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Billy Bishop Toronto City Airport - Outstanding Questions for Transport Canada

EXECUTIVE SUMMARY

Transport Action has reviewed the reports published by Airbiz and LPS Avia Consulting and found that they specifically ask Transport Canada and other agencies to review and make decisions on certain issues relating to the expansion of Runway 08-26 at Billy Bishop Toronto City Airport. In reviewing these two documents, Transport Action found over two dozen places where major outstanding questions were identified for Transport Canada or other agencies to answer.

Transport Action Ontario recommends that the City of Toronto defer approval of the airport expansion until Transport Canada and other related agencies have reviewed these questions, presented their review and answers to the public, allowed sufficient public debate about them, and the proposed design is finalized and approved by Transport Canada and presented to the public and the City's Government.

At present Transport Action has insufficient information to formulate a definitive position on the expansion of BBTCA. Hence, we feel that the City cannot make a decision on the proposed expansion either.

Both reports are discussed in turn below:

Billy Bishop Toronto City Airport; Porter Airlines Proposal Review; Interim Results/Findings, Airbiz, 26 June 2013

There are about a dozen major cases in this report where Transport Canada or some other agency has to decide if the proposed expansion of BBTCA is feasible. Below are quotes from this report where the author(s) question the feasibility, financial viability, or implications of the proposal.

Obstacles Limitation Surfaces (OLS) define the limits to which objects may project into the airspace. BBTCA currently operates with exemptions from Transport Canada in regards to the OLS approach surfaces. For runway 08, the exemption allows the approach surface at 4.8%. For runway 26, the exemption allows the approach surface at 6.38%. Transport

Canada has not discussed the implications of a change to Code 3 operations on these existing exemptions. The proposed layout as setout in the Porter Airlines proposal retains the approach surfaces at their existing locations which are appropriate, and would ensure the integrity of the Marine Exclusion Zone (MEZ) subject to the existing approach exemptions being confirmed by Transport Canada. For takeoff operations, declared distances (e.g. TORA, TODA) should be confirmed with Transport Canada to ensure that appropriate clearances from obstacles are also provided.

In 2010, Transport Canada tabled NPA 2010-012 with the objective to harmonize Canadian Standards (TP312) in regards to Runway End Safety Areas (RESA) with international standards (ICAO Annex 14) which will make the 90m RESA mandatory for runways 1,200m or longer. The use of a portion of the RESA provides additional length for takeoff operations which is recommended procedure within most regulatory jurisdictions. There appears to be no Jet blast impacts associated to the use of the RESA for take-off roll purposes though this is subject to a more detailed assessment upon certification of the CS100. A jet blast analysis would be recommended for all new aircraft types under consideration for use at the BBTCA to ensure the compatibility of aircraft operations with marine operations.

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The glidepath for the ILS/DME RWY 08 approach is proposed to increase from 3.5° to 3.9°. A new TP308 exemption would be required to authorize this steeper GPA. The resulting approach if approved would need to be moved from the Canada Air Pilot (CAP) and published instead in the Restricted Canada Air Pilot (RCAP). This would mean that private IFR aircraft, or aircraft without the required OPS SPEC, would not be authorized to fly this approach. No publicly available ILS would be at BBTCA as a result. Applications for approval of non-standard instrument approach procedures (IAPs) must be submitted to Chief Air Navigation Services (ANS) Operations Oversight at Transport, Ottawa. Transport Canada is normally quite hesitant to grant exemptions to the design criteria without significant supporting justification as to why such an exemption is “in the public interest” and how an “equivalent level of safety” can be maintained despite the deviation from criteria. Transport Canada’s willingness to consider these specific approach parameters should be ascertained before committing significant resources.

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No material specific to this project was provided by Transport Canada or aircraft manufacturers but generic material and references were found in the public domain to support this report.

Consultations with Transport Canada were email via email with a generic response provided on 11 June 2013 since no formal proposal had been presented to the airport.

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The review uses industry literature, material provided by Porter Airlines and high-level consultations with Transport Canada as a basis of study. It should be noted that Transport Canada has not received a formal request to consider the proposal from Porter Airlines from the Toronto Port Authority. As such Transport Canada were unable to comment on the particular details of the proposal by Porter Airlines. Any input from Transport Canada,

was therefore of a generic nature and has been used to guide the interpretation of the current aerodrome standards and recommended practices (TP312E). Any exemptions or possible exemptions that may be considered with respect to the BBTCA and/or the Porter Airlines proposal were not addressed by Transport Canada.

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Although Transport Canada did not specifically comment on this proposal, they advised that “the current AZRs will not protect for a longer runway. If protection is required for a longer runway, the AZR would have to be amended.”

Furthermore, BBTCA currently operates with exemptions from Transport Canada in regards to the OLS approach surfaces. For runway 08, the exemption allows the approach surface at 4.8% while for runway 26, the exemption allows the approach surface at 6.38%. Transport Canada has not discussed the implications of a change to Code 3 operations on these existing exemptions.

The proposed layout as set- out in the Porter Airlines proposal retains the approach surfaces at their existing locations which would ensure the integrity of the Marine Exclusion Zone (MEZ) subject to approach exemptions being confirmed by Transport Canada. For takeoff operations, declared distances (e.g. TORA, TODA) should be confirmed with Transport Canada to ensure that appropriate clearances from obstacles are also provided.

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Considering that BBTCA’s Runway 08-26 is over 1,200m long, Runway-end safety areas may have become a requirement upon application of this rule. This would require the Toronto Port Authority to either reduce the declared TakeOff Runway Available on Runway 08-26 inducing range and payload restrictions on existing operations, or to undertake a RESA development project involving an extension of the airfield into the harbour similar to what is currently proposed simply to maintain existing operational requirements or by using an Engineered Material Arrestor system (EMAS) which is proposed as an alternative to full length RESAs. Considering that BBTCA currently operates under a Code 2 category, there may also be an opportunity to obtain an exemption on the need for RESAs subject to review by Transport Canada.

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A specific authorization must be obtained from the Airport Operator for operation of aircraft with load ratings or tire pressures exceeding values shown above. An aircraft like the Bombardier CS100 and comparable aircraft will have ALR (Aircraft Load Rating) and ACN (Aircraft Classification Number) in excess of what is currently provided at BBTCA. The ALR is a number developed by Transport Canada expressing the relative structural loading effect of an aircraft on a pavement based on 12 groups according to their pavement strength requirements. The ACN is an ICAO number expressing the relative structural loading effect of an aircraft on a pavement for a specified pavement type and a specified standard subgrade category.

A more detailed study on the required pavement upgrades is recommended for the existing runway, taxiway and aprons. The appropriate ALR and ACN need to be confirmed

and a scope of work defined to confirm the extent of work and associated costs related to the pavement ratings at BBTCA.

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At present it is not possible to reliably assess the impact of the CS100 aircraft on compliance to the contours Schedule A of the Tripartite Agreement. Once the CS100 sound levels are certified, Transport Canada would need to update the database of its noise modelling software, or advise a suitable substitution (as it is currently done with the Dash8-Q400 which uses the Dash8- Q300 as a surrogate) to enable a reliable review. The US Federal Aviation Administration (FAA) has advised that the ERJ170- 100 (Embraer 170), an aircraft added to the US Integrated Noise Model database in May 2013, should be used as a substitution to the CS100 for the time being. However, this aircraft model is not available in Transport Canada NEF- CALC software.

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Chief Air Navigation Services (ANS) Operations Oversight at Transport, Ottawa. Transport Canada is normally quite hesitant to grant exemptions to the design criteria without significant supporting justification as to why such an exemption is “in the public interest” and how an “equivalent level of safety” can be maintained despite the deviation from criteria. Transport Canada’s willingness to consider these specific approach parameters should be ascertained before committing significant resources.

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Since the Runway 08/26 capacity is not increased by the lengthening, this proposal will not increase the demand on the Toronto Terminal Airspace. Further study should be undertaken with NAV Canada to confirm these interim findings.

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Porter Airlines Runway 08-26 Extension Study Billy Bishop Toronto City Airport, LPS Avia Consulting, May 24, 2013

From this report we have, including taking the individual bullet points as single items, about a dozen items where Transport Canada or some other agency has to come to a decision before the decision to proceed with expansion can be made. Below are quotes from the report which indicate that Transport Canada or another agency will have to review or approve of changes:

Although Runway 08-26 is currently classified as a Code 2 Non-Precision, this feature was likely certified prior to 1993 when the earlier TP312E, 3rd Edition was in effect.

It is likely that when TP312E 4th Edition came into effect the existing runway classification was allowed to remain based on Transport Canada’s stated provision that:

When a runway in a given code is increased in length by an amount that places it within the next code number, other related aerodrome characteristics do not have to match the new reference code number unless the increase in length is more than 150 m (500’).

This stipulation is likely the reason why the runway is classified as a Code 2 facility in the AOM, while it is over 1,200 m in length. *This situation should be confirmed with Transport Canada.*

The most recent TP312E 4th edition standards state the following application within the 'Foreword' section of the document: The specifications contained in this manual are applicable to land airports which are certified pursuant to the Air Regulations Part III.

Airports which were certified in accordance with Standards and Recommended Practices contained in previous editions of this manual may, except where otherwise specified, maintain the airport in accordance with the specifications applicable at the time of certification.

Where the airport, portions of the airport or its facilities are rehabilitated, replaced, refurbished or improved, the specifications contained in this edition of the manual apply.

Consequently improvements to the airport, including RESA provision and/or runway extension *may require re-certification* of Runway 08-26 as a Code 3, Non-Precision facility.

Upgrading from Code 2 to Code 3 may introduce new obstacles in the vicinity of the airport, and create operational constraints for airlines. *The required runway code should be confirmed with Transport Canada.*

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Sections 3.1 and 3.2 identify regulatory requirements and operating agreements having the greatest impact on the extension of Runway 08-26 and coincident RESA development.

Addressing these and other considerations require further *consultations and confirmation with the Toronto Port Authority, Transport Canada, and the approach designer.*

There are issues of lesser importance as they can be resolved during the design stage. They should not impact the feasibility or viability of extending Runway 08-26 and development of RESAs. *All considerations should be identified and addressed in detail during the conceptual design stage.*

Pg. 3-4

A portion of the RESA will be used for the initial portion of the take-off roll for each runway. The GTAA has reported that Transport Canada has accepted this procedure for Runway 05-23 at Toronto Pearson International Airport.

TP312E 3.1.6.10 Standard stipulates that for a Code 3 Non-Precision runway, a 45 m. graded area, capable of supporting an aircraft, is required on each side of the extended runway centreline within the runway strip. It is assumed that the 45 m. graded area extends for 45 m. before the commencement of the declared distances (*subject to Transport Canada confirmation*).

Pg. 4.1

The reference code associated with Runway 08- 26 may change from Code 2 Non-Precision to Code 3 Non-Precision, depending on interpretation by Transport Canada. The reference code may have a direct impact on the characteristics of the runway strip, approach surface length, divergence and slope, and transitional zoning specifications listed within the AOM and the AZRs. The slope of the approach surface associated with Runways 08 and 26 is not expected to change based on an extension of the runway and subsequent RESA development, as an exemption to TP312E currently exists within the Airport Operations Manual permitting slopes of 4.8% and 6.38% for Runways 08 and 26 respectively.

Discussions with Transport Canada must be undertaken to determine if the existing Code 2 Non-Precision classification and the approach slopes can be maintained if Runway 08-26 is expanded and RESAs are developed as per Figure 4-2.

If Transport Canada rules that a Code 3 Non- Precision classification is required for Runway 08-26, the increase in runway strip dimensions, and subsequent move of the lower edge of the transitional surfaces could restrict the parking of certain aircraft types on the southern-facing gates of the air terminal.

Pg. 4.2

The following considerations should be discussed with Transport Canada and the Toronto Port Authority to confirm overall feasibility.

- Runway 08-26 may be classified as a Code 3 Non-Precision facility;
- Use of Runway End Safety Areas for initial take-off roll must be confirmed;
- The runway strip associated with Runway 08- 26 will increase from 90m in width to 150m;
- DHC8-400 aircraft parked at the southern facing gates of the air terminal should not penetrate the transitional zoning surface; however, larger aircraft types (such as the CS100) may be required to park on the eastern and western facing gates to respect the new transitional zoning surface.
- The impact on the transitional zoning surface as a result of moving to a Code 3 facility should be confirmed;
- Aircraft taxi hold positions on Taxiways 'A' and 'D' will be relocated further from the runway which reduces aircraft circulation space and possibly impacts runway capacity and circulation;
- Adjustments will be required to visual aids, including but not limited to runway edge lighting, lead in lighting, Runway Identification Lights (RILs), Visual Alignment Guidance System (VAGS) - Runway 26, and touchdown zone lighting;
- The APAPI system associated with Runway 26 will need to be upgraded to a PAPI system. Both PAPIs will need to be relocated, as well as the associated obstacle protection surfaces, potentially introducing new obstacles;
- Existing instrument approaches defined by TP308 will have to be re-designed; and
- The existing Instrument Landing Systems (ILS) supporting Runways 08 and 26 will have to be modified to correspond to the new threshold locations. Specialist studies will be required to determine the feasibility of modifying the existing systems.

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