

To: Finance Committee

From: Stephanie Sinnott, Executive Director, Finance,
Office of the City Manager

Paul D. Ralph, BES, RPP, MCIP, Commissioner,
Development Services Department

Report Number: FIN-16-99

Date of Report: November 9, 2016

Date of Meeting: November 17, 2016

Subject: Airport Capital Implementation Plan Related to the
Reconstruction of Runway 12/30 at the Oshawa Executive
Airport, Plan of Construction, Timeline and Costing and Source
of Funds

File: F-2510

1.0 Purpose

The purpose of the report is to provide Council with background information on a plan of construction, timeline, costing and source of funds for the reconstruction of Runway 12/30 and related items at the Oshawa Executive Airport.

Attachment 1 is a plan showing the location of Runway 12/30 at the Oshawa Executive Airport.

2.0 Recommendation

That the Finance Committee recommend to City Council:

That Report FIN-16-99 concerning the plan of construction, timeline, costing and source of funds for the reconstruction of Runway 12/30 and related items at the Oshawa Executive Airport be referred to the City's 2017 Capital Budget Process.

3.0 Executive Summary

Not applicable.

4.0 Input From Other Sources

The following have been consulted:

- Airport Business Plan Working Group
- Airport Manager
- WSP Consultants
- Tetra-Tech Consultants

5.0 Analysis

5.1 Background

The Oshawa Executive Airport is part of a system of 11 primary airports serving Southern Ontario. It is 1 of the 5 airports that serve the Greater Toronto Area (GTA) and neighbouring communities.

The Oshawa Executive Airport's role within this airport system is to meet the needs for Corporate, Medical, Police, Military, Flight Training and Recreational Flights including a Canadian Border Service Agency (CBSA) Commercial Port of Entry.

Overall aircraft corporate and flight training traffic is expected to grow particularly given the expected closure of the Buttonville Airport in the fall of 2017.

The Oshawa Executive Airport is committed to being a good community neighbour with a comprehensive balanced aircraft traffic management strategy and significant social and community outreach programs and partners.

In consideration of the foregoing, it is important to have safe airport infrastructure that meets Transport Canada standards and attracts new businesses to the City.

5.2 Airport Business Plan

The City has committed to operate the Airport to not less than the year 2033 (regardless of whether the Pickering Airport opens) in order to attract new investment and allow the Airport to fulfill its supporting role as an economic driver of the City, Regional and East GTA economies.

Infrastructure renewal and maintenance is critical at the airport for safety and liability reasons and to meet the formal obligation to operate the airport as a certified airport within Transport Canada standards.

In June of 2015 Council approved the 2015–2019 Oshawa Airport Business Plan. The Airport Business Plan included an Airport Infrastructure Assessment and a 20 year capital plan prepared by WSP Consultants (WSP).

The Business Plan included the following:

- That a plan be developed to undertake the airport's capital needs as outlined in the 20 year capital plan;

- That a strategy to implement the capital works identified in the capital plan be developed to minimize the impact of the required work on the airport operations, its users and the corresponding loss of revenue associated with airport closures necessary to complete the work;
- That the major reconstruction work identified for Runway 12/30 be completed before the closure of Buttonville Airport. Buttonville Airport is expected to close in the fall of 2017;
- The construction of the Jane Avenue earthen berm to mitigate noise;
- That the Runway End Safety Areas (RESA) associated with Runway 12/30 must be increased from 60 metres (197 ft.) to 150 metres (492 ft.) due to a change in the Transport Canada standards (see Attachment 1).
- The majority of the airport runway surface and electrical infrastructure is nearing the end of its life cycle. The capital plan recommends the work be completed as each item and area reaches the end of its life cycle with the majority of work being required between 2015 and 2020;
- Runway 12/30 is the primary runway at the airport and the airport capital plan recommended the reconstruction of Runway 12/30 and its corresponding stopway in 2016;
- The airport capital plan further recommended that the airport taxiway and apron pavement surfaces and associated lighting be reconstructed in 2016; and
- That all electrical capital reconstruction such as runway lights and signs be undertaken when the corresponding pavement reconstruction is undertaken in order to maximize cost efficiencies and to minimize the impact on airport users due to the runway closures that may be necessary to complete the work.

5.3 Consulting Engineering Recommendations

Earlier this year Council authorized Total Aviation & Airport Solutions (T.A.A.S.), the City's airport contract management firm, to retain two qualified independent engineering firms to support the quality control and quality assurance provisions of the airport safety management system. This work included the preparation of the drawings and construction documents for the work related to the reconstruction of the Runway 12/30 project and the construction of the Runway End Safety Areas (RESA) at the Oshawa Executive Airport.

WSP was retained to provide the quality control function which includes providing the pavement and RESA design standards and the associated engineering drawings for the construction of the RESA, the reconstruction of Runway 12/30 and the corresponding runway lighting.

Tetra – Tech was retained to provide the quality assurance function to review the pavement and RESA design recommendations and the associated engineering drawings

for the construction of the RESA, the reconstruction of Runway 12/30 and the corresponding runway lighting.

WSP recommends that the small portion of Taxiways Bravo and Charlie that are within the Runway 12/30 safety area also be reconstructed at the same time as the runway reconstruction in order to avoid closing Runway 12/30 in the future when the remaining portion on Taxiway Bravo will be reconstructed.

WSP also recommends that the initial portion [76 metres (250 ft.)] of the RESA's be paved rather than grassed as originally considered in the Airport Business Plan. The pavement of the initial portion of the RESA's is considered safer in order to slow down aircraft that are in trouble and to provide improved access of emergency vehicles in the event that an aircraft overruns the runway into the RESA. The RESA's cannot be used for take offs or landings and do not extend the runway length. The City needs to acquire part of the private lands northwest of Runway 12/30 for the improvements to the RESA.

WSP has prepared the pavement design for Runway 12/30 and is recommending a full excavation of the runway and sub-base material, the replacement of the sub-base drainage, the placement of new granular sub-base and a new asphalt surface.

This recommendation differs from the recommendations included in the airport capital plan of the Airport Business Plan which only required the reconstruction of the asphalt on Runway 12/30 without excavation or the replacement of granular sub-base or drainage.

The rationale for the expanded scope of work for the runway is as follows:

- The original construction dates back to the 1940's.
- In 1980, a single lift of new asphalt was placed over the existing asphalt with no reconstruction of the existing pavement, sub-base or drainage,
- In 1994, the runway was narrowed from its original 46 metre (150 ft.) width to 30.5 metre (100 ft.) however the sub-drains and lighting cables were left at the original 46 metre (150 ft.) width.
- In 2006, the top 2 inches of the runway asphalt was removed and resurfaced with new asphalt and several localized frost heaves were excavated and repaired.
- Since 2006 fourteen new frost heaves appeared and the nature and extent of the frost heaves continues to worsen each year.
- In 2015, a review of the pavement surface and subsurface by the City's Engineering Services Branch and the Airport Manager identified inconsistent pavement structure including the presence of organic material beneath part of the pavement which is contrary to sound engineering practices.
- In the absence of the full depth excavation, the placement of new granular sub-base and the new drainage systems as part of the runway reconstruction the frost heaves

will continue to develop and localized repairs are likely to be required on an annual or semi-annual basis.

- Frost heaves can represent a significant hazard to aircraft particularly corporate jets, which have a landing and departing speed in excess of 200km/hr.
- The reconstruction of a small portion of Taxiways Bravo and Charlie at the same time eliminates the need to close Runway 12/30 in the future when Taxiway Bravo is reconstructed.

Tetra-Tech has undertaken their quality assurance function and concurs with WSP's recommendations and the above noted rationale.

Based on the revised scope of work the estimated project cost has increased from approximately \$3.2 million as forecasted in the airport capital plan to an estimate of approximately \$6 million. This scope of work now includes the reconstruction of Runway 12/30, the proposed RESA's, lighting and electrical improvements, improvements to the Taxiways Charlie and Bravo and the construction of the Jane Street buffer berm. The excess fill material from the runway project can be used to create the berm.

The increased cost is primarily related to the cost of excavation, the placement of the new granular base, the removal of the existing sub-drains at the 46 metre (150 ft.) width and the installation of new sub-drains in the granular base at the runway edge [30.5 metres (100 ft.)].

5.4 Construction Timing

The airport capital plan recommended the reconstruction of Runway 12/30 take place in 2016 due to the 10 year expected life cycle of the 2006 work.

Two localized frost heave repairs were undertaken in the summer of 2015 to address the worst two frost heaves however the repairs were designed to address the issue in the short term and this coming winter will mark the second winter since the repair was undertaken.

The frost heaves continue to worsen each winter with the declining condition of the runway.

Corporate aircraft traffic and the number of corporate aircraft based in Oshawa continue to increase. The corporate aircraft are particularly susceptible to the frost heaves.

Durham Aviation Service is completing a new \$1.7 million, 1,300 square metre (14,000 sq. ft.) hangar this fall for its expanding base of corporate aircraft.

The City has recently sold three airport lots to be used for the construction of two large corporate hangar facilities providing approximately 5,574 square metres (60,000 sq. ft.) of new corporate aircraft storage.

Nav Canada will be constructing a new control tower which is expected to be open in 2018 at a cost of approximately \$8 million.

The runway reconstruction project will take approximately 4 weeks to complete and will require the closure of the airport for the duration of the work. In order to minimize the impact of the closure to the airport businesses and tenants to the greatest possible extent the work will take place on a 24 hour basis throughout the project.

It is appropriate that the required work be completed in the late August/early September 2017 for the following reasons:

- The frost heaves can represent a hazard to aircraft particularly corporate aircraft.
- The RESA's need to meet current Transport Canada safety standards.
- Given the deteriorating condition of the runway it is likely that the frost heaves could result in the closure of the airport for a period of time each winter if the project is delayed beyond 2017.
- Buttonville Airport can provide an alternate location for the Oshawa airport businesses and aircraft in 2017.
- Beyond 2017 the number of businesses and aircraft affected by the closure will increase and limited space is available at surrounding airports once Buttonville Airport closes.
- The estimated lifespan of the work is 20 years (year 2037). This makes more efficient use of the capital investment given the City's commitment to keep it open to at least 2033.

6.0 Financial Implications

The consultants now estimate the cost of the project (e.g. Runway 12/30 reconstruction, RESA extensions, lighting/electrical improvements, upgrades to Taxiways Bravo and Charlie and construction of the Jane Avenue berm) at approximately \$6 million which includes a contingency and excludes HST. This estimate is broken down as follows:

| Item | Estimate |
|--|--------------------|
| Runway 12/30 and RESA pavement work and site grading | \$2,486,000 |
| Runway 12/30 granular excavation and replacement | \$ 955,000 |
| Runway 12/30 subdrain replacement | \$ 840,000 |
| Taxiway pavement, granular and drainage replacement | \$ 380,000 |
| Electrical associated with above work | \$ 611,000 |
| Construction Inspection and Contract Administration | \$ 160,000 |
| Contingencies | \$ 531,000 |
| Total | \$5,963,000 |

The project may be funded from a combination of the following options:

- Airport Capital Reserve
- Interfund Note
- Federal Gas Tax

This project is a time sensitive project in order to get the best tender results over the winter.

The proposed project is being referred to the 2017 Capital Budget Process and staff will recommend the source of funding at that time.

7.0 Relationship to the Oshawa Strategic Plan

The recommendation in this Report advances the Accountable Leadership and Economic Prosperity and Financial Stewardship goals of the Oshawa Strategic Plan.



Paul D. Ralph, BES, RPP, MCIP, Commissioner,
Development Services

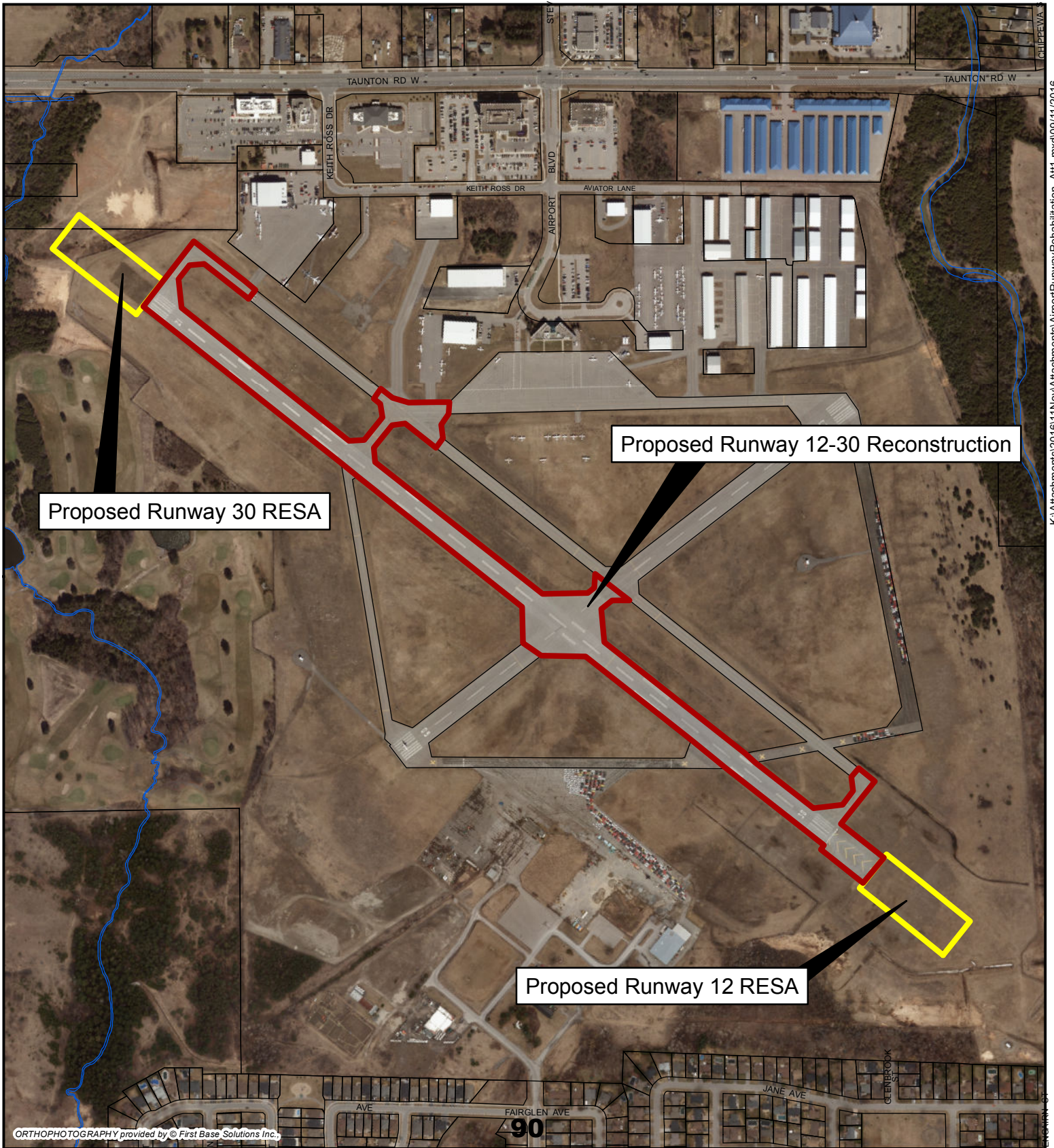


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