Appendix G

Noise Impact Assessment Report

Noise Impact Assessment Report

Runway End Safety Area, Billy Bishop Toronto City Airport

PortsToronto

60733457

October 2025

Delivering a better world

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AECOM: 2024-12-21

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Revision History

Rev #	Revision Date	Revised By:	Revision Description
0	November 2024	AECOM	Draft Noise Impact Assessment Report.
1	May 2025	AECOM	Draft Noise Impact Assessment Report.
2	October 2025	AECOM	Final Noise Impact Assessment Report.

Distribution List

# Hard Copies	PDF Required	Association / Company Name
	✓	PortsToronto
	✓	Avia NG Airport Consultants

Land Acknowledgement

We acknowledge that Billy Bishop Toronto City Airport is located on the traditional territory of many nations including the Mississaugas of the Credit, the Anishinaabe, the Chippewa, the Haudenosaunee, and the Wendat peoples, and is now home to many diverse First Nations, Inuit, and Métis peoples. PortsToronto also recognizes that Toronto is covered by Treaty 13 signed with the Mississaugas of the Credit, and the Williams Treaties signed with multiple Mississaugas and Chippewa bands.

Executive Summary

AECOM Canada ULC, herein after referred to as “AECOM”, has been retained by Avia NG to complete an Environmental Assessment for the implementation of Runway End Safety Area (RESA) for Runway 08/26 at Billy Bishop Toronto City Airport (the Project). The Billy Bishop Toronto City Airport is owned and operated by PortsToronto (the Project proponent) and is located in the City of Toronto on the Toronto Islands.

The purpose of the Project is to comply with the Canadian Aviation Regulations Part III, Subpart 2, Division VI – Runway End Safety Area (RESA), published in January 2022, which mandate RESAs for airports serving over 325,000 commercial passengers annually.

RESAs are designated open spaces at both ends of runways, designed to minimize damage if an aircraft overruns or undershoots the runway. At Billy Bishop Toronto City Airport, the RESA requirements apply only to the primary runway, Runway 08/26, which enables commercial aircraft use.

Although there are no regulatory requirements under the federal or the provincial acts that mandate the Environmental Assessment process for the Project, a Section 82 evaluation under the Impact Assessment Act is required for all Project components that fall on Transport Canada-owned land. A Section 82 evaluation is a requirement under the Impact Assessment Act for projects located on federal lands or being carried out by federal authorities. In the City of Toronto’s Official Plan (2024), policies exist that require projects where lakefilling in Lake Ontario is proposed to undertake an Environmental Assessment. As such, PortsToronto has undertaken a non-statutory Environmental Assessment process for the RESA project at Billy Bishop Toronto City Airport.

As part of the Environmental Assessment, PortsToronto has identified and evaluated alternatives for implementing a RESA at Billy Bishop Toronto City Airport. The Environmental Assessment also considers the opportunities to enhance airport operational safety. This includes minimizing regular non-airport and airport vehicular crossings on Runway 08/26, currently necessary for both airport operations and Toronto Islands access requiring co-ordination with the airport traffic control tower. This effort supports Transportation Safety Board of Canada’s objective to reduce the risk of runway incursions at airports. Additionally, the Environmental Assessment examined measures to reduce emissions and ground-based noise levels along the lakefront.

AECOM completed a noise impact assessment for the Project, including both construction and operation phases.

The purpose of this Noise Report is to document the assessment of noise impacts associated with the RESA alternatives, including both construction and operation phases, and provide recommendations for mitigation measures to be developed during detailed design. Three aspects of noise emission have been identified to be associated with this Project: construction; ground operations – ground movement of aircraft following taxiway improvements; and airborne operations – air movement of aircraft following relocation of instrument landing system equipment on the ground.

Sound levels from construction activities are predicted to exceed existing night-time average background sound levels at two noise-sensitive locations during one stage of construction for the RESA 2 and RESA 3 alternatives. The difference in average night-time sound levels is predicted to be potentially perceptible but have marginal impact at one location and is predicted to be negligible at the other.

Existing night-time background noise conditions and predicted construction sound levels are anticipated to exceed Health Canada's thresholds (Health Canada, 2023) for adverse sleep impacts at assessed points of reception. However, the estimated change in percentage of population 'highly annoyed' at all locations is less than Health Canada's suggested mitigation level. Although impacts are predicted to be below this threshold, recommendations for general construction noise mitigation measures have been developed, which may be implemented to reduce the risk of noise disturbance.

With the reconfiguration of the taxiways and opportunity to implement additional noise walls, the worst-case taxiway operations noise impacts at the most exposed points of reception are predicted to be negligible. Noise-sensitive locations further away would have lower noise exposures. With the taxiway improvements and without noise walls in the RESA 2 alternative, marginal reductions in taxiway operations noise levels are possible at several points of reception. With noise walls in the RESA 3 alternative, significant noise reductions in taxiway operations noise levels are possible at several points of reception. The potential noise reductions with 8 metres high noise walls are slightly improved than with 6.2 metres high noise walls, but the noise level differences between these height options are generally not expected to be noticeable.

The airborne aircraft operations at Billy Bishop Toronto City Airport are bound by the Tripartite Agreement which limits the expansion of the Noise Exposure Forecast. Noise Exposure Forecast for aircraft air movements have been prepared to evaluate the change in noise exposure with the relocation of instrument landing system equipment on the ground, as proposed in the RESA 2 and RESA 3 alternatives. The Noise Exposure Forecast contours based on existing conditions and with the Project are mostly co-aligned and the only locations where they are slightly divergent are above the Inner Harbour, with no impacts to any noise-sensitive locations.

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Acronyms and Abbreviations

RESA ..... Runway End Safety Area

1. Introduction

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As part of the Environmental Assessment, PortsToronto has identified and evaluated various alternatives for implementing a RESA at Billy Bishop Toronto City Airport. The Environmental Assessment also considers the opportunities to enhance airport operational safety. This includes minimizing regular non-airport and airport vehicular crossings on Runway 08/26, currently necessary for both airport operations and Toronto Islands access requiring co-ordination with the airport traffic control tower. This effort supports Transportation Safety Board of Canada’s objective to reduce the risk of runway incursions at airports. Additionally, the Environmental Assessment examined measures to reduce emissions and ground-based noise levels along the lakefront.

The purpose of this Noise Report is to document the assessment of noise impacts associated with the RESA 1, RESA 2, and RESA 3 alternatives, including both construction and operation phases, and provide recommendations for mitigation measures to be developed during detailed design.

The RESA 2 and RESA 3 alternatives are proposed to include relocation of the Runway 26 localizer, which is currently located offset from the runway in the path of the proposed new west end taxiway. The localizer is a landing guidance system used by some aircraft approaching from the east under adverse weather conditions. Relocating the Runway 26 Localizer antenna enables the parallel taxiway reconfiguration and also aligns the approach along the runway centreline which is more typical for localizer approaches. The adjusted aircraft air movement path for Runway 26 localizer approaches has potential to affect the distribution of aircraft air movement noise levels and resulting noise exposure forecasts.

The focus of this assessment is noise. No changes in vibration levels during operation or construction are anticipated at any sensitive areas as a result of the Project.

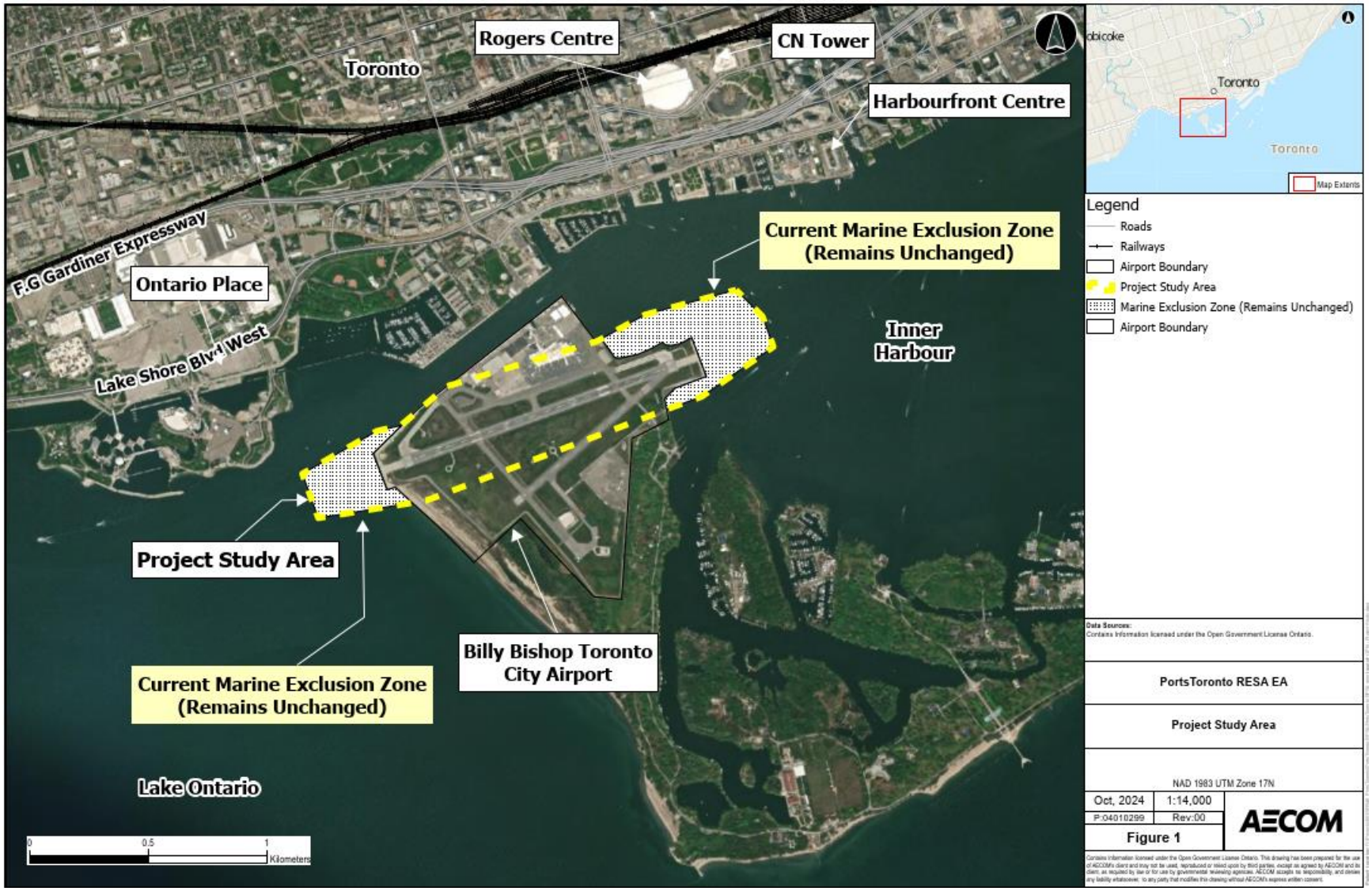
2. Background

Three aspects of noise emission have been identified to be associated with this Project: construction; ground operations – ground movement of aircraft following taxiway improvements; and airborne operations – air movement of aircraft following relocation of instrument landing system equipment on the ground.

2.1 Study Area

The Project Study Area encompasses all Billy Bishop Toronto City Airport lands involved in the RESA implementation, including the Marine Exclusion Zone. The Marine Exclusion Zone is a buoy-marked area of the lake where vessel entry is prohibited without PortsToronto's authorization. The Project Study Area is illustrated in **Figure 1**.

Figure 1: Study Area Map



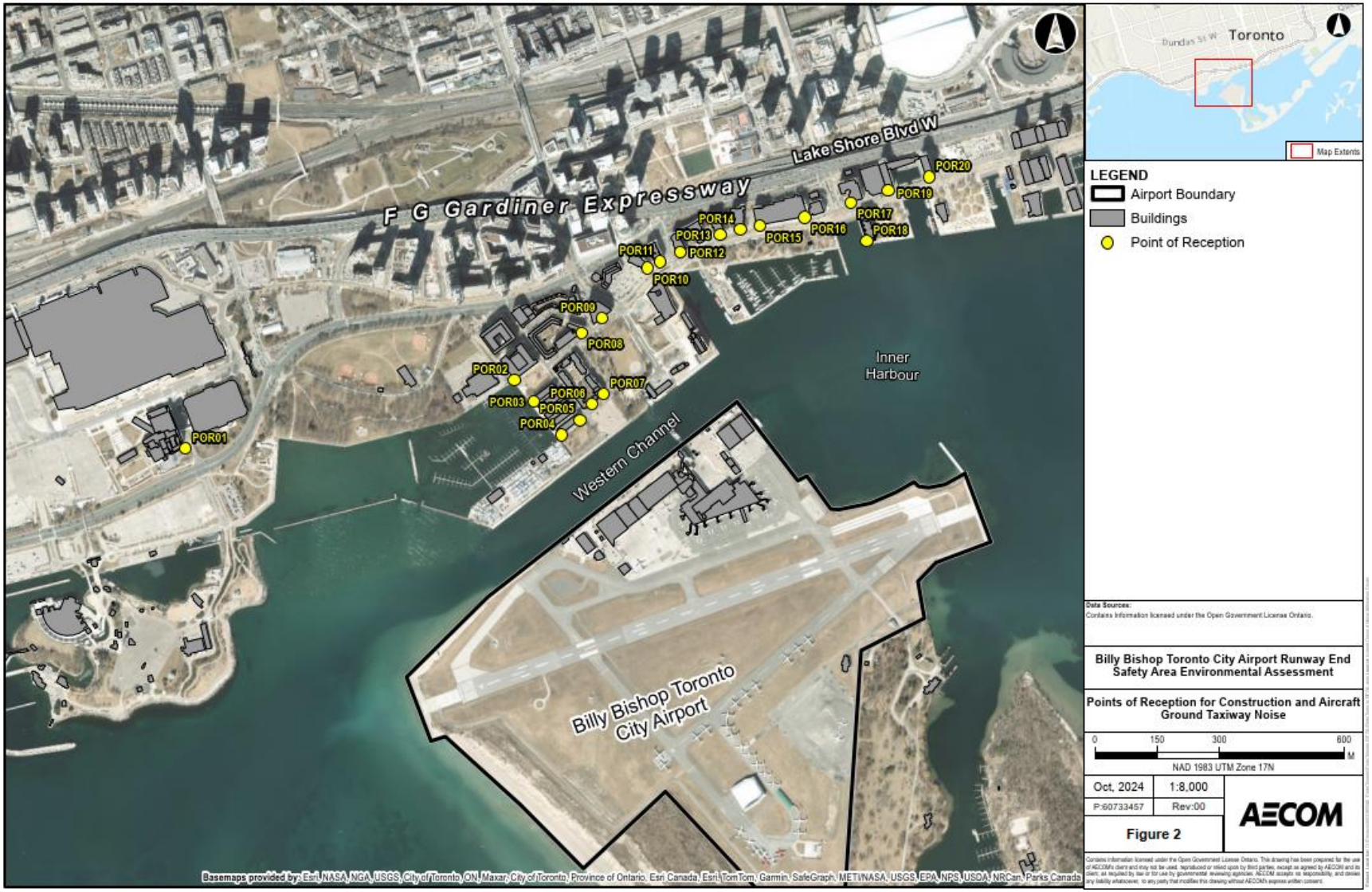
2.1.1 Noise Assessment Study Area

The effects assessment for noise includes the nearest exposed noise-sensitive points of reception and considers the extents of aircraft noise contour limits as established in the Tripartite Agreement. The locations of the points of reception are provided in **Figure 2**. A summary of the points of reception is listed below:

Table 1: Points of Reception

Points of Reception	Description
1	Hotel X, 111 Princes' Boulevard - Hotel
2	90 Stadium Road - Residential Condominium Building
3	38 Stadium Road (west end unit) - Townhouses
4	28 Stadium Road (west end unit) - Townhouses
5	28 Stadium Road (east end unit) - Townhouses
6	6 Little Norway Crescent - Windward Co-op Residences
7	34 Little Norway Crescent - Windward Co-op Residences
8	680 Queens Quay West - Arcadia Co-op Residences
9	650 Queens Quay West - Atrium Condominium Building
10	600 Queens Quay West (west building) - Queens Harbour Condominium Building
11	600 Queens Quay West (east building) - Queens Harbour Condominium Building
12	550 Queens Quay West - Residential Condominium Building
13	500 Queens Quay West - Residential Condominium Building
14	498 Queens Quay West - Residential Condominium Building
15	480 Queens Quay West - Kings Landing Condominium Building
16	460 Queens Quay West - Kings Landing Condominium Building
17	410 Queens Quay West - Aqua Condominium Building
18	401 Queens Quay West - Harbour Terrace Condominium Building
19	390 Queens Quay West - The Quay Residential Apartment Building
20	350 Queens Quay West - The Quay Residential Apartment Building

Figure 2: Points of Reception for Construction Noise and Ground Taxiway Noise



3. Criteria

3.1 Construction and Ground Operations

As construction noise impacts are temporary and will cease upon completion, they are assessed separately from the long-term operational stage of the Project. There are no provincial receptor-based limits for construction noise and construction is typically addressed at the municipal level on a qualitative basis. According to the City of Toronto Noise By-law (Toronto Municipal Code Chapter 591, Noise) section 591-3.1 D, Government Work (including this Project) is exempt from the requirements of the by-law. However, City Council does require a construction noise management plan to be developed for the Project to include efforts to minimize community impacts by employing 'best practices for noise and sound induced vibration mitigation'.

Noise impacts can be assessed based on the difference between Project noise levels and existing background noise levels. **Table 2** below indicates typical perceived impact of increased sound levels.

Table 2: Perceived Impact of Increased Sound Levels[1]

Increased Sound Level Above Ambient (decibels, dB)	Perception	Perceived Impact
Less than or equal to 1	Imperceptible	Negligible
1 to 5	Potentially Perceptible	Marginal
5 to 10	Noticeable/Significant	Low
10 to 15	Twice as loud or greater	Medium
15 or greater	Strong	High

Health Canada guidance suggests that the change in the percentage of a population highly annoyed by noise is "an appropriate indicator of noise-induced human health effects from exposure to long-term construction noise (i.e., greater than one year)… and to project operational noise…exposure".

Percentage of population highly annoyed is calculated based on the day-night sound level, L_{dn}, which is a 24-hour equivalent average sound level with a 10 dB penalty added to the night-time sound levels. In Ontario, night-time sound levels are typically calculated based on an 8-hour period (23:00-07:00), whereas the L_{dn} is based on a 9-

1. Adapted from "Engineering Noise Control, Theory and Practice" 4th edition, David A. Bies and Colin H. Hansen, 2009, and ISO R1996-1971E.

hour period (22:00-07:00). The percentage of population highly annoyed is calculated based on the following equation:

$$\text{Percentage of population highly annoyed} = \frac{100}{1 + e^{(10.4 - 0.132 \times L_{dn})}}$$

Health Canada recommends noise mitigation to be considered where a predicted change in percentage of population highly annoyed exceeds 6.5%.

There are many other metrics and indicators of human health effects related to noise. Health Canada suggests that potential adverse impacts on sleep may occur with outdoor levels of 45 dBA L_{eq} (average sound level) and 60 dBA L_{max} (maximum sound level), assuming 15 dB outdoor-indoor sound transmission loss. This report also incorporates an assessment of noise impacts using these metrics.

3.2 Operations – Aircraft Air Movements

Whilst aircraft noise at source is regulated by the Canadian Aviation Regulations, Transport Canada uses the Noise Exposure Forecast system to evaluate actual and forecasted aircraft noise near airports. The Noise Exposure Forecast system accounts for the subjective human reaction to aircraft noise and predicts a community's response. **Table 3** describes Transport Canada's Noise Exposure Forecast ratings with respect to community response.

Table 3: Transport Canada Noise Exposure Forecast Rating Descriptions

Noise Exposure Forecast Rating	Transport Canada Noise Exposure Forecast Description
Greater than Noise Exposure Forecast 25	Likely to produce some level of annoyance.
Greater than Noise Exposure Forecast 30	Transport Canada recommends against new development where Noise Exposure Forecast is greater than Noise Exposure Forecast 30. If development proceeds, a detailed noise analysis should be conducted, and noise reduction will be needed. Developers need to inform perspective residents of potential noise concerns.
Greater than Noise Exposure Forecast 35	Complaints will be numerous.

Furthermore, the airborne aircraft operations at Billy Bishop Toronto City Airport are bound by the Tripartite Agreement which limits the expansion of the Noise Exposure Forecast. The Tripartite Agreement limits the Noise Exposure Forecast 28 contour to the official Noise Exposure Forecast 25 contour for 1990, except for between points "X" (just south of Ontario Place) and "Y" (just off Hanlan's Point Beach) as indicated on the official 1990 Noise Exposure Forecast contours (shown on **Figure 5** in **Section 5.3**).

4. Methodology

4.1 Construction

As part of a previous Billy Bishop Toronto City Airport proposal, RWDI prepared an Environmental Noise Report (RWDI #1402032, dated November 9, 2016) for the extension of the runway and introduction of jets at Billy Bishop Toronto City Airport. This proposal is not part of the current Project, but the report provides some useful background information. RWDI's 2016 noise assessment report presented modelled background noise levels at several nearby noise-sensitive locations. Background noise levels at points of reception selected for this project have been conservatively estimated based on the historic baseline levels considering only road traffic and light rail transit sources available at nearby point of reception locations.

Construction activities and equipment quantities were estimated by Avia NG and marine engineering subconsultants following the preliminary design inputs, and anticipated construction methods associated therewith, for similar construction works. These were provided to AECOM for this assessment (March 2025). Equipment has been estimated by stage of construction, as follows and as detailed in the tables in **Appendix A**, which present assumed equipment quantities at each end of the project site for the following stages:

- Stage 1 – Offshore/in-water work only;
- Stage 2 – Combined offshore and onshore work; and,
- Stage 3 – Onshore work only.

An acoustic model was prepared to predict noise levels at selected representative points of reception. At each point of reception up to 6 sub-receptors[1] were evaluated, distributed at different floor levels of the buildings. The model was prepared using Cadna/A modelling software, authored by DataKustik, which implements the International Standard ISO 9613 (ISO, 1996) prediction algorithms and accounts for building noise shielding, geometric spreading, reflection effects from nearby buildings, ground absorption, and air attenuation.

1. Sub-receptors were determined for each point of reception, where each point of reception is represented by x- and y- coordinates and the z- coordinate is dependent on the building height. For each point of reception location (referenced with numbers 01 to 20), sub-receptors (referenced with letters A to F) were located at the lowest and upper-most occupied floors, and up to 4 additional floors, with an even distribution of building elevations.

The acoustic models included the following assumptions:

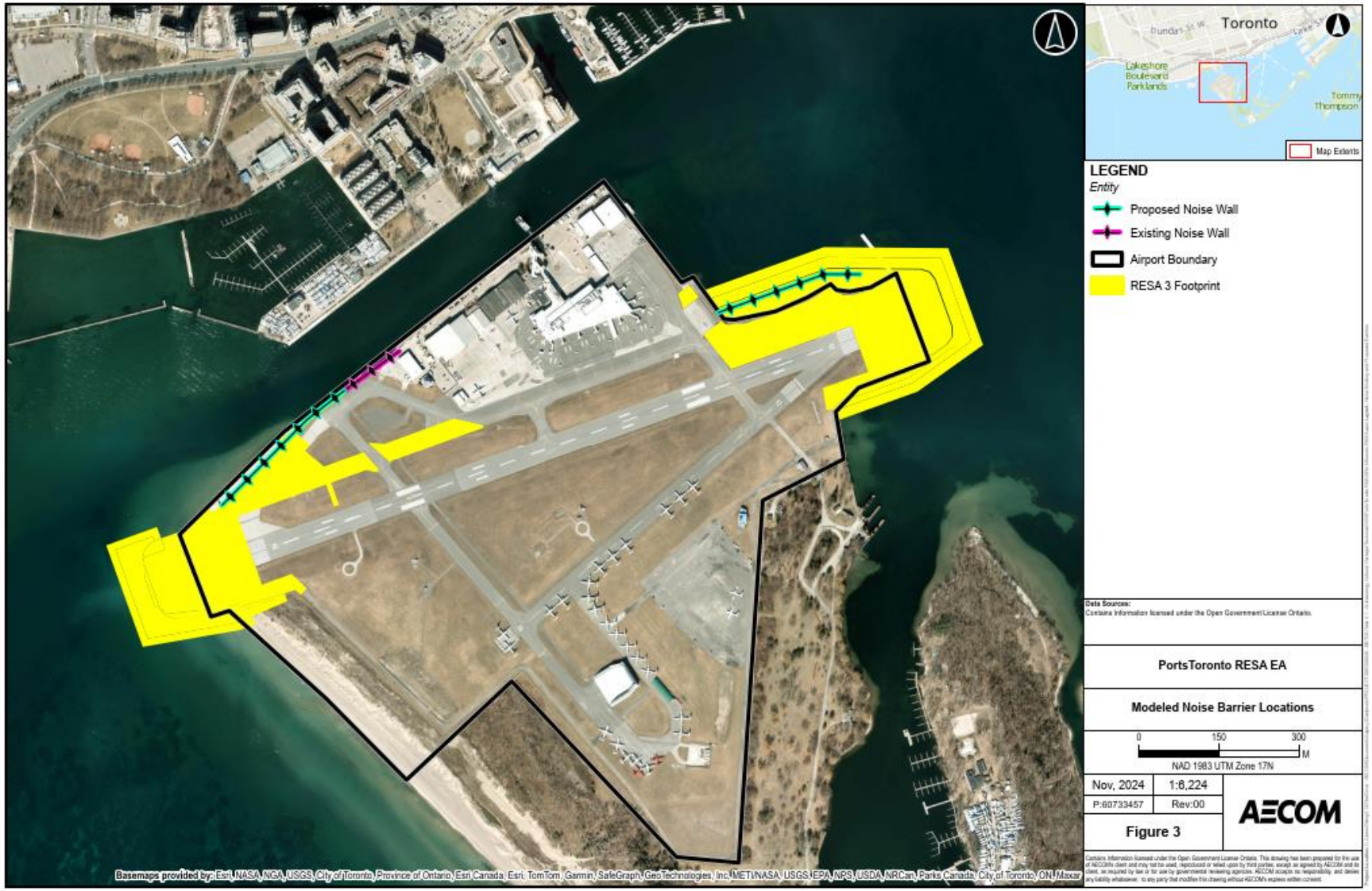
- The reference sound levels used in the model are summarized in **Appendix B**;
- The mobile equipment (e.g., excavators) were modelled as operating in combination over the work areas, rather than at a single point location and stationary equipment (e.g., cranes) were modelled individually to emit noise from fixed positions;
- Conservatively, the equipment in each activity grouping was assumed to be operating concurrently, and both east and west work areas were assumed to be active simultaneously;
- Usage factor adjustments were included to account for the percentage of time that the equipment is in use over the time period;
- Ground absorption, including for the lake water surface, was set to zero (fully reflective), except for grassy areas modelled as fully absorptive ground; and,
- All construction was assumed to occur during night-time to maintain safe operation of the airport during daytime hours.

4.2 Operation – Aircraft Ground Movements

As described in RWDI's 2016 noise assessment report, noise from aircraft run-up testing at the airport's ground run-up enclosure is the controlling source of noise from ground operations. Therefore, changes in taxiway configurations may not have a significant influence on overall average noise levels. However, there are times when taxiway activities may be distinctly audible. Since the only change to ground operations with the Project is the taxiway improvements (applicable to RESA 2 and RESA 3), this assessment focuses on the change in noise level contributions from the taxiway operations.

R.J. Burnside & Associates Limited (Burnside) collected noise data between 2020 and 2023 as part of the Ground Noise Study conducted by PortsToronto. Per joint request by AECOM and Avia NG, Burnside created acoustic models to predict noise levels from taxiway operations with current conditions, with the proposed taxiway improvements (applicable to RESA 2 and RESA 3), and with two noise wall scenarios (6.2 metres high and 8 metres high) for taxiways on the east and west sides of the airport (applicable to RESA 3 only). The extents of the noise walls evaluated are presented in **Figure 3**.

Figure 3: Modelled Noise Barrier Locations (applicable to RESA 3)



The acoustic models included the following assumptions:

- Sound power levels were obtained through measurements obtained by Burnside at Billy Bishop Toronto City Airport;
- No penalties or adjustments were applied to the results;
- Ground absorption was set to zero (reflective), except for grassy areas modelled as fully absorptive ground; and
- The following aircraft movements were assumed to represent the worst-case hour:
  - 9 full movements of Q400 aircraft taxiing with a single engine configuration;
  - 1 full movement of Q400 aircraft taxiing with a dual engine configuration; and,
  - 11 full movements of small general aircraft taxiing.

4.3 Operation – Aircraft Air Movements

Noise Exposure Forecast contours were calculated using Transport Canada's Noise Exposure Forecast Program (Noise Exposure Forecast-Calc).

The Noise Exposure Forecast calculations included the following assumptions:

- Departure flight paths
  - Runway 08: right turn at waypoint LODRA (N43 35.31 W79 21.52) heading 090 degrees;
  - Runway 26: left turn at 800 feet above sea level, to waypoint EMDOS (N43 31.08 W 79 19.28);
- Approach slopes:
  - Runways 06 and 24: 3.5 degrees;
  - Runway 08: 3.9 degrees (visual) or 3.5 degrees (instrument);
  - Runway 26: 4.25 degrees (visual) or 3.65 degrees (instrument);
- Runways 24 and 26 have left hand circuits while runways 06 and 08 have right hand circuits for "local" air traffic movements;
- The number of circuits is half the number of "local" air traffic movements;
- Local air traffic was assumed to conduct a circuit at 1000 feet above airport elevation;

- Runway 26 approach flight paths:
  - Existing conditions:
    - Visual arrivals and circuits align with runway centreline;
    - Instrument arrivals align with current Runway 26 Localizer (3 degree offset from runway centreline);
  - With Project (Relocation of Runway 26 Localizer – applies to RESA 2 and RESA 3):
    - Visual arrivals and circuits align with runway centreline;
    - Instrument Arrivals:
      - All instrument arrivals that are not Q400s arrive using the runway centreline;
      - Instrument Q400s: 56% on runway centreline; 44% remain on existing RNAV26X approach, with 3 degree offset;
- Where helicopter flight paths were not defined, they were attributed to the main runways (08/26), with the same flight paths as fixed wing aircraft;
- For an approximation of the helicopters, which aren't typically included in Noise Exposure Forecast contours and are not included with standard reference sound levels in Noise Exposure Forecast-Calc, the helicopters were modelled with a fixed wing aircraft proxy based on the Q400 (DHC830 aircraft type); and
- Single engine propellor fixed wing aircraft not included with standard reference sound levels in Noise Exposure Forecast-Calc were modelled using the generic GASEPV aircraft type.

According to Transport Canada, the Noise Exposure Forecast contours should be calculated based upon a 'Peak Planning Day'. To determine the Peak Planning Day, air traffic movements from the seven busiest days of each of the three busiest months are averaged. Air traffic data were obtained from the 2023 Tower data provided by PortsToronto. A summary of the annual aircraft volumes with runway distribution and the Noise Exposure Forecast-Calc movement report corresponding to the Peak Planning Day are provided in **Appendix D**.

5. Detailed Effects Assessment

5.1 Runway End Safety Area at Billy Bishop Toronto City Airport

The project involves the implementation of Runway End Safety Areas (RESAs) at Billy Bishop Toronto City Airport, which requires expanding the landmass at both the east and west ends of Runway 08/26. To meet the requirements for RESA implementation, three alternatives were developed, each progressively building on the previous one with increased landmass expansion and additional features. The following outlines the three RESA alternatives.

5.1.1 RESA 1 – Minimum Landmass

RESA 1 proposes the minimum landmass expansion to meet RESA requirements, extending 54 metres from the seawall on the west end (7,850 m^2), and 52 metres on the east end (6,100 m^2). On the west end, the breakwater structure will be raised to 81 metres above sea level, about 4.5 metres above the threshold at Runway 08/26, to prevent wave overtopping and water spray. The breakwater at the east end (Inner Harbour) will be raised to 77 metres above sea levels, about 1 to 1.5 metres above the threshold, since there is no need to control any waves or water spray.

The proposed layout includes perimeter airfield roads around the RESA ends, providing restricted access across the runway, similar to current access conditions. The road will be managed by the control tower to avoid conflicts with aircraft landing or taking off, as this landmass configuration does not provide sufficient airspace clearance for unrestricted vehicle passage (does not meet Obstacle Limitation Surface requirements). An Obstacle Limitation Surface is an imaginary surface or series of surfaces that define the limits to which objects may project into airspace, to protect the airspace for the safe operation of aircraft during takeoff, landing and emergency operations.

5.1.2 RESA 2 – Taxiway Improvements

This alternative builds on RESA 1 – Minimum Landmass by incorporating additional airfield improvements in conjunction with the RESA work at both runway ends. Specifically, it proposes upgrades to Taxiway B at the west end and Taxiway D at the east end to enhance operational efficiency and safety at the airport.

For Taxiway B, the relocation of the Localizer 26 antenna to the new western RESA increases the landmass expansion to the west, reaching 82 m^2 from the seawall

(11,800 m^2). The relocation of Taxiway D requires additional landmass to the northeast, bringing the total landmass on the east end to 11,300 m^2. This relocation enables the airport to upgrade its visual approach guidance system for aircraft landing on Runway 26, which is intended to improve aviation safety with a more precise system. All other features from RESA 1- Minimum Landmass remain the same in this alternative.

5.1.3 RESA 3 – Noise Wall and East Utility Conduit

This alternative builds on RESA 2 – Taxiway Improvements by incorporating additional elements. The key new features of RESA 3 include: 1) unrestricted airfield perimeter roads connecting the north and south sides of the airport, 2) a noise wall at the east end along with an extension of the existing noise wall at the west end, and 3) a reserved utility conduit for future hydro, water, and telecommunication services to the Toronto Islands community.

To accommodate these new components and ensure aeronautical airspace clearances over the new roads, security fences, and noise walls, a landmass expansion is required; 73 metres from the seawall (29,980 m²) on the east end and 82 metres from the seawall (12,600 m²) on the west end. All other features from RESA 2 are included in this alternative.

5.2 Effects Assessment

5.2.1 Construction

Each construction stage is further divided into activity phases. The receptor sound levels for each activity were predicted and are detailed in **Appendix B**. The worst-case sound levels based on results from each modelled building elevation, for each construction stage, are summarized in **Table 4** for each RESA alternative.

Results show that construction sound levels are only predicted to exceed the existing night-time average background at point of reception 4 and point of reception 5 during construction stage 3 for the RESA 2 and RESA 3 alternatives. The difference in sound level is predicted to be potentially perceptible (4 dB) but have marginal impact at point of reception 4. The difference in sound level is predicted to be imperceptible (1 dB) and have negligible impact on point of reception 5. Despite the low predicted noise impacts, construction activities may be audible and potentially disturbing to some points of reception at limited times during construction.

Based on the full results presented in **Appendix C**, the quantities of sub-receptors, out of the 120 total assessed sub-receptors, predicted to be impacted by construction noise

(i.e., where construction noise is predicted to be greater than the existing night-time average background) is 0 for RESA 1, and 11 for both RESA 2 and RESA 3. Of these 11 sub-receptors, 6 were predicted to have a marginal impact (between 2 and 4 dB at all assessed sub-receptors at point of reception 4) and 5 were predicted to have a negligible impact (1 dB at 5 of the 6 assessed sub-receptors at point of reception 5).

The change in percentage of population highly annoyed has been calculated at the receptors where construction sound levels are predicted to exceed the baseline sound levels (i.e., point of reception 4 and point of reception 5). The change in percentage of population highly annoyed at all other locations will be lower. Since a 10 dB penalty is applied to the night-time sound levels, using the available 8-hour night-time sound levels in place of the 9-hour metric results in a conservative estimation. The calculation results are presented in **Table 5**.

Background sound levels for daytime are included in **Table 5** above as they factor into the percentage of population highly annoyed calculation (which is based on the L_{dn} metric). The daytime sound levels are assumed to be the same during the construction period as existing levels.

Table 4: Construction Sound Levels at Points of Reception

Point of Reception	Estimated Existing Night-time Background Level (dBA $L_{eq,23:00-07:00}$)	Construction Sound Levels (dBA)							
		RESA 1		RESA 2			RESA 3		
		Stage 1: Offshore/ In-water Work Only	Stage 2: Onshore Work Only	Stage 1: Offshore / In-water Work Only	Stage 2: Combined Offshore & Onshore Work	Stage 3: Onshore Work Only	Stage 1: Offshore / In-water Work Only	Stage 2: Combined offshore & onshore work	Stage 3: Onshore work only
1	53	48	49	47	49	47	49	49	47
2	53	47	48	47	49	52	48	49	52
3	53	47	47	46	48	52	48	48	52
4	52	49	50	49	51	**56**	50	50	**56**
5	52	48	49	49	50	**53**	50	50	**53**
6	57	48	49	48	50	53	50	50	53
7	57	48	48	48	50	53	49	50	53
8	56	46	46	46	48	50	47	48	50
9	56	46	47	46	48	50	47	48	49
10	62	46	47	46	48	48	47	48	47
11	62	47	47	48	50	49	49	49	49
12	62	46	47	47	49	48	48	49	48
13	62	47	47	47	49	49	49	49	48
14	62	47	47	48	50	48	49	49	48
15	62	47	47	47	49	48	48	49	48
16	62	47	47	48	50	49	49	49	49
17	62	46	47	47	49	49	49	49	49
18	56	50	50	50	52	51	51	52	51
19	62	48	49	48	50	49	49	50	49
20	62	48	48	48	50	49	49	50	49

Table 5: Change in Percentage of Population Highly Annoyed During Construction

Point of Reception	Estimated Existing Daytime Background Level (dBA $L_{eq,07:00-23:00}$)	Estimated Existing Night-time Background Level (dBA $L_{eq,23:00-07:00}$)	RESA 2		RESA 3	
			Estimated Night-time Sound Level During Construction (dBA $L_{eq,23:00-07:00}$)	Change in Percentage of Population Highly Annoyed During Construction	Estimated Night-time Sound Level During Construction (dBA $L_{eq,23:00-07:00}$)	Change in Percentage of Population Highly Annoyed During Construction
4	56	52	57	5%	57	5%
5	56	52	56	3%	56	3%

For comparison, **Table 6** provides examples of typical sound levels from various noise sources (CCOHS, 2024):

Table 6: Typical Sound Levels

Noise Source	Sound Pressure Level (dBA)
Hand-held circular saw, pneumatic chipper at 1 m	115
Chainsaw, leaf blower, snowmobile	106-115
ATV, motorcycle	96-100
Subway, shouted conversation	90-95
Power lawn mower at 1 m	92
Diesel truck 50 km per hour at 20 m	85
Passenger car 60 km per hour at 20 m	65
Conversation at 1 m	55
Quiet room	40

The estimated existing background L_{dn} at point of reception 4 and point of reception 5 is 59 dBA. At the other receptor locations, estimated existing background L_{dn} range between 61 to 70 dBA, approximated based on data provided in RWDI's 2016 noise assessment report. In comparison, Health Canada (Health Canada, 2023) suggests the following ranges for noise levels in typical urban communities:

Table 7: Background Sound Levels

Range of Day-Night Sound Levels (dBA L_{dn})	Typical Community	Qualitative Characterization
58-62	Urban Residential	Typical of community not immediately adjacent to heavily travelled roads and industrial areas
63-67	Noisy Urban Residential	Typical of community near relatively busy roads or industrial areas
68-72	Very Noisy Urban Residential	No qualitative characterization

The estimated night-time sound levels during construction are the total sound levels for each point of reception based on a combination of the worst-case (highest) construction levels shown in **Table 4** and the estimated existing background levels.

The average night-time sound levels are estimated to exceed 45 dBA $L_{eq,23:00\text{-}07:00}$, and maximum noise levels are likely to exceed 60 dBA L_{max}, both under existing conditions and during construction, at all assessed points of reception. However, the estimated change in percentage of population highly annoyed at all locations is less than the suggested mitigation level of 6.5%. Refer to **Table 9** for Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for noise during construction.

5.3 Operation – Aircraft Ground Movements

Noise impacts are calculated as the difference between noise levels in current conditions and with the Project (RESA 2 and RESA 3 alternatives). At each point of reception, the resultant noise levels depend on the source taxiway (east or west side of the airport), the receptor height (up to 6 sub-receptors per point of reception location were evaluated, distributed at different floor levels of the buildings from ground level to the uppermost storey), and the noise wall height (6.2 metres and 8 metres options were evaluated). Full results of the taxiway noise modelling are provided in **Appendix C**. **Table 8** below provides a summary of the ranges of noise impacts at the assessed points of reception and corresponding predicted impact ratings, as defined in **Table 2**. These ranges of impact ratings are also presented in **Figure 4**. No changes to aircraft operations are proposed with the RESA 1 alternative.

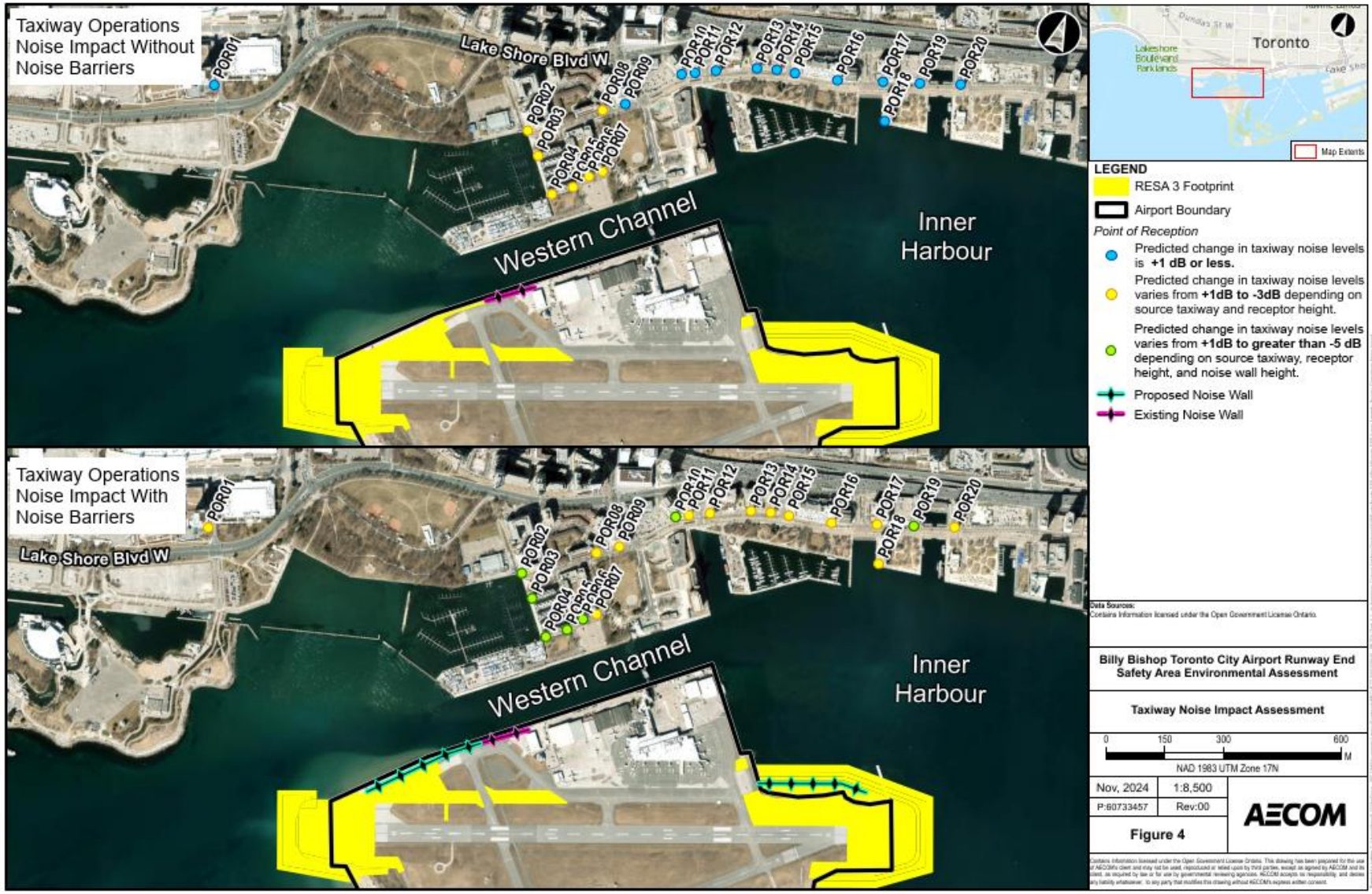
In each of the scenarios evaluated, the worst-case impacts at the most exposed points of reception are predicted to be negligible. Noise-sensitive locations further away would have lower noise exposures.

With the taxiway improvements and without noise walls (i.e., RESA 2), marginal reductions in taxiway operations noise levels are possible at several points of reception. With noise walls (i.e., RESA 3), significant noise reductions in taxiway operations noise levels are possible at several points of reception. The potential improvements with 8 metres high noise walls are slightly greater than with 6.2 metres high noise walls, but the noise exposure differences between these height options are generally not expected to be noticeable. Refer to **Table 10** for Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for noise during operation.

Table 8: Change in Taxiway Operations Noise Levels

Point of Reception	Taxiway Improvements (RESA 2)		Taxiway Improvements and 6.2 metres High Noise Walls (RESA 3)		Taxiway Improvements and 8 metres High Noise Walls (RESA 3)	
	Impact (dB)	Rating	Impact (dB)	Rating	Impact (dB)	Rating
1	-0.5 to 0.1	Negligible	-4.4 to 0	Negligible Impact to Marginal Reduction	-4.4 to 0	Negligible Impact to Marginal Reduction
2	-1.3 to 0.1	Negligible Impact to Marginal Reduction	-6.8 to -0.3	Negligible Impact to Significant Reduction	-6.9 to -0.3	Negligible Impact to Significant Reduction
3	-1.9 to 0	Negligible Impact to Marginal Reduction	-9.5 to 0	Negligible Impact to Significant Reduction	-9.9 to 0	Negligible Impact to Significant Reduction
4	-2.8 to 0.2	Negligible Impact to Marginal Reduction	-8.2 to 0	Negligible Impact to Significant Reduction	-8.3 to 0	Negligible Impact to Significant Reduction
5	-2.3 to 0.4	Negligible Impact to Marginal Reduction	-5.7 to -0.2	Negligible Impact to Significant Reduction	-5.8 to -0.3	Negligible Impact to Significant Reduction
6	-2.2 to 0.5	Negligible Impact to Marginal Reduction	-5.6 to -1	Negligible Impact to Significant Reduction	-5.6 to -1	Negligible Impact to Significant Reduction
7	-1.7 to 0.2	Negligible Impact to Marginal Reduction	-4.6 to -0.3	Negligible Impact to Marginal Reduction	-4.6 to -0.3	Negligible Impact to Marginal Reduction
8	-1.5 to 0.8	Negligible Impact to Marginal Reduction	-2.1 to -0.5	Negligible Impact to Marginal Reduction	-2.1 to -0.6	Negligible Impact to Marginal Reduction
9	-1 to 0.3	Negligible	-2.8 to 0	Negligible Impact to Marginal Reduction	-2.9 to -0.1	Negligible Impact to Marginal Reduction
10	-0.2 to 0.9	Negligible	-7.8 to 0.5	Negligible Impact to Significant Reduction	-8.1 to 0.5	Negligible Impact to Significant Reduction
11	-0.3 to 0.1	Negligible	-4.7 to 0	Negligible Impact to Marginal Reduction	-4.9 to -0.1	Negligible Impact to Marginal Reduction
12	-0.7 to 0.1	Negligible	-3.9 to 0	Negligible Impact to Marginal Reduction	-4 to 0	Negligible Impact to Marginal Reduction
13	-0.7 to 0.1	Negligible	-4.4 to -0.6	Negligible Impact to Marginal Reduction	-4.6 to -0.6	Negligible Impact to Marginal Reduction
14	-0.1 to 0.1	Negligible	-3.6 to -0.1	Negligible Impact to Marginal Reduction	-3.7 to 0	Negligible Impact to Marginal Reduction
15	0 to 0.2	Negligible	-3.6 to 0.1	Negligible Impact to Marginal Reduction	-3.7 to 0.1	Negligible Impact to Marginal Reduction
16	0 to 0.2	Negligible	-3.5 to 0	Negligible Impact to Marginal Reduction	-3.6 to 0	Negligible Impact to Marginal Reduction
17	-0.2 to 0.1	Negligible	-3.9 to 0	Negligible Impact to Marginal Reduction	-4 to 0	Negligible Impact to Marginal Reduction
18	-0.5 to 0.2	Negligible	-4.5 to -0.4	Negligible Impact to Marginal Reduction	-4.7 to -0.4	Negligible Impact to Marginal Reduction
19	-0.2 to 0.1	Negligible	-6.4 to 0	Negligible Impact to Significant Reduction	-6.8 to 0	Negligible Impact to Significant Reduction
20	-0.3 to 0.1	Negligible	-4 to 0	Negligible Impact to Marginal Reduction	-4.1 to 0	Negligible Impact to Marginal Reduction

Figure 4: Taxiway Noise Impact Assessment



5.4 Operation – Aircraft Air Movements

Calculated Noise Exposure Forecast contours for existing conditions and with the Project (RESA 2 and RESA 3), including Runway 26 Localizer relocation, are presented in **Figure 5**. Also presented are the 1990 Actual Noise Exposure Forecast contours that form the basis of the Tripartite Agreement criteria.

As can be seen in the figure, the Noise Exposure Forecast 28 contours based on 2023 flight volumes are well within the official 1990 Noise Exposure Forecast 25 contour. The Noise Exposure Forecast contours based on existing conditions and with the Project (RESA 2 and RESA 3) are mostly co-aligned and the only locations where they are slightly divergent are above the Inner Harbour, with no impacts to any noise-sensitive locations.

No changes to aircraft operations are proposed with the RESA 1 alternative. Refer to **Table 10** for Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for noise during operation.

Figure 5: Noise Exposure Forecast Contours for Aircraft Air Movements

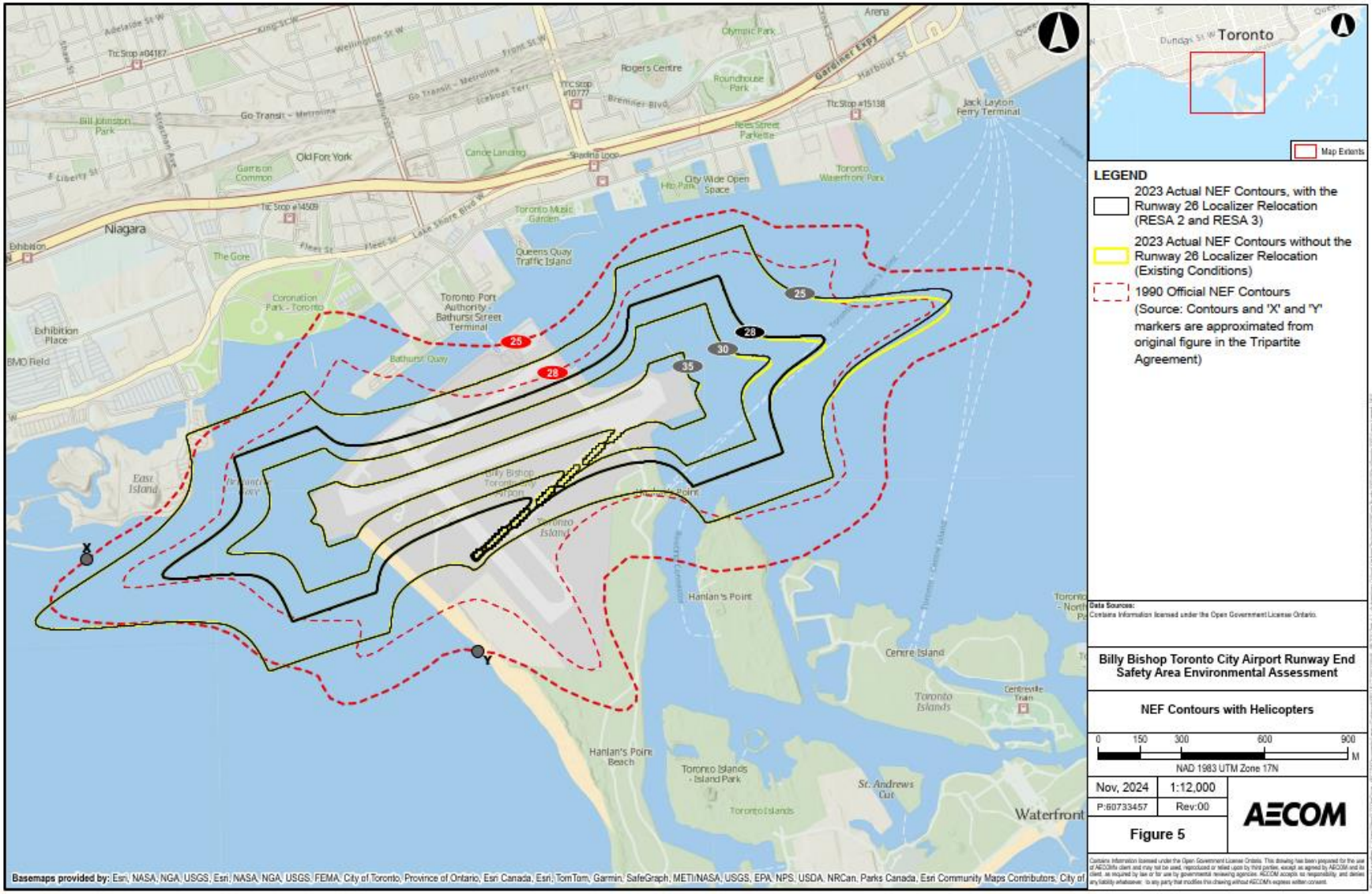


Table 9: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Noise-Construction

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ **Changes in Noise Levels from Construction.**	■ Overall anticipated noise levels from construction.	**RESA 1** ■ Construction noise impacts at all points of receptions are predicted to be negligible. **RESA 2, RESA 3** ■ Construction sound levels are predicted to exceed the existing nighttime average background at the location of two points of reception (4 and 5) during Stage 3 construction (onshore work only). ■ The difference in average night- time sound levels is predicted to be potentially perceptible (between 2-4 dB increase), and have marginal impact at point of reception 4 (6 sub-receptors). ■ The difference in sound level is predicted to be imperceptible (1 dB increase) and have negligible impact on point of reception 5 (5 sub-receptors). ■ Construction noise impacts at other receptor locations are predicted to be negligible. **RESA 1, RESA 2, RESA 3** ■ The daytime sound levels are assumed to be the same during the construction period as existing levels. ■ Despite the low predicted noise impacts, construction activities may be audible and potentially disturbing to some points of reception at limited times during construction.	**RESA 1, RESA 2, RESA 3** ■ Develop Construction Noise Management Plan for the Project to include efforts to minimize community impacts by employing ‘best practices for noise and sound induced vibration mitigation’. ■ Maintain equipment in an operating condition that prevents unnecessary noise, including but not limited to, effective muffler systems, properly secured components and lubrication of moving parts. ■ Restrict idling of equipment to the minimum necessary to perform the specific work. ■ Ensure vehicles employed continuously on site for extended period of time (two days or more) are fitted with broad-band sound back-up alarms, rather than tonal alarms. ■ Avoid unnecessary revving of engines and switch off equipment when not required (do not idle). ■ Minimize drop heights of materials. ■ Use construction equipment compliant with noise level specifications in Ministry of the Environment Conservation, and Parks publications NPC-115 and NPC-118.	**RESA 1** ■ Negligible Negative Net Effect. **RESA 2, RESA 3** ■ Marginal Net Negative Effect. ■ Mitigation measures may reduce the extent of noise impacts on marginally affected points of receptions.

Table 10: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Noise- Operation

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ **Changes in noise levels from operations.**	■ Ground operation noise levels.	**RESA 1** ■ No increase in noise levels as there are no changes to ground operations. **RESA 2** ■ With taxiway modifications, taxiway noise levels are predicted to range from negligible increase (0 to 1 dB increase) to marginal reduction (1 to 5 dB decrease), depending on source taxiway and receptor height, at points of reception 2-8. ■ Taxiway noise levels are predicted to range from negligible increase (0 to 1 dB increase) to negligible reduction (0 to 1 dB decrease) at the other points of reception. **RESA 3** ■ With taxiway modifications and noise walls in RESA 3, taxiway noise levels are predicted to range from negligible increase (0 to 1 dB increase) to significant reduction (more than 5 dB decrease), depending on source taxiway and receptor height, at points of reception 2-6, 10, and 19. ■ Taxiway noise levels are predicted to range from negligible reduction (0 to 1 dB decrease) to marginal reduction (greater than 1 dB decrease but less than 5 dB decrease) at the other points of reception. ■ Refer to **Appendix G**, Noise Assessment Study Report, Table 8 for detailed information on changes in taxiway operations noise levels at various points of receptions.	**RESA 1, RESA 2, RESA 3** ■ No mitigation measures required.	**RESA 1** ■ No Net Effect. ■ No changes to ground operations. **RESA 2** ■ Negligible Net Effect. ■ Marginal noise level reductions from taxiway operations at several points of reception. **RESA 3** ■ Negligible to Positive Net Effect. ■ Significant noise level reductions from taxiway operations at several points of reception.
	■ Air operation noise levels.	**RESA 1, RESA 2, RESA 3** ■ No impacts to any noise-sensitive locations.	**RESA 1, RESA 2, RESA 3** ■ No mitigation measures required.	**RESA 1, RESA 2, RESA 3** ■ No Net Effect.

6. Conclusion and Recommendations

Construction noise impacts are predicted to have a marginal effect on point of reception 4 and a negligible effect on point of reception 5 for the RESA 2 and RESA 3 alternatives. Construction noise impacts at other receptor locations, and for the RESA 1 alternative, are also predicted to be negligible.

While construction noise impacts are predicted to have a marginal effect or less, as noted in Section 3.1, City Council requires a construction noise management plan to be developed for the Project to include efforts to minimize community impacts by employing ‘best practices for noise and sound induced vibration mitigation’.

The following measures are recommended to be included in the construction noise management plan to reduce the risk of noise disturbance at points of reception:

- Maintain equipment in an operating condition that prevents unnecessary noise, including but not limited to, effective muffler systems, properly secured components and lubrication of moving parts;
- Restrict idling of equipment to the minimum necessary to perform the specific work;
- Ensure vehicles employed continuously on site for extended period of time (two days or more) are fitted with broad-band sound back-up alarms, rather than tonal alarms;
- Avoid unnecessary revving of engines and switch off equipment when not required (do not idle);
- Minimize drop heights of materials; and
- Use construction equipment compliant with noise level specifications in Ontario Ministry of the Environment, Conservation and Parks publications NPC-115 and NPC-118. The sound emission standards outlined in NPC-115 and NPC-118, for typical construction equipment and vehicles, are reproduced in the Tables 7 to 11 below.

Table 11: NPC-115 Quiet Zone and Residential Area Sound Emission Standards for Excavation Equipment, Dozers, Loaders, Backhoes or Other Equipment Capable of Being used for Similar Application

Maximum Sound Level (dBA) as determined using Publication NPC-103 – Procedures Section 6		
Date of Manufacture	Power Rating	
	Less than 75 kW	75 kW and Larger
January 1, 1979 to December 31, 1980	85	88
January 1, 1981 and after	83	85

Source: NPC-115 table 115-1

Table 12: NPC-115 Sound Emission Standards for Pneumatic Pavement Breakers

Standard	Date of Manufacture	Maximum Sound Level (dBA) as measured using Publication NPC-103
Quiet Zone Sound Emission	January 1, 1979 and after	85
Residential Area Sound Emission	January 1, 1979 to December 31, 1980	90
	January 1, 1981 and after	85

Source: NPC-115 table 115-2

Table 13: NPC-115 Sound Emission Standards for Portable Air Compressors

Standard	Date of Manufacture	Maximum Sound Level (dBA) as measured using Publication NPC-103
Quiet Zone Sound Emission	January 1, 1979 to December 31, 1980	76
	January 1, 1981 and after	70
Residential Area Sound Emission	January 1, 1979 and after	76

Source: NPC-115 table 115-3

Table 14: NPC-115 Sound Emission Standards for Tracked Drills

Standard	Date of Manufacture	Maximum Sound Level (dBA) as measured using Publication NPC-103, Section 6
Quiet Zone and Residential Area Sound Emission	January 1, 1981 and after	100

Source: NPC-115 table 115-4

Table 15: NPC-118 Sound Emission Standards for Heavy Vehicles with Governed Diesel Engines

Date of Manufacture	Maximum Sound Level (dBA) as measured using Publication NPC-103, Section 9
Prior to January 1 ,1979	100
January 1, 1979 and after	95

Source: NPC-118 table 118-1

Taxiway operation noise levels are predicted to be negligible at most points of reception. With noise walls (RESA 3), significant noise reductions in taxiway operations noise levels are possible at several points of reception.

The Noise Exposure Forecast contours based on existing conditions and with the Project (RESA 2 and RESA 3) are mostly co-aligned and the only locations where they are slightly divergent are above the Inner Harbour, with no impacts to any noise-sensitive locations.

7. References

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Appendix A

Construction Stages and Equipment

Technical Memorandum

AVIA • NG
AIRPORT CONSULTANTS

SUBJECT	**Review of Construction Equipment on RESAs 1, 2 and 3 Alternatives (RESA Preliminary Design)**
TO	Saeideh Rasouli Ph.D., Senior Environmental Planner, AECOM
COPIES	Bernhard Schropp P. Eng., Senior Project Director, Avia NG Lee Thomas P. Eng., M.Sc., Senior Project Manager, Avia NG Richard Blommers P. Eng, Senior Project Manager, Avia NG
FROM	Edward Abreu P. Eng., M.A.Sc., Project Engineer, Avia NG
PROJECT NO.	24-0091
DATE	March 24, 2025

1. INTRODUCTION

The Runway End Safety Areas (RESA) project at Billy Bishop Toronto City Airport (CYTZ) involves the construction of safety areas at both ends of Runway 08/26. This project will be executed in multiple stages, covering both offshore (in-water) and onshore work, with simultaneous construction anticipated at both ends of the site.

This report outlines the planned construction activities, equipment needs, and key assumptions for the RESA project, including RESA 1, RESA 2, and RESA 3. The detailed tables included in this report indicate equipment usage per night shift per activity and productivity rates. It is important to note that while the equipment usage and productivity rates remain consistent, the schedule will be affected by the size and scope of each RESA alternative.

The following sections provide a detailed breakdown of the construction stages for each RESA alternative, including the specific equipment required for various tasks such as removals, excavation, shoreline protection, breakwater installation, fill/densification, grading, utility installation, and final surface works. Each stage is accompanied by tables that summarize the equipment usage and associated notes and assumption to enhance clearness.

2. GENERAL ASSUMPTIONS AND PRODUCTIVITIES

1. Equipment quantities will be similar at both ends of the site, with concurrent work projected at both locations.
2. Construction expected to take place overnight (approx. 2300–0645, exact times TBC). Daytime operations will be limited to equipment preparation.
3. The RESA footprint will be prepared for commissioning before the July 12, 2027, deadline. Remaining work outside the RESA footprint will resume afterwards.
4. Materials will be transported via ferry or temporary dock by the southeast end of the airport. A temporary floating barge ramp will also facilitate material delivery.

Table 1 below summarizes estimated maximum and minimum productivities per night shift for various tasks. These figures reflect equipment performance under typical conditions. Tasks with similar productivity rates have been grouped for simplicity. Note that certain tasks can be completed simultaneously.

Table 1 – Material Estimated Productivities

Material	Min. Productivity	Max. Productivity	Unit
Core, Filter, Armour Stone, Habitat Stone (Riprap)	650-700	1350	tonnes per shift
Fill	1800	4500	tonnes per shift
Vibro-Compaction	900	1800	tonnes per shift
Topsoil Stripping, Common Excavation	700-800	1000	m^3 per shift
Removal Of Existing Concrete Channel	20	40	m per shift
Removal Of Existing Concrete Wall Cap	250	400	m^3 per shift
Ex. Metal Sheet-Pile Top Removal	30	50	m per shift
Subgrade Preparation	1000	2000	m^2 per shift
Granular BI, Granular BII, Granular A	500	1000	tonnes per shift
Culvert, Subdrain (French Drain)	200	300	m per shift
Milling	3000	5000	m^2 per shift
Base HMA, Surface HMA	500	1000	tonnes per shift
Topsoil Hydraulic Seed Or Sod	3000	6000	m^2 per shift
Paint Marking (Yellow, White)	500	1000	m^2 per shift
Ex. Security Fence Removal	75	150	m per shift
Security Fence Installation	15	25	m per shift

3. RESA 1 CONSTRUCTION STAGES

3.1 STAGE 1.1 – OFFSHORE (IN-WATER) WORK – EAST OR WEST END

Stage 1.1 initiates RESA 1 construction with offshore work, including breakwater installation, shoreline protection, and landmass expansion. Note that the fill/densification and grading column refer to the new landmass extension work up to proposed subgrade. Refer to **Table 2** for details.

Table 2 – RESA 1 Offshore Construction Equipment Usage

Equipment Description	Removals & Excavation	Shoreline Protection, Breakwater, Sheet Piles & Dock Walls	Fill/Densification & Grading
Barges	2	2	--
Scows	1	1	--
Tugboats	1	1	1
Crawler Cranes	1	2	-
Cranes w/ Clamshell Buckets	1	2	-
Self-Unloading Vessels c.w. Conveyor	--	--	1
Rock Dumping Vessels	--	1	--
Vibro-compactors	--	--	1
Pile Driving Spread	-	1	--
Excavators (incl. Long-Reach on Spud Barge)	2	2	2
Excavators (Atop Berm for Filter Stone Placement)	1	1	1
Rubber Tire Backhoes	1	1	1
Skid Steers	1	1	1
Concrete/Metal/Asphalt Saw/Coring Machine	2	2	--
Generators	2	2	2

Notes & Assumptions:

1. Onshore activities in Stage 1.1 are limited to mobilization and staging for Stage 1.2.
2. It is assumed that densification of the clean fill will be achieved via vibro-compaction.
3. It is assumed that the landmass fills will use a self-unloading vessel with a conveyor system.

3.2 STAGE 1.2 – ONSHORE WORK – EAST OR WEST END

Stage 1.2 shifts to onshore work for RESA 1, involving removals, excavation, subgrade preparation, and final surface works. It includes installing utilities, paving, and infrastructure like perimeter roads and fencing. Note that the fill/densification and grading section refer to the new landmass extension work up to proposed subgrade. Refer to **Table 3** for details.

Table 3 – RESA 1 Onshore Construction Equipment Usage

Equipment Description	Removals & Excavation	Fill, Grading, U/G Utilities	Milling, Paving, & Final Works
Dump Trucks	6	6	2
Excavators	2	2	1
Excavator w/ Hoe Ram	1	--	--
Vibratory Compactors / Rollers	--	1	1
Graders	--	1	1
Bulldozers	--	1	--
Rubber Tire Backhoes	--	1	1
Skid Steers	1	2	2
Concrete Trucks	--	2	2
Asphalt Trucks	--	--	6
Asphalt Material Transfer Device	--	--	1
Asphalt Spreader (Paver)	--	--	2
Asphalt Vibratory Rollers	--	--	4
Concrete/Metal/Asphalt Saw/Coring Machine	2	--	2
Generators	2	2	2
Jackhammers	2	--	--

Notes & Assumptions:

1. Work includes excavation, removals, subgrade preparation, granular placement, milling, paving, drainage, and miscellaneous electrical work.
2. Onshore work includes preparation of the RESA footprint for commissioning before the July 12, 2027, deadline.
3. Jackhammers assumed for onshore concrete removals.

4. RESA 2 & 3 CONSTRUCTION STAGES

4.1 STAGE 2.1/3.1 – OFFSHORE (IN-WATER) WORK – EAST OR WEST END

Stage 2.1/3.1 mirrors Stage 1.1 for RESA 2 or RESA 3, with concurrent offshore work. This phase constructs breakwaters, sheet piles, and dock walls for landmass expansion. Note that the fill/densification, grading, and underground utility column refer to the new landmass extension work up to proposed subgrade. Refer to **Table 4** for details.

Table 4 – RESA 2 or RESA 3 Offshore Construction Equipment Usage

Equipment Description	Removals & Excavation	Shoreline Protection, Breakwater, Sheet Piles & Dock Walls	Fill/Densification, Grading, U/G Utilities
Barges	2	2	--
Scows	1	1	--
Tugboats	1	1	1
Crawler Cranes	1	2	-
Cranes w/ Clamshell Buckets	1	2	-
Self-Unloading Vessels c.w. Conveyor	--	--	1
Rock Dumping Vessels	--	1	--
Vibro-compactors	--	--	1
Pile Driving Spread	-	1	--
Excavators (incl. Long-Reach on Spud Barge)	2	2	2
Excavators (Atop Berm for Filter Stone Placement)	1	1	1
Rubber Tire Backhoes	1	1	1
Skid Steers	1	1	1
Concrete/Metal/Asphalt Saw/Coring Machine	2	2	--
Generators	2	2	2

Notes & Assumptions:

1. Onshore activities in Stage 2.1/3.1 are limited to mobilization and staging for Stages 2.2/3.2 & 2.3/3.3.
2. It is assumed that densification of the clean fill will be achieved via vibro-compaction.
3. It is assumed that the landmass fills will use a self-unloading vessel with a conveyor system.

4.2 Stage 2.2/3.2 – Combined Offshore (In-Water) and Onshore Work – East or West End

Stage 2.2/3.2 combines offshore and onshore work for RESA 2 or RESA 3. Landmass expansion continues while onshore removals, grading, utility installation, and subgrade preparation take place. Refer to **Table 5** for details.

Table 5 – RESA 2 or RESA 3 Combined Offshore and Onshore Construction Equipment Usage

Equipment Description\Activity	Removals & Excavation	Shoreline Protection, Breakwater, Sheet Piles & Dock Walls	Fill, Grading, U/G Utilities	Milling, Paving, & Final Works
Barges	2	2	--	--
Scows	1	1	--	--
Tugboats	1	1	1	--
Crawler Cranes	1	1	--	--
Cranes w/ Clamshell Buckets	1	2	--	--
Self-Unloading Vessels c.w. conveyor	--	--	1	--
Rock Dumping Vessels (Rock dumping vessel or Side stone dumpers)	--	1	--	--
Vibro-compactors	--	--	1	--
Dump Trucks	5	5	5	4
Excavators	3	3	3	1
Excavator c.w. Hoe Ram	1	--	--	--
Vibratory Compactors / Rollers	--	--	1	1
Graders	--	--	1	1
Bulldozers	--	--	2	--
Rubber Tire Backhoes	--	--	1	1
Skid Steers	1	1	2	2
Concrete Trucks	--	--	2	2
Asphalt Trucks	--	--	--	6
Asphalt Material Transfer Device (i.e., shuttle buggy)	--	--	--	1
Asphalt Spreader (Paver)	--	--	--	2

Equipment Description\Activity	Removals & Excavation	Shoreline Protection, Breakwater, Sheet Piles & Dock Walls	Fill, Grading, U/G Utilities	Milling, Paving, & Final Works
Asphalt Vibratory Rollers	--	--	--	4
Concrete/Metal/Asphalt Saw/Coring Machine	2	2	--	2
Generators	2	2	2	2
Jackhammers	2	--	--	--

Notes & Assumptions:

1. Stage 2.2/3.2 includes offshore landmass expansion within the breakwater/sheet piles and onshore RESA preparation for commissioning before Stage 2.3/3.3.
2. It is assumed that the landmass fills will use a self-unloading vessel with a conveyor system, that densification of the clean fill will be achieved via vibro-compaction, and that this will span Stage 2.1/3.1 and Stage 2.2/3.2 activities.
3. Jackhammers assumed for onshore concrete removals.

4.3 Stage 2.3/3.3 – Onshore Work – East or West End

Stage 2.3/3.3 completes RESA 2 or RESA 3 onshore work, focusing on airside and safety improvements. This includes milling, paving, and infrastructure for taxiways and service roads. RESA commissioning is completed before this phase. Refer to **Table 6** for details.

Table 6 – RESA 2 or RESA 3 Onshore Construction Equipment Usage

Equipment Description	Removals & Excavation	Fill, Grading, U/G Utilities	Milling, Paving, & Final Works
Dump Trucks	6	6	2
Excavators	2	2	1
Excavator w/ Hoe Ram	1	--	--
Vibratory Compactors / Rollers	--	1	1
Graders	--	1	1
Bulldozers	--	1	--
Rubber Tire Backhoes	--	1	1
Skid Steers	1	2	2
Concrete Trucks	--	2	2

Equipment Description	Removals & Excavation	Fill, Grading, U/G Utilities	Milling, Paving, & Final Works
Asphalt Trucks	--	--	6
Asphalt Material Transfer Device	--	--	1
Asphalt Spreader (Paver)	--	--	2
Asphalt Vibratory Rollers	--	--	4
Concrete/Metal/Asphalt Saw/Coring Machine	2	--	2
Generators	2	2	2
Jackhammers	2	--	--

Notes & Assumptions:

1. Stage 2.3/3.3 includes only onshore work, focusing on airside and safety improvements to taxiways, vehicle service roads, etc.
2. It is assumed that the RESA will be commissioned in Stage 2.2/3.2.
3. Jackhammers assumed for onshore concrete removals.

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Equipment	Sound Power (dB) Per Unit of Equipment in Octave Bands (Hz)										
	31.5	63	125	250	500	1000	2000	4000	8000	dBZ	dBA
Asphalt Material Transfer Device (i.e., shuttle buggy)	127	112	110	106	101	101	101	99	96	127	107
Asphalt Spreader (Paver)	115	106	105	100	99	97	90	84	97	116	102
Asphalt Trucks	103	97	102	105	100	98	95	89	83	109	103
Asphalt Vibratory Rollers	28	116	111	97	96	95	93	90	87	117	101
Barges	123	116	103	90	79	79	75	69	65	124	93
Bulldozers	93	99	97	99	99	101	103	99	89	108	107
Concrete Trucks	103	97	102	105	100	98	95	89	83	109	103
Concrete/Metal/Asphalt Saw/Coring Machine	28	113	102	100	98	100	104	110	105	116	113
Crawler Cranes	88	91	89	84	85	92	84	76	67	97	93
Dump Trucks	103	97	102	105	100	98	95	89	83	109	103
Excavator c.w. Hoe Ram	105	105	113	98	101	98	96	91	85	115	104
Excavators	105	105	113	98	101	98	96	91	85	115	104
Generators	111	107	105	106	102	100	98	94	91	115	106
Graders	116	116	115	111	107	112	106	102	93	122	114
Jackhammers	28	110	110	110	117	111	106	103	98	120	117
Pile Driving Spread (Vibratory Hammers or Hydraulic Piling Rigs)	108	108	115	116	112	111	106	102	93	121	115
Rock Dumping Vessels (Rock dumping vessel or Side stone dumpers)	28	116	110	105	107	108	107	101	95	118	113
Rubber Tire Backhoes	93	96	95	91	90	90	89	82	75	101	95
Self-Unloading Vessels c.w. conveyor	21	92	90	89	92	96	88	84	78	100	98
Skid Steers	117	120	121	112	104	105	101	99	95	125	111
Tugboats	110	110	117	109	106	102	94	85	70	120	108
Vibratory Compactors / Rollers	109	109	104	100	101	35	100	96	91	113	104
Vibro-compactors	109	109	104	100	101	35	100	96	91	113	104

AECOM

Appendix B

Construction Sound Levels at Points of Reception

RESA 1

	Construction Stage 1 Sound Levels (dBA)			Construction Stage 2 Sound Levels (dBA)		
	Removals, Excavation, & Densification	Shoreline Protection, Breakwater, Sheet Piles & Dock Walls	Fill, Grading, U/G Utilities	Removals, Excavation, & Densification	Fill, Grading, U/G Utilities	Milling, Paving, & Final Works
POR01_A	45	48	45	49	48	48
POR01_B	44	46	43	47	46	47
POR01_C	44	46	43	47	46	46
POR01_D	43	46	43	47	46	46
POR01_E	43	46	43	47	46	46
POR01_F	43	45	43	47	46	46
POR02_A	45	47	44	48	47	47
POR02_B	44	46	43	47	46	46
POR02_C	45	47	44	47	46	47
POR02_D	45	47	44	47	46	47
POR02_E	45	47	44	47	46	47
POR02_F	45	47	44	47	46	47
POR03_A	44	46	43	46	46	46
POR03_B	43	45	42	46	45	46
POR03_C	43	45	42	46	45	45
POR03_D	44	46	43	47	46	47
POR03_E	45	47	44	47	46	46
POR03_F	44	46	43	46	46	46
POR04_A	46	48	44	49	49	49
POR04_B	46	48	45	49	49	49
POR04_C	47	49	46	50	49	49
POR04_D	47	49	46	50	49	49
POR04_E	47	48	46	50	49	49
POR04_F	46	48	45	49	48	49
POR05_A	45	47	44	47	47	47
POR05_B	46	48	45	49	48	49
POR05_C	47	48	46	49	48	49
POR05_D	46	48	45	49	48	48
POR05_E	46	48	45	49	48	48
POR05_F	46	48	45	49	48	48
POR06_A	47	48	46	49	48	49
POR06_B	46	48	45	49	48	48
POR06_C	46	48	45	48	48	48
POR06_D	45	47	44	48	47	47
POR06_E	45	47	44	48	48	48
POR06_F	46	48	45	48	48	48
POR07_A	46	48	45	48	48	48
POR07_B	45	47	44	48	47	47
POR07_C	45	47	44	47	47	47
POR07_D	45	47	45	48	47	47
POR07_E	45	47	44	48	47	47
POR07_F	45	47	44	48	47	47
POR08_A	38	40	37	40	40	41
POR08_B	42	43	41	44	44	44
POR08_C	42	44	41	45	44	45
POR08_D	42	44	41	45	45	45
POR08_E	44	45	43	46	46	46
POR08_F	44	46	43	46	46	46
POR09_A	41	43	41	45	45	45
POR09_B	43	45	42	46	46	46
POR09_C	43	45	42	46	45	45
POR09_D	44	46	43	47	46	46
POR09_E	44	46	43	46	46	46
POR09_F	44	46	43	46	46	46
POR10_A	44	46	43	47	47	47
POR10_B	43	45	43	46	46	46
POR10_C	43	45	43	46	46	46
POR10_D	43	45	42	46	45	45
POR10_E	42	44	42	45	44	45

RESA 1

	Construction Stage 1 Sound Levels (dBA)			Construction Stage 2 Sound Levels (dBA)		
	Removals, Excavation, & Densification	Shoreline Protection, Breakwater, Sheet Piles & Dock Walls	Fill, Grading, U/G Utilities	Removals, Excavation, & Densification	Fill, Grading, U/G Utilities	Milling, Paving, & Final Works
POR10_F	43	45	42	46	45	45
POR11_A	45	47	44	47	47	47
POR11_B	44	46	43	46	46	46
POR11_C	44	46	43	46	45	46
POR11_D	43	45	42	45	45	45
POR11_E	42	44	42	45	44	44
POR11_F	42	44	42	45	44	44
POR12_A	44	46	43	46	46	46
POR12_B	44	46	43	47	46	47
POR12_C	44	46	43	47	46	46
POR12_D	44	46	43	47	46	46
POR12_E	43	45	42	46	45	46
POR12_F	43	45	42	46	45	45
POR13_A	44	46	43	47	46	46
POR13_B	44	47	44	47	46	46
POR13_C	45	47	44	47	47	47
POR13_D	44	46	44	47	46	46
POR13_E	44	46	43	46	46	46
POR13_F	44	46	43	46	45	46
POR14_A	45	47	44	47	46	47
POR14_B	45	47	44	47	47	47
POR14_C	45	47	44	47	46	46
POR14_D	44	46	43	46	46	46
POR14_E	44	46	43	46	45	45
POR14_F	43	46	43	46	45	45
POR15_A	44	46	43	47	46	46
POR15_B	45	47	44	47	46	47
POR15_C	44	46	43	46	46	46
POR15_D	43	45	43	46	45	45
POR15_E	43	45	42	45	45	45
POR15_F	43	45	42	45	45	45
POR16_A	44	47	44	47	46	47
POR16_B	45	47	44	47	47	47
POR16_C	44	46	44	47	46	46
POR16_D	44	46	43	46	46	46
POR16_E	44	46	43	46	45	46
POR16_F	44	46	43	46	45	46
POR17_A	44	46	43	47	47	47
POR17_B	43	45	42	46	46	46
POR17_C	42	44	41	45	45	45
POR17_D	43	45	42	46	45	46
POR17_E	44	46	43	47	46	46
POR17_F	44	46	43	47	46	46
POR18_A	48	50	47	50	50	50
POR18_B	47	49	46	49	49	49
POR18_C	46	48	45	49	48	48
POR18_D	46	48	45	48	48	48
POR18_E	46	48	45	48	47	48
POR18_F	46	48	45	48	47	48
POR19_A	46	48	45	49	48	48
POR19_B	44	47	44	47	47	47
POR19_C	44	46	43	46	46	46
POR19_D	44	46	43	47	46	47
POR19_E	44	46	43	47	46	47
POR19_F	44	46	43	47	46	46
POR20_A	46	48	45	48	48	48
POR20_B	44	46	44	47	47	47
POR20_C	44	46	43	46	46	46
POR20_D	44	46	43	46	46	46
POR20_E	44	46	43	46	46	46
POR20_F	44	46	43	46	46	46

RESA 2

	Construction Stage 1 Sound Levels (dBA)			Construction Stage 2 Sound Levels (dBA)			Construction Stage 3 Sound Levels (dBA)		
	Removals, Excavation, & Densification	Shoreline Protection, Breakwater, Sheet Piles & Dock Walls	Fill, Grading, U/G Utilities	Removals, Excavation, & Densification	Fill, Grading, U/G Utilities	Milling, Paving, & Final Works	Removals & Excavation	Fill, Grading, U/G Utilities	Milling, Paving, & Final Works
POR01_A	46	47	44	49	48	47	47	47	47
POR01_B	44	46	42	48	46	46	46	46	46
POR01_C	44	46	42	48	46	45	45	45	46
POR01_D	43	45	42	47	46	46	45	45	45
POR01_E	44	46	42	48	46	46	45	45	46
POR01_F	44	45	42	47	46	46	45	45	46
POR02_A	45	47	43	49	47	47	52	48	48
POR02_B	44	46	43	48	47	47	51	48	48
POR02_C	45	47	43	49	47	47	52	49	49
POR02_D	45	47	43	49	47	47	52	49	49
POR02_E	45	47	43	49	47	47	52	49	49
POR02_F	45	47	43	49	47	47	52	49	49
POR03_A	44	46	43	48	47	47	52	48	48
POR03_B	43	45	42	47	46	46	52	48	48
POR03_C	43	45	42	47	46	46	52	48	48
POR03_D	44	46	43	48	47	47	52	48	48
POR03_E	45	46	43	48	47	47	52	48	48
POR03_F	44	46	42	48	47	47	52	48	48
POR04_A	45	48	44	49	49	49	56	51	51
POR04_B	46	48	44	50	49	49	55	51	51
POR04_C	47	49	45	51	49	49	55	51	51
POR04_D	47	48	45	50	49	50	54	50	51
POR04_E	47	49	45	51	49	49	54	50	51
POR04_F	46	48	45	50	49	49	54	50	51
POR05_A	45	47	44	49	47	47	52	49	49
POR05_B	46	48	45	50	49	49	53	50	51
POR05_C	47	49	45	50	49	49	53	51	51
POR05_D	47	48	45	50	48	48	53	50	51
POR05_E	46	48	44	50	48	48	53	50	50
POR05_F	46	48	44	50	48	48	53	50	50
POR06_A	47	48	45	50	48	48	53	50	50
POR06_B	46	48	44	50	48	48	53	50	50
POR06_C	46	48	44	50	47	48	53	49	50
POR06_D	46	48	44	49	47	47	52	49	49
POR06_E	46	47	44	49	47	47	52	49	49
POR06_F	46	48	44	49	48	48	52	49	49
POR07_A	46	48	45	50	48	48	53	50	50
POR07_B	45	47	44	49	47	47	53	49	50
POR07_C	45	47	44	49	47	47	52	49	49
POR07_D	45	47	44	49	47	47	51	49	49
POR07_E	45	47	44	49	48	48	52	49	49
POR07_F	46	48	44	49	47	47	52	49	49
POR08_A	39	41	38	42	41	41	42	42	42
POR08_B	42	44	41	46	44	44	42	45	45
POR08_C	42	44	41	46	45	45	43	45	45
POR08_D	43	45	42	47	45	45	46	46	46
POR08_E	44	46	42	48	47	47	47	47	47
POR08_F	44	46	43	48	46	46	50	48	48
POR09_A	41	44	41	46	45	44	42	45	45
POR09_B	44	45	42	47	46	46	45	46	46
POR09_C	43	45	42	47	45	45	47	47	47
POR09_D	44	46	43	48	46	46	48	47	48
POR09_E	44	46	43	48	46	46	49	48	48
POR09_F	44	46	43	48	46	46	50	48	48
POR10_A	44	46	43	48	47	47	46	46	46
POR10_B	43	45	43	48	46	46	46	46	46
POR10_C	44	46	43	48	46	46	48	47	47
POR10_D	43	45	42	47	45	45	47	46	46
POR10_E	43	45	41	47	45	45	47	46	46

RESA 2

	Construction Stage 1 Sound Levels (dBA)			Construction Stage 2 Sound Levels (dBA)			Construction Stage 3 Sound Levels (dBA)		
	Removals, Excavation, & Densification	Shoreline Protection, Breakwater, Sheet Piles & Dock Walls	Fill, Grading, U/G Utilities	Removals, Excavation, & Densification	Fill, Grading, U/G Utilities	Milling, Paving, & Final Works	Removals & Excavation	Fill, Grading, U/G Utilities	Milling, Paving, & Final Works
POR10_F	43	45	42	47	45	45	47	46	46
POR11_A	46	48	44	50	47	47	49	49	49
POR11_B	45	47	43	49	46	46	49	48	48
POR11_C	44	46	43	48	46	46	49	47	48
POR11_D	43	45	42	47	45	45	48	47	47
POR11_E	43	45	42	47	45	44	48	46	47
POR11_F	43	45	42	47	44	44	48	46	47
POR12_A	44	46	43	48	45	44	47	47	47
POR12_B	45	47	44	49	47	46	48	48	48
POR12_C	45	47	43	49	46	46	48	48	48
POR12_D	44	46	43	48	46	46	48	47	48
POR12_E	44	46	42	48	46	45	48	47	47
POR12_F	43	45	42	47	46	45	48	47	47
POR13_A	45	47	44	49	47	47	48	48	48
POR13_B	45	47	44	49	47	47	49	48	48
POR13_C	45	47	44	49	47	47	48	48	48
POR13_D	45	47	43	49	47	47	48	48	48
POR13_E	44	46	43	48	46	46	47	47	47
POR13_F	44	46	43	48	46	46	48	47	47
POR14_A	45	47	44	49	47	47	47	48	48
POR14_B	46	48	44	50	47	47	48	48	48
POR14_C	45	47	44	49	47	47	48	48	48
POR14_D	45	47	43	49	46	46	47	47	48
POR14_E	44	46	43	48	46	46	47	47	47
POR14_F	44	46	43	48	45	45	47	47	47
POR15_A	45	47	43	49	47	47	47	48	48
POR15_B	45	47	44	49	47	47	48	48	48
POR15_C	44	46	43	48	47	46	47	47	48
POR15_D	44	46	43	48	46	46	47	47	47
POR15_E	44	46	42	48	46	46	47	47	47
POR15_F	44	46	42	48	46	46	47	47	47
POR16_A	45	47	44	49	48	47	48	48	48
POR16_B	46	48	44	50	48	48	48	48	49
POR16_C	45	47	44	49	47	47	48	48	48
POR16_D	44	46	43	48	47	47	47	47	47
POR16_E	44	46	43	48	47	47	47	47	47
POR16_F	44	46	43	48	47	47	47	47	47
POR17_A	45	47	44	49	47	46	49	49	49
POR17_B	44	46	43	48	46	46	48	48	48
POR17_C	43	45	42	47	45	45	47	47	47
POR17_D	44	45	42	47	46	46	47	47	47
POR17_E	44	47	43	49	46	46	47	47	48
POR17_F	44	47	43	49	46	46	47	47	48
POR18_A	48	50	47	52	51	51	50	51	51
POR18_B	47	49	46	52	50	50	50	50	50
POR18_C	47	49	45	51	49	49	49	49	50
POR18_D	46	48	45	50	48	48	49	49	49
POR18_E	46	48	45	50	48	48	48	49	49
POR18_F	46	48	45	50	48	48	48	49	49
POR19_A	46	48	45	50	49	49	48	49	49
POR19_B	45	47	43	49	47	47	47	47	47
POR19_C	44	46	43	48	47	47	46	47	47
POR19_D	44	46	43	48	47	47	47	47	47
POR19_E	44	46	43	48	47	47	47	47	47
POR19_F	44	46	43	48	47	47	47	47	47
POR20_A	46	48	45	50	49	49	47	49	49
POR20_B	44	47	43	49	47	47	46	47	47
POR20_C	44	46	43	48	47	46	46	47	47
POR20_D	44	46	43	48	47	47	46	47	47
POR20_E	44	46	43	48	47	47	46	47	47
POR20_F	44	46	43	48	47	47	46	47	47

RESA 3

	Construction Stage 1 Sound Levels (dBA)			Construction Stage 2 Sound Levels (dBA)			Construction Stage 3 Sound Levels (dBA)		
	Removals, Excavation, & Densification	Shoreline Protection, Breakwater, Sheet Piles & Dock Walls	Fill, Grading, U/G Utilities	Removals, Excavation, & Densification	Fill, Grading, U/G Utilities	Milling, Paving, & Final Works	Removals & Excavation	Fill, Grading, U/G Utilities	Milling, Paving, & Final Works
POR01_A	45	47	44	49	48	48	47	47	47
POR01_B	44	46	42	48	46	46	46	46	46
POR01_C	44	45	42	47	46	45	45	45	46
POR01_D	43	45	42	47	46	46	45	45	45
POR01_E	44	45	42	47	46	46	45	45	46
POR01_F	44	45	42	47	46	46	45	45	46
POR02_A	45	47	43	49	47	47	52	48	48
POR02_B	44	46	42	48	47	47	51	48	48
POR02_C	45	47	43	49	47	47	52	49	49
POR02_D	45	47	43	49	47	47	52	49	49
POR02_E	45	47	43	48	47	47	52	49	49
POR02_F	45	47	43	48	47	47	52	49	49
POR03_A	44	45	42	47	47	47	52	48	48
POR03_B	43	45	42	47	47	46	52	48	48
POR03_C	43	45	41	46	46	46	52	48	48
POR03_D	44	46	43	48	47	47	52	48	48
POR03_E	45	46	42	48	47	47	52	48	48
POR03_F	44	46	42	47	47	47	52	48	48
POR04_A	46	47	43	49	49	49	56	51	51
POR04_B	46	48	44	49	49	49	55	51	51
POR04_C	47	49	45	50	49	49	55	51	51
POR04_D	46	48	45	50	49	49	54	50	51
POR04_E	47	48	45	50	49	49	54	50	51
POR04_F	46	48	44	50	49	49	54	50	51
POR05_A	45	47	43	49	47	47	52	49	49
POR05_B	46	48	44	50	49	49	53	50	51
POR05_C	47	48	45	50	49	49	53	51	51
POR05_D	47	48	44	50	49	49	53	50	51
POR05_E	46	48	44	50	48	48	53	50	50
POR05_F	46	48	44	50	48	48	53	50	50
POR06_A	47	48	45	50	48	48	53	50	50
POR06_B	46	48	44	50	48	48	53	50	50
POR06_C	46	48	44	50	48	48	53	49	50
POR06_D	46	47	44	49	47	47	52	49	49
POR06_E	46	47	44	49	47	47	52	49	49
POR06_F	46	47	44	49	48	48	52	49	49
POR07_A	46	48	44	50	48	48	53	50	50
POR07_B	46	47	44	49	47	47	53	49	50
POR07_C	45	47	44	49	47	47	52	49	49
POR07_D	45	47	44	49	47	47	51	49	49
POR07_E	45	47	44	49	48	48	52	49	49
POR07_F	46	47	44	49	47	47	52	49	49
POR08_A	39	41	38	42	41	41	42	42	42
POR08_B	42	44	41	46	44	44	42	45	45
POR08_C	42	44	41	46	45	45	43	45	45
POR08_D	43	45	42	47	45	45	46	46	46
POR08_E	44	46	42	48	47	47	47	47	47
POR08_F	44	46	43	48	46	46	50	48	48
POR09_A	41	44	41	46	44	44	42	45	45
POR09_B	44	45	42	47	46	46	45	46	46
POR09_C	43	45	42	47	45	45	47	47	47
POR09_D	44	46	43	48	46	46	48	47	48
POR09_E	44	46	42	48	46	46	49	48	48
POR09_F	44	46	43	48	46	46	50	48	48
POR10_A	43	45	43	47	47	47	46	46	46
POR10_B	43	45	42	47	46	46	46	46	46
POR10_C	44	46	42	48	46	46	48	47	47
POR10_D	43	45	42	47	45	45	47	46	46
POR10_E	43	45	41	47	44	44	47	46	46

RESA 3

	Construction Stage 1 Sound Levels (dBA)			Construction Stage 2 Sound Levels (dBA)			Construction Stage 3 Sound Levels (dBA)		
	Removals, Excavation, & Densification	Shoreline Protection, Breakwater, Sheet Piles & Dock Walls	Fill, Grading, U/G Utilities	Removals, Excavation, & Densification	Fill, Grading, U/G Utilities	Milling, Paving, & Final Works	Removals & Excavation	Fill, Grading, U/G Utilities	Milling, Paving, & Final Works
POR10_F	43	45	42	47	45	45	47	46	46
POR11_A	46	47	44	49	47	46	49	49	49
POR11_B	45	47	43	49	46	46	49	48	48
POR11_C	44	46	43	48	45	45	49	47	48
POR11_D	43	45	42	47	45	45	48	47	47
POR11_E	43	45	42	47	44	44	48	46	47
POR11_F	43	45	42	47	44	44	48	46	47
POR12_A	44	46	43	48	45	44	47	47	47
POR12_B	45	47	43	49	46	46	48	48	48
POR12_C	45	46	43	48	46	46	48	48	48
POR12_D	44	46	43	48	46	46	48	47	48
POR12_E	44	45	42	47	46	45	48	47	47
POR12_F	43	45	42	47	45	45	48	47	47
POR13_A	45	47	43	48	46	46	48	48	48
POR13_B	45	47	44	49	46	46	49	48	48
POR13_C	45	47	44	49	47	47	48	48	48
POR13_D	45	46	43	48	46	46	48	48	48
POR13_E	44	46	43	48	46	46	47	47	47
POR13_F	44	46	43	48	46	46	48	47	47
POR14_A	45	47	44	49	46	46	47	48	48
POR14_B	45	47	44	49	47	46	48	48	48
POR14_C	45	47	44	49	46	46	48	48	48
POR14_D	45	46	43	48	46	46	47	47	48
POR14_E	44	46	43	48	45	45	47	47	47
POR14_F	44	46	43	48	45	45	47	47	47
POR15_A	45	47	43	49	46	46	47	48	48
POR15_B	45	47	44	49	47	46	48	48	48
POR15_C	44	46	43	48	46	46	47	47	48
POR15_D	44	46	42	48	45	45	47	47	47
POR15_E	44	46	42	48	45	45	47	47	47
POR15_F	44	46	42	48	45	45	47	47	47
POR16_A	45	47	43	49	47	47	48	48	48
POR16_B	45	47	44	49	48	47	48	48	49
POR16_C	45	47	43	48	47	47	48	48	48
POR16_D	44	46	43	48	46	46	47	47	47
POR16_E	44	46	43	48	46	46	47	47	47
POR16_F	44	46	43	48	46	46	47	47	47
POR17_A	45	47	44	49	46	46	49	49	49
POR17_B	44	46	43	48	46	46	48	48	48
POR17_C	44	45	42	47	45	45	47	47	47
POR17_D	44	46	42	48	45	46	47	47	47
POR17_E	44	46	43	48	46	46	47	47	48
POR17_F	44	46	43	48	46	46	47	47	48
POR18_A	48	50	47	52	51	51	50	51	51
POR18_B	47	49	46	51	50	50	50	50	50
POR18_C	46	48	45	50	49	49	49	49	50
POR18_D	46	48	44	50	48	48	49	49	49
POR18_E	46	48	45	50	48	48	48	49	49
POR18_F	46	48	45	50	48	48	48	49	49
POR19_A	46	48	45	50	49	49	48	49	49
POR19_B	44	46	43	48	47	47	47	47	47
POR19_C	44	46	43	48	47	47	46	47	47
POR19_D	44	46	43	48	47	47	47	47	47
POR19_E	44	46	43	48	47	47	47	47	47
POR19_F	44	46	43	48	47	47	47	47	47
POR20_A	46	48	45	50	49	49	47	49	49
POR20_B	44	46	43	48	47	47	46	47	47
POR20_C	44	46	42	48	47	46	46	47	47
POR20_D	44	46	43	48	47	47	46	47	47
POR20_E	44	46	43	48	47	47	46	47	47
POR20_F	44	46	43	48	47	47	46	47	47

AECOM

Appendix C

Taxiway Operation Sound Levels at Points of Reception

Receptor Name	Receptor Height (m)	West Base Model - Current Conditions (dBA)	West Base Model - 6.2 m RESA 3 Barrier (dBA)	West Base Model - 8 m RESA 3 Barrier (dBA)	West Base Model - RESA 2 Realignment Only (dBA)	East Base Model - Current Conditions (dBA)	East Base Model - 6.2 m RESA 3 Barrier (dBA)	East Base Model - 8 m RESA 3 Barrier (dBA)	East Base Model - RESA 2 Realignment Only (dBA)
POR01_A	6	42.3	37.9	37.9	41.9	30	30	30	30
POR01_B	22.5	41.2	37	37	40.8	30.1	30.1	30.1	30.1
POR01_C	37.5	40.6	38.1	37.2	40.1	30.2	30.2	30.2	30.3
POR01_D	54	41	39.6	39	40.6	35.7	34.7	34.7	35.3
POR01_E	69	41.2	40.2	39.8	40.8	36.7	36.1	36	36.6
POR01_F	85.5	41.3	40.4	40.1	40.9	36.8	36.4	36.4	36.8
POR02_A	6	45	38.3	38.1	43.7	28.9	28.6	28.6	28.9
POR02_B	21	45.5	41.2	41.2	44.7	35.5	34.9	34.7	35.5
POR02_C	37.5	47.2	45.8	45.4	46.4	43.3	42.5	42.3	43.3
POR02_D	52.5	48	46.9	46.7	47.2	44.9	44.5	44.4	44.9
POR02_E	67.5	48.3	47.2	47.1	47.4	45.6	45.3	45.2	45.6
POR02_F	82.5	48.6	47.5	47.3	47.5	45.8	45.5	45.5	45.9
POR03_A	1.5	48.4	38.9	38.5	46.5	27.8	27.8	27.8	27.8
POR03_B	4.5	48.2	39.2	38.9	46.4	27.3	27.3	27.3	27.3
POR03_C	7.5	47.7	39.4	39.2	46	26.9	26.9	26.9	26.9
POR03_D	12	47	40.6	40.5	45.7	26.5	26.5	26.5	26.5
POR03_E	15	46.7	40.5	40.4	45.3	26.6	26.6	26.6	26.6
POR03_F	19.5	46.5	42.3	42.1	45.6	28.9	28.8	28.8	28.9
POR04_A	1.5	50.5	42.3	42.2	47.7	38.7	38.2	38.1	38.7
POR04_B	4.5	50	42.6	42.6	47.4	39.3	39	38.9	39.3
POR04_C	7.5	49.4	42.9	42.8	47.1	40	39.8	39.6	40
POR04_D	12	49.2	44.1	44.1	47.2	41.2	41.2	41.2	41.3
POR04_E	15	49.1	45.3	45.4	47.6	43	41.4	41.4	42.9
POR04_F	19.5	49.4	47.4	46.6	48.2	44.1	43.1	43.1	44.3
POR05_A	1.5	47.7	42.2	42.1	45.4	38.6	38.2	38.1	39
POR05_B	4.5	48.3	42.6	42.5	46	39.3	39.1	39	39.3
POR05_C	7.5	48.2	42.8	42.8	46.1	42.2	39.8	39.8	42.6
POR05_D	12	48.2	44.4	44.4	46.6	43.2	41.4	41.3	43.6
POR05_E	15	48	45.1	44.8	46.7	43.9	41.6	41.5	44.1
POR05_F	19.5	48.6	47	46.8	47.8	44.9	43.6	43.6	45.1
POR06_A	1.5	48.3	42.7	42.7	46.1	40.7	38.2	38	41.2
POR06_B	4.5	47.5	42.6	42.6	45.4	40.7	39.1	38.9	41.2
POR06_C	9	47.6	43.4	43.4	45.8	43.3	41.2	41.1	43.4
POR06_D	12	47.8	44.5	44.5	46.4	43.9	42.4	42.3	44
POR06_E	16.5	47.6	45.4	45.2	46.6	43.8	42.4	42.4	43.9
POR06_F	19.5	47.6	46	45.5	46.7	44	43	43	44.2
POR07_A	1.5	47.3	42.7	42.7	45.6	40.1	38.1	37.9	40
POR07_B	6	46.7	42.9	42.9	45.2	42.2	40.2	40.1	41.9
POR07_C	10.5	47.2	44.4	44.5	46.1	43.3	42	41.9	43.1

POR07_D	16.5	46.9	45.1	44.9	46.2	43.5	42.9	42.8	43.6
POR07_E	21	47.3	46.3	46	46.8	44.7	44.4	44.4	44.8
POR07_F	25.5	47.7	47	46.7	47.2	46.2	45.3	45.3	46.4
POR08_A	1.5	38.2	36.2	36.2	36.7	38.5	36.7	36.6	39.3
POR08_B	7.5	38.9	36.8	36.8	37.5	39.1	37.4	37.3	39.8
POR08_C	13.5	40.9	39.5	39.4	40.1	41	39.8	39.6	41.2
POR08_D	18	41.1	39.9	39.9	40.5	40.9	39.8	39.7	41.1
POR08_E	24	41.9	40.9	40.8	41.3	40.8	40	40	41
POR08_F	30	43.2	42.7	42.6	42.9	43.5	41.9	41.9	43.1
POR09_A	3	36.4	36.2	36.1	36.2	37.5	36.7	36.5	37.6
POR09_B	12	40.4	38.7	38.7	39.4	41.6	38.8	38.7	41.9
POR09_C	21	40.2	39.8	39.7	40	41.4	39.3	39.2	41.7
POR09_D	30	41.9	41.9	41.8	41.9	42.8	41.2	41.1	42.8
POR09_E	39	44.9	44	43.8	44.3	44.4	43.3	43.1	44.4
POR09_F	48	45.7	45.4	45.3	45.6	45	44.1	44	45
POR10_A	1.5	33.3	33.3	33.2	33.9	38.1	30.3	30	39
POR10_B	9	34.4	34.2	34	34.7	38.2	32	31.7	38.9
POR10_C	15	37	36.7	36.6	37	41.6	37.2	37	42
POR10_D	22.5	37.3	37	36.9	37.1	41.1	37.4	37.2	41.4
POR10_E	28.5	37.6	38.1	38.1	38.2	40.9	37.5	37.3	41.2
POR10_F	36	40.1	40.4	40.4	40.4	43.5	40.4	40.3	43.7
POR11_A	1.5	42.5	41.6	41.6	42.2	44	39.3	39.1	44.1
POR11_B	9	41.7	40.9	40.8	41.4	43.3	38.9	38.7	43.4
POR11_C	15	41.7	41.2	41.1	41.6	43.1	39.6	39.4	43.2
POR11_D	22.5	41.4	40.9	40.8	41.2	42.5	39.3	39.2	42.5
POR11_E	28.5	41.4	41.3	41.3	41.5	42.2	39.3	39.2	42.3
POR11_F	36	42.3	42.3	42.2	42.4	43.1	41	40.9	43.2
POR12_A	1.5	42.6	42.6	42.6	42.6	43.9	40.2	40.1	44
POR12_B	6	42.4	42.3	42.3	42.4	43.9	40.2	40	44
POR12_C	12	41.8	41.8	41.8	41.8	43.8	39.9	39.8	43.8
POR12_D	16.5	43.1	41.6	41.6	42.4	43.4	39.8	39.6	43.4
POR12_E	22.5	42.7	41.3	41.2	42	42.8	39.5	39.2	42.9
POR12_F	27	42.6	41.7	41.6	42.3	42.7	39.8	39.5	42.8
POR13_A	1.5	41.7	40.8	40.8	41.2	44.1	39.7	39.5	44.2
POR13_B	7.5	41.6	40.7	40.7	41.1	44.1	39.8	39.6	44.1
POR13_C	12	42.9	42.3	42.3	42.5	44.2	40.8	40.6	44.3
POR13_D	18	42.9	41.7	41.7	42.3	43.7	40.4	40.2	43.7
POR13_E	24	42.7	41.6	41.5	42	43.1	40.1	39.9	43.1
POR13_F	30	42.7	42.1	41.9	42.3	43.1	40.2	40	43.1
POR14_A	1.5	42.9	42.8	42.8	42.9	44.7	41.1	41	44.8
POR14_B	7.5	42.9	42.8	42.8	42.8	44.8	41.3	41.1	44.9
POR14_C	12	42.5	42.4	42.4	42.4	44.4	41.1	40.9	44.5
POR14_D	18	41.9	41.8	41.8	41.8	43.8	40.7	40.5	43.9
POR14_E	24	41.6	41.5	41.5	41.6	43.3	40.3	40.2	43.3
POR14_F	30	42.1	42	42.1	42.1	43.3	40.5	40.3	43.4
POR15_A	3	42.8	42.8	42.8	42.8	44.6	41	40.9	44.7
POR15_B	10.5	42.7	42.7	42.7	42.7	44.6	41.2	41	44.8
POR15_C	18	41.9	41.9	41.9	41.9	43.9	40.7	40.5	44
POR15_D	25.5	41.7	41.7	41.7	41.7	43.4	40.4	40.2	43.5

POR15_E	33	42.3	42.4	42.4	42.4	43.5	40.7	40.5	43.6
POR15_F	40.5	42.3	42.3	42.3	42.3	43.7	41.6	41.1	43.9
POR16_A	3	42.5	42.5	42.5	42.5	44.2	41.1	41	44.4
POR16_B	10.5	42.6	42.6	42.6	42.6	44.8	41.3	41.2	44.9
POR16_C	18	41.9	41.9	41.9	41.9	44.1	40.8	40.6	44.2
POR16_D	25.5	41.6	41.6	41.6	41.6	43.5	40.4	40.2	43.6
POR16_E	33	42	42	42	42	43.6	40.7	40.5	43.7
POR16_F	40.5	42.1	42	42.1	42.1	43.7	41.3	40.7	43.8
POR17_A	3	44.5	44.3	44.3	44.3	47.3	43.4	43.3	47.3
POR17_B	13.5	43.4	43.2	43.2	43.2	46.2	42.6	42.4	46.2
POR17_C	24	42.4	42.2	42.3	42.3	45	41.8	41.6	45
POR17_D	33	42.7	42.6	42.6	42.6	44.9	41.8	41.6	45
POR17_E	43.5	43.1	43	43	43	45.2	42.8	42.2	45.2
POR17_F	52.5	43.1	43.1	43.1	43.1	45.2	43.1	42.6	45.2
POR18_A	1.5	44.9	44.5	44.5	44.5	47.5	43	42.8	47.7
POR18_B	7.5	44.2	43.8	43.8	43.8	46.8	42.5	42.3	46.9
POR18_C	13.5	43.5	43.1	43.1	43.1	46.1	42	41.8	46.2
POR18_D	19.5	42.9	42.4	42.4	42.4	45.3	41.6	41.3	45.4
POR18_E	25.5	44	43.5	43.5	43.5	45.3	42	41.8	45.5
POR18_F	30	42.9	42.5	42.5	42.5	46.2	42.1	41.8	46.3
POR19_A	4.5	32.2	32.1	32.1	32.1	43.6	37.2	36.8	43.7
POR19_B	18	32	32	32	32	42.5	36.9	36.4	42.6
POR19_C	30	34.6	34.5	34.5	34.5	41.9	37.2	36.8	42
POR19_D	43.5	41.4	41.2	41.2	41.2	43.2	40.8	40.2	43.3
POR19_E	55.5	41.5	41.4	41.4	41.4	43.2	41.1	40.7	43.3
POR19_F	69	41.8	41.7	41.7	41.7	43.4	41.7	41.4	43.5
POR20_A	4.5	41.6	41.5	41.5	41.5	44.7	40.7	40.6	44.7
POR20_B	18	40.5	40.4	40.4	40.4	43.3	39.8	39.7	43.3
POR20_C	31.5	39.9	39.9	39.9	39.9	42.5	39.4	39.3	42.6
POR20_D	43.5	40.5	40.2	40.2	40.2	42.6	40.2	39.6	42.7
POR20_E	57	40.6	40.5	40.5	40.5	42.6	40.5	40.1	42.6
POR20_F	70.5	41	40.8	40.8	40.8	42.7	40.9	40.7	42.8

Appendix D

Aircraft Fleet Data
(Summary of 2023 Statistics)

Summary of Annual Aircraft Volumes

Aircraft	Aircraft Category	Noise Exposure Forecast aircraft code*	# per year - Arrivals									
			Runway 060	Runway 240	Runway 080 INST	Runway 080 VISUAL	Runway 260 INST	Runway 260 VISUAL	Runway 60 (heli) INST	Runway 60 (heli) VISUAL	Runway 66 (heli) INST	Runway 66 (heli) VISUAL
Agusta Westland AW109	2 Engine Heli	DHC830	0	0	0	0	0	0	0	4	0	21
Agusta Westland AW139	2 Engine Heli	DHC830	0	1	8	308	7	641	1	159	1	588
Grumman AA5	Single Engine Propeller	AA5A	0	0	0	5	1	14	0	0	0	0
Rockwell Commander 112?	Single Engine Propeller	GASEPV	0	0	1	3	3	5	0	0	0	0
Rockwell commander 690	2 Engine Propeller	RWCM69	0	0	1	0	1	0	0	0	0	0
Rockwell commander 695	2 Engine Propeller	AC95	0	0	1	0	0	0	0	0	0	0
Piper aerostar	2 Engine Propeller	PA60	0	0	2	0	1	0	0	0	0	0
Eurocopter AS350 ecureuil	1 Engine Heli	DHC830	0	0	0	0	0	0	0	1	0	2
Eurocopter AS350 ecureuil	1 Engine Heli	DHC830	0	0	0	0	0	1	0	7	0	0
Eurocopter AS355 ecureuil	2 Engine Heli	DHC830	0	0	0	0	0	0	0	1	0	1
Tecnam Astore	Single Engine Propeller	GASEPV	0	0	0	2	0	2	0	0	0	0
Bell Jetranger	1 Engine Heli	DHC830	0	0	0	0	0	0	0	14	0	10
Beech 190	2 Engine Propeller	BEC190	0	0	49	0	85	0	0	0	0	0
Beech 350 super king air	2 Engine Propeller	BEC300	0	0	105	1	175	4	0	0	0	0
Bell 412	2 Engine Heli	DHC830	0	0	0	0	0	0	0	11	0	1
Bell B427	2 Engine Heli	DHC830	0	0	0	0	0	0	0	2	0	0
Bell B429	2 Engine Heli	DHC830	0	0	0	0	0	0	0	12	0	5
Bell B505	1 Engine Heli	DHC830	0	0	0	1	0	0	0	2	0	0
Beech 100 king air	2 Engine Propeller	BEC100	0	0	24	4	48	13	0	0	0	0
Beech model 18	2 Engine Propeller	BEC18	0	0	1	0	0	0	0	0	0	0
Beech 1900	2 Engine Propeller	BEC190	0	0	0	0	0	1	0	0	0	0
Beech 200 super king air	2 Engine Propeller	BEC200	0	0	22	0	60	1	0	0	0	0
Beech 23 musketeer	Single Engine Propeller	BEC23	0	0	0	4	0	3	0	0	0	0
Beech 24 sierra	Single Engine Propeller	BEC24	0	0	0	5	0	4	0	0	0	0
Beech 300 super king air	2 Engine Propeller	BEC300	0	0	8	0	12	0	0	0	0	0
Beech 33 debonair	Single Engine Propeller	BEC33	0	1	0	1	2	1	0	0	0	0
Beech 35 bonanza	Single Engine Propeller	BECM35	0	0	4	7	8	4	0	0	0	0
Beech 36 bonanza	Single Engine Propeller	BECM35	0	0	5	3	8	2	0	0	0	0
Beech 55 barron	2 Engine Propeller	BEC55	0	0	1	0	1	2	0	0	0	0
Beech 58 barron	2 Engine Propeller	BEC58	0	0	4	0	7	1	0	0	0	0
Beech 60 duke	2 Engine Propeller	BEC60	0	0	0	0	0	1	0	0	0	0
Beech 90 king air	2 Engine Propeller	BEC90	0	0	23	7	43	23	0	0	0	0
American Champion Decathlon	Single Engine Propeller	GASEPV	0	0	0	12	0	25	0	0	0	0
Beech 36tc bonanza	Single Engine Propeller	BECM35	0	0	0	0	0	1	0	0	0	0
Cessna P210	Single Engine Propeller	CNA210	0	0	1	1	2	0	0	0	0	0
Lockheed C130	4 Engine Propeller	C130	0	0	0	2	0	0	0	0	0	1
Cessna 140	Single Engine Propeller	GASEPV	0	0	0	1	0	0	0	0	0	0
Cessna 150	Single Engine Propeller	CNA150	33	73	0	532	0	937	0	0	0	0
Cessna 152	Single Engine Propeller	CNA152	19	43	0	349	0	700	0	0	0	0
Cessna 170	Single Engine Propeller	CNA170	0	0	0	1	0	0	0	0	0	0
Cessna 172	Single Engine Propeller	CNA172	26	128	7	1134	19	2142	0	0	0	0
Cessna 177 Cardinal	Single Engine Propeller	CNA177	0	0	0	3	0	4	0	0	0	0
Cessna 180 skywagon	Single Engine Propeller	CNA180	1	4	0	9	0	13	0	0	0	0
Cessna 182	Single Engine Propeller	CNA182	0	7	5	89	11	165	0	0	0	0
Cessna 185	Single Engine Propeller	CNA185	0	0	0	20	0	29	0	0	0	0
Cessna 206	Single Engine Propeller	CNA206	0	0	1	77	6	129	0	0	0	0
Cessna208	Single Engine Propeller	CNA208	0	0	4	85	12	127	0	0	0	0
Cessna 210 Centurion	Single Engine Propeller	CNA210	0	0	0	13	0	6	0	0	0	0
Cessna 240 Corvalis	Single Engine Propeller	GASEPV	0	0	2	0	4	0	0	0	0	0
Cessna 310	2 Engine Propeller	CNA310	0	0	5	6	6	14	0	0	0	0
Cessna 337	2 Engine Propeller	CNA337	0	0	4	4	2	3	0	0	0	0
Cessna 340	2 Engine Propeller	CNA340	0	0	4	2	4	6	0	0	0	0
Cessna 414	2 Engine Propeller	CNA414	0	0	4	1	8	1	0	0	0	0
Cessna 421	2 Engine Propeller	CNA421	0	0	0	0	2	0	0	0	0	0

Aircraft	Aircraft Category	Noise Exposure Forecast aircraft code*	# per year - Arrivals									
			Runway 060	Runway 240	Runway 080 INST	Runway 080 VISUAL	Runway 260 INST	Runway 260 VISUAL	Runway 60 (heli) INST	Runway 60 (heli) VISUAL	Runway 66 (heli) INST	Runway 66 (heli) VISUAL
Cessna 425	2 Engine Propeller	CNA425	0	0	0	0	1	0	0	0	0	0
Cessna 441	2 Engine Propeller	CNA441	0	0	2	0	2	0	0	0	0	0
Cessna 177	Single Engine Propeller	CNA177	0	0	2	0	0	0	0	0	0	0
Cessna 182	Single Engine Propeller	CNA182	0	0	0	1	1	0	0	0	0	0
Cessna 182	Single Engine Propeller	CNA182	0	0	2	0	2	1	0	0	0	0
Cessna 182	Single Engine Propeller	CNA182	0	0	0	0	1	1	0	0	0	0
AMD Zodiac	Single Engine Propeller	GASEPV	0	0	0	1	0	0	0	0	0	0
CH7 Kompress	1 Engine Heli	DHC830	0	0	0	1	0	0	0	0	0	0
multi manufacturers multi names	Single Engine Propeller	GASEPV	0	0	0	2	0	1	0	0	0	0
Cessna 350	Single Engine Propeller	GASEPV	0	0	1	0	4	0	0	0	0	0
Cessna 400	Single Engine Propeller	GASEPV	0	0	6	0	7	0	0	0	0	0
Diamond 20 Katana	Single Engine Propeller	GASEPV	0	0	0	2	0	1	0	0	0	0
Diamond DA40	Single Engine Propeller	GASEPV	0	0	2	23	1	39	0	0	0	0
Diamond DA42	2 Engine Propeller	CNA310	0	1	4	8	9	17	0	0	0	0
Dehavilland DHC2	Single Engine Propeller	DHC2	0	0	0	0	0	1	0	0	0	0
Dehavilland dash8	2 Engine Propeller	DHC830	0	0	0	0	1	0	0	0	0	0
Dehavilland dash8	2 Engine Propeller	DHC830	0	0	1	0	1	0	0	0	0	0
Dehavilland dash8	2 Engine Propeller	DHC830	0	0	7290	0	12778	0	0	2	0	0
Dehavilland DHC2	Single Engine Propeller	DHC2	0	0	0	15	0	33	0	0	0	0
Dehavilland dash6	2 Engine Propeller	DHC6	0	0	0	1	1	3	0	0	0	0
Airbus Heli EC130	1 Engine Heli	DHC830	0	0	0	1	0	1	0	36	0	4
erco ercoupe	Single Engine Propeller	GASEPV	0	0	0	2	0	0	0	0	0	0
Dassault Falcon 10	Turbofan	FAL10	0	0	0	0	3	0	0	0	0	0
Found *FBA-2*	Single Engine Propeller	GASEPV	0	0	0	0	0	1	0	0	0	0
Grob G 115	Single Engine Propeller	GROB15	0	12	0	174	0	296	0	0	0	0
Glasair Aviation	Single Engine Propeller	GASEPV	0	0	0	1	0	0	0	0	0	0
Airbus H125	1 Engine Heli	DHC830	0	0	0	0	0	0	0	1	0	0
Airbus H130	1 Engine Heli	DHC830	0	0	0	0	0	0	0	1	0	0
Boeing H47 Chinook	2 Engine Heli	DHC830	0	0	0	0	0	1	0	0	0	0
Daher Kodiak	Single Engine Propeller	GASEPV	0	0	0	0	0	1	0	0	0	0
Lake Buccaneer	Single Engine Propeller	LA42	0	0	0	0	0	3	0	0	0	0
Piper Lance	Single Engine Propeller	PA32LA	0	0	0	0	0	1	0	0	0	0
Mooney M20	Single Engine Propeller	M20J	0	0	0	0	0	1	0	0	0	0
Mooney M20	Single Engine Propeller	M20J	0	0	0	0	0	1	0	0	0	0
Mooney M20	Single Engine Propeller	M20J	0	0	0	0	0	1	0	0	0	0
Mooney M20	Single Engine Propeller	M20J	0	0	0	1	0	0	0	0	0	0
Mooney M20	Single Engine Propeller	M20J	0	0	8	16	8	32	0	0	0	0
Mooney M20	Single Engine Propeller	M20J	0	0	3	0	2	2	0	0	0	0
Piper M600	Single Engine Propeller	PA60	0	0	13	1	24	1	0	0	0	0
Mitsubishi MU-2	2 Engine Propeller	MU2	0	0	44	0	88	1	0	0	0	0
Mustang Aeronautics Mustang II	Single Engine Propeller	GASEPV	0	0	0	1	0	0	0	0	0	0
Piper PA-28 Cherokee	Single Engine Propeller	PA28CA	1	9	3	96	2	179	0	0	0	0
Piper PA-28 Cherokee	Single Engine Propeller	PA28CA	0	1	1	12	2	28	0	0	0	0
Piper PA-28 Cherokee	Single Engine Propeller	PA28CA	0	0	2	27	2	37	0	0	0	0
Piper PA-28 Cherokee	Single Engine Propeller	PA28CA	0	0	0	0	0	1	0	0	0	0
Piper PA32R	Single Engine Propeller	PA32LA	0	0	0	0	0	1	0	0	0	0
Piper PA32R-300	Single Engine Propeller	PA32LA	0	0	1	0	0	0	0	0	0	0
Cessna P337 - Skymaster	Single Engine Propeller	CNA337	0	0	1	0	0	0	0	0	0	0
PIPER PA-46-500TP Malibu Meridian	Single Engine Propeller	PA46	0	0	13	0	26	1	0	0	0	0
Piper PA-18 Super Cub	Single Engine Propeller	PA18	0	0	0	1	0	0	0	0	0	0
PACER PA-22	Single Engine Propeller	PA22TR	0	0	0	1	0	2	0	0	0	0
Piper PA-23	2 Engine Propeller	PA23AP	0	0	1	0	0	1	0	0	0	0
Piper PA-24 Comanche	Single Engine Propeller	PA24	0	1	0	9	0	9	0	0	0	0
PIPER Aztec	2 Engine Propeller	PA23AZ	0	0	23	99	26	199	0	0	0	0
Piper PA-28	Single Engine Propeller	PA28AR	0	0	0	4	0	2	0	0	0	0
Piper PA-30 Twin Comanche	2 Engine Propeller	PA30	0	0	5	5	10	3	0	0	0	0
Piper PA-31 Navajo	2 Engine Propeller	PA31	0	0	14	18	15	21	0	0	0	0

Aircraft	Aircraft Category	Noise Exposure Forecast aircraft code*	# per year - Arrivals									
			Runway 060	Runway 240	Runway 080 INST	Runway 080 VISUAL	Runway 260 INST	Runway 260 VISUAL	Runway 60 (heli) INST	Runway 60 (heli) VISUAL	Runway 66 (heli) INST	Runway 66 (heli) VISUAL
Piper PA-32 Cherokee Six	Single Engine Propeller	PA32C6	0	0	3	0	5	2	0	0	0	0
Piper PA-34 Seneca	2 Engine Propeller	PA34	0	0	2	2	4	5	0	0	0	0
Piper PA-38 Tomahawk	Single Engine Propeller	PA38	0	4	0	51	0	77	0	0	0	0
Piper PA-44 Seminole	2 Engine Propeller	PA44	0	0	0	1	2	2	0	0	0	0
Piper PA-46	Single Engine Propeller	PA46	0	0	7	2	12	5	0	0	0	0
PIPER Cheyenne 2	2 Engine Propeller	PA31T	0	0	2	0	6	0	0	0	0	0
PIPER Cheyenne 3	2 Engine Propeller	PA42	0	0	1	0	0	0	0	0	0	0
Pilatus PC-12	Single Engine Propeller	GASEPV	0	0	309	23	522	28	0	0	0	0
Pitts Special	Single Engine Propeller	GASEPV	0	0	0	1	0	4	0	0	0	0
Robinson R44	1 Engine Heli	DHC830	0	0	0	4	0	1	0	3928	0	5
Robinson R66	1 Engine Heli	DHC830	0	0	0	2	0	0	0	57	0	0
Van's Aircraft RV-10	Single Engine Propeller	GASEPV	0	0	1	0	2	2	0	0	0	0
Van's Aircraft RV-6	Single Engine Propeller	GASEPV	0	0	0	7	0	6	0	0	0	0
Van's Aircraft RV-7	Single Engine Propeller	GASEPV	0	0	1	1	1	2	0	0	0	0
Van's Aircraft RV-8	Single Engine Propeller	GASEPV	0	0	0	0	0	2	0	0	0	0
Van's Aircraft RV-9	Single Engine Propeller	GASEPV	0	0	1	0	0	0	0	0	0	0
Cirrus SR22	Single Engine Propeller	GASEPV	0	0	46	5	59	18	0	0	0	0
Sikorsky S-76	2 Engine Heli	DHC830	0	0	0	5	0	10	0	23	0	25
Sikorsky S-92	2 Engine Heli	DHC830	0	0	0	1	0	0	0	0	0	0
The Airplane Factory Sling 4	Single Engine Propeller	GASEPV	0	0	0	1	0	0	0	0	0	0
CIRRUS SR-20	Single Engine Propeller	GASEPV	0	0	2	4	5	6	0	0	0	0
CIRRUS SR-22	Single Engine Propeller	GASEPV	0	1	63	41	107	72	0	0	0	0
SWEARINGEN Merlin 3	2 Engine Propeller	SAMER3	0	0	18	0	24	3	0	0	0	0
SWEARINGEN Metroliner/ Merlin4	2 Engine Propeller	SAMER4	0	0	84	10	177	12	0	0	0	0
CESSNA T206 Turbo Stationair	Single Engine Propeller	CNA206	0	0	2	0	3	2	0	0	0	0
Socata TBM	Single Engine Propeller	GASEPV	0	0	17	0	17	0	0	0	0	0
Socata TBM	Single Engine Propeller	GASEPV	0	0	4	0	4	0	0	0	0	0
Socata TBM	Single Engine Propeller	GASEPV	0	0	8	1	9	0	0	0	0	0

- *All Helis Modelled as Q400s (code DHC830)

Aircraft	Aircraft Category	Noise Exposure Forecast aircraft code*	# per year - Departures					
			Runway 060	Runway 240	Runway 080	Runway 260	Runway 60 (heli)	Runway 66 (heli)
Agusta Westland AW109	2 Engine Heli	DHC830	0	0	0	0	2	18
Agusta Westland AW139	2 Engine Heli	DHC830	0	0	356	672	272	361
Grumman AA5	Single Engine Propeller	AA5A	0	1	6	13	0	0
Rockwell Commander 112	Single Engine Propeller	GASEPV	0	0	5	8	0	0
Rockwell commander 690	2 Engine Propeller	RWCM69	0	0	1	1	0	0
Rockwell commander 695	2 Engine Propeller	AC95	0	0	1	0	0	0
Piper aerostar	2 Engine Propeller	PA60	0	0	2	1	0	0
Eurocopter AS350 ecureuil	1 Engine Heli	DHC830	0	0	0	0	2	2
Eurocopter AS350 ecureuil	1 Engine Heli	DHC830	0	0	0	0	5	0
Eurocopter AS355 ecureuil	2 Engine Heli	DHC830	0	0	0	0	1	1
Tecnam Astore	Single Engine Propeller	GASEPV	0	0	2	0	0	0
Bell Jetranger	1 Engine Heli	DHC830	0	0	0	0	16	9
Beech 190	2 Engine Propeller	BEC190	0	0	44	85	0	0
Beech 350 super king air	2 Engine Propeller	BEC300	0	0	101	182	0	0
Bell 412	2 Engine Heli	DHC830	0	0	0	0	10	0
Bell B427	2 Engine Heli	DHC830	0	0	1	0	1	0
Bell B429	2 Engine Heli	DHC830	0	0	0	2	13	4
Bell B505	1 Engine Heli	DHC830	0	0	0	0	3	0
Beech 100 king air	2 Engine Propeller	BEC100	0	0	23	67	0	0
Beech 1900	2 Engine Propeller	BEC190	0	0	0	1	0	0
Beech 200 super king air	2 Engine Propeller	BEC200	0	0	33	49	0	0
Beech 23 musketeer	Single Engine Propeller	BEC23	0	0	4	4	0	0
Beech 24 sierra	Single Engine Propeller	BEC24	0	0	5	4	0	0
Beech 300 super king air	2 Engine Propeller	BEC300	0	0	7	13	0	0
Beech 33 debonair	Single Engine Propeller	BEC33	0	0	2	2	0	0
beech 35 bonanza	Single Engine Propeller	BECM35	0	0	9	17	0	0
Beech 36 bonanza	Single Engine Propeller	BECM35	0	0	8	9	0	0
Beech 55 barron	2 Engine Propeller	BEC55	0	0	1	3	0	0
Beech 58 barron	2 Engine Propeller	BEC58	0	0	2	10	0	0
Beech 60 duke	2 Engine Propeller	BEC60	0	0	1	0	0	0
Beech 90 king air	2 Engine Propeller	BEC90	0	0	32	68	0	0
American Champion Decathlon	Single Engine Propeller	GASEPV	0	4	10	22	0	0
Cessna P210	Single Engine Propeller	CNA210	0	0	0	3	0	0
Lockheed C130	4 Engine Propeller	C130	0	0	2	1	0	0
Cessna 140	Single Engine Propeller	GASEPV	0	0	1	0	0	0
Cessna 150	Single Engine Propeller	CNA150	0	66	560	968	1	0
Cessna 152	Single Engine Propeller	CNA152	0	51	366	708	0	0
Cessna 170	Single Engine Propeller	CNA170	0	0	1	0	0	0
Cessna 172	Single Engine Propeller	CNA172	0	149	1184	2168	0	0
Cessna 177 Cardinal	Single Engine Propeller	CNA177	0	0	3	2	0	0
Cessna 180 skywagon	Single Engine Propeller	CNA180	0	3	12	12	0	0
Cessna 182	Single Engine Propeller	CNA182	0	7	106	168	0	0
Cessna 185	Single Engine Propeller	CNA185	0	2	21	31	0	0
Cessna 206	Single Engine Propeller	CNA206	1	6	93	120	0	0
Cessna208	Single Engine Propeller	CNA208	0	1	84	145	0	0
Cessna 210 Centurion	Single Engine Propeller	CNA210	0	1	11	7	0	0
Cessna 240 Corvalis	Single Engine Propeller	GASEPV	0	0	2	4	0	0
Cessna 310	2 Engine Propeller	CNA310	0	0	10	21	0	0
Cessna 337	2 Engine Propeller	CNA337	0	0	6	7	0	0
Cessna 340	2 Engine Propeller	CNA340	0	0	7	9	0	0
Cessna 414	2 Engine Propeller	CNA414	0	0	3	10	0	0
Cessna 421	2 Engine Propeller	CNA421	0	0	1	1	0	0
Cessna 425	2 Engine Propeller	CNA425	0	0	0	1	0	0
Cessna 441	2 Engine Propeller	CNA441	0	0	2	2	0	0

Aircraft	Aircraft Category	Noise Exposure Forecast aircraft code*	# per year - Departures					
			Runway 060	Runway 240	Runway 080	Runway 260	Runway 60 (heli)	Runway 66 (heli)
Beech C45H expeditor	2 Engine Propeller	C45	0	0	1	0	0	0
Cessna Cutlass	Single Engine Propeller	GASEPV	0	0	0	1	0	0
Cessna 177	Single Engine Propeller	CNA177	0	0	1	3	0	0
Cessna 182	Single Engine Propeller	CNA182	0	0	1	2	0	0
Cessna 182	Single Engine Propeller	CNA182	0	0	1	2	0	0
Cessna 182	Single Engine Propeller	CNA182	0	0	1	2	0	0
AMD Zodiac	Single Engine Propeller	GASEPV	0	0	1	0	0	0
multi manufacturers multi names	Single Engine Propeller	GASEPV	0	0	3	1	0	0
Cessna 350	Single Engine Propeller	GASEPV	0	0	2	3	0	0
Cessna 400	Single Engine Propeller	GASEPV	0	0	3	10	0	0
Diamond 20 Katana	Single Engine Propeller	GASEPV	0	0	0	1	0	0
Diamond DA40	Single Engine Propeller	GASEPV	0	3	28	35	0	0
Diamond DA42	2 Engine Propeller	CNA310	0	0	17	21	0	0
Dehavilland DHC2	Single Engine Propeller	DHC2	0	0	1	0	0	0
Dehavilland dash8	2 Engine Propeller	DHC830	0	0	0	1	0	0
Dehavilland dash8	2 Engine Propeller	DHC830	0	0	1	1	0	0
Dehavilland dash8	2 Engine Propeller	DHC830	0	0	7379	12709	3	0
Dehavilland DHC1 chipmunk	Single Engine Propeller	GASEPV	0	0	0	0	0	0
Dehavilland DHC2	Single Engine Propeller	DHC2	0	0	15	31	0	0
Dehavilland dash6	2 Engine Propeller	DHC6	0	0	0	4	0	0
Dehavilland dash7	4 Engine Propeller	DHC7	0	0	0	1	0	0
Diamond 20 Katana	Single Engine Propeller	GASEPV	0	0	1	0	0	0
Lockheed EC130	4 Engine Propeller	C130	0	0	0	0	1	0
Airbus Heli EC130	1 Engine Heli	DHC830	0	0	2	0	38	4
erco ercoupe	Single Engine Propeller	GASEPV	0	0	1	1	0	0
Dassault Falcon 10	Turbofan	FAL10	0	0	0	3	0	0
Found *FBA-2*	Single Engine Propeller	GASEPV	0	0	0	1	0	0
Grob G 115	Single Engine Propeller	GROB15	0	15	181	305	0	0
Boeing H47 Chinook	2 Engine Heli	DHC830	0	0	1	0	0	0
Daher Kodiak	Single Engine Propeller	GASEPV	0	0	1	0	0	0
Lake Buccaneer	Single Engine Propeller	LA42	0	0	1	3	0	0
Piper Lance	Single Engine Propeller	PA32LA	0	0	0	1	0	0
Mooney M20	Single Engine Propeller	M20J	0	0	0	1	0	0
Mooney M20	Single Engine Propeller	M20J	0	0	0	1	0	0
Mooney M20	Single Engine Propeller	M20J	0	0	0	1	0	0
Mooney M20	Single Engine Propeller	M20J	0	0	29	36	0	0
Mooney M20	Single Engine Propeller	M20J	0	0	3	4	0	0
Piper M600	Single Engine Propeller	PA60	0	0	19	20	0	0
Mitsubishi MU-2	2 Engine Propeller	MU2	0	0	44	89	0	0
Mustang Aeronautics Mustang II	Single Engine Propeller	GASEPV	0	0	0	1	0	0
Piper PA-28 Cherokee	Single Engine Propeller	PA28CA	1	13	113	165	0	0
Piper PA-28 Cherokee	Single Engine Propeller	PA28CA	0	4	13	26	0	0
Piper PA-28 Cherokee	Single Engine Propeller	PA28CA	0	4	27	41	0	0
Piper PA-28 Cherokee	Single Engine Propeller	PA28CA	0	0	0	1	0	0
Piper PA32R	Single Engine Propeller	PA32LA	0	0	0	1	0	0
Piper PA32R-300	Single Engine Propeller	PA32LA	0	0	2	0	0	0
Cessna P337 - Skymaster	Single Engine Propeller	CNA337	0	0	0	1	0	0
PIPER PA-46-500TP Malibu Meridian	Single Engine Propeller	PA46	0	0	14	32	0	0
Piper PA-18 Super Cub	Single Engine Propeller	PA18	0	0	0	1	0	0
PACER PA-22	Single Engine Propeller	PA22TR	0	0	1	2	0	0
Piper PA-23	2 Engine Propeller	PA23AP	0	0	1	0	0	0
Piper PA-24 Comanche	Single Engine Propeller	PA24	0	1	8	11	0	0
PIPER Aztec	2 Engine Propeller	PA23AZ	0	1	123	235	0	0
Piper PA-28	Single Engine Propeller	PA28AR	0	0	3	0	0	0

Aircraft	Aircraft Category	Noise Exposure Forecast aircraft code*	# per year - Departures					
			Runway 060	Runway 240	Runway 080	Runway 260	Runway 60 (heli)	Runway 66 (heli)
Piper PA-30 Twin Comanche	2 Engine Propeller	PA30	0	0	9	13	0	0
Piper PA-31 Navajo	2 Engine Propeller	PA31	0	0	28	39	0	0
Piper PA-32 Cherokee Six	Single Engine Propeller	PA32C6	0	0	3	6	0	0
Piper PA-34 Seneca	2 Engine Propeller	PA34	0	0	3	9	0	0
Piper PA-38 Tomahawk	Single Engine Propeller	PA38	0	22	49	61	0	0
Piper PA-44 Seminole	2 Engine Propeller	PA44	0	0	2	4	0	0
Piper PA-46	Single Engine Propeller	PA46	0	0	11	11	0	0
PIPER Cheyenne 2	2 Engine Propeller	PA31T	0	0	2	6	0	0
PIPER Cheyenne 3	2 Engine Propeller	PA42	0	0	1	0	0	0
Pilatus PC-12	Single Engine Propeller	GASEPV	0	0	305	572	0	0
Pitts Special	Single Engine Propeller	GASEPV	0	0	0	4	0	0
Robinson R44	1 Engine Heli	DHC830	0	0	3	1	3875	2
Robinson R66	1 Engine Heli	DHC830	0	0	1	0	57	1
Van's Aircraft RV-10	Single Engine Propeller	GASEPV	0	0	2	3	0	0
Van's Aircraft RV-6	Single Engine Propeller	GASEPV	0	0	6	7	0	0
Van's Aircraft RV-7	Single Engine Propeller	GASEPV	0	0	2	3	0	0
Van's Aircraft RV-8	Single Engine Propeller	GASEPV	0	0	0	2	0	0
Van's Aircraft RV-9	Single Engine Propeller	GASEPV	0	0	1	0	0	0
Cirrus SR22	Single Engine Propeller	GASEPV	0	0	57	82	0	0
Sikorsky S-76	2 Engine Heli	DHC830	0	0	4	12	18	14
Sikorsky S-92	2 Engine Heli	DHC830	0	0	0	1	0	0
The Airplane Factory Sling 4	Single Engine Propeller	GASEPV	0	0	1	0	0	0
CIRRUS SR-20	Single Engine Propeller	GASEPV	0	0	6	13	0	0
CIRRUS SR-22	Single Engine Propeller	GASEPV	0	0	87	181	0	0
SWEARINGEN Merlin 3	2 Engine Propeller	SAMER3	0	0	13	32	0	0
SWEARINGEN Metroliner/ Merlin4	2 Engine Propeller	SAMER4	0	0	82	189	0	0
CESSNA T206 Turbo Stationair	Single Engine Propeller	CNA206	0	0	0	4	0	0
CESSNA T210 Turbo Centurion	Single Engine Propeller	CNA210	0	0	1	0	0	0
Socata TBM	Single Engine Propeller	GASEPV	0	0	14	20	0	0
Socata TBM	Single Engine Propeller	GASEPV	0	0	4	4	0	0
Socata TBM	Single Engine Propeller	GASEPV	0	0	7	10	0	0

*All Helis Modelled as Q400s (code DHC830)

Aircraft	Aircraft Category	Noise Exposure Forecast aircraft code*	# per year - Local Movement					
			Runway 060	Runway 240	Runway 080	Runway 260	Runway 60 (heli)	Runway 66 (heli)
Agusta Westland AW139	2 Engine Heli	DHC830	0	0	0	6	6	0
Grumman AA5	single engine propeller	AA5A	0	0	2	14	0	0
Rockwell Commander 112?	single engine propeller	GASEPV	0	0	0	10	0	0
Bell Jetranger	1 Engine Heli	DHC830	0	0	0	4	4	0
Beech 23 musketeer	single engine propeller	BEC23	0	0	0	2	0	0
Beech 24 sierra	single engine propeller	BEC24	0	0	0	2	0	0
beech 35 bonanza	single engine propeller	BECM35	0	0	0	8	0	0
Beech 90 king air	2 engine propeller	BEC90	0	0	2	0	0	0
American Champion Decathlon	single engine propeller	GASEPV	0	0	122	152	0	0
Lockheed C130	4 engine propeller	C130	0	0	0	10	0	0
Cessna 150	single engine propeller	CNA150	84	0	1892	3308	0	0
Cessna 152	single engine propeller	CNA152	96	0	1280	2358	0	0
Cessna 172	single engine propeller	CNA172	104	0	2580	5158	0	0
Cessna 180 skywagon	single engine propeller	CNA180	0	0	8	4	0	0
Cessna 182	single engine propeller	CNA182	0	0	54	186	0	0
Cessna 185	single engine propeller	CNA185	0	0	0	4	0	0
Cessna 206	single engine propeller	CNA206	0	0	10	10	0	0
Cessna208	single engine propeller	CNA208	0	0	8	38	0	0
Cessna 337	2 engine propeller	CNA337	0	0	2	0	0	0
Cessna Cutlass	single engine propeller	GASEPV	0	0	0	2	0	0
Cessna 177	single engine propeller	CNA177	0	0	0	2	0	0
Canada Regional Jet	turbofan	CLREGJ	0	0	6	2	0	0
Diamond DA40	single engine propeller	GASEPV	0	0	14	12	0	0
Dehavilland dash8	2 engine propeller	DHC830	0	0	0	2	0	0
Dehavilland dash8	2 engine propeller	DHC830	0	0	164	224	0	0
Airbus Heli EC130	1 Engine Heli	DHC830	0	0	2	0	0	0
Grob G 115	single engine propeller	GROB15	6	0	972	1874	0	0
Boeing H47 Chinook	2 Engine Heli	DHC830	0	0	0	2	0	0
Mooney M20	single engine propeller	M20J	0	0	2	4	0	0
Mooney M20	single engine propeller	M20J	0	0	2	0	0	0
Piper PA-28 Cherokee	single engine propeller	PA28CA	8	0	308	518	0	0
Piper PA-28 Cherokee	single engine propeller	PA28CA	0	0	24	26	0	0
Piper PA-28 Cherokee	single engine propeller	PA28CA	0	0	8	4	0	0
PIPER Aztec	2 engine propeller	PA23AZ	0	0	46	74	0	0
Piper PA-30 Twin Comanche	2 engine propeller	PA30	0	0	0	2	0	0
Piper PA-32 Cherokee Six	single engine propeller	PA32C6	0	0	0	2	0	0
Piper PA-38 Tomahawk	single engine propeller	PA38	0	0	4	22	0	0
Piper PA-44 Seminole	2 engine propeller	PA44	0	0	0	4	0	0
Piper PA-46	single engine propeller	PA46	0	0	2	0	0	0
Pilatus PC-12	single engine propeller	GASEPV	0	0	2	4	0	0
Robinson R44	1 Engine Heli	DHC830	0	0	4	0	0	0
Van's Aircraft RV-6	single engine propeller	GASEPV	0	0	2	0	0	0
Cirrus SR22	single engine propeller	GASEPV	0	0	0	2	0	0
Sikorsky S-76	2 Engine Heli	DHC830	0	0	2	0	0	0
Sikorsky S-92	2 Engine Heli	DHC830	0	0	0	0	2	0
CIRRUS SR-20	single engine propeller	GASEPV	0	0	0	2	0	0
CIRRUS SR-22	single engine propeller	GASEPV	0	0	14	12	0	0
SWEARINGEN Metroliner/ Merlin4	2 engine propeller	SAMER4	0	0	4	0	0	0

*All Helis Modelled as Q400s (code DHC830)

NEF-Calc Flight Movement Report
Peak Planning Day

11/27/20

ACODE	FLIGHTPATH	Range	DayTimeEvent	NightTimeEvent
AA5A				
AA5A	24_DEP	1	0.01	0.00
AA5A	08DEP	1	0.04	0.00
AA5A	26DEP	1	0.10	0.00
AA5A	08APPVIS	0	0.04	0.00
AA5A	26APPINST	0	0.01	0.00
AA5A	26APPVIS	0	0.10	0.00
AA5A	08CIRC	1	0.01	0.00
AA5A	26CIRC	1	0.05	0.00
AA5A			**0.35**	**0.00**
BEC100				
BEC100	08DEP	1	0.05	0.00
BEC100	26DEP	1	0.14	0.00
BEC100	08APPINST	0	0.05	0.00
BEC100	08APPVIS	0	0.01	0.00
BEC100	26APPINST	0	0.10	0.00
BEC100	26APPVIS	0	0.03	0.00
BEC100			**0.37**	**0.00**
BEC18				
BEC18	08APPINST	0	0.04	0.00
BEC18			**0.04**	**0.00**
BEC190				
BEC190	08DEP	1	0.12	0.01
BEC190	26DEP	1	0.24	0.02
BEC190	08APPINST	0	0.14	0.01
BEC190	26APPINST	0	0.24	0.02
BEC190	26DEP	1	0.04	0.00
BEC190	26APPVIS	0	0.04	0.00
BEC190			**0.82**	**0.07**
BEC200				
BEC200	08DEP	1	0.06	0.00
BEC200	26DEP	1	0.09	0.00
BEC200	08APPINST	0	0.04	0.00
BEC200	26APPINST	0	0.11	0.00
BEC200	26APPVIS	0	0.00	0.00
BEC200			**0.30**	**0.00**
BEC23				
BEC23	08DEP	1	0.03	0.00
BEC23	26DEP	1	0.03	0.00
BEC23	08APPVIS	0	0.03	0.00
BEC23	26APPVIS	0	0.02	0.00
BEC23	26CIRC	1	0.01	0.00
BEC23			**0.11**	**0.00**
BEC24				

11/27/20

ACODE	FLIGHTPATH	Range	DayTimeEvent	NightTimeEvent
BEC24	08DEP	1	0.06	0.00
BEC24	26DEP	1	0.04	0.00
BEC24	08APPVIS	0	0.06	0.00
BEC24	26APPVIS	0	0.04	0.00
BEC24	26CIRC	1	0.01	0.00
BEC24			**0.21**	**0.00**
BEC300				
BEC300	08DEP	1	0.25	0.03
BEC300	26DEP	1	0.44	0.05
BEC300	08APPINST	0	0.25	0.03
BEC300	08APPVIS	0	0.00	0.00
BEC300	26APPINST	0	0.42	0.05
BEC300	26APPVIS	0	0.01	0.00
BEC300	08DEP	1	0.03	0.00
BEC300	26DEP	1	0.05	0.00
BEC300	08APPINST	0	0.03	0.00
BEC300	26APPINST	0	0.04	0.00
BEC300			**1.53**	**0.15**
BEC33				
BEC33	08DEP	1	0.05	0.00
BEC33	26DEP	1	0.05	0.00
BEC33	24ARRIVE	0	0.02	0.00
BEC33	08APPVIS	0	0.02	0.00
BEC33	26APPINST	0	0.05	0.00
BEC33	26APPVIS	0	0.02	0.00
BEC33			**0.22**	**0.00**
BEC55				
BEC55	08DEP	1	0.01	0.00
BEC55	26DEP	1	0.03	0.00
BEC55	08APPINST	0	0.01	0.00
BEC55	26APPINST	0	0.01	0.00
BEC55	26APPVIS	0	0.02	0.00
BEC55			**0.07**	**0.00**
BEC58				
BEC58	08DEP	1	0.01	0.00
BEC58	26DEP	1	0.03	0.00
BEC58	08APPINST	0	0.01	0.00
BEC58	26APPINST	0	0.02	0.00
BEC58	26APPVIS	0	0.00	0.00
BEC58			**0.07**	**0.00**
BEC90				
BEC90	08DEP	1	0.08	0.00
BEC90	26DEP	1	0.17	0.00
BEC90	08APPINST	0	0.06	0.00
BEC90	08APPVIS	0	0.02	0.00
BEC90	26APPINST	0	0.11	0.00
BEC90	26APPVIS	0	0.06	0.00
BEC90	08CIRC	1	0.00	0.00

ACODE	FLIGHTPATH	Range	DayTimeEvent	NightTimeEvent
BEC90			**0.48**	**0.00**
BECM35				
BECM35	08DEP	1	0.09	0.00
BECM35	26DEP	1	0.17	0.00
BECM35	08APPINST	0	0.04	0.00
BECM35	08APPVIS	0	0.07	0.00
BECM35	26APPINST	0	0.08	0.00
BECM35	26APPVIS	0	0.04	0.00
BECM35	26CIRC	1	0.04	0.00
BECM35	08DEP	1	0.02	0.00
BECM35	26DEP	1	0.02	0.00
BECM35	08APPINST	0	0.01	0.00
BECM35	08APPVIS	0	0.01	0.00
BECM35	26APPINST	0	0.02	0.00
BECM35	26APPVIS	0	0.00	0.00
BECM35			**0.59**	**0.00**
CNA150				
CNA150	24_DEP	1	0.31	0.00
CNA150	08DEP	1	2.60	0.02
CNA150	26DEP	1	4.48	0.03
CNA150	06ARRIVE	0	0.15	0.00
CNA150	24ARRIVE	0	0.34	0.00
CNA150	08APPVIS	0	2.46	0.02
CNA150	26APPVIS	0	4.34	0.03
CNA150	06CIRC	1	0.19	0.00
CNA150	08CIRC	1	4.38	0.03
CNA150	26CIRC	1	7.66	0.06
CNA150			**26.93**	**0.20**
CNA152				
CNA152	24_DEP	1	0.33	0.01
CNA152	08DEP	1	2.34	0.06
CNA152	26DEP	1	4.53	0.11
CNA152	06ARRIVE	0	0.12	0.00
CNA152	24ARRIVE	0	0.28	0.01
CNA152	08APPVIS	0	2.23	0.06
CNA152	26APPVIS	0	4.48	0.11
CNA152	06CIRC	1	0.31	0.01
CNA152	08CIRC	1	4.09	0.10
CNA152	26CIRC	1	7.54	0.19
CNA152			**26.25**	**0.67**
CNA170				
CNA170	08DEP	1	0.11	0.00
CNA170	08APPVIS	0	0.11	0.00
CNA170			**0.22**	**0.00**
CNA172				
CNA172	24_DEP	1	1.00	0.04
CNA172	08DEP	1	7.92	0.31
CNA172	26DEP	1	14.50	0.57

ACODE	FLIGHTPATH	Range	DayTimeEvent	NightTimeEvent
CNA172	06ARRIVE	0	0.17	0.01
CNA172	24ARRIVE	0	0.86	0.03
CNA172	08APPINST	0	0.05	0.00
CNA172	08APPVIS	0	7.59	0.30
CNA172	26APPINST	0	0.13	0.01
CNA172	26APPVIS	0	14.33	0.57
CNA172	06CIRC	1	0.35	0.01
CNA172	08CIRC	1	8.63	0.34
CNA172	26CIRC	1	17.25	0.68
CNA172			**72.78**	**2.88**
CNA177				
CNA177	08DEP	1	0.14	0.00
CNA177	26DEP	1	0.09	0.00
CNA177	08APPVIS	0	0.14	0.00
CNA177	26APPVIS	0	0.19	0.00
CNA177	08DEP	1	0.03	0.00
CNA177	26DEP	1	0.08	0.00
CNA177	08APPINST	0	0.06	0.00
CNA177	26CIRC	1	0.03	0.00
CNA177			**0.75**	**0.00**
CNA180				
CNA180	24_DEP	1	0.03	0.00
CNA180	08DEP	1	0.11	0.00
CNA180	26DEP	1	0.11	0.00
CNA180	06ARRIVE	0	0.01	0.00
CNA180	24ARRIVE	0	0.04	0.00
CNA180	08APPVIS	0	0.08	0.00
CNA180	26APPVIS	0	0.12	0.00
CNA180	08CIRC	1	0.04	0.00
CNA180	26CIRC	1	0.02	0.00
CNA180			**0.54**	**0.00**
CNA182				
CNA182	24_DEP	1	0.04	0.00
CNA182	08DEP	1	0.59	0.02
CNA182	26DEP	1	0.93	0.04
CNA182	24ARRIVE	0	0.04	0.00
CNA182	08APPINST	0	0.03	0.00
CNA182	08APPVIS	0	0.49	0.02
CNA182	26APPINST	0	0.06	0.00
CNA182	26APPVIS	0	0.92	0.04
CNA182	08CIRC	1	0.15	0.01
CNA182	26CIRC	1	0.52	0.02
CNA182	08DEP	1	0.03	0.00
CNA182	26DEP	1	0.06	0.00
CNA182	08APPVIS	0	0.03	0.00
CNA182	26APPINST	0	0.03	0.00
CNA182	08DEP	1	0.01	0.00
CNA182	26DEP	1	0.03	0.00
CNA182	08APPINST	0	0.03	0.00
CNA182	26APPINST	0	0.03	0.00
CNA182	26APPVIS	0	0.01	0.00

ACODE	FLIGHTPATH	Range	DayTimeEvent	NightTimeEvent
CNA182			**4.03**	**0.16**
CNA185				
CNA185	24_DEP	1	0.01	0.00
CNA185	08DEP	1	0.10	0.00
CNA185	26DEP	1	0.14	0.00
CNA185	08APPVIS	0	0.09	0.00
CNA185	26APPVIS	0	0.13	0.00
CNA185	26CIRC	1	0.01	0.00
CNA185			**0.48**	**0.00**
CNA206				
CNA206	06_DEP	1	0.01	0.00
CNA206	24_DEP	1	0.04	0.00
CNA206	08DEP	1	0.62	0.01
CNA206	26DEP	1	0.80	0.01
CNA206	08APPINST	0	0.01	0.00
CNA206	08APPVIS	0	0.51	0.01
CNA206	26APPINST	0	0.04	0.00
CNA206	26APPVIS	0	0.86	0.01
CNA206	08CIRC	1	0.03	0.00
CNA206	26CIRC	1	0.03	0.00
CNA206			**2.95**	**0.04**
CNA208				
CNA208	24_DEP	1	0.01	0.00
CNA208	08DEP	1	0.48	0.00
CNA208	26DEP	1	0.84	0.00
CNA208	08APPINST	0	0.02	0.00
CNA208	08APPVIS	0	0.49	0.00
CNA208	26APPINST	0	0.07	0.00
CNA208	26APPVIS	0	0.73	0.00
CNA208	08CIRC	1	0.02	0.00
CNA208	26CIRC	1	0.11	0.00
CNA208			**2.77**	**0.00**
CNA210				
CNA210	26DEP	1	0.03	0.00
CNA210	08APPINST	0	0.01	0.00
CNA210	08APPVIS	0	0.01	0.00
CNA210	26APPINST	0	0.02	0.00
CNA210	24_DEP	1	0.00	0.00
CNA210	08DEP	1	0.05	0.00
CNA210	26DEP	1	0.03	0.00
CNA210	08APPVIS	0	0.06	0.00
CNA210	26APPVIS	0	0.03	0.00
CNA210			**0.26**	**0.00**
CNA310				
CNA310	08DEP	1	0.03	0.01
CNA310	26DEP	1	0.06	0.01
CNA310	08APPINST	0	0.02	0.00
CNA310	08APPVIS	0	0.02	0.00

ACODE	FLIGHTPATH	Range	DayTimeEvent	NightTimeEvent
CNA310	26APPINST	0	0.02	0.00
CNA310	26APPVIS	0	0.04	0.01
CNA310	08DEP	1	0.02	0.00
CNA310	26DEP	1	0.03	0.00
CNA310	24ARRIVE	0	0.00	0.00
CNA310	08APPINST	0	0.01	0.00
CNA310	08APPVIS	0	0.01	0.00
CNA310	26APPINST	0	0.01	0.00
CNA310	26APPVIS	0	0.02	0.00
CNA310			**0.30**	**0.04**
CNA337				
CNA337	08DEP	1	0.04	0.00
CNA337	26DEP	1	0.05	0.00
CNA337	08APPINST	0	0.03	0.00
CNA337	08APPVIS	0	0.03	0.00
CNA337	26APPINST	0	0.01	0.00
CNA337	26APPVIS	0	0.02	0.00
CNA337	08CIRC	1	0.01	0.00
CNA337			**0.18**	**0.00**
CNA340				
CNA340	08DEP	1	0.02	0.00
CNA340	26DEP	1	0.03	0.00
CNA340	08APPINST	0	0.01	0.00
CNA340	08APPVIS	0	0.01	0.00
CNA340	26APPINST	0	0.01	0.00
CNA340	26APPVIS	0	0.02	0.00
CNA340			**0.11**	**0.00**
CNA414				
CNA414	08DEP	1	0.02	0.00
CNA414	26DEP	1	0.08	0.00
CNA414	08APPINST	0	0.03	0.00
CNA414	08APPVIS	0	0.01	0.00
CNA414	26APPINST	0	0.07	0.00
CNA414	26APPVIS	0	0.01	0.00
CNA414			**0.22**	**0.00**
CNA421				
CNA421	08DEP	1	0.01	0.00
CNA421	26DEP	1	0.01	0.00
CNA421	26APPINST	0	0.02	0.00
CNA421			**0.04**	**0.00**
DHC2				
DHC2	08DEP	1	0.17	0.00
DHC2	26DEP	1	0.36	0.00
DHC2	08APPVIS	0	0.17	0.00
DHC2	26APPVIS	0	0.38	0.00
DHC2			**1.08**	**0.00**

ACODE	FLIGHTPATH	Range	DayTimeEvent	NightTimeEvent
DHC6				
DHC6	26DEP	1	0.02	0.00
DHC6	08APPVIS	0	0.00	0.00
DHC6	26APPINST	0	0.00	0.00
DHC6	26APPVIS	0	0.01	0.00
DHC6			**0.04**	**0.00**
DHC7				
DHC7	26DEP	1	0.11	0.00
DHC7			**0.11**	**0.00**
DHC830				
DHC830	08DEP	1	60.35	1.13
DHC830	26DEP	1	30.80	1.16
DHC830	24ARRIVE	0	0.00	0.00
DHC830	08APPINST	0	15.45	0.51
DHC830	08APPVIS	0	44.80	0.57
DHC830	26APPINST	0	15.18	0.50
DHC830	26APPINSTQ44	0	11.91	0.39
DHC830	26APPVIS	0	4.57	0.32
DHC830	08CIRC	1	0.32	0.01
DHC830	26CIRC	1	0.36	0.01
DHC830			**183.74**	**4.61**
GASEPV				
GASEPV	24_DEP	1	0.08	0.00
GASEPV	08DEP	1	2.50	0.05
GASEPV	26DEP	1	3.89	0.08
GASEPV	24ARRIVE	0	0.00	0.00
GASEPV	08APPINST	0	1.47	0.03
GASEPV	08APPVIS	0	1.14	0.02
GASEPV	26APPINST	0	2.25	0.04
GASEPV	26APPVIS	0	1.65	0.04
GASEPV	08CIRC	1	0.81	0.01
GASEPV	26CIRC	1	1.04	0.01
GASEPV			**14.85**	**0.29**
GROB15				
GROB15	24_DEP	1	0.07	0.00
GROB15	08DEP	1	0.81	0.00
GROB15	26DEP	1	1.37	0.00
GROB15	24ARRIVE	0	0.05	0.00
GROB15	08APPVIS	0	0.78	0.00
GROB15	26APPVIS	0	1.33	0.00
GROB15	06CIRC	1	0.01	0.00
GROB15	08CIRC	1	2.19	0.00
GROB15	26CIRC	1	4.22	0.00
GROB15			**10.84**	**0.00**
LA42				
LA42	08DEP	1	0.02	0.00

ACODE	FLIGHTPATH	Range	DayTimeEvent	NightTimeEvent
LA42	26DEP	1	0.05	0.00
LA42	26APPVIS	0	0.05	0.00
LA42			**0.11**	**0.00**
M20J				
M20J	08DEP	1	0.15	0.00
M20J	26DEP	1	0.19	0.00
M20J	08APPINST	0	0.04	0.00
M20J	08APPVIS	0	0.08	0.00
M20J	26APPINST	0	0.04	0.00
M20J	26APPVIS	0	0.17	0.00
M20J	08CIRC	1	0.01	0.00
M20J	26CIRC	1	0.01	0.00
M20J	08DEP	1	0.01	0.00
M20J	26DEP	1	0.02	0.00
M20J	08APPINST	0	0.01	0.00
M20J	26APPINST	0	0.01	0.00
M20J	26APPVIS	0	0.01	0.00
M20J	08CIRC	1	0.00	0.00
M20J			**0.76**	**0.00**
MU2				
MU2	08DEP	1	0.15	0.01
MU2	26DEP	1	0.30	0.01
MU2	08APPINST	0	0.15	0.01
MU2	26APPINST	0	0.30	0.01
MU2	26APPVIS	0	0.00	0.00
MU2			**0.89**	**0.04**
PA18				
PA18	26DEP	1	0.04	0.00
PA18	08APPVIS	0	0.04	0.00
PA18			**0.07**	**0.00**
PA22TR				
PA22TR	08DEP	1	0.01	0.00
PA22TR	26DEP	1	0.02	0.00
PA22TR	08APPVIS	0	0.01	0.00
PA22TR	26APPVIS	0	0.02	0.00
PA22TR			**0.07**	**0.00**
PA23AP				
PA23AP	08DEP	1	0.04	0.00
PA23AP	08APPINST	0	0.04	0.00
PA23AP	26APPVIS	0	0.04	0.00
PA23AP			**0.11**	**0.00**
PA23AZ				
PA23AZ	24_DEP	1	0.00	0.00
PA23AZ	08DEP	1	0.41	0.00
PA23AZ	26DEP	1	0.78	0.00

ACODE	FLIGHTPATH	Range	DayTimeEvent	NightTimeEvent
PA23AZ	08APPINST	0	0.08	0.00
PA23AZ	08APPVIS	0	0.33	0.00
PA23AZ	26APPINST	0	0.09	0.00
PA23AZ	26APPVIS	0	0.66	0.00
PA23AZ	08CIRC	1	0.08	0.00
PA23AZ	26CIRC	1	0.12	0.00
PA23AZ			**2.56**	**0.00**
PA24				
PA24	24_DEP	1	0.02	0.00
PA24	08DEP	1	0.12	0.00
PA24	26DEP	1	0.17	0.00
PA24	24ARRIVE	0	0.02	0.00
PA24	08APPVIS	0	0.14	0.00
PA24	26APPVIS	0	0.14	0.00
PA24			**0.60**	**0.00**
PA28AR				
PA28AR	08DEP	1	0.20	0.00
PA28AR	08APPVIS	0	0.26	0.00
PA28AR	26APPVIS	0	0.13	0.00
PA28AR			**0.60**	**0.00**
PA28CA				
PA28CA	06_DEP	1	0.01	0.00
PA28CA	24_DEP	1	0.07	0.00
PA28CA	08DEP	1	0.64	0.00
PA28CA	26DEP	1	0.93	0.00
PA28CA	06ARRIVE	0	0.01	0.00
PA28CA	24ARRIVE	0	0.05	0.00
PA28CA	08APPINST	0	0.02	0.00
PA28CA	08APPVIS	0	0.54	0.00
PA28CA	26APPINST	0	0.01	0.00
PA28CA	26APPVIS	0	1.01	0.00
PA28CA	06CIRC	1	0.02	0.00
PA28CA	08CIRC	1	0.87	0.00
PA28CA	26CIRC	1	1.46	0.01
PA28CA	24_DEP	1	0.03	0.00
PA28CA	08DEP	1	0.10	0.00
PA28CA	26DEP	1	0.20	0.00
PA28CA	24ARRIVE	0	0.01	0.00
PA28CA	08APPINST	0	0.01	0.00
PA28CA	08APPVIS	0	0.09	0.00
PA28CA	26APPINST	0	0.02	0.00
PA28CA	26APPVIS	0	0.21	0.00
PA28CA	08CIRC	1	0.09	0.00
PA28CA	26CIRC	1	0.10	0.00
PA28CA	24_DEP	1	0.04	0.00
PA28CA	08DEP	1	0.25	0.03
PA28CA	26DEP	1	0.38	0.05
PA28CA	08APPINST	0	0.02	0.00
PA28CA	08APPVIS	0	0.25	0.03
PA28CA	26APPINST	0	0.02	0.00
PA28CA	26APPVIS	0	0.34	0.05
PA28CA	08CIRC	1	0.04	0.00
PA28CA	26CIRC	1	0.02	0.00

ACODE	FLIGHTPATH	Range	DayTimeEvent	NightTimeEvent
PA28CA			**7.84**	**0.21**
PA30				
PA30	08DEP	1	0.09	0.00
PA30	26DEP	1	0.12	0.00
PA30	08APPINST	0	0.05	0.00
PA30	08APPVIS	0	0.05	0.00
PA30	26APPINST	0	0.10	0.00
PA30	26APPVIS	0	0.03	0.00
PA30	26CIRC	1	0.01	0.00
PA30			**0.44**	**0.00**
PA31				
PA31	08DEP	1	0.07	0.01
PA31	26DEP	1	0.10	0.01
PA31	08APPINST	0	0.03	0.00
PA31	08APPVIS	0	0.04	0.00
PA31	26APPINST	0	0.04	0.00
PA31	26APPVIS	0	0.05	0.01
PA31			**0.34**	**0.04**
PA32C6				
PA32C6	08DEP	1	0.06	0.00
PA32C6	26DEP	1	0.13	0.00
PA32C6	08APPINST	0	0.06	0.00
PA32C6	26APPINST	0	0.11	0.00
PA32C6	26APPVIS	0	0.04	0.00
PA32C6	26CIRC	1	0.02	0.00
PA32C6			**0.43**	**0.00**
PA34				
PA34	08DEP	1	0.04	0.00
PA34	26DEP	1	0.11	0.00
PA34	08APPINST	0	0.02	0.00
PA34	08APPVIS	0	0.02	0.00
PA34	26APPINST	0	0.05	0.00
PA34	26APPVIS	0	0.06	0.00
PA34			**0.30**	**0.00**
PA38				
PA38	24_DEP	1	0.10	0.00
PA38	08DEP	1	0.23	0.01
PA38	26DEP	1	0.29	0.01
PA38	24ARRIVE	0	0.02	0.00
PA38	08APPVIS	0	0.24	0.01
PA38	26APPVIS	0	0.37	0.01
PA38	08CIRC	1	0.01	0.00
PA38	26CIRC	1	0.05	0.00
PA38			**1.32**	**0.04**
PA46				

ACODE	FLIGHTPATH	Range	DayTimeEvent	NightTimeEvent
PA46	08DEP	1	0.06	0.00
PA46	26DEP	1	0.14	0.00
PA46	08APPINST	0	0.06	0.00
PA46	26APPINST	0	0.11	0.00
PA46	26APPVIS	0	0.00	0.00
PA46	08DEP	1	0.09	0.00
PA46	26DEP	1	0.09	0.00
PA46	08APPINST	0	0.06	0.00
PA46	08APPVIS	0	0.02	0.00
PA46	26APPINST	0	0.10	0.00
PA46	26APPVIS	0	0.04	0.00
PA46	08CIRC	1	0.01	0.00
PA46			**0.77**	**0.00**
PA60				
PA60	08DEP	1	0.07	0.00
PA60	26DEP	1	0.08	0.00
PA60	08APPINST	0	0.05	0.00
PA60	08APPVIS	0	0.00	0.00
PA60	26APPINST	0	0.09	0.00
PA60	26APPVIS	0	0.00	0.00
PA60			**0.30**	**0.00**
SAMER3				
SAMER3	08DEP	1	0.02	0.00
SAMER3	26DEP	1	0.04	0.00
SAMER3	08APPINST	0	0.02	0.00
SAMER3	26APPINST	0	0.03	0.00
SAMER3	26APPVIS	0	0.00	0.00
SAMER3			**0.11**	**0.00**
SAMER4				
SAMER4	08DEP	1	0.18	0.00
SAMER4	26DEP	1	0.40	0.00
SAMER4	08APPINST	0	0.18	0.00
SAMER4	08APPVIS	0	0.02	0.00
SAMER4	26APPINST	0	0.38	0.00
SAMER4	26APPVIS	0	0.03	0.00
SAMER4	08CIRC	1	0.00	0.00
SAMER4			**1.19**	**0.00**
Grand Total:			**373.45**	**9.41**