



**City of Kingston
Information Report to Council
Report Number 16-208**

To: Mayor and Members of Council

From: Denis Leger, Commissioner Transportation, Facilities and
Emergency Services

Resource Staff: David Snow, Airport Manager

Date of Meeting: June 21, 2016

Subject: Kingston Airport Expansion Project
Screening Level Environmental Assessment
Noise Exposure Technical Report
Air Quality Emissions Assessment and Forecast

Executive Summary:

On October 16, 2015, a contract was awarded to MMM Group Ltd. (now WSP/MMM Group Ltd.) to conduct a screening level environmental assessment of the areas that will be under development as a result of the expansion project. During its most recent budget deliberations, Council approved the funding required for the airport runway extension and terminal building expansion.

This report is before Council to inform them of the findings of the screening level environmental assessment and the required next steps and to identify the appropriate mitigation measures that need to be undertaken for the areas to be developed as part of the airport expansion construction. These findings and mitigation measures will form part of the revised Project Definition Document (PDD), the scoping document that will be incorporated by the Owner's Representative (the project management firm overseeing the construction) in the design-build construction Request for Proposals.

Staff is expecting to bring back a recommendation on award of contract for the Owner's Representative at the July 12, 2016 Council meeting. The current timeline for the airport expansion project would see construction beginning in the spring of 2017 and ending in mid-summer of 2018.

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A public information session was held on March 30, 2016 to present the draft findings of the screening level environmental assessment. Public input was sought on the environmental assessment's findings and have been summarized and included as part of the final report. The Screening Level Environmental Assessment report indicates that there are minimal potential impacts on the ecology and environment expected and further details the mitigation measures to use that would make these impacts insignificant. As earlier committed by staff and requested of the consultant, the Noise Exposure Forecasts ("NEF") developed in 2013 by the same firm were once again presented to the public to assist them in understanding the concepts of noise exposure forecast modelling, its resulting noise contours and what it meant. Concerns had been raised by a group of neighbouring homeowners and one local business in particular regarding the 2013 study. Many of the persons in attendance at the public information session expressed doubts as to the validity of the noise forecasts and resulting noise contours that were projected in 2026 and the resulting impact on the neighbouring community from airport operations attributable to an airport expansion. Additionally, new concerns were raised about the possible impact on air quality as a result of the expansion and the increase in aircraft movements. Air quality emissions had not been assessed and forecasted in the Screening Level Environmental Assessment report as the modest growth forecasted did not trigger a need to assess increases in emissions from airport operations.

Staff subsequently engaged WSP/MMM Group Ltd. to develop a Noise Exposure Technical Report to respond to public concerns regarding the earlier use of an American-based forecast model that, at the time, was the model used by the US Federal Aviation Administration for such studies ("Integrated Noise Model", or "INM"). Transport Canada utilizes a different model, "NEF-calc". The public also requested that the forecasts be developed using the NEF-calc software and that additional Noise Exposure Forecast contours be developed that would show the extent of a lower assessment of impact on communities besides the "NEF 30". For illustrative and comparability purposes, the development of "NEF 25" contours was incorporated in the scope of the consultant's work. The findings confirm those of earlier assessments in that the 2026 NEF 30 contours remain within the airport boundaries and are marginally larger than the actual 2012 contours. Graphic representations were developed to show the impact of the expansion with respect to the height above ground during take-off and landing and how a displaced threshold can assist to ensure a consistent approach height and assist in noise mitigation on the ground. Staff also commissioned WSP/MMM Group Ltd. to conduct an assessment of emissions from airport operations that existed in 2015 and to forecast, based on the increase in airport activity expected in 2026, the additional emissions that residents could experience at that time. The Air Quality Emissions Assessment and Forecast report concluded that increased activity at the Airport by 2026 will have an imperceptible impact on the exposure of the local population to air pollution.

Recommendation:

This report is for information purposes only.

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Authorizing Signatures:

ORIGINAL SIGNED BY COMMISSIONER

**Denis Leger, Commissioner,
Transportation, Facilities and
Emergency Services**

ORIGINAL SIGNED BY CAO

Gerard Hunt, Chief Administrative Officer

Consultation with the following Members of the Corporate Management Team:

Cynthia Beach, Corporate & Strategic Initiatives	Not required
Lanie Hurdle, Community Services	Not required
Jim Keech, President and CEO, Utilities Kingston	Not required
Desiree Kennedy, Chief Financial Officer & City Treasurer	Not required

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Options/Discussion:

In the late spring of 2015, at its strategic priority-setting sessions, Council identified the airport expansion as a priority. During its 2016 budget deliberations, Council subsequently approved the funding required for the airport expansion project.

I. Background

The expansion of the airport has long been envisioned by the City. Since the adoption of the Airport Master Plan in 2007, there has been added focus on further studying and reviewing this matter.

The following gives a high-level chronology of plans, studies and reviews that have been undertaken over the past decade:

In 2007, City Council endorsed the Kingston Norman Rogers Airport 2007 Master Plan Study. The purpose of the study was to serve as a framework for future development of the Airport's lands, operations and facilities which included recommendations for the short, mid and long term (20 years) horizon which would complement and support local/regional initiatives and development. The Master Plan identified the extension of the north-south runway and expansion of the passenger terminal building as a mid-term improvement to be considered within a 10-15 year timeframe.

As part of its 2011-2014 Strategic Plan, Council identified the airport expansion as a major infrastructure project to be considered. Accordingly, the City commissioned and Council received, in early 2012, the *Business Case for Expansion, Kingston Airport* submitted as part of the following hyperlinked report, [Report EITP-12-006](#). This report concluded that the business case for airport investment could not be made on a purely financial basis as improved incremental revenues generated by the expanded infrastructure would unlikely recoup the capital costs of all improvements. However, the report also provides an economic development perspective indicating that the expansion would facilitate air service growth, make Kingston more accessible to business and academia and would contribute to keeping Kingston competitive in a global business environment.

Subsequently, on the basis of the business case findings and recommendations, Council directed staff to undertake an air service development initiative targeted at Air Canada and other potential carriers. On the basis of further direction from Council, it was requested that staff prepare a report to outline the processes required to enable the airport expansion project, including order of magnitude costing and sources of funding. The work was commissioned and resulted in the report which was presented to Council in July 2012 which was entitled *Kingston Airport Expansion Project Implementation Plan* and submitted with the following hyperlinked report, [Report 12-219](#). The Implementation Plan provided more refined capital cost estimates (Class "D") and in addition identified the four critical activities that needed to be addressed as next steps:

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Development of a Project Definition Document

- Screening Level Environmental Assessment
- Establishment of a Project Management Team
- Selecting a Design-Build Implementation Team

A Project Definition Document would provide detailed information about the project requirements in order to solicit proposals from design-builders and further provide a Class “C” project capital cost estimate. A Project Definition Document was commissioned and received by Council in November 2013 and submitted with the following hyperlinked report, [Report 13-364](#). The staff report also summarized the considerations and findings of the various planning and other studies, including the Master Plan, Business Case and Implementation Plan. Staff further indicated that it would identify the airport expansion project in the 2016-2020 timeframe in the 15-year capital forecast.

The Implementation Plan anticipated a 20-month implementation period from the selection of a consultant to provide project management services to the actual commissioning of the completed expansion. This timeline included a period where field studies for the screening level environmental assessment would take place over the summer months as much of the screening needs to take place outside the winter season.

The first 9 months would be required to complete the field studies, undertake public consultations and complete reports as part of the screening level environmental assessment that would eventually assist in determining the final requirements to incorporate in a design-build request for proposals.

The implementation schedule that was developed by LPS Avia was and continues to be very ambitious and did/does not include much time for delays in conducting the field work, receiving approvals, reviews, design or construction.

II. Council Priority

As previously indicated, Council has identified the airport expansion as a priority. In June 2015, Council approved the issuance of a request for proposals to proceed with a screening level environmental assessment for the airport expansion project. Subsequently, on October 16, 2015, a contract was awarded to MMM Group Ltd. (now WSP/MMM Group Ltd.) to conduct a screening level environmental assessment of the areas that will be under development as a result of the expansion project. During its most recent budget deliberations, Council approved the funding required for the airport runway extension and terminal building expansion.

III. Screening Level Environmental Assessment

The scope of the work included compilation of background material, confirmation of all regulatory requirements, conducting a terrestrial/aquatic habitat assessment, completion of a land use/landscape review, completion of a Stage 1 Archaeological/Heritage Assessment, a

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Phase I Environmental Screening Assessment (ESA) and the completion of a Phase II ESA including the development of any remedial action plans or mitigation measures to be incorporated into the design requirements for the airport expansion, applying for any required permits from governments with jurisdiction and completion of a Final Screening Report, to include a Consultation Summary Report.

As detailed in the following hyperlinked report entitled [Exhibit A - Screening Level Environmental Assessment Report](#), the assessment found that there should be no extraordinary measures required (other than standard construction mitigations for such work) to successfully undertake the expansion while addressing all concerns to the plants, animals or watercourses potentially impacted by the work. It does recommend that additional seasonally-dependent field observations be conducted prior to the end of June 2016 and that should any endangered or protected species be found, mitigation measures are to be developed and included in the specifications for the design-build proponent to include in the construction design. To date, the field studies have not identified any species at risk in the areas of the expansion. In addition, the Stage I Archeological/Heritage Assessment determined that the areas covered by the expansion have some potential for artifacts to be uncovered. A Stage II Archaeological Assessment, consisting of a series of hand-dug pits, is currently underway and the findings and any resulting issues will be resolved well before construction commences. An archaeological monitoring program will be included in the specifications to be reviewed by the design-builder.

The Phase I and II Environmental Screening Assessments and the Stage I Archaeological Assessment are included as appendices to *Exhibit A*.

IV. Noise Exposure Technical Report

As outlined in the following hyperlinked report entitled [Exhibit B - Noise Exposure Technical Report](#), the 2026 NEF 30 (Noise Exposure Forecast 30) contour lines remain within the property boundaries of Kingston Airport. While the NEF modelling confirmed that there would be changes in the noise environment, the changes are not considered significant. The NEF values beyond the airport boundaries are 30 NEF or less and are consistent with previous planning-level noise analysis previously completed. All residential housing and the marinas on Collins Bay are outside any contour that would be non-compatible for such development. In fact, the NEF 30 contour for the 2026 forecast is calculated to be only marginally larger than what existed in 2012, meaning that the noise that residents will experience in 2026 will not be significantly different to what they experienced in 2012. The 2026 forecast shows that airport activity is expected to remain below the activity levels already experienced in the late 1990's and early 2000's. The 2026 forecasted total movements of 44,518 remain below historical values which peaked at 51,151 movements. This fact combined with the evolution of newer aircraft technology demonstrates that Kingston has experienced higher noise levels in the past than those forecasted to 2026.

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In many of the public information sessions that were held during the period of airport planning for expansion (2012-present), a recurring concern expressed by some neighbouring residents and a local business, the Collins Bay Marina, was their concern that increased activity, particularly in jet traffic, would increase noise and significantly impact the enjoyment of their property or their business operations.

The initial 2026 (planning year) noise forecasts were completed in early 2013, based on growth rates and projections forecasted at the time of the Business Case, which was completed in early 2012. A draft version of the noise exposure forecasts and resulting NEF contour lines was presented to the public on February 25, 2013. The draft outlined the then-current state of the development of the expansion concepts and these NEFs caused some concern as the NEF 30 contour lines originally extended beyond the airport's boundary. The concerns raised in the meeting were reviewed and as 2012 actual activity levels had recently become available in early 2013, the 2012 base year was recalibrated to the actual experience rather than the projected 2012 activity that had been forecasted in the Business Case. This was a more accurate reflection of base activity level in 2012 and in applying the exact same growth forecasts provided in the Business Case on a go-forward basis, this would represent a better and more accurate forecast to 2026 (the planning year). The application of this new and more accurate information resulted in revised NEFs that were presented at a Town Hall meeting on May 22, 2013. The differences in the forecasts from the draft February meeting were explained and the final NEFs were presented. These final NEFs were eventually included in the Project Definition Document (2013).

To be more specific, the forecast used to develop the draft NEFs were based on the Business Case forecasts developed in 2011 (44,783 aircraft movements in 2026, or 297 movements on a planning peak day). A review of these forecasts was conducted, based on the differences in the Business Case forecasts for the 2011 and 2012 years against actual movements in 2012. The Business Case had forecasted 38,531 annual movements in 2012 whereas the actual 2012 movements were 29,427. New forecasts were developed, using 2012 actual activity statistics as a base and applying the growth rates forecasted from 2013-2026 as indicated in the Business Case. This resulted in reducing the number of movements modeled for the 2026 planning peak day from 297 movements (draft) to 222 movements (final). The forecast used a more likely 20 passenger flights in 2026 versus a draft forecast of 35 flights. Planning Peak Day business aircraft movements were 12 versus a February draft of 22, and other similar adjustments were made on the basis of a revised baseline year (2012) recalibrated from the business plan forecast for 2012 to actual 2012 activity.

In extrapolating the 2012 peak planning day movements, aircraft with jet engines (e.g. the CL601 or similar type jet aircraft) were experienced approximately 7 times a week (0.9 x 7 days) either landing or taking-off. The forecasted frequency is expected to increase marginally to 9 times weekly (1.3 x 7 days) by 2026. Most if not almost all of the current jet aircraft flying out of Kingston are used for business aviation. With the expansion of the infrastructure, the possibility then exists for a larger jet aircraft to be placed into commercial passenger service a few times

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yearly, such as charter flights to southern destinations or in support of larger conferences and/or university student arrivals and departures.

The NEFs developed for the Noise Exposure Technical Report utilized the same input data as the 2013 Project Definition Document. As explained in the Noise Exposure Technical Report, the Transport Canada NEF modelling methodology models local traffic separately and utilizes different peak planning day factors versus itinerant traffic. These changes were applied to the forecasted activity levels as well as the 2012 baseline models and as a result the total peak planning day activity used in the actual NEF model was higher than that shown in previous forecast tables. In the end, the resulting differences between the area under the NEF contour that existed in 2012 and the area that is projected to occur in 2026 with or without a runway extension and terminal building expansion, is only marginally greater. This report is being sent to Transport Canada for "Third Party Validation".

V. Air Quality Emissions Assessment and Forecast

Another issue that had been raised during the public information sessions was concerns that airport expansion would result in diminished air quality. In order to further understand this issue in the context of airport expansion and increased activity, staff commissioned the Airport's consultants to undertake an air quality emissions assessment and forecast. The review and forecast is contained in the following hyperlinked report entitled [Exhibit C - Air Quality Emissions Assessment and Forecast](#) was completed by WSP/Parsons Brinckerhoff. The study determined the existing level of emissions from various sources, including aircraft landing and take-off cycles, ground support equipment, landside vehicles and parking and stationary sources such as building heating plants. The study found that the level of emissions forecasted in 2026 (based on airport activity using the same forecasts as the noise study) is likely to be similar to what residents and businesses would have experienced in 2015 (the baseline year). As stated in the report, the air quality in Kingston is considered very good and airport activity (existing and forecasted) will not have any perceptual difference as the incremental emissions are only a very minor contributor to the total emissions generated by all activity in the City. For example, the increase in Nitrous Oxide (NOx) emissions from airport operations between 2015 and 2026 equates to 10.3kg/day which is equivalent to the current daily emissions from all vehicles on a 3 km. stretch of Highway 33 (Bath Road) from Collins Bay Road to Coronation Blvd. The increased emissions represent the emissions from about 3.8% of the vehicles registered in the City. The majority of airport-related emissions occur in the air, on the approach to the airport and on the flight path during climb out. These will have little impact on ambient pollution levels. Particulate Matter (PM10) is significantly lower than the total emissions of NOx, which leads to the study conclusion that "increased activity at the Airport by 2026 will have an imperceptible impact on the exposure of the local population to air pollution."

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Existing Policy/By-Law:

Not Applicable

Notice Provisions:

Not Applicable

Accessibility Considerations:

Not Applicable

Financial Considerations:

Not Applicable

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Brodie Richmond, Manager, Environmental Projects

Exhibits Attached: (provided as hyperlinks in the report)

[Exhibit A: Screening Level Environmental Assessment Report](#)

[Exhibit B: Noise Exposure Technical Report](#)

[Exhibit C: Air Quality Emissions Assessment and Forecast](#)