and the rationale behind it.
- Higher flight altitudes and fewer flights would provide much needed relief.
- Need more ideas that address the constant daytime noise.
- Need standards for noise from aircraft.
- Restructure NAV Canada to have community representatives on its Board of Directors.
- Flight paths should be planned over industrial areas, greenspace, and Lake Ontario rather than residential areas.
- Community members should have been asked for additions to the Stakeholder Roundtable agenda in order to provide them with a bigger place at the table.

- It did not seem appropriate to comment on the Mitigation Ideas presented at the Stakeholder Roundtable as there were no tangible measures to quantify their benefits. NAV Canada should study all ideas.