
REPORT TO: Transportation Steering Committee

MEETING DATE: Tuesday, July 26, 2016

SUBJECT: Niagara District Airport (NDA) – Governance and Funding Review

RECOMMENDATIONS

1. That the Joint Governance model **BE SUPPORTED IN PRINCIPLE** for the Niagara District Airport.
2. That the City of Niagara Falls, the Town of Niagara-on-the-Lake and the City of St. Catharines **BE REQUESTED** to confirm their respective interests in pursuing a Joint Governance model for the Niagara District Airport where the Regional share is expected to equate to approximately 50% of the required annual funding.
3. That Regional staff **BE AUTHORIZED** to initiate detailed negotiations with the City of St. Catharines, City of Niagara Falls and the Town of Niagara-on-the-Lake to establish terms for a Joint Governance model.
4. That a report **BE PRESENTED** to the Transportation Steering Committee summarizing the outcome of those detailed negotiations prior to final approval by Regional Council.
5. That notification of the Council-approved motions related to the NDA **BE PROVIDED** to the twelve local municipalities, the Niagara District Airport Commission, the Niagara Central Dorothy Rungeling Commission and Transport Canada.

KEY FACTS

- Joint Governance is recommended based on the regional benefits derived from airport activity (in addition to local benefits) and the importance placed on ensuring the airport's long-term ability to explore opportunities that could advance Regional Council's strategic priorities.
- The NDA is a certified airport with a history dating back to 1935. On-site services include charters, helicopter & fixed-wing sightseeing, an approved maintenance operator, flight training, and manufacturing of aircraft components. The economic impact from airport activities has been estimated at \$18 million annually.
- Excluding passenger services, \$20,742,000 in capital costs are forecasted to 2037 (\$2016). Annual funding support for the airport is estimated at approximately \$1,348,904 going forward (\$2017), including capital financing. This compares to the existing 2016 total municipal support of \$585,483.
- Based on 50% funding, the estimated Regional share of \$674,452 equates to a 0.21% increase to the 2016 approved Regional levy. Of the total annual cost,

78% would be recovered from taxpayers in St. Catharines, Niagara Falls and Niagara-on-the-Lake via the Local and Regional levies, and 22% would be recovered from taxpayers in the remaining municipalities via the Regional levy.

- The greatest potential for materially impacting Regional Council's strategic priorities is considered to reside in lines of business that are currently not in place to a significant degree at the NDA (i.e. charter, passenger and freight services). Some degree of benefit related to the strategic priorities has been identified in several areas of commercial activity at the airport (examples – tourism-oriented, manufacturing, flight training). Municipal airports also provide a public benefit through emergency services and social functions.
- The NDA is positioned to support commercial growth opportunities given its location, access to municipal servicing, land supply, status as a certified airport with Transport Canada with a Federal Airport Zoning regulation in place, and relatively new infrastructure.
- A report prepared by InterVISTAS concludes that there is sufficient passenger demand for the market to sustain commercial air service at the NDA. Generating and maintaining commercial air service at the NDA is not without risk, including significant investments and regulatory requirements. Establishing 2 daily scheduled flights is estimated to cost the airport \$130,130 per year when all revenues and costs are considered, but could range from an annual cost of \$880,130 to net annual revenue of \$204,870 based on several scenarios.
- A separate but parallel process has been undertaken to review the governance and funding of the Niagara Central Dorothy Rungeling Airport (NCDRA) with the results of that review being presented concurrently through TSC-C 13-2016.

CONSIDERATIONS

Financial

The Region's approved budget does not currently incorporate funding related to the governance or operation of an airport. Should the Region assume such a role, there will be direct financial implications in terms of the annual operating and capital funding commitments, as well as the associated risks. Airports rely on significant investments in infrastructure, so pressure on the existing capital funding gap of \$210 million (as reported in the 2016 Budget process) or the annual repayment limit (ARL) may result.

In the body of this report and supporting appendices, the financial support required has been estimated for the various governance structures assessed. This support has then been compared between local municipalities on a total cost, per capita, weighted assessment, and cost per household basis. The Regional share has also been analyzed relative to the approved 2016 Regional levy.

Risks associated with airport operations are outlined in the body of this report based on the consultant's report provided in Appendix E. These risks are also considered in the sensitivity analysis undertaken as part of the financial evaluation.

If Regional Council approves any recommendation in support of a Regional role in the airport, detailed negotiations with the Local Municipalities and the airport Commission would be required. These are considered as a part of the potential next steps. The estimated financial impact to the Region would require updating based on the details of any such negotiation process.

The total budget approved for the review of Niagara's municipally-funded airports equaled \$150,000. All costs have been accommodated within this budget, including consultant reports and public engagements.

Corporate

In order to support this review a staff team was formed including representatives from the Transportation, Planning, Economic Development, Finance, Communications and Legal divisions. A senior management team was also instrumental in planning and executing the review process, and formulating the final recommendations.

Governmental Partners

The airport is currently governed and operated by the Niagara District Airport Commission, with oversight and funding from the Airport Liaison Committee and the supporting local municipalities (Niagara Falls, Niagara-on-the-Lake & St. Catharines). The review of a potential Regional role in the airport was initiated at the request of these municipal partners, and as such each has been actively engaged throughout the process. Similarly, the remaining nine local municipalities have been engaged and consulted throughout the review process.

The Federal Government, through Transport Canada, is also a stakeholder in the operations of the airport, primarily in their role as a regulator. They have also been consulted as a part of this process.

There is also one other municipally funded airport in Niagara Region, being the Niagara Central Dorothy Rungeling Airport (NCDRA). A separate but parallel review process of the governance and funding of that airport has also been undertaken, with the results being presented concurrently in report TSC-C 13-2016.

Public and/or Service Users

Current users of the airport include the airport-based organizations that operate lines of business related to sight-seeing tours, flight training, aircraft maintenance and repair,

manufacturing, charter services and event-hosting. Recreational pilots and associations such as the Civil Air Rescue Emergency Services (CARES) and Recreational Aircraft Association (Chapter 4910) also utilize and invest in airport facilities. A full list of services and organizations is provided as part of Appendix A.

Public interest in any potential Regional funding and operational role in the airport includes not only the businesses and residents in the vicinity of the airport, but also those across the Region. As such, the potential implications should the airport be funded (or partially funded) from a region-wide tax base has been considered.

Outreach to the public and service users has taken several forms as a part of the preparation of this report, including public meetings and an on-line questionnaire.

ANALYSIS

Background & Methodology

Regional Council provided direction to staff in 2015 to jointly work with Local Municipalities in order to prepare background information and options related to a potential transfer of the operations of the Niagara District Airport (NDA). This direction was in response to motions passed by each of the municipalities that currently fund the airport, as well as the NDA Commission.

In developing the work plan and content for the review, relevant information from prior Regional reviews and studies undertaken by the airport were leveraged in order to expedite the timeline and reduce the cost. New research and analysis was also undertaken as needed. The information resulting from this process is highlighted in the body of this staff report with full detail provided in the appendices.

Consultation was an important part of the review process, and included:

- Update meetings involving Local Municipal Mayors & CAOs, the Chair & Vice Chair of the Commission, the Regional Chair, the Chair of the TSC and staff
- Meetings with airport staff, local municipal staff and airport-based organizations
- Updates to the Transportation Steering Committee (TSC)
- Public Meetings that were advertised region-wide & an online questionnaire

Research and Analysis Overview

The following sections provide a summary of the further detail found in each of the attached appendices.

Appendix A – Airport Overview

The Niagara District Airport (NDA) was first formed in 1929 and relocated to its current location in 1935. Ownership of the NDA was transferred from the Federal Government to the Town of Niagara-on-the-Lake in 1996. The NDA Commission, which was established in 1959, is entrusted with the management of the airport. The Cities of St. Catharines and Niagara Falls, as well as the Town of Niagara-on-the-Lake have entered into an Airport Funding agreement which expires in December of 2026. This agreement established the Commission as a Joint Services Board under the Municipal Act.

The NDA is situated on 130 hectares (322 acres) of land adjacent to Niagara Stone Road in Niagara-on-the-Lake, just north of the Queen Elizabeth Way (QEW) highway. Federal airport zoning is in place and protects the airport from incompatible land uses.

The NDA is a certified airport with Transport Canada. The airport features three runways (the longest being 5,000-feet), 24-hour Customs clearance, NAV CANADA on site, and Avgas and Jet Fuel refueling available. On-site services include executive and personal charter, helicopter and fixed wing sightseeing, an approved maintenance operator (AMO), and a flight training school. Manufacturing of aircraft components also occurs by the airports largest tenant, Genaire Limited.

In its most recent full year of operation (2015), a total of 32,287 aircraft movements were recorded, including 181 jets. Approximately 75 aircraft are based at the NDA.¹

At 2015 year end, the NDA had assets with a net value amounting to \$11,450,935 recorded on its balance sheet. A significant portion of this amount is attributable to the funding received from Federal, Provincial and Regional governments for the airport renovation project that was completed in 2011.

The 2016 approved gross operating budget for the airport totals \$632,500. \$229,083 has also been approved for capital improvements. These amounts are to be funded from \$276,100 in revenues generated by the airport, and \$585,483 in contributions from the Local Municipalities.

The most recent economic impact study undertaken for the airport estimated an annual impact of \$18 million resulting from the activities that occur at the airport. The largest driver of employment and spending at the airport related to the manufacturing, repair and overhaul undertaken by Genaire Limited.

As part of the 2014 Business Plan, the following lines of business have been identified as their target areas for growth:

¹ Figures related to activity levels were collected through consultation with NDA representatives and the airport-based organizations.

- 1) Trans-Border Service
- 2) Hangar Development
- 3) General Aviation & Maintenance Hub
- 4) Precision AgriCentre
- 5) Fly'n Tourism
- 6) Airport-based Solar Farm

Appendix B – Governance & Funding Options

Three municipal ownership structures are available to municipalities with respect to airport governance:

- Municipally owned & operated
- Municipal Service Board (MSB)
- Municipal Service Corporation (MSC)

As airports are identified as a non-exclusive assignment to Upper-tier municipalities as part of the *Municipal Act, 2001*, operations and legislation (i.e. passing bylaws) of an airport can be undertaken by all levels of municipal government (upper-tier & lower-tier), or jointly by a combination thereof.

Municipalities can also choose to provide funding for an airport without obtaining a role in the ownership or operation of the airport in accordance with Section 107 (re: General Power to Make Grants) of the *Municipal Act, 2001*.

Private sector models for airport ownership and/or operations are also available and utilized in Ontario. Although details of these models are incorporated in Appendix B and prior Regional reports, the evaluation of alternatives presented focuses on the municipal options above for several reasons as outlined in Appendix B (section 1d).

Based on the prevalence of numerous ownership, operating and funding models for airports in Ontario, it can be inferred that there is no single best practice and that the model selected should align with the specific goals and characteristics of the airport.

Several guiding principles and best practices are outlined in Appendix B in the areas of:

- Determining a municipal role in airports
- Selecting a governance and funding model
- Municipal airport governance and management

Notable points include the importance of applying a public interest 'test' as contemplated in the Province's guide to service delivery review, in order to determine the costs & benefits related to the airport. In the case of an airport, the value proposition would consider the degree to which airport-driven activities:

- o translate into economic benefits for the local and regional economy, by way of direct job creation, investment and spending, tourism generation, indirect economic activity, and support for local business needs;
- o provide non-financial benefits to the community including recreational activity, educational opportunities, transportation alternatives, and support for emergency services' needs.

Determination of the appropriate municipal participants (i.e. upper tier, lower tier, or a combination thereof) would consider questions such as:

- o Which governance and funding structure best positions the airport to achieve the vision and goals that have been established?
- o Which structure best aligns the beneficiaries of the airport's activities with the responsibility for funding and oversight?
- o How does the airport align with the strategic goals of each organization?

When considering the relative merits of the Municipal ownership, MSB and MSC structures, the degree to which municipal control of the strategic and operating decisions is retained and to which the municipality remains financially and legally liable for the airport are generally the primary considerations.

Appendix B also identifies considerations with respect to any potential transitions between governance models. Of note is that a "triple majority" vote is not required.

A brief overview of the Canada Transport Act (CTA) review process that is currently being considered by the Federal Government is also provided. Recommendations from the report that were tabled in December 2015 include the potential introduction of a new *Airports Act* that would regulate fees, consultation on major projects and benchmarking, as well as potential expansion of the Airport Capital Assistance Program. Security and screening changes are also contemplated, including the potential replacement of the Canadian Air Transport Security Authority (CATSA).

The contents included in Appendix B are considered further as a part of the development of the evaluation framework and review undertaken in Appendix G.

Appendix C – Summary of Prior Airport Reviews by the Region

The most recent Regional review occurred in 2009 and was supported by a report prepared by Jacobs Consultancy Canada Inc. It relied on review of prior documentation, a stakeholder questionnaire, interviews and analysis. Contents included a review of potential governance structures, situational analyses of the NDA and NCDRA, comparative analysis to nearby airports and a financial analysis.

Based on the findings of the review (which are fully listed in Appendix C of this report), the consultant's recommendations included the Region assuming ownership of the NDA

with consideration for continued financial participation from the current supporting Municipalities. The consultant also recommended that the Region not assume an ownership role in the NCDRA, but rather support the NCDRA with business development and reassess should circumstances change (for example, due to the NGTA corridor or 2031 growth management plan).

An Airport Roles and Marketing Study was also undertaken in 2003, and focused on roles and opportunities for the airports. It recommended that in the short term the Region foster linkages to ensure the airports are acknowledged as significant economic development assets, and support initiatives to attract new business ventures. In the long-term it recommended that should commercial air service markets materialize, the Region reassess its role and participation in the NDA.

Finally, in September of 1996 an Ad Hoc Committee recommended that Regional Council assume ownership of the NDA, and vest the operation of the airport with a Regional Airport Authority. This recommendation was based on the impact on the Region's economy and potential for greater benefits in the future. It also contemplated a role for that Airport Authority in coordinating, and ultimately assuming responsibility, for other airports in Niagara in order to strengthen air services within the region.

Appendix D – Relationship to Strategic Priorities

Appendix D assesses the degree to which the services offered at municipal airports (in general, not NDA-specific) align with and support Regional strategic priorities and initiatives in the areas of transportation, planning, and economic development.

The greatest potential for materially impacting Regional Council's strategic priorities is considered to reside in lines of business that are currently not in place to a significant degree in Niagara (i.e. charter, passenger and freight Services).

Some degree of benefit has been identified in several areas of commercial activity such as tourism oriented activities (example – sightseeing & tours), site development, airport-based manufacturing and maintenance operations, and flight training centres.

The remaining services were generally considered to not have a notable potential to advance the strategic priorities.

It is important to note that although for several of these services a direct impact on Regional Council's strategic priorities has not been identified, that is not to suggest that no public benefit exists for such services. Studies such as the 2006 Study of Municipal Airports by Sypher and the 2009 Niagara Airports study by Jacobs Consultancy specifically noted the socio-economic benefits of these services. Examples of such benefits include supporting public service activities (medevac, policing, search & rescue) and social functions (education, community-building, and leisure).

Appendix E – Consultants' Reports

Land-use Plan, Financial Forecast and Risk Assessment

In order to help inform the evaluation process, Tetra Tech EBA Inc. was retained to prepare a land-use plan for the airport, a financial forecast (both operating and capital) including scenario analysis, and a risk assessment related to ownership and operations of municipal airports. The resulting report is attached as Appendix E. This report was developed through consultation with airport, local municipal and regional representatives, as well as airport-based organizations.

With respect to existing assets, the short term priorities include installation of an emergency backup power system, as well as rehabilitation of secondary runways and taxiways (if they are to continue to be used). The main terminal, primary runway and remaining taxiways were reconstructed in 2011 and therefore require only ongoing lifecycle maintenance in the near term.

The NDA is currently constrained by a lack of shovel-ready development areas on the airport property. Three new development areas are identified in the land use plan:

- The Southwest Development Area (SWDA) – designed for small hangar/multi-use construction
- The East Development Area (EDA) – designed for large commercial lots or private owners with significant land requirements
- The Northwest Development Area (NWD) – designed for large commercial lots or private owners with significant land requirements

An assessment of capital cost and future revenue suggests that none of the three development areas should be viewed as potential areas of profit (or even breakeven) for the airport. Rather, any investment in these areas would need to be made based on an alternate rationale, such as the direct & indirect benefits generated for the airport and community through commercial or other activity generated from these investments.

Operating and capital forecasts are then developed in Tetra Tech's report. The results show 2 of 3 phases in the SWDA being initiated in the 2037 forecast period, 1 of 2 phases in the EDA, and the NWD not being developed at all prior to 2037. The capital and operating projections in the Tetra Tech EBA report exclude any costs related to scheduled passenger services, as those are assessed separately in Appendix F. The consolidated operating and capital cost for the airport is presented further as a part of the Appendix F summary below.

Within the summary level risk assessment prepared by Tetra Tech EBA, risks associated with owning or operating an airport have been identified in the areas of Regulatory and Policy, Environmental, Safety and Security and Financial.

As a certified airport with Transport Canada (TC), the NDA is subject to detailed inspections that could potentially result in the need for costly corrections to address any potential deficiencies identified. The same holds true to comply with potential policy changes by TC. The airport is required to implement Safety Management Systems (SMS) and maintain an Airport Operations Manual (AOM) in order to increase safety.

The primary form of risk mitigation, especially with respect to financial risk, is ensuring that appropriate insurance and plans are in place, and that airport management understands the industry and complexities of aviation regulations and standards.

Viability Assessment of Commercial Service at Niagara District Airport

As the largest source of potential risk and return relates to the pursuit of scheduled passenger services, InterVISTAS Consulting Inc. was retained to assess the viability of any such service. The full report is presented in Appendix E and summarized below.

The route development process for an airport must be approached as a multi-step, long term process if it is to be successful. Route development efforts must take into account both market needs and airline objectives. Airlines in particular will assess whether business cases presented by airports will have taken an 'airline first' approach, and are seeing things from their perspective. Route development is a marathon, not a sprint, and will determine how the airport develops over a period of years. It will also define how the airport is perceived by airlines.

Trends in the industry include:

- the phasing out of small aircraft (< 70 seats) by the major Canadian carriers
- airline incentives policies are growing in popularity and magnitude
- security will continue to be a primary but ever-changing requirement for NDA to facilitate commercial service. Given that increased complexity may lead to higher fees this may be an impediment to growth at NDA and other airports in Canada
- the growing capacity constraints at Toronto Pearson has been outlined in reports for the Greater Toronto Airport Authority (GTAA). As this constraint nears, there will be roles for other regional airports.

Using a variety of techniques and data sources, an assessment of the primary catchment area for the NDA was prepared. This analysis summarizes the total market size for passenger services by origin/destination. It shows that the total estimated market for Niagara Region equals 2,162,716 air passengers per year, with 85% of that market related to inbound visitors (vs. outbound residents). The most frequently travelled destinations identified are New York, Montreal, Vancouver and Calgary, each of which has an estimated passenger per day (each way) in excess of 150.

Further analysis shows that the peak travel levels are achieved in the summer months, the allocation of passenger travel by airline, and that 90% of travel related to the primary catchment area is captured currently at Pearson Airport.

A SWOT analysis was undertaken to support the strategic assessment. The results show that a key to the viability of any service at the NDA will be its ability to provide additional value over competing options. The most likely way value will be created is through the improved convenience that will result from flying directly in and out of the NDA. It also noted that targeting a carrier with a strong brand and network will help with this aspect.

A review of the existing 5,000 ft. runway length suggests that the turboprop Q400s (74 seat) are the most probable aircraft for route development at the NDA. These aircraft are utilized by the three major Canadian carriers. The markets that are accessible via a Q400 all fall within a 650 nautical mile radius. As such they include markets such as Montreal, New York, Chicago, but exclude the Maritime Provinces, Florida and other sun destinations, and Central/Western Canada.

Infrastructure and regulatory requirements for passenger services are considered in relation to establishing commercial passenger services. Given that carriers are reluctant to spend time analyzing markets that do not have the necessary facilities in place, it is very difficult to get a commitment from an airline before the investment is made by the airport. For the NDA, primary considerations are a terminal expansion and securing the screening services provided by CATSA.

In general, an airline is more geared towards maximizing its return on assets, rather than maximizing its market share. An airline's network strategy will have a direct impact on which new routes have the best potential to support profitable growth. InterVISTAS has presented an overview of the strategies of Air Canada, WestJet and Porter airlines, along with an assessment of potential opportunities for the NDA.

Central themes for all these airlines is the focus on growth at their hubs that necessitate the continued examination of new regional connecting spokes to increase traffic feed in support of their growing international network. The movement away from smaller regional turboprops also highlights the importance of demonstrating that the NDA can support a 70+ seat aircraft.

US low cost carriers (UCC) and ultra-low cost carriers (ULCC), as well as a recent Canadian startup ultra-low cost carriers are also assessed in the report, however the opportunities for the NDA are considered limited in these areas. Smaller regional Canadian operators were also contemplated but considered to hold limited potential. There are examples of smaller carriers currently developing networks within Southern Ontario and should they prove viable additional analysis may be warranted for the NDA.

With respect to determining the most viable target destinations for the NDA, airline planners look at things such as market size, connecting market demand, growth potential, strategic fit and whether competing airports are already served by their airline. Service to Toronto and Montreal has been identified as the most likely initial destinations, with Air Canada, WestJet and Porter as the likely first candidates to partner with for such service. These destinations were assessed in detail using software that is currently utilized by a number of major airlines for route development purposes. The level of market share projected for the NDA is in line with what InterVISTAS has observed in other comparable markets and compares to typical benchmark load factors.

Generating and maintaining commercial air service at the NDA is not without risk. Operating a 74-78 seat aircraft will generally require local community support and there are challenges to year-round service including, but not limited to, aircraft size, ticket pricing, investments in infrastructure and regulatory requirements.

Based on analysis of the overall market dynamics and the three specific route/airline options, it is InterVISTAS' conclusion that there is sufficient passenger demand for the market to sustain commercial air service at the NDA.

Appendix F – Financial Impact Assessment

The operating revenues and expenditures were projected for a 10 year period and capital needs were estimated to 2037 in Appendix E. Appendix F utilizes these figures in order to provide an estimate of the potential financial impacts associated with the various forms of governance and funding that were described in Appendix B.

Airports are infrastructure-intensive operations and as such a significant investment of \$20,742,000 is projected to 2037 (in \$2016, \$26,059,000 when inflation is included). Most of the required infrastructure is identified in the latter half of the forecast.

Capital Budget Forecast – Base Case Scenario (\$000's)									
	2016	2017	2018	2019	2020	2021 - 2025	2026- 2030	2031- 2037	Total
Airside	-	26	45	55	829	1,984	632	7,134	10,705
Groundside	229	45	577	216	129	1,285	703	2,132	5,316
New Dev't Areas	-	20	117	1,465	-	2,051	1,068	-	4,721
Total (excl. infl.)	229	91	739	1,736	958	5,320	2,403	9,266	20,742
Total (incl. infl.)*	229	92	769	1,842	1,037	6,147	3,079	12,863	26,059

* Annual inflation at 2% per year. Excludes costs related to scheduled passenger services.

The capital needs to 2037 were translated into an annual capital financing requirement to allow for evaluation of the sustainable funding level required for the airport. Based on

the model outlined in Appendix F, \$998,000 per year is identified as the initial annual capital financing provisions required, growing at 2% per year for the duration of the 2037 time period. This capital financing requirement could be in the form of either a transfer to reserve, a debt charge (principal & interest) or direct project funding.

The net operating cost (before capital) shows the potential to increase at less than the rate of projected inflation as lease revenue could increase following capital investments. When combined with the capital financing requirement, the total annual funding needs are estimated to be:

Estimated Annual Funding Requirement – Base Case Scenario* (\$000's)											
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Operating	356	351	358	362	366	370	374	378	373	379	3,668
Capital	229	998	1,018	1,038	1,059	1,080	1,102	1,124	1,146	1,169	9,962
Total	585	1,349	1,376	1,400	1,425	1,450	1,476	1,502	1,519	1,548	13,631

* All figures include inflation at 2% per year. Excludes costs related to scheduled passenger services.

As illustrated in this table, the sustainable annual funding of \$1,348,904 (\$2017) upon which the financial analysis is based is significantly higher than the funding level current in place (\$585,483 in the 2016 Approved Budget). The primary difference is the annualized capital financing amount, which differs from approval of capital on a project-specific basis in the year the project is required but provides a more appropriate indication of the annual funding impact related to the future operation of the airport.

The annual funding requirement identified above is then used to compare the governance and funding structures considered in this report. For this analysis, the costs are assumed to be recovered as follows:

- Local Municipal Governance – costs apportioned between the three supporting municipalities on a per capita basis, then recovered via local municipal levies
- Regional Governance – all costs recovered via the region-wide levy
- Joint Local & Regional Governance – costs are first apportioned between the Region and the three Local Municipalities that directly fund the airport. The Region and the three Local Municipalities then recover their shares via the Regional levy and Local Municipal levies, respectively based on assessment. For illustration purposes, 3 methods of initially allocating the cost between the Region and Local Municipalities that directly fund the airport have been utilized:
 - o % Basis (using 20% Regional / 80% Local share for illustrative purposes)
 - o Per Capita Basis
 - o Region funding for the Capital Financing / Local Municipal Funding of Operating Costs

The following table presents by municipal boundaries the amount of the total funding requirement that would be recovered via the Regional and/or Local Municipal levies for the governance options described above.

Estimated Share of Annual Costs by Municipal Boundary for each Governance & Funding Model (\$2017)					
Municipality	Local Municipal	Region	Joint – Region & Local		
			% Allocation Basis	Per Capita Basis	Region fund Capital, Local Fund Operating
Municipalities Funding the Airport via Local Levy and/or Regional Levy					
Niagara Falls	487,191	280,671	445,887	352,452	334,427
NOTL	90,398	109,515	94,221	102,871	104,539
St. Catharines	771,315	372,308	691,514	510,993	476,167
Subtotal	1,348,904	762,495	1,231,622	966,316	915,133
Remaining Municipalities (via Regional Levy)					
Fort Erie	-	91,263	18,253	59,542	67,508
Grimsby	-	91,326	18,265	59,583	67,554
Lincoln	-	76,940	15,388	50,197	56,913
Pelham	-	55,443	11,089	36,172	41,012
Port Colborne	-	46,726	9,345	30,485	34,563
Thorold	-	53,339	10,668	34,800	39,455
Wainfleet	-	20,042	4,008	13,076	14,825
Welland	-	113,135	22,627	73,812	83,687
West Lincoln	-	38,195	7,639	24,920	28,253
Subtotal	-	586,409	117,282	382,588	433,771
Total	1,348,904	1,348,904	1,348,904	1,348,904	1,348,904

Similar analyses is undertaken in the appendix on a per capita basis, a per \$100,000 of weighted assessment basis, and a per household basis using the region-wide average assessment value of \$240,500. The per capita analysis, as an example, shows that on a region-wide basis the projected cost of the airport equates to \$3.13 per capita. Based on the governance model selected, the potential range of per capita impacts within specific municipalities can range however between \$0.45 per capita to \$7.11 per capita.

From a Regional perspective, the \$1,348,904 annual cost (\$2017) for the NDA represents a 0.41% increase relative to the 2016 approved Regional levy. At the local municipal level, increases in the order of 0.4% to 0.6% of the local municipal levies could be required relative to the 2016 approved funding levels (potentially higher dependent on the capital financing utilized locally).

A sensitivity analysis considers the areas of greatest potential risk and opportunity as it relates to both the operating and capital forecast. This sensitivity analysis excludes

scheduled passenger services as it is assessed separately below. The \$1,753,575 presented as the worst case represents an increase in cost of +30% from the base case, while the \$604,230 for the best case scenario equates to a decrease of -55%.

Scheduled Passenger Services

Given the magnitude of potential investment required to pursue scheduled passenger services, the potential benefits, as well as the risks associated with successfully achieving a sustainable passenger service, consideration of this opportunity is appropriate in determining the recommended governance model. The figures presented here should be treated with caution as there are numerous significant processes on-going at the time of their preparation (i.e. GTAA capacity review, Canada Transportation Act Update, CATSA negotiations), and the final cost and revenue opportunities will be greatly influenced by any negotiations with regulators and airlines. For these reasons, **development of a separate business case should be undertaken prior to any significant investment being made related to the establishment of such a service.**

Based on the twice-daily, year round domestic service envisioned in InterVISTAS report (described in Appendix E), operating revenues and expenditures as well as capital financing needs have been estimated. An initial capital investment of \$7,500,000 has been provided for in the estimation, which is largely driven by the need for an expansion to the terminal building (no runway expansion is considered in this estimate). The forecasted annual operating impact of this service is:

Estimated Incremental Annual Impact from Scheduled Passenger Service (\$2016)	
Revenues	1,217,458
Operating Expenditures	(935,919)
Capital Financing	(411,669)
Total Incremental Revenue / (Cost)	(130,130)

Due to the number of assumptions underlying this forecast, a detailed scenario analysis is appropriate. The following table summarizes the results of the nine scenarios described in further detail in Appendix F:

Estimated Incremental Revenue / (Cost) per Year related to Scheduled Passenger Services (\$2016)	
Projected Annual Impact (twice daily domestic)	(130,130)
Scenario 1 – 1,000 ft. extension to runway	(328,130)
Scenario 2 – ACAP Funding Eligibility	(87,130)
Scenario 3 – Discontinuation of Scheduled Service	(611,669)
Scenario 4 – Increase to 4 daily flights	195,098
Scenario 5 – Higher Fee Structure	204,870
Scenario 6 – Additional Incentives for Airlines	(880,130)
Scenario 7 – TransBorder Destination	(828,442)
Scenario 8 – 2/3 Funding for Initial Capital Cost	144,316
Scenario 9 – CATSA Minimum of 8-hour Service	(680,130)

Combining the Base Case Scenario described in Section 1 with the Scheduled Passenger Services forecast outlined, the estimated annual cost is:

Annual Funding Requirement – Base Case Scenario & Scheduled Passenger Services (\$000's)				
	2016 Approved Budget	Consolidated Estimate		
		Base Case Scenario	Scheduled Passenger Services	Total
Net Operating Cost / (Revenues)	356,400	351,110	-281,539	69,571
Capital Financing	229,000	997,794	411,669	1,409,463
Total Cost	585,400	1,348,904	130,130	1,479,034

This table shows that the estimated cost of supporting twice daily domestic flights increases the projected budget requirement for the NDA. The base case can also be combined with the scenarios considered. This could include those that lead to higher annual net funding requirements, such as the discontinuation of the scheduled service by the airline that would result in an annual consolidated cost of \$1,960,573. They also included those that could potentially improve financial performance, such as the establishment of 4 daily flights, which if established could reduce the consolidated cost to \$1,153,806.

A comparison of municipal funding for other airports, both with and without passenger services, has also been provided for additional context. The results suggest that municipal funding support in excess of the current levels budgeted at the municipal airports in Niagara Region is common. The municipalities presented show funding levels of \$420,000 per year to \$5,240,000.

Appendix G – Evaluation & Recommendations

The goal at this stage of the process is to determine if there is a role for Niagara Region in the governance and funding of the airport. Should Council determine that there is, direction as to whether Council sees that role being joint with the local municipalities or solely with the Region is also warranted.

A decision tree has been created in order to support the deliberation process and ensure that sufficient and appropriate information has been captured in this report. The decision tree is outlined in Appendix G, as is a summary of the benefits and costs that can be used deliberate the first 2 questions that are:

- Based on the current & potential future role of the airport, are there regional benefits in terms of economic development and / or support of community activities to justify a role for Niagara Region?
- Do the costs and risks associated with achieving those benefits justify the expenditure of Regional funding?

For airport-specific revenues and expenditures, cash flow-based analysis has been undertaken and is presented. For benefits to the community, both financial measures (example: economic impact) and non-financial considerations (example: emergency & social services) are provided. Consolidation of these various inputs was considered (example: Net Present Value), however they have been presented independently for the sake of clarity & transparency. Nonetheless, these inputs are best used on balance to assess the questions above.

Should the assessment above result in a determination that the benefits justify the costs, the decision tree and Appendix then considers the Local, Regional and Joint (Local & Regional) governance models in the context of eight guiding principles. The summary table provided in section 3a of Appendix G suggests that the Joint model offers the greatest strength in areas of affordability, fairness & equity, and responsiveness, while the Regional model ranked highest in areas of transparency, sustainability and accountability. Many of these findings were directly related to the number of oversight bodies involved in the governance model. All three models ranked equally in the areas of Good Public & Fiscal Policy and Strategic & Forward Looking.

As a part of the consultation process a public questionnaire was undertaken. The results of the 613 responses, which are not considered scientifically valid as respondents self-selected, showed that:

- 89% of respondents saw regional benefit to justify a role for Niagara Region & 85% thought the costs associated with those benefits justified using Regional tax dollars
- 64% preferred a joint Local & Regional governance structure

Feedback heard through the public meetings is also summarized in Appendix G, as are motions passed by local municipal Councils. These motions include those passed by

the Town of Lincoln Council in June 2016, which indicated that the Town does not support the Region pursuing a funding role in regional airports.

Based on assessment of the information summarized in sections 1 to 6 of Appendix G, and the related details provided in Appendices A to F, Regional staff recommends the Joint Governance model for the airport. The specific details of the cost-sharing arrangement will be subject to any detailed negotiations with the Local Municipalities. A 50% Regional vs. 50% Local Municipal funding split is recommended. It considers both the current regional benefit derived from airport activity, as well as the need to ensure the financial viability of the airport to ensure opportunities that could potentially impact Regional Council's strategic priorities in the future can be further explored. Some key figures for consideration include:

- The resulting estimated funding share for the Region of \$674,452 per year equates to a 0.21% increase on the approved 2016 Regional levy.
- At the local municipal level, the estimated funding totaling \$674,452 would be approximately 15% higher than the 2016 approved municipal contributions of \$585,483, and could require increases in the order of 0.05% to 0.07% of the respective local municipal levies (or potentially higher dependent on the capital financing utilized locally).
- Of the total annual cost of \$1,348,904 (\$2017), this structure would see approximately \$1,055,699 (78%) recovered from taxpayers in St. Catharines, Niagara Falls and Niagara-on-the-Lake via both the Local and Regional levies, and \$293,204 (22%) recovered from the remaining municipalities via the Regional levy.

Further detail related to staff's assessment is provided in Appendix G.

As a part of the detailed negotiations, Regional staff intends to consider the following in determining the appropriate Governance framework and Regional role:

- 1) In acknowledgement of the infrastructure-intensive nature of airports, all funding and governance partners' commitments reflect a long-term outlook.
- 2) Based on negotiations and execution of agreements occurring in 2017 (assuming local municipal motions occur first in late 2016 / early 2017), Regional funding for the airport would likely begin in early 2018 in order to allow approval of the resulting funding as part of the Region's annual budget process.
- 3) The funding arrangement(s) should consider the potential for changes in the relative share of costs between funding partners should the activities undertaken at the airport and related benefits change materially in the future.
- 4) The form of, and approval process for, the Regional vs. Local Municipal funding shares should be further explored in order to identify opportunities to strengthen areas such as transparency, accountability, simplicity and to best align the funding with the relative benefits.
- 5) A further assessment of the Municipal Service Board and Municipal Service Corporation structures is appropriate to determine the operational form that best protects the interests of all governance and funding partners.

- 6) An assessment of the composition and role of the Airport Commission & the Airport Liaison Committee is appropriate to reflect the participation of the Region and consider the best practices outlined in Appendix B of this report.
- 7) The governance agreement(s) should require a process for the Commission to establish and maintain a long-term strategy and financial plan for the airport with endorsement from each of the supporting Municipalities.
- 8) The governance agreement(s) should require further opportunities to enhance the performance measurement and benchmarking of activities and benefits of the airport as part of the Commission's reporting requirements to the governance and funding partners.
- 9) Opportunity to leverage private sector expertise & financing for the development of new or expanded services should be considered, in order to potentially mitigate costs & risks associated with such service expansions.

ALTERNATIVES REVIEWED

Assessment of the Local Municipal, Regional and Joint governance structures were assessed in detail as a part of the review. A detailed financial assessment related to each of these structures is provided in Appendix F, and the relative strengths and weaknesses of each structure in terms the guiding principles outlined are also presented in Appendix G. Suggested recommendations and next steps are also provided for each in Appendix G (section 8) for all three structures for Council's consideration.

Private ownership is also a model employed at airports in Ontario and has been overviewed in the appendices as well as prior Regional reviews. This model has not been included in the evaluation framework, however, for the reasons outlined in detail in Appendix B (section 1d).

The Region could also consider providing grant funding in accordance with section 107 (re: General Power to make Grants) of the *Municipal Act, 2001*, without adopting a governance role.

ORIGIN OF REPORT

In July of 2015, Regional Council directed that staff work jointly with the local municipalities to prepare the necessary background information and options and report back to the Transportation Steering Committee. That direction was provided in response to the requests received from the airport Commission as well as the supporting municipalities.

OTHER PERTINENT REPORTS

TSC-C 1-2016, Update on the Reviews of Niagara's Municipal Airports, March 22, 2016

C813, Correspondence respecting NDA and NCDRA, July 23, 2015

PW 30-2014, Update on Governance of Local Municipal Airports, February 18, 2014

PW 58-2012, Governance of Local Municipal Airports, June 5, 2012

CSD 121-2009 / PWA 89-2009, Niagara Airports Study, September 2, 2009

SUBMITTED BY:

Ron Tripp, P.Eng., Commissioner
Public Works Department

APPROVED BY:

Maurice (Mo) Lewis
Acting Chief Administrative Officer

This report was prepared by Glen Cowan, Associate Director, Finance Consulting and Special Projects in consultation with staff from the Public Works, Economic Development, Planning and Development Services, Legal, and Communications departments/divisions, as well as staff from the airport and local municipalities.

APPENDICES

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2. 2003 Niagara Regional Airports, Airports Roles and Marketing Study	C-10	Yes

Description	Page Number	Common to Both Airport Reports*
a. 2003 Study - Overview b. 2003 Study Recommendations – Business Strategies c. 2003 Study Recommendations – Regional Role & Governance d. 2003 Study Approved - Council Motions 3. 1995/1996 Ad Hoc Task Force	- C-10 - C-12 - C-15 - C-16 - C-16	- Yes - Yes - Yes - Yes - Yes
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Appendix E – Consultant Report(s)		
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* Indicates where content presented is identical between the concurrent reports prepared for the Niagara Central Dorothy Rungeling Airport and the Niagara District Airport.

Appendix A – Airport Overview

This appendix has been structured with the following sections:

1. Airport Overview
2. Airport Ownership, Governance & Regulatory Status Facts
3. Summary of Operations & Activity
4. Property Overview
5. Economic Benefit
6. Summary of the 2014 Business Case for the NDA
7. Financial Summary (Current & Historical)
8. Graphics

1. Airport Overview

The Niagara District Airport (NDA) was first formed in 1929 and relocated to its current location in 1935. Ownership of the NDA was transferred from the Federal Government to the Town of Niagara-on-the-Lake in 1996. The NDA Commission, which was established in 1959, is entrusted with the control and management of the airport in accordance with the agreement between the Town and the Commission. The Cities of St. Catharines and Niagara Falls, as well as the Town of Niagara-on-the-Lake have entered into an Airport Funding agreement which expires on December 31, 2026. This agreement established the Commission as a Joint Services Board under the Municipal Act, and authorizes the Commission to hold all airport assets in trust.

The NDA is situated on 130 hectares (322 acres) of land adjacent to Niagara Stone Road in Niagara-on-the-Lake, Ontario, just north of the Queen Elizabeth Way (QEW) highway. The surrounding land use is agricultural with vineyards and some animal husbandry farms located nearby. Federal airport zoning is in place and protects the airport from incompatible land uses.

The NDA is a certified aerodrome with Transport Canada in accordance with Subsection 302.03 of the Canadian Aviation Regulations (CARs). The NDA features a 5,000-foot runway, 24-hour Customs clearance, NAV CANADA on site, and Avgas and Jet Fuel refueling available. On-site services include executive and personal charter, helicopter and fixed wing sightseeing, an approved maintenance operator (AMO), and an active flight training school. Approximately 75 aircraft are based at the NDA.

In its most recent full year of operation (2015), a total of 32,287 aircraft movements were recorded at the NDA, including 181 jets. This compares to total movements of 29,691, 33,134 and 35,123 in 2014, 2013 and 2012, respectively.

During the year 2015, the NDA recognized \$621,880 in total revenue. This consisted of \$349,722 in grants from its three contributing municipalities, as well as \$272,158 in rents, fees, sales and other miscellaneous sources. Operating expenses (excluding

capital financing or amortization) totaled \$552,229 in 2015, with the largest single item relating to personnel costs of \$294,164. This equates to an operating surplus of \$69,651. After amortization including related contributions, the net surplus equalled \$9,278.

At 2015 year end, the NDA had assets with a net value amounting to \$11,450,935 recorded on its balance sheet. A significant portion of this amount is attributable to the \$11,870,669 in funding received from Federal, Provincial and Regional governments for the Airport Renovation Project that was completed in 2011.

The 2016 approved gross operating budget for the airport totals \$632,500. \$229,083 has also been approved for capital improvements. These amounts are to be funded from \$276,100 in revenues generated by the airport, and \$585,483 in contributions from the Local Municipalities.

The most recent economic impact study undertaken for the airport estimated an annual impact of \$18 million resulting from activity that occurred at the airport. The largest driver of employment and spending at the airport related to the manufacturing, repair and overhaul undertaken by Genaire.

As part of the 2014 Business Plan, the following lines of business have been identified as their target areas for growth:

- 1) Trans-Border Service
- 2) Hangar Development
- 3) General Aviation & Maintenance Hub
- 4) Precision AgriCentre
- 5) Fly'n Tourism
- 6) Airport-based Solar Farm

2. Airport Ownership, Governance & Regulatory Status Facts

Category	Detail
Ownership	The NDA is owned by the Town of Niagara-on-the-Lake. Ownership was transferred from the Federal Government on September 13 1996. The Term of the Operations Agreement between Canada and NOTL ran from September 13, 1996 to September 13, 2006. The restrictive covenants in the Agreement terminated on the expiration of the Term and there is no provision in the Operating Agreement which would continue those restrictions beyond the Term (i.e. 2006).
Governance	The latest agreement, dated January 8, 2013, between the Cities of St. Catharines and Niagara Falls and the Town of Niagara-on-the-Lake establishes the Niagara District Airport

	Commission as a Joint Municipal Service Board as per Section 202 of the <i>Municipal Act, 2001</i>. The term of this agreement extends to December 31, 2026. Any party to said agreement can terminate its participation in the agreement subject to providing minimum of 12 months written notice.
Composition of Commission	9 total members consisting of: • 1 elected Council member from each NOTL, Niagara Falls and St. Catharines • Six members at large consisting of 3 from St. Catharines, 2 from Niagara Falls, and 1 from NOTL. These members are approved by their respective municipal Councils after consideration for the recommendations from the Commission.
Airport Liaison Committee (ALC)	The agreement also establishes the ALC which shall give direction to the Commission. The ALC consists of the Mayors and CAO's of the three respective municipalities.
Mandate of the Commission	As per the operating agreement: <i>"(the NDA's) primary purpose being meeting the needs of the commercial and corporate aviation within the commercial service area of Niagara Region. In this role, the commission should provide land and facilities to attract aviation related business to locate at the airport, support local area industrial growth by facilitating access to corporate aviation and encourage commercial passenger and air freight services to the extent that markets for these can be developed."</i>
Budget & Spending	The commission is required to present a business plan annually with its budget. The commission can approve changes to its budget up to \$25,000, so long as no deficit results from said change. The commission cannot approve any capital expenditure or incur any debt with approval of the three municipalities. The net municipal funding requirement is apportioned between the three municipalities on a population ratio basis.
Borrowing Authority	The Region can issue debentures for the Commission as a joint purpose of one or more of its lower-tier municipalities (under section 401 (2) (a) of the <i>Municipal Act, 2001</i> (the "Act")) or on behalf of one or more of the 3 designated lower-tier municipalities (under section 401 (2) (c) of the Act) and provided in either case that the 'other' requirements (described below) are fulfilled.

	Under <i>the Act</i>, when the Region issues debentures for the purposes of one of its lower-tier municipalities, such debentures constitute debt of the lower-tier municipality on whose behalf the debentures are issued (section 403 (5) of the Act) and they also constitute joint and several obligations of the Region and of all of its lower-tier municipalities (section 403 (7) of the Act). The 'usual' debenture requirements would have to be fulfilled. Such requirements include the following: • the project must constitute a "capital work"; • the relevant lower-tier municipalities must have authorized the project in accordance with O. Reg. 403/02 (the debt and financial obligation limit regulation); and • the useful life of the project must be at least equal to the term of the debentures. In preparing the appropriate by-laws for debenture issuance, the Region would also want to ensure that: (i) the project was properly authorized by the Commission; (ii) it is included in one of the Commission's annual budgets; and (iii) the council of each of the relevant 3 lower-tier municipalities has approved such budget.
Regulatory Status	The NDA is certified under Subsection 302.03 of the CARs with Transport Canada, and an Airport of Entry up to 15 (AOE/15) with the Canadian Border Services Agency.

3. Summary of Operations & Activity¹

Category	Detail
Lines of Business & Services offered at Airport	1. Recreational & Community Based a) General Aviation • locally based • fly-ins b) Tie-down rental & lease opportunity for hanger development c) Air Cadets d) CARES (Civil Air Rescue Emergency Services) • Promotes aviation safety and supports Canadian Armed Forces in search and rescue e) Event Hosting

¹ Figures related to activity levels were collected through consultation with NDA representatives and the airport-based organizations.

	Medevac/Emergency Responder support has also occurred at the airport. 2. Commercial f) Flight Training g) Fixed-wing tours h) Helicopter Tours i) Executive & personal charters j) Aircraft Maintenance, Repair & Overhaul • Approved Maintenance Organization (AMO) is on-site and can service commercial aircraft k) Fixed Base Operator offering • 24 service • Jet A1 & AVGAS Fuel • Reservation & Rental concierge services • Customs & immigration clearance l) Manufacturing of, and repair to, commercial and military aircraft components and equipment
Organizations Operating at Airport	1. Allied Aviation (Fixed Base Operator) 2. St. Catharines Flying Club (Flight Training, Aerial Tours, Charters) 3. National Helicopter (Aerial Tours) 4. Niagara Falls Air Tours 5. Fox Aviation (Aerial Tours) 6. Eaglerock Aviation (Maintenance & Repair) 7. Genaire (Manufacturing, Repair & Overhaul) 8. Invicta Air 9. Air Cadets 10. CARES (Civil Air Rescue Emergency Services) 11. Recreational Aircraft Association (Chapter 4910)
# of Planes Based at Airport	Approximately 75, the large majority of which are privately owned for largely recreational purposes. Some of the other usages for airport-based aircraft as indicated through the consultation process included the 4 aircraft for flight-training related for the St. Catharines Flying Club, and the 2 that are related to CARES. National Helicopters also operates 2 helicopters at the airport.
Activity Levels	In its most recent full year of operation (2015), a total of 32,287 aircraft movements were recorded at the NDA, including 181 jets.

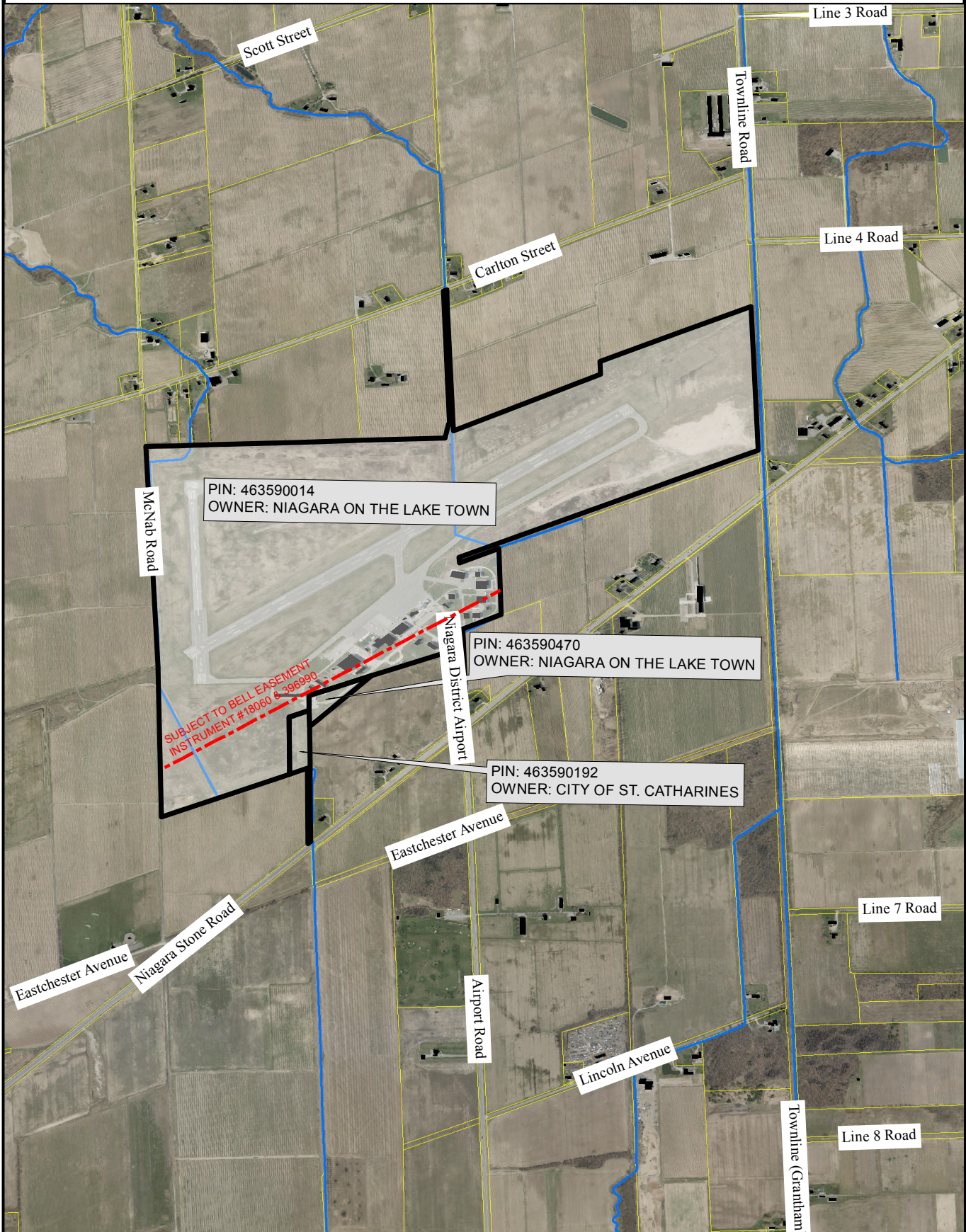
	Employment at the airport (including airport based organizations) exceeds 50 Full Time Equivalents (FTEs), with the largest employer being Genaire. St. Catharines Flying Club estimates that approximately 85% - 90% of their flight training occurs at the NDA. In total, SCFC estimate they have approximately three dozen students in training at any given point in time. In addition they have approximately 60 active members. National Helicopter provides aerial tours with over 1,000 clients per month in peak season. Approximately 650 cadets undertaken glider training at the NDA each year. CARES, which is part of the Civil Air Search and Rescue Association in support of the Canadian military, has 40 volunteers based at the airport. In 2015, approximately 441,000 litres of fuel was purchased from the FBO Allied Aviation, including 261,000 litres of Jet A1 fuel, and 180,000 litres of Avgas.
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4. Property Overview

The NDA is situated on 130 hectares (322 acres) of land adjacent to Niagara Stone Road in Niagara-on-the-Lake, Ontario, just north of the Queen Elizabeth Way (QEW) highway. The surrounding land use is agricultural with vineyards and some animal husbandry farms located nearby.



NIAGARA DISTRICT AIRPORT (and surrounding area)



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0 100 200 400 600 800 1,000 metres

Niagara Region

Procurement & Strategic Acquisitions
Surveys & Property Information
IR-16-061

The following table captures relevant property and planning considerations related to the NDA site.

Category	Detail
Location	468 Niagara Stone Rd., Niagara-on-the-Lake, Ontario
Property Attributes	Total property size - 130 hectares (322 acres) Runway 06-24 – 5,000' by 100' Runway 01-19 – 2,496' by 75' Runway 11-29 – 1,988' by 75' Airport-owned buildings include: • Air Terminal building – a 6,000 sq. ft. space constructed in 2011 through the Infrastructure Stimulus Program that accommodates airport administration, National Helicopters front office, and space for events. • Hangar #7 – leased to Allied Aviation to serve as the Fixed Base Operator (FBO) for the airport • Hangar #11 & storage building – leased to Genaire for the manufacturing and repair of commercial and military aircraft components and equipment • Field Electric Centre • Maintenance Garage • Several other smaller buildings that support operations Parking at the Terminal Building includes 58 parking stalls and 3 large bus stalls. An additional 35 stalls are located adjacent to the hangar leased by Allied Aviation. Tenants also have parking at their respective hangars. NAV Canada owns and operates a flight tower at the NDA Privately Owned Hangars – 11 hangars on land leased from the NDA. 13 Tie-down spaces for aircraft.
Property Owner	The Town of Niagara-on-the-Lake owns most of the airport property. The City of St. Catharines has a small land holding in the southwest portion of the airport lands.
Federal Regulation & Zoning	A federal Airport Zoning Regulation (AZR) regulates approach surfaces for each runway. Development on specified lands and within specified air space surrounding the NDA is subject to constraints identified with the

	regulation and/or the approval of Transport Canada by recommendation from the Airport.
Municipal Zoning & Official Plan Considerations	The airport is located on land that is municipally zoned as 'Airport Zone' under the Niagara-on-the-Lake zoning by-law. Therefore the airport use is restricted to "the use of land for airport services in support of airport activities, including the sale and manufacturing of airplanes, parts and services." The bylaw also restricts height within a 3,962.4 metre radius from the NDA centre point. NDA lands were designated as a 'settlement area' in an OMB decision in 2004, prior to the Greenbelt plan coming into effect. In a later decision by the OMB (2010), it is stated that the lands are designated as "Protected Countryside" but the airport use and airport-related uses are recognized. As such, the lands have approved urban-type uses (airport and airport-related) which would typically be found in urban areas, differentiating it from other lands in the Greenbelt. Examples of permitted airport-related uses on the land include (but are not limited to): • Air passenger services facilities including car rental, restaurants of less than 700 sq. ft., souvenir & book stores • Air freight services and facilities including cargo and wholesale storage, processing and distribution • Aircraft sales and the sale of aeronautical equipment and supplies • Manufacturing, processing and assembling of aeronautic equipment and parts and accessory warehousing • Office uses accessory to permitted uses • Existing agricultural uses, including accessory building and structures The local municipality does not issue building permits for any development that occurs on the airside portion of the property due to Federal Regulations. The current process for hangar development sees approval first from the Commission (including required engineering plans from proponent), followed by submission to the Town of Niagara-on-the-Lake for opinion. Development occurring in the 'groundside' areas or for non-airport activities would require approval by the Town and Region including potential revisions to the Official Plans.
Servicing	The airport is connected to municipal water/wastewater services.

	Sufficient capacity is available to support the potential demand in the southwest development area in the near term. A detailed capacity analysis and further clarity on potential future usages would be required to determine all system requirements in the longer term.
Environmental Considerations	The NDA is located within the 8-Mile Creek watershed. Stormwater ditches convey water during storm events minimizing flooding and providing irrigation control. Three 100-year Regulated Floodplain Extent areas are located in the boundaries of the NDA. Development areas adjacent to municipal drains must provide a minimum 10 metre buffer, and municipal permits are required for crossing and culver installations. Based on geotechnical investigations previously undertaken by Trow Associates, it is not considered likely that groundwater will be encountered when development areas are constructed. The NDA is located in the Niagara Fruit Belt section of the glacial Lake Iroquois formation, and the Ecological Land Classification system has identified five distinct vegetation communities at the airport. When development occurs, mitigation measures such as those included in the environmental assessment (EAS) prepared by AMEC must be undertaken. These measures are in large part typical to most construction contracts.
Surrounding Properties	The surrounding properties are mostly municipally zoned as rural and currently used for agriculture. There is property adjacent to the entrance to the airport and Niagara Stone Road that is privately owned and contains 'airport zoned' lands. This area does have a holding symbol identified in the Town's Zoning By-law (12.3.5.2), and requires compatibility with the approved airport master plan, necessary approvals for extension of municipal services from Niagara Region, and services such as water, sanitary and public road access. Transport Canada (St. Lawrence Seaway Authority) owns the lands to the west of the airport. The Transport Canada lands are currently leased for farming purposes. The current lease expires around 2018, and the NDA have indicated an interest in acquiring the property (or a portion thereof) in order to accommodate long-term airport

	opportunities, including potential future expansion of Runway 06-24.
Garden City Skyway Bridge	The NDA AZR (SOR/84-901) includes restrictions to structure height in the vicinity of the airport, including the site identified for the Garden City Skyway (Skyway). The Ministry of Transportation is currently evaluating a potential expansion to the Skyway, and have retained the service of WSP for the review. WSP's analysis to date has indicated that the MTO preferred option to expand the Skyway on the north side, if restricted to a height of 528 ft., would only impact departures from Runway 24 (based on existing runway lengths). This impact would require adjustments to the departure procedure (i.e. revised climb gradient) for Runway 24 to safely avoid the bridge. At the time of writing this report WSP had just released an analysis on potential limitations to the NDA's ability to extend the length of Runway 06 of the various Skyway options being considered. The NDA's concerns on this matter were highlighted in a letter submitted to the MTO's consulting team by the NDAC Chair dated February 18, 2016. WSP's revised analysis (dated May 27, 2016) indicates that the Welland Canal would be the critical obstacle for any runway extension to the southwest and not the proposed Skyway Bridge. This is as a result of its proximity to the runway and the requirement to maintain sufficient clearance from ships navigating the channel. However, the presence of the canal, although a significant limiting factor, does not preclude the extension of Runway 06-24. It would however limit the full use of an extension (to the southwest) for traffic landing from the southwest. In order to avoid a displacement the maximum runway extension towards the southwest would be approximately 177 feet (54m). Review of the WSP analysis is being undertaken by the NDA at the time of writing this report, and discussions between the NDA and the MTO are expected to continue.

5. Economic Benefit

Separate assessments have previously been undertaken in estimating the current and future economic impact of the NDA. Summarized below is the most recent assessment of the activity at the NDA, which excludes any consideration of scheduled passenger

services. This is followed by an overview of the economic impact assessments specific to passenger services that were undertaken in 2013.

5a) Economic Impact (excluding scheduled passenger services)

The following summary information has been captured from the January 2008 report prepared by Archbold Leclerc Consulting Inc. titled “Niagara District Airport Commission Projection of Economic Impact 2012”.

Topic	Details
Scope	The study considers: 1. Calculation of the <i>direct</i> impact of the airport i.e. spending on payroll and other expenses by airport- based organizations 2. Assessment of the <i>indirect</i> financial impact of the airport i.e. spending by visitors that occurs as a direct result of airport-based activity 3. Estimation of the <i>induced</i> impact, based on a multiplier of the direct and indirect impacts The study was undertaken in two phases, with the first focused on estimating the current economic impact, and second forecasting the 5-year projected outlook. The potential for scheduled or organized air charter services was excluded from the forecasted economic impact.
Author	Archbold Leclerc Consulting Inc.
Methodology	The estimates of economic impact (both current and future) are based on a survey and interviews with the NDA and NDA-based organizations, as well as airport users, hospitality/tourism organizations and major regional employers. Data was collected by the consulted from organizations that were active at the NDA, and presented in aggregate in order to protect the confidentiality of the individual organizations.
Content	▪ The <i>direct</i> economic impact of the airport is the total payroll, capital expenditures, operating and maintenance costs, taxes and fees incurred by all public and private organizations operating at NDA ▪ The <i>indirect economic impact</i> of the airport is expenditures on local services made in Niagara by users of the airport (both tourist and businesses), on local accommodation, food, ground transportation, recreation, and shopping. ▪ <i>Induced</i> economic impact comprise the second and subsequent rounds of spending as the direct and indirect dollars spent by

	airport businesses circulate in the community. A <i>multiplier</i> factor is commonly applied to estimate the induced as follows: (Direct Impact + Indirect Impact) x Multiplier Factor = Induced Impact ▪ A multiplier of 2 was assumed based on the American Owners and Pilots Association
Findings	• There were 65 full-time and 20 part-time employees at the airport including airport-based organizations, with the largest number employed with Genaire • Over \$12 million in capital expenditures had been invested by the organizations operating at the airport • Direct expenditures totalled an estimated \$5,200,000 per year (inclusive of NDA and NDA-based organizations) Indirect expenditures total an estimated \$800,000 per year Induced impact of \$12,000,000 (based on multiplier of 2 applied to the direct & indirect spending) Therefore, the total current economic impact is estimated at \$18 million per year (direct + indirect + induced) • This amount was projected to potentially rise to \$30 million per year, based on growth of the existing businesses on-site, as well as the attraction of new tenants • It was assumed that most of the economic benefit remained in the four surrounding municipalities as well as the region, and some anecdotal examples were identified (example – tourism spending in Niagara Falls & Niagara-on-the-lake, business/major employer usages in St. Catharines & Thorold). However insufficient information was available to measure or estimate the relative benefit by area.

5b) Economic Impact – Scheduled Passenger Services

RRC Associates:

As part of their 2013 feasibility assessment for commercial air services at the NDA, RRC Associates prepared a draft estimate of potential economic benefit associated with 4 daily flights occurring at the NDA, 180 days per year. Based on assumptions related to the number of visitors on those flights, length of stay, and spend per day, a total direct expenditure was estimated, and a multiplier of 1.6 was applied to approximate the indirect and induced expenditures that would result. This resulted in a total economic benefit estimated at \$23.8 million per year, of which between **\$4.8 million to \$9.6**

million per year was assumed to be incremental (i.e. would not have occurred but for the establishment of that commercial air service).

It was noted that there would be other forms of economic benefit not measured in the above, potentially including:

- Impacts related to flight operations (staffing, airport activity, etc.)
- Impacts of retention of Canadian outbound travellers
- Impacts from expanded business activity and investment

Archbold Leclerc Consulting Inc.:

Subsequent to the RRC Associates review, Archbold Leclerc Consulting produced a report titled “An Assessment of the Economic Impact of Future Commercial Flight Service” in July 2013. This report estimates the economic impact by assessing the airport & airport-related organization incremental revenue and expenditures, as well as the spending attributed to the tourism and hospitality markets by incoming visitors.

The airport & related organizations were estimated to receive \$6.1 million in total economic benefit, consisting of \$2.0 million in direct revenue and expenditure and \$4.1 million in indirect and induced benefit (based on a multiplier of 2.0).

In order to estimate incremental visitor spending, Archbold utilized the survey results from the RRC Associates study along with US visitor market data, in order to estimate additional trips and extended trips to Niagara that would occur due to the introduction of passenger services at NDA. Using the same assumptions related to average spend per trip, a direct incremental visitor spend of \$3.1 million per year was estimated, which when combined with an indirect and induced multiplier of 2 resulted in a total incremental impact of \$9.2 million per year.

Combined, a **total economic impact from passenger service of \$15.3 million per year** is then forecasted based on this methodology and assumptions.

6. Summary of 2014 Business Case for the NDA

The Business Case prepared for the NDA in 2014 by Explorer Solutions contained two distinct scopes of work. The first was to establish the business case to upgrade the airport to accommodate international charters on scheduled basis, while the second was to provide recommendations for revenue generation niches and conceptual design & Class ‘C’ cost estimates for proposed aviation-related commercial development areas. The first scope of work related to scheduled international passenger services was based on pre-established market potential for the service, as determined by RRC Associates in 2013.

The following summarizes the work undertaken by RRC Associates and Explorer Solution in 2013 and 2014, respectively.

a) Niagara District Airport (YCM): Analysis of Potential Market Demand for Commercial Flight Service

The following summary information has been captured from the presentation made by RRC Associates (RRC) to the Tourism Partnership of Niagara (TPN) Board on April 29, 2013. TPN had retained RRC to undertake the market assessment, and the results of that process were summarized in that presentation (as opposed to a formal report).

Topic	Details
Scope	- Evaluate the demand for flight service to Niagara District Airport (YCM). - Analyze the potential for flight use to YCM from airports within an 800km radius. Initial target markets include Ottawa, Montreal and New York City. - Evaluate the tourism industry's capacity to support flight service including visitor services such as ground transportation; compelling experiences; and marketing.
Author	RRC Associates (An STR Company)
Methodology	The following steps were applied for evaluating potential US markets: - Identify <u>overall size</u> of existing flight market - The target market identified were markets beyond a 5 hour drive time, between 250 – 500 mile radius from NDA. - Evaluate YCM <u>capture rates</u> required for flights to break even financially - The breakeven demand based on April to September service of 2 daily flights of a maximum of 75 seats per flight was defined as 18,900 annual visitors - Evaluate <u>interest</u> by existing Niagara visitors/ prospects in YCM flights (survey) - Evaluate potential <u>incremental demand</u> stimulated by YCM flights (survey) As noted, the last 2 evaluations were undertaken via a survey with 904 responses. A similar methodology was noted for evaluating potential Canadian Markets, however it was noted that the small size of the existing domestic Canadian flight market to Niagara suggested low current potential for YCM flights. Therefore the Canadian airport analysis was not pursued further.
Content	Research summarized in the presentation included: A summary of the mode of travel utilized relative to the distance travelled. Travel by Air increased in the target

	range as follows: - o 50 to 150 miles – 0.2% - o 150 to 250 miles – 1.5% - o 250 to 500 miles – 10.3% - o 500 to 749 miles – 33.7% • Target cities in the 250 to 500 mile radius included Ottawa, Montreal, New York, Chicago, Boston, Philadelphia and Washington. Toronto's Billy Bishop airport was also considered. • Several estimation methodologies were used to arrive at the size of the existing Niagara flight market, based on information available from sources such as Statistics Canada, the Canadian Airport Council, Longwoods International and US department of Transportation.
Findings	• The estimated size of the existing Niagara flight market to/from US airports totaled 775,000 passengers in the April to September period • NDA would need to capture 5% of the existing visitor flight demand, or 2.5% of the total flight demand, to achieve the 18,900 minimum passengers between April and September • From the survey results: - o The largest deterrents for passengers considering flights to the NDA were a limited selection of flights, higher cost of travel, and smaller aircraft sizes - o The primary benefits identified were the proximity to primary attractions in Niagara and location on the Canadian side of the border • New York city was identified as the best target airport for daily seasonal service • The small size of the domestic Canadian flight market to Niagara suggests low current potential for NDA flights to Montreal, Ottawa & Toronto • Niagara tourism industry expressed high confidence in the area's capacity to support flight service at NDA - o Noted ability to provide ground transportation services and industry players' ability to work together - o Concern expressed about off-season, need for support from government, facilities meeting visitor expectation
Financial	Financial evaluation was not a part of the scope of this review.

b) Business Case for Airport Improvement for International Traffic

This was the first of two business case projects prepared by Explorer Solution and included in their October 1, 2014 report titled "Business Case: Airport Improvement for

Transborder Traffic & Commercial Land Development Strategies. The following is a summary of Project 1 of that report.

Topic	Details
Scope	To provide a Business Case to upgrade the Airport to accommodate international charters on a scheduled basis, based on the pre-established market potential for this service as determined in RRC Associates' 2013 review.
Author	Explorer Solutions
Methodology	The business case addresses the relevant infrastructure, technical and material requirements, and in order to facilitate budgeting, procedure and overall concept definition, the requirements have been grouped into three separate categories: • Terminal Departure and Arrival Requirements; • Air Side Requirements; and • Ground Side Requirements. The terminal section also included potential implementation plans to pursue the Canada Border Services Agency (CBSA) and Canadian Air Transport Security Authority (CATSA) services required to operate international scheduled air services at NDA. The Business Case then presents an Operating Budget to support the new air connection.
Content	The report includes: • A design for a 17,000 – 18,000 square foot terminal expansion to accommodate the flow of up to 150 passengers simultaneously, 180 days per year, including CATSA & CBSA requirements for commercial air traffic. - o Total estimated cost of \$4,636,967 to \$5,100,663 • Recommendations on potential processes for securing CATSA services are outlined, including pursuing a pilot project with Transport Canada given the lengthy regulatory process likely associated with acquiring a permanent designation - o CATSA services may be on a cost recovery basis, although no estimated cost is identified • Details pertaining to the likely cost and process to obtain CBSA services for international inbound flights - o \$328,099 is estimated as the annual operating cost for CBSA for twice daily 180 day per year service (this cost may be reduced or eliminated in long term should NDA move from AOE/15 to AOE/75) • Air Side infrastructure requirements include an emergency generator, and paint lines, at an estimated cost of \$673,000

	- o Modifications to the apron may also be required, but a cost estimate is subject to future engineering studies - o Emergency service requirements for commercial flights are outlined, including Aircraft Rescue and Fire Fighting (ARFF) services, however no costs are estimated due to the projected passenger volumes & associated regulations • Groundside infrastructure requirements include an addition of 106 parking spaces at a cost of \$460,718 to \$506,790
Findings	Explorer Solutions concludes that, with government support the new air connection will be a profitable venture for the NDA. The operating surplus generated for the twice daily service between April and September is estimated at \$82,721. This assumes government funding for \$6,372,569 in initial infrastructure, which would allow NDA to use these surpluses to maintain & repair its infrastructure, invest in new equipment, and hire additional personnel.
Financial	• Assumptions incorporated in the feasibility analysis included: - o 100% grant funding from higher levels of government totaling \$6.37 million for terminal & furniture (\$5.2M), airside equipment (\$0.67M), and parking (\$0.48M) - o 89.3% of NDA revenue is derived from landing, terminal and airport improvement fees - o 3 additional full time employees - o \$50,000 annual budget for marketing - o No cost for ARFF services or requirements - o \$329,699 for CBSA services (2 flights/day, 180 days/year) - o No cost for CATSA services • The operating income (EBITDA) projected based on these assumptions amounted to \$82,721 for the twice daily flight service • Scenario analyses ran included doubling the expected passenger volume to four flights per day (at 70% of 75 passenger/flight capacity), and charging higher than market average fees - o The operating income in these scenarios ranged from \$242,932 to \$800,813

c) Business Case for Development of Southwest Aviation Area and Eastern Development Section

This was the second of two business case projects prepared by Explorer Solution and included in their October 1, 2014 report titled “Business Case: Airport Improvement for

Transborder Traffic & Commercial Land Development Strategies. The following is a summary of Project 2 of that report.

Topic	Details
Scope	A business case that provides recommendations for revenue generation niches and a conceptual design and Class 'C' cost estimate for proposed aviation-related commercial development areas
Author	Explorer Solutions
Methodology	Explorer Solutions focussed on opportunities for the South and Eastern areas. Based on an industrial overview and SWOT analysis of the Niagara region, the report first outlines four niche development concepts and then assesses the operational and airport requirements, in addition to infrastructure requirements for alternative land use. Lastly, the report provides Concept Layout Plans for the Business Development Areas along with cost estimates for land development. Explorer Solutions concentrated its efforts on the research, study and analysis of the development opportunities that could potentially match the airport assets, land and location, along with an assessment of the community assets, strengths and weaknesses.
Content	An industrial and economic overview of Niagara Region is presented, including details of the aerospace and non-aerospace sectors, along with the general aviation market segment. A SWOT analysis is also provided. The four niche development concepts identified are: • Precision AgriCentre • General Aviation Hub and Maintenance Centre • Airport-based Solar Farm • Fly'n Tourism For each the related trends, opportunity, concept including land-use planning, and Niagara's competitive advantages are outlined.
Findings	The four niche concepts listed above were identified as the recommended business development opportunities for NDA. Explorer Solution noted that: • The most viable option will rely the level of financial aid from supporting municipalities in addition to eligibility for government grants • More in-depth research and a pinpointed market study and costing analysis will be required to validate the chosen opportunity

Financial	A preliminary list of the other studies that may be required in order to pursue the four niche concepts is provided, with costs ranging from \$20,000 to \$50,000 In terms of the site development costs at NDA in order to facilitate these niche concepts, cost estimates at a Class C level are provided for each of the development areas identified at the NDA as follows: • Southwest Development Area - \$3,017,000 to \$3,572,000 • Easter Development Area - \$2,285,000 to \$6,034,000 Phasing of these costs would be possible. Forecasted operating revenues and costs were not incorporated at this stage of the business case development and are subject to future analysis.
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7. Financial Summary (Current & Historical)

The 2016 Budget for the NDA as approved by the supporting municipalities is summarized in the table below:

2016 Approved Budget	
Operating Expenditures	
Salaries & Benefits	\$330,000
Repair & Maintenance – Building/Property	33,700
Repair & Maintenance – Vehicle/Equipment	61,200
Utilities	45,000
Insurance	17,000
Debt Charges	12,000
Property Tax	11,000
Promotion, Office, Legal, Audit & Other	122,600
Subtotal	\$632,500
Revenue	
Leases/Rentals	(\$226,400)
Fuel	(14,500)
Landing Fees/Parking Fees	(16,500)
Events, Interest & Other	(18,700)
Subtotal	(\$276,100)
Net Operating Deficit / (Surplus)	\$356,400
Capital Improvements	229,083
TOTAL MUNICIPAL CONTRIBUTION REQUIRED	\$585,483

The municipal contribution is divided between the supporting municipalities based on a per capita basis as follows:

2016 Municipal Contributions	
City of St. Catharines	\$334,785
City of Niagara Falls	211,462
Town of Niagara-on-the-Lake	39,236
Total	\$585,483

The following summarizes both the statement of operations and the statement of financial position for the NDA for a 5 year period.

Statement of Financial Position					
	2011	2012	2013	2014	2015
Assets					
Current Assets					
Cash & Investments	\$ 167,108	\$ 91,606	\$ 98,169	\$ 282,536	\$ 327,619
Accounts Receivable & Prepaid Expenses	97,292	40,445	18,804	11,443	20,898
Inventory	37,353	-	-	-	-
Subtotal	\$ 301,753	\$ 132,051	\$ 116,973	\$ 293,979	\$ 348,517
Capital Assets	12,834,261	12,340,497	11,826,339	11,380,809	11,102,418
Total	\$ 13,136,014	\$ 12,472,548	\$ 11,943,312	\$ 11,674,788	\$ 11,450,935
Liabilities and Net Assets					
Current Liabilities					
Accounts payable and accrued liabilities	\$ 235,461	\$ 47,641	\$ 67,052	\$ 100,313	\$ 179,707
Deferred Revenue	-	-	-	130,585	98,076
Current Portion of Long-Term Debt	50,000	62,000	62,000	62,000	12,000
Subtotal	\$ 285,461	\$ 109,641	\$ 129,052	\$ 292,898	\$ 289,783
Long-Term Debt	150,000	136,000	74,000	12,000	-
Deferred Capital Contributions	11,587,362	11,205,551	10,762,139	10,382,166	10,164,148
Accumulated Surplus	1,113,191	1,021,356	978,121	987,724	997,002
Total	\$ 13,136,014	\$ 12,472,548	\$ 11,943,312	\$ 11,674,788	\$ 11,450,935

Statement of Operations					
	2011	2012	2013	2014	2015
Revenue (excl. Municipal Grants)					
Rentals	\$ 160,625	\$ 182,869	\$ 195,951	\$ 207,799	\$ 214,255
Fuel Sales	5,454	6,480	21,785	17,902	19,840
Landing & Parking Fees	13,961	15,948	17,475	16,974	15,317
Events	27,790	32,380	11,820	774	7,455
Interest & Miscellaneous	25,198	51,012	15,439	13,791	15,291
Subtotal	\$ 233,028	\$ 288,689	\$ 262,470	\$ 257,240	\$ 272,158
Operating Expenses					
Personnel	\$ 239,532	\$ 280,520	\$ 291,997	\$ 301,886	\$ 294,164
Operations	139,627	150,948	142,283	141,913	132,402
Repairs and maintenance - Building/Property	36,122	44,830	40,297	30,366	79,899
Repairs and maintenance - Vehicles/Equip.	33,015	30,341	31,480	36,415	45,764
Subtotal	\$ 448,296	\$ 506,639	\$ 506,057	\$ 510,580	\$ 552,229
Operating Surplus/(Shortfall)	\$ (215,268)	\$ (217,950)	\$ (243,587)	\$ (253,340)	\$ (280,071)
Gain on Disposal of Capital Asset	-	12,914	-	-	-
Deferred Capital Contribution Amortization	283,307	443,412	443,412	449,479	469,153
Amortization on Capital Assets	(294,180)	(523,466)	(514,158)	(515,036)	(529,526)
Net Position <u>before</u> Municipal Contribution	\$ (226,141)	\$ (285,090)	\$ (314,333)	\$ (318,897)	\$ (340,444)
Municipal Contributions	250,846	266,778	271,098	328,500	349,722
Net Position <u>after</u> Municipal Contribution	\$ 24,705	\$ (18,312)	\$ (43,235)	\$ 9,603	\$ 9,278

The Statement of Financial Position has shown a steady decline in the balance of total assets which is not surprising given the infrastructure-intense nature of the airport's operation and the amortization of the cost of construction work completed in 2011. This work was primarily funded from contributions from the Federal, Provincial and Regional levels, so those contributions (shown as 'Deferred Capital Contributions') decline at the same rate. Of note is the improvement in the balance of cash and investments by approximately 96% for the period, and the low level of debt held by the NDA.

The Statement of Operations shows growth in the rental revenue of 34% due in part to a movement closer market lease rates. The 263% in fuel revenue is due to the introduction of a new Fixed Base Operator (FBO) at the airport and the related royalty structure. Events revenue has decline by 73% from 2011, however much of this revenue difference is offset by costs that were incurred in order to host those events. Operating costs have increased during the period 23%, reflecting both additional staffing costs and higher repair & maintenance charges, due in part to an aging fleet.

An analysis of financial ratios was also undertaken and presented in the following table:

Financial Ratio Analysis					
	2011	2012	2013	2014	2015
Return on Assets	-1.7%	-2.3%	-2.6%	-2.7%	-3.0%
Net Position (excl. Munic. Grants) / Total Assets					
Profit Margin	-97%	-99%	-120%	-124%	-125%
Net Position / Revenues (both excl. Munic. Grants)					
Return on Equity	-20%	-28%	-32%	-32%	-34%
Net Position (excl. Munic. Grants) / Accum. Surplus					
Account Receivable Turnover	149	50	26	13	15
AR / (Revenue excl. Munic. Grants / 365)					
Debt Equity*	0.03	0.02	0.02	0.03	0.03
total liabilities / accumulated. surplus					
Current Ratio	1.06	1.20	0.91	1.00	1.20
current assets / current liabilities					
Quick Ratio	0.92	1.20	0.91	1.00	1.17
(Cash + Investments + AR) / current liabilities					

* deferred capital contributions have been treated as equity as the 5-year repayment limitation period outlined in the ISF agreement ended in 2016

Of note from this analysis is the fact that the NDA does not have a significant amount of liquidity as the payment due within a year are about equivalent to the assets held for the same time period. The NDA has also shown consistent progress in shortening the length of time it takes to collect its outstanding receivables.

The deficit positions shown for the return on assets, profit margin and return on equity all provide indication of the need for the municipal financial support to sustain operations, as is common for airports of this size in Ontario.

Further analysis of the financial statements and financial projections (operating, capital and scenarios) are included as part of Appendices E & F.

8. Graphics

Provided below are several pictures of the airport to provide additional context.





Appendix B – Governance & Funding Options

This appendix provides further detail with the numerous options available to Regional Council in determining a potential role in the operations or funding of the airport. The information presented has been segregated into the following sections:

1. Summary of Governance Options Available
 - a) Municipal Ownership Structures
 - b) Municipal Funding for Airports (without ownership or operational role)
 - c) Federal/Provincial Ownership
 - d) Private Sector Ownership and/or Operations
 - e) Municipal Airport Governance Models utilized in Ontario
2. Detailed evaluation of alternate municipal models (excerpt from 2009 Jacobs Consultancy Report)
 - a) Government Ownership and Operations
 - b) Airport Commission
3. Guiding Principles in Determining a Municipal Role in Airports
4. Guiding Principles in Selecting a Governance and Funding Model
5. Best Practices in Municipal Airport Governance & Management
6. Considerations in a Potential Transition to a New Governance Structure
7. Canada Transportation Act Review – Potential Implications

For the purposes of this section, governance can be summarized as it was in the report “The Governance of Canadian Airports: Issues and Recommendations” as follows¹:

“Governance consists of implementing all measures necessary for an organization to achieve the ends for which it was created, in a manner that is transparent, effective and respectful of its stakeholders’ expectations.

So, governance is made up of rules governing accountability and operating principles put in place by the board of directors in order to establish the organization’s strategic aims, ensure the supervision of senior management and encourage the emergence of values such as integrity and excellence within the organization.”

1. Summary of Governance Options Available

1a) Municipal Ownership Structures

As part of a report prepared for the District of Muskoka, Strategy Corp. summarized the three municipal structures available under the *Municipal Act, 2001* for owning and operating an airport in Ontario as follows²:

¹ *The Governance of Canadian Airports – Issues and Recommendations*, Institute of Governance of Private and Public Organizations, 2014

- **Municipally owned and operated:** *Municipalities have the general authority to operate an airport either directly as a municipal department, or indirectly through a contracted party.*
- **Municipal Services Board:** *Municipalities have the authority to create a municipal services board, to which it may assign the responsibility of delivering a municipal service³. Under this model, a municipality is still financially and legally responsible for the liabilities of the Municipal Services Board, and its degree of control over the management is set out by the terms of its delegation of authority.*
- **Municipal Services Corporation:** *Municipalities may also create municipal corporations⁴. Such corporations may have more than one municipality as shareholder, and may have private shareholders. As with services boards, the municipality has some flexibility as to what degree of control over management it retains. Municipal Services Corporations have a range of independent financial, legal and labour-relations authority within certain statutory limits. A feature of this model is that where the corporation is not 100% owned by the municipality, it cannot receive financial transfers from the municipality.*

The term 'municipal airport commission' is often used in common parlance, but it is not a term that has any specific meaning in municipal legislation. 'Airport commission' is a name that has been used to label a variety of different structure and arrangements, ranging from independent airport operating authorities through to governance arrangements that are little more than committees of municipal council. It would appear, however, that a Municipal Services Board is the contemporary vehicle that would most resemble the common conception of an 'airport commission.'

The above options do not need to be constrained to one specific airport. They could also consider oversight of multiple airports or be tasked with oversight of a broader agenda that includes airports (such as the Niagara Regional Transportation Authority concept noted in the 2009 review process).

Further, as airports are identified as a non-exclusive assignment to Upper-tier municipalities as part of the *Municipal Act, 2001*, operations and legislation (i.e. passing bylaws) of an airport can be undertaken by all levels of municipal government (upper-tier & lower-tier), or jointly by a combination thereof.

1b) Municipal Funding for airports (without ownership or operational role)

The Region could also choose to provide funding for an airport without obtaining a role in the ownership or operation of the airport. Such funding would be provided as a grant in accordance with Section 107 (re: General Power to make Grants) of the *Municipal*

² *The District Municipality of Muskoka Operational Review*, Strategy Corp., January 2014

³ *Municipal Act, 2001*, S.O. 2001, c 25 ss. 195-202

⁴ *Municipal Act, 2001*, s. 203.

Act, 2001, and therefore would have to be for any purpose that council considers being in the interests of the municipality. If debt is used as a financing source, then in accordance with section 107 of the *Municipal Act, 2001* the funding must be on the basis that in the opinion of the Council of the Region it is in the interests of the Region to make such grant, provided that the resulting capital works will have a useful life at least equal to the term of the debentures to be issued.

1c) Federal/Provincial Ownership

An Airport Authority model is also utilized in Canada and was also summarized in detail as part of the 2009 Jacobs Consultancy report. This model has not been incorporated in detail in this report or appendix since an Airport Authority can only be established at the Federal or Provincial level.

The Federal Government, which previous to the 1994 National Airports Policy (NAP) had served as an airport regulator, owner and operator, currently acts as only a regulator and landlord of airports in Ontario. There are four National Airport System (NAS) airports in Ontario under these federal leases (Pearson, Ottawa, London and Thunder Bay). The province of Ontario's airport ownership is exclusively in Northern Ontario⁵.

1d) Private Sector Ownership and/or Operations

In addition to the government structures noted above, airports in Ontario can also be privately owned. Examples are numerous and include the Grimsby Airpark, the Burlington Executive Airport, and the Brampton Airport to name a few. A non-profit entity ownership model can also be utilized, such as is the case for the Sault Ste. Marie Airport.

A summary of the features of the private ownership model was provided in the 2009 report prepared by Jacobs Consultancy for Niagara Region.

In addition to ownership, private-sector alternatives are available in terms of the management and operations of the airport. This could include outsourcing of the operation and management through a contract to a private-sector operator (example – Peterborough Airport), or entering a long-term lease arrangement with a private sector corporation (example – Hamilton John Munro International Airport).

The focus of the evaluation of alternatives in this report has focused on the municipal structures as opposed to private sector solutions. This was on the basis that:

- the requests received from the airport's Commission and the supporting local municipalities was specific to Regional assumption of the operation of the airport,

⁵ *Study of Municipal Airports in Ontario*, Sypher, September 2006

as was Regional Council's direction with respect to engaging in preliminary discussions;

- outsourcing of operations and certain other forms of private sector involvement are management decision as opposed to a governance decision;
- the potential for, and cost/benefit from, such arrangements would be better assessed once a determination of a potential Regional role in the airport has occurred. This would allow for the goals for the airport to be further reviewed, with the results incorporated into the evaluation of any potential private sector opportunities (see discussion of "Form must follow Function" in section 5 below);
- in order to fully assess such opportunities, further detail on any specific potential private-sector investment or public-private partnership would be required.

1e) Municipal Airport Governance Models utilized in Ontario

The variety of governance models utilized was demonstrated in the 2006 Study undertaken by Sypher⁶. In that report it noted that of the over 200 aerodromes in Ontario, approximately 85 served local or regional needs⁷. Through a survey of those facilities, respondents (excluding Northern Ontario) indicated that 30% were operated via a commission, 40% via a municipality, and 30% privately.

Within the municipal structures, there are a variety of combinations utilized with respect to the level of government (i.e. lower tier, upper tier, single tier, joint), as well as formal structure under the Municipal Act, 2001 (municipal department, municipal service board, municipal service corporation). By way of example:

- Municipal Departments
 - o Lower Tier – Oshawa Executive Airport
 - o Single Tier – Kingston (Norman Rogers) Airport
 - o Upper Tier – Region of Waterloo International Airport
- Municipal Service Board
 - o Single Tier - Kawartha Lakes Municipal Airport
 - o Joint – Collingwood Regional Airport
- Municipal Service Corporation
 - o Single Tier – Windsor International Airport
 - o Joint – Lake Simcoe Regional Airport

⁶ *Study of Municipal Airports in Ontario*, Sypher, September 2006

⁷ The balance were 4 NAS airports, 2 military, 29 Provincially owned, and approximately 100 privately owned for private needs and recreational uses.

The prevalence of numerous ownership, operating and funding models of the airports suggests that there is no single best practice in governance structure. Rather, the model selected should align with the specific goals and characteristics of the airport.

2. Detailed evaluation of alternate municipal models (excerpt from 2009 Jacobs Consultancy Report⁸)

This section (Section 2) provides excerpts from the 2009 Niagara Airports Study prepared by Jacobs Consultancy providing additional detail with respect to the Government (i.e. Municipal) Ownership and Operations model and the Airport Commission model.

2a) Government Ownership and Operations

Description

The Government Ownership & Operation model is still widely in use around the world, including some very large airports in the US, although in Canada the federal and provincial governments divested themselves of many of the smaller airports in Canada to municipal and/or airport authority levels of ownership and/or operation.

In this model, the airport is operated as an extension of a government department. Typically this could be a Transportation or Public Works Department.

The responsibility and authority for day-to-day management as well as for the initiation and financing of development plans, would be a line responsibility of the Department, subject to the normal accountability and budgeting processes of government. Airport management would typically:

Manage the operations of the airport;

- o Administer airport services (air terminal operations, ground transportation, accommodation of airport tenants, etc.);*
- o Manage land and other airport properties;*
- o Manage established levels of service for all facilities and services other than those designated as safety and security oriented; and*
- o Establish communication and consultation links with interested groups such as air carriers, community councils, etc.*

⁸ *Niagara Airports Study – Determination of the Role for the Niagara Region in the Operation and Financing of the Niagara Central and/or Niagara District Airports, Jacobs Consultancy Canada Inc., July 31, 2009*

The municipality would typically:

- o Hire and dismiss employees and negotiate terms and conditions of employment;*
- o Provide for police protection and airport emergency services;*
- o Market the airport, often in association with an economic development organization;*
- o Provide for procurement, accounting, legal and public affairs services;*
- o Develop an airport land use/master plan in conjunction with the wider municipality plans;*
- o Initiate capital projects and assume responsibility for control of approved capital projects;*
- o Finance operations and facilities through operating surpluses and issuance of airport specific bonds or local government debentures; and*
- o Establish fees and charges at the airport.*

Finance

Operating revenues consist of aeronautical revenues (e.g. landing fees) and commercial revenues (concessions, land leases etc.). Operating costs include all operating and maintenance costs, salaries and wages, property taxes (although often foregone as a City Department), and servicing of debts.

In this model, municipal government ownership results in all operating subsidies and capital investment generally being financed from general revenues.

Personnel

Airport staff necessary to carry out the functions of managing, operating and maintaining the airport are unionized public servants.

Advantages of Organizational Model

- o Focused on municipality's priorities;*
- o Higher level of direct control over operations and spending.*

Disadvantages of Organizational Model

- o All operating expenses and capital investment falls on the municipal tax base;*
- o Capital counted as part of municipality's authorized borrowing limit;*
- o As local government employees, collective agreement often determines who can apply for jobs at the airport and subject to collective-agreement "bumping" arrangements; and*
- o Potential for political interference.*

2b) Airport Commission

Description

The Commission model is an administrative structure in common use, typically at smaller non-NAS airports in Canada.

In this model, the Commission would be a corporate body, typically with its own provincial Act, governed by a Board of Commissioners.

Airport Commissioners typically would include elected politicians and representatives of the local business community and other local interest groups, nominated by municipal government. The number of Commissioners could vary, depending on the size of the airport; for example, not fewer than five and not more than nine. They would serve at pleasure for a fixed term, subject to satisfactory performance, and their remuneration – if any - would be set by the City/Municipality.

They would elect their own Chairperson.

The responsibility and authority for day-to-day management as well as for the initiation and financing of development plans, would be delegated to the Airport Commission. On behalf of the Commission, and in accordance with its policies and directions, the airport commission general management would undertake a range of management and oversight tasks similar to the Authority model. Depending on the size of airport, local government might undertake certain services (financial accounting and audit for instance).

Airport Commissions would be accountable to the City/Municipality as the airport owner, for the performance of the airport. The City/Municipality would have no operational responsibilities vis-à-vis the Airport Commission. Therefore, the relationship between the City/Municipality and the Airport Commission would not be of a 'line' nature. There should be a full exchange of information between the City/Municipality and the Airport Commission but with control exercised only with respect to system integrity and capital developments. The Airport Commission would submit to the City/Municipality, a forward looking budget and an annual audited report for approval.

Finance

Operating revenues consist of aeronautical revenues (e.g. landing fees) and commercial revenues (concessions, land leases etc.). Operating costs include all operating and maintenance costs, salaries and wages, property taxes (although sometimes this is foregone), and servicing of debts.

Airport Commissions are typically responsible for the day-to-day financial management of the airport, although many require an operating subsidy from local government. Financing of capital projects is often through the local government owner.

If the airport was operated by a third party under contract, and subject to the specific terms, conditions and specifications of that contract, the contractor would be responsible for the day-to-day financial management of the airport. The contractor would be provided with a specified authority with respect to expenditure control, financial accounting, revenue collection, purchase of supplies, service contracts, consultant contracts and construction contracts.

Personnel

Airport Commissions employ staff as they deem necessary to carry out the functions of managing, operating and maintaining the airport. These employees are not public servants. Contract management/operation is fairly common.

Advantages of Organizational Model

- o Focused airport management and operation;*
- o Generally lower cost of operation than City Department;*
- o Ability to connect easier with its clients and market;*
- o Not local government employees which can provide for more flexibility and retention of specific airport experience not subject to collective-agreement “bumping” arrangements.*

Disadvantages of Organizational Model

- o Large residual requirement for municipal care and oversight;*
- o Operating and Capital investment still from the public purse, although this is a reflection of the size of airport rather than the governance structure;*
- o Higher potential for political interference;*
- o Less direct control by sponsoring level of government than a Department structure.*

3. Guiding Principles in Determining a Municipal Role in Airports

In their report for the District of Muskoka, Strategy Corp. made the following statements⁹:

⁹ *The District Municipality of Muskoka Operational Review*, Strategy Corp., January 2014

For discretionary public investments, such as the operation of a municipal airport, the property taxpayer's test applied by the municipal council must be whether the investment justifies the return.

In the current economic and fiscal environment, this question can be framed as whether there are quantifiable public benefits, in terms of economic development and job-creation and / or support of important community services that justify public expenditure on a municipal airport?

These statements form an appropriate public interest “test”, as contemplated in the Province's guide to service delivery review¹⁰. In order to assess this value proposition through a cost-benefit analysis, it is important to have a clear understanding of what the vision and goals of the airport are, and how these are expected to:

1. translate into economic benefits for the local and regional economy, by way of direct job creation, investment and spending, tourism generation, indirect economic activity, and support for local business needs;
2. provide non-financial benefits to the community including recreational activity, educational opportunities, transportation alternatives, and support for emergency services' needs.

These can then be weighed against the costs that are expected to be required from public funding sources in order to realize these targets, in order to determine the appropriate degree of municipal support.

Determination of the appropriate municipal participants (i.e. upper tier, lower tier, or a combination thereof) is also required, with consideration of questions such as:

- o Which governance and funding structure best positions the airport to achieve the vision and goals that have been established?
- o Which structure best aligns the beneficiaries of the airport's activities with the responsibility for funding and oversight?
- o How does the airport align with the strategic goals of each organization?

In a 2013 report, Stantec Consulting Ltd. and BMA summarized these questions as follows:

“What is the best organizational structure, on balance, to provide effective operational management and sufficient equitable funding?” (Management functions are defined as operations, maintenance, expansion, renewal and financing.)¹¹

¹⁰ *A Guide to Service Delivery Review for Municipal Managers*, Province of Ontario, 2004

¹¹ *Water and Wastewater Service Delivery Review – Source to Tap to Source*, Stantec Consulting Ltd. & BMA, 2013

Finally, the governance options assessed should consider many of the same guiding principles utilized in processes such as the Provincial & Municipal Fiscal and Service Delivery review, such as¹²:

- **Accountable** - the roles and responsibilities of each order of government in delivery and/or funding of a given service should be clear to avoid duplication and overlap.
- **Affordable** - be consistent with the fiscal plans of both orders of government.
- **Fair and Equitable** - for municipalities and for taxpayers.
- **Good Public and Fiscal Policy** – decisions must be driven by a clear public policy purpose and evidence that any new arrangements will better achieve that purpose.
- **Responsive** - delivering a high quality of service that responds to the needs of residents and businesses.
- **Strategic and Forward Looking** - focus on fiscal and service delivery partnerships for the 21st century.
- **Sustainable** - long-term solutions should be sustainable for municipal governments and recognize the ability of government to manage financial risks.
- **Transparent** - to the greatest extent possible, service delivery and fiscal arrangements should be straightforward, consistently applied and not complicated by ad hoc adjustments.

4. Guiding Principles in Selecting a Governance and Funding Model

Should it be determined that there is sufficient benefit to the public to warrant public expenditure in support of an airport, and the appropriate level of government has been identified, a determination of the appropriate governance and funding structure is required.

Considerations for a municipality in determining the appropriate governance model include:

- o The degree to which municipal control of the strategic and operating decisions of the airport is retained; and
- o The degree to which the municipality remains financially and legally liable for the airport's operations

These considerations are especially relevant in considering operating the airport as a municipal department or creating a separate entity as allowed in the *Municipal Act, 2001*.

Also of significance is the ability of the structure to allow for participation and contributions from aviation experts, business representatives and other local interest

¹² *Provincial Municipal Fiscal and Service Delivery Review – Facing the Future Together*, Province of Ontario, AMO & City of Toronto, 2008

groups. In the Municipal Service Board and Municipal Service Corporation, this can include membership directly on the governing board of directors. In the Municipal department structure, this can include the formation of advisory/steering committees and task forces, which can provide recommendations to the elected Municipal Council for approval. Contribution from such experts or stakeholders can be especially beneficial for services of a unique or specific nature, thereby increasing the likelihood of the successful delivery of the service.

An over-arching theme that is common in governance structure selection is the tenant that “Form should follow Function”, which is described in more detail below as part of the Best Practices overview.

5. Best Practices in Municipal Airport Governance and Management

The report “The Governance of Canadian Airports – Issues and Recommendations” noted that there were two specific federal bills that, although never receiving final approval, identified suggestions for the board composition for National Airport System (NAS) airports that have since been adopted by several such airports. Although the scale of such NAS facilities can be much greater than Niagara’s airport facilities, some noteworthy points include¹³:

- o A Board size of 9 to 15 individuals including
 - o 5-8 government representatives
 - o 2-5 non-government representatives from areas such as economic organizations, community organizations, association of professionals
 - o 1-2 directors representing the national association of domestic air carriers
 - o Maximum of 3 other directors based on particular knowledge, experience and skill

As noted in section 2b above, the 2009 Jacobs Consultancy report noted a board size of 5 to 9, consisting of elected politicians and representatives of the local business community and other local interest groups, nominated by municipal government. The report further noted that the commission would elect its own chairperson.

Finally, observations noted in the review undertaken at the Muskoka Airport that are relevant to this discussion included¹⁴:

¹³ *The Governance of Canadian Airports – Issues and Recommendations*, Institute of Governance of Private and Public Organizations, 2014

¹⁴ *The District Municipality of Muskoka Operational Review*, Strategy Corp., January 2014

- **“Form must follow function”:** This axiom of organizational design reminds us, quite simply, that the best governance system is the one that is able to meet the requirements or needs it was designed to address.

A governance system for the Airport that is designed to deliver rapid economic growth would be designed differently from a governance system designed to meet the needs of “general aviation”. A governance model designed to protect the taxpayers’ interest would be different from a model designed to deliver a “best in class” airport facility.

- **Governance structures should reflect the principles of “pay for say”:** A positive correlation should exist between a stakeholder group’s input into governance and its investment level (financial or otherwise) in an airport. Developing such a positive relationship between investment and input establishes a direct line of accountability between stakeholders and governance structures. Without such a relationship tensions can arise between those that do and do not financially invest in the airport’s operations.
- **Recognize the airport as an economic development asset:** A key factor underlying the success of medium-sized airports in other jurisdictions is their recognition as an economic development asset by the municipality in which they are located. Such recognition allows for greater investment in the airport by the municipality. This is reflected in both the capital investments and underwriting the ongoing deficits generated by medium-sized airports that have a significant level of activity. If an airport is seen as primarily a service to “general aviation”, the tendency is to simply ‘maintain’ the airport, and to keep investment to a minimum. Municipalities that see the municipal airport as a tool for economic development are more likely to invest in the airport.
- **Provide the airport with access to business expertise:** Following the principle that “form should follow function”, an airport’s governance structures should be designed to allow airport management to access necessary resources to fulfill its mandate. Should that mandate include economic development, for example, the governance structure should assist in accessing the business, investment and operational expertise needed to perform to expectations. At the same time, good governance requires that the breadth of the mandate be reflected, and that the structure not be dominated by any one perspective, or user group.
- **Community support:** The role of general aviation in building community support and involvement in the airport is a critical success factor. A positive relationship between community support and airport success was identified: airports catering to general aviators often have activities that cause more general aviators to come to the airport, creating a virtuous cycle which leads to greater community involvement with the airport. Correspondingly, strong general aviation often creates a sense of activity at the airport, which promotes investment by the airport that eventually drives up general aviation and again positively impacts communal involvement. In this case, community involvement was a symptom of, as well as an input to, the airport’s success.

It was noted that 'community' in the sense used above is often broader than those that surround the airport. Airports often facilitate not just business, but also critical services such as air ambulances or law-enforcement. An airport's community outreach and engagement efforts should therefore be broad.

With respect to strategy & management, in their 2003 Study for Niagara¹⁵, the consulting team of Marshall, Macklin Monaghan and Sypher reviewed several airports and drew the following conclusions:

A number of common characteristics stand out among the airports reviewed, particularly those which are actively attempting to grow and develop new markets, and provide lessons relevant to the strategies for the Niagara Region's airports.

- o Airport management have developed a clear strategic vision and role for their airport, which in cases such as the Edmonton Regional Airport Authority and the Niagara Frontier Transportation Authority has resulted in the assignment of specific roles to the various airports under their respective jurisdiction.*
- o In most cases, the airport's strategy is to focus on a particular niche market, based on their market and economic profile. For example, Lake Simcoe Regional Airport focuses on corporate and charter services because of the number of manufacturing plants and year-round tourism within the catchment area.*
- o Airport management works proactively with the relevant public authority to ensure that the strategy and role supports the broader economic development objectives of the authority and in the case of the NFTA airports, the Grand Canyon National Park Airport and the City of Hamilton/Stoney Creek, the public authority works closely with and supports the development of the airport because it is in their mutual best interest.*
- o Airport management work cooperatively with their current tenants to cross promote and market the airport. Airport management do not have any business connections to the airport tenants. Marketing of the airports is generally undertaken by those who don't own or operate specific businesses at the airport.*
- o Management professionally and aggressively markets the airport, in co-operation with other stakeholders in the local business and tourism community by developing a co-ordinated and unified approach to marketing. In particular, the Edmonton system of airports, which includes the Edmonton International Airport, is governed by a single authority, has leveraged the marketing resources (personnel as well as funding) into a single unified structure. The costs to market the system of airports has been less than the individual costs of marketing each airport.*
- o A number of smaller airports, such as Lake Simcoe Regional and Cooking Lake, are experimenting with unique ways of developing surplus properties on the airport by utilizing the "condominium concept" which is a combination of*

¹⁵ *Niagara Region Airports – Airport Roles and Marketing Study Final Report*, Marshall, Macklin, Monaghan / Sypher, July 2003

- selling individual lots and charging an annual maintenance or management fee as a means of improving their cash flow.*
- o *Airport management places great emphasis on customer service and invests in the landside amenities, such as food services, comfortable waiting areas and lounges that will attract and retain clients. Many of the investments and improvements are based on feedback from regular surveys of their clientele, particularly among itinerant traffic*

6. Considerations in a Potential Transition to a New Governance Structure

Triple Majority Vote

In order to implement a change in governance from the current airport model to a Regional or Joint governance structure, a triple majority vote is not required. A triple majority means a majority of members on the Region's Council, and approval by a majority of the lower-tier Councils which have a majority of the electors within the Region. As jurisdiction for the airports is assigned to the Region as "non-exclusive" jurisdiction in the *Municipal Act, 2001*, both the Region and lower-tier municipalities have the power to pass by-laws with respect to airports and no triple-majority approval is necessary.

State of Infrastructure Considerations

Should a potential change in governance structure result in a transfer of assets between levels of government or between government entities, consideration of the existing state of the assets (both land and chattels) may be warranted. By way of example, as part of the proposed process for transferring roads between local and Regional government, report PW 82-2009 (re: Transportation Services Sustainability Review) included a step to consider "condition assessment of infrastructure and cost support of required work, based upon reasonable asset conditions." The intention of this step is to mitigate any immediate financial burden on the municipality accepting jurisdictional responsibility.

Transport Canada (TC) Considerations

Decisions regarding the organization and management of an airport are at the discretion of the airport operator. Transport Canada is responsible for the provision of regulatory oversight to ensure that airports are compliant with the applicable regulations. Accordingly, Airport Managers consult with Transport Canada when changes are contemplated or undertaken. The level of TC Departmental involvement is completely dependent upon the nature and magnitude of the change.

Transport Canada must be notified when a change is made to the owner or operator of an airport as per Canadian Aviation Regulation (CAR) 302.04 which states:

(1) When an airport certificate is transferred, it shall be transferred in accordance with this Section.

(2) The Minister shall transfer an airport certificate to a transferee where

(a) the current holder of the airport certificate, at least 14 days before ceasing to operate the airport, notifies the Minister in writing that the current holder will cease to operate the airport as of the date specified in the notice;

(b) the current holder of the airport certificate notifies the Minister in writing of the name of the transferee;

(c) the transferee applies in writing to the Minister, within 14 days before the current holder ceases to operate the airport, for the airport certificate to be transferred to the transferee; and

(d) the requirements set out in Section 302.03 are met.

The new operator of the airport would also have to apply for a new certificate under CAR 302.03:

(1) Subject to subsection 6.71(1) of the Act, the Minister shall issue an airport certificate to an applicant authorizing the applicant to operate an aerodrome as an airport if the proposed airport operations manual, submitted pursuant to paragraph 302.02(1)(b), is approved by the Minister pursuant to subsection (2) and

(a) the standards set out in the aerodrome standards and recommended practices publications are met; or

(b) on the basis of an aeronautical study, the Minister determines that

(i) the level of safety at the aerodrome is equivalent to that provided for by the standards set out in the aerodrome standards and recommended practices publications, and

(ii) the issuance of the airport certificate is in the public interest and not detrimental to aviation safety.

(2) The Minister shall approve a proposed airport operations manual if it

(a) accurately describes the physical specifications of the aerodrome; and

(b) conforms to the requirements set out in the aerodrome standards and recommended practices publications that apply in respect of an airport operations manual.

(3) Where an aerodrome does not meet a standard set out in the aerodrome standards and recommended practices publications, the Minister may specify in the airport certificate such conditions relating to the subject-matter of the standard as are necessary to ensure a level of safety equivalent to that established by the standard and as are necessary in the public interest and to ensure aviation safety.

Provided there are no changes to an airport's operations, levels of service, boundaries, or personnel, Transport Canada would use an administrative process to complete the change. The Department would also expect to receive notification of Accountable Executive appointment and amendments to airport manuals to reflect changes in organization and personnel. Those amendments and the appointment of an Accountable Executive would be validated by the Department.

7. Canada Transportation Act Review – Potential Implications

On February 25, 2016, the Minister of Transport tabled in Parliament the *Canada Transportation Act* (CTA) Review Report. The Review was launched on June 25, 2014, and concluded on December 21, 2015 when it was submitted to the Minister of Transport by the Chair of the Review, the Honourable David Emerson. The Review looked forward 20 to 30 years to identify priorities and potential actions in transportation that will support Canada's long-term economic well-being, and included numerous recommendations. The report and its recommendations, along with any feedback received, are currently being reviewed the Government.¹⁶

Given that the CTA review report included 58 primary and 150 secondary recommendations, this section will focus on highlighting those recommendations that are most relevant to the governance and operations of regional/local airports. These recommendations were extracted both from the CTA Review Report, as well as the summary provided by InterVISTAS¹⁷, and have been grouped by theme.

- i. Governance & Assistance – Smaller Airports
 - a. Expansion of the Airport Capital Assistance Program (ACAP)
 - b. Introduction of a new *Airports Act* that would be applicable to all airports that operate commercial services. Such an Act could:
 - i. Regulate airport fees
 - ii. Mandate “airline experience” on an airport's board of directors
 - iii. Require meaningful and timely consultation on major capital projects
 - iv. Strengthen performance reporting and benchmarking

¹⁶ *Canada Transportation Act Review – Report*, Government of Canada, accessed on March 24, 2016, <http://www.tc.gc.ca/eng/ctareview2014/canada-transportation-act-review.html>

¹⁷ *Canada Transportation Act Review Webinar*, InterVISTAS, February 26, 2016

- ii. Global Hub Strategy (including Security & Screening)
 - a. Ensure alignment between priority markets for tourism promotion, immigration and border facilitation measures, international measures, and air services negotiations
 - b. Replacing CATSA with a single aviation security agency that had both regulatory and operational oversight
 - c. Funding security & screening from both Air Traveller Security Charges (ATSC) as well as general government revenues
- iii. Airline Strategy
 - a. Moving toward a more competitive and global marketplace through measures such as bilateral agreements, automatic increases in capacity to stimulate market activity, and a greater weight on policy objectives (tourism, trade, etc.) when developing negotiation strategy.

Appendix C – Summary of Prior Airport Reviews by Niagara Region

This appendix provides condensed summaries of the prior Airport reviews undertaken by the Region, and is organized as follows:

1. 2009 Niagara Airports Study
 - a. 2009 Study - Overview
 - b. 2009 Study - Recommendations
 - c. 2009 Study – Approved Council Motions
 - d. Subsequent Council Motions

2. 2003 Niagara Regional Airports, Airports Roles and Marketing Study
 - a. 2003 Study - Overview
 - b. 2003 Study Recommendations – Business Strategies
 - c. 2003 Study Recommendations – Regional Role & Governance
 - d. 2003 Study Approved - Council Motions

3. 1995/1996 Ad Hoc Task Force

1. 2009 Niagara Airports Study

1a) 2009 Study - Overview

The following summary information has been captured from report CSD 121-2009 / PW 89-2009 titled “Niagara Airports Study, Determination of the Role for the Niagara Region in the Operation and Financing of the Niagara Central and/or Niagara District Airports”, as well as the study prepared by Jacobs Consultancy Canada Inc. of the same name.

Topic	Details
Scope	Terms of reference for the 2009 report were established via approval of PW 40-2008, and included the following purpose for the study: • To determine if there is a role for the Region in the operation and financing of the NDA and/or NCA And if that determination is affirmative for either or both airports: • To determine a financing strategy with respect to capital and operating expenses for Regional involvement • To determine best governance structure ensuring accountability • To set out a clear plan for the transfer of responsibility minimizing disruptions and maintaining efficiency of airport

	operations The study was to be mainly a review of existing reports with sufficient analysis to address the requirements of the terms of reference.
Author	Jacobs Consultancy Canada Inc.
Methodology	The study methodology and approach included the following: • Documentation review of previous related studies • Site visits, interviews and Stakeholder Survey • A review of the financial position and economic impact of both local airports • A SWOT analysis for both local airports • A review of the competitive position of both local airports versus other airports in Southern Ontario and Western New York • A description of the alternative governance structures for municipal airports • Projected requirements and potential funding sources for the next five years
Content	Notable sections of the report include: • Situational analyses of both the NCA and the NDA. • Documentation review & summarizations of prior reports written. • Results from a stakeholder survey of 26 representatives of municipalities, economic development offices, and chambers of commerce within Niagara. • Economic benefits from the airports to the Regional economy • Comparative analysis to the following airports: Hamilton International, Pearson International, Buffalo-Niagara International, and Niagara Falls International. • Alternate governance structure overview • Projected financial support requirements (2009 to 2014) • Potential airport funding sources, which considered Federal, Provincial and Municipal programs, as well as Venture Capital, Public-Private partnerships and other private sources. • Conclusion, recommendations and implementation
Findings	As a result of Jacobs Consultancy's investigations, the following conclusions were drawn: • Both NCA and NDA benefit from supportive municipal governments and committed Commissioners. • There has been a plethora of studies and reports sponsored by the Commissions and by local, regional and provincial

	governments over the past 15 years. Many of the same themes have recurred. • There will be an on-going requirement for an airport located within the Region to serve the business and general aviation needs of residents and visitors alike. The NDA will likely continue to serve in that role which is aligned with the Region's Transportation Strategy. • The aviation roles of the NCA and NDA will essentially remain the same for the short to medium term, although there is also the potential for limited scheduled service into the NDA in that time period: - o The NCA will continue with its focus on local recreational and flight training markets with the associated fuelling, maintenance and support services; and - o The NDA will service the recreational and flight training, tourism charter, medevac and regional business aviation segments and provide associated fuelling, maintenance and support services to the aviation community. • In the longer term there could be additional opportunities as a result of the Niagara to GTA Corridor and "Grow South" initiatives: some believe the greater opportunities would accrue to the NCA because of its relative location. • Each has some non-aviation related business potential, although this will be a more significant part of the business at the NDA. • Both have developable land, although the NDA has the advantage of some municipal services and is significantly ahead in terms of planning and marketing potential development scenarios. • Both facilities currently require an operational subsidy, but whereas NDA has a reserve for small capital projects and maintenance, NCA is cash negative and is likely to remain in that position even if the municipal subsidy is doubled over the next five years. • Both facilities are in need of immediate and continuing capital investment. - o The NCA's airside infrastructure is in a "fair to poor" condition – a \$1.6M airside programme has been identified by the Commission to date; and - o The NDA's airside infrastructure is generally in a "fair to good" condition – a \$12M programme of airside and groundside improvements has been developed by the Commission. • Both NCA and NDA demonstrate many of the same
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	strengths and weaknesses, but in terms of intensity, NDA has relatively greater strengths and lesser weaknesses than NCA. • Both airports need more dedicated marketing resources to realize the futures laid out in their strategic plans. • In a poll of stakeholders associated with both airports, there was a general sense that the NDA had greater utility and value to the Region. Overall, respondents consistently gave a higher endorsement to the Region's involvement at some level (ownership, funding, partnership, Board) with the NDA than that given to involvement with NCA. Over one-third of respondents stated that the Region should not be involved with the NCA. • Both airports provide economic benefits to the communities they serve and airports act as a significant factor in business location decisions. In the same survey noted above, over two-thirds of respondents identified the NDA as being of high or very high importance to the regional economy, compared to a 30% endorsement for the NCA. • There are major airports with deep pockets in the surround area that have a significant impact on the NDA and NCA. While they do not view the NDA & NCA as competitors, they do limit the realistic opportunities for both airports. • There are a number of external funding sources that may be available to support airport development projects, including: the Building Canada Fund; Public Private Partnership Funds; pure private sector investments; and the relatively new and time limited, Infrastructure Stimulus Fund. It is with an application to the ISF that the NDA has accessed provincial and federal funds for its infrastructure renewal project, subject to matching local/regional funding. • Two of the three NDA supporting municipalities have formally indicated by resolution of their Councils that they favour the adoption of the NDA as a regional facility, funded solely from the Regional tax base. • In terms of Options for Change, the Region has a range of options available to it, from a fully centralized role (with ownership and operation coming under the Region's purview), through a shared funding arrangement, to a fully hands-off approach (status quo).
Financial	Jacobs Consultancy forecasted future performance (over a 5-year period) based largely on historical trends, as there were no long term budgets generated at either airport. For the NDA, continuation of the existing \$250,000 municipal contribution was assumed, and the resulting projections anticipated

	operating deficits in each of the five years of up to \$151,000. These estimates excluded any planned capital expenditures. Forecasted capital spending noted amounted to the \$11.6 million identified in the Infrastructure Stimulus Funding requested. For NCA, municipal contributions were projected with a growth rate of 8% annually, with operating deficits anticipated in each of the 5 years of up to \$134,000. Similar to the NDA, these forecasts excluded any capital-related investments. Capital costs noted in the report included \$1.6 million in priority runway/taxiway rehabilitation, along with \$465,000 in terminal, hangar and equipment.
Economic Benefit	Economic impact figures quoted in the 2009 report were derived from the report written by Archbold Leclerc Consulting in 2008. Those figures included an estimated 85 jobs related to the NDA airport, with a payroll of \$2.9 million and direct spending of \$2.3 million, and a total economic contribution of \$18 million in 2007.
Prior Studies Summarized	As part of the 2009 report, Jacobs Consultancy summarizes other relevant reports including: • <i>Niagara District Airport Economic Impact Study – Phase I Assessment of Current Impact</i> (Archbold Leclerc Consulting, 2007) • <i>Niagara District Airport Projections of Economic Impact 2012</i> (Archbold Leclerc Consulting, 2008) • <i>Niagara District Airport Marketing Plan 2007-2009</i> (Archbold Leclerc Consulting, 2007) • <i>Niagara Central Airport – Business Development and Marketing Study</i> (Archbold Leclerc Consulting, 2006) • <i>Hamilton Goods Movement Study</i> (IBI Group, 2005) • <i>Niagara Regional Airports, Airports Roles and Marketing Study</i> (Marshall, Macklin, Monaghan / Sypher:Mueller International Inc., 2003) • <i>Niagara District Airport Strategic and Operating Plan</i> (Marshall, Macklin, Monahan / Sypher:Mueller International Inc., 2004) • <i>Southern Ontario Gateway Council – Economic Impact Study</i> (Intervistas, 2006) • <i>Southern Ontario Gateway Council – Strategic Plan</i> (Intervistas, 2006) • <i>Study of Municipal Airports in Ontario</i> (Sypher:Mueller International Inc., 2006)

1b) 2009 Study - Recommendations

Based on the conclusions outlined above as well as the analysis contained in their report, Jacobs Consultancy developed the following recommendations. As a part of CSD 121-2009 / PW 89-2009 Regional staff indicated a position on each of these recommendations for Council's consideration.

Jacob Consultancy Canada Inc. Recommendations	Regional Staff responses per CSD 121-2009 / PW 89-2009
1. Niagara District Airport	
a. Niagara Region should take ownership of the Niagara District Airport as the Niagara Regional Airport (NRA).	Staff agree that based on the review and analysis completed by Jacobs, the Region should be responsible for the funding and operation of Niagara District Airport. NDA is, and will likely remain the primary 'regional airport' and has great potential for future growth. Staff also concur with the benefits to the regional economy that are provided by the airport in terms of economic impact, encouraging tourism, supporting local businesses and industry and supporting other public service activities. The airport has done a significant amount of marketing and branding utilizing the Niagara District name and logo. Staff would recommend that renaming the airport be deferred for now but that the matter be reviewed further during the next year as part of an ongoing marketing strategy.
b. In the short term, the airport should continue as an entity outside the Region's departmental structure reflecting the specialist nature of the operation, and in line with the Terms of Reference charge to minimize disruption and maintain efficiency.	Staff recommends that, over the short term at least, the Region should own and operate the Niagara District Airport as an extension of the Public Works Department. This will ensure that the airport is operated in accordance with the Region's policies, priorities and strategic objectives. It will also provide better accountability and a higher level of direct control over operations and spending. This is particularly important over the next year to ensure that the \$11.6 million dollars of stimulus funding is utilized effectively and appropriately. Staff of the Public Works Department has the experience and professional expertise to design and construct the proposed infrastructure projects proposed under the stimulus program. We are confident that the work can be completed during the 2009/2010 construction season, in order to meet the program deadline.

	The consultant has expressed the opinion that this model results in higher operating costs. Staff disagrees with this position. We feel that, while there will be some transitional costs to absorb existing NDA employees, this will not be a significant concern due to the small number involved (Airport Manager plus five employees – approximately \$180k total annual salaries). We will likely experience higher costs as a result of job evaluation and wage harmonization within our salary administration plan. But staff feels that there will be significant cost savings by elimination of duplication of services and utilization of existing Regional technical, operational, and administrative support to assist airport staff in the operation of NDA (eg. Purchasing, human resources, legal, accounting, information technology, fleet maintenance, snow removal, line painting, project management, etc.) The consultant has also indicated that this model results in 'potential for political interference'. Staff is of the opinion that elected political officials should be directly accountable for all decisions made regarding a significant component of municipal infrastructure such as an airport. Even if the airport commission governance model were chosen, staff would recommend that the Chair and the majority of the membership of the Commission should be Regional Councillors. It should be noted that this Government Ownership model works very well at a number of successful local airports across Ontario, including Region of Waterloo International Airport as an example. In order to ensure that local business and aviation stakeholders continue to have some input into the operation of NDA, staff would recommend that an Airport Advisory Committee be created to provide valuable advice to staff, Committee and Council.
c. Niagara Region should provide matching funds under the terms of the Infrastructure Stimulus Fund.	Staff agrees with this analysis and supports the Region's financial participation in these capital improvements which will provide for maximum use of funding from other levels of government and provide a boost to the local economy. If we do not take

	advantage of this unique opportunity it may be many years before we or the current municipal operators can identify funding to carry out these necessary infrastructure improvements. Further to the direction to staff provided by TSSC, we have met with the CAO's from St. Catharines, Niagara Falls and Niagara-on-the-Lake. They have advised that their municipalities have not identified any capital funding which could be allocated to the stimulus projects proposed for the airport. In addition, we would not recommend that the existing reserve funds at NDA be used to fund infrastructure improvements. We feel that it would be prudent to maintain a reasonable balance in this reserve in the event that there is some emergency situation that requires funding to continue safe and efficient operation of the airport.
d. In the medium (3~5 year) term, the Region should review the operation of the newly created NRA Commission and determine if the governance model continues to be the most appropriate going forward.	As outlined previously, staff does not agree with the recommendation for an NRA Commission governance model. However, we do feel that it would be appropriate over the medium term to review the governance model which is selected and approved at this time.
e. If the Niagara Regional Transportation Authority becomes a reality, the Region should investigate the benefits and costs of transferring the NRA Commission to that body.	Staff agrees with this recommendation. Should the Region establish a transportation authority to deal with other issues such as transit or ports, then the operation of NDA should be considered as a part of this governance structure.
f. The Region should consider continuing financial participation by the NDA's current supporting municipalities to reflect the local benefit of operation (based on relative Economic Impact to local municipalities and Region of the NDA's operation).	While staff can agree with the overall financial theory behind this recommendation, we feel that it would be difficult, if not impossible, to implement. The relative share of economic impact for each local municipality would be difficult to quantify and could vary significantly each budget year. We also have concerns whether such a 'special service charge' would be legal under existing legislation. However, staff will continue to pursue this matter and report further to Committee with our findings and recommendations.
2. Niagara Central Airport	
a. Niagara Region should not participate in the Niagara Central Airport at this time but	Staff agrees that at the current time Niagara Central Airport serves a local need for general aviation and flight training that provides some benefit to the current

provide support from time to time as determined by Regional Council to assist with the NCA's business development.	funding municipalities but does not impact the overall Region. This is evident from the information provided in the Study regarding activity at NCA. This was also confirmed in their marketing and business plans. However, we do agree that the Region should provide some assistance towards future business development at the airport.
b. Circumstances may change over the longer term depending on how the Niagara 2031 Growth Management Plan is implemented as well as the Niagara-GTA Corridor, further noting that Metrolinx has placed the Corridor under its 25 year plan.	We agree that long term planning and growth initiatives could change the present situation regarding the Niagara Central Airport. Therefore, we would recommend that the role of this airport be reviewed by staff as the Niagara 2031 Growth Management Plan is implemented. Future development and growth in the southern half of the Region along with the construction of a major transportation corridor could change the role, opportunities and potential economic impact of NCA.

1c) 2009 Study - Approved Council Motions

The final report and staff recommendations were presented to PWC and Council in September of 2009. At the September 10, 2009 Council meeting, the following motions were carried:

	Details
Motions	• That the Region allocate \$3,869,333 in capital funding, which represents in local municipal contribution under the Infrastructure Stimulus Fund, to carry out infrastructure improvements at Niagara District Airport under the direction of the Public Works Department with a further report to Committee; and • That the issue of ownership and operation of the Niagara District Airport and the Niagara Central Airport be referred for discussion at a future Council Business Planning Session. • That the Region request that the Niagara Central Airport (NCA) submit their Study, identifying their capital needs totaling \$1.6 million; and • That Regional Council consider funding the municipal contribution needed to satisfy the study's financial requirements as they did for the Niagara District Airport (NDA).

1d) Subsequent Council Motions

In 2012, report PW 58-2012 (re: Governance of Local Municipal Airports) was presented to Public Works Committee and Council, seeking direction regarding the future governance of the NDA and NCA. Council passed a motion requesting a further report that contained information acquired from the funding partners, operating agency, other relative sources and Regional staff.

In 2014, report PW 30-2014 (re: Update on Governance of Local Municipal Airports) was presented to PWC and Council. Council passed a motion that no further action was to be taken on the Region assuming ownership of either the NDA or NCA, and that staff be authorized to negotiate with the NDA Liaison Committee for the Region to have membership on the NDA Commission and/or Liaison Committee.

2. 2003 Niagara Regional Airports, Airports Roles and Marketing Study

2a) 2003 Study - Overview

The 2003 report was prepared for the Region as part of the development of the overall transportation strategy. The following provides excerpts of summary material of the 2003 report as presented as part of 2009 report by Jacobs Consultancy, as well as from the 2003 Study titled “Niagara Regional Airports, Airports Roles and Marketing Study”.

Topic	Details
Scope	The key objectives of the study include: - the identification of current characteristics at each of: Niagara District Airport; Niagara Central Airport; and the Grimsby Airpark and of potential aviation market opportunities for the Region; - the definition of aviation demand and specific roles for each of the study airports; and - the identification of facilities and services required to support the recommended roles. - Finally, the report delivers strategies to assist the Region capture the potential market opportunities.
Author	Marshall, Macklin, Monaghan / Sypher:Mueller International Inc.
Methodology	- Relied in part on the study team’s available database of airport market data, as well as NavCanada and Statistics Canada data. - Additionally, interviews and surveys were conducted with key stakeholders and users within the Region, including relevant businesses, community leaders, airport tenants and users, applicable business and trade associations, and municipal officials. - Interviews were also conducted with several airport

	authorities in Southern Ontario, Canada and the US. • Aviation demand forecasts were prepared based upon regional demographics, and local, national and international aviation trends and influences. • A survey was conducted of similar sized airports to compare the types and costs of various aviation services. • A focus group session was undertaken to present the potential aviation market opportunities.
Content	• A Regional and Industry overview is provided including relevant trends. • The report outlines for the NDA, NCA and Grimsby Air Park the air service characteristics (historic activity), strengths and weaknesses and facilities inventory. • A multi-airport comparison is undertaken to examine the types of services offered by similar airports and potential competitors; Buffalo – Niagara International Airport, Niagara Falls (NY), Hamilton International, Stoney Creek, Brampton, Burlington, Huronia-Midland and Lake Simcoe, among others. - o Windsor was selected due to border and casino similarity - o Edmonton Regional Airport Authority was selected because of rationalization to support economic development and transportation needs - o Grand Canyon National Park Airport was selected due to proximity to major international tourist attraction • Demand for each airport was developed utilizing a combination of linear regression of historical activity as well as the consultant's assessment of specific airport services and trends. • Recommendations with respect to both the services that should be pursued for each airport as well as the potential Regional role. • Infrastructure requirements associated with the recommended services (excluding cost projections), along with marketing strategies and implementation plans.
Findings	The study provides a list of lessons learned and best practices, including: • Airport management at studied airports have developed a clear strategic vision; • The strategy is to focus on a particular niche market, based on their market and economic profile; • Airport management works proactively with the relevant public authority to ensure that the strategy and role supports the broader economic development objectives of the

	authority; • Airport management works cooperatively with their current tenants to cross promote and market the airport. Airport management does not have any business connections (i.e. no conflict of interest) with airport tenants; • Management professionally and aggressively markets the airport in cooperation with other stakeholders in the local business and tourism community; • A number of smaller airports are experimenting with unique ways of developing surplus properties on the airport; and • Airport management places great emphasis on customer service and investment in landside amenities, food services, waiting areas and lounges that will attract and retain clients.
Financial	Detailed cost-benefit analysis is included within the report in support of the evaluation of each of the potential lines of business assessed for the airports (i.e. air charters, air taxis, corporate air travel, etc). Projected capital cost or operating forecasts were not identified, nor was a projected net Regional impact associated with the alternative Regional roles considered.
Economic Benefit	The report provides a comprehensive section on “air service trends and how they relate to Niagara”, noting that the annual impacts of the NDA are over \$10 million and that despite the airport’s annual net operating losses, the airport continues to provide a significant benefit to the local community and regional economy.

2b) 2003 Study Recommendations – Business Strategies

Within the study several recommendations are made with respect to lines of business which the airports should focus on. These recommendations were supported by evaluation including cost-benefit analysis, competition and availability of substitutes, and market demand, among other considerations.

Service	Recommendation
Scheduled Air Service	It is not recommended that any of the Niagara Region’s airports pursue this market opportunity. There is sufficient competition from neighbouring airports to assume that it would be difficult to attract a carrier into any of the three study airports. As well, surveys indicate a lack of high demand air services (either inbound or outbound) that could make it viable for an operator. A similar conclusion was presented in a study completed by Brock

	University in 2001.
Air Charters	Based on a cost-benefit evaluation from both an air carrier's and airport's perspective, it was recommended that the Air Charter service be considered as a viable option worth pursuing. This opportunity could potentially generate additional landing and passenger fees for the airport. In addition, the economic benefits to the Region in increased tourism spending should not be ignored. It is the casino market in conjunction with the other tourist attractions that will determine the long-term success of a potential regular charter service. If the casino were to share in the development of this opportunity to the region, the break even to the operator could be more positive.
Flight Training	It is not recommended that the public airports (Niagara District Airport and Niagara Central Airport) directly market flight training, but rather assist the flight training programs wherever possible. Since this is one of the core businesses at the Grimsby Air Park, it is recommended that it continue to actively market flight training. There is a potential opportunity for increased flight training and private activity at nearby Niagara Region airports, including Grimsby Air Park, Niagara District and Niagara Central Airports. Flight training forms an important element of the social and economic fabric of the airports.
Air Taxis	Understanding that this type of air service may be a challenge to develop, it is recommended that the air taxi service be considered as an option worth further investigation. An evaluation of the air taxi opportunity against qualitative criteria for success as defined by an operator indicates that the threat of competition from other modes, mainly road and rail transport is offset by the many benefits that the opportunity provides (e.g., frequency and time savings).
Air Tours (within Niagara Region)	It is recommended that additional air tour services be marketed at the Niagara District Airport as there is substantial demand for this type of air service within the Region.
Corporate Air Travel	The potential growth in this market is relatively limited, and it is not recommended that any additional effort be made to increase the corporate air travel market at the three airports at this time. A survey of Niagara business found that large firms tend to use large urban centres or have policies requiring automobile transportation for distances up to 500 miles, and other respondents indicated occasional business trip in which either air taxi or surface transport would be more economical.

Air Cargo	It is not recommended that any effort be put into developing the specialized air cargo market at the three study airports at this time. Airports with extensive international services such as Pearson or Hamilton Airport have excess outbound capacity that can be sold very inexpensively. Niagara, therefore cannot compete since the use of freighter aircraft is more expensive than belly capacity from these airports, despite the additional (although minimal) trucking costs. Further, the location of the Niagara Region permits 50% of the population in North America to be reached within 24 hours by ground transport. Also, Niagara businesses that were interviewed and/or surveyed, indicated that there is little demand for a regular specialized air cargo service.
Agricultural Air Support Services	Marketing efforts for this service are not recommended . Although the fertile ground in the Niagara Region lends itself to a vibrant agricultural industry, it is believed that there are insufficient benefits to the airports and limited interest from agricultural associations.
Private (Personal Use) Aircraft Fly-Ins	It is recommended that this market opportunity be further explored. It is expected that as tourism increases, fly-in activity will also increase at a similar rate.
Entertainment and News Gathering	Serving as a base for news station aircraft appears highly unlikely given proximity and relative size to Hamilton and Toronto. It is recommended though that the airports remain open to discussing opportunities with film companies in Southern Ontario.
Law Enforcement	It is not recommended that this opportunity be pursued given the Regions' relatively small population and low level of criminal activity, combined with the already existing based aircraft at airports closer to the GTA.
Other	Report notes that repair, overhaul, and avionics are appropriate for general aviation airports such as those in Niagara Region, and agency sales provide an opportunity as well.

The 2003 report then itemized the recommended role for each airport based on a combination of factors including access and proximity to the relevant markets, the potential for growth and likelihood of success, and the existing market base at each airport. Exhibit VIII-1 from the 2003 report is presented below.

Exhibit VIII-1. Roles of Niagara Region Airports

Market Opportunity	Niagara District	Niagara Central	Grimsby Air Park
Scheduled Service	x	x	x
Flight Training	0	✓	✓
Air Taxis	✓	x	x
Air Charter	✓	✓	✓
Air Tours	✓	x	x
Business Aviation	✓	✓	✓
Air Cargo	x	x	x
Agricultural	x	x	x
Private Fly-Ins	✓	0	0
Entertainment	0	x	x
Law Enforcement	0	x	x

Legend: ✓ designates primary role, 0 designates secondary role, x no anticipated role.

2c) 2003 Study Recommendations – Regional Role & Governance

Recommendation	Detail
In the shorter term, regional government continue to foster and maintain linkages with the study airports to ensure that they are appropriately acknowledged and addressed as significant assets in the Region's future economic development initiatives and strategies.	This should include ensuring that air travel is promoted as a viable means of access to the Region's tourism offerings and developing tourism packages and initiatives that include air travel (either for inbound access and/or air tours). In addition, the Region should ensure that the three airports have access to and are included in the Region's database of existing and potential businesses and the Region's economic development marketing materials (i.e. websites, brochures).
As well, it is recommended that in the shorter term regional government establish a fund for special initiatives involving the Region's airports and the attraction of new business	Specifically, the funds would be used to assist the NDA and NCA commissions in addressing business enquires brought forward through the Region which require preliminary planning or investigation. Enquires could come from companies desiring to locate within the Region who require specialized air services or companies desiring to locate

ventures or expanded business operations to the Region.	at or adjacent to the airports. The funds should be made available at the discretion of regional council, and administered and managed through a department of the Region.
Should expanded commercial air service markets materialize at NDA over the longer term, it is recommended that the Region study their specific role and participation in NDA to ensure the airport's continued growth and sustainability, and ensure positive impact and maximum benefit to the Region.	Participation could include involvement in the operation, management and/or funding of the airport. Should expanded commercial air service markets materialize at NDA as suggested and mature into stable forms of transport to access the Region, the catchment area for these markets will most certainly encompass the entire Region and provide positive benefits to the residents and businesses in the Region.

2d) 2003 Study - Approved Council Motions

The final report was presented to the Transportation Strategy Steering Committee (TSSC) on April 21, 2004. TSSC recommended approval of the recommendations within the report titled "Niagara Region Airports – Airport Roles and Markets Study Final Report". This recommendation was subsequently approved by the Public Works and Utilities Committee (PWUC) and Council.

3. 1995/1996 Ad Hoc Task Force

In December of 1995, based on report CAO 16-95 (re: Niagara District Airport), Regional Council approved the creation of an Ad Hoc Committee consisting of the Regional Chair, members of Regional Council, and two members from each the Niagara-on-the- Lake and Welland Airport Authorities (i.e. NDA & NCDRA). CAO 16-95 was prepared in response to motions passed by the four municipalities that funded the NDA at that time, which supported Niagara Region assuming responsibility for the NDA when the formal transfer from the Federal Government occurred (expected formal date was April 1, 1996).

The Ad Hoc committee was tasked with responding to the request from the four local municipalities, and answering the following questions:

- The legal implications for the Region of Niagara if it were to operate the airport with ownership vested in one of the municipalities and the legislative changes necessary to accommodate the present request;
- Assess the merits of the Region assuming ownership and operation of the NDA;
- Verification of the direct and indirect economic benefits of ownership and operation;

- Verification of the financial implications for the Region's budget and future taxation;
- Implications for the viability of other existing airports both inside the Region and viability of the NDA given other airports that are contiguous to the Region (for example, Hamilton, Buffalo, Niagara Falls, N.Y.);
- The potential for public/private partnerships where operations are concerned;
- Compatibility with Regional Council's business plan in particular as it relates to the role of governance in the future.

In September of 1996, the Ad Hoc Committee recommended that Regional Council assume ownership of the NDA, and vest the operation of the airport with a Regional Airport Authority. This recommendation was based on the impact on the Region's economy and potential for greater benefits in the future. It also contemplated a role for that Airport Authority in coordinating, and ultimately assuming responsibility, for other airports in Niagara in order to strengthen air services within the region.

This motion and the related report were deferred by Regional Council in both September and October of 1996, and never ultimately adopted.

Appendix D – Relationship to Regional Strategic Priorities

This appendix provides an overview of the degree to which the services offered at municipal airports align with, and support, Regional strategic priorities and initiatives in the areas of transportation, planning, and economic development.

The review was not restricted to the current list of services offered at the airport or the current activity levels, rather at the broader perspective of services available at municipal airports. This approach ensures that any potential future increase or expansion in any of the categories can be considered when assessing the operation and funding options available.

The degree to which the airport currently provides any of the service categories mentioned or likelihood of expanding beyond those is considered as part of the evaluation of governance alternatives (Appendix G).

Also included in this appendix is a summary of the various public benefits derived from airport operations that have been well documented in other reviews and studies.

The contents of this appendix have been structured as follows:

1. Summary
 - a. Transportation and Planning Summary
 - b. Economic Development Summary
 - c. Strategic Priorities Summary
2. Transportation and Planning Detail
 - a. Transportation Master Plan
 - b. Inter-Municipal Transit
 - c. Municipal Comprehensive Review
 - d. Other (GO Rail expansion, Go Hub and Transit Stations Study, NGTA Corridor)
3. Economic Development Detail
 - a. Tourism Industry Analysis and Options Study
 - b. Team Niagara Economic Development Action Plan
 - c. Foreign Trade Zone
 - d. Improve Global Attractiveness
 - e. Other (Attraction of Foreign Financial Institution)
4. Public Benefits of Airports

1) Summary

1a) Transportation and Planning Summary

The Region is currently undertaking a Transportation Master Plan (TMP) study, a GO Hub and Transit Stations Study, is supporting municipalities and transit agencies in the review of transit services, and is advocating for GO Transit and the NGTA East Corridor expansion. Although the results of these initiatives will not be finalized until after the Airport Review report has been presented, there are a few observations with respect to the importance of municipal airports that can be derived from those study processes:

- Airports can represent an important community asset with respect to providing a complete multi-modal transportation system within a region
- The value of an airport as a support to the transportation network is enhanced where scheduled passenger services or enhanced freight or charter services have been established
- Other forms of general aviation or airport activity provide minimal incremental benefit to the transportation network

Given that many of these initiatives, including the TMP, are still ongoing, reference to the existing approved Transportation Strategy is also noteworthy. As part of the 2012 update, Regional Council endorsed a strategy with eight guiding principles built around how transportation can play a role in improving the quality of life of Niagara's residents and workers and for facilitating economic development. The guiding principles that directly and indirectly speak to the role of the airports include:

- Recognize that all modes of transportation are important and have a role to play in the day-to-day lives of our citizens, our community's health and the growth of our economy.
- Improve connectivity, travel and commuting conditions within, to and from Niagara for our residents, employees and visitors.
- Improve conditions for the efficient and appropriate movement of goods within, to and from Niagara.
- Recognize the influence that transportation and land use development have on economics, social well-being, public health, and the natural environment, and support plans, policies, infrastructure and programs that improve these aspects of life in Niagara.
- Recognize the importance of railway facilities, port facilities, Niagara's airports, and the international bridges, their roles in the movement of goods and people and their contributions to Niagara's economy.

The Region is also undertaking a Municipal Comprehensive Review (MCR) which is expected to conclude in Q4 2016. The MCR will examine growth potential and local

priorities for growth and development over the long term, and plan for where and how that growth will be accommodated.

From a land use/infrastructure planning perspective it is important to understand the relationships airports have with adjacent areas. It is also important to understand how airports can be a catalyst for important employment areas if the areas surrounding airports are planned for the following:

- Land use designations that permit employment uses, including large format employment uses that have the potential to create synergies around the airport land uses;
- Large format, warehousing and logistical land uses that can often be accommodated in areas without municipal services (i.e. “Dry Industrial” areas);
- Access to airports for employment purposes will likely be exclusively via car due to the airports’ locations, however there is an opportunity to see how future connections to transit can be accommodated; and
- Proximity to major transportation routes (i.e. 400 series highways) is important for the success of the types of land uses that typically locate near airports.

1b) Economic Development Summary

As outlined in greater detail in section 3 of this appendix, the charter, freight and scheduled passenger services offer the greatest potential of airport services to support priority Economic Development initiatives as identified in the Team Niagara Economic Development Action Plan 2015-18, and Regional Council's strategic initiatives. Introduction of, or expansion to, such services at an airport would have the potential to support the following initiatives:

- implementation of the Foreign Trade Zone designation in Niagara
- the Team Niagara plan
- the Tourism Industry Strategy
- a Strategy to Improve Niagara's Global Attractiveness.

The benefit from these airport services could occur through expanded tourism opportunities in the region and improved business travel or freight traffic into/out of the region.

The potential for, and incremental benefit from, these services will likely be constrained by the relative proximity to larger and more established airports. The levels of investment needed, timeframe involved, regulatory changes, and partnerships required to achieve the estimated levels of passenger/freight traffic necessary to encourage and sustain expanded economic growth will also present challenges. Further detail on these services specific to the airport is provided in greater detail in Appendices E and D, with

airport-specific consideration of these costs and benefits incorporated in the analysis and recommendations in Appendix G.

Of the remaining services provided at municipal airports, skydiving, sight-seeing/tour operators, event-hosting, and itinerant recreational travel do support tourism activity in the region, while commercial development on airport lands can provide a source of economic activity. The overall impact from these activities is not likely to be significant enough to materially move the related strategic priorities forward.

1c) Strategic Priorities Summary

Based on the assessment of the linkages to strategic priority projects that was undertaken as part of the transportation, planning and economic development areas above, the lines of business undertaken at municipal airports were assessed at a high level in order to estimate the degree to which they could potentially impact Council's approved strategic priorities. Input from stakeholders that was collected throughout the consultation process was considered in preparing this summary. The results are summarized in the following table:

Relevance of Municipal Airport-based Services to Regional Strategic Priorities

Line No.	Service Type	Strategic Priorities*			
		Moving People & Goods	Investment, Innovation, Entrepreneurship	Labour Ready Workforce	Positioning Niagara Globally
1	Recreational Users	○	○	○	○
2	Flight Training	○	○	◐	○
3	Tours / Sight-seeing / Skydiving	○	◐	○	○
4	Aircraft Maintenance	○	◐	○	○
5	Site Development or Manufacturing Activity	○	◐	○	○
6	Community Groups & Event Hosting	○	○	○	○
7	Other (Medevac, Search & Rescue, etc.)	○	○	○	○
8	Charter Services	◐	◐	○	◐
9	Passenger Services (Scheduled & Seasonal)	●	◐	○	◐
10	Freight Services	●	◐	○	◐

* Note - excludes 'Doing Business Differently' & 'Organizational Excellence' as these are priorities which would be applied should Council elect to become engaged in the airport business.

Legend:	
●	Significant contributor (or potential contributor) to advancing the strategic priority
◐	Benefit (or potential benefit) exists with respect to advancing the strategic priority
○	No material impact (current or future) to advancing the strategic priority

The greatest potential for materially impacting the strategic priorities is considered to reside in lines of business that are currently not in place to a significant degree (i.e. charter, passenger and freight services).

Some degree of benefit has been identified in several areas of commercial activity such as tourism oriented activities (example – skydiving & tours), site development, airport-based manufacturing and maintenance operations, and flight training centres.

The remaining services were generally considered to not have a notable potential to advance the strategic priorities.

It is important to note that although for several of these services a direct impact on Regional Council's strategic priorities has not been identified, that is not to suggest that no public benefit exists for such services. Studies such as the 2006 Study of Municipal

Airports by Sypher¹ and the 2009 Niagara Airports study by Jacobs Consultancy² specifically noted some of the socio-economic benefits that these services can provide. Examples of such benefits include supporting public service activities (health care, policing, search & rescue), social functions (education, vocation and leisure), and attraction of professionals to the community. These benefits are expanded upon further in section 4 below.

2. Transportation & Planning Detail

2a) Transportation Master Plan

Initiative: Transportation Master Plan
Overview of Initiative: The overall goal of this study is to develop a multi-modal Transportation Master Plan for Niagara Region that encompasses the policy directions of the Regional Official Plan and priorities of Regional Council. The purpose of this study is to accomplish four main objectives: • Improve the travel demand forecasting capability of Niagara Region through the development of travel demand forecasting models; • Develop a complete streets policy and design guidelines for Niagara Region; • Update the Niagara Region Bikeways Master Plan; • Develop a TMP with policy, program and infrastructure recommendations for the 2021, 2031 and 2041 horizons to support the growth and economic objectives of the ROP and Regional Council; and • Develop detailed solutions to five sub-areas with critical constraints.
Strategic Priorities Supported by the Initiative: • Moving People and Goods
Economic Prosperity (Dials) Supported by the Initiative: • Growth • Investment • Infrastructure
Timing of the Initiative: • Setting the Stage for TMP Vision and Direction (Public Consultation Centre – Round #1) (Completed – public meetings conducted on November 17, 18 and 19, 2015)

¹ Study of Municipal Airports in Ontario, Sypher, September 2006

² Niagara Airports Study – Determination of the Role for the Niagara Region in the Operation and Financing of the Niagara Central and/or Niagara District Airports, Jacobs Consultancy Canada Inc., July 31, 2009

- TMP Options (Public Consultation Centre – Round #2) (June 2016 – to be joint public meetings with the Municipal Comprehensive Review and WWW Master Servicing Plan studies)
- TMP Recommendations (Public Consultation Centre – Round #3) (November 2016)
- Final TMP Reports (March 2017)

Summary of a Municipal Airport's Importance:

- The municipal airports are part of the multi-modal transportation system in Niagara and have a role to play in improving the quality of life and facilitating economic development.
- The municipal airports will:
 - influence transportation and land use development around the airport sites;
 - provide an alternative to private automobile for long distance travel to and from Niagara for business and tourism travel; and
 - provide important inter-city connections to larger economic centres in Ontario, Canada and the U.S.A.

2b) Inter-Municipal Transit

Initiative: Inter-Municipal Transit

Overview of Initiative:

- The cities of St. Catharines, Welland and Niagara Falls, supported by Niagara Region, are working together to develop options that will lead to an innovative, efficient, customer-centric and integrated transit model in Niagara. An RFP has been awarded for external services that will identify best-in-class approaches. In the meantime, the working group is actively working to pursue improvements such as improved connectivity to post-secondary institutions, better fare integration and improved trip planning.

Strategic Priorities Supported by the Initiative:

- Moving People and Goods

Economic Prosperity (Dials) Supported by the Initiative:

- Growth
- Employment
- Investment
- Infrastructure
- Community Symptoms

Timing of the Initiative:

- 2017

Summary of a Municipal Airport's Importance:

Connectivity between various modes of travel is an important element of an integrated transit system. Should utilization of a municipal airport as a means of travel expand, or activity levels in or around a municipal airport increase, there would be benefits associated with closer alignment of the airport with an integrated transit system.

2c) Municipal Comprehensive Review

Initiative: Municipal Comprehensive Review (MCR)

Overview of Initiative:

The MCR will examine growth potential and local priorities for growth and development over the long term. It will also plan for where and how that growth will be accommodated. A MCR is an official plan review initiated by the municipality and it comprehensively applies the policies and schedules of the Growth Plan for the Greater Golden Horseshoe, 2006.

The scope of the MCR project will include and not be limited to the following key five components.

1. Background Review and Technical Analysis

The Regional MCR will involve undertaking a number of background studies with many of these studies supporting the generation of new population and employment forecasts to 2041. These studies include but are not limited to:

- a. Confirming Regional Land Budget to 2041
- b. Analysis of growth trends and historical analysis (including residential and employment growth within the greenfield and built-up areas)
- c. Assessment of the viability and developability of the land budget

d. Intensification Capacity Analysis

2. Issues and Opportunities

Based on the findings from the background study and review of previous projects at the Region, an “Issues and Opportunities” paper will be drafted that highlights key findings and provides a basis for identifying growth options.

3. Identifying Options for Growth

Through updated forecasts, various growth options will be developed and evaluated for both residential and employment land development. These scenarios will be based on different assumptions such as future levels of intensification, and each growth option will include its fiscal, environmental, economic, social, and cultural impact. As well, this component will thoroughly examine and rationalize the current location of the urban area boundaries.

4. Refinement of the Preferred Growth Option

Based on feedback from Phase 3, a preferred growth option for Niagara and local area municipalities will be proposed. A series of engagement techniques will be used to present the information to stakeholders and the general public. Based on the technical background review and preferred growth option, adjustments to Settlement Area Boundaries may be required.

5. Regional Official Plan Amendment and Other Applicable Recommendations

In this phase, a Regional Official Plan Amendment will be prepared to implement the preferred growth option.

Additional information on the MCR can be found in PDS 30-2014 and PDS 8-2015.

Strategic Priorities Supported by the Initiative:

- Moving People and Goods
- Innovation, Investment and Entrepreneurship
- Positioning Niagara Globally

Economic Prosperity (Dials) Supported by the Initiative:

- Growth
- Investment
- Infrastructure

Timing of the Initiative:

The MCR is currently completing the first two phases of the project (Phase 1: Background Analysis, Issues and Opportunities and Phase 2: Technical Analysis). Phase 3, Growth Options, is currently underway with an expected completion mid-summer. Phase 4 is anticipated to conclude in Q4 2016.

General Commentary on a Municipal Airport's Importance to the Initiative:

From a land use/infrastructure planning perspective it is important to understand the relationships airports have with adjacent areas. It is also important to understand how airports can be a catalyst for important employment areas if the areas surrounding airports are planned for the following:

- Land use designations that permit employment uses, including large format employment uses that have the potential to create synergies around the airport land uses;
- Large format, warehousing and logistical land uses that can often be accommodated in areas without municipal services (i.e. "Dry Industrial" areas);
- Access to airports for employment purposes will likely be exclusively via car due to the airports' locations, however there is an opportunity to see how future connections to transit can be accommodated; and
- Proximity to major transportation routes (i.e. 400 series highways) is important for the success of the types of land uses that typically locate near airports.

2d) Other (GO Rail Expansion, NGTA Corridor)

In addition to the projects noted above, several other transportation and planning-related initiatives are identified as part of the strategic priority list.

A Provincial commitment to GO Rail Expansion has been established as the top priority for Regional and local municipal Councils. As a part of this process, a Business Case was submitted to the Province in April of 2015, followed by subsequent collaboration with the Province and Metrolinx.

In support of the introduction of two-way, all-day GO train service, Niagara Region is building upon the completed 2011 Niagara Rail Expansions Environmental Study Review (ESR) and undertaking a Hub and Transit Station Study (HTSS) for the four preferred future GO Transit station areas. The study involves extension consultations, and the following phases with an expected completion date in mid 2017:

- o *Phase 1 Study Context and Site Review*
- o *Phase 2 Prepare and Development Visions, Principles, Options*
- o *Phase 3 Prepare Secondary Plans*
- o *Phase 4 Primary Zone Technical Analysis*
- o *Phase 5 Station Area Design and Layout*
- o *Phase 6 Implementation Plan and Planning Framework Update*

Similarly efforts have continued in order to pursue a Provincial commitment to the NGTA East corridor. Niagara is advocating for the Province to complete the planning work for this corridor so that an alignment for this highway can be defined expeditiously from the broad corridor that is currently being protected. Once the Provincial planning work is done, employment lands in the Gateway Economic Centre and Zone not needed for the highway within the protected corridor can be freed up so that planning and development of those lands can proceed unhindered.

In each case, it is not expected that any of the services provided by Municipal airports will significantly impact the advocacy efforts or study outcomes. However, the results of these initiatives could eventually influence the activity levels or operations of Niagara's municipal airports through increases in Niagara's business activities.

3 Economic Development Detail

3a) Tourism Industry Analysis and Options Study

Initiative: Tourism Industry Analysis and Options Study

Overview of Initiative:

In May of 2015, Regional Council requested an analysis of the Niagara tourism sector and what role(s) the Region should pursue to support the tourism industry in Niagara. As a result, Brian Merrett & PKF Consulting were retained to assist with the project. Stakeholders, including destination marketing organizations, Economic Development Officers and the Niagara Parks Commission, as examples, were engaged throughout the process, including two roundtable sessions.

The study work included a review of the volume and value of tourism visitation to Niagara Region, the current tourism sector structure in Niagara, and tourism roles for Niagara Region.

Key findings of the report that are relevant to the airport discussion include:

- Consistent with most Canadian destinations, Niagara Region attracts most of its tourists from neighbouring municipalities and states. Three-fifths of the destination's tourists were Ontario residents, including about one-third who live in Toronto. A further one-quarter of annual visitors in 2012 were Americans. Neighbouring New York State is the largest single contributor of U.S. tourists to the region, representing about half of the U.S. market.
- A high proportion of Niagara Region's Canadian tourists come to enjoy the Falls, casinos, attractions, and eateries on day excursions. In fact, approximately two-thirds are same-day tourists – a proportion that has remained stable over time,

hovering between 61% and 65% over the past four years.

- Similarly, at least 6-in-10 U.S. visitors came to Niagara Region but did not spend the night.
- In 2012 close to 6-in-10 overseas visitors also took in the sights of Niagara Region on a day excursion, either crossing to Canada from the U.S. or spending their nights in Toronto or another Canadian location and venturing to Niagara Region for the day. This proportion has remained relatively stable from 2008 through 2012.
- Even with solid annual growth, the overseas market is projected to generate less than 5% of the total overnight travel to Canada.
- Overnight tourists represent about one-third of all visitors to the region but a much higher proportion of tourism spending. The 36% of tourists on overnight trips account for 70% of all tourism spending in the region over the year.
- Over the past few years, the typical overnight tourist spends two nights in Niagara Region, on average. During this two-night stay, the travel party will spend about \$464 or over four times the \$99 spent by a same-day visitor to the region (2012 figures).
- Clearly, Niagara Region has a pleasure advantage. Two-thirds of its overnight visitors in 2012 were on pleasure trips (67%) compared to one-third of Ottawa's (31%), one-quarter of Toronto's (25%) and two-fifths of Windsor's overnight tourists (44%). Hence, of the 8.5 million nights spent in Niagara Region over the year, three-fifths (5.1 million) were spent in the region's hotels, motels, and other commercial properties.
- Niagara Region's overnight tourists participate in a wide range of activities on their trips. The most popular segments encompass entertainment and/or cultural activities (58%). Almost 4-in-10 tourists go to a cultural attraction or event, including historic sites, museums/galleries and performances while on their trip. Casinos are also quite popular, attracting more than one-quarter of Niagara Region's overnight tourists. About 3-in-10 overnight tourists also engage in some form of outdoor activity while travelling in Canada. The most popular is visiting a nature park (19%).
- According to the Conference Board of Canada, Niagara Region's total GDP was estimated at \$14.78 billion in 2012, with a total employment of 201,750 jobs. As such, Niagara's tourism sector accounts for about 8% of the Region's overall GDP,

and 10% of the jobs.

The following are the major recommendations with respect to potential roles for Niagara Region that came from the roundtable discussions, and are ranked in order of importance in the opinion of the tourism representatives from across the region:

1. Transportation/Access Infrastructure
2. Wayfinding/Signage
3. Economic Development Strategy
4. Facilitation/Coordination
5. Planning and Policies
6. Special Event Bid Fund
7. Marketing as required

Report ED 4-2015 provides further detail of the study, including the full report completed by Brian Merrett and PKF Consulting Canada.

Strategic Priorities Supported by the Initiative:

- Investment, Innovation, Entrepreneurship

Economic Prosperity (Dials) Supported by the Initiative:

- Employment
- Growth
- Investment

Timing of the Initiative:

Study has already been completed and was presented to Council in November of 2015. Additional work has continued in 2016 based on the business case presented in the 2016 budget.

Summary of a Municipal Airport's Importance:

As noted in the overview above, through the study process industry representatives did identify Transportation/Access Infrastructure as a potential area where the Region can serve a role in supporting tourism. Those same representatives identified airports, along with other modes of travel, such as rail, roadway, and transit as areas of potential opportunity.

Sight-seeing tours and skydiving activities do form a part of the full suite of activities undertaken by visitors to the region. Similarly recreational pilots originating from outside of the region and event hosting do comprise a portion of visitors to Niagara. Relative to total tourism activity levels, these contributions will likely remain relatively small.

The greatest potential benefits in terms of tourism (along with the resulting economic benefits) is likely related to passenger services, if realized. The potential of these

benefits may be constrained due to both the proximity of existing competitor airports and the travel patterns that suggest most visitors are from areas where alternate modes of transportation may remain more convenient and cost efficient. Validation of the demand for this air service will be important, as will active involvement of the tourist operators.

The remaining lines of business associated with municipal airports have little to no impact on tourism activities.

3b) Team Niagara Economic Development Action Plan

Initiative: Team Niagara Economic Development Action Plan
Overview of Initiative: The plan was approved by Council in March 2014 sets four priorities: • Revitalize Team Niagara to strengthen partnerships among Chief Administrative Officers (CAOs), Economic Development Officers (EDOs), the Niagara business community and associations; and post-secondary institutions in Niagara • Investment Growth/Business Attraction • Innovation and Entrepreneurship • New and Expanded Partnerships
Strategic Priorities Supported by the Initiative: • Investment Growth/Business Attraction • Innovation and Entrepreneurship • New and Expanded Partnerships
Economic Prosperity (Dials) Supported by the Initiative: • Community Symptoms • Employment • Growth • Infrastructure • Investment • Taxation
Timing of the Initiative: An update on 2015 results and 2016 plans was presented at the April 28th 2016 meeting of Regional Council. Investment focus in 2016 will include focused outreach to key Canadian Consult

Generals in the United States, a special auto sector related trade mission to SE USA in Fall 2016, and a more investment outreach to the energy sector during 2016 (reflecting low oil prices).

Similar type changes will occur in Innovation/Entrepreneurship-include new proposal on Small Business Centre outreach across the region; Advocacy-new initiatives to support Electricity Cost outreach, major investment projects in Niagara; and, Economic Research and Analysis- new initiatives to support FTZ Marketing and Hamilton/Niagara Playbook.

Summary of a Municipal Airport's Importance:

With the recent addition of Niagara as a Foreign Trade Zone Point, Niagara is positioned as a strategic gateway into Canada via traditional road and canal shipping opportunities. In addition, the notion of an air transport hub will continue to improve the relevance of Niagara as a region suitable for foreign direct investment. In addition, the airport has the potential to provide additional trade opportunities for existing companies doing business and supplying the United States economy. The adjacent airport lands provide opportunity for logistics and aeronautics companies to obtain direct access to these services.

3c) Foreign Trade Zone

Initiative: Federal Commitment to and Implementation for a Foreign Trade Zone in Niagara

Overview of Initiative:

Purpose of the project is to obtain a designation of a Foreign Trade Zone (FTZ) Point for Niagara region. Benefits include marketing to attract new businesses to Niagara (and expansion of existing ones) to take advantage of federal tax and duty relief programs for re-exporters; intelligence and awareness (derived from a FTZ Task Force's regular meetings) in the business of international trade; as well as a focus and driver for marketing employment lands and other prosperity-focused assets and activities in the region.

Strategic Priorities Supported by the Initiative:

- Positioning Niagara globally

Economic Prosperity (Dials) Supported by the Initiative:

• Employment • Investment • Growth
Timing of the Initiative: On April 15, 2016, the federal Government announced that Niagara has been designated a Foreign Trade Zone point. This designation is one of a handful in Canada and the first in Ontario. The Region's next step will be to convene the first FTZ Single Window Task Force (SWTF) meeting for Niagara. The SWTF will comprise all the relevant government representatives (including the Region and the Province), plus a FTZ Private Sector Steering Committee (PSSC) from Niagara. The Task Force will meet approximately bi-monthly to help regional exporters with FTZ programming, marketing and border policy issues.
Summary of a Municipal Airport's Importance: As an investment attraction factor, a number of countries can be readily reached from Niagara via its excellent road-rail network, the Great Lakes-St. Lawrence Seaway, and airports. Freight, charter and passenger services at municipal airports therefore are most relevant to supporting economic development for firms that might benefit most from a FTZ designation.

3d) Strategy to Improve Niagara's Global Attractiveness

Initiative: Strategy to Improve Niagara's Global Attractiveness
Overview of Initiative: The long-term vision is to develop a unified strategy which will help the Niagara Region change to be a place where immigrants and in-migrants will feel comfortable in choosing Niagara to live, work and raise their families. This project will benefit the Niagara Region by maximizing the number of new international residents and in-migrants selecting Niagara as their destination of choice. This in turn will increase Niagara's skilled workforce and economic growth, as well as stabilize or reduce the overall average age of the residents of Niagara.
Strategic Priorities Supported by the Initiative: • Positioning Niagara globally
Economic Prosperity (Dials) Supported by the Initiative:

- Employment
- Growth

Timing of the Initiative:

- The project was initiated in late April of 2015 and began with a review of other strategic goals, meetings with other projects leads to identify synergies and ensure duplication of work does not occur (completed May 2015)
- An online literature review occurred identifying other communities across North America that have undertaken similar projects, identify common actions they have taken and also look at the results of their projects to assess for success (completed August 2015)
- Hired a consultant with experience and knowledge in immigration and diverse communities (completed October 2015)
- The Community Groups and Local Organizations were engaged to identify their ability to action the solutions suggested to obtain buy in and support (completed December 2015)
- Develop survey for new residents and citizens to obtain an understanding of the wants and needs of residents when moving to a community within Canada; allows us to identify the top priorities and then assess these priorities against the current offering within the Niagara Region (January 2016)
- Survey focus groups (February—March 2016)
- Collect collated data from the Literature review and survey to prepare a presentation to bring to Local Area Municipalities (April—June 2016)
- After presentation to Local Area Municipalities, engage local community groups and organizations which may impact change on the priority (July and ongoing 2016)
- Draft Strategic Plan and deliver to Regional Council, which outlines the key priorities to increase Niagara's Global Attractiveness (December 2016)
- Request endorsement of plan by Regional Council along with a targeted online advertising campaign aimed at new prospective Canadian residents (December 2016)
- Engage Niagara Region IT and other engaged partners to make changes to the Niagara Region website and the Immigration Niagara Website to make enhancements and improvements to both (early 2016)

Summary of a Municipal Airport's Importance:

The European Attractiveness Survey 2015 identified effective transportation links as the third most important factor in choosing a location to emigrate.

80% of immigrants live in one of Canada's 10 largest cities (Kukushkin 2009). There are many reasons why this is; however, a major influencer is effective transportation which increases the geographical employment/entrepreneurial opportunities they can explore.

A lack of infrastructure (in smaller communities) to facilitate immigrant settlement is a factor (for why immigrants select other communities). The major issues identified in the literature were lack of accessible language services for employed newcomers, lack of transportation, and lack of coordination among service providers (Reimer 2007)

A very detailed review of “welcoming community” was appropriately undertaken by the Welcoming Communities Initiative (since renamed Pathways to Prosperity) located at the University of Western Ontario. This research identified and operationalized Welcoming Community, ranking the characteristics by order of importance, with ‘Available and Accessible Public Transit’ ranking in the top 10.

Based on the above, Passenger Services is the airport activity with the greatest ability to support this strategic priority.

3e) Other (Attraction of Foreign Financial Institution)

In addition to the projects noted above, Niagara Region’s priorities also include attracting a foreign financial institution.

A foreign financial institution focused on commercial banking would provide Niagara with a strategic advantage by creating ties to emerging markets. Once a lead financial institution is confirmed, work would be required to scope out the specific needs and requirements of the institution, working closely with government, economic development, specific business leads and other relevant parties to ensure that a viable opportunity (business case) exists for the institution.

Further detail with respect to the degree of relevance a municipal airport might be in supporting this initiative will become more clear as interested institutions are engaged, but would be primarily focused on the charter or passenger services of airports.

4. Public Benefits of Airports

As noted above there are public benefits derived from airports that have been well documented in other reviews or studies. Studies such as the 2006 Study of Municipal

Airports by Sypher³ and the 2009 Niagara Airports study by Jacobs Consultancy⁴ specifically noted some of the socio-economic benefits that these services can provide.

Examples of such benefits include:

- supporting public service activities
 - o health care – via emergency/medevac and inter-facility patient transfers
 - o policing – both Provincial and Federal agencies utilize municipal airports for fueling & staging in support of operations
 - o search & rescue – supporting search for mariners or aviators, and providing a resource in the event of a significant natural disaster in the Region
 - o resource management – in addition to the forest fire management program (which is more prevalent in northern Ontario), the Province also utilizes municipal airports for its resource management program. This can include activities such as fish stocking, wildlife transfers, wildlife surveys, and rabies baiting
- social functions (education, vocation and leisure) – this can include flying clubs, pilots associations, cadet programs that provide training opportunities, skills development, community events and promote safety and aviation knowledge
- supporting industry – by providing an opportunity to transport both personnel and goods (example – just-in-time delivery)
- attraction of professionals to the community

These studies also noted the value in facilitating trade, feeding traffic to larger airports, attracting new business and supporting tourism, which were also considered earlier in this appendix.

³ *Study of Municipal Airports in Ontario*, Sypher, September 2006

⁴ *Niagara Airports Study – Determination of the Role for the Niagara Region in the Operation and Financing of the Niagara Central and/or Niagara District Airports*, Jacobs Consultancy Canada Inc., July 31, 2009

Appendix E– Consultant Reports

1. Land-use Plan, Financial Forecast and Risk Assessment

In order to support Council in its deliberation, Tetra Tech EBA Inc., in collaboration with Operations Economics Inc., was retained to prepare a report that provided:

- an updated land use plan for the airport
- financial projections (operating and capital) for the airport including sensitivity analysis
- an overview of risks associated with airport ownership/operations

Consultation occurred with airport, local municipal and regional representatives, as well as airport-based organizations, in order to properly inform the analysis and planning.

The resulting report, titled “Niagara District Airport Land Use Plan and Financial Projection” is attached under separate cover and is utilized in the financial assessment (Appendix F) and the evaluation & recommendations (Appendix G).

2. Viability Assessment of Commercial Service at Niagara District Airport

As the largest source of potential risk and return relates to the pursuit of scheduled passenger services at the NDA, InterVISTAS Consulting Inc. was retained in order to assess the viability of any such service. Their work included providing:

- an overview of the route development and airline planning process, industry developments and the market situation
- an assessment the current market demand in the region
- an assessment of potential airlines and routes
- the implications of commercial service for the community and airport

The resulting report titled “Viability of Assessment of Commercial Service at Niagara District Airport” is attached under separate cover.

Appendix F – Financial Impact Assessment

As part of the consultant report presented in Appendix E, operating revenues and expenditures were projected for a 10-year period and capital needs were estimated to 2037. Separately the viability of scheduled passenger services was assessed in Appendix E.

Appendix F utilizes the results of these reports in order to provide an estimate of the potential financial impacts associated with the various forms of governance and funding that were described in Appendix B. The contents of this Appendix have been organized as follows:

1. Base Case Scenario
 - a. Overview
 - b. Operating Forecast Summary
 - c. Capital Forecast Summary & Financing Assumptions
 - d. Estimated Net Funding Requirement Projections
2. Financial Impacts of Base Case Scenario by Governance & Funding Option
 - a. Local Municipal
 - b. Regional
 - c. Joint Regional & Local Municipal
 - i. % of Total Cost Basis
 - ii. Per Capita Basis
 - iii. Regional Funding of Capital & Local Funding of Operating
 - d. Summary
3. Sensitivity Analysis
 - a. Forecasting - Risk & Opportunities overview
 - b. Sensitivity Analysis
4. Scheduled Passenger Services Assessment
 - a. Overview and Analysis
 - b. Scenario Analysis
 - c. Consolidated Net Funding Requirement – Base Case Scenario & Scheduled Passenger Services
 - d. Incremental Passenger Service Impact on cost by Municipality
5. Municipal Support for Other Airports in Ontario

As with all forecasts, **the projections presented in this appendix should be treated with caution.** Although they represent the best estimates based on information

available at the time of this review, and have been developed in consultation with third party expertise and numerous stakeholders, actual results will vary for a number of reasons. In order to consider some of the potential factors which lead to material differences, a sensitivity analysis has been included toward the end of this appendix. A comparison of municipal funding for other airports, both with and without passenger services, has also been provided for additional context.

1. Base Case Scenario

1a) Overview

The base case scenario is described in further detail in Appendix E, and incorporates the recommendations identified through the consultant's land use planning update and financial forecasting process. Passenger services are not incorporated into the base case, and are instead considered as part of the scenario analysis.

It is important to note that the base case does not match the current funding levels provided to the Commission by the local municipalities. Differences include the annualized capital financing amount (as opposed to approval of capital on a project-specific basis in the year required), as well as the assumptions and recommendations made by the consultants in consultation with the numerous stakeholders engaged in the development of the forecast. The difference between the current funding level and the base case scenario are included as a part of the local municipal funding and governance option (section 2a).

1b) Operating Forecast Summary

Operating revenues and expenses were projected for a 10-year period in detail as part of the consultant's report provided as part of Appendix E. The following table summarizes those forecasts for the base case scenario, beginning from the NDA's approved 2016 budget amount. The figures provided include inflation.

Operating Budget Forecast – Base Case Scenario* (\$000's)											
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Op. Exp.	633	633	645	658	671	685	698	712	727	741	6,803
Revenue	(276)	(281)	(287)	(296)	(305)	(314)	(324)	(334)	(354)	(363)	(3,135)
Net Exp.	356	351	358	362	366	370	374	378	373	379	3,668

* Revenues exclude Municipal Grant Revenue and expenses exclude capital financing costs. All figures include inflation at 2% per year.

The net operating cost (before capital) is projected to gradually increase over the forecast period at less than the rate of inflation. This includes new lease revenue created due to capital investments to create additional developable land for private development at the airport.

1c) Capital Forecast Summary & Financing Assumptions

Appendix E provided a forecast for capital needs at the airport based on the results of the updated land use plan, input from the airport, and the recommended financial forecast that were developed with input from numerous stakeholders throughout the process. The forecasted annual capital costs in Appendix E were presented without inflation (i.e. \$2016), and do not consider financing source or costs.

Capital Budget Forecast – Base Case Scenario (\$000's)									
	2016	2017	2018	2019	2020	2021 - 2025	2026-2030	2031-2037	Total
Airside	-	26	45	55	829	1,984	632	7,134	10,705
Groundside	229	45	577	216	129	1,285	703	2,132	5,316
New Dev't Areas	-	20	117	1,465	-	2,051	1,068	-	4,721
Total (excl. infl.)	229	91	739	1,736	958	5,320	2,403	9,266	20,742
Total (incl. infl.)*	229	92	769	1,842	1,037	6,147	3,079	12,863	26,059

* Annual inflation at 2% per year

In order to translate this capital forecast into an annual financing cost that can be combined with the net operating cost presented in section 1b) above, assumptions were needed for the Base Case with respect to the following:

- As no further third-party funding commitments are currently in place or anticipated related to any specific capital, no external funding has been assumed
- Inflation on project costs is estimated at 2% per year
- Cost of borrowing is estimated at 3.5%, while return on balances held is estimated at 2.5%, each applied to the average annual balance
- The annual capital financing requirement is based on a cash flow analysis assuming a \$0 starting balance (i.e. no existing debt or reserve balance), 2% annual increase on initial capital financing provision, and \$0 ending position at the end of the 2037 period

In order to support the capital program, an annual funding provision beginning at \$998,000 in 2017 will be required based on the model and assumptions described above. This annual capital financing amount would need to grow annually by 2% over the entire period to 2037.

Estimated Capital Financing Requirement – Base Case Scenario (\$000's)											
	2016*	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Cap. Fin.	229	998	1,018	1,038	1,059	1,080	1,102	1,124	1,146	1,169	9,962

* 2016 capital funding per approved Commission Budget.

This capital financing requirement could be in the form of either a transfer to reserve, a debt charge (principal & interest) or direct project funding.

Based on the timing of expenditures relative to funding accumulated through the annual capital financing, there are other financial considerations with respect to capital program aside from operating impact. As capital projects can result in volatile annual spending needs, there may be a need to utilize debentures as a funding source or draw from existing reserve balances. Any external borrowing by a municipality would impact the debt capacity as prescribed by the Province for municipalities, and depending on the specific source a draw on reserves may impact availability of funds for other initiatives.

The calculation of this annual capital financing provision is not intended to pre-suppose the policy or procedure by which capital projects at the airport are funded in any of the governance and funding alternatives considered in section 2 below. Project-specific approval from the municipality or municipalities that fund the airport may be required, with the related capital financing strategy occurring by said municipalities at a corporate level. The capital financing requirements identified here are instead intended to estimate an annualized impact related to the capital program to allow for comparison between the numerous governance alternatives available.

1d) Estimated Net Funding Requirement Projections

Combining the information presented in sections 1b) & 1c) above, the net municipal requirement for the base case scenario is summarized as follows:

Estimated Annual Funding Requirement – Base Case Scenario* (\$000's)											
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Operating	356	351	358	362	366	370	374	378	373	379	3,668
Capital	229	998	1,018	1,038	1,059	1,080	1,102	1,124	1,146	1,169	9,962
Total	585	1,349	1,376	1,400	1,425	1,450	1,476	1,502	1,519	1,548	13,631

* All figures include inflation at 2% per year.

The total amount presented can be interpreted as the annual funding provision required from the governing entity/entities in order to fully support the base case scenario as described, and is used below in comparing the various governance options.

2. Financial Impacts by Governance & Funding Option

2a) Local Municipal

The annual costs of the airport are currently shared between the contributing local municipalities on a per capita basis, and as such that assumption has been reflected in

the summary below. Using the Net Funding Requirement from the Base Case Scenario for the year 2017, the funding distribution by local municipality would be:

Funding Impact for Base Case Scenario - <u>Local Municipal</u> Funding & Governance			
Municipality	Estimated Share of Annual Costs (\$2017)*	Estimated Annual Costs per Capita*	Estimated Annual Costs per \$100,000 of Weighted Assessment**
Niagara Falls	487,191	5.87	4.19
Niagara-on-the-Lake	90,398	5.87	1.99
St. Catharines	771,315	5.87	5.00
Total	1,348,904	5.87	4.27

* Based on population figures for each local municipality per 2011 Census

** Based on 2016 weighted assessment

The following table compares the projected sustainable funding requirement of the airports to the approved 2016 Budget by municipality. It is important to note that the municipalities generally fund capital projects on a project-specific basis, and therefore capital approval amounts may vary annually.

Comparison of Existing Annual Funding vs. Base Case Scenario			
Municipality	Approved 2016 Funding (Operating & Capital)	Estimated Annual Contribution (\$2017)*	Difference
Niagara Falls	211,462	487,191	275,729
Niagara-on-the-Lake	39,236	90,398	51,162
St. Catharines	334,785	771,315	436,530
Total	585,483	1,348,904	763,421

* Includes both the net operating and capital financing requirements

The differences shown in the table above equal approximately 0.4% to 0.6% of the 2016 approved net local municipal levy for each of the three municipalities. The actual budget pressure these differences could result in may vary from this range based on several factors, including financing sources.

2b) Regional

If funding support were to become entirely the responsibility of the Region, the costs would be recovered through the Regional levy which is allocated based on assessment and tax policy to properties in all 12 local municipalities. The result would be the

estimated recovery of costs from properties by local municipality summarized as follows:

Funding Impact for Base Case Scenario – <u>Regional</u> Funding & Governance			
Municipality	Estimated Share of Annual Costs (\$2017)	Estimated Annual Costs per Capita*	Estimated Annual Costs per \$100,000 of Weighted Assessment**
Fort Erie	91,263	3.05	2.41
Grimsby	91,326	3.61	2.41
Lincoln	76,940	3.42	2.41
Niagara Falls	280,671	3.38	2.41
Niagara-on-the-Lake	109,515	7.11	2.41
Pelham	55,443	3.34	2.41
Port Colborne	46,726	2.54	2.41
St. Catharines	372,308	2.83	2.41
Thorold	53,339	2.97	2.41
Wainfleet	20,042	3.15	2.41
Welland	113,135	2.23	2.41
West Lincoln	38,195	2.76	2.41
Total	1,348,904	3.13	2.41

* Based on per capita figures for each local municipality per 2011 Census

** Based on 2016 weighted assessment.

2c) Joint Regional & Local Municipal

When considering alternatives where both the local municipalities and the Region assume responsibility for at least a portion of the funding required, there are a broad range of permutations available to illustrate the resulting funding impact. For the purpose of analysis, 3 separate options have been included to illustrate potential results. They are:

- i) % of Total Cost
- ii) Per Capita
- iii) Regional Funding of Capital & Local Funding of Operating Costs

In order to estimate the impact of each of these 3 options, the methodology is first selected to apportion the airport's cost between the three local municipal funding partners and Niagara Region (i.e. options i, ii & iii). The three local municipalities are then assumed to collect their share from property owners through their respective levies (based on assessment value and tax policy). The Region is assumed to do the same.

As such, property owners in the three local municipalities that fund the airport directly will contribute both through their local municipalities levy as well as the Regional levy.

i) ***% of Total Cost Basis***

The total annual cost in this alternative would be allocated between the three local municipalities and the Region through a mutually agreed upon percentage. The basis for arriving at the allocations could include, as an example, the estimated relative benefit derived from the activities of the airport, with consideration for factors such as economic impact, job creation, and community activities.

For illustrative purposes for this analysis, a Regional share of 20% has been assumed with the remaining 80% allocated between Niagara Falls, Niagara-on-the-Lake and St. Catharines on a per Capita basis. The 20% regional share was chosen for illustrative purposes based on the recent governance reform at the Lake Simcoe Regional Airport (LSRA). In that case, a 20% equity interest in the LSRA was sold to the County of Simcoe in recognition of the economic benefit potential for all municipalities. The County of Simcoe joined the existing funding partners of the City of Barrie and the Township of Oro Medonte.

Funding Impact for Base Case Scenario – Joint Funding via % Allocation			
Municipality	Estimated Share of Annual Costs (\$2017)	Estimated Annual Costs per Capita*	Estimated Annual Costs per \$100,000 of Weighted Assessment**
Municipalities Funding through both Local & Regional Property Taxes			
Niagara Falls			
Local Share	389,753	4.70	3.35
Regional Share	56,134	0.68	0.48
Subtotal	445,887	5.37	3.83
Niagara-on-the-Lake			
Local Share	72,318	4.70	1.59
Regional Share	21,903	1.42	0.48
Subtotal	94,221	6.12	2.08
St. Catharines			
Local Share	617,052	4.70	4.00
Regional Share	74,462	0.57	0.48
Subtotal	691,514	5.26	4.48
Municipalities Funding through Regional Property Taxes Only			
Fort Erie	18,253	0.61	0.48
Grimsby	18,265	0.72	0.48
Lincoln	15,388	0.68	0.48
Pelham	11,089	0.67	0.48
Port Colborne	9,345	0.51	0.48
Thorold	10,668	0.59	0.48
Wainfleet	4008	0.63	0.48
Welland	22627	0.45	0.48
West Lincoln	7,639	0.55	0.48
Total	1,348,904	3.13	2.41

* Based on per capita figures for each local municipality per 2011 Census

** Based on 2016 weighted assessment.

ii) ***Per Capita Basis***

This allocation methodology has been included given the way in which the costs of the airport costs are currently apportioned. To arrive at the apportionment to the funding partners as described above, the following allocations were used:

	<u>Population per 2011</u> <u>Census</u>	<u>% of Total</u>
Region	431,346	65%
Niagara Falls	82,997	13%
Niagara-on-the-Lake	15,400	2%
St. Catharines	131,400	20%
Total	661,143	100%

Funding Impact for Base Case Scenario – <u>Joint Funding via per Capita</u>			
Municipality	Estimated Share of Annual Costs (\$2017)	Estimated Annual Costs per Capita*	Estimated Annual Costs per \$100,000 of Weighted Assessment**
Municipalities Funding through both Local & Regional Property Taxes			
Niagara Falls			
Local Share	169,335	2.04	1.46
Regional Share	183,117	2.21	1.57
Subtotal	352,452	4.25	3.03
Niagara-on-the-Lake			
Local Share	31,420	2.04	0.69
Regional Share	71,451	4.64	1.57
Subtotal	102,871	6.68	2.27
St. Catharines			
Local Share	268,090	2.04	1.74
Regional Share	242,903	1.85	1.57
Subtotal	510,993	3.89	3.31
Municipalities Funding through Regional Property Taxes Only			
Fort Erie	59,542	1.99	1.57
Grimsby	59,583	2.35	1.57
Lincoln	50,197	2.23	1.57
Pelham	36,172	2.18	1.57
Port Colborne	30,485	1.65	1.57
Thorold	34,800	1.94	1.57
Wainfleet	13,076	2.06	1.57
Welland	7,381	1.46	1.57
West Lincoln	24,920	1.80	1.57
Total	1,348,904	3.13	2.41

* Based on per capita figures for each local municipality per 2011 Census

** Based on 2016 weighted assessment.

iii) ***Regional Funding of Capital & Local Funding of Operating Costs***

Based on the challenges that the sporadic large capital investment can pose on the current local municipal funding partners and the fact that a base level of operating budget support is already in place at the local level, this alternative has been included for illustration purposes.

The annual capital financing required (as outlined in section 1d above) is funded through the Regional levy and represent 74% of the total cost. The annual operating-related funding requirement is funded by the local municipalities that currently support the airport, and their existing per capita-based formula has been used to divide the cost between them.

Funding Impact for Base Case Scenario – <u>Joint Funding (Operating vs. Capital)</u>			
Municipality	Estimated Share of Annual Costs (\$2017)	Estimated Annual Costs per Capita*	Estimated Annual Costs per \$100,000 of Weighted Assessment**
Municipalities Funding through both Local & Regional Property Taxes			
Niagara Falls			
Local Share	126,812	1.53	1.09
Regional Share	207,615	2.50	1.78
Subtotal	334,427	4.03	2.88
Niagara-on-the-Lake			
Local Share	23,530	1.53	0.52
Regional Share	81,009	5.26	1.78
Subtotal	104,539	6.79	2.30
St. Catharines			
Local Share	200,768	1.53	1.30
Regional Share	275,399	2.10	1.78
Subtotal	476,167	3.62	3.09
Municipalities Funding through Regional Property Taxes Only			
Fort Erie	67,508	2.25	1.78
Grimsby	67,554	2.67	1.78
Lincoln	56,913	2.53	1.78
Pelham	41,012	2.47	1.78
Port Colborne	34,563	1.88	1.78
Thorold	39,455	2.20	1.78
Wainfleet	14,825	2.33	1.78
Welland	83,687	1.65	1.78
West Lincoln	28,253	2.04	1.78
Total	1,348,904	3.13	2.41

* Based on per capita figures for each local municipality per 2011 Census

** Based on 2016 weighted assessment.

2d) Summary

Based on the above, the following tables summarize the results for each municipality on a total cost, per capita, and per \$100,000 of weighted assessment basis for each of the governance scenarios. As noted in more detail above, there are an infinite number of joint funding alternatives available, and the three presented below have been selected for illustration purposes only.

Estimated Share of Annual Costs by Municipal Boundary for each Governance & Funding Model (\$2017)					
Municipality	Local Municipal	Region	Joint – Region & Local		
			% Allocation Basis	Per Capita Basis	Region fund Capital, Local Fund Operating
Municipalities Funding the Airport via Local Levy and/or Regional Levy					
Niagara Falls	487,191	280,671	445,887	352,452	334,427
NOTL	90,398	109,515	94,221	102,871	104,539
St. Catharines	771,315	372,308	691,514	510,993	476,167
Subtotal	1,348,904	762,495	1,231,622	966,316	915,133
Remaining Municipalities (via Regional Levy)					
Fort Erie	-	91,263	18,253	59,542	67,508
Grimsby	-	91,326	18,265	59,583	67,554
Lincoln	-	76,940	15,388	50,197	56,913
Pelham	-	55,443	11,089	36,172	41,012
Port Colborne	-	46,726	9,345	30,485	34,563
Thorold	-	53,339	10,668	34,800	39,455
Wainfleet	-	20,042	4,008	13,076	14,825
Welland	-	113,135	22,627	73,812	83,687
West Lincoln	-	38,195	7,639	24,920	28,253
Subtotal	-	586,409	117,282	382,588	433,771
Total	1,348,904	1,348,904	1,348,904	1,348,904	1,348,904

Estimated per Capita Share of Annual Cost (\$2017) by Governance & Funding Model					
Municipality	Local Municipal	Region	Joint – Region & Local		
			% Allocation Basis	Per Capita Basis	Region fund Capital, Local Fund Operating
Municipalities Funding the Airport via Local Levy and/or Regional Levy					
Niagara Falls	5.87	3.38	5.37	4.25	4.03
NOTL	5.87	7.11	6.12	6.68	6.79
St. Catharines	5.87	2.83	5.26	3.89	3.62
Remaining Municipalities (via Regional Levy)					
Fort Erie	-	3.05	0.61	1.99	2.25
Grimsby	-	3.61	0.72	2.35	2.67
Lincoln	-	3.42	0.68	2.23	2.53
Pelham	-	3.34	0.67	2.18	2.47
Port Colborne	-	2.54	0.51	1.65	1.88
Thorold	-	2.97	0.59	1.94	2.20
Wainfleet	-	3.15	0.63	2.06	2.33
Welland	-	2.23	0.45	1.46	1.65
West Lincoln	-	2.76	0.55	1.80	2.04
Total	3.13	3.13	3.13	3.13	3.13

Estimated Annual Costs (\$2017) per \$100,000 of Weighted Assessment by Governance & Funding Model					
Municipality	Local Municipal	Region	Joint – Region & Local		
			% Allocation Basis	Per Capita Basis	Region fund Capital, Local Fund Operating
Municipalities Funding the Airport via Local Levy and/or Regional Levy					
Niagara Falls	4.19	2.41	3.83	3.03	2.88
NOTL	1.99	2.41	2.08	2.27	2.30
St. Catharines	5.00	2.41	4.48	3.31	3.09
Remaining Municipalities (via Regional Levy)					
Fort Erie	-	2.41	0.48	1.57	1.78
Grimsby	-	2.41	0.48	1.57	1.78
Lincoln	-	2.41	0.48	1.57	1.78
Pelham	-	2.41	0.48	1.57	1.78
Port Colborne	-	2.41	0.48	1.57	1.78
Thorold	-	2.41	0.48	1.57	1.78
Wainfleet	-	2.41	0.48	1.57	1.78
Welland	-	2.41	0.48	1.57	1.78
West Lincoln	-	2.41	0.48	1.57	1.78
Total	2.41	2.41	2.41	2.41	2.41

Based on the above, two further analyses were prepared to help inform with respect to the financial implications of the various funding models available.

The first summarizes the estimated annual cost per taxpayer for the various governance and funding models reviewed. For the purpose of this analysis, a current value assessment (CVA) of \$240,500 was assumed, representing the Region-wide average. It is important to note that the average CVA for each municipality differs, so the Region wide figures presented should not be interpreted as the average within each specific community. The Region-wide figure has been applied, however, such that the differences presented between municipalities can be directly attributed to the funding and governance models which are being assessed.

Estimated Annual Cost per Household by Municipal Boundary for each Governance & Funding Model (\$2017)*					
Municipality	Local Municipal	Region	Joint – Region & Local		
			% Allocation Basis	Per Capita Basis	Region fund Capital, Local Fund Operating
Municipalities Funding the Airport via Local Levy and/or Regional Levy					
Niagara Falls	10.07	5.80	9.22	7.29	6.91
NOTL	4.79	5.80	4.99	5.45	5.54
St. Catharines	12.02	5.80	10.78	7.96	7.42
Remaining Municipalities (via Regional Levy)					
Fort Erie	-	5.80	1.16	3.79	4.29
Grimsby	-	5.80	1.16	3.79	4.29
Lincoln	-	5.80	1.16	3.79	4.29
Pelham	-	5.80	1.16	3.79	4.29
Port Colborne	-	5.80	1.16	3.79	4.29
Thorold	-	5.80	1.16	3.79	4.29
Wainfleet	-	5.80	1.16	3.79	4.29
Welland	-	5.80	1.16	3.79	4.29
West Lincoln	-	5.80	1.16	3.79	4.29
Total	5.80	5.80	5.80	5.80	5.80

* Based on Region-wide average CVA of \$240,500 per household.

The second analysis looks at the different funding models and impacts and derives what the potential impact could be on the Regional budget.

Estimated Annual Regional Cost as % of 2016 Approved Net Levy Budget by Governance & Funding Model*					
Municipality	Status Quo	Region	Joint – Region & Local		
			% Allocation Basis	Per Capita Basis	Region fund Capital, Local Fund Operating
Est. Regional Share of Annual Cost (\$2017)	-	1,348,904	269,781	880,058	997,794
As % of 2016 Approved Budget (Net Levy)	0.00%	0.41%	0.08%	0.27%	0.31%

* 2016 Approved Net Levy Budget equaled \$325,108,233

3. Sensitivity Analysis

3a) Forecasting - Risk & Opportunities Overview

Risk analysis and scenario development are both included as part of the report prepared by Tetra Tech in Appendix E. In terms of variables that could impact the projected operating costs for the airport, the consultant report included as Appendix E noted several areas including those listed below. Please note that the sensitivity analysis related to scheduled passenger services is addressed separately in section 4 below.

- Lease Revenue – the base case scenario shows the potential to grow lease revenue by approximately 35% over the 10-year period (from \$226,400 per year to \$304,601), based on both inflation and the development of new hangars. The slow and high growth scenarios illustrated how this growth could vary between 24% and 41% based on several assumptions.
- Any potential loss of a large tenant at the airport was assessed and considered to have a possible negative impact on net operating costs of approximately 14%
- Should a single major development (such as a major maintenance site) be established at the NDA, the scenario analysis in Appendix E indicated a potential decrease in net operating costs of 33% due to the new revenues that could be attracted.
- Should the application that the NDA has submitted in collaboration with the Town of Niagara-on-the-Lake and a private sector partner for solar panel development

receive approval and proceed, the potential \$45,000 per year in revenue could decrease the net operating expense by 13% per year

- The risk analysis undertaken in Appendix E also highlighted the potentially significant impacts that might result from change in the regulations and policy that govern airport operations, as established by the Federal Government.

Based on the above, a range of -30% to +30% has been illustrated below in the net operating budget sensitivity analysis (excluding capital).

Given the infrastructure-dependent nature of airport ownership & operations, the larger potential impact on financial projections relates to the amount of capital investment required. As noted in Tetra Tech's report in appendix E, the cost estimates provided are generally based on conceptual layout and design information, and incorporate a 25% contingency. A sensitivity range for these costs of -30% to +30% is therefore considered below as it relates to the accuracy of the cost estimates and project timing.

As indicated in section 1c) of this appendix, no third-party funding has been assumed in the funding of the capital program. Should such funding be secured (example – by way of Provincial and/or Federal Funding programs), a portion of the capital costs could be alleviated.

Based on the above, a range of -50% to +30% has been illustrated below in the net capital financing sensitivity analysis.

3b) Sensitivity Analysis

The projected annual funding requirement is presented below for both a best-case and worst-case scenario, where each end of the cost ranges described for operating and capital financing in section 3a) above has been applied to the base case cost for 2017. This approach isn't meant to suggest that the occurrence of several of the risks/opportunities would or could occur as soon as 2017. Instead it is intended to provide order of magnitude as to how the long-term funding level required to support the airport may change should any of these scenarios materialize.

Annual Funding Requirement – Scenario Analysis (\$000's)				
	2016 Approved Budget	Base Case Scenario	Worst Case Scenario*	Best Case Scenario**
Operating Cost (Net)	356,400	351,110	456,442.35	105,332.85
Capital Financing	229,083	997,794	1,297,132	498,897
Total Cost	585,483	1,348,904	1,753,575	604,230

*Operating presented at +30% and Capital Financing at +30% relative to Base Case

**Operating presented at -30% and Capital Financing at -50% relative to Base Case

The \$1,753,575 presented as the Worst Case scenario represents an increase in cost of +30% from the Base Case, while the \$604,230 for the Best Case Scenario equates to a decrease of -55%.

These multiples (+30% & -55%) can be applied to the cost per municipality, cost per capita, cost per \$100,000 of weighted assessment, and cost per household figures presented in section 2d) to approximate an order of magnitude range for each of those analyses.

4. Scheduled Passenger Services Assessment

a) Overview and Analysis

The Base Case scenario upon which all of the preceding analysis has been predicated excluded any costs or revenues related to a potential initiation of scheduled passenger services at the airport. Given the magnitude of potential investment required for this service, the potential benefits, as well as the risks associated with successfully achieving a sustainable passenger service, consideration of this opportunity is appropriate in determining the recommended governance model.

This section was prepared by Regional staff and will draw on information prepared by Explorer Solutions Inc. for the Niagara District Airport (see Appendix A) as well as InterVISTAS (see Appendix E) in order to estimate potential costs, revenues and timing. This information was also supplemented with some updated estimates obtained from on-going work that the NDA is undertaking with Explorer Solutions. These amounts are then consolidated with the Base Case scenario described above in order to project the combined potential funding requirements.

The figures and timing presented in this section should be assessed with caution.

At the time of preparing this report there are numerous significant initiatives that are on-going that will greatly influence both the ability to establish a viable passenger service and the characteristics of what any service may look like. These initiatives include:

- The Greater Toronto Airports Authority's (GTAA) review of the future of aviation capacity in Southern Ontario following release of a report in 2015 titled "Toronto Pearson: Growth, Connectivity, Capacity, The Future of a Key Regional Asset".
- An update the Canada Transportation Act
- A working group of Regional airports and the Canadian Air Transport Security Authority (CATSA) reviewing options & costs for providing services relating to scheduled passenger services

In addition, and as outlined in greater detail below, scheduled passenger services will require significant capital investments, changes in regulatory statuses of the airport, as well as securing an airline(s) to partner with.

Development of a separate business case should be undertaken prior to any significant investment being made related to the establishment of such a service.

The timing of such a business case would be most appropriate after further detail become available from the on-going initiatives listed above.

Capital Cost

In their 2014 report, Explorer Solutions identified the following infrastructure costs related to seasonal passenger services:

- 1) Terminal expansion - \$4,636,967 to \$5,100,663
- 2) Infrastructure Improvements (generator & de-icing) - \$673,000
- 3) Parking Expansion - \$460,718 to \$506,790

For the purposes of their financial analysis, the above items were estimated to total \$6,372,569.

The above estimates did not include modifications to the apron, legal and project management costs, and Aircraft Rescue and Fire Fighting (ARFF) costs. The cost of the generator noted above (\$550,000) has already been reflected in the “Base Case” capital forecast to 2037 in section 1c) above.

With consideration for all of the above, as well as to provide an additional contingency given the number of details relating to the potential service that still require clarity or incentives (example – startup costs) that may be required, a \$7,500,000 total cost was used for the purpose of this analysis. Given the ability to accommodate the Q400 aircraft (which was identified as the key aircraft in the route analysis undertaken in appendix E) with the current 5,000 ft. runway, the \$7,500,000 estimate does not include a runway extension. Instead that cost is considered in the sensitivity analysis below.

No external funding sources were assumed for the capital cost. As such the full \$7,500,000 initial investment (\$2016) was annualized on the same basis as was described in section 1c) above. Based on this analysis, the annual capital financing provision to support the initial investment equals \$411,669 (\$2016), growing at 2% per year thereafter.

Operating Costs

The annual operating costs have also been prepared by regional staff with consideration for the sources listed above. The resulting costs are summarized in the following table and described further below, and assume the operation of 2 daily flights to a domestic market (example – Toronto or Montreal) on a year-round basis.

Estimated Incremental Annual Operating Expenditures – Passenger Service-related (\$2016)	
CBSA	-
CATSA	587,802
Building O&M (new space)	
Insurance	17,215
Utilities	62,964
Equipment Replacement / Materials	25,000
Personnel Costs (3 FTEs)	192,938
Marketing	50,000
Total	935,919

CBSA – Given that the primary route alternatives identified in the InterVISTAS analysis were domestic routes, no cost related to the Canada Border Services Agency (CBSA) has been incorporated in the operating expenditures above.

Based on 2 flights a day the Explorer report included \$328,099 for CBSA for 180 day-per-year service, and \$665,312 for annual service. Once an airport has demonstrated that service is viable in the long term, the airport could request a status change to AOE/75. If approved, border services could be provided at no cost to the airport. This process could take several years and would require, among other things, that the airport can demonstrate that there is a need for the air service and that the air service is sustainable.

CATSA – in collaboration with several other regional airports and Explorer Solutions, the NDA has been engaged with CATSA to negotiate the potential for cost recovery services or alternate forms of service with respect to passenger screening. Cost recovery would consider manpower & equipment. Based on the most recent consultations, the cost of manpower for annual service is estimated at \$550,000 for 4 hour a day service and \$1,100,000 for 8 hour a day service. A provision of \$587,802 has been included in this analysis for the 2 daily flight scenario, representing 4-hour service plus equipment.

Building O&M (new space) – relate to costs associated with the expanded terminal space and passenger services equipment.

Additional insurance and utilities costs have been estimated as a part of the updated work by NDA and Explorer.

Approximately \$430,000 in equipment for passenger services is included in the initial capital costs, including processing equipment, vendor services, and information management. A provision of \$25,000 per year has been made for the cost of repair and replacement of that equipment.

Human Resources (HR) - Explorer Solutions anticipated an additional customer agent (1 FTE) and marketing/operations manager (1 FTE) in the 2 daily flight scenario in their 2014 report. As well, with full year operations additional maintenance personnel would be required (1 FTE has been assumed). Given the relatively small size of the airport's total staffing level, there would likely be a need for positions to be cross-functional (example – the marketing/operations manager may be required in part for maintenance support). The total cost for all 3 is estimated at \$192,938 per year (including benefits).

Marketing & Promotion – an annual provision of \$50,000 for marketing and promotion strategy and material was included annually in the 2014 Business case and has been carried into this scenario.

Revenue

Revenues are derived from both aeronautical sources (example – landing, terminal & airport improvement fees) and non-aeronautical sources (example – parking, retain & concession, car rental, etc). The InterVISTAS report noted that airlines are increasingly pressuring airports to focus on non-aeronautical revenue sources in order to remain cost competitive in attracting an airline.

For this analysis, two daily flights are assumed on a year round basis, resulting in 730 aircraft landings and 38,000 enplaned passengers assumed (the median of the annualized service metrics presented by InterVISTAS).

Estimated Incremental Operating Revenues – Passenger Service-related (\$2016)	
Landing Fee	165,538
Terminal Fee	174,420
Airport Improvement Fee	760,000
Fuel sales	33,000
Car Parking	38,000
Retainer on car rental	36,500
Advertising	10,000
Total	1,217,458

Landing Fee – using a maximum takeoff weight (MTOW) for a Q400 of 29,260 kg, 730 landings per year, and a fee of \$7.75 per 1,000 kg of MTOW (the average per Explorer Solution's review), \$165,538 in annual revenue would be generated. The resulting \$227 per roundtrip flight positions the landing fee between Kingston & London Airports in Figure 33 as provided in the InterVISTAS report, and lower than Pearson & Hamilton.

Terminal Fee – using the 38,000 enplaned passengers outlined along with a fee of \$4.59 per enplanement (the average per Explorer Solution's review), total revenue of \$174,420 per year has been included. At \$239 per roundtrip flight, this fee would be slightly lower than the \$267 and \$262 terminal fees noted in InterVISTAS report for Hamilton and London airports, and much lower than the reported amounts for Pearson and Kingston.

Airport Improvement Fee – using the 38,000 enplaned passengers outlined along with a fee of \$20 per enplanement (the average per Explorer Solution's review), total revenue of \$760,000 per year has been included. At \$1,041 per roundtrip flight, this fee would be lower than the \$1,388 terminal fees noted in InterVISTAS report for Hamilton and Pearson airports, but higher than the charge shown for the London Airport.

Fuel sales – Based on the analysis undertaken in Explorer's 2014 study, which considered assumptions such as \$0.05 per litre sold and airlines utilizing the NDA for 28% of their fuel needs, a fuel revenue projection of \$33,000 per year has been carried in the estimates above.

Car Parking – Assuming a daily rate of \$5.00, utilization by 10% of the 38,000 enplaned passengers, and an average duration of 2 days, \$38,000 in revenue could potentially be generated per year. The 10% utilization rate was selected, in part, on the significantly higher number of inbound visitors projected by InterVISTAS relative to the outbound residents. The \$5.00 per day rate does fall below the average charges noted by InterVISTAS (i.e. \$8 - \$18 per day and \$50 - \$90 per week), but could form a part of the value proposition offered to passengers for choosing flights from the NDA.

Retainer on car rental – Assuming a retainer of \$5.00 per rental, with 10 rentals assumed per flight, \$36,500 in revenue per year could potentially be generated per year should car rental service be established through a third-party provider at the airport.

Advertising – A \$10,000 revenue provision has been included for advertising opportunities at the NDA.

Other Revenue Opportunities – An additional charge for apron parking could be implemented by the airport. As an example, in a Explorer’s 2014 study a charge of \$40 per landing was contemplated. Since this charge is recovered on the same basis, and from the same source (i.e. the airlines) as the landing fee above, a separate charge for apron parking has not been incorporated here. This allows for more transparent benchmarking (as done above with InterVISTAS’ figures).

Similarly an airport security fee could be utilized. Although not in the 2014 study, such a fee has been considered in work undertaken by Explorer Solution and the NDA on the basis of a \$7.50 charge per enplanement. Since such a fee is also charged to the same source and on the same basis as the terminal and airport improvement fee, a separate charge has been excluded from the analysis above.

Net Incremental Impact – Passenger Services

Consolidating the above, this passenger service scenario (2 daily domestic flights year round) would have the incremental cost demonstrated in the following table:

Estimated Incremental Annual Impact from Scheduled Passenger Service (\$2016)	
Revenues	1,217,458
Operating Expenditures	(935,919)
Capital Financing	(411,669)
Total Incremental Revenue / (Cost)	(130,130)

As the annual enplanements may not start at the level expected once established, the initial net cost may be higher until the service is more greatly utilized. It should also be noted that as a number of the operating costs are fixed costs (example – capital financing), any additional flights that could be established would present opportunity to potentially increase revenue without a corresponding change in expenditures to the same degree. These considerations, as well as the numerous assumptions described above, are tested as a part of the sensitivity analysis below.

It is also worth noting that no explicit cost has been identified above related to airline incentives. As noted in InterVISTAS’ report, many airlines require risk-sharing in order to commit to a new air service. Incentives can take several forms, from the airport providing for start-up costs, fee discounts or marketing support, to revenue guarantees or subsidies to the airlines. Non-airport sources for incentives are also becoming increasingly popular, including contributions from stakeholders (example – private and

tourism entities). Separate identification of incentives has been excluded from the analysis above as:

- fees incorporated in this analysis have been projected at very competitive rates relative to the comparator airports that were benchmarked,
- funding for marketing support has been provided for,
- the total capital cost assumed does allow for the potential to share in some initial start-up costs,
- some of the incentive costs could potentially be provided for by private sector businesses or associations that will directly benefit

Incentives are considered instead as a part of the sensitivity analysis below.

b) Sensitivity on Passenger Service Analysis

The following scenarios have been assessed as they relate to the scheduled passenger services assessment:

- i) **Runway Extension** – should a runway extension be required (either in response to any changes in regulations related to any Runway End Safety Area (RESA) or to expand the range of destinations that are serviceable from the NDA, additional costs will be incurred. The capital cost estimated as part of Tetra Tech's land use plan (Appendix E) for a 1,000 ft extension equalled \$3,600,000. When annualized (as described in section 1c above), the annual capital financing required to support the extension amounts to \$198,000 per year. When added to the \$130,130 estimated cost above, the revised annual cost would be \$328,130.
- ii) **Airport Capital Assistance Program (ACAP)** – Transport Canada administers the ACAP funding program to support certified airports maintain and improve safety and security. In order to be eligible, the airport must maintain year-round regularly scheduled passenger services (at least 1,000 per year for most recent 3 year period). To date the ACAP program has awarded \$709 million to 835 projects, so a potential benefit of \$850,000 towards a future capital project has been assumed for this analysis. This would equate to a decrease in capital financing of approximately \$43,000 based on the assumptions in 1c above). When combined with the \$130,130 estimated cost above, the revised amount equals \$87,130.
- iii) **Discontinuation of Scheduled Service** – should the original investments be made to support regularly scheduled service but the service fail to prove sustainable, the costs and revenues could potentially change from the analysis above as follows:

- The incremental revenue identified of \$1,217,458 would fail to materialize or continue
- The operating costs would decrease as CATSA would no longer be required, staffing could be reduced, utilities and equipment replacement would also be lowered. A total decrease of \$735,919 is assumed leaving the incremental operating cost at \$200,000 to accommodate the remaining fixed costs
- The capital financing of \$411,669 would still be required as the initial investment would still require repayment.

Combined, these costs would result in an annual operating cost of \$611,669 until such time as the original capital investment is fully paid for.

iv) Increase to 4 daily flights – the greatest potential to increase the financial performance of scheduled services is likely through the addition of additional flights. Should the number of daily flights increase from 2 to 4, for example, the estimated impact to the costs and revenues would be:

- With respect to revenues – landing fees (charged on MTOW) and fuel would be expected to double in line with the higher activity level. With respect to the airport improvement and terminal fees and passenger services (example – parking & rentals), a slightly lower % increase is assumed as load factors might decline on a per flight basis due to additional supply. For this analysis a 75% increase in those revenues has been utilized. In total, revenue is estimated to increase by \$955,228 per year to \$2,172,686.
- In terms of operating expenses, 8 hours of daily CATSA service would likely be required instead of 4, so an additional \$550,000 in costs would be incurred. Additional personnel costs, marketing, equipment and utilities would also be expected, in the order of \$80,000.
- No additional capital needs are expected, so no change in capital financing is assumed.

Based on the above, the estimated incremental impact from the 2 additional daily flights is \$325,228 in net revenue. When combined with the \$130,130 net incremental cost from 2 flights, the revised total is a net revenue of \$195,098.

v) Higher Fee Structure – as noted in the assumptions above, the average market rates for charges such as landing fees, airport improvement fees and terminal fees have been utilized for projecting revenue. Should higher fees be utilized (i.e. Landing fee of \$10.25 per MTOW along with \$7 terminal fee and \$25 airport improvement fee per enplanement), the potential revenue per year could increase by \$335,000. Given that these costs would be recovered from the

airlines and passengers, it should be noted that these higher fee structures could make establishing a service more challenging, or increase the likelihood or magnitude of some form of incentive program. When combined with the estimated \$130,130 cost above, the service could result in \$204,870 in net revenue per year at the higher fee structure.

- vi) Additional Incentives for Airlines** – should funding of an incentive for an airline beyond the provisions made in the analysis above be required, an additional annual cost could be incurred by the NDA. As noted by InterVISTAS in Appendix E, incentives can take several forms and are becoming increasingly prevalent. By way of example, InterVISTAS noted the \$1.4 million incentive the Region of Waterloo & local businesses committed towards American Airlines. For the purpose of this analysis, an additional \$750,000 towards an incentive has been incorporated, which would lead to an annual net cost of \$880,130.
- vii) Transborder Destination** – should the destination implemented be in the United States, CBSA services would be required and the costs would increase. It is also likely that fuel sales would be reduced as airlines would satisfy their needs where costs were more favourable. The result on the 2-flight scenario would be a \$665,312 increase in costs and a reduction in fuel sales of \$33,000. The revised estimate would then change from a cost per year of \$130,130 to \$828,442.
- viii) Capital Funding Grant** – in addition to the ACAP program considered above, a further scenario is included that considers the NDA securing some form of grant funding for the initial capital cost of terminal expansion. This could include, as an example, some program through the Federal and Provincial Governments as was utilized for the 2011 investments in the airport. For the purpose of this analysis, a 2/3 funding share from those other sources has been assumed and applied to the original \$7,500,000 total investment. This cost reduction of \$5,000,000 would reduce the annual capital financing requirement by \$274,446 to \$137,223. When combined with revenue and operating expenditures, the net impact changes from an estimated loss of \$130,130 per year to an estimated benefit of \$144,316.
- ix) CATSA Minimum of 8 Hours of Service** – the base case scenario has incorporated CATSA services at an estimated 4 hours of daily service to accommodate the two flights. Should either the timing of the flights or negotiations with CATSA result in a need to fund a minimum of 8 hours per day, the costs would increase by \$550,000 for a total net cost of \$680,130 per year.

The scenarios above are summarized in the following table:

Estimated Incremental Revenue / (Cost) per Year related to Scheduled Passenger Services (\$2016)	
Projected Annual Impact (twice daily domestic)	(130,130)
Scenario 1 – 1,000 ft. extension to runway	(328,130)
Scenario 2 – ACAP Funding Eligibility	(87,130)
Scenario 3 – Discontinuation of Scheduled Service	(611,669)
Scenario 4 – Increase to 4 daily flights	195,098
Scenario 5 – Higher Fee Structure	204,870
Scenario 6 – Additional Incentives for Airlines	(880,130)
Scenario 7 – TransBorder Destination	(828,442)
Scenario 8 – 2/3 Funding for Initial Capital Cost	144,316
Scenario 9 – CATSA Minimum of 8-hour Service	(680,130)

c) Consolidated – Base Case Scenario & Scheduled Passenger Services

Combining the Base Case Scenario described in Section 1 with the Scheduled Passenger Services forecast outlined in section 4, the estimated annual cost is:

Annual Funding Requirement – Base Case Scenario & Scheduled Passenger Services (\$000's)				
	2016 Approved Budget	Consolidated Estimate		
		Base Case Scenario	Scheduled Passenger Services	Total
Net Operating Cost / (Revenues)	356,400	351,110	(281,539)	69,571
Capital Financing	229,083	1,102,473	411,669	1,514,142
Total Cost	585,483	1,453,582	130,130	1,583,713

This table shows that the estimated cost of supporting twice daily domestic flights increases the projected budget requirement for the NDA.

Section 4b above also considered various scenarios related to scheduled passenger services. They included those that could lead to higher annual net funding requirements, such as the discontinuation of the scheduled service that would result in an annual consolidated cost (with Base Case) of \$2,065,252. They also included those that could potentially improve financial performance, such as the establishment of 4 daily flights, which if established could reduce the net consolidated cost to \$1,128,354.

d) Incremental Passenger Service Impact on cost by Municipality

The estimated incremental cost of scheduled passenger services can also be translated into the various governance and funding structures assessed in the same manner as

the Base Case Scenario above. By way of example, the estimated incremental cost recovered within the various local municipal boundaries would be:

Estimated Share of Annual Incremental Cost of Scheduled Passenger Services by Governance & Funding Model (\$2017)					
Municipality	Local Municipal	Region	Joint – Region & Local		
			% Allocation Basis	Per Capita Basis	Region fund Capital, Local Fund Operating
Municipalities Funding the Airport via Local Levy and/or Regional Levy					
Niagara Falls	47,000	27,077	43,015	34,001	-16,027
NOTL	8,721	10,565	9,090	9,924	14,555
St. Catharines	74,410	35,917	66,711	49,296	-47,363
Subtotal	130,130	73,559	118,816	93,221	-48,835
Remaining Municipalities (via Regional Levy)					
Fort Erie	-	8,804	1,761	5,744	27,852
Grimsby	-	8,810	1,762	5,748	27,872
Lincoln	-	7,422	1,484	4,843	23,481
Pelham	-	5,349	1,070	3,490	16,921
Port Colborne	-	4,508	902	2,941	14,260
Thorold	-	5,146	1,029	3,357	16,278
Wainfleet	-	1,933	387	1,261	6,117
Welland	-	10,914	2,183	7,121	34,528
West Lincoln	-	3,685	737	2,404	11,657
Subtotal	-	56,571	11,314	36,909	178,965
Total	130,130	130,130	130,130	130,130	130,130

On a cost per household basis, these amounts would translate as follows.

Estimated Annual Incremental Cost of Scheduled Passenger Services on a per Household basis by Governance & Funding Model (\$2017)*					
Municipality	Local Municipal	Region	Joint – Region & Local		
			% Allocation Basis	Per Capita Basis	Region fund Capital, Local Fund Operating
Municipalities Funding the Airport via Local Levy and/or Regional Levy					
Niagara Falls	0.97	0.56	0.89	0.70	-0.33
NOTL	0.46	0.56	0.48	0.53	0.77
St. Catharines	1.16	0.56	1.04	0.77	-0.74
Remaining Municipalities (via Regional Levy)					
Fort Erie	-	0.56	0.11	0.37	1.77
Grimsby	-	0.56	0.11	0.37	1.77
Lincoln	-	0.56	0.11	0.37	1.77
Pelham	-	0.56	0.11	0.37	1.77
Port Colborne	-	0.56	0.11	0.37	1.77
Thorold	-	0.56	0.11	0.37	1.77
Wainfleet	-	0.56	0.11	0.37	1.77
Welland	-	0.56	0.11	0.37	1.77
West Lincoln	-	0.56	0.11	0.37	1.77
Total	0.56	0.56	0.56	0.56	0.56

* Based on Region-wide average CVA of \$240,500 per household and a net incremental cost of \$130,130 per year.

5. Municipal Support for Other Airports in Ontario

In order to provide some additional context, expenditure and revenue data was compiled for various municipally-funded airports within Ontario using 2014 Financial Information Return data posted by the Ministry of Municipal Affairs and Housing. The municipalities included represent a range of airport characteristics, including those with and without schedule passenger services, those that have outsourced management and operations, and those that operate with municipal staff in a departmental structure.

	Expenditures (\$000s)						Revenue (\$000s)*	Net Cost (\$000s)
	Salaries & Benefits	Materials	Contract Services	Amortization	Other	Total	User Fees & Charges	
Barrie	276	852	66	371	150	1,715	(56)	1,659
Brantford	2	389	5	196	25	618	(24)	594
Collingwood	-	492	231	124	30	877	(458)	420
Kingston	509	266	471	420	274	1,940	(1,287)	652
Muskoka District	369	1,397	87	791	293	2,937	(153)	2,784
North Bay	972	847	67	3,145	156	5,187	(2,025)	3,162
Oshawa	7	1,921	5	415	295	2,643	(1,410)	1,233
Peterborough	129	486	1,032	1,027	596	3,270	(519)	2,751
Waterloo Region	2,209	1,372	1,690	2,289	1,505	9,064	(3,825)	5,240

* Excludes Municipal Funding / Grants

Source: 2014 Financial Information Return (FIR) data posted by the Ministry of Municipal Affairs and Housing (MMAH).

The results suggest that municipal funding support in excess of the current levels budgeted at the municipal airports in the region of Niagara is common. The total quantum is specific to the operations and infrastructure requirements of each unique airport, and shown by the sample of airports above can result in a significant range of annual cost.

Appendix G – Evaluation & Recommendation

This appendix provides the following information:

1. Evaluation Methodology
 - a. Overview
 - b. Decision Tree for a Potential Municipal Role in the Airport
2. Cost / Benefit Assessment
3. Evaluation of Alternatives by Guiding Principles
 - a. Summary - Comparison of Alternatives
 - b. Local Municipal Governance
 - c. Joint Local Municipal and Regional Governance
 - d. Regional Governance
4. Feedback from the public consultation process
5. Local Municipal Motions
6. Consideration for Concurrent Review Process for NCDRA
7. Recommendation
8. Next Steps

1. Evaluation Methodology

1a) Overview

The evaluation first considers the costs and benefits associated with the airport from a region-wide context. For the reasons outlined in Appendix B, the evaluation then focuses on the municipal governance alternatives available (i.e. Local Municipal, Regional and Joint Local Municipal & Regional). A consistent evaluation structure has been applied to all of these alternatives to ensure sufficient detail is available to support deliberation of each. Input from the public engagement process is then summarized. Finally a staff recommendation is outlined along with potential next steps for each of the alternatives.

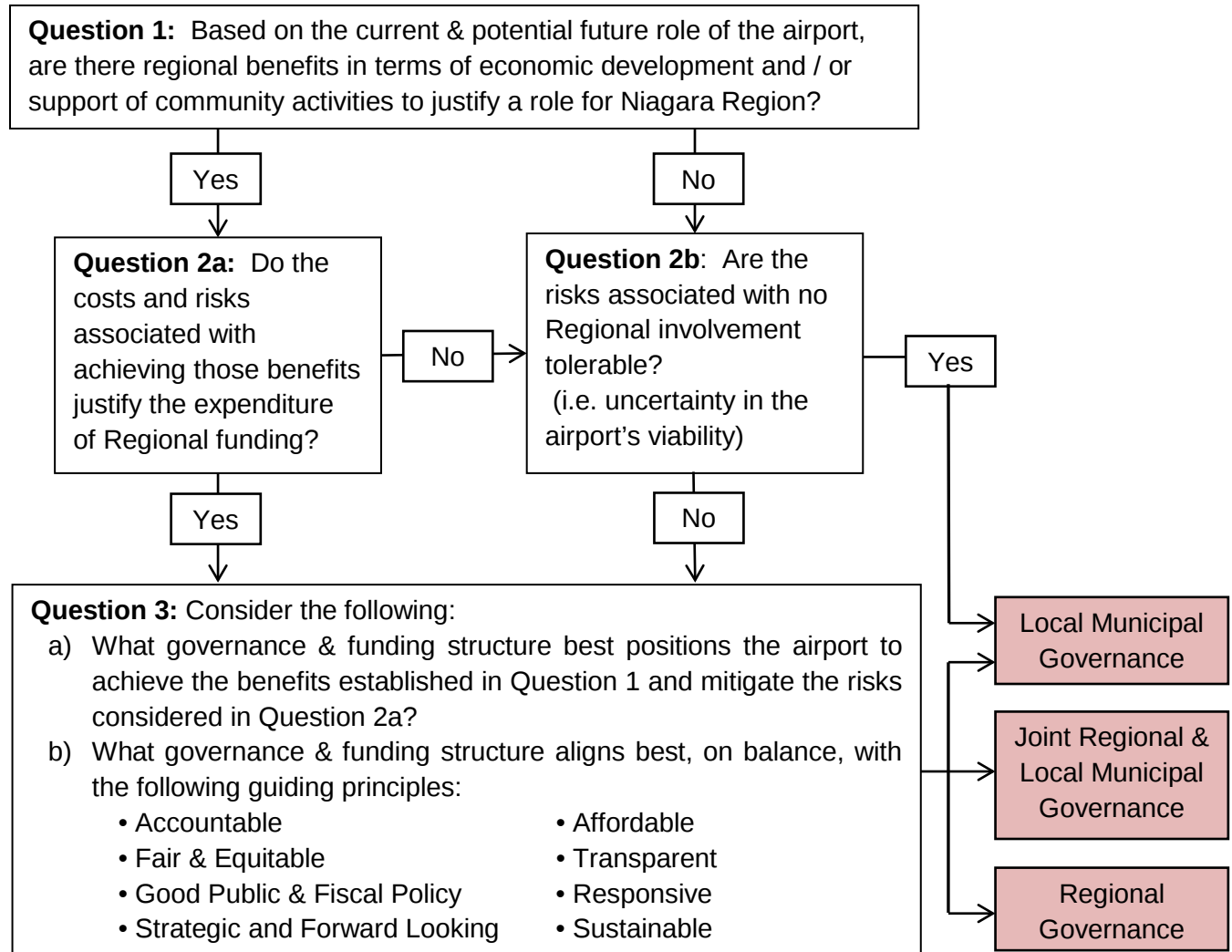
The goal at this stage of the process is to provide Regional Council sufficient information to determine if there is a role for Niagara Region in the governance and funding of the airport. Should Council determine that there is, direction as to whether Council sees that role being joint with the local municipalities or solely with the Region is also warranted.

1b) Decision Tree for a Potential Municipal Role in the Airport

In order to support Council in its determination of a potential role (if any) in the airport, and to ensure sufficient and appropriate information was captured in the review process, the following decision tree was created based on research of governance-

related documents (outlined further in Appendix B). The research and analysis compiled and presented in this report and related appendices is intended to support consideration of the questions in this tree. This decision tree is simply a tool that can potentially be utilized as a part of the evaluation process.

Decision Tree : Determination of a Potential Municipal Role in the Airport



2. Cost / Benefit Assessment

The benefits of the airport are incorporated throughout the information provided in Appendices A, C & D. These benefits consider both those that are currently in place at the airport, as well as the potential future benefits that could be produced. They are both quantitative and qualitative in nature. Key points to consider include:

- The NDA currently serves the needs of several commercial entities that operate in industries such as:

- o manufacturing (Genaire Ltd.)
 - o tourism (National Helicopter, Niagara Falls Air Tours, Fox Aviation),
 - o maintenance & repair (Eaglerock Aviation)
 - o flight training (St. Catharines Flying Club)
- Activity at the NDA generates an estimated economic benefit of \$18 million per year according to the most recent economic impact study undertaken
- Support for emergency services occurs at the airport (example: medevac), and includes activities of the Civil Air Rescue Emergency Services (CARES) which operates out of the NDA
- Community, social and educational activities at the NDA include those provided by associations such as the St. Catharines Flying Club, the Air Cadets, and the Recreational Aircraft Association (Chapter 4910)
- Given its proximity to key ground transportation corridors (example – QEW), access to municipal servicing, supply of vacant & developable land, status as a certified airport with Transport Canada with a Federal Airport Zoning regulation in place, and relatively new infrastructure, the NDA is positioned to support commercial growth opportunities
- A report prepared by InterVISTAS concludes that there is sufficient passenger demand for the market to sustain commercial air service at the NDA. If established, such a service would provide additional transportation options for residents, visitors and businesses, and generate economic benefit (estimated at \$15 million per year in a 2013 report for the NDA)
- Key infrastructure (terminal building & primary runway) are relatively new and therefore require only lifecycle investment in the near term

Prior studies relating to the economic benefits noted above indicated that most of the economic benefit remained in surrounding local municipalities as well as the region, however the degree to which that benefit was local as opposed to regional could not be estimated. As indicated in Appendix D of this report, the greatest potential for materially impacting Regional Council's strategic priorities is considered to reside in lines of business that are currently not in place to a significant degree at the NDA (i.e. charter, passenger and freight services). Some degree of benefit related to the Regional strategic priorities has been identified in several areas of commercial activity at the airport (examples – tourism-oriented, manufacturing, flight training).

These summary points, along with the additional detail provided earlier in this document, are intended to help form the response to the first question in the decision tree.

The costs & risks associated with realizing these benefits are outlined in detail in appendix E & F, with some additional historical context provided in Appendix A. Key points from that analysis include:

- The estimated capital investment to 2037 equals \$20,742,000 (\$2016), which includes \$4,721,000 related to the new development areas and excludes any investment related to scheduled passenger services.
- When the capital financing required to support those capital needs is considered, the annual funding need for the airport is estimated at \$1,348,904 (\$2017). This compares to the \$585,483 budget approved for the airport in 2016 and excludes scheduled passenger services.
 - When specific risks and opportunities are considered, the range of potential annual cost is estimated at \$604,230 to \$1,753,575.
- A financial assessment of the new development areas at the airport indicate that each should not be viewed as potential areas of profit (or even breakeven) for the airport. Rather, any investment in these areas would need to be made based on an alternate rationale, such as the direct & indirect benefits generated for the airport and community through commercial or other activity generated from these investments.
- A preliminary estimate of the incremental financial impact to the airport from twice-daily scheduled passenger services was prepared and showed a net cost of \$130,130 per year including operating expenditures & revenues and capital financing.
 - Various scenarios were also tested and showed a range of results from an annual net cost of \$880,130 to an annual net revenue of \$204,870
 - These estimates are predicated on an initial capital investment of \$7,500,000, which may be required in advance of securing any form of commitment from an airline to establish a scheduled service
- There are financial risks to the NDA resulting from the requirement to comply with potential policy changes implemented by Transport Canada (TC) or to address corrections identified through TC inspections.
- The primary forms of risk mitigation, especially with respect to financial risk, is ensuring that appropriate insurance and plans are in place and that airport management understands the industry and complexities of aviation regulations and standards.

3. Evaluation of Alternatives

Should a determination be made that sufficient regional benefit exists given the related costs and risks, an assessment of the municipal governance and funding structures is then warranted. This section assesses the following three primary alternatives in the context of the decision tree outlined in section 1a) above:

- a. Local Municipal Governance
- b. Joint Local Municipal and Regional Governance
- c. Regional Governance

Definitions for each of the guiding principles are provided Appendix B and were derived from the Provincial-Municipal Service delivery review¹ with consideration of other relevant Provincial, municipal and airport related documents.

3a) Summary - Comparison of Alternatives

Based on the considerations outlined in section 2b to 2d below, the following table has been prepared by staff to summarize the alternatives on a relative basis.

¹ *Provincial Municipal Fiscal and Service Delivery Review – Facing the Future Together*, Province of Ontario, AMO & City of Toronto, 2008

Consideration	Local Municipal	Joint Regional & Local Municipal	Regional
Accountable	2	3	1
Affordable	3	1	2
Fair & Equitable	2	1	2
Good Public & Fiscal Policy	1	1	1
Responsive	2	1	2
Strategic & Forward Looking	1	1	1
Sustainable	3	2	1
Transparent	2	3	1
Key Benefit(s)	- Alignment & ability to respond to local community needs - Transparency & accountability at one level of municipal government	- Largest funding base - Strongest connection between beneficiaries & responsibility/ funding	- Single organization with oversight increases accountability, transparency and ability to establish & implement vision for airport - Potential for a stable funding base
Key Detriment(s)	- Uncertain financial viability & sustainability - Potential differences in vision / level of support between municipalities - Less than ideal connection between beneficiaries & responsibility/ funding	- Poor accountability & transparency due to number of governing bodies - Potential differences in vision / level of support between municipalities - Potential for complex decision-making & approval process	- Less than ideal connection between beneficiaries & responsibility/ funding - Fewer direct linkages to local community needs due to lack of Local Municipal role

Scoring Legend: 1 – Highest Ranking

2 – Second Highest Ranking

3 – Third Highest Ranking

Note: in event 2 or more of alternatives rank equally, tie scores have been allocated

3b) Local Municipal Governance

Assessment of the Local Municipal Governance Structure

Guiding Principles	Considerations
- Accountable	- Local Municipal Governance avoids duplication and overlap between levels of government as Region would have no involvement in airports. - Within the Local Municipal Governance structure accountability can be less than optimal as each individual municipality that participates represents (on their own) a minority in the overall governance structure. As such, an individual municipality may find itself accountable for direction provided to the airport that it may not have supported.
- Affordable	- The level of investment identified for the airport to 2037 significantly exceeds the historical investment level at the local municipal level. - Local municipalities and the airport commission have indicated that this model does not allow for need infrastructure renewal or future development.
- Fair & Equitable	- Entire funding responsibility would remain with Local Municipalities that participate in the airport via the operating agreement. Therefore region-wide benefits derived from airport activities would be fully funded by only those participating municipalities & their taxpayers.
- Good Public & Fiscal Policy	- The public & fiscal policy purpose for municipal airports is presumed to relate to ensuring that the community benefits from the transportation, economic development, social and emergency response services produced at the airport at the appropriate cost to the taxpayer. - This governance structure positions Local Municipal Councils in the role of assessing this value proposition and establishing the related vision, policies and funding levels for the airport. - Participation in airport governance by aviation experts, business representatives and local interest groups can be accommodated in this alternative.
- Responsive	- Given the familiarity Local Municipalities have with respect to understanding the needs of residents and businesses, as well as the ability to coordinate airport strategy with initiatives in the local economic development and land-use planning offices, the Local Governance option provides a high degree of ability to identify community needs. This is especially true in the

	immediate vicinity of the airport, as community support was identified as a key best practice in the management of municipal airports. - Through leveraging existing relationships with the Region, Local Municipalities would have resources to provide a linkage between airport planning and region-wide initiatives.
- Strategic & Forward Looking	- Themes for service delivery in the 21st Century might include, for example, leveraging partnerships (private sector, public entities, supply chain partners), improved benchmarking, innovation in service delivery models, or enhancement in asset management practices. - Local municipal governance allows the airport to directly leverage best practices developed by the Local Municipalities in these areas. - Private sector solutions employed at other municipally owned airports (example: long-term lease, management contracts) are available within this alternative.
- Sustainable	- The governance structure is sustainable only to the degree that it is affordable to its partners, and as noted above concerns have been raised as to the Local Municipal structures' ability to fund the airport. - The inclusion of multiple local municipalities creates the opportunity for differences in visions for the airport and levels of support. Such differences could inhibit the airport's ability to maximize its value to the community in the long-term. - o The structure of any operating agreements used to establish the rights and obligations of partnering municipalities can directly impact the degree of this concern. For example, the inclusion of opt out provisions or a focus on annual budgeting as opposed to long-term financial planning would diminish long-term sustainability.
- Transparent	- Reporting requirements and control policies may differ between the supporting municipalities in any structure that involves numerous governing entities. - The degree to which financial planning for the infrastructure-intensive operation of the airport is in place can be less visible when numerous governing entities separately plan for their respective shares. - The budgeting and spending authority for the airport requires approval of each individual Local Municipality, which creates the potential for inconsistent mandates and ad hoc adjustments in the planning process to appease numerous governing entities.

3c) Joint Local Municipal and Regional Governance

Assessment of the Joint Local Municipal and Regional Governance Structure

Guiding Principles	Considerations
- Accountable	- Creates duplication and overlap between levels of government as both Local Municipalities and the Region would have involvement in airports. - An individual municipality's (Local or Regional) ability to set policy/direction for the airport is constrained as each individual municipality that participates represents (on their own) a minority in the overall governance structure. As such, an individual municipality may find itself accountable for direction provided to the airport that it may not have supported.
- Affordable	- Provides the largest range of funding options through combining the financial tools and resources of the Local Municipalities with the Region
- Fair & Equitable	- Provides an opportunity to best align the benefits of airport-related activities with the funding responsibility by municipal boundaries. The benefits considered would include financial and non-financial.
- Good Public & Fiscal Policy	- The public & fiscal policy purpose for municipal airports is presumed to relate to ensuring that the community benefits from the transportation, economic development, social and emergency response services produced at the airport at the appropriate cost to the taxpayer. - This governance structure positions Regional and Local Municipal Councils in the role of jointly assessing this value proposition and establishing the related vision, policies and funding levels for the airport. - Participation in airport governance by aviation experts, business representatives and local interest groups can be accommodated in this alternative.
- Responsive	- This structure provides direct access to both Local Municipal knowledge of community needs that the airport can potentially address, as well Regional insight into Niagara-wide strategic initiatives that could present opportunities for the airport to achieve its mandate and satisfy regional needs. This is especially true in the areas of economic development, land-use planning and transportation.
- Strategic & Forward Looking	- Themes for service delivery in the 21st Century might include, for example, leveraging partnerships (private

	sector, public entities, supply chain partners), improved benchmarking, innovation in service delivery models, or enhancement in asset management practices. - Joint governance allows the airport to directly leverage best practices developed by the Region & Local Municipalities in these areas. - Private sector solutions employed at other municipally owned airports (example: long-term lease, management contracts) are available within this alternative.
- Sustainable	- As the joint model would create the largest number of supporting municipal entities, additional opportunities are created for differences in visions and level of support provided. Such differences could inhibit the airport's ability to maximize its value to the community in the long-term. - o The structure of any operating agreements used to establish the rights and obligations of partnering municipalities can directly impact the degree of this concern. For example, the inclusion of opt out provisions or a focus on annual budgeting as opposed to long-term financial planning would diminish long-term sustainability. - This model provides the greatest number of funding sources and tools, as affordability and ability to manage financial risk is central to sustainability.
- Transparent	- Reporting requirements and control policies may differ between the supporting municipalities in any structure that involves numerous governing entities. - The degree to which financial planning for the infrastructure-intensive operation of the airport is in place can be less visible when numerous governing entities separately plan for their respective shares. - The budgeting and spending authority for the airport requires approval of each individual Municipality, which creates the potential for inconsistent mandates and ad hoc adjustments in the planning process to appease numerous governing entities. - Depending on the basis by which the Regional vs. Local Municipal share is determined, there may be challenges associated with tracking the specific costs & benefits between the two levels of Municipal government

3d) Regional Governance

Assessment of the Regional Governance Structure

Guiding Principles	Considerations
- Accountable	- With a single municipality providing oversight for the airport, there is no duplication, overlap, or lack of clarity in ability to set policy/direction.
- Affordable	- Introduces the entire estimated annual funding amount of \$1,348,904 (\$2017) to the Regional budget and capital project prioritization processes. All other things being equal, this amount represents a 0.41% increase to the approved 2016 Regional net levy.
- Fair & Equitable	- Entire funding responsibility would transfer to the Region and be recovered through the Regional levy. Municipalities (& their taxpayers) in closer proximity to the airport that receive a greater local benefit from airport activities would therefore gain a disproportional benefit from the cost allocated to them relative to the remaining municipalities.
- Good Public & Fiscal Policy	- The public & fiscal policy purpose for municipal airports is presumed to relate to ensuring that the community benefits from the transportation, economic development, social and emergency response services produced at the airport at an appropriate cost to the taxpayer. - This governance structure positions Regional Council in the role of assessing this value proposition and establishing the related vision, policies and funding levels for the airport. - Participation in airport governance by aviation experts, business representatives and local interest groups can be accommodated in this alternative.
- Responsive	- Through strategy development and initiatives at the region-wide level, Niagara Region is positioned to identify opportunities for the airport to support commercial growth within the region in accordance with its current mandate. - By leveraging existing relationships with local economic development offices and planning departments, the Region would also be able to solicit input regarding local needs that the airport could potentially address.
- Strategic & Forward Looking	- Themes for service delivery in the 21st Century might include, for example, leveraging partnerships (private sector, public entities, supply chain partners), improved benchmarking, innovation in service delivery models, or enhancement in asset management practices. - Regional governance allows the airport to directly leverage best practices developed by the Region in these areas.

	- Private sector solutions employed at other municipally owned airports (example: long-term lease, management contracts) are available within this alternative.
- Sustainable	- A single governing entity overseeing the airport provides advantages in terms of establishing and implementing a long-term vision and strategy for the airport. - Affordability and ability to manage financial risk is central to sustainability. This model provides a region-wide funding base to support airport operations and capital investments.
- Transparent	- A single governing entity provides greater clarity on reporting requirements and control policies, and ensures that the mandate provided to the airport can be fully aligned with the vision and goals of the sole governing body. - The degree to which financial planning for the infrastructure-intensive operation of the airport is in place can be more visible as it resides entirely with a single entity.

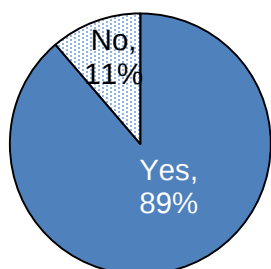
4. Feedback from the public consultation process

In addition to the on-going collaboration between airport, local municipal and regional representatives, as well as the updates to the Region's Transportation Steering Committee, consultation undertaken as part of this review process included the following:

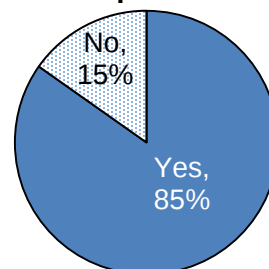
- 3 public information meetings
- An on-line questionnaire

Through the on-line questionnaire, respondents were asked to answer four questions for each of Niagara's publicly-funded airports. A total of 613 responses were received and used in the summaries below. 96% of respondents identified themselves as residents (as opposed to representatives of business or organizations), and 78% indicated that they currently do not use either airport in Niagara. The results are not considered scientific as the respondents self-selected, as opposed to using a randomly generated sample. The results are intended to provide an additional resource that can be used in determining the preferred governance and funding model. The results are summarized as follows:

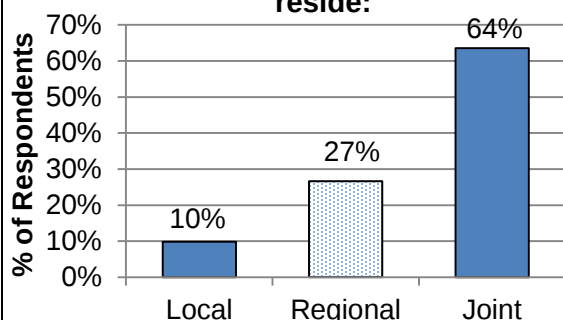
Question 1: Based on the current and potential future role of the airport, do you think that there are regional benefits that justify a role for Niagara Region's involvement in the airport?



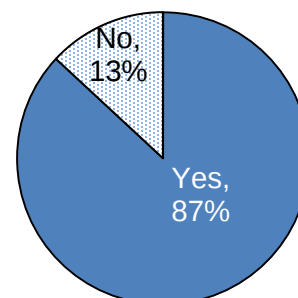
Question 2: In your opinion, do the costs associated with achieving the benefits created at the airport justify spending Regional tax dollars on the airport?



Question 3: In your opinion, where does the governance and funding responsibility for the Niagara District Airport best reside:

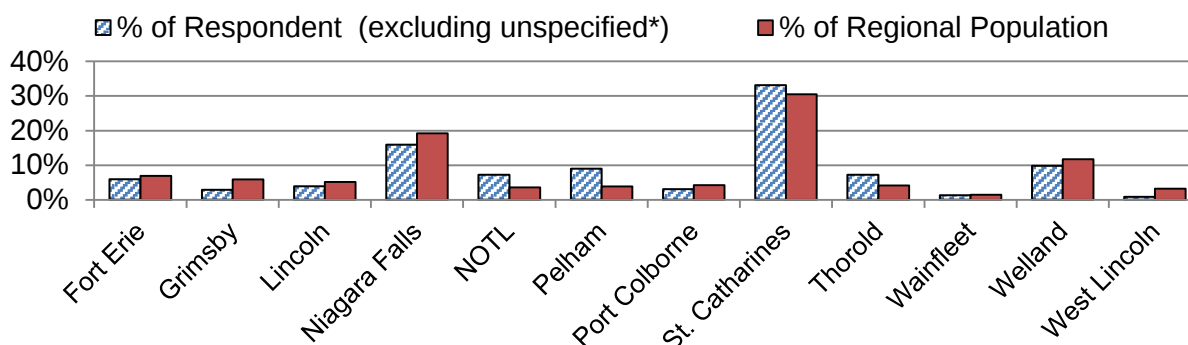


Question 4: Do you support further expansion of services and development at the Niagara District Airport?



Questionnaire respondents were also asked to identify the local municipality in which they reside. The dispersion of respondents throughout the region is presented below:

Breakdown of Survey Respondents by Local Municipality



* 154 of the 613 responses used in the analysis did not specify a local municipality.

Although support for the airport was slightly stronger in the municipalities that currently fund the airport at the local level, the total results shown in questions 1 to 4 above are approximately reflective of the feedback received from respondents in the remaining municipalities as well (i.e. within a 5% for each question).

The following table identifies (in no particular order) several themes specifically related to the governance and funding of the airport that were identified through consultations.

Theme
1) The non-financial benefits of the airport should not be overlooked (example – Medevac, search & rescue). Although they are not significant contributors to activity levels or revenue generation of the airport, they are critically important to the community.
2) There is no significant benefit of the airport to municipalities that do not currently fund it, therefore funding responsibility should not fall on the residents in those municipalities.
3) Private sector involvement (example – P3 arrangements) should be considered to a greater degree in the process, especially with the stakeholders that have most to potentially gain from airport operations or expansion of services.
4) Those that utilize and benefit from the airports form a small minority of the population and the costs associated with the airport should be fully recovered from those users. Municipal taxes would either be better utilized for other services with greater/broader benefit, or reduced to allow residents to either save for retirement or spend on local business.
5) Opportunity does exist to support economic growth through the airport and it will require investment and commitment from government to achieve it. The airport is a significant asset to the Regional economy and can be a tool to generate investment and economic activity.
6) The surrounding environment needs to be protected from airport activities and infrastructure planning & investment needs to ensure proper mitigation measures are in place.
7) Given the proximity to existing airports and the potential for Go Train expansion, the incremental benefit related to scheduled air passenger services is questionable. The cost & risk related to passenger services needs to be clearly identified in this process.
8) Governance of NDA & NDCRA needs to be consistent.

5. Local Municipal Motions

The Regional governance review of the NDA was originally initiated in 2015 in response to motions passed by the local municipalities that currently fund the airport, as well as the airport Commission. In passing the motions each noted that the current funding model does not allow for needed infrastructure renewal or future development, and that the NDA is the only certified airport within the Region and expansion would result in economic benefit throughout the Region. The City of Niagara Falls and Town of

Niagara-on-the-Lake motions called for Regional staff, the Commission and the ALC to “work together on the possibility of transferring the operations of the Niagara District Airport to the Regional Municipality of Niagara”. The City of St. Catharines passed a motion that “supports dissolving the existing joint municipal service board operating the Niagara District Airport Commission, and to transfer the operations of the airport to the Regional Municipality of Niagara”.

On June 6, 2016, the Town of Lincoln approved the following motions with respect to the Regional reviews of the airports:

WHEREAS the Region of Niagara is considering funding of regional airports in Niagara;

AND WHEREAS there is no appreciable value to the Citizens of Lincoln;

NOW THEREFORE be it resolved that the Town of Lincoln does not support the Region pursuing this initiative.

6. Consideration for Concurrent Review Process for the NCDRA

Parallel processes have been undertaken with separate reports prepared for the reviews of each the NDA and the NCDRA in accordance with the direction received from Regional Council. In order to consider the optimal governance and funding structures for the airport system as a whole, the relationship between the airports does warrant some consideration.

The relationship between the NDA & NCDRA has been acknowledged in prior reviews as well as business planning for the airports. The two airports' primary focuses have been characterized as complimentary, with the NDA serving the predominant role in commercial aviation and the NCDRA primarily serving alternate commercial markets (example – skydiving) and recreational usages. There are several common usages between the sites, including flight and glider training, repair & maintenance, recreational users and private hangar development.

Consideration is provided below as to those guiding principles which may be most affected should the outcome of the NCDRA review be incorporated into the assessment of the NDA.

It is important to note that consolidation of the operations of the two airports to one location has not been considered as a part of this assessment. Should it be determined that from a Regional perspective that only one airport is preferred to achieve the municipal benefits envisioned by Regional Council, the recommended course of action would be for the Region to assume a role in only one airport. This would allow the existing Local Municipal funding partners to determine the future role of the airport with consideration for any local costs and benefits.

The guiding principles for which the assessments outlined in section 2 would be most significantly affected in this context are:

- **Fair & Equitable** – Should the final municipal governance structure selected for either the NDA & NCDRA (or both) not align with the related benefits there may be a resulting potential inequity between taxpayers of different local municipalities. This lack of alignment could result from the need to consider the other Guiding Principles in determining the best structure on balance.
- **Sustainable** – Should only one airport receive funding from the Region through either the Regional or Joint governance alternative, the second airport would likely find itself at a relative disadvantage going forward. Given the existing funding constraints noted by the local municipalities and airport commissions, the future viability of the airport would therefore be further diminished.
- **Transparent** – Different governance and funding structures for the service delivery of airport/aviation services within the region, if chosen for the two airports, may create confusion for the public and other stakeholders.

7. Recommendation

Based on the data and analysis summarized in this report and appendices, including consideration for the input received through the consultation process, staff's recommendations are:

1. That the Joint Governance model **BE SUPPORTED IN PRINCIPLE** for the Niagara District Airport.
2. That the City of Niagara Falls, the Town of Niagara-on-the-Lake and the City of St. Catharines **BE REQUESTED** to confirm their respective interests in pursuing a Joint Governance model for the Niagara District Airport where the Regional share is expected to equate to approximately 50% of the required annual funding.
3. That Regional staff **BE AUTHORIZED** to initiate detailed negotiations with the City of St. Catharines, City of Niagara Falls and Town of Niagara-on-the-Lake to establish terms for a Joint Governance model.
4. That a report **BE PRESENTED** to the Transportation Steering Committee summarizing the outcome of those detailed negotiations prior to final approval by Regional Council.
5. That notification of the Council-approved motions related to the NDA **BE PROVIDED** to the twelve local municipalities, the Niagara District Airport Commission, the Niagara Central Dorothy Rungeling Commission and Transport Canada.

As a part of the detailed negotiations, Regional staff intends to consider the following in determining the appropriate Governance framework and Regional role:

- 1) In acknowledgement of the infrastructure-intensive nature of airports, all funding and governance partners' commitments reflect a long-term outlook.
- 2) Based on negotiations and execution of agreements occurring in 2017 (assuming local municipal motions occur first in late 2016 / early 2017), Regional funding for the airport would likely begin in early 2018 in order to allow approval of the resulting funding as part of the Region's annual budget process.
- 3) The funding arrangement(s) should consider the potential for changes in the relative share of costs between funding partners should the activities undertaken at the airport and related benefits change materially in the future.
- 4) The form of, and approval process for, the Regional vs. Local Municipal funding shares should be further explored in order to identify opportunities to strengthen areas such as transparency, accountability, simplicity and to best align the funding with the relative benefits.
- 5) A further assessment of the Municipal Service Board and Municipal Service Corporation structures is appropriate to determine the operational form that best protects the interests of all governance and funding partners.
- 6) An assessment of the composition and role of the Airport Commission & the Airport Liaison Committee is appropriate to reflect the participation of the Region and consider the best practices outlined in Appendix B of this report.
- 7) The governance agreement(s) should require a process for the Commission to establish and maintain a long-term strategy and financial plan for the airport with endorsement from each of the supporting Municipalities.
- 8) The governance agreement(s) should require further opportunities to enhance the performance measurement and benchmarking of activities and benefits of the airport as part of the Commission's reporting requirements to the governance and funding partners.
- 9) Opportunity to leverage private sector expertise & financing for the development of new or expanded services should be considered, in order to potentially mitigate costs & risks associated with such service expansions.

As an example, with respect to the need to revisit the funding shares (Principle #3) a review no later than 2026 seems appropriate given that it would coincide with the existing timeframe contemplated in the NDA's existing operating agreement, as well as the numerous on-going initiatives that could influence future activities at the airport. With respect to Principle #4, consideration could be given to focusing the Regional funding contribution on cost-sharing with the participating Local Municipalities on the significant infrastructure that is required to support the activities resulting in Regional benefit and the investments that have the potential to significantly advance Regional Council's strategic priorities. Final details would be subject to the negotiation process

with Local Municipalities and any subsequent approvals by Regional and Local Councils.

The recommendations are based on the following considerations:

- Degree of Regional Benefit
 - o Regional staff is of the opinion that some degree of Regional benefit is derived from the airport (in addition to the local benefits). Staff also concurs with previous studies that indicated that quantifying or tracking the degree of localized vs. regional benefit presents significant challenges.
 - o The current services and activity levels of the airport are limited in the degree to which they can significantly advance Regional Council's strategic priorities. The airport is positioned, however, to potentially pursue new or expanded services that provide greater alignment with those priorities.
 - o As such, the Regional share in the Joint Model should initially consider current state with additional support that is specifically tied to pursuit of those future opportunities (where supported by business cases).
 - The funding arrangement should also then include an opportunity to revisit the relative Regional vs. Local Municipal funding shares should the activities at the airport materially change in the future.
 - A sliding scale of Regional support per project could be considered based on the degree of alignment with Regional benefits and Strategic priority alignment
- Cost / Benefit Relationship
 - o The capital costs required to maintain & grow the airport are significant and any cost supported by the Region could put additional pressure on the Region's existing capital funding shortfall of \$210 million (as reported in the 2016 Budget process). An on-going Regional funding contribution and governance role is recommended, however, in order to support the Regional benefits derived from the NDA and ensure the viability of the airport such that the opportunities related to the Region's strategic priorities remain available moving forward.
 - To help manage these costs relative to the Regional benefits achieved, further assessment of the need for certain projected capital investments should be undertaken to potentially alleviate funding pressure and improve the cost/benefit assessment (example – assessment of the need for 2 secondary runways). Consideration could also be given to limiting the Regional contribution to cost-sharing on those significant capital assets that are central to the services that create region-wide

benefit and investments that could materially advance Council's strategic priorities.

- Local municipal funding is important to reflect the local benefits derived from the airport.
- It is also suggested that further review be undertaken of private sector partnership opportunities, specifically related to the pursuit of new or expanded services.

- Consideration of Guiding Principles

- o Regional staff acknowledges that the Joint Governance model will create the greatest complexity of the 3 municipal structures assessed, and is the least desirable model with respect to accountability and transparency. Nonetheless, it has been recommended due to the importance of aligning the funding responsibility with the beneficiaries.
 - In order to help alleviate some of the concerns, consideration of process improvements for long-term planning and performance measurement and reporting enhancements have been identified for the negotiation process.
 - Consideration of the form, composition and role of the Commission and ALC has also been identified for the negotiation process
 - The need for funding partners' commitments to the long-term outlook has also been identified to alleviate risks associated with the sustainability of this governance model.
 - Targeting opportunities within the governance agreement(s) that may provide benefits with respect to transparency, accountability, and simplicity in a revised governance model has also been identified for the negotiation process.

The specific details of the cost-sharing arrangement will be subject to any detailed negotiations with the Local Municipalities. A 50% Regional vs. 50% Local Municipal funding split is recommended and considers both the current regional benefit derived from airport activity, as well as the need to ensure the financial viability of the airport to ensure opportunities that could potentially impact Regional Council's strategic priorities in the future can be further explored. Some key figures for consideration include:

- The resulting estimated funding share for the Region of \$674,452 per year equates to 0.21% of the approved 2016 Regional levy.
- At the local municipal level, the estimated funding totaling \$674,452 would be approximately 15% higher than the 2016 approved municipal contributions of \$585,483, and could require increases in the order of 0.05% to 0.07% of the respective local municipal levies (or potentially higher depending on financing of the historical & future capital amounts).

- Of the total annual cost of \$1,348,904 (\$2017), this structure would see approximately \$1,055,699 (78%) recovered from taxpayers in St. Catharines, Niagara Falls and Niagara-on-the-Lake via both the Local and Regional levies, and \$293,204 (22%) recovered from the remaining municipalities via the Regional levy.

Applying the same methodology and framework as presented in Appendix F (excluding passenger services), the proposed 50% Regional and 50% Local Municipal funding allocation results in the following distribution by municipal boundaries:

Funding Impact for Base Case Scenario – <u>Joint Funding with Region & Local Municipalities Each Funding 50% of Annual Cost</u>				
Municipality	Estimated Share of Annual Costs (\$2017)	Estimated Annual Costs per Capita*	Estimated Annual Costs per \$100,000 of Weighted Assessment**	Cost per Household (CVA of \$240,500)
Municipalities Funding through both Local & Regional Property Taxes				
Niagara Falls				
Local Share	243,595	2.93	2.09	5.04
Regional Share	140,336	1.69	1.21	2.90
Subtotal	383,931	4.63	3.30	7.94
Niagara-on-the-Lake				
Local Share	45,199	2.93	1.00	2.40
Regional Share	54,758	3.56	1.21	2.90
Subtotal	99,957	6.49	2.20	5.30
St. Catharines				
Local Share	385,658	2.93	2.50	6.01
Regional Share	186,154	1.42	1.21	2.90
Subtotal	571,812	4.35	3.71	8.91
SUBTOTAL	1,055,699	4.59	3.34	8.03
Municipalities Funding through Regional Property Taxes Only				
Fort Erie	45,631	1.52	1.21	2.90
Grimsby	45,663	1.80	1.21	2.90
Lincoln	38,470	1.71	1.21	2.90
Pelham	27,722	1.67	1.21	2.90
Port Colborne	23,363	1.27	1.21	2.90
Thorold	26,670	1.49	1.21	2.90
Wainfleet	10,021	1.58	1.21	2.90
Welland	56,568	1.12	1.21	2.90
West Lincoln	19,098	1.38	1.21	2.90
SUBTOTAL	293,204	1.45	1.21	2.90
Total	1,348,904	3.13	2.41	5.80

* Based on per capita figures for each local municipality per 2011 Census

** Based on 2016 weighted assessment.

8. Next Steps

Joint Local and Regional Governance

The next steps proposed for the recommended alternative involve:

- a. Acquiring confirmation from each of the three existing Local Municipalities that currently govern the airport their interest in pursuing a Joint Governance model (note: the motions passed at the Local Municipal level to date contemplated transferring the operations of the airport to the Region as opposed to the Joint model)
- b. Subject to confirmation being received from each of the Local Municipalities, negotiating terms for a Joint Governance model for consideration by Regional Council as well as each of the Local Municipal Councils
- c. Approval of the terms of a Joint Governance model as well as the authority to execute the related agreements by Regional Council and the Councils of the three existing Local Municipalities.
- d. Notification to Transport Canada of the revised Governance model.
- e. Implementation of the transition to the Joint Governance model based on the terms and details arrived at through the negotiation process.

External expertise may be required in order to support the process outlined above, in particular with respect to the legal review required to prepare the necessary agreements. However at this time it is expected that the process can be managed utilizing existing staff & resources. Identification of a specific implementation date has not been included at this stage given the need to first engage in the detailed negotiations with the Local Municipal Partners, but a start date in early 2018 is expected given time required to undertake the steps above and incorporate the outcome in the Regional and Local Budget processes.

Local Municipal Governance

Should Council identify the Local Municipal Governance model as the preferred structure for the airport, the following motions could be considered:

1. That continuance of the Local Municipal Governance model **BE SELECTED** as Regional Council's preferred structure for the Niagara District Airport.
2. That support from Regional staff **BE PROVIDED** to the Niagara District Airport in areas such as economic development, planning and advocacy for Provincial and Federal funding programs where appropriate and requested by the Niagara District Airport Commission.
3. That funding or other assistance region to the Niagara District Airport in accordance with Section 107 (re: General Power to make Grants) of the

- Municipal Act, 2001* **BE CONSIDERED** in the future where supported by a business case that demonstrates an appropriate resulting benefit(s), cost-sharing arrangement and sustainability.
4. That notification of the Council-approved motions related to the NDA **BE PROVIDED** to the twelve local municipalities, the Niagara District Airport Commission, and the Niagara Central Dorothy Rungeling Commission.

As a part of this alternative no further action related to the governance or funding of the airport would be undertaken by Regional staff.

Regional Governance

Should Council identify the Regional Municipal Governance model as the preferred structure for the airport, the following motions could be considered:

1. That the Regional Governance model **BE SUPPORTED IN PRINCIPLE** for the Niagara District Airport.
2. That Regional staff **BE AUTHORIZED** to initiate detailed negotiations with the City of St. Catharines, City of Niagara Falls and Town of Niagara-on-the-Lake to establish terms for the transition to the Regional Governance model.
3. That a report **BE PRESENTED** to the Transportation Steering Committee summarizing the outcome of those detailed negotiations prior to final approval by Regional Council.
4. That notification of the Council-approved motions related to the NDA **BE PROVIDED** to the twelve local municipalities, the Niagara District Airport Commission, the Niagara Central Dorothy Rungeling Commission and Transport Canada.

External expertise may be required in order to support the process outlined above, in particular with respect to the legal review required to prepare the necessary agreements. However at this time it is expected that the process can be managed utilizing existing staff & resources. Identification of a specific implementation date has not been included at this stage given the need to first engage in the detailed negotiations with the Local Municipal Partners, but a start date in early 2018 is expected given time required to undertake the steps above and incorporate the outcome in the Regional and Local Budget processes.

As noted in Appendix B, the transferring of assets between the Local Municipalities and the Region often includes a requirement that the asset is first brought to a state of good repair or that an equivalent financial contribution is provided at the time of transfer. Such a consideration could be considered as a part of the negotiation process.

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TETRA TECH

Niagara Region Airport Study Niagara District Airport Land Use Plan and Financial Projection



PRESENTED TO

The Regional Municipality of Niagara

JUNE 3, 2016

ISSUED FOR USE REV.2

FILE: TRN.AIRP03016

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EXECUTIVE SUMMARY

The Regional Municipality of Niagara (Region) is currently reviewing the ownership structure and operations of the Niagara District Airport (NDA). In 2015, the Niagara District Airport Commission (NDAC) and the local municipality passed a motion requesting the Region consider assuming operations of the airport. In July 2015, the Region approved a motion to support engaging in preliminary discussions with the airport and the respective municipalities.

The Town of Niagara-on-the-Lake owns most of the airport property. The City of St. Catharines has a small land holding in the southwest portion of airport lands.

To determine the overall benefit of a regional role in the airports operations, the Region contracted Tetra Tech EBA Inc. (Tetra Tech) and Operations Economics Inc. (OEI) to develop an updated land use plan, a financial projection (Annex 1), and a risk analysis for the airport. The study included a comprehensive consultation with the airport operators, municipalities and airport tenants.

The airport is fortunate to have an Airport Zoning Regulation that protects airspace around the airport from incompatible land uses. A Niagara-on-the-Lake Zoning Bylaw also defines appropriate land uses at the airport.

Tourism operators, flight training schools and recreation pilots account for about 32,000 annual aircraft movements.

In 2011, under a government-funding grant, construction began on a new terminal building and airfield pavements (e.g., primary runway (06-24), a portion of the crosswind runway (01-19) and taxiways A, B and C). Airport infrastructure is therefore in good condition requiring only ongoing lifecycle maintenance.

The primary runway is equipped with approach navigation systems that will require the installation of an emergency backup power system to ensure ongoing operations in instrument flight rule (IFR) conditions. The remaining length of Runway 01-19, Runway 11-29 and Taxiway D pavements have exceeded a normal lifecycle and will require immediate attention if they are going to continue being used. Airport groundside assets (roads, services, utilities) are in good condition and will likely require normal lifecycle maintenance and repair during the plan period (20-years).

The Land Use Plan identifies suitable land uses for all areas of the airport. The plan first identifies areas that are critical to ongoing airport operations (e.g. airfield infrastructure, terminal and operations/maintenance buildings, access and parking). Based on stakeholder consultations, development designs are specific to certain types of activities. As an example, the Southwest Development Area (SWDA) layout design is for small hangar/multi-use construction, while the East (EDA) and Northwest (NWDA) Development Areas include lots for larger commercial customers or private owners with more significant land requirements. Development is demand driven and therefore the development of the NWDA and changes to the airfield (e.g., the conversion of Runway 11-29 to a taxiway) will only be required at such time the development area is required.

The total estimated cost to develop the SWDA is approximately \$3,800,000. The cost is divided into three separate phases with development in two phases over the next 20 years.

The general findings from the financial analysis show the NDA has stable and varied operations. The NDA has operated with an operating surplus based on the annual municipal grants. The Capital Plan for the airport recommends an investment of approximately \$9,700,000 over the next 11 years, or \$885,000 on an annualized basis. Operating budget projections anticipate an annual deficit (before municipal grants) declining slowly over the next ten years. Highlights of the Capital Plan include \$600,000 in equipment replacement, \$736,000 for runway rehabilitation and approximately \$3,600,000 for development depending on demand.

Airports face a number of types of risk, but governments, airport organizations, pilots, and others have developed methods and procedures to reduce them. The main risks that the airport faces relate to federal regulation and policy, environmental, safety and security, and financial concerns.

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ANNEXES

ANNEX 1: AIRPORT FINANCIAL PROJECTIONS – NIAGARA DISTRICT AIRPORT – OPERATIONS ECONOMICS INC.
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ACRONYMS & ABBREVIATIONS

Acronyms/Abbreviations	Definition
Organizations	
CATSA	Canadian Air Transport Security Agency
CBSA	Canadian Border Security Agency
ICAO	International Civil Aviation Organization
NDA	Niagara District Airport
NDAC	Niagara District Airport Commission
OEI	Operations Economics Inc.
OGS	Ontario Geological Survey
Region	Regional Municipality of Niagara
Tetra Tech	Tetra Tech EBA Inc.
Airport Terms	
ADAF	Aircraft De-icing and Anti-icing Fluids
AOE	Airport of Entry
AOM	Airport Operations Manual
AGN	Aircraft Group Number
ASL	Above Sea Level
ATB	Air Terminal Building
AZR	Airport Zoning Regulation
CA	Critical Aircraft
CAP	Canada Air Pilot
CARS	Canadian Aviation Regulations
CFS	Canada Flight Supplement
CYSN	St. Catharines/Niagara District Airport
EAS	Environmental Assessment Screening
EDA	East Development Area
EG	Ethylene Glycol
ELC	Ecological Land Classification
FBO	Fixed Base Operator

Acronyms/Abbreviations	Definition
FEC	Field Electric Centre
FOD	Foreign Object Damage
FSS	Flight Service Station
kt	knots
HVAC	Heating Ventilation Air Conditioning
LUP	Land Use Plan
MDA	Minimum Descent Altitude
NDB	Non-directional Beacon
NWDA	Northwest Development Area
ODALS	Omni-directional Approach Landing System
OLS	Obstacle Limitation Surface
PAPI	Precision Approach Path Indicator
RESA	Runway End Safety Area
RFE	Regulated Floodplain
RNAV	Area Navigation
ROW	Right-of-Way
SDA	Southwest Development Area
SMS	Safety Management Systems
VFR	Visual Flight Rules
Other Terms	
ASL	Above Sea Level
EAS	Environmental Assessment Screening
ELC	Ecological Land Classification
HVAC	Heating Ventilation Air Condition
OGS	Ontario Geological Survey
RFE	Regulated Floodplain Extent
ROW	Right of Way

LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of The Regional Municipality of Niagara and their agents. Tetra Tech EBA Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than The Regional Municipality of Niagara, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user.

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1.0 INTRODUCTION

The Regional Municipality of Niagara (Region) is currently reviewing the ownership structure and operations of the Niagara District Airport (NDA). In June and July 2015, the Niagara District Airport Commission (NDAC) and the local municipality passed a motion requesting the Region consider assuming operations of the airport. In July 2015, the Region approved a motion to support engaging in preliminary discussions with the airport and the respective municipalities.

The Town of Niagara-on-the-Lake owns most of the airport property. The City of St. Catharines has a small land holding in the southwest portion of airport lands. Transport Canada (St. Lawrence Seaway Authority) owns lands to the west of the airport. The privately owned land around the airport is for agriculture.

The NDAC manages and operates the airport. The NDAC is comprised of representatives selected by the City of St. Catharines, Niagara Falls, and Niagara-on-the-Lake. The NDAC has one part-time and four full-time employees at the airport. The airport is for general aviation and there are a number of aviation-related businesses and private hangar owners located at the airport. There are approximately 75 privately owned aircraft based at the airport. The volunteer Niagara-on-the-Lake Fire Department provides emergency services.

To determine the overall benefit of a regional role in the airports operations, the Region contracted Tetra Tech EBA Inc. (Tetra Tech) and Operations Economics Inc. (OEI) to develop an updated land use plan, a financial forecast (Annex 1), and a risk analysis for the airport. The study includes a comprehensive consultation with the airport operators, municipalities and airport tenants. A list of stakeholders is included in Appendix A.

2.0 AERONAUTICAL ZONING AND AIRCRAFT MOVEMENTS

A federal Airport Zoning Regulation (AZR) regulates approach surfaces for each runway. Development on specified lands and within specified air space surrounding the NDA is subject to the constraints identified within the regulation and/or the approval of Transport Canada by recommendation from the Airport.

The Niagara District Airport Zoning Regulations (AZRs), referred to officially as the St. Catharines Airport Zoning Regulations (SOR/84-901), include restrictions to structure heights within the vicinity of the airport, including the site identified for the proposed Garden City Skyway. Height restrictions reference the Obstacle Limitation Surfaces (OLS) as described in SOR/84-901.

2.1.1 Garden City Skyway Bridge

A separate consultant assessed the potential effect of a proposed second transportation corridor spanning the Welland Canal on the NDA AZR. The WSP report states, "Where penetration of the Outer Surface occurs the result can be a restriction to instrument flight procedures and/or a change in visual flight patterns. The location of the proposed bridge in relation to the Airport will require increases be made to instrument flight procedure visual circling minima and possibly a change to visual flight circuit patterns."

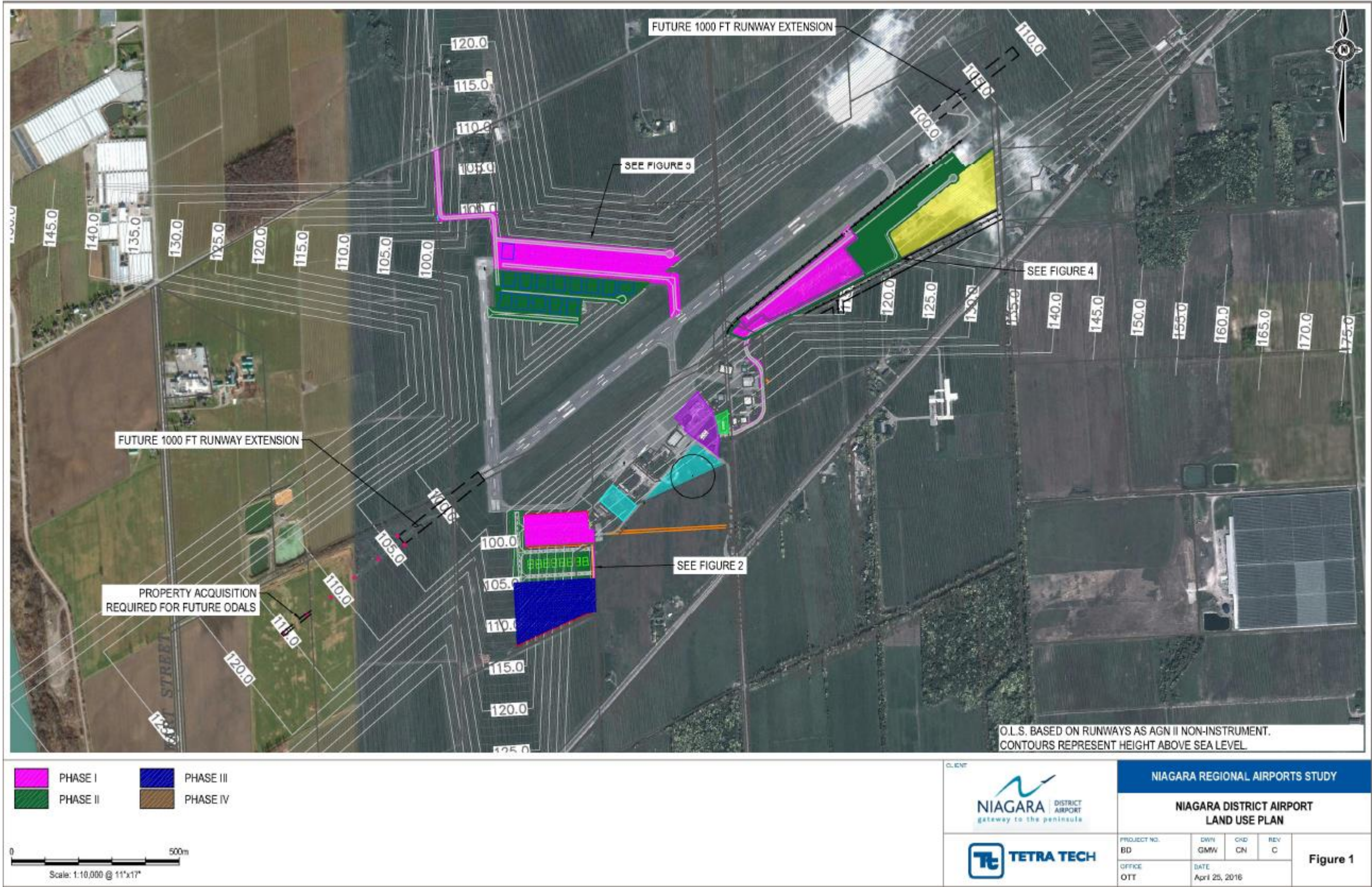
The analysis found that departures from Runways 01, 06, 11, 19, and 29 bypass the perimeter of the bridge planning box and therefore do not require further assessment. The proposed bridge planning box would penetrate the Runway 24 OLS; therefore, the departure procedure for Runway 24 requires adjustment to avoid the bridge. Based on the analysis, a modest climb gradient of 310 ft. (94.5 m) per nautical mile would be required until reaching 800 ft. (243.8 m) above sea level (ASL) to safely avoid the bridge and provide sufficient clearance between aircraft and obstructions.

The proposed Skyway Bridge, if restricted to a maximum build height of 528 ft. (161 m) ASL, does not pose a significant constraint to operations from the existing runway. The penetrations that would occur to the NDA's registered zoning and required operational zoning would be limited to specific areas of outer surface that are mitigated through changes to circling procedures and official amendments to the registered zoning. The potential impact of an extended runway and the Skyway Bridge is under a separate study.

If the proposed Skyway Bridge were to be constructed to the maximum build height of 630 ft. (192.1 m) as previously assumed for the planning box, the impacts to existing instrument approach procedures would be significant and negatively impact the airport's usability. However, restricting the bridge height to a maximum of 528 ft. (161 m) ASL can mitigate most impacts based on the current runway length. Unavoidable impacts would be to the non-directional beacon (NDB) Runway 06 approach and both area navigation (RNAV) and NDB circling approach. The most significant impact would be to the circling approaches, which, depending on the mitigation option chosen, could either raise the minimum descent altitude (MDA) a maximum of 100 ft. (61.0 m) or restrict circling to avoid overflight of the bridge. This may reduce the usability of the airport in a limited number of cases, but only slightly, and only for aircraft unable to execute a direct approach to Runways 06 or 24.

The impact evaluation did not include a Runway 06 extension onto St. Lawrence Seaway Authority property.

Figure 1: Niagara District Airport Land Use Plan – Overall Airport



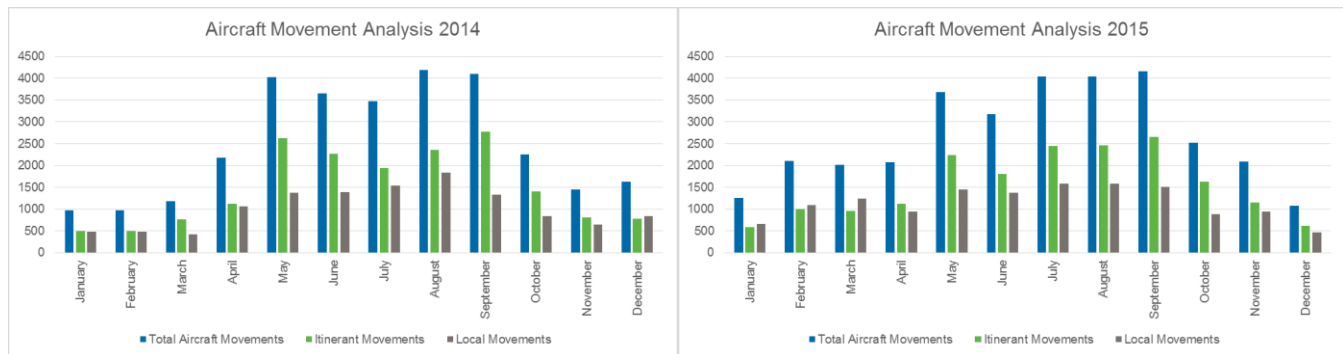
2.2 AIRPORT ZONING

The airport is currently zoned “Airport Zone” under the Niagara-on-the Lake Zoning Bylaw. The airport is defined as “the use of land for airport services in support of airport activities, including the sale and manufacturing of airplanes, parts and service.” The definition is very specific and if alternative land uses are identified (e.g., solar farm) a bylaw amendment may be required. Section 6.22 of the bylaw also restricts height within a 3,962.4 m radius of the NDA centre point. Height restrictions are set in accordance with OLS requirements.

2.3 AIRCRAFT MOVEMENTS

Figure 2-1 shows NDA aircraft movements of 30,000 and 32,000 for years 2014 and 2015 respectively. It is apparent that the majority of aircraft movements occur during the period May through September. This is not surprising because weather conditions are more favourable to recreational and pilot training activities and this time of year is also the prime tourism season. It is noted jet aircraft typically accounted for less than 1% of the total aircraft movements.

Figure 2-1: Aircraft Movements 2014/2015



A single runway can accommodate a significant number of aircraft movements (greater than 200,000 movements). Open V runway environments increase the overall practical capacity even more. As indicated, NDA will not exceed the runway capacity limits; however, one must consider peak-hour movements when conducting an overall runway capacity evaluation. During the summer months, aircraft activity is in the range of 60 to 80 daily movements. Movements are calculated using the total number of arrivals and departures. As an example, an itinerant movement is defined as an aircraft that proceeds to or arrives from another location, or leaves the circuit but returns without landing at another airport. Local movements are those aircraft that remain within the circuit. Typically, flight training activities occur within the circuit and, as such, a single aircraft can account for a significant number of movements in a given day. This analysis shows that the 60 to 80 movements in a single day can result from much fewer numbers of actual aircraft (e.g., 30 to 40). If these aircraft are generally spread over the course of a day there would be no significant peak-hour movements that would cause queuing problems.

3.0 AIRPORT ASSETS

An inventory of airport assets that are due for replacement over the next twenty years is included in Appendix B. The inventory includes a listing of assets, the acquisition/construction date and the expected replacement date.

The following sections describe airport assets in detail.

3.1 AIRFIELD ASSETS

The critical aircraft (CA) for the airport is the Boeing 737-700. The Aircraft Group Number (AGN) for this aircraft (AGN IIIB) is based on the Transport Canada, TP 312 Aerodrome and Recommended Practices, 5th Edition. Table 3-1 identifies the AGN specifications and approach speed categories. The AGN determines both the physical dimension of the design aircraft (e.g., wing span, outer main gear span) and the runway operating environment (e.g., runway width, transitional zoning). The approach speed of the aircraft can also determine which category the aircraft falls into. As an example, an aircraft dimension may be such that it falls into a specific AGN category; however, the landing speed (approximately 1.3 times the aircraft design stall speed) may require the aircraft to be designated in a higher category, resulting in a change to the overall airfield environment.

Table 3-1: Aircraft Group Number and Approach Speed Categories

Aircraft Group Number (AGN)	Wing Span	Outer Main Gear
I (for approach speed CAT C or D use AGN IIIB)	Less than 14.94 m	Less than 4.5 m
II (for approach speed CAT C or D use AGN IIIB)	14.94 m up to but not including 24.10 m	5.0 m up to but not including 9.0 m
IIIA (for approach speed CAT C or D use AGN IIIB)	24.10 m up to but not including 36.00 m	6.0 m up to but not including 9.0 m
IIIB(includes groups I-IIIA with CAT C or D approach speeds)	14.94 m up to but not including 24.10 m	14.94 m up to but not including 24.10 m
Approach Speed Category (knots) (kt)		
Category A	Speed less than 91 kt	
Category B	Speed 91 kt or more but less than 121 kt	
Category C	Speed 121 kt or more but less than 141 kt	
Category D	Speed 141 kt or more but less than 166 kt	
Category E	Speed 166 kt or more	

Table 3-2 identifies airport characteristics and the operating environment as published in the Canada Flight Supplement (CFS). Pilots will reference the CFS and the Canada Air Pilot (CAP) when preparing flight plans. The CAP provides airport reference material and published airspace, approach, and departure procedures.

Table 3-2: Airport Characteristics

St. Catharines/Niagara District Airport CYSN	
Reference	N43 11 30 W79 10 16
Elevation	321 ft.
Customs	AOE/15
Flight Service Station (FSS)	Nav Canada FSS
Runway Data	Runway 06-24: 5,000 ft. x 100 ft.
	Runway 01-19: 2,496 ft. x 75 ft.
	Runway 11-29: 1,988 ft. x 75 ft.
Localizer Performance with Vertical guidance (LPV)	Published Global Positioning System approach for Runway 06-24
Runway Condition Report	Flight Service Station (FSS) Canadian Runway Friction Index (CRFI)/Runway Surface Condition (RSC) Mon-Fri 1100-2400Z O/T contact operations. Limited winter maintenance.
Lighting	Runway 05 and 23 (Threshold and Runway End (TE), Medium Intensity Runway Edge Lights (ME), variable 3 settings), Precision Approach Path Indicator (P2), Omni-directional Approach Lighting System (ODALS) ARCAL – 123.5 type K
Procedures	For flight over Niagara Falls, see Niagara Falls VTPC. Glider activity vicinity of the airport Sat, Sun, holidays Apr-Jun & Sep-Nov. Gliders non-standard pattern. NOISE MITIGATION: After takeoff from Rwy 24, track on or north of the extended runway centreline, no turns below 1,000 ft. ASL. Hold position on Taxiway A is for both Rwy 01 and 06. Pilots intending to depart Rwy 06 must verify correct orientation on Rwy 06 prior to departure. Hold position on Taxiway B is for Rwy 06/24 and Rwy 29

3.1.1 Runways

Runway 06-24

Runway 06-24 is the main runway at the airport and is used approximately 86% of the time for arrivals and departures. The runway is 5,000 ft. in length and suitable for the types of aircraft expected to regularly serve the airport.

The runway pavements and edge lighting systems were upgraded in 2011 and are in excellent condition. The lifecycle for a typical runway pavement is dependent on a number of factors: the types of aircraft using the runways, the frequency of aircraft movements, weather conditions (e.g., thaw cycles) and general maintenance (e.g., crack sealing). A 15 to 20 year lifecycle is normally considered for the runway pavements and it is therefore expected a runway pavement rehabilitation will be required in the 2026 to 2031 timeframe. The runway lighting systems would require upgrading at the same time as the pavement rehabilitation.

Runway 06-24 Extension

To accommodate a wider variety of aircraft, a 1,000 ft. (304.8 m) runway extension may be required in the future. A longer runway will allow a broader range of aircraft operations. As an example, AGN IIIB (e.g., B737 series aircraft) will be able to use the runway for landing and takeoff. The allowable takeoff weight for the aircraft would need to be determined based on a number of factors including: number of passengers, ambient temperatures and distance to destination (e.g., fuel requirement).

The extension will likely be constructed at the Runway 24 end. The advantage of a Runway 24 extension is that all of the land required for the extension is currently on airport lands. The 24 end will, however, require that the airport negotiate leases or access to private lands to accommodate relocated Omni-Directional Approach Lighting System (ODALS) towers.

There is consideration for extending the runway on the 06 end which would require the acquisition of St. Lawrence Seaway Authority lands (approximately 90 acres) located west of the airport.

There is also a major municipal drain along the airport's western boundary. Construction at this end of the runway will require relatively significant drainage modifications.

Costing for a runway extension is included in the land use plan however the need for the extension is dependent on the inclusion of a scheduled or charter airline service using larger aircraft that require longer runways. A separate, passenger service viability assessment is currently in progress. The estimated cost for the runway extension is \$3,600,000. The runway extension is a relatively significant capital investment and a detailed business case will be required to justify an investment of this magnitude.

Runway 01-19

Runway 01-19 is a paved 2,496 ft. runway that is often used when conditions are such that the allowable crosswind component for safe aircraft operations on Runway 06-24 is compromised, or for convenience. The runway is used by recreational pilots and the flight training school. It is estimated the runway accounts for approximately 7% of the total aircraft movements. The runway length is suitable for smaller aircraft. The runway is not equipped with lighting systems and is therefore only useable during daytime Visual Flight Rule (VFR) operations.

The runway is in generally poor condition, with the exception of approximately 1,000 ft. (300 m) at the Runway 01 end that was rehabilitated in 2011. Ongoing maintenance can lengthen the pavement lifecycle; however, the potential for pavement surface failure (e.g., delamination) can result in flight safety concerns (e.g., foreign object damage (FOD)). The 1,000 ft. (300 m) at the Runway 01 end will require rehabilitation in the 2031 to 2036 timeframe whereas the remaining 1,500 ft. will require rehabilitation within the next few years.

Runway 11-29

Runway 11-29 is a paved 1,988 ft. runway that is used when crosswind components are not favourable to alternate runway use. The runway accounts for approximately 7% of the total aircraft movements; however, a large component of aircraft activity relates to glider operations. The runway is not equipped with lighting systems and is therefore only useable during daytime VFR operations.

Ongoing maintenance can lengthen the pavement lifecycle; however, the potential for pavement surface failure (e.g., delamination) can result in flight safety concerns (e.g., foreign object damage (FOD)). The runway is in very poor condition and requires immediate rehabilitation. During consultations, there was discussion of lengthening Runway 11-29 to provide for a more useable crosswind runway, reflective of the types of aircraft that would be using Runway 06-24.

The runway would be lengthened on the Runway 29 end and extend into the southeast development area. The current runway configuration allows aircraft operations in most wind conditions and the cost of a runway extension to 11-29 will be prohibitive. It is important to note that the results of a wind rose analysis may define further the optimum wind direction for a cross-wind runway (e.g., 01-19 vs. 11-29). The runway extension was not included in the timeframes associated with this study planning period.

Runway Operations

Aircraft manufacturers establish allowable crosswind limits for aircraft and pilots are trained to factor crosswinds, headwinds, and tailwinds into their flight planning. At some point, wind speed will exceed allowable limits for preferential runway use and in these circumstances, a crosswind runway will be used. At the NDA, runway use shows Runway 06-24 accounts for approximately 86% of arrivals and departures. Runways 11-29 and 01-19 account for 7% respectively, splitting the remaining arrivals and departures. It was noted that Runway 11-29 activity includes a relatively significant number of glider aircraft. The gliders are an integral component of the Royal Canadian Air Cadet spring and fall training program.

Based on wind analysis (wind rose), one can estimate the expected percentage of the time that winds will be out of a specific direction. Often winds can change seasonally and, as such, it is necessary to prepare an updated wind rose to verify seasonal wind direction and to determine which of the crosswind runways (01-19 or 11-29) is aligned most often with the dominant wind directions. The airport can then determine whether both runways are required for continued operations. If one of the runways is to be closed, the analysis can confirm which runway is best suited as the alternate runway.

There are airports in Canada that operate from single runways (e.g., Kelowna, Toronto Billy Bishop). Weather patterns, geography, and obstacles will dictate the suitability of a single runway operation. For example, the Kelowna airport is situated in a valley and, therefore, winds are funneled into the valley in a relatively constant direction. Toronto Billy Bishop is located adjacent to the downtown centre and, as such, the tall buildings will affect wind direction. In either case, the dominant wind and crosswind components are favourable to ongoing operations.

3.1.2 Taxiways and Aprons

The runways are accessed by way of four taxiways: A, B, C, and D. Taxiway A extends along the north edge of the main apron, terminating at Runway 01. Taxiway B extends from the main apron, connecting approximately midway on Runway 06-24. Taxiway C was constructed in 2011 and extends from the east end of the main apron to Runway 24. Taxiways A and B were rehabilitated as part of the 2011 runway rehabilitation projects. Ongoing maintenance (e.g., crack filling) will be required to maximize the pavement structure life cycle. The taxiways will require rehabilitation in the same timeframe as the main runway (2026 to 2031).

Taxiway D is paved and connects Runway 11-29 to Runway 06-24. The taxiway is in very poor condition and will require rehabilitation in the short term (within the next 5 years).

The main apron area (19,600 m²) is paved and the majority of the apron was resurfaced during the 2011 construction. Ongoing maintenance will maximize the lifecycle of the pavement structure and the apron should not require major rehabilitation during the planning period

3.1.3 Navigational Aids

Runway 06 and 24 are equipped with ODALS, a strobe light system that provides centreline guidance to the runway; and a Precision Approach Path Indicator (P2), a visual aid that provides vertical guidance to the pilot. The aids are in good condition. The navigational aids will require upgrading in the 2027 to 2037 timeframe.

3.1.4 Airport Fuel

The NDA provides both Avgas (22,480 L) and jet fuel (45,000 L). The fuel system is owned and operated by Allied Aviation. One of the major challenges is the fuel system is only available during working hours or on a call-out. The location of the fuel storage tanks (groundside) do not allow for a card-lock system that would allow pilots to fuel their aircraft and pay for the fuel online. To provide this service, the fuel tanks would need to be relocated airside (e.g., in front of the Allied Hangar).

NDA also owns aboveground diesel (2,090 L) and unleaded gasoline (2,200 L) tanks that are used for NDA vehicles.

3.1.5 Glycol Pad

A proposed Aircraft De-icing and Anti-icing Fluids (ADAF) collection tank will be located at the northeast end of the main apron near the intersection of Taxiways B and C. Aircraft operators regularly apply ADAF to prevent the formation of ice on aircraft critical surfaces. Ice buildup on an aircraft surfaces dramatically change takeoff characteristics (additional weight) and if undetected can result in serious accidents.

ADAF are comprised of glycol, additives, and water. Ethylene Glycol (EG) concentrations in Type I fluids are normally in the 54% range with some additives and water comprising the remaining 46%.

Studies suggest that biodegradation is the most important process for glycol breakdown and that bioaccumulation is not a likely factor. Glycol in high concentrations can deplete oxygen in receiving waters resulting in inhospitable conditions for aquatic organisms. For this reason, an Order in Council (Glycol Guideline) under the Canadian Environmental Protection Act limits glycol concentrations in stormwater leaving airport property to 100 mg/l.

Uncontrolled ADAF would enter the stormwater drainage system located immediately north of the proposed ADAF pad. A pad will be designed so that ADAF will drain to a collection storage tank located at the apron edge. The storage tank will be emptied regularly and the fluids will be disposed at an approved sump site or, under approval, directly into the sanitary sewer. Throughout Canada, glycol is often disposed in wastewater treatment systems since glycol degrades easily in treatment plant sludge. To control organic overloading in the treatment plant, discharges can be coordinated in off-peak flow hours. A sanitary sewer discharge will require approval from the Municipality.

The storage tank contents require regular testing during the de-icing season and when test results indicate glycol concentrations below Canadian water quality guidelines, water is discharged to the stormwater drainage system.

The airport must develop an emergency contingency plan designed to protect environmental ecosystems in the event higher than normal glycol concentrations enter the stormwater drainage system. The contingency plan will determine how airport personnel will close off the stormwater discharge and pump glycol-contaminated water into pump trucks for later disposal at an approved disposal location. Airport management will consult with the Municipality to confirm the acceptability of this practice in an emergency.

The glycol pad is not required for current airport operations and would only be necessary if the airport were successful in securing a scheduled or charter airline service.

3.2 GROUND SIDE ASSETS

3.2.1 Airport Owned Buildings

The Commission owns a number of buildings at the airport that are either used by Commission staff or leased to tenants. Buildings include: Building #2, the air terminal building (ATB), Building #6, the maintenance garage, Hangar

#7 located immediately west of the ATB, Hangar #11 located near the west end of the hangar lines, Building #1 located south of the ATB, and the field electric centre (FEC).

Air Terminal Building

The ATB was constructed in 2011 and is in excellent condition. The building currently houses the airport administration offices and National Helicopters' front office.

The airport is currently authorized by the Canadian Border Services Agency (CBSA) as an Airport of Entry (AOE/15) for general aviation flights where the flights are unscheduled and the traveler capacity does not exceed 15 persons, including the flight crew. International air service, whether scheduled or charter, is normally provided by airlines or charter companies that fly larger aircraft (e.g. Bombardier C100, Q400) that allow for a larger number of passengers. To accommodate this type of service, the airport will be required to apply for a change to the AOE to allow for a larger number of passengers (e.g., 75 or 100). If these changes occur, the ATB will then require expansion to provide facilities (e.g., arrivals areas, hold rooms, baggage handling, customs, CATSA) to process the increased number of passengers with a reasonable level of service. The requirement for the ATB expansion is tied to the implementation of a scheduled or charter air service. A concurrent study is evaluating the potential for these types of services. Details of the ATB modifications will be based on the findings and recommendations from that study and are not included in this study. The total estimated cost¹ for the ATB expansion ranges from \$4.6 M to \$5.1 M (includes a 7.6% design fee and 10% contingency).

Field Electric Centre

The FEC, located immediately east of the ATB, was constructed in 2011 and is in excellent condition. The FEC contains all of the switchgear, transformers, and electric panels that serve the ATB, airfield, and other electrical systems.

Maintenance Garage

The maintenance garage is located south and east of the ATB. The building is relatively old (age unknown), but is in fair condition. The garage is used to store and maintain airport equipment. To accommodate newer equipment, it may be necessary to expand the maintenance garage. The building expansion will increase the size of the existing building by about 50%.

Hangar #7 (Allied Aviation)

The hangar is located immediately west of the ATB. The hangar is leased to Allied Aviation and is used as a Fixed Base Operator (FBO) providing pilot services and fueling for the airport. The building is in good condition.

Hangar #11 (Genaire Industries) and Storage Building

Hangar #11 was constructed circa 1940s. The building is in relatively poor condition and requires ongoing renovation. The building is leased to Genaire Industries, who manufacture landing gears, aircraft radome, and fuel cells, largely for the Department of National Defense. Genaire also leases a smaller building located south and west of the ATB which they use for general storage.

¹ Explorer Solutions, Business Case: Airport Improvement for Transborder Traffic & Commercial Land Development Strategies, Niagara District Airport, October 2014

3.2.2 General Building Lifecycle

Ongoing maintenance of building systems is necessary and capital investment is required when building system life cycles are reached. Some systems may require replacement within the plan timeframe: roof (depending on type): 15 to 20 years (2031 to 2036); HVAC (boilers and chillers): 15-30 years (2031 to 2046); flooring (depending on type): 10 years (2026).

Tenants are responsible for maintaining the buildings they own or lease.

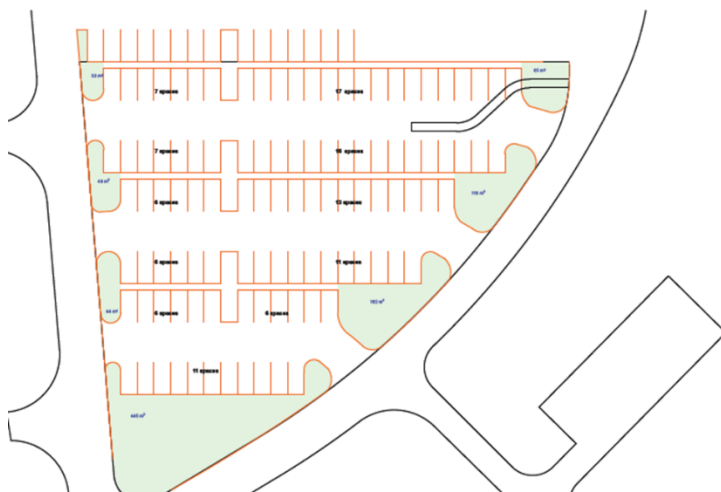
3.2.3 Access Roads and Parking

The main airport access, Airport Road, connects to County Road 55 (Niagara Stone Road). The paved road is approximately 8 m in width. Drainage ditches are located on either side of the road with the main drainage ditch located on the east side of the road.

The access road provides one-way circulation to the air terminal building (ATB) and adjacent parking areas. The ATB currently provides for approximately 58 parking stalls and 3 larger bus stalls. The adjacent hangar owned by the airport and leased to Allied Aviation includes an additional 35 stalls.

The Explorer study suggested the expansion of the parking areas into the grassed area located immediately south of the existing parking lot allows for an additional 106 vehicles² (Figure 3-1). The total number of parking spaces available (164) will meet the airports needs into the long-term. Figure 2 shows the proposed parking lot expansion area. The estimated cost for the parking lot expansion (reference Explorer Study) ranges from \$461,000 to \$507,000 (includes an 8% design fee and 10% contingency).

Figure 3-1: Parking Lot Expansion Concept Layout



The parking lot expansion will be considered as part of the concurrent review of scheduled passenger services, and have been excluded from the capital forecast in this report.

Access for both the southwest and east tenant areas is from Airport Road. Vehicles are required to access the east tenant areas through a locked security gate.

The access roads and parking areas are in good condition and based on lifecycle (10 to 15 years) will require rehabilitation during the period 2026 to 2031.

3.2.4 Water and Sewers

At present, sanitary sewer and water connections are available at the northeast corner of the development area. The sanitary service is a 200 mm diameter SDR35 PVC pipe. The water service is a 150 mm diameter, CL150 DR18 PVC pipe. Consultations with the Region suggest that in the short-term the capacity of the sanitary and water services is adequate to serve the potential demand from the southwest development area.

² Explorer Solutions, Business Case: Airport Improvement for Transborder Traffic & Commercial Land Development Strategies, Niagara District Airport, October 1, 2014

At this early stage in the development preparation, ultimate capacity is determined on broad-based sewer estimations. As an example, T-Hangars used for aircraft storage often do not require significant amounts of water and sanitary service whereas a Fixed Base Operator (FBO) can have relatively significant demand.

Water and sewer systems generally have a long lifecycle if properly maintained. There will not be major capital investment required for the existing systems during the plan period. A detailed capacity analysis will be required to confirm the sanitary and water services (water services/fire flows, etc.) can meet the projected volume demand as the terminal building expands, and the southwest, east, and northwest development areas are constructed.

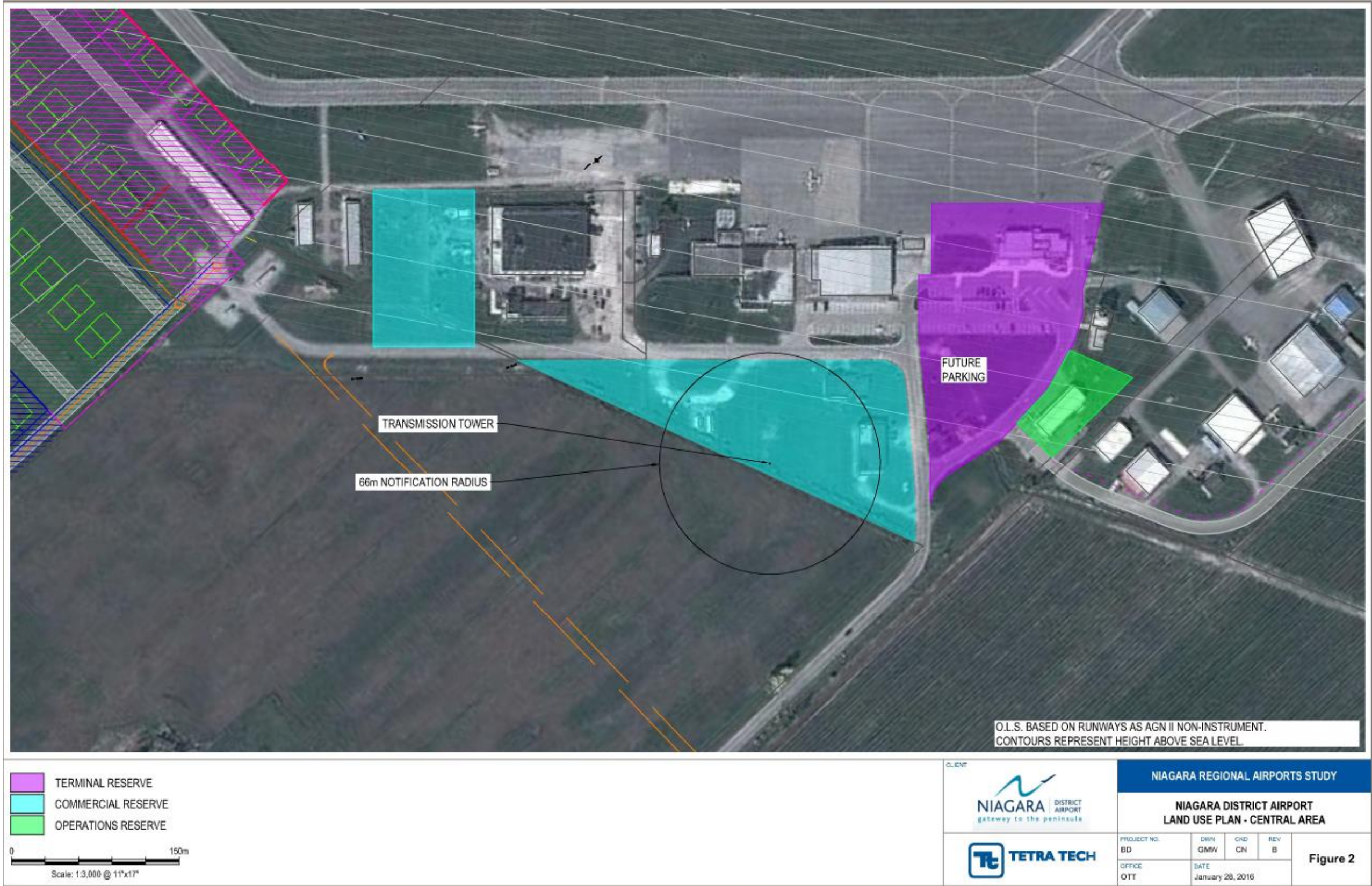
3.2.5 Electrical

Discussions with Niagara Power indicate 3-phase power supply is available at the airport and the supply capacity will likely meet future needs. The main power feed to the airport terminates at the FEC.

Electrical lines in development areas will tie to the existing lines. In general, electrical supply for individual development lots will connect to new transformers located adjacent to access roads within the development. As an example, the access roads shown in the SDA would each have a transformer located conveniently to serve the lots located along that access road.

The airport will have to confirm overall electrical power requirements and assess the electrical demand for future development areas.

Figure 2: Niagara District Airport Land Use Plan – Central Area



3.2.6 Emergency Power

At present, the airport does not have a backup emergency power system. In the event of a main power outage, critical airfield services will not have electrical power (e.g., ODALS; threshold, runway and apron edge lights; PAPIs).

TP 312 5th Edition, Section 8.1.1.1, Application, states, “A secondary power supply is provided for: a takeoff runway operating in visibility conditions less than RVR 1200 (1/4 SM).”

The airport will require installation of an emergency power backup generator complete with a diesel fuel tank. The FEC will require appropriate modifications (e.g., switch gear, transfer connections). For the purposes of this report we have specified a 300 KW (375 KVA), 600 V, 3 pole emergency generator complete with a diesel fuel storage tank, switchgear, and enclosure.

The installation of an emergency power system will be required in the next few years.

3.2.7 Other Utilities

Other utilities (e.g., natural gas, telephone line, high-speed internet services) are present at the airport and will be included in new development areas as required. Costs associated with “other utilities” are normally borne by the land developers when an area is developed.

3.2.8 Airport Equipment

The Commission owns equipment that is used to maintain the airport. The Asset Management Plan (Appendix B) shows the inventory and expected replacement schedule and cost. Certain equipment listed in the table was acquired in recent years but the acquisition date noted does not reflect the equipment manufacture year. The replacement year column uses typical equipment life cycle replacement values.

3.3 STORMWATER DRAINAGE

The NDA is located within the 8-Mile Creek watershed. Stormwater ditches convey water during storm events to minimize flooding and provide general irrigation control. Drains flow along most of the airport’s perimeter areas with connecting drains throughout the developed areas.

A central drain originates south and east of the NDA and wraps around the existing southeast hangars, conveying water under Runway 06-24 to the airport’s north boundary and then west along the northern boundary to connect with ditches running along the airport’s west boundary. The water flows north approximately 4 km, discharging into Lake Ontario.

Three 100-year Regulated Floodplain Extent (RFE) areas are located within the boundaries of the NDA. The RFE to the east of the airport is part of the municipal drain that runs along the eastern edge of the property.

Development in areas adjacent to the municipal drains must provide a minimum 10 m buffer on either side of the drains. Municipal permits are required for crossings and culvert installations.

3.4 ENVIRONMENT

A comprehensive environmental assessment screening (EAS) was prepared in October 2010. The EAS provides significant detail on airport “environmental” systems and will be referenced extensively in this section.

Groundwater

In 2005, a regional groundwater study conducted by Waterloo Hydrogeological provided a detailed overview of regional groundwater conditions. The study suggested groundwater is approximately 1 to 2 m below ground level and generally flows north towards Lake Ontario. The groundwater is used as a potable source of water in agricultural areas.

A geotechnical investigation conducted by Trow Associates shows groundwater was only encountered in the proposed apron expansion area at about 0.7 m below the existing surface. Based on the Trow report it is not likely groundwater will be encountered when the development areas are constructed.

Surface Geology

The NDA is located in the Niagara Fruit Belt section of the glacial Lake Iroquois formation and the soils are comprised of lacustrine deposits from Lake Iroquois (Chapman and Putman, 1984). The Ontario Geological Survey (OGS) Quaternary Geological Map for Niagara-Welland indicates the airport is underlain by Halton till, described as silty clay and clay loam till with imperfect or poor drainage. Geological maps indicate considerable overburden in the area with bedrock depths estimated at 30 to 35 m.

Soils test conducted as part of the Trow study indicated the inorganic parameters in the soil meet the criteria for industrial/commercial/community use. Excess soils from excavation can therefore be reused on-site.

Vegetation and Wetlands

The Ecological Land Classification (ELC) system identified five distinct vegetation communities on the airport:

- Gray Dogwood Deciduous Thicket
- Fresh-Moist Mixed Meadow
- Combined Fresh-Moist Mixed Meadow/Gray Dogwood Deciduous Thicket
- Common Reed Graminoid Mineral Meadow Marsh (old sludge lagoons)
- Combined Mixed Mineral Meadow Marsh/Mineral Deciduous Thicket Swamp

Other areas at the airport include mowed and maintained areas and a bare soil area in the eastern portion of the airport (Northeast Development Area).

The vegetation and wetland areas are described in significant detail in the Trow report. In a general context these areas must be considered in the final development area design. Water from off-airport areas must be prevented from flowing to airport lands and water on-airport should be managed for a controlled discharge to the surrounding ditches. Examples of strategies to control stormwater include: road side ditches, parking areas designed for water detention, stormwater detention ponds. All designs must include provisions to discourage wildlife.

The AMEC environmental assessment (EAS) provides a detailed evaluation of potential environmental impacts associated with airport development. The summary finding from the assessment was “no significant adverse environmental effects are anticipated as a result of the project.” The EAS did not look specifically at development in the EDA although the extent of the assessment included that area.

When development occurs, prospective developers must include mitigation measures included in the EAS to ensure environmental protection. These measures are in large part typical to most construction contracts.

4.0 LAND USE PLAN

The Land Use Plan identifies suitable land uses for all areas of the airport. The plan first identifies areas that are critical to ongoing airport operations (e.g. airfield infrastructure, terminal and operations/maintenance buildings, access and parking). Based on stakeholder consultations, development designs are specific to certain types of activities. As an example, the Southwest Development Area (SWDA) layout design is for small hangar/multi-use construction, while the East (EDA) and Northwest (NWDA) Development Areas include lots for larger commercial customers or private owners with more significant land requirements.

The development concepts provide for a logical development strategy for the airport over the next 20 years. Development is demand driven and therefore changes (e.g., the conversion of Runway 11-29 to a taxiway) will only be required at such time the development area is required. In this specific example, Runway 11-29 would continue as an alternate runway.

The following sections provide further information on each development area. Figure 1 shows the overall airport land use.

4.1 SOUTHWEST DEVELOPMENT AREA

The Southwest Development Area (SWDA) is suited for immediate airport expansion plans. The site is located south and west of the existing hangars and is a logical choice for expansion. The overall land area available is approximately 8.2 ha (20.3 acres) in size. Figure 3 illustrates the site development and includes reference to acceptable building heights based on transitional zoning.

The SDA is for private and recreational hangar development. The hangars are generally small T-Hangar or multi-use hangars. Hangar sizes can range from 93 m² to 186 m² depending on the user needs.

One of the components of the development is that the taxiway layout necessitates combined use (i.e., aircraft and vehicles). Operational procedures can safely minimize conflicts between vehicles and taxiing aircraft (e.g., signage or gate control). Development phasing relies on demand. A phased approach defers costs over a planning horizon.

The overall development of the site has been divided into 3 separate phases. As an example, Phase 1 allows for the development of 16 lots with another 16 lots available depending on the type of hangar development. The general layout is designed so aircraft can exit either side of the hangar to a taxiway. In Phase 1, hangars on the north side of Taxi 2 and south side of Taxi 3 would only have access on one side. The airport would continue construction of the remaining development areas as demand warrants. When hangars are on 70% of the lots new construction would begin. One must consider there are additional costs when phasing construction (i.e., mobilization, costs efficiencies with larger projects).

Phase 2 will provide for 24 lots (including the lots north of Taxi 2). As shown on Figure 3, an existing hangar will need to be relocated. By deferring development, the airport can also consider alternate land use (e.g. larger airside commercial businesses) if demand warrants this type of activity in this area.

Phase 3 will allow for development of another 29 lots.

4.1.1 Taxiway Connection

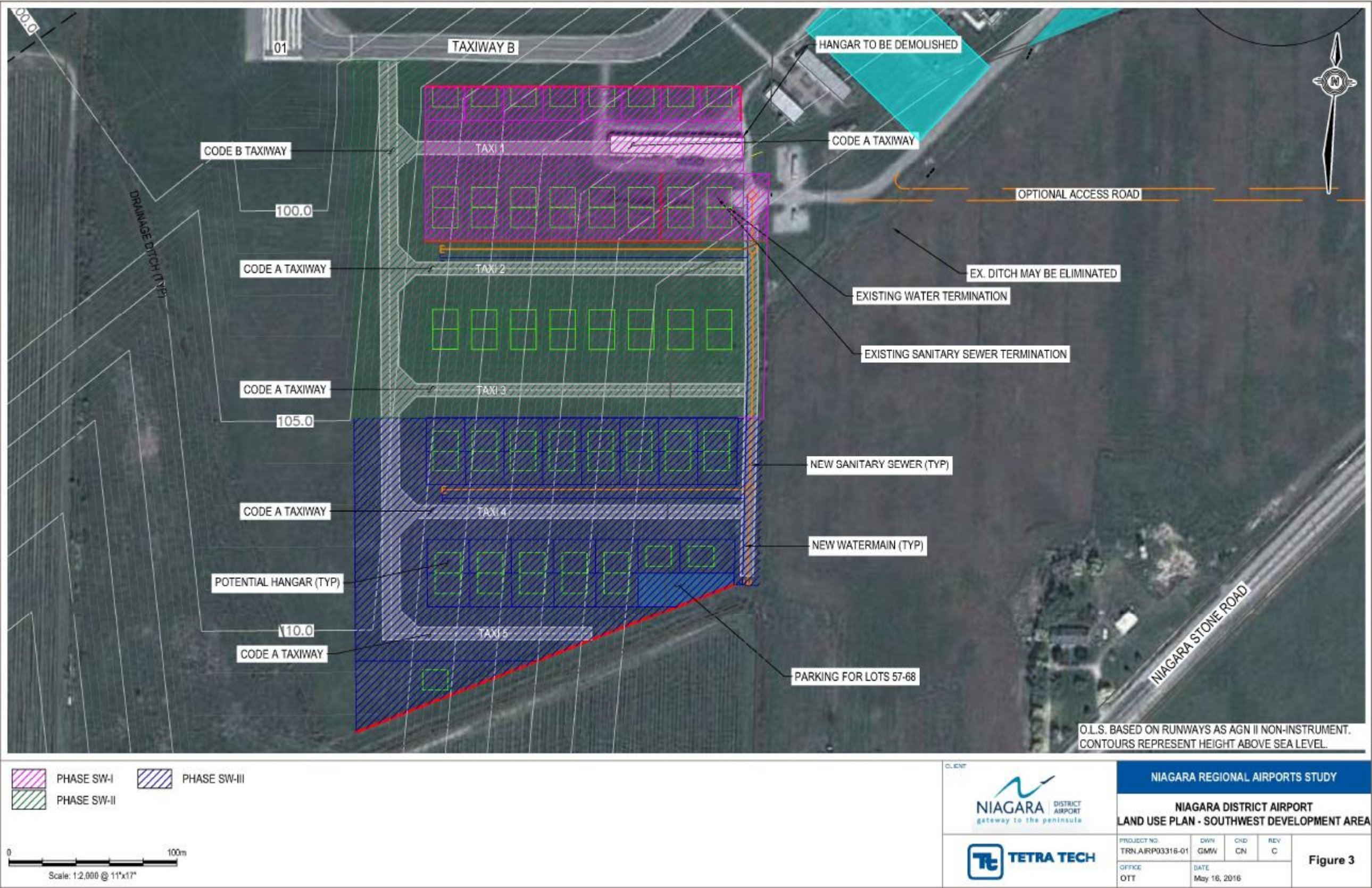
Taxiway A is located at the northern edge of the proposed development area and provides easy access from the development area to Runway 01-19 and Runway 06-24.

The overall taxiway layout shows a main taxiway connection to Taxiway A approximately 75 m east of the Runway 01 threshold. The taxiway then extends southward into the development area with five taxiway stubs extending to the east, maximizing airside commercial development. The taxiway extension at the north end of SDA will require relocation of the existing T-Hangar.

The taxiways are designed for Aircraft Group Number I type aircraft (e.g., Beech Bonanza, Cessna 182). The taxiway will be 7.5 m wide. An overall Right-of Way (ROW) of 31 m (15.5 m either side of centreline) has been included in the design to allow for adequate separation from the taxiway centreline and fixed objects on tenant aprons.

The taxiway pavement structure used in the cost estimate is 65 mm Hot-Mix Asphalt Concrete, 200 mm Granular Base Course, 250 mm Granular Sub-base Course. This pavement structure uses conceptual design parameters and the final design will take into account specific site conditions, including subgrade conditions and local climate.

Figure 3: Niagara District Airport Land Use Plan – Southwest Development Area



4.1.2 Access Roads

Airport Road connects the terminal and hangar areas to County Road 55 (Niagara Stone Road). The existing road will extend along the east side of the development area. The taxiways/roads will extend into the new development area as indicated on Figure 3.

The access road will be asphalt pavement construction. The roadway will have an 8 m surface with a 15 m ROW to accommodate water and sanitary services and drainage ditches.

4.1.3 Lot Layout

For illustration purposes the lots shown in the SWDA are approximately 0.046 ha (0.11 acres) in size. It is important to note that the lots sizes can change to allow for larger tenant lease areas if demand warrants. The total SWDA will provide for 69 lots.

4.1.4 Overall Suitability

Table 4-1: Southwest Development Area Suitability Evaluation

Pros	Cons
Logical extension to the existing hangar line	Area is in proximity to floodplain and as such, development will have to consider stormwater management. The airport operator suggested the lands are normally dry.
Large number of lots for lease	The general area will require relatively extensive grading.
Excellent access to existing taxiway system and runways	Combined access roads/taxiways will require operational controls (e.g. signage or gates)
Concepts allow for modifications to lot sizes to meet user needs	
Lot development can be phased with triggers (e.g. themed development areas would be constructed first and the most southerly taxiway and most northerly taxiway and access road network would only be constructed when the mid-development area is 70% occupied)	
Sanitary, water, and electrical services are adequate to meet the needs of this development and are readily available at northeast corner of the development area	
The phasing can be scheduled so that the existing hangar relocation can be deferred until all of the other lots are developed	

4.1.5 Development Area Costs

Table 4-2 details the SWDA development costs. Detailed cost estimates are located in Appendix B. It is important to consider the cost estimates use specific assumptions. As an example, the project does not include detailed surveys or geotechnical investigations; therefore, costs associated with excavation and the final pavement structure design assume relatively ideal conditions. The north south taxi connecting to Taxiway A pavement structure is designed for AGN I category aircraft. The costs for the SWDA are divided into 3 phased concepts and distributed over the next twenty years.

Table 4-2: Southwest Development Area Costs

Development Area Costs	Phase 1 2019 - 2026	Phase 2 2027 - 2036	Phase 3 Greater than 20 years
General	\$139,000	\$46,000	\$105,000
Area grading	\$452,000	\$151,000	\$339,000
Access roads	\$144,000	\$48,000	\$108,000
Taxiways	\$341,000	\$114,000	\$256,000
Services	\$96,000	\$32,000	\$72,000
T-Hangar Relocate	-	\$400,000	-
Engineering and Contingency (35%)	\$410,000	\$277,000	\$308,000
Total Development Area Cost	\$1,582,000	\$1,068,000	\$1,188,000

4.2 EAST DEVELOPMENT AREA

The East Development Area (EDA) extends the existing hangars east of the terminal building. The overall development area is approximately 7.7 ha (19.1 acres) in size. Figure 4 illustrates the proposed lot layouts. The Figure includes reference to acceptable building heights based on transitional zoning.

4.2.1 Taxiway Connection

One of the main challenges is a large drainage swale that parallels Taxiway C. To minimize impacts to stormwater management, a separate taxiway is located on the south side of the swale with a single crossing and connection to Taxiway C.

The taxiways will be 10.5 m in width to accommodate AGN II sized aircraft. An overall ROW of 40 m (20 m either side of centreline) has been included in the design to allow for adequate separation from the taxiway centreline and fixed objects on tenant aprons. The taxiway pavement structure used in the cost estimate is a 65 mm Hot-Mix Asphalt Concrete, 200 mm Granular Base Course, 250 mm Granular Sub-base Course. This pavement structure uses conceptual design parameters and will be revisited during the preliminary and detailed design stage to take into account specific site conditions, including subgrade conditions and local climate.

4.2.2 Access Roads

Area access will be via Airport Road with an extension to the existing road that currently serves east hangar tenants.

The access road will be asphalt pavement construction. The roadway will have an 8 m surface with a 15 m ROW to accommodate water and sanitary services and drainage ditches.

4.2.3 Lot Layout

For illustration purposes the lots shown in the EDA (Figure 4) average 0.30 ha (0.74 acres) in size. It is important to note the lot sizes can change to allow for larger tenant lease areas as demand warrants.

A 2.8 ha (7 acre) lot is identified for a potential solar farm at the southeast corner of the EDA.

4.2.4 Overall Suitability

Table 4-3: East Development Area Suitability Evaluation

Pros	Cons
Logical extension to the existing east hangar line.	Area is in proximity to sludge lagoons and major stormwater drainage areas.
Access to existing taxiway system.	Major swale along Taxi A will need modification to accommodate a taxi connection to the development area.
Concepts allow for modifications to lot sizes to meet user needs.	The general area will require relatively extensive grading. The site has been used as a sump site and a geotechnical investigation will be required to determine subsurface conditions.
Lot development can be phased with triggers (e.g. those lots adjacent to Taxiway C would be developed initially). The remaining lots would be developed whenever a runway and taxiway extension to Runway 06-24 is considered.	Sanitary, water and electrical services may need to be upgraded assuming the SDA is developed first. Detailed studies will be required.

4.2.5 Development Area Costs

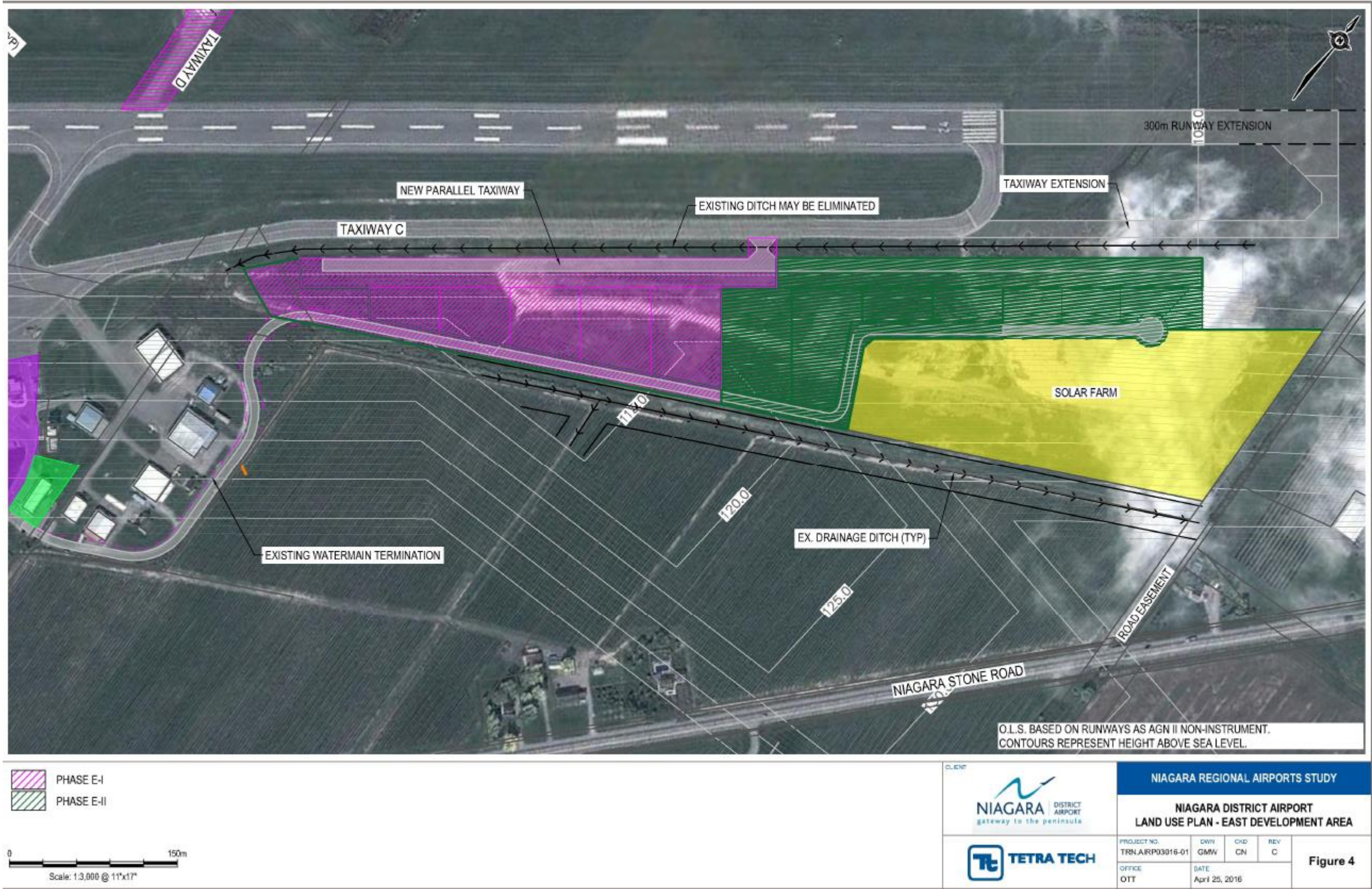
Table 4-4 identifies development costs for the EDA. Detailed cost estimates are located in Appendix B. Specific assumptions are included in the cost estimates. As an example, the project does not include detailed surveys or specific geotechnical investigations; therefore, costs associated with excavations and the pavement structures assume relatively ideal conditions.

The EDA construction uses demand triggers. For planning purposes the development area has been divided into 2 phases of similar size. When demand warrants a runway extension, the development areas will extend to the end of the new runway threshold. With taxiway construction, this expansion would allow for three additional airside lots.

Table 4-4: East Development Area Costs

Development Area Costs	Phase 1 2022 - 2028	Phase 2 Future
General	\$144,000	\$144,000
Area grading	\$520,000	\$520,000
Access roads	\$329,000	\$329,000
Taxiways	\$283,000	\$283,000
Services	\$243,000	\$243,000
Engineering and Contingency (35%)	\$532,000	\$532,000
Total Development Area Cost	\$2,051,000	\$2,051,000

Figure 4: Niagara District Airport Land Use Plan – East Development Area



4.3 NORTHWEST DEVELOPMENT AREA

The Northwest Development Area (NWDA) assumes Runway 11-29 will convert to a taxiway. The NDA opens a broader development area with good access. The development of the NWDA will be demand driven. Runway 11-29 would remain as an alternate runway until development is required.

The development area is approximately 11 ha (27 acres) in size and would be suitable to private/commercial tenants. Figure 5 illustrates the proposed lot layout. The Figure includes reference to acceptable building heights based on transitional zoning.

4.3.1 Taxiway Connection

The taxiway will connect to Runway 06-24 using existing Taxiway D. Figure 5 shows the location of a future taxiway connecting to Runway 01-19.

The taxiways will be 10.5 m wide to accommodate AGN II sized aircraft. An overall ROW of 40 m (20 m either side of centreline) has been included in the design to allow for adequate separation from the taxiway centreline and fixed objects on tenant aprons. The taxiway pavement structure used in the cost estimate is a 65 mm Hot-Mix Asphalt Concrete, 200 mm Granular Base Course, 250 mm Granular Sub-base Course. The pavement structure conceptual design parameters may change during the preliminary and detailed design stage, to take into account specific site conditions including subgrade conditions and local climate.

4.3.2 Access Roads

Area access will be via McNab Road, off Carlton Street. The access road ROW is the property of the St. Lawrence Seaway Authority. The NDA will have to purchase or lease the land from that organization. The access road will extend into the proposed hangar areas.

The access road will be asphalt pavement construction. The roadway will have an 8 m surface with a 15 m ROW to accommodate water and sanitary services and drainage ditches.

4.3.3 Lot Layout

For illustration purposes the lots shown in the NWDA (Figure 5) are approximately 0.25 ha (0.62 acres) in size. It is important to note the lots can change to allow for larger tenant lease areas as demand warrants. In the current configuration, the NWDA would provide for approximately 23 airside lots.

4.3.4 Overall Suitability

Table 4-5: Northwest Development Area Suitability Evaluation

Pros	Cons
Opens a relatively large area for development	To fully develop the area Runway 11-29 would have to be converted to a taxiway.
Excellent access to existing runways	The McNab Street ROW will have to be purchased or access negotiated with the St. Lawrence Seaway Authority

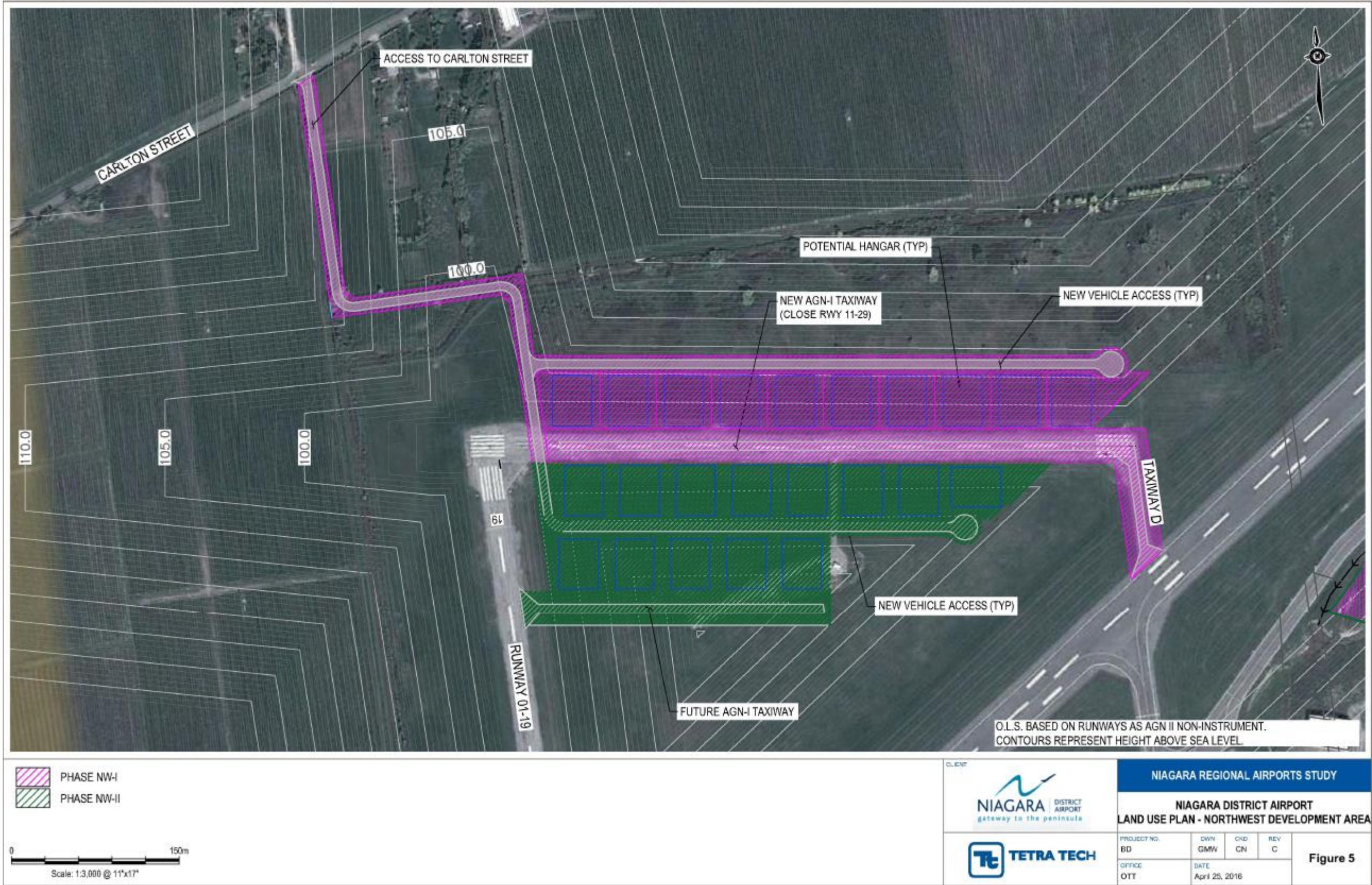
Pros	Cons
Concepts allow for modifications to lot sizes to meet user needs	Sanitary, water, and electrical services may need to be extended from the south part of the airport. Detailed studies will be required to determine whether the existing sewer and water capacity can accommodate the development area needs.
Lot development can be phased with triggers (e.g. those lots north of Runway 11-29 would be developed initially). The remaining lots would be developed whenever there is sufficient interest	Location north of the main commercial areas may not appeal to some prospective developers
Good access to Carlton Street	

4.3.5 Development Area Costs

It is important to consider the cost estimates use specific assumptions. As an example, the project does not include detailed surveys or specific geotechnical investigations; therefore, costs associated with excavations and the pavement structures assume relatively ideal conditions.

The NWDA construction uses demand triggers. As an example, lots would extend to the north of the taxiway and when 70% occupied, access will be to the south of the taxiway. The total cost to develop the NWDA would be \$4,083,000. Detailed cost estimates are located in Appendix B. It is not expected this area will be developed within the plan timeframe.

Figure 5: Niagara District Airport Land Use Plan – Northwest Development Area



5.0 RISK ASSESSMENT

Airports face a number of types of risk, but governments, airport organizations, pilots, and others have developed methods and procedures to reduce them. This section discusses, at a high level, the risks that airports face and how airport owners manage them. The types of risk discussed are:

1. Regulatory and Policy
2. Environmental
3. Safety and Security
4. Financial

For this discussion, risk is anything that would potentially expose the owner to danger, harm, or loss. This could include managerial, financial, human or other risk. Airport operations focus on managing security and safety risks, but the risks for the airport owner are broader and more complex.

5.1 REGULATION AND POLICY

The risks that have generated the most concern for many airport owners since the devolution of airports from the federal government has been actual or proposed changes to aviation regulation and policy. This is because every aspect of airport operations, management, financing, and development continues to be subject to federal regulation.

The Canadian Aviation Regulations (CARs) guide all aspects of aircraft and airport operations, and air navigation. Changes to these regulations, or federal policy, can have significant impacts on the owner, and the federal government often assumes no responsibility for the potential impacts. One example of a potential change to regulations that could affect airports in the Niagara Region is the proposed Runway End Safety Area (RESA) regulation.

The International Civil Aviation Organization (ICAO), the organization that defines aviation standards worldwide, has mandated that all runways with scheduled air service must have RESAs added to reduce risk during landing and departure. The added length of the safety area to the runway (90 m to 150 m) will require significant capital investment.

The federal government has not committed to providing funding if regulatory change requires RESAs at Canadian airports. If Transport Canada mandates RESA, and the NDA secures a scheduled service, it may require the NDA construct a RESA at a potential cost of millions of dollars in capital cost and additional operating expenses.

Transport Canada inspections that are required at certified airports are also a potential source of risk to owners in that inspectors can require significant and expensive changes to airports to meet regulatory requirements. This is particularly true with a transfer of airport ownership. At the time of ownership transfer, Transport Canada will likely conduct a detailed inspection of operations and infrastructure at NDA. When these inspections occur, TC inspectors will be meticulous and may find small problems at the airport that may require significant funding to fix.

Finally, if the NDA were to secure a scheduled air service, the requirements for CATSA and CBSA services would result in significant regulatory oversight from those organizations.

5.2 ENVIRONMENTAL

The airport is relatively old, dating back to before the Second World War. The airport is now subject to modern environmental legislation. With older sites, there is a risk that unidentified environmental damage exists. Examples could include an old fuel spills or equipment buried at the site at the end of the Second World War.

The new owner of an airport may be found responsible or inherit responsibility for potential environmental damage whether the damage occurred prior to ownership. The airport is currently managing these risks and based on existing studies reviewed as part of this project, there are no known significant environmental risks other than the fuelling operations. A significant risk at the airport relates to potential fuel spills or leaks from fuel storage tanks. Good management practices, plans and appropriate insurance minimize the risk associated with fuel tanks.

5.3 SAFETY AND SECURITY

Airports are required to manage for safety and security. Transport Canada inspects airports, aircraft, and air carriers to ensure they operate safely. The CARs focus on ensuring that aviation in Canada is safe. Transport Canada requires certified airports to implement Safety Management Systems (SMS) to increase safety. The SMS standard was initially developed for other industries.

Certified airports such as NDA are required to have an Airport Operations Manual (AOM). The AOM describes all aspects of airport management and operations. Airport operators are responsible to manage and operate airports in accordance with all applicable federal law and regulations.

Airport insurance provides owners with financial security in the event of unavoidable incidents. The key to mitigating safety and security risk is to ensure appropriate insurance and plans are in place, and that airport management understands the industry and the complexities of aviation regulations and standards.

5.4 FINANCIAL

Any organization operating an airport is subject to risk, primarily because of the risk factors discussed above. The primary result of changes to policy and regulation, environmental issues, and safety and security concerns is increased expense. Risk seldom leads to reduced cost. The financial risk affects capital and operational planning, although the impact of capital impacts can be much greater. As many risks are unknown, the financial scale of these risks is difficult to estimate. Financial risks normally represent an incremental increase rather than large, onetime increases.

SMS and increasing regulatory oversight have increased operational and capital requirements at airports. Transport Canada has avoided significant costs such as the implementation of new Emergency Response Services (ERS) regulations via CARs 308, SMS implementation and RESA requirements. However, the potential for these types of regulatory changes to be implemented at significant cost to airport operators remains.

REFERENCES

1. WSP, Garden City Skyway Bridge Aeronautical Impact Assessment Technical Findings Report, March 17, 2015
2. Explorer Solutions, Business Case: Airport Improvement for Transborder Traffic & Commercial Land Development Strategies, Niagara District Airport, October 2014

APPENDIX A

STAKEHOLDER CONSULTATION LIST

Name	Title	Company/Municipality
Glen Cowan	Associate Director, Finance Consulting and Special Projects	Niagara Region
Rick Wilson	Planner	Niagara Region
Susan Dunsmore	Development Engineer	Niagara Region
John Rizzo	Project Manager	Niagara Region
Matt Kernahan	Senior Planner	Niagara Region
Sarah Mastroianni	Watershed Planner	Niagara Peninsula Conservation Authority
Heather Salter	Deputy City Solicitor/Deputy Clerk	City of St. Catharines
Dave Macklem	Property Manager	City of St. Catharines
Marco Marino		City of St. Catharines Economic Development
Ken Todd	CAO	City of Niagara Falls
Todd Harrison	Director of Finance and Treasurer	City of Niagara Falls
Aaron Butler	Senior Planner	Niagara-on-the-Lake
Len O'Connor	Airport Manager	Niagara District Airport
Robin Garrett	Vice Chair	Niagara District Airport Commission
Gary Murphy	Chair	Niagara District Airport Commission
Peter Ramm	President	Invicta Air
Mike Neave		St. Catharines Flying Club
Dion Faulkner		Allied Aviation
Bob Evans		Eagle Rock Aviation
Lorraine Warner		Genaire
Gary Burroughs		Genaire
Gord Tessier		CARES
Sheila Piece		National Helicopter
Rob Cobban		Pangea
Tim Grech		Niagara Sky Dive Centre

APPENDIX B

ASSET MANAGEMENT PLAN

Asset Type	Asset Acquisition Year	Replacement Year	Replacement Cost
Office Equipment	2011	2016	\$14,000
Terminal Entrance		2016	\$92,000
John Deere Sweeper	1997	2016	\$16,000
John Deere Tractor	1996	2016	\$33,000
Line Painter	2007	2016	\$10,000
Boss Snow Plow	2003	2016	\$7,000
GMC Sierra Truck	2003	2016	\$57,000
TOTAL ASSET REPLACEMENT 2016			\$229,000
Allied Aviation Apron	1996	2017	\$26,000
Exterior Lighting Arcal	2007	2017	\$5,000
Taxi D	1996	2017	\$12,000
TOTAL ASSET REPLACEMENT 2017			\$43,000
Kubota Lawnmower	2003	2018	\$20,000
CRFI Decelerometer	2003	2018	\$7,000
Crack Sealing	2014	2018	\$45,000
TOTAL ASSET REPLACEMENT 2018			\$72,000
3-2 way Radios	2014	2019	\$3,000
Truck and Plow	2014	2019	\$110,000
Paint Lines AR/GS	2011	2019	\$103,000
TOTAL ASSET REPLACEMENT 2019			\$216,000
Plow 82	2015	2020	\$129,000
East Apron	1996	2020	\$71,000
TOTAL ASSET REPLACEMENT 2020			\$200,000
Plow 83	2015	2020	\$132,000
Terminal Furniture	2011	2021	\$37,000
Office Furniture	2011	2021	\$40,000
Wooden Garbage Bin	2011	2021	\$10,000

Asset Type	Asset Acquisition Year	Replacement Year	Replacement Cost
Chevy pickup Truck	2015	2021	\$20,000
JCB Loader	2015	2021	\$56,000
TOTAL ASSET REPLACEMENT 2021			\$163,000
Crack Sealing 2018	2014	2022	\$49,000
Maintenance Garage Doors	2012	2022	\$18,000
Genaire HVAC	2002	2022	\$46,000
TOTAL ASSET REPLACEMENT 2022			\$113,000
Paint lines AR/GS	2011	2023	\$112,000
TOTAL ASSET REPLACEMENT 2023			\$112,000
SCFC Apron	2004	2024	\$209,000
Taxi Access East of Tower	2004	2024	\$40,000
TOTAL ASSET REPLACEMENT 2024			\$249,000
Taxi Access Old Taxi C	2005	2025	\$62,000
Genaire Boiler Building Roof	2005	2025	\$16,000
Genaire Roof	2005	2025	\$77,000
TOTAL ASSET REPLACEMENT 2025			\$155,000
Crack Sealing 2022	2014	2026	\$53,000
AV System	2011	2026	\$27,000
TOTAL ASSET REPLACEMENT 2026			\$80,000
Paint Lines AS/GS	2011	2027	\$121,000
TOTAL ASSET REPLACEMENT 2027			\$121,000
SMI Runway Sweeper	2014	2029	\$42,000
TOTAL ASSET REPLACEMENT 2029			\$42,000

Asset Type	Asset Acquisition Year	Replacement Year	Replacement Cost
Crack Sealing	2014	2030	\$57,000
Maintenance Shed	2015	2030	\$52,000
TOTAL ASSET REPLACEMENT 2030			\$109,000
Apron Fuel System	2011	2031	\$22,000
Terminal Parking Lot	2011	2031	\$164,000
Asphalt	2011	2031	\$30,000
Paint Lines	2011	2031	\$131,000
Gates and Control Systems	2011	2031	\$171,000
HVAC System	2011	2031	\$85,000
Hangar Line Road	2011	2031	\$1,105,000
Groundside Airside Sewer	2011	2031	\$28,000
FEC Power and Control System	2011	2031	\$44,000
John Deere Gator 221	2011	2031	\$22,000
John Deer Tractor 170	2011	2031	\$285,000
Plow - Extendmax	2011	2031	\$38,000
Terminal Apron	2011	2031	\$1,501,000
Electrical Wiring and Piping	2011	2031	\$1,584,000
TOTAL ASSET REPLACEMENT 2031			\$5,210,000
Provost Snow Blower	2012	2032	\$65,000
TOTAL ASSET REPLACEMENT 2032			\$65,000
Crack sealing	2014	2034	\$62,000
Tie down Pad	2004	2034	\$50,000
TOTAL ASSET REPLACEMENT 2034			\$112,000
Paint Lines	2011	2035	\$142,000
Hydrants - 11	1996	2035	\$31,000
Airport Highway Sign	2015	2035	\$63,000
Bat Mower	2015	2035	\$39,000
TOTAL ASSET REPLACEMENT 2035			

Asset Type	Asset Acquisition Year	Replacement Year	Replacement Cost
Electrical Street Wiring	2011	2036	\$223,000
Genaire Boiler Building	1996	2036	\$97,000
Maintenance Structure	1996	2036	\$364,000
Maintenance Garage Roof	1996	2036	\$49,000
Terminal Roof	2011	2036	\$146,000
TOTAL ASSET REPLACEMENT 2036			1,154,000
Fuel Storage Tank replacement	2011	2037	\$440,000
TOTAL ASSET REPLACEMENT 2037			\$440,000
Values shown in the coloured boxes are not shown in the capital plan. The costs are either tenant related or have been included in overall development area costs.			

APPENDIX C

CAPITAL PLAN

Niagara District Airport Capital Plan												
		White cell	Tetra Tech Estimated Costs. Tetra Tech costs include a 10% design fee and a 25% contingency									
			Costs from 2014 Explorer Study									
			Taken from the NDA Capital Plan									
Costs are in 2016 Dollars												
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	
AIRFIELD ASSETS												
Runways												
			</									

Niagara District Airport Capital Plan											
	White cell	Tetra Tech Estimated. Tetra Tech costs include a 10% design fee and a 25% contingency									
		Costs from 2014 Explorer Study									
		Taken from the NDA Capital Plan									
Costs are in 2016 Dollars											
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
AIRSIDE ASSETS											
Runways											
Runway 06-24 rehabilitation					\$316,000	\$3,946,000					
Taxiways											
Taxiway A rehabilitation					\$47,000	\$594,000					
Taxiway B rehabilitation					\$15,000	\$186,000					
Taxiway C rehabilitation					\$83,000	\$1,035,000					
Aprons											
Apron 1 asphalt rehabilitation		\$23,000	\$303,000				\$23,000	\$303,000			
General Airside											
General Crack Sealing								\$62,000			
T-Down Rehabilitation								\$50,000			
Navigational Aids											
New PAPI		\$75,000									
Crack Sealing				\$57,000							
Hydrants (11)									\$31,000		
Paint Lines	\$121,000				\$131,000				\$142,000		
Gates and Controls					\$170,000						
GROUNDSIDE ASSETS											
Terminal Building											
Main terminal HVAC replacement					\$85,000						
Main terminal roof										\$147,000	
Main terminal parking lot rehabilitation					\$164,000						
Main parking lot expansion											
General Asphalt					\$30,000						
Maintenance Garage											
Maintenance garage expansion										\$412,000	
Maintenance shed				\$52,000							
FEC Modifications											
Control system upgrades					\$44,000						
General Airport Upgrades											
Airport fencing											
Signage replacement									\$63,000		
Gates and controls					\$171,000						
Fuel Storage Tank Replacement (22,000 Low Lead and 45,000 Jet)											\$540,000
Sewer and Water											
Sewer upgrades					\$28,000						
Mobile Equipment											
SMI Runway Sweeper			\$42,000								
John Deere Gator 221					\$22,000						
John Deer Tractor 170					\$285,000						
Plow - Extendmax					\$38,000						
Provost Snow Blower						\$65,000					
Bat Mower									\$38,000		
DEVELOPMENT AREAS											
Southwest Development Area Construction (3 Phases)											
Area construction			\$79,000	\$989,000							
East Development Area Construction											
Area Construction											
Total Capital Investment	\$121,000	\$98,000	\$424,000	\$1,098,000	\$1,629,000	\$5,826,000	\$23,000	\$415,000	\$274,000	\$559,000	\$540,000
NOTE: costs rounded to the nearest thousand											
									Total Remaining 10 Years		\$11,007,000

APPENDIX D

LAND USE PLAN DETAILED COST ESTIMATES



**Niagara Region Airport Study
Niagara District Airport
Niagara District Airport 10-Year Capital Plan**

Groundside Assets

May 17, 2016

Item	Description				Total
1.00	General Requirements				\$ 18,527
2.00	Site Works				\$ 185,266
--	Estimated Engineering Costs - Design and Construction Management			10%	\$ 20,379.30
--	Project Contingencies			25%	\$ 50,948.25
Total Estimate - Main Airport Road Rehabilitation					\$ 275,121
1.00	General Requirements				\$ 13,458
2.00	Site Works				\$ 134,585
--	Estimated Engineering Costs - Design and Construction Management			10%	\$ 14,804.25
--	Project Contingencies			25%	\$ 37,010.63
Total Estimate - Southwest Tenant Road Rehabilitation					\$ 199,857
1.00	General Requirements				\$ 7,250
2.00	Site Works				\$ 72,501
--	Estimated Engineering Costs - Design and Construction Management			10%	\$ 7,975.05
--	Project Contingencies			25%	\$ 19,937.63
Total Estimate - East Tenant Road Rehabilitation					\$ 107,663
Item	Description	Unit	Est Quantity	Unit Price	Total Price
Main Airport Road Rehabilitation					
1.00	General Requirements				
1.01	Temporary Facilities - Mobilization, Demobilization, Trailers, Survey Layout, As-Built Survey, Utility Locates, Temporary Fencing etc.	Lump Sum	1	\$ 18,527	\$ 18,527
2.00	Site Works				
2.01	Mill and Remove Existing Hot-Mix Asphalt Concrete - 65mm Depth	m ²	4,404	\$ 15	\$ 66,060.00
2.02	Tack Coat	m ²	4,404	\$ 1.50	\$ 6,606.00
2.03	Hot-Mix Asphalt Concrete - 65mm thick (1 lift)	m ²	4,404	\$ 25	\$ 110,100.00
2.04	Paint Markings	Lump Sum	1	\$ 2,500	\$ 2,500.00
Subtotal					\$ 203,793
Southwest Tenant Road Rehabilitation					
1.00	General Requirements				
1.01	Temporary Facilities - Mobilization, Demobilization, Trailers, Survey Layout, As-Built Survey, Utility Locates, Temporary Fencing etc.	Lump Sum	1	\$ 13,458	\$ 13,458
2.00	Site Works				
2.01	Mill and Remove Existing Hot-Mix Asphalt Concrete - 65mm Depth	m ²	3,243	\$ 15	\$ 48,645.00
2.02	Tack Coat	m ²	3,243	\$ 1.50	\$ 4,864.50
2.03	Hot-Mix Asphalt Concrete - 65mm thick (1 lift)	m ²	3,243	\$ 25	\$ 81,075.00
Subtotal					\$ 148,043



East Tenant Road Rehabilitation					
1.00 General Requirements					
1.01	Temporary Facilities - Mobilization, Demobilization, Trailers, Survey Layout, As-Built Survey, Utility Locates, Temporary Fencing etc.	Lump Sum	1	\$ 7,250	\$ 7,250
2.00 Site Works					
2.01	Mill and Remove Existing Hot-Mix Asphalt Concrete - 65mm Depth	m ²	1,747	\$ 15	\$ 26,205.00
2.02	Tack Coat	m ²	1,747	\$ 1.50	\$ 2,620.50
2.03	Hot-Mix Asphalt Concrete - 65mm thick (1 lift)	m ²	1,747	\$ 25	\$ 43,675.00
Subtotal					\$ 79,751
Notes:					
1.0	The above estimates are based on conceptual layout and design information. Quantities and costs are subject to change during preliminary and detailed design phases.				
2.0	Temporary Facilities are based on an estimate of 10% of the Site Works				
3.0	This estimate of probable costs is provided for budgetary purposes only. It is not to be interpreted as a guarantee by Tetra Tech of the actual project costs. The actual project cost shall be determined by the tender and construction process.				



**Niagara Region Airport Study
Niagara District Airport
Niagara District Airport 10-Year Capital Plan**

Airfield Assets

May 6, 2016

Item	Description				Total
1.00	General Requirements				\$ 49,552.00
2.00	Surface Rehabilitation (1,500ft Section)				\$ 495,516.50
--	Estimated Engineering Costs - Design and Construction Management			10%	\$ 54,506.85
--	Project Contingencies			25%	\$ 136,267.13
Total Estimate - Runway 01-19 Rehabilitation					\$ 735,842.48
1.00	General Requirements				\$ 63,947.00
2.00	Surface Rehabilitation				\$ 639,469.85
--	Estimated Engineering Costs - Design and Construction Management			10%	\$ 70,341.69
--	Project Contingencies			25%	\$ 175,854.21
Total Estimate - Runway 11-29 Rehabilitation					\$ 949,612.75
1.00	General Requirements				\$ 287,000.00
2.00	Surface Rehabilitation				\$ 2,818,001.75
3.00	Electrical Rehabilitation				\$ 52,000.00
--	Estimated Engineering Costs - Design and Construction Management			10%	\$ 315,700.18
--	Project Contingencies			25%	\$ 789,250.44
Total Estimate - Runway 06-24 Rehabilitation					\$ 4,261,952.36
1.00	General Requirements				\$ 241,952.00
2.00	Site Works				\$ 1,575,624.00
3.00	Electrical Relocations				\$ 346,120.00
4.00	Taxiway C Extension				\$ 497,779.25
--	Estimated Engineering Costs - Design and Construction Management			10%	\$ 266,147.53
--	Project Contingencies			25%	\$ 665,368.81
Total Estimate - Runway 06-24 Extension					\$ 3,592,991.59
1.00	General Requirements				\$ 43,163.00
2.00	Site Works				\$ 409,625.00
3.00	Electrical Rehabilitation				\$ 22,000.00
--	Estimated Engineering Costs - Design and Construction Management			10%	\$ 47,478.80
--	Project Contingencies			25%	\$ 118,697.00
Total Estimate - Taxiway A Rehabilitation					\$ 640,963.80
1.00	General Requirements				\$ 13,526.00
2.00	Site Works				\$ 129,257.60
3.00	Electrical Rehabilitation				\$ 6,000.00
--	Estimated Engineering Costs - Design and Construction Management			10%	\$ 14,878.36
--	Project Contingencies			25%	\$ 37,195.90
Total Estimate - Taxiway B Rehabilitation					\$ 200,857.86
1.00	General Requirements				\$ 75,276.00
2.00	Site Works				\$ 720,758.50
3.00	Electrical Rehabilitation				\$ 32,000.00
--	Estimated Engineering Costs - Design and Construction Management			10%	\$ 82,803.45
--	Project Contingencies			25%	\$ 207,008.63
Total Estimate - Taxiway C Rehabilitation					\$ 1,117,846.58



1.00	General Requirements				\$ 6,701.00
2.00	Site Works				\$ 63,005.00
3.00	Electrical Rehabilitation				\$ 4,000.00
--	Estimated Engineering Costs - Design and Construction Management			10%	\$ 7,370.60
--	Project Contingencies			25%	\$ 18,426.50
	Total Estimate - Taxiway D Rehabilitation				\$ 99,503.10
1.00	General Requirements				\$ 83,040.00
2.00	Site Works				\$ 818,400.00
3.00	Electrical Rehabilitation				\$ 12,000.00
--	Estimated Engineering Costs - Design and Construction Management			10%	\$ 91,344.00
--	Project Contingencies			25%	\$ 228,360.00
	Total Estimate - Apron 1 Asphalt Rehabilitation				\$ 1,233,144.00



Item	Description	Unit	Est Quantity	Unit Price	Total Price
Runway 01-19 Rehabilitation					
1.00	General Requirements				
1.01	Temporary Facilities - Mobilization, Demobilization, Trailers, Survey Layout, As-Built Survey, Utility Locates, Temporary Fencing etc.	Lump Sum	1	\$ 49,552	\$ 49,552.00
2.00	Surface Rehabilitation (1,500ft Section)				
2.01	Mill and Remove Ex. Hot-Mix Asphalt Concrete (65mm depth)	m ²	11,651	\$ 15	\$ 174,765.00
2.02	Tack Coat	m ²	11,651	\$ 1.50	\$ 17,476.50
2.03	Hot-Mix Asphalt Concrete - 65 mm thick (1 lift)	m ²	11,651	\$ 25	\$ 291,275.00
2.04	Paint Markings	Lump Sum	1	\$ 12,000	\$ 12,000.00
Subtotal					\$ 545,068.50
Runway 11-29 Rehabilitation					
1.00	General Requirements				
1.01	Temporary Facilities - Mobilization, Demobilization, Trailers, Survey Layout, As-Built Survey, Utility Locates, Temporary Fencing etc.	Lump Sum	1	\$ 63,947	\$ 63,947.00
2.00	Surface Rehabilitation				
2.01	Mill and Remove Ex. Hot-Mix Asphalt Concrete (65mm depth)	m ²	15,156	\$ 15	\$ 227,338.50
2.02	Tack Coat	m ²	15,156	\$ 1.50	\$ 22,733.85
2.03	Hot-Mix Asphalt Concrete - 65 mm thick (1 lift)	m ²	15,156	\$ 25	\$ 378,897.50
2.04	Paint Markings	Lump Sum	1	\$ 10,500	\$ 10,500.00
Subtotal					\$ 703,416.85
Runway 06-24 Rehabilitation					
1.00	General Requirements				
1.01	Temporary Facilities - Mobilization, Demobilization, Trailers, Survey Layout, As-Built Survey, Utility Locates, Temporary Fencing etc.	Lump Sum	1	\$ 287,000	\$ 287,000.00
2.00	Surface Rehabilitation				
2.01	Mill and Remove Ex. Hot-Mix Asphalt Concrete (65mm depth)	m ²	67,615	\$ 15	\$ 1,014,217.50
2.02	Tack Coat	m ²	67,615	\$ 1.50	\$ 101,421.75
2.03	Hot-Mix Asphalt Concrete - 65mm thick (1 lift)	m ²	67,615	\$ 25	\$ 1,690,362.50
2.04	Paint Markings	Lump Sum	1	\$ 12,000	\$ 12,000.00
3.00	Electrical Rehabilitation				
3.01	New Runway Edge Lighting Fixtures	ea	52	\$ 1,000	\$ 52,000.00
Subtotal					\$ 3,157,001.75
Runway 06-24 Extension					
1.00	General Requirements				
1.01	Temporary Facilities - Mobilization, Demobilization, Trailers, Survey Layout, As-Built Survey, Utility Locates, Temporary Fencing etc.	Lump Sum	1	\$ 241,952	\$ 241,952.00
2.00	Site Works				
2.01	Clearing, Grubbing, Stripping (Assume 100mm Depth)	m ²	13,716	\$ 10	\$ 137,160
2.02	Site Grading	m ²	13,716	\$ 5	\$ 68,580
2.03	Common Excavation	m ³	8,230	\$ 15	\$ 123,444.00
2.04	Granular Subbase Course - 300mm thick	m ²	13,716	\$ 17	\$ 233,172.00
2.05	Gravel Base Course - 250mm thick	m ²	13,716	\$ 15	\$ 205,740.00
2.06	Hot-Mix Asphalt Concrete - 150mm thick (2 lifts)	m ²	13,716	\$ 58	\$ 795,528.00
2.07	Pavement Markings	Lump Sum	1	\$ 12,000	\$ 12,000.00
3.00	Electrical Relocations				
3.01	New Runway Edge Lighting Fixtures	ea	12	\$ 500	\$ 6,000
3.02	Trenching, Duct, Cable, Junction Boxes for Edge Lighting System Extension	m	1,060	\$ 102	\$ 108,120
3.03	Relocate Existing Threshold and Runway End Lights	ea	6	\$ 1,500	\$ 9,000
3.04	Relocate Existing ODALS	Lump Sum	1	\$ 180,000	\$ 180,000
3.05	Relocate Existing PAPIS c.w. Foundations, Pull Pits etc.	Lump Sum	1	\$ 25,000	\$ 25,000
3.06	Illuminated Airfield Signage c.w. Concrete Foundation	ea	6	\$ 3,000	\$ 18,000



4.00	Taxiway C Extension				
4.01	Clearing, Grubbing, Stripping (Assume 100mm Depth)	m ²	5,730	\$ 10	\$ 57,300.00
4.02	Site Grading	m ²	5,730	\$ 5.00	\$ 28,650.00
4.03	Common Excavation	m ³	2,378	\$ 15.00	\$ 35,669.25
4.04	Granular Subbase Course - 250mm thick	m ²	5,730	\$ 15.00	\$ 85,950.00
4.05	Gravel Base Course - 200mm thick	m ²	5,730	\$ 12.00	\$ 68,760.00
4.06	Hot-Mix Asphalt Concrete - 65mm thick (1lift)	m ²	5,730	\$ 25.00	\$ 143,250.00
4.07	Pavement Markings	Lump Sum	1	\$ 3,000.00	\$ 3,000.00
4.08	Trenching, Duct, Cable, Junction Boxes for Edge Lighting System	m	600	\$ 102	\$ 61,200.00
4.09	Illuminated Airfield Signage c.w. Concrete Foundation	ea	3	\$ 3,000	\$ 9,000.00
4.10	New Taxiway Edge Lighting Fixtures	ea	10	\$ 500	\$ 5,000.00
Subtotal					\$ 2,661,475.25
Taxiway A Rehabilitation					
1.00	General Requirements				
1.01	Temporary Facilities - Mobilization, Demobilization, Trailers, Survey Layout, As-Built Survey, Utility Locates, Temporary Fencing etc.	Lump Sum	1	\$ 43,163	\$ 43,163
2.00	Site Works				
2.01	Mill and Remove Ex. Hot-Mix Asphalt Concrete (65mm depth)	m ²	9,750	\$ 15	\$ 146,250.00
2.02	Tack Coat	m ²	9,750	\$ 1.50	\$ 14,625.00
2.03	Hot-Mix Asphalt Concrete - 65mm thick (1 lift)	m ²	9,750	\$ 25	\$ 243,750.00
2.04	Paint Markings	Lump Sum	1	\$ 5,000	\$ 5,000.00
3.00	Electrical Rehabilitation				
3.01	New Taxiway Edge Lighting Fixtures	ea	22	\$ 1,000	\$ 22,000.00
Subtotal					\$ 474,788
Taxiway B Rehabilitation					
1.00	General Requirements				
1.01	Temporary Facilities - Mobilization, Demobilization, Trailers, Survey Layout, As-Built Survey, Utility Locates, Temporary Fencing etc.	Lump Sum	1	\$ 13,526	\$ 13,526
2.00	Site Works				
2.01	Mill and Remove Ex. Hot-Mix Asphalt Concrete (65mm depth)	m ²	3,054	\$ 15	\$ 45,816.00
2.02	Tack Coat	m ²	3,054	\$ 1.50	\$ 4,581.60
2.03	Hot-Mix Asphalt Concrete - 65mm thick (1 lift)	m ²	3,054	\$ 25	\$ 76,360.00
2.04	Paint Markings	Lump Sum	1	\$ 2,500	\$ 2,500.00
3.00	Electrical Rehabilitation				
3.01	New Taxiway Edge Lighting Fixtures	ea	6	\$ 1,000	\$ 6,000.00
Subtotal					\$ 148,784
Taxiway C Rehabilitation					
1.00	General Requirements				
1.01	Temporary Facilities - Mobilization, Demobilization, Trailers, Survey Layout, As-Built Survey, Utility Locates, Temporary Fencing etc.	Lump Sum	1	\$ 75,276	\$ 75,276
2.00	Site Works				
2.01	Mill and Remove Ex. Hot-Mix Asphalt Concrete (65mm depth)	m ²	17,199	\$ 15	\$ 257,985.00
2.02	Tack Coat	m ²	17,199	\$ 1.50	\$ 25,798.50
2.03	Hot-Mix Asphalt Concrete - 65mm thick (1 lift)	m ²	17,199	\$ 25	\$ 429,975.00
2.04	Paint Markings	Lump Sum	1	\$ 7,000	\$ 7,000.00
3.00	Electrical Rehabilitation				
3.01	New Taxiway Edge Lighting Fixtures	ea	32	\$ 1,000	\$ 32,000.00
Subtotal					\$ 828,035



Taxiway D Rehabilitation					
1.00 General Requirements					
1.01	Temporary Facilities - Mobilization, Demobilization, Trailers, Survey Layout, As-Built Survey, Utility Locates, Temporary Fencing etc.	Lump Sum	1	\$ 6,701	\$ 6,701
2.00 Site Works					
2.01	Mill and Remove Ex. Hot-Mix Asphalt Concrete (65mm depth)	m ²	1,470	\$ 15	\$ 22,050.00
2.02	Tack Coat	m ²	1,470	\$ 1.50	\$ 2,205.00
2.03	Hot-Mix Asphalt Concrete - 65mm thick (1 lift)	m ²	1,470	\$ 25	\$ 36,750.00
2.04	Paint Markings	Lump Sum	1	\$ 2,000	\$ 2,000.00
3.00 Electrical Rehabilitation					
3.01	New Taxiway Edge Lighting Fixtures	ea	4	\$ 1,000	\$ 4,000.00
Subtotal					\$ 73,706
Apron 1 Asphalt Rehabilitation					
1.00 General Requirements					
1.01	Temporary Facilities - Mobilization, Demobilization, Trailers, Survey Layout, As-Built Survey, Utility Locates, Temporary Fencing etc.	Lump Sum	1	\$ 83,040	\$ 83,040
2.00 Site Works					
2.01	Mill and Remove Ex. Hot-Mix Asphalt Concrete (65mm depth)	m ²	19,600	\$ 15	\$ 294,000.00
2.02	Tack Coat	m ²	19,600	\$ 1.50	\$ 29,400.00
2.03	Hot-Mix Asphalt Concrete - 65mm thick (1 lift)	m ²	19,600	\$ 25	\$ 490,000.00
2.04	Paint Markings	Lump Sum	1	\$ 5,000	\$ 5,000.00
3.00 Electrical Rehabilitation					
3.01	New Apron Edge Lighting Fixtures	ea	12	\$ 1,000	\$ 12,000.00
Subtotal					\$ 913,440
Notes:					
1.0	The above estimates are based on conceptual layout and design information. Quantities and costs are subject to change during preliminary and detailed design phases.				
2.0	Temporary Facilities are based on an estimate of 10% of the Construction items				
3.0	The runway extension pavement structure utilized in the above estimate include 150 mm HMA, 250 mm Base Course, and 300 mm Subbase Course. The pavement structure is subject to change during preliminary and detailed design phases.				
4.0	This estimate of probable costs is provided for budgetary purposes only. It is not to be interpreted as a guarantee by Tetra Tech of the actual project costs. The actual project cost shall be determined by the tender and construction process.				



**Niagara Region Airport Study
Niagara District Airport
Niagara District Airport 10-Year Capital Plan**

Development Areas

May 16, 2016

Item	Description				Total
1.00	General Requirements				\$ 287,389.00
2.00	Area Grading				\$ 941,045.85
3.00	Taxiway Construction				\$ 710,513.63
4.00	Access Roads Construction				\$ 300,647.44
5.00	T-Hanger Relocation				\$ 400,000.00
6.00	Utilities				\$ 200,542.00
--	Estimated Engineering Costs - Design and Construction Management			10%	\$ 284,013.79
--	Project Contingencies			25%	\$ 710,034.48
Total Estimate - Southwest Development Area					\$ 3,834,186.19
1.00	General Requirements				\$ 287,389
2.00	Area Grading				\$ 1,039,830
3.00	Taxiway Construction				\$ 564,941
4.00	Access Road Construction				\$ 659,054
5.00	Utilities				\$ 487,090
--	Estimated Engineering Costs - Design and Construction Management			10%	\$ 303,830.30
--	Project Contingencies			25%	\$ 759,575.75
Total Estimate - East Development Area					\$ 4,101,709
1.00	General Requirements				\$ 274,935
2.00	Area Grading				\$ 1,070,606
3.00	Taxiway Construction				\$ 271,381
4.00	Access Road Construction				\$ 808,201
5.00	Utilities				\$ 599,161
--	Estimated Engineering Costs - Design and Construction Management			10%	\$ 302,428.43
--	Project Contingencies			25%	\$ 756,071.07
Total Estimate - Northwest Development Area					\$ 4,082,784



Item	Description	Unit	Est Quantity	Unit Price	Total Price
Southwest Development Area					
1.00	General Requirements				
1.01	Temporary Facilities - Mobilization, Demobilization, Trailers, Survey Layout, As-built Survey, Utility Locates, Temporary Fencing etc.	Lump Sum	1	\$ 287,389	\$ 287,389.00
2.00	Area Grading				
2.01	Clearing, Grubbing, Stripping	m ²	62,736	\$ 10	\$ 627,363.90
2.02	Site Grading	m ²	62,736	\$ 5	\$ 313,681.95
3.00	Taxiway Construction				
3.01	Common Excavation - Dispose/Re-use On-site	m ³	4,062	\$ 15	\$ 60,922.50
3.02	Granular Subbase Course - 250mm thick	m ²	9,787	\$ 15	\$ 146,801.25
3.03	Granular Base Course - 200mm thick	m ²	9,787	\$ 12	\$ 117,441.00
3.04	Prime Coat	m ²	9,787	\$ 1.50	\$ 14,680.13
3.05	Hot-Mix Asphalt Concrete - 65mm thick (1 lift)	m ²	9,787	\$ 25	\$ 244,668.75
3.06	Paint Markings	Lump Sum	1	\$ 4,000	\$ 4,000.00
3.07	Retroreflective Taxiway Edge Markers c.w. Frangible Coupling etc.	ea	130	\$ 500	\$ 65,000
3.08	Airfield Taxiway Information Signage	ea	18	\$ 1,500	\$ 27,000
3.09	Supply and Install 200dia CSP for Stormwater Drainage	m	150	\$ 200	\$ 30,000.00
4.00	Access Roads Construction				
4.01	Common Excavation - Dispose/Re-use On-site	m ³	2,239	\$ 15	\$ 33,580.80
4.02	Granular Subbase Course - 250mm thick	m ²	4,347	\$ 15	\$ 65,205.60
4.03	Granular Base Course - 200mm thick	m ²	4,347	\$ 12	\$ 52,164.48
4.04	Prime Coat	m ²	4,347	\$ 1.5	\$ 6,520.56
4.05	Hot-Mix Asphalt Concrete - 65mm thick (1 lift)	m ²	4,347	\$ 25	\$ 108,676.00
4.06	Retroreflective Roadway Markers c.w. Frangible Coupling etc.	ea	54	\$ 500	\$ 27,000
4.07	Roadway Signage	ea	3	\$ 500	\$ 1,500
4.08	Supply and Install 200dia CSP for Stormwater Drainage	m	30	\$ 200	\$ 6,000.00
5.00	T-Hanger Relocation				
5.01	Prepare New Hanger Location, Disassemble/Reassemble Hanger, Utility Connections, New Ex. Foundation	Lump Sum	1	\$ 400,000	\$ 400,000.00
6.00	Utilities				
6.01	Sanitary Sewer Piping	Lin.m.	600	\$ 175	\$ 105,070.00
6.02	Watermain Connections	Lin.m.	597	\$ 160	\$ 95,472.00
Subtotal					\$ 2,840,137.92
East Development Area					
1.00	General Requirements				
1.01	Temporary Facilities - Mobilization, Demobilization, Trailers, Survey Layout, As-built Survey, Utility Locates, Temporary Fencing etc.	Lump Sum	1	\$ 287,389	\$ 287,389
2.00	Area Grading				
2.01	Clearing, Grubbing, Stripping	m ²	69,322	\$ 10	\$ 693,220
2.02	Site Grading	m ²	69,322	\$ 5	\$ 346,610
3.00	Taxiway Construction				
3.01	Common Excavation - Dispose/Re-use On-site	m ³	3,533	\$ 15	\$ 52,995.00
3.02	Granular Subbase Course - 250mm thick	m ²	8,513	\$ 15	\$ 127,695.00
3.03	Granular Base Course - 200mm thick	m ²	8,513	\$ 12	\$ 102,156.00
3.04	Prime Coat	m ²	8,513	\$ 1.50	\$ 12,769.50
3.05	Hot-Mix Asphalt Concrete - 65mm thick (1 lift)	m ²	8,513	\$ 25	\$ 212,825.00
3.06	Paint Markings	Lump Sum	1	\$ 5,000	\$ 5,000.00
3.07	Retroreflective Taxiway Edge Markers c.w. Frangible Coupling etc.	ea	82	\$ 500	\$ 41,000
3.08	Airfield Taxiway Information Signage	ea	3	\$ 1,500	\$ 4,500
3.09	Supply and Install 200dia CSP for Stormwater Drainage	m	30	\$ 200	\$ 6,000.00



4.00	Access Road Construction				
4.01	Common Excavation - Dispose/Re-use On-site	m ³	4,097	\$ 15	\$ 61,455.00
4.02	Granular Subbase Course - 250mm thick	m ²	9,871	\$ 15	\$ 148,065
4.03	Granular Base Course - 200mm thick	m ²	9,871	\$ 12	\$ 118,452
4.04	Prime Coat	m ²	9,871	\$ 1.50	\$ 14,807
4.05	Hot-Mix Asphalt Concrete - 65mm thick (1 lift)	m ²	9,871	\$ 25	\$ 246,775
4.06	Retroreflective Roadway Markers c.w. Frangible Coupling etc.	ea	124	\$ 500	\$ 62,000
4.07	Roadway Signage	ea	3	\$ 500	\$ 1,500
4.08	Supply and Install 200dia CSP for Stormwater Drainage	m	30	\$ 200	\$ 6,000
5.00	Utilities				
5.01	Sanitary Sewer Piping	Lin.m.	1,454	\$ 175	\$ 254,450
5.02	Watermain Connections	Lin.m.	1,454	\$ 160	\$ 232,640
Subtotal					\$ 3,038,303



Northwest Development Area					
1.00	General Requirements				
1.01	Temporary Facilities - Mobilization, Demobilization, Trailers, Survey Layout, As-built Survey, Utility Locates, Temporary Fencing etc.	Lump Sum	1	\$ 274,935	\$ 274,935
2.00	Area Grading				
2.01	Remove, and Dispose Existing Hot-Mix Asphalt Concrete	m ²	458	\$ 15	\$ 6,875
2.02	Clearing, Grubbing, Stripping	m ²	52,812	\$ 15	\$ 792,174
2.03	Site Grading	m ²	52,812	\$ 5	\$ 264,058
2.04	Re-painting Runway 11-29 to Taxiway D	Lump Sum	1	\$ 7,500	\$ 7,500
3.00	Taxiway Construction				
3.01	Common Excavation - Dispose/Re-use On-site	m ³	1,601	\$ 15	\$ 24,012
3.02	Granular Subbase Course - 250mm thick	m ²	3,857	\$ 15	\$ 57,861
3.03	Granular Base Course - 200mm thick	m ²	3,857	\$ 12	\$ 46,288
3.04	Prime Coat	m ²	3,857	\$ 1.50	\$ 5,786
3.05	Hot-Mix Asphalt Concrete - 65mm thick (1 lift)	m ²	3,857	\$ 25	\$ 96,434
3.06	Paint Markings	Lump Sum	1	\$ 2,000	\$ 2,000
3.07	Retroreflective Taxiway Edge Markers c.w. Frangible Coupling etc.	ea	36	\$ 500	\$ 18,000
3.08	Airfield Taxiway Information Signage	ea	6	\$ 1,500	\$ 9,000
3.09	Supply and Install 200dia CSP for Stormwater Drainage	m	60	\$ 200	\$ 12,000
4.00	Access Road Construction				
4.01	Common Excavation - Dispose/Re-use On-site	m ³	4,945	\$ 15	\$ 74,177
4.02	Granular Subbase Course - 250mm thick	m ²	11,916	\$ 15	\$ 178,745
4.03	Granular Base Course - 200mm thick	m ²	11,916	\$ 12	\$ 142,996
4.04	Prime Coat	m ²	11,916	\$ 1.50	\$ 17,874
4.05	Hot-Mix Asphalt Concrete - 65mm thick (1 lift)	m ²	11,916	\$ 25	\$ 297,908
4.06	Retroreflective Roadway Markers c.w. Frangible Coupling etc.	ea	148	\$ 500	\$ 74,000
4.07	Roadway Signage	ea	9	\$ 500	\$ 4,500
4.08	Supply and Install 200dia CSP for Stormwater Drainage	m	90	\$ 200	\$ 18,000
5.00	Utilities				
5.01	Sanitary Sewer Piping	Lin.m.	1,789	\$ 175	\$ 312,995
5.02	Watermain Connections	Lin.m.	1,789	\$ 160	\$ 286,167
Subtotal					\$ 3,024,284
Notes:					
1.0	The above estimates are based on conceptual layout and design information. Quantities and costs are subject to change during preliminary and detailed design phases.				
2.0	Temporary Facilities are based on an estimate of 10% of the Construction items				
3.0	The taxiway and access road pavement structure utilized in the above estimate include 65 mm HMA, 200 mm Base Course, and 250 mm Subbase Course. The pavement structure is subject to change during preliminary and detailed design phases.				
4.0	This estimate of probable costs is provided for budgetary purposes only. It is not to be interpreted as a guarantee by Tetra Tech of the actual project costs. The actual project cost shall be determined by the tender and construction process.				

Niagara Region Airport Study

Niagara District Airport

NDA 10-Year Capital Plan

Item	Description	Unit	Est Quantity	Unit Price	Total	Comment
1.00	Fuel Tank Replacement					
	22,000 L Low Lead	Each	1	\$168,000		Costs taken from other similar projects
	45,000 Jet Fuel	Each	1	\$217,000		
	Site Modifications	Lump Sum		\$40,000		
	Card Lock	Each	1	\$45,000		
	Engineering (15%)			\$70,500		
	Total Fuel Tank Replacement Cost				\$540,500	
2.00	Navigational Aids (PAPI)	Lump Sum			\$75,000	Cost based on previous project costs

ANNEX 1: AIRPORT FINANCIAL PROJECTIONS – NIAGARA DISTRICT AIRPORT – OPERATIONS ECONOMICS INC.



Airport Financial Projections

Niagara District Airport

2 June 2016

Executive Summary

Findings of the analysis include the following:

- Niagara District Airport (NDA) has supported stable and varied operations in recent years.
- NDA has operated with an operating surplus based on support from the annual municipal grants.
- The Capital Plan developed for the site recommends spending \$9.7 million over 11 years, or \$885,000 on an annualized basis.
- Operating budget projections anticipate the annual deficit (before municipal grant) increasing gradually over the 10-year period.

Highlights of the Capital Plan over the next 11 years include

- \$600,000 for mobile equipment.
- \$735,000 for runway 01-19 rehabilitation in 2019-20.
- \$2.7 million for development of the Southwest Development Area between 2018 and 2023.
- \$2.1 million for development of the East Development Area in 2023 and 2024.

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1. Introduction

The Niagara District Airport (NDA) is in the Niagara Region of Southern Ontario. The Regional Municipality of Niagara (Niagara Region) is reviewing the ownership structure and operations of the NDA and the Niagara Central Dorothy Rungeling Airport (NCDRA). This supports a motion passed by the Region in July 2015 to engage in preliminary discussions with the airports and the respective municipalities.

Two parallel reports have been produced for NDA and NCDRA. This report examines only NDA.

The Niagara District Airport Commission (NDAC) manages and operates the airport. The NDAC is comprised of representatives selected by the City of St. Catharines, Niagara Falls and Niagara-on-the-Lake. The NDA is a general aviation (GA) airport, and there are approximately 75 aircraft based at the site.

To determine the overall benefit of a regional role in the airport's operations, the Region contracted Tetra Tech EBA Inc. (Tetra Tech) and Operations Economics Inc. (OEI) to develop an updated land use plan, a financial projection and a risk assessment for the airport. This report provides the financial projection.

Methodology

This project has been developed with a series of site meetings, trend analysis, financial review, stakeholder interviews, and interaction with the Land Use Plan team. Documents used included airport commission financial statements and other airport documents, Niagara-on-the-Lake documents, Statistics Canada statistics, and industry reports.

This report first describes the current situation and its financial performance, and then projects conservative financial performance based on historic airport results, emerging aviation trends in Southern Ontario and region, and general aviation projections in Canada. More detailed information and financial information are included in the appendices at the end of this report.

A separate evaluation and report related to scheduled passenger service development at the NDA has been undertaken concurrent with the development of this report. As such, the financial plan outlined in this report does not include cost or revenue projections associated with passenger services.

2.Economic and Regional Context

Niagara Region

Economy

Within a one-day drive of the region of Niagara live 55% of the U.S. and 60% of Canada's population, making the region a natural base for American and Canadian companies wishing to reach both markets. The region of Niagara provides every transportation mode modern industry and commerce requires, including major highways, Class I railways, the Welland Canal connecting Lake Erie and Lake Ontario, and airports.

Manufacturing is the largest sectoral employer in the Region. The sector includes auto industry parts suppliers and advanced manufacturers including digital, aerospace and other ICT expertise. Tourism and agriculture are both important regional sectors. The Niagara Region population in 2011 was 431,000.¹

Regional and Municipal Planning

Development in the Niagara Region is governed by the Regional Official Plan. The Plan guides the Niagara Region Growth Management Strategy that aligns with the Provincial Growth Plan for the Greater Golden Horseshoe, the Provincial Policy Statement, and the Greenbelt Plan. Planning and land use for airport lands is included in the Niagara-on-the-Lake Official Plan.

General Aviation

The Niagara District Airport (NDA) is a general aviation airport. General aviation (GA) includes all aviation activity that is not scheduled passenger or cargo flights. General aviation includes "business, sightseeing, search and rescue, training, recreational, survey, aerial ambulance and a variety of other purposes used to complete the world's transportation system. Ranging in size from a small two-seat trainer to a large airline-size aircraft..."² Many of these purposes generate revenue or provide significant social benefit, like search and rescue. When people think of GA, however, they typically think of recreational flying.

¹ <https://www.niagararegion.ca/about-niagara/statistics/population-and-maps.aspx>

² <http://www.iaopa.org/what-is-general-aviation/>

Trends

Trends in GA traffic in Canada are difficult to measure because Statistics Canada no longer tracks it, but a number of indicators are available.

- Business aviation in Canada generates significant economic activity. Business aircraft are flown by a broad cross-section of businesses and organizations, ranging in size from small to large. Business aviation in Canada generates annual direct impacts of
 - 11,500 person years of employment
 - \$810 million in wages
 - \$1.3 billion in GDP³
- Business aviation declined between 2006 and 2011 (the last year data is available for) measured by business aviation aircraft movements counted by NAVCAN.⁴ It is difficult to make broad assessments from this time period because aviation activity in general peaked in 2008 and declined after the recession in that year. Activity may have returned to pre-2008 levels by this time.
- Recreational pilot activity is declining in Canada, measured by a number of indicators. For example, the number of non-commercial pilot licenses issued per year has declined from a little over 5,000 annually in 1981 to a little over 2000 in 2011.⁵ This is attributed to a number of trends including declining personal disposable income, increasing relative aircraft cost, declining federal support for pilot training, and changing public interests.

Generally, in North America, the business and commercial aspects of general aviation are stable but recreational flying is declining.

Airports and Aviation in Southern Ontario

Southern Ontario is growing and current airport capacity will not meet projected demand for scheduled passenger services in years to come. In response, the Greater Toronto Airport Authority (GTAA) is exploring options including:

- 1) Expansion of YYZ, and
- 2) Creation of an integrated airport network in Southern Ontario.⁶ The federal government has also considered the development of a new airport (Pickering) in the

³ CBAA, Economic Impact of Business Aviation in Canada, 2015.

⁴ Ibid.

⁵ Vice President's Report for COPA AGM 2015. These are based on Transport Canada statistics.

⁶ Urban Strategies Inc., "Toronto Pearson: Growth, Connectivity, Capacity," 2015.

region. The projected aviation demand implies opportunity for most if not all airports in Southern Ontario.

Aerospace and Aviation Related Activity and Opportunities

Aerospace and aviation related businesses are significant economic generators in Canada, Canada's aerospace sector alone consists of 700 companies generating annual revenues of more than \$25 billion in 2013. Canadian aerospace is integrated into the global supply chains and exports 80% of its production globally.⁷ The Canadian aerospace industry creates approximately 73,000 jobs annually. Other aviation related jobs include maintenance, cargo, air carrier support services, and related activity.

Related opportunities which NDA could potentially attract include:

- Logistics and warehousing.
- Post-secondary training associated with an airport.
- Maintenance, Repair and Overhaul (MRO) business for specific companies or types of aircraft.
- Specialty services such as aircraft avionics, upholstery, and painting.
- Tourism services such as sightseeing flights, and car rentals.
- Manufacturing of aircraft parts or aviation related systems.
- Non-aviation related commercial and light industrial services.
- Aviation photography and aerial surveying.
- Agricultural aviation such as crop spraying.
- On-demand or air taxi services for passengers.

No aviation regulation proposed changes which would impact the financial plan have been identified.

⁷ <http://www.international.gc.ca>

3. Current Airport Situation

Funding and Governance

Niagara District Airport is located in Niagara-on-the-Lake, and financially supported by Niagara-on-the-Lake, Niagara Falls, and St Catharines. The Niagara District Airport Commission runs the airport on behalf of the three municipalities. The Commission has nine commissioners - an elected Councillor from each municipality, and six others nominated by the participating municipalities.

Planning and Infrastructure

In 2009, the Niagara District Airport undertook a \$12 million upgrade through the Infrastructure Stimulus Program, including construction of a new Air Terminal Building (ATB), rehabilitation of the main runway and taxiways and construction of a new taxiway.

The airport is located within Niagara-on-the-Lake and airport zoning is included under the municipality's Official Plan.

Operations and Staffing

The airport is open 24 hours a day, seven days a week. CBSA provides customs entry services for small aircraft at the site (AOE15). Fuel is provided by Allied Aviation and is available 24 hours per day on a call-out basis.

The airport staff complement includes

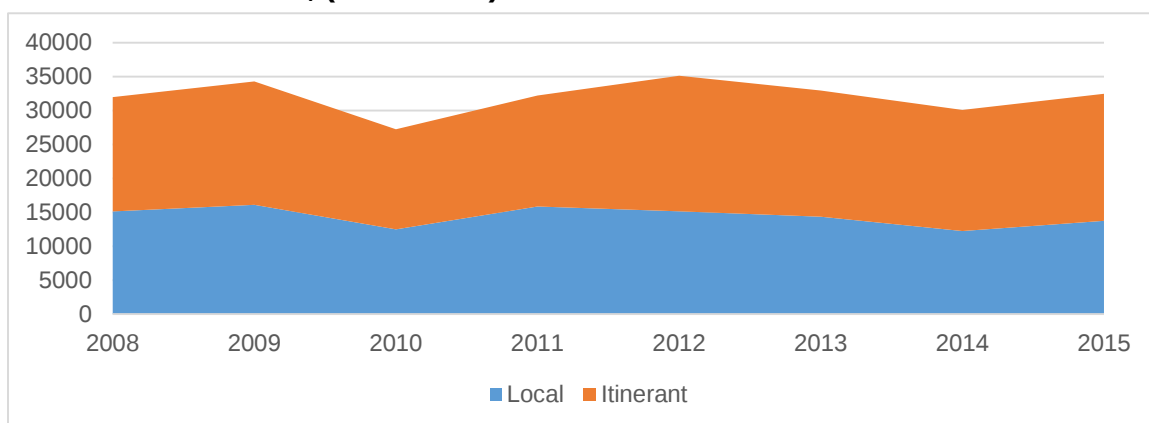
- An Airport Manager
- An Operations Managers
- 2 Operators
- A part-time Executive Assistant
- A contract Payroll Clerk
- Seasonal operator (approximately 30 hours in 2015-16)

Activity Indicators

For NDA, three activity indicators are available. These are

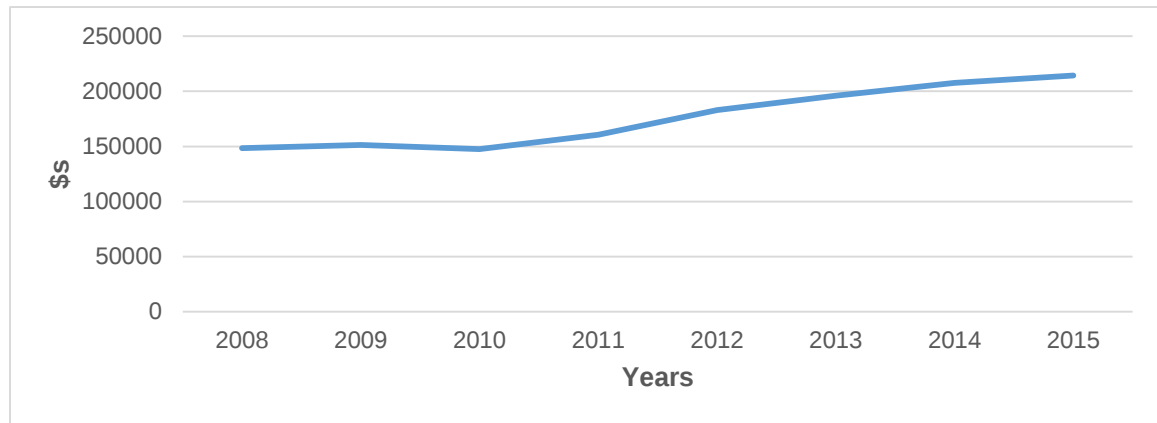
- **Aircraft movements.** Over the last eight years, movements have been reasonably stable, with a slight increase in itinerant movements and a slight decrease in local movements. Local movements are typically training flights, and itinerant movements are typically between different sites.

Aircraft Movements, (2008-2015)

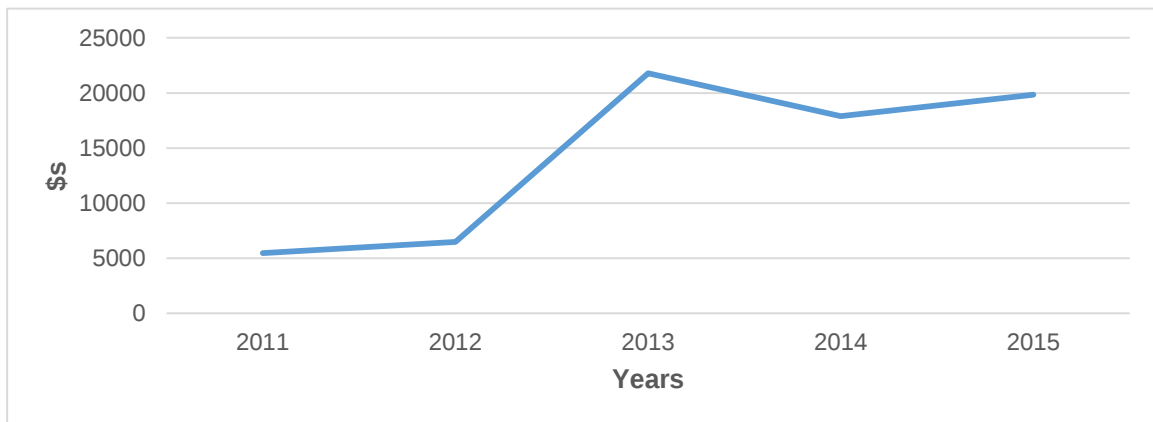


Source: NDA, StatsCan

- **Leases.** Leases are a significant source of revenue for GA airports, but they usually lease at rates which are relatively low. Airport leases are typically long-term, in the range of 20-25 years. This is also the case at NDA and many tenants have a long history with the site. The increase in rents is primarily from increases to lease rates to bring them in line with other Southern Ontario airports.

Rental Revenue, \$s (2008-2015)

- **Fuel net revenue.** Fuel is often the primary source of income for a GA airport, so understanding this revenue source is important. The blue line shows the fuel net revenue from 20011 to 2015. Allied Aviation took responsibility for fuel at the airport in 2012. Fuel sales in 2011 were low because of reduced aircraft operations as a result of construction at the airport. Revenues before 2011 are not shown because the revenue and expenses was reported in a different form.

Fuel Revenue, \$s (2011-2015)

4. Historic Financial Performance

As a general rule, smaller airports require a subsidy in some form. The federal government provides the Airport Capital Assistance Program (ACAP) to provide capital funding for airside safety for airports with over 2,000 passengers a year in recognition of this. Larger National Airport System (NAS) airports are not eligible for this program. Economists have identified that airports typically need to generate approximately one million passengers or more per year to be self-sustaining. This is because the capital costs for airports are relatively high and air passengers can be charged a reasonable level of fees. Many of the larger regional airports with less than one million passengers annually can be self-sustaining depending on their fees and charge structure.

General Aviation airports are the in the most difficult position in Canada because they receive relatively little support from senior government. While some GA airports appear to be performing well financially with very low fees, it is generally because they are not replacing capital or making allowance for its replacement. This is largely because light aircraft do not impact airfield infrastructure to the same extent that heavy aircraft would, allowing many GA sites to extend the useful life of their runway with careful maintenance.

Revenue

NDA generated \$272,000 per year in revenue in 2015. Including municipal grants (deferred capital included) the airport generated \$622,000. **Figure 4-1** provides the five ear revenue for NDA.

Figure 4-1: NDA Historic Revenue, \$\$ (2011-15)

	2011	2012	2013	2014	2015
Lease/Rentals	160,625	182,869	195,951	207,799	214,255
Fuel	5,454	6,480	21,785	17,902	19,840
Landing and parking fees	13,961	15,948	17,475	16,974	15,317
Interest	4,830	1,872	1,433	1,620	2,383
Events	27,790	32,380	11,820	774	7,455
Miscellaneous	20,368	49,140	14,006	12,171	12,908
Subtotal	233,028	288,689	262,470	257,240	272,158
Municipal Grant	250,846	266,778	271,098	328,500	349,722
TOTAL	483,874	555,467	533,568	585,740	621,880

Major Revenue Lines

This section covers major revenue lines for the airport.

Rentals

Rentals are the largest source of revenue. This includes land and office rentals, tie downs for aircraft, and advertising. Over the last five years, rentals have grown 40%. This has partly been the result of bringing lease rates into line with other airports in Southern Ontario. The airport has 17 major rental clients. Genaire is the largest tenant at the airport.

Rental rates at NDA appear comparable to fees at many other Southern Ontario airports, as shown in **Figure 4-2**, though at the low end of the range. The NDA has increased its rental rates in recent years to be comparable and is seeking 30 cents a square foot in 2016. Based on the table below, this appears reasonable and competitive with other Southern Ontario sites. NCDRA has lower rates. Its rates are 25 cents for commercial and 15 cents for non commercial tenants.

Figure 4-2: Airport Hangar Lease Rates, 2016, \$s

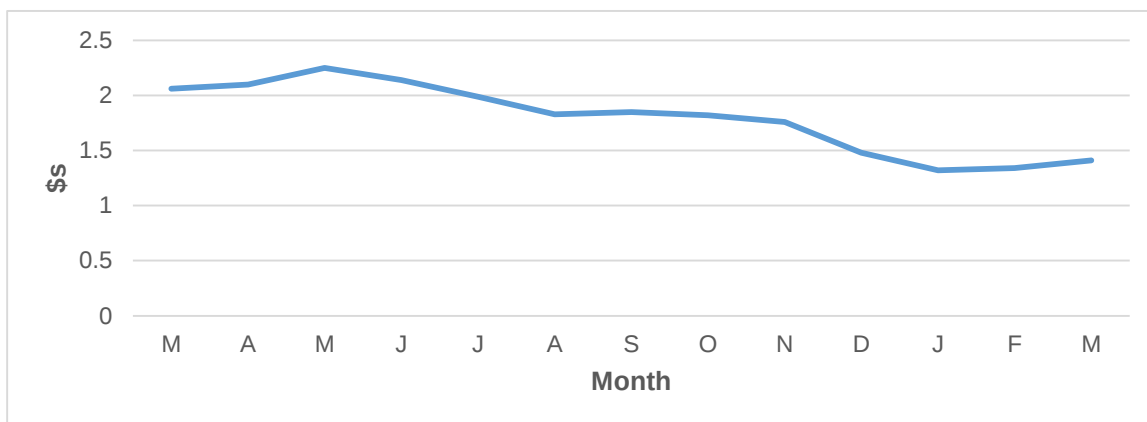
Airport	Rental rate / square feet
Brantford	.38
Lake Simcoe	.31
NDA	.30
NCDRA	.25 and .15
Peterborough	.30
Waterloo	.29

Fuel

Fuel is the second largest source of revenue. Allied Aviation provides fuel service at the airport. In 2012, Allied entered into a five-year lease for an airport-owned hangar and provides full FBO services. The airport receives five cents per litre for all aviation fuel sold at the site. Fuel sales, and the airport's total flowage fee, have increased strongly, 120%, over the last five years. However, in 2011, the first year of the lease period, flight activity was low because of runway construction.

Comparative rates for fuel are infamously difficult to obtain because they are often fluctuating. **Figure 4-3** displays the jet fuel spot price over the last year. While this is the wholesale price in \$s per US gallon, it shows a sense of jet fuel fluctuations. What is worth noting is that NDA is served by a major fuel supplier in North and South America that understands the market and competing in it. Fuel sales will increase primarily if the airport generates significant new or increased activity.

**Figure 4-3: Jet Fuel Spot Price FOB \$s/ US gallon
(March 2015 – March 2016)**



Source: US Energy Information Administration

Fees

Fees refer primarily to landing fees charged to aircraft using the site, as well as parking fees for overnight aircraft. At most North American airports recreational airport pilots do not pay landing fees. At NDA, itinerant aircraft are charged landing fees based on the aircraft maximum take-off weight (MTOW) of over 4,000kg (8,800lb). Fees are charged as follows

- 4,000 kg-13,630 kg (8,800 lbs-30,000 lbs) \$57.50 per landing
- Over 13,630 kg (30,000 lbs.) \$115.00 per landing

Only larger GA aircraft meet these weight qualifications.

Landing fee revenues have fluctuated over the five-year period, and peaked in 2013. Landing fee revenues increased over the period by 8.9%.

Fees charged to aircraft are complex and larger airports generally charge both higher fees and fees for more services. Fees at airports are not entirely comparable because of differences in what is charged for and how it is charged. The tables below, **Table 4-4** through **4-7**, and shows how other regional airports charge fees to aircraft. Brantford Municipal Airport was also considered but does **not** charge landing fees for any aircraft. Oshawa and Waterloo both have a relatively simplified fee structure. This is a more modern approach because airports have generally moved to simplifying their fee structures in recent years because simplified fee structures are relatively easy to

administer. Muskoka and Lake Simcoe display more traditional, graduated landing fee structures.

The lowest fee structure is at Brantford Municipal Airport with no landing fees. The highest fee structure is at Muskoka Airport which charges \$7 per 1,000 kg for aircraft of between 3-4,000 kg. For a 4,000kg aircraft this would mean a landing fee of \$28, a lower rate than NDA's charges of \$57.50 for a 4,000 kg aircraft. However, for a 13,000kg aircraft, Muskoka's fee of \$10 per 1,000 kg would result in a total fee of \$130, significantly lower than NDA's \$57.50 fixed fee.

Two of the airports examined have a differential fee, charging one fee for based aircraft, and a higher fee for itinerant aircraft. These two airports are Oshawa and Lake Simcoe. For aircraft over 2,000kg, Oshawa charges a 31% differential for non based aircraft. Lake Simcoe has a more complex fee structure, but for aircraft between 3,000-4,999 kg the airport charges a 53% differential for non based aircraft.

Fees at general aviation airports vary considerably because traffic and opportunities at them vary. It is therefore difficult to draw more than general insights from fee comparisons.

Figure 4-4: Oshawa Executive Airport Landing Fees

Non Airport Tenants

Less than 2,000 kg	\$5.85 / 1,000 kg
Over 2,000 kg	\$5.85 / 1,000 kg

Airport Tenants

Less than 2,000 kg	\$4.45 / 1,000 kg (applies to commercially registered aircraft only)
Over 2,000 kg	\$4.45 / 1,000 kg

Figure 4-5: Region of Waterloo Airport Landing Fees

Below 3,000 kg	No Charge
3,000 to 21,000 kg	\$6.50 / 1,000 kg
21,001 to 45,000 kg	\$6.50 / 1,000 kg
Over 45,000 kg	\$6.50 / 1,000 kg

Figure 4-6: Muskoka Airport

No Charge for any aircraft less than 3,000 kg	
No Charge for aircraft based at Muskoka Airport if less than 5,000 kg	
3,000kg – 4,000 kg	\$7.00 / 1,000 kg
5,000 kg – 9,000 kg	\$8.00 / 1,000 kg
10,000 kg – 19,000 kg	\$10.00 / 1,000 kg
20,000 kg – 44,000 kg	\$11.00 / 1,000 kg
45,000 kg or greater	\$12.00 / 1,000 kg

**Figure 4-7: Lake Simcoe Regional Airport
Non Based Aircraft**

No Charge for any aircraft less than 2,999 kg	
3,000 kg – 4,999 kg	\$5.50/1000 kg
5,000 kg – 9,999 kg	\$6.00/1000 kg
10,000 kg – 19,999 kg	\$6.50/1000 kg
20,000 kg – 44,999 kg	\$7.00/1000 kg
45,000 kg +	\$7.50/1000 kg

Based Aircraft

No Charge for any aircraft less than 2,999 kg	
3,000 kg – 4,999 kg	\$3.60/1000 kg
5,000 kg – 9,999 kg	\$3.90/1000 kg
10,000 kg – 19,999 kg	\$4.20/1000 kg
20,000 kg – 44,999 kg	\$4.50/1000 kg
45,000 kg +	\$4.80/1000 kg

Expenses

Figure 4-8 shows expenses for the five-year period. Over the last five years, expenses have increased by 18.8%. Personnel costs increased at approximately the same rate, while maintenance costs for buildings and vehicles increased more rapidly, 54.8% and 27.9%, respectively. This is a relatively high growth in expenses over this period.

Figure 4-8: NDA Historic Expenses, \$s (2011-15)

	2011	2012	2013	2014	2015	% Change, 2011-2015
Personnel	239,532	280,520	291,997	301,886	294,164	22.8
Operations	139,627	150,948	142,283	141,913	132,402	-5.2%
Maintenance, building and property	36,122	44,830	40,297	30,366	79,899	121.2
Maintenance, vehicles and equipment	33,015	30,341	31,480	36,415	45,764	38.6
SUBTOTAL	448,296	506,639	506,057	510,580	552,229	23.2

To provide additional insight into NDA expenses, **Figure 4-9** provides additional detail on expenses. The following points to note in this figure include:

- Personnel expenses have a one-time bump up in 2016. This covers about one FTE increase.
- Airfield expenses included a one-time expense of approximately \$50,000 in 2015.
- Aging mobile equipment results in budgeted maintenance increases in 2016 in the final line item.

Figure 4-9: NDA Expense Detail, \$s (2015 actual vs. 2016 budget)

	2015	2016 Budget	Difference
Salaries, wages & benefits	276,079	339,900	63,821
Operations			
Promotion and marketing	2,018	5,500	3,482
Legal, Audit and accounting	29,529	27,000	-2,529
Office	34,514	77,200	42,686
Light, heat and water, telephone	42,922	45,000	2,078
Insurance	14,213	17,000	2,787
Consulting	18,085	14,000	-4,085
Bad debt (recovery) expense / Collection Fees	1,000	1,000	-
PILT	9,198	11,000	1,802
Repairs and maintenance			
Building and Property	28,678	26,200	-2,478
Airfield	51,221	7,500	-43,721
Vehicles and Equipment	45,764	61,200	15,436
TOTAL	553,221	632,500	72,279

Note: Figure 4-9 sums differently from Figure 4-2 because different data sources were used.

Five-Year Performance

The five-year financial performance at NDA is shown in **Figure 4-8**. The figure shows that over this period, the annual deficit for the site increased, and municipal grants also increased. In 2015 the deficit was \$280,000 and the total municipal grant was \$349,722, with an operating surplus of \$69,500.

Figure 4-8: Five-Year Operating Performance Overview \$s (2011-2015)

	2011	2012	2013	2014	2015
Revenue (excluding Municipal Grants)	233,028	288,689	262,470	257,240	272,158
Expenses	448,296	506,639	506,057	510,580	552,229
Net Operating Surplus/(Deficit) before municipal Grants	(215,268)	(217,950)	(243,587)	(253,340)	(280,071)
Municipal Grant	250,846	266,778	271,098	328,500	349,722
Net Operating Surplus/(Deficit)	35,578	48,828	27,511	75,160	69,651

Note: Figure excludes capital amortization and financing expenses.

5. Capital Requirements

A 20-year Capital Plan was prepared for NDA as part of the Land Use Plan prepared in parallel with this financial projection. The capital plan itemized major recommended upcoming capital expenses and the year in which action is recommended. Highlights of that plan are identified below. The complete plan is provided in the Land Use Plan and a table based on it is shown in **Appendix C**.

Highlights of the first 10 years of the Capital Plan include

- \$600,000 for mobile equipment.
- \$735,000 for runway 01-19 rehabilitation in 2019-20.
- \$950,000 for runway 11-29 rehabilitation in 2020-21.
- \$1.6 million for development of the Southwest Development Area between 2018-19.
- \$2.1 million for development of the East Development Area in 2023 and 2024.

The total recommended capital budget including development area expansions is \$11.8 million for the 2016 to 2026 period. This includes \$950,000 for rehabilitation of Runway 11-29 which may be decommissioned during this time-period.

Capital costs related to scheduled passenger services have been omitted from the forecast presented herein.

6. Financial Projection

Methodology

Projections for NDA have been developed to show the potential financial performance of the site over the next 10 years based on past and current performance, consultation with stakeholders, market trends and the investments identified in the land use plan. Conservative assumptions have been used. For this analysis, it has been assumed that inflation will increase at 2.0% for expenses and revenues based on Bank of Canada projections to 2017.

The operating budget projection has considered a 10-year forecast period. Financing of the capital program developed in the parallel Land Use Plan has been included with this forecast. The capital program has been forecasted for a 20-year period, but only the first 10-year period is included with this projection.

A sensitivity analysis is also provided. It considers scenarios related to key risks and opportunities not included in the base case.

10-Year Operating Budget

Starting from the 2016 budget, projections have been developed to 2025 based on the analysis above and are provided in **Figure 6-1**. Revenues increase with inflation over the study period. Leases grow more quickly because it is assumed that new stand-alone and T-hangars will be developed in the Southwest Development Area. The base projection assumes two lots are constructed per year for the first five years, followed by two lots every three years on average. It is assumed that the municipal grant will cover NDA deficits. See **Appendix B** for further supporting detail.

Figure 6-1: 10-Year Financial Projection (\$) (Excludes capital financing)

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Budget										
Revenue (excluding Municipal Grants)	276,100	281,495	286,995	295,915	305,078	314,490	324,157	334,085	353,880	362,678
Expenses	632,500	632,604	645,256	658,161	671,324	684,751	698,446	712,415	726,663	741,196
Net Operating Surplus/ (Deficit) before municipal Grants	(356,400)	(351,110)	(358,261)	(362,246)	(366,246)	(370,261)	(374,289)	(378,330)	(372,784)	(378,518)
Municipal Grant	356,400	351,110	358,261	362,246	366,246	370,261	374,289	378,330	372,784	378,518

Note: Figure excludes capital amortization and financing expenses.

10-Year Capital Requirements

A year-by-year review of the Capital Plan requirements prepared for the Land Use Plan is provided below in **Figure 6-2** with supporting detail outlined in **Appendix C**. The Land Use Plan includes a 20-year capital projection, but only the first 11 years are discussed in this report. (Financing of capital and amortization is excluded from the operating forecast and the capital plan and will be addressed outside of this report.) Operating expenses have not been increased to match capital improvements because it is assumed that while airport activity increases, the improvements to capital will reduce demands, balancing each other off.

Excluded from this forecast are costs associated with scheduled passenger services (example – terminal and parking expansions), as these costs are being evaluated through a concurrent study process. This base case scenario also excludes some investments that are separately considered in the sensitivity analysis (example – card lock investment).

Figure 6-2: Capital Requirements

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Airside	-	26,000	45,300	55,000	829,000	995,000	352,000	-	272,000	365,000	53,000
Groundside	229,000	44,600	577,000	216,000	129,000	295,000	68,000	112,000	60,000	750,000	609,000
Development	-	20,000	117,000	1,465,000	-	-	-	152,000	1,899,000	-	-
Total	229,000	90,600	739,300	1,736,000	958,000	1,290,000	420,000	264,000	2,231,000	1,115,000	662,000

7. Sensitivity Analysis

To examine how the NDA might be impacted by potential operations scenarios over the next 10 years, the following scenario-based sensitivity analysis has been developed. The analysis considers the potential impacts of each scenario and the degree to which they might impact base airport projections.

Solar Panel Farm

The NDA has considered development of a solar panel farm on the southeast side of the airport property. The project would proceed in partnership with the Town of Niagara-on-the-Lake and a private sector partner. The private sector partner would incur the capital and operating costs. This plan is contingent on receiving provincial funding to implement the program. Agreements for the project are in place, and the NDA estimates that it would receive \$45,000 annually from the farm if/when it is realized, or a maximum upside of \$450,000 over the 10-year projection.

Major Maintenance Site / Warehouse Development

This scenario assumes the development of a major aviation-related maintenance site or warehouse at the airport. It is assumed that the site would be operational in 2019, that the site would generate approximately \$120,000 annually in leases and \$4,000 in landing fees. The proposed scenario structure is approximately half the size of the largest facility built at a Canadian GA airport in the last decade. The rounded figure was arrived at because large scale developments of this type are often subject to unique negotiations. Fuel has not been assumed because aircraft in this scenario may not be based at the site. Based on these assumptions, the airport would receive approximately \$880,000 in lease revenue over the study period, and \$30,000 in landings fees.

Loss of Key Tenant

This scenario assumes the loss of a major NDA tenant. The loss would primarily be to lease revenue as the largest tenant at the airport does not operate aircraft. For this scenario an annual loss of \$5,200 in lease revenue is assumed in 2018. The loss would escalate with inflation over time. If the building was not re-leased within a few years, it would likely be recommended for demolition. This expense has not been estimated.

8. Findings

Key findings of this analysis include the following:

- The site has had supported stable and varied operations in recent years.
- NDA has operated with an operating surplus based on support from the annual municipal grants.
- The Capital Plan developed for the site recommends spending \$9.7 million over 11 years, or \$885,000 on an annualized basis.
- Operating budget projections anticipate the annual deficit (before municipal grant) increasing gradually over the 10-year period.

Appendix A: Development Area Projections

Overview

A detailed review of potential development area investments and resulting revenue is warranted as the capital costs are significant and lease revenue is the single largest source of revenue for airport. The development plan includes two areas of development, Southwest Development Area (SWDA), East Development Area (EDA), and the Northwest Development Area (NWDA).

The developments are assessed separately below with respect to capital investment timing, take-up rate of the units, and resulting revenue projections for the airport. The resulting base case scenario is then incorporated into the financial forecast for the airport. Low and high growth scenarios are considered in the sensitivity analysis.

For the analysis, the airport's current lease rate structure is used. As noted earlier, the NCDRA's lease rates are below market levels.

Southwest Development Area (SWDA)

The SWDA is intended for private and recreational hangar development. In total, it will accommodate approximately 69 lots in three phases. The average lot size equals 0.048 ha, but development may include larger lot sizes as demand warrants.

The total capital cost for the SWDA is \$3.8 million. Upon full build-out, the 69 lots could generate revenue of up to \$108,000 per year. (All figures are in 2016 dollars). This analysis implies a simple payback period of 36 years on average, with the first phase of development having the highest payback period, at 63 years. If value of time, investment time, occupancy, and maintenance costs were factored in, the payback periods would be longer. The analysis indicates that the SWDA would not generate a profit.

Figure A-1: SWDA Payback Period (2016 dollars)

	Capital Cost	Number of Lots	Maximum Annual Lease Revenue (\$s)	Payback Period (Years)
Phase 1	\$1,582,0000	16	\$24,965	63
Phase 2	\$1,068,000	24	\$37,448	29
Phase 3	\$1,188,000	29	\$45,250	26
Sub-total	\$3,838,000	69	\$107,663	36

Notes: Average lot size of 0.048 ha and lease revenue of \$0.302 per square foot annually per year. Other incremental sources of revenue are assumed to be relatively low. Simple payback period calculation disregards the value of time, maintenance costs, and timing of investment.

The construction of Phase I of SWDA is projected for 2019 because consultation shows existing demand but there is limited developable land at the airport currently. The base projection assumes two lots are constructed per year for the first five years, followed by two lots every three years on average. As noted, construction may involve larger single investments. This take-up rate on lots would trigger the need for Phase 2 construction in approximately 2030. Phase 3 would not be required in the 2037 forecast period. Over the forecast period to 2037, up to 103,000 square feet of lease-generating land would be developed with up to \$507,000 in total revenue as shown in **Figure A-2** below.

Figure A-2: Projected SWDA Cash Flow, inflated at 2%

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	10-Year Total	Years 11-22	22-Year Total
Lease Revenue	-	-	-	3,312	6,756	10,336	14,058	17,923	20,110	22,377	94,872	412,287	507,159
Capital Investment											-	-	-
Phase 1			(121,727)	(1,554,670)							(1,676,397)	-	(1,676,397)
Phase 2											-	(1,407,159)	(1,407,159)
Phase 3											-	-	-
Subtotal	-	-	(121,727)	(1,554,670)	-	-	-	-	-	-	(1,676,397)	(1,407,159)	(3,083,556)
Net Cash Flow	-	-	(121,727)	(1,551,358)	6,756	10,336	14,058	17,923	20,110	22,377	(1,581,525)	(994,872)	(2,576,397)

Sensitivity analysis completed shows that in the low growth scenario one lot would be developed in each of the first five years followed by one lot every two years for the balance of the period to 2037. The total lease-generating space generated would decrease to 62,000 square feet. Phase 2 would not be required by 2037, and the total revenue generated would decrease to up to \$280,000 over the 20-year period.

In the high growth scenario, 12 lots would be developed by the fifth year, followed by one lot per year for the balance of the period to 2037. The total leasable space generated by 2037 would increase to 134,000 square feet. Phase 2 would be required in approximately 2027, and the total revenue generated to 2037 would increase to \$648,500.

East Development Area (EDA)

The EDA is intended for commercial hangar development and uses. It would accommodate approximately 13 lots in two phases. The average lot size would equal 0.3 ha, but development may incorporate larger lot sizes as demand warrants.

The total capital cost for the EDA is \$4.1 million. Once fully developed, the 13 lots could potentially generate revenue of up to \$127,000 per year. (All figures are in 2016 dollars.) These figures imply a simple payback period of 32 years on average, with Phase I having the highest payback period at 42 years. If value of time, investment time, occupancy, and maintenance costs were factored in, the payback periods would be longer. The analysis indicates that the SWDA would not generate a profit.

Figure A-3: EDA Payback Period (2016 dollars)

	Capital Cost	Number of Lots	Maximum Annual Lease Revenue (\$s)	Payback Period (Years)
Phase 1	\$2,051,000	5	\$48,761	42
Phase 2	\$2,051,000	8	\$78,017	26
Sub-total	\$4,102,000	13	\$126,777	32

Notes: Average lot size of 0.3 ha and lease revenue of \$0.302 per square foot annually per year. Other incremental sources of revenue are assumed to be relatively low. Simple payback period calculation disregards the value of time, maintenance costs, and timing of investment.

The construction of Phase I of the EDA is projected to happen in 2024 following the rehabilitation (potential closure of one) secondary runways. The base case projection assumes one commercial development is constructed every fifth year on average. At this rate of development, Phase 2 construction would not be required in the 2037 planning period. Over this period, up to 97,000 square feet of leasable land would be developed generating up to \$363,000 in revenue collections estimated.

Figure A-4: Projected EDA Cash Flow, inflated at 2%

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	10-Year Total	Years 11-22	22-Year Total
Lease Revenue	-	-	-	-	-	-	-	-	11,426	11,655	23,081	339,906	362,986
Capital Investment											-	-	-
Phase 1								(272,239)	(2,222,638)		(2,494,876)	-	(2,494,876)
Phase 2											-	-	-
Subtotal	-	-	-	-	-	-	-	(272,239)	(2,222,638)	-	(2,494,876)	-	(2,494,876)
Net Cash Flow	-	-	-	-	-	-	-	(272,239)	(2,211,212)	11,655	(2,471,796)	339,906	(2,131,890)

Sensitivity analysis completed shows that in the low growth scenario, one lot would be developed by 2037. The total lease-generating space generated decreases to approximately 32,000 square feet. The total revenue generated would decrease to approximately \$159,500 over the period.

In the high growth scenario, five lots would be developed by 2037 as opposed to three lots in the base case. The total lease-generating space generated by 2037 increases to 161,500 square feet. Phase 2 would be required in approximately 2027, and the total revenue generated would increase to up to \$668,500 over the period.

Northwest Development Area (NWDA)

The NWDA is intended for private and commercial development. In total, it will accommodate approximately 23 lots in three phases. The average lot size would be 0.25 ha.

The total capital cost for the NWDA is \$4.1 million. Once fully developed, the 23 lots would potentially generate revenue of \$187,000 per year. (All figures are in 2016 dollars.) This analysis implies a simple payback period of 22 years on average. If time value of money, timing of investment and occupancy, and future maintenance costs were factored in, these payback periods would become even larger. If value of time, investment time, occupancy, and maintenance costs were factored in, the payback periods would be longer. The analysis indicates that the SWDA would not generate a profit.

Figure A-5: NWDA Payback Period (2016 dollars)

	Capital Cost	Number of Lots	Maximum Annual Lease Revenue (\$s)	Payback Period (Years)
Phase 1	\$4,083,000	23	186,915	22

Notes: Average lot size of 0.25 ha and lease revenue of \$0.302 per square foot annually per year. Other incremental sources of revenue are assumed to be relatively low. Simple payback period calculation disregards the value of time, maintenance costs, and timing of investment.

The construction of the first phase of the NWDA is not included within the planning period. This development would require acquisition of access easement, clarification on the future of Runway 11-29, funding and constructing services to the site, and demand for additional capacity.

A-6: Base Case Land Development Projections

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Notes
A. Existing Rental Revenue											
Lease Revenue per Sq. Ft - Non-Commercial	\$ 0.302	\$ 0.308	\$ 0.314	\$ 0.320	\$ 0.327	\$ 0.333	\$ 0.340	\$ 0.347	\$ 0.354	\$ 0.361	Current non-commercial rates for NCDRA are approximately market rates, increase by inflation. Non-commercial currently pay same rate at NDA, therefore there's a potential opportunity to increase revenue from non-commercial. Have applied current rate structure here for conservatism.
Lease Revenue per Sq. Ft - Commercial	\$ 0.302	\$ 0.308	\$ 0.314	\$ 0.320	\$ 0.327	\$ 0.333	\$ 0.340	\$ 0.347	\$ 0.354	\$ 0.361	
Revenue	\$226,400	\$230,928	\$235,547	\$240,257	\$245,063	\$249,964	\$254,963	\$260,062	\$265,264	\$270,569	
B. Southwest Development Area (SWDA)											
Year of Budgeted Funding for Phases			Ph1- D	Ph1- C							D = Year design funding is approved; C = Year construction funding is approved. Phase 1 timing aligns with LUP and reflects immediate need. Remaining phases are timed based on need given estimated take-up rate.
Non-Commercial Development											
# of Developed Lots (Cumulative)	-	-	-	2	4	6	8	10	11	12	Lot construction begins in 2019 which is year capital funding for Phase 1 is identified. Take-up rate assumed at 2 lots per year initially based on existing demand, then 2 every three years after year 5. Given small lot sizes as described in LUP, this take-up should be seen as the average as actual construction may occur simultaneously for multiple lots.
Square Footage Developed (Cumulative)	-	-	-	10,333	20,667	31,000	41,333	51,667	56,833	62,000	Average size per lot is 0.04 ha (0.61 acres), which is equivalent to approx. 4,306 square feet (at 107639.104 sq. ft. per ha)
Lease Revenue perSq. Ft - Non-Commer	\$ 0.302	\$ 0.308	\$ 0.314	\$ 0.320	\$ 0.327	\$ 0.333	\$ 0.340	\$ 0.347	\$ 0.354	\$ 0.361	Rates are at market level, therefore no change aside from inflation is included.
Total Rental Revenue - SWDA	\$ -	\$ -	\$ -	\$ 3,312	\$ 6,756	\$ 10,336	\$ 14,058	\$ 17,923	\$ 20,110	\$ 22,377	Lease Revenue = Square Footage Developed * Lease Revenue per Sq. Ft.
C. East Development Area (EDA)											
Year of Budgeted Funding for Phases								Ph1- D	Ph1- C		D = Year design funding is approved; C = Year construction funding is approved. Phase 1 timing is baed on LUP with construction following runway rehabilitations. Remaining phases are timed based on need given estimated take-up rate.
Commercial Development											
# of Developed Lots (Cumulative)	-	-	-	-	-	-	-	-	1	1	Assumed 1 Commercial opportunity every 5th year.
Square Footage Developed (Cumulative)	-	-	-	-	-	-	-	-	32,292	32,292	Average size per lot is 0.3 ha assumed, which is equivalent to approx. 32,292 square feet (at 107639.104 sq. ft. per ha)
Lease Revenue perSq. Ft - Non-Commer	\$ 0.302	\$ 0.308	\$ 0.314	\$ 0.320	\$ 0.327	\$ 0.333	\$ 0.340	\$ 0.347	\$ 0.354	\$ 0.361	No change aside from inflation is included in base case analysis. As noted in report, current rates are well below market rates therefore higher rate structure is considered in scenario analysis.
Total Revenue - EDA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 11,426	\$ 11,655	
TOTAL RENTAL REVENUE	\$226,400	\$230,928	\$235,547	\$243,569	\$251,818	\$260,300	\$269,021	\$277,986	\$296,800	\$304,601	

Incremental Growth	2.0%	2.0%	3.4%	3.4%	3.4%	3.4%	3.3%	6.8%	2.6%
Cumulative Growth	2.0%	4.0%	7.6%	11.2%	15.0%	18.8%	22.8%	31.1%	34.5%

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	Notes
A. Existing Rental Revenue													
Lease Revenue per Sq. Ft - Non-Commercial	\$ 0.368	\$ 0.375	\$ 0.383	\$ 0.391	\$ 0.398	\$ 0.406	\$ 0.415	\$ 0.423	\$ 0.431	\$ 0.440	\$ 0.449	\$ 0.458	Current non-commercial rates for NCDRA are approximately market rates, increase by inflation. Non-commercial currently pay same rate at NDA, therefore there's a potential opportunity to increase revenue from non-commercial. Have applied current rate structure here for conservatism.
Lease Revenue per Sq. Ft - Commercial	\$ 0.368	\$ 0.375	\$ 0.383	\$ 0.391	\$ 0.398	\$ 0.406	\$ 0.415	\$ 0.423	\$ 0.431	\$ 0.440	\$ 0.449	\$ 0.458	
Revenue	\$ 275,980	\$ 281,500	\$ 287,130	\$ 292,873	\$ 298,730	\$ 304,705	\$ 310,799	\$ 317,015	\$ 323,355	\$ 329,822	\$ 336,418	\$ 343,147	
B. Southwest Development Area (SWDA)													
Year of Budgeted Funding for Phases				Ph2 - D	Ph2 - C								D = Year design funding is approved; C = Year construction funding is approved. Phase 1 timing aligns with LUP and reflects immediate need. Remaining phases are timed based on need given estimated take-up rate.
Non-Commercial Development													
# of Developed Lots (Cumulative)	12	13	14	14	15	16	16	17	18	18	19	20	
Square Footage Developed (Cumulative)	62,000	67,167	72,333	72,333	77,500	82,667	82,667	87,834	93,000	93,000	98,167	103,334	Lot construction begins in 2019 which is year capital funding for Phase 1 is identified. Take-up rate assumed at 2 lots per year initially based on existing demand, then 2 every three years after year 5. Given small lot sizes as described in LUP, this take-up should be seen as the average as actual construction may occur simultaneously for multiple lots. Average size per lot is 0.04 ha (0.61 acres), which is equivalent to approx. 4,306 square feet (at 107639.104 sq. ft. per ha)
Lease Revenue per Sq. Ft - Non-Commercial	\$ 0.368	\$ 0.375	\$ 0.383	\$ 0.391	\$ 0.398	\$ 0.406	\$ 0.415	\$ 0.423	\$ 0.431	\$ 0.440	\$ 0.449	\$ 0.458	
Total Rental Revenue - SWDA	\$ 22,824	\$ 25,221	\$ 27,704	\$ 28,258	\$ 30,882	\$ 33,600	\$ 34,272	\$ 37,142	\$ 40,114	\$ 40,916	\$ 44,053	\$ 47,299	Lease Revenue = Square Footage Developed * Lease Revenue per Sq. Ft.
C. East Development Area (EDA)													
Year of Budgeted Funding for Phases													D = Year design funding is approved; C = Year construction funding is approved. Phase 1 timing is based on LUP with construction following runway rehabilitations. Remaining phases are timed based on need given estimated take-up rate.
Commercial Development													
# of Developed Lots (Cumulative)	1	1	1	2	2	2	2	2	3	3	3	3	
Square Footage Developed (Cumulative)	32,292	32,292	32,292	64,583	64,583	64,583	64,583	64,583	96,875	96,875	96,875	96,875	Assumed 1 Commercial opportunity every 5th year. Average size per lot is 0.3 ha assumed, which is equivalent to approx. 32,292 square feet (at 107639.104 sq. ft. per ha) No change aside from inflation is included in base case analysis. As noted in report, current rates are well below market rates therefore higher rate structure is considered in scenario analysis.
Lease Revenue per Sq. Ft - Non-Commercial	\$ 0.368	\$ 0.375	\$ 0.383	\$ 0.391	\$ 0.398	\$ 0.406	\$ 0.415	\$ 0.423	\$ 0.431	\$ 0.440	\$ 0.449	\$ 0.458	
Total Revenue - EDA	\$ 11,888	\$ 12,126	\$ 12,368	\$ 25,231	\$ 25,735	\$ 26,250	\$ 26,775	\$ 27,311	\$ 41,785	\$ 42,621	\$ 43,473	\$ 44,343	
TOTAL RENTAL REVENUE	\$ 310,693	\$ 318,847	\$ 327,202	\$ 346,362	\$ 355,348	\$ 364,555	\$ 371,846	\$ 381,468	\$ 405,254	\$ 413,359	\$ 423,945	\$ 434,789	
Incremental Growth	2.0%	2.6%	2.6%	5.9%	2.6%	2.6%	2.0%	2.6%	6.2%	2.0%	2.6%	2.6%	
Cumulative Growth	37.2%	40.8%	44.5%	53.0%	57.0%	61.0%	64.2%	68.5%	79.0%	82.6%	87.3%	92.0%	

Figure A-7: Low Growth Land Development Scenario

Low Growth Scenario											
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Incremental Lease Revenue											
SWDA	\$ -	\$ -	\$ -	\$ (1,656)	\$ (3,378)	\$ (5,168)	\$ (7,029)	\$ (8,962)	\$ (10,969)	\$ (11,188)	\$ (48,350)
EDA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (11,426)	\$ (11,655)	\$ (23,081)
Subtotal	\$ -	\$ -	\$ -	\$ (1,656)	\$ (3,378)	\$ (5,168)	\$ (7,029)	\$ (8,962)	\$ (22,395)	\$ (22,843)	\$ (71,431)
Change in capital program											
SWDA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EDA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Figure A-8: Low Growth Land Development Scenario

High Growth Scenario											
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Incremental Lease Revenue											
SWDA	\$ -	\$ -	\$ -	\$ 3,312	\$ 3,378	\$ 3,445	\$ 3,514	\$ 3,585	\$ 3,656	\$ 3,729	\$ 24,620
EDA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 11,426	\$ 11,655	\$ 23,081
Subtotal	\$ -	\$ -	\$ -	\$ 3,312	\$ 3,378	\$ 3,445	\$ 3,514	\$ 3,585	\$ 15,083	\$ 15,384	\$ 47,701
Change in capital program											
SWDA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EDA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Appendix B: Operating Projections

Details on the operating projections are provided below.

	10-Year Projection										
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Revenue (excluding Municipal Grants)	Budget										
Lease/Rentals	226,400	230,928	235,547	243,569	251,818	260,300	269,021	277,986	296,800	304,601	2,596,969
Fuel	12,000	12,240	12,485	12,734	12,989	13,249	13,514	13,784	14,060	14,341	131,397
Landing and parking fees	16,500	16,748	16,999	17,254	17,512	17,775	18,042	18,312	18,587	18,866	176,595
Interest	1,000	1,015	1,030	1,046	1,061	1,077	1,093	1,110	1,126	1,143	10,703
Events	8,000	8,120	8,242	8,365	8,491	8,618	8,748	8,879	9,012	9,147	85,622
Miscellaneous	12,200	12,444	12,693	12,947	13,206	13,470	13,739	14,014	14,294	14,580	133,587
Subtotal	276,100	281,495	286,995	295,915	305,078	314,490	324,157	334,085	353,880	362,678	3,134,872
Operating Expenses											
Salaries, wages & benefits	339,900	346,698	353,632	360,705	367,919	375,277	382,783	390,438	398,247	406,212	3,721,810
Operations	205,200	197,064	201,005	205,025	209,126	213,308	217,575	221,926	226,365	230,892	2,127,486
Repairs and maintenance											
Building and Property	26,200	26,724	27,258	27,804	28,360	28,927	29,505	30,096	30,697	31,311	286,883
Vehicles and Equipment	61,200	62,118	63,360	64,628	65,920	67,239	68,583	69,955	71,354	72,781	667,138
Subtotal	632,500	632,604	645,256	658,161	671,324	684,751	698,446	712,415	726,663	741,196	6,803,317
Net Operating Surplus/(Deficit) - before muni	(356,400)	(351,110)	(358,261)	(362,246)	(366,246)	(370,261)	(374,289)	(378,330)	(372,784)	(378,518)	(3,668,445)
Municipal Grants	356,400	351,110	358,261	362,246	366,246	370,261	374,289	378,330	372,784	378,518	3,668,445
Net Operating Surplus/(Deficit)	-	-	-	-	-	-	-	-	-	-	-

Appendix C: Capital Projection

Details of the Capital Plan are provided on the following pages.

	White cell	Tetra Tech Estimated Costs. Tetra Tech costs include a 10% design fee and a 25% contingency										
		Costs from 2014 Explorer Study										
		Taken from the NDA Capital Plan										
Costs are in 2016 Dollars												
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	
AIRFIELD ASSETS												
Runways												
	Runway 01-19 rehabilitation			\$55,000	\$681,000							
	Runway 11-29 rehabilitation				\$70,000	\$879,000	Note: this is only required if the runway continues to be used					
Taxiways												
	Taxiway D rehabilitation				\$7,000	\$93,000						
	Taxi access east of tower								\$40,000			
	Apron 1 asphalt rehabilitation					\$23,000	\$303,000		\$23,000	\$303,000		
	Allied Aviation Apron	\$26,000										
	East Apron				\$71,000							
	SCFC Apron								\$209,000			
	Taxi access old taxi C									\$62,000		
Crack Sealing												
			\$45,300				\$49,000				\$53,000	
GROUND SIDE ASSETS												
Terminal Building												
	Office furniture	\$14,000										
	Terminal entrance	\$92,000										
	Terminal and Office Furniture/garbage bin					\$87,000						
	Parking lot upgrade											
	AV System										\$27,000	
Maintenance Garage												
	Maintenance garage expansion (assume a 50% increase								\$60,000	\$750,000		
	Maintenance garage doors						\$18,000					
FEC Modifications												
	Emergency Power		\$550,000									
Access Road												
	Main Airport Road										\$275,000	
	Hangar Road (east and west)										\$307,000	

Electrical												
Overall electrical study for proposed development areas		\$40,000										
Exterior Lighting		\$4,600										
Sewer and Water												
Sewer and water study for future development							\$50,000					
Paintlines				\$103,000				\$112,000				
Mobile Equipment												
GMC Sierra Truck	\$57,000											
John Deere Sweeper	\$16,000											
John Deere Tractor	\$33,000											
Line Painter	\$10,000											
Boss Snow Plow	\$7,000											
Kubota Lawnmower			\$20,000									
Truck and Plow				\$110,000								
Plow 82					\$129,000							
Plow 83						\$132,000						
Chevy pickup Truck						\$20,000						
JCB Loader						\$56,000						
CFRI Decelerometer			\$7,000									
3-2-way radios				\$3,000								
DEVELOPMENT AREAS												
Southwest Development Area Construction (3 Phases)												
Topographic survey		\$20,000										
Area construction divided into phases			\$117,000	\$1,465,000								
East Development Area Construction												
Area construction								\$152,000	\$1,899,000			
Total Capital Investment	\$229,000	\$90,600	\$739,300	\$1,736,000	\$958,000	\$1,290,000	\$420,000	\$264,000	\$2,231,000	\$1,115,000	\$662,000	
NOTE: costs rounded to the nearest thousand												
										Total First 10 Years	\$9,734,900	

Appendix D: Sensitivity Analysis

Scenario 1: Solar Panels											
a) Overview: Development of a solar panel field. This is already planned.											
b) Operating Impact (excluding capital financing).											
	Forecast										
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Base Case Scenario - Municipal Grant Required	356,400	351,110	358,261	362,246	366,246	370,261	374,289	378,330	372,784	378,518	3,668,445
Revenue											
Fee for solar field		45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	405,000
											-
Change in Revenue / Expenditures	-	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	405,000
Revised Municipal Grant Required	356,400	306,110	313,261	317,246	321,246	325,261	329,289	333,330	327,784	333,518	4,073,445
c) Capital Impact - none anticipated											
Scenario 2: Major Maintenance Site Development											
a) Overview: One major new tenant on greenfield land.											
b) Operating Impact (excluding capital financing)											
	Forecast										
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Base Case Scenario - Municipal Grant Required	356,400	351,110	358,261	362,246	366,246	370,261	374,289	378,330	372,784	378,518	3,668,445
Revenue											
Lease Rentals	-	-	-	-	-	-	-	-	-	120,000	120,000
Landing Fees	-	-	-	-	-	-	-	-	-	4,000	4,000
											-
Change in Revenue / Expenditures	-	-	-	-	-	-	-	-	-	124,000	124,000
Revised Municipal Grant Required	356,400	351,110	358,261	362,246	366,246	370,261	374,289	378,330	372,784	254,518	3,544,445
c) Capital Impact - none assumed											
Scenario 3: Loss of Key Tenant											
a) Overview: Loss of key activity centre											
b) Operating Impact (excluding capital financing)											
	Forecast										
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Base Case Scenario - Municipal Grant Required	356,400	351,110	358,261	362,246	366,246	370,261	374,289	378,330	372,784	378,518	3,668,445
Revenue											
Lease Rentals			(50,000)	(51,000)	(52,020)	(53,060)	(54,122)	(55,204)	(56,308)	(57,434)	(429,148)
											-
Change in Revenue / Expenditures	-	-	(50,000)	(51,000)	(52,020)	(53,060)	(54,122)	(55,204)	(56,308)	(57,434)	(429,148)
Revised Municipal Grant Required	356,400	351,110	408,261	413,246	418,266	423,321	428,411	433,534	429,092	435,952	4,097,593
c) Capital Impact - none assumed											



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Viability Assessment of Commercial Service at Niagara District Airport

PREPARED FOR
Niagara Region

PREPARED BY
InterVISTAS Consulting Inc.

May 2016

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Glossary of Terms

Airport Codes:

BUF: Buffalo Niagara International Airport
IAG: Niagara Falls International Airport (US)
YCM: St. Catharines/Niagara District Airport
YHM: John C. Munro Hamilton International Airport
YKF: Region of Waterloo International Airport
YOW: Ottawa Macdonald-Cartier International Airport
YTZ: Billy Bishop Toronto City Airport
YUL: Montreal Pierre Elliott Trudeau International Airport
YVR: Vancouver International Airport
YXU: London International Airport
YYC: Calgary International Airport
YYZ: Toronto Pearson International Airport

Other Terminology:

Code-share: An agreement between air carriers to allow passengers the ability to purchase multi-stop itineraries on more than one carrier, using the same carrier code. For instance, a code-share between Air Canada and Lufthansa allows a passenger the ability to purchase a single ticket from Air Canada with two segments and two air carriers: Edmonton to Vancouver on Air Canada, followed by Vancouver to Frankfurt on Lufthansa, all on the same carrier code.

Interline: An agreement between air carriers to allow a passenger the ability to fly a multi-stop itinerary on more than one air carrier without having to retrieve baggage at connecting airports. Interline agreements can be one-way only, and often differ from code-shares as interline tickets purchased will be on flights with differing carrier codes.

Local traffic: Passenger traffic that flows between two points and does not connect. For instance, on a service from YYZ (Toronto) to Vancouver (YVR) a passenger who originated in Toronto and is destined for Vancouver would be considered a local traffic passenger.

Connecting traffic: Traffic that will be connecting onward to another airport after stopping at a mid-point airport for a connecting flight. For instance, a passenger travelling YVR-YYZ-JFK will be a connecting passenger at YYZ.

Origin-destination (O/D) demand: Passenger demand estimated between two points, regardless of itinerary. For instance, a person travelling from Vancouver to New York may purchase an itinerary for YVR-YYC-YYZ-JFK, and will be counted as an O/D passenger for Vancouver-New York. This measure is used to estimate the number of passengers flowing from one city to another – using air travel – without regard to how they are getting there.

Enplaned-deplaned (E/D) passengers: Enplaned passengers are those passengers that board an aircraft at a given airport. Deplaned passengers are those that disembark an aircraft at a given airport. An airport will count the sum of the enplaned and deplaned passengers to measure total E/D traffic for a period.

1 Introduction

1.1 About InterVISTAS

InterVISTAS is a company of Royal HaskoningDHV, an independent, international project management, engineering, and consultancy service provider. Ranking globally in the top 10 of independently owned, non-listed companies and top 40 overall, Royal HaskoningDHV's 7,000-person staff provides services across the world from more than 100 offices in over 35 countries. It carries out more than 30,000 projects every year in aviation, planning, transport, infrastructure, water, maritime, industry, energy, mining, and buildings. As part of the Royal HaskoningDHV team, this alliance complements InterVISTAS' portfolio with services in infrastructure development, engineering, design, and program management in the aviation sector.

InterVISTAS has extensive experience in strategic airline route and fleet planning, great familiarity with the Canadian aviation landscape and globally recognized industry experts. Furthermore, InterVISTAS has extensive expertise in using a number of network analysis and planning tools and databases. InterVISTAS has worked with airlines and airports all around the world, including Air Canada and WestJet and nearly all major Canadian airports.

1.2 Project Background

Niagara District Airport (YCM) has no commercial service despite the region being a global tourism destination and home to a large primary catchment population. The lack of service is driven by YCM's close proximity to multiple competing airports in both Canada and the United States including Canada's busiest airport, Toronto Pearson (YYZ) as well as airports in Hamilton, ON (YHM), Buffalo, NY (BUF), and Niagara Falls, NY (IAG). The 5,000 foot runway at YCM also limits the scope of potential markets that could be served from the airport. Given the market's size and characteristics, commercial service may be viable, and attractive to certain carriers.

1.3 Project Objectives

The objective of this project is to first provide the Region of Niagara with background material on airline planning practices and current industry trends followed by an objective assessment of the commercial viability of scheduled airline service at YCM.

The study has been carried out based on the following components:

- Overview of route development and airline planning process
- Industry developments and market situation
- Assessment of current market demand in the region
- Assessment of potential airlines & routes
- Implications of commercial service for the community and airport
- Concluding remarks

2 The Route Development Process

2.1 The Path to Successful Air Service

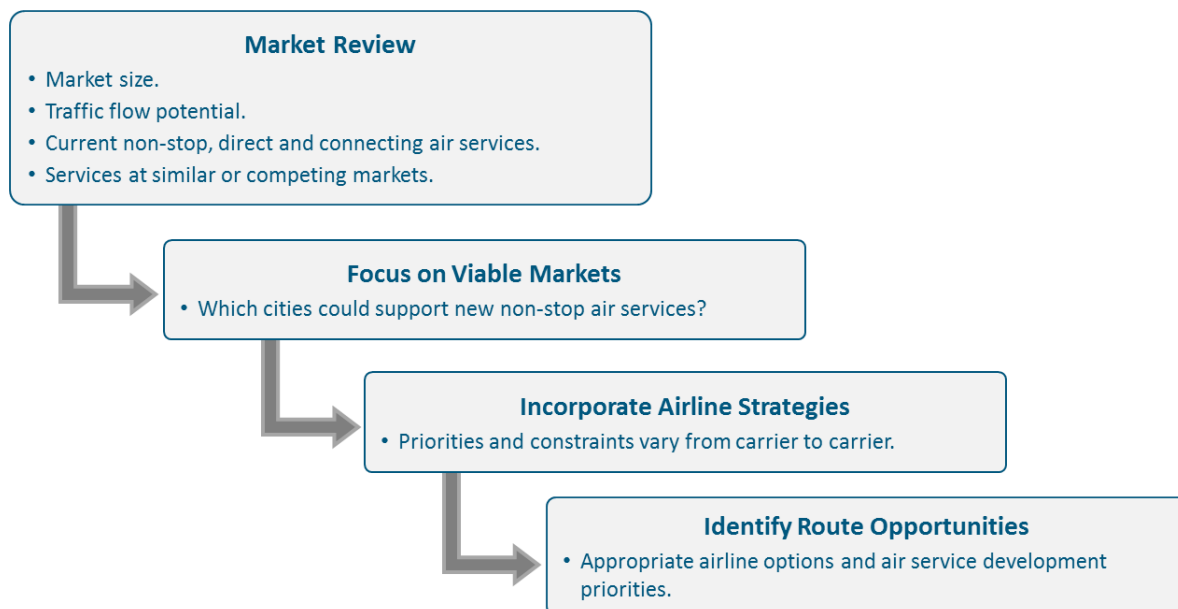
The route development process for an airport must be approached as a multi-step, long term process if it is to be successful. It has several key components, including:

- **Market Research:** Required to quantify the true market potential of the airport.
- **Route Development Strategy:** A high-level review and analysis of potential route opportunities, taking into consideration market sizes, competition, aircraft restrictions, etc. aims to understand the range of opportunities from an airline's perspective.
- **Detailed Route Analysis:** Helps to understand the expected viability of new flights, as well as any impacts on existing services.
- **Presenting the New Route Business Case:** The market's qualitative and quantitative strengths must be clearly communicated to prospective air carriers to generate interest.
- **Risk Sharing Options:** Utilizing incentives and fee reductions to entice airline participation at the airport through new routes or increased frequencies.

Route development efforts must take into account both market needs and airline objectives. Airlines in particular will assess whether business cases presented by airports will have taken an 'airline first' approach, and are seeing things from their perspective.

A typical route development strategy would be conducted as outlined in Figure 1 below.

Figure 1: Route Development Strategy



Cities and regions want easy access and price-competitive options for inbound visitors as well as for outbound residents. Airlines will only fly to an airport if they receive a positive and acceptable rate of return. However, airline business cases should also be tailored to the type of air carrier being approached, whether it is a network or low-cost carrier, a charter carrier, a Canadian airline or American. It is also worth noting that the presentation of a business case to an airline should coincide with their planning schedules. Airlines generally develop schedules for two seasons, summer and winter, with the planning process starting 12 months in advance of actual operations. For example, to pitch a new service that would launch in summer 2017, the discussions with the airline would need to begin in the summer of 2016. Decisions to launch service are usually made at least 6 months in advance of the launch date. As such, in our example of a potential service for summer 2017, the decision would need to be made by late fall 2016.

3 Airline Commercial Planning Process

3.1 Aligning Airline and Airport Objectives

When considering the correct route development strategy to apply, care must be taken to understand the audience. In the case of YCM, the likely airline audience will include Air Canada, WestJet, Porter and possibly others, but those are the main players in the Canadian regional market.

Route development is a marathon, not a sprint, and will determine how the airport develops over a period of years. It will also define how the airport is perceived by airlines. Route development initiatives may take varying amounts of time, from six months to several years.

Airlines operate within planning cycles, where schedules are finalized 6-12 months in advance of service. In general, and airline planning process looks something like this:



An airline will plan using measurable financial metrics. An aircraft is a mobile asset worth somewhere in the range of \$30-\$300 million. In order to be successful, airlines must generate a sufficient return on these investments. Financial return is driven by load factor (passenger volume) and yield (average fare). Airlines might accept a lower volume of passengers if they are able to charge higher fares on a segment – this is often the case for business travel. Conversely, if fares are low, airlines will require high load factors (a full or nearly full plane) in order to achieve the same results.

Since aircraft are relatively easy to re-deploy to other routes, airlines will generally add new markets based on expected financial performance, unless there is a strategic reason for an alternative route.

It is also worth noting that it is essential not to be discouraged if an airline is unable to fly a route that you have pitched. In our experience, it can take several planning cycles of continuous pitching before an airline is capable and willing to commit to a given route. It may be operational, such as a runway that is too short (as may be the case at YCM), or there could be interest but a lack of available aircraft in that season, for instance. In any case, it's important to approach airlines with their best interests in mind, and with a view to reducing airline risk as much as possible.

4 Industry Developments & Trends

There are a number of key developments and trends taking place in the Canadian and global aviation markets that have an impact on the potential for service at YCM.

4.1 Aircraft Technologies

4.1.1 Small Regional Aircraft

Smaller, propeller aircraft currently serving regional markets will undergo changes in the next 5 years. Currently, Air Canada and its regional partners operate a fleet of 26 Dash 8-300s, 34 Dash 8-100s and 17 Beechcraft 1900s.

Air Canada Express Fleet	Beechcraft 1900	Dash 8-100	Dash 8-300
No. in Fleet	17	34	26
Seat Capacity	18	37	50
Average age	18 years	28 years	26 years

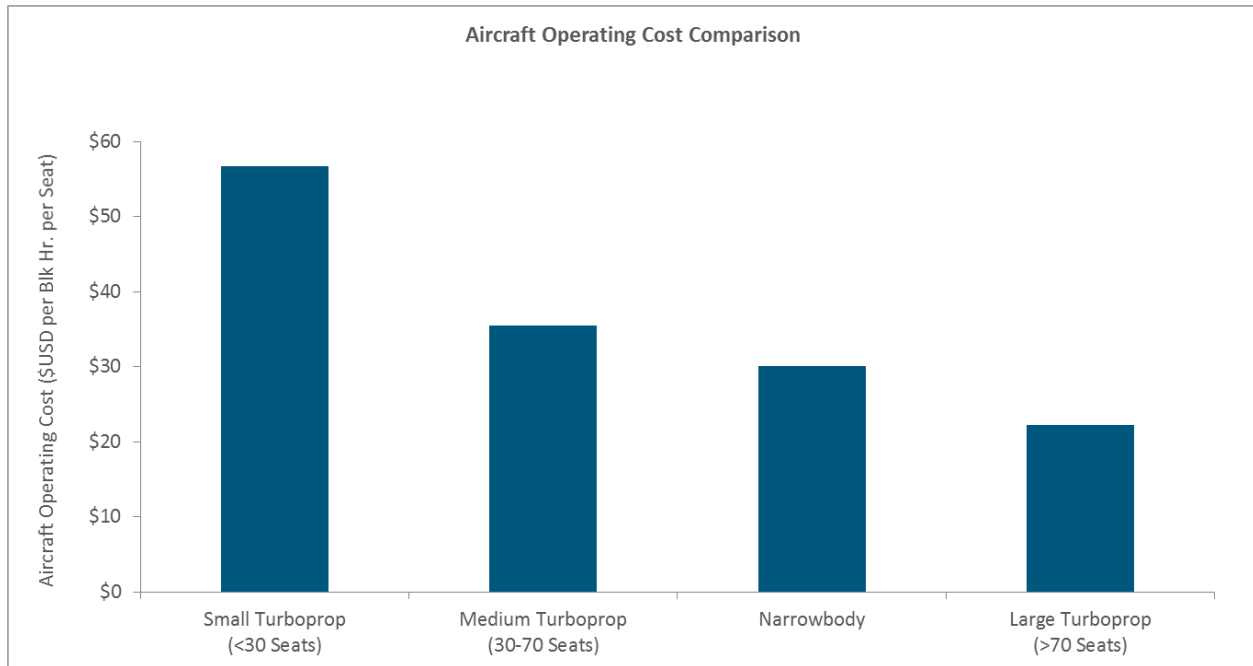
The Dash 8-100 aircraft have an average age of 28 years old and are nearing the end of their service life. As such, Air Canada is planning to retire 9 of these 37-seat aircraft in 2016, with the rest to be phased out within the next 5 years. Currently, Air Canada does not have any plans to replace these 37-seat aircraft with similarly sized aircraft; instead, the airline is opting to fly more of the larger 74-seat Bombardier Dash 8-400 (Q400) aircraft.

As Air Canada's regional fleet mix moves to larger aircraft, airports may experience route cancellations or a reduction of frequencies on regional markets. Going forward, it will be even more important to ensure that flights are timed in such a way to optimize connections. This will help ensure there is sufficient demand for these flights to maintain a profitable operation on larger regional aircraft. Similarly, the larger 50-seat Dash 8-300 variant has an average age of 26 years. These aircraft will also be phased out in the near term.

The average age of Air Canada's Beechcraft 1900 fleet is 18 years. While the Beechcraft 1900 aircraft are younger than the Dash 8-100/300 fleet, they are currently no longer in production and Air Canada has no current plans to replace them with a similarly sized aircraft.

The main reason for the elimination of these smaller aircraft is that they are not cost competitive with larger aircraft on a cost per seat basis. As shown in Figure 2 below, the cost per block hour per seat increase significantly as aircraft size falls below 60 seats.

Figure 2: Operating Costs by Aircraft Class



Source: Airline submitted via US Department of Transportation Form 41, Schedules P-5.1, P-5.2 and T-100 data.

WestJet's smallest aircraft is the Q400 (Dash 8-400), operated by WestJet Encore and configured at 78 seats. They have expressed no plans to operate smaller regional aircraft in the medium term.

In North America, there are very few 50-seat or smaller commercial aircraft that are still in production and suitable for replacement in the Air Canada fleet. The ATR-42 aircraft (42 seats) can be seen as a suitable replacement but the only Canadian operator of this aircraft is First Air (who primarily operates in Northern Canada). Currently, there are no plans for Air Canada or WestJet to obtain this aircraft.

Although it appears that Air Canada and its partners will eventually transition these smaller aircraft out of their fleets, there may be third tier regional carriers that decide to continue operating with these aircraft. As such it may be still possible to have service with smaller aircraft, but without the network of a major airline to provide connectivity the potential for these types of services is limited.

4.1.2 Large Regional Aircraft

The next generation of large regional aircraft will provide significant improvements in terms of economic performance and operational range. With capacity in the 100 to 150-seat range, these aircraft are smaller than narrow-body aircraft (e.g. Boeing 737 and Airbus A320). This will create an opportunity for new service on thinner longer routes.

One prominent example of improved regional jet technology is the Bombardier CSeries. With improved fuel efficiency and reduced maintenance costs, this aircraft is expected to provide a 15% cash operating cost advantage over competing in-production aircraft. Furthermore, due to cutting-edge technology, such

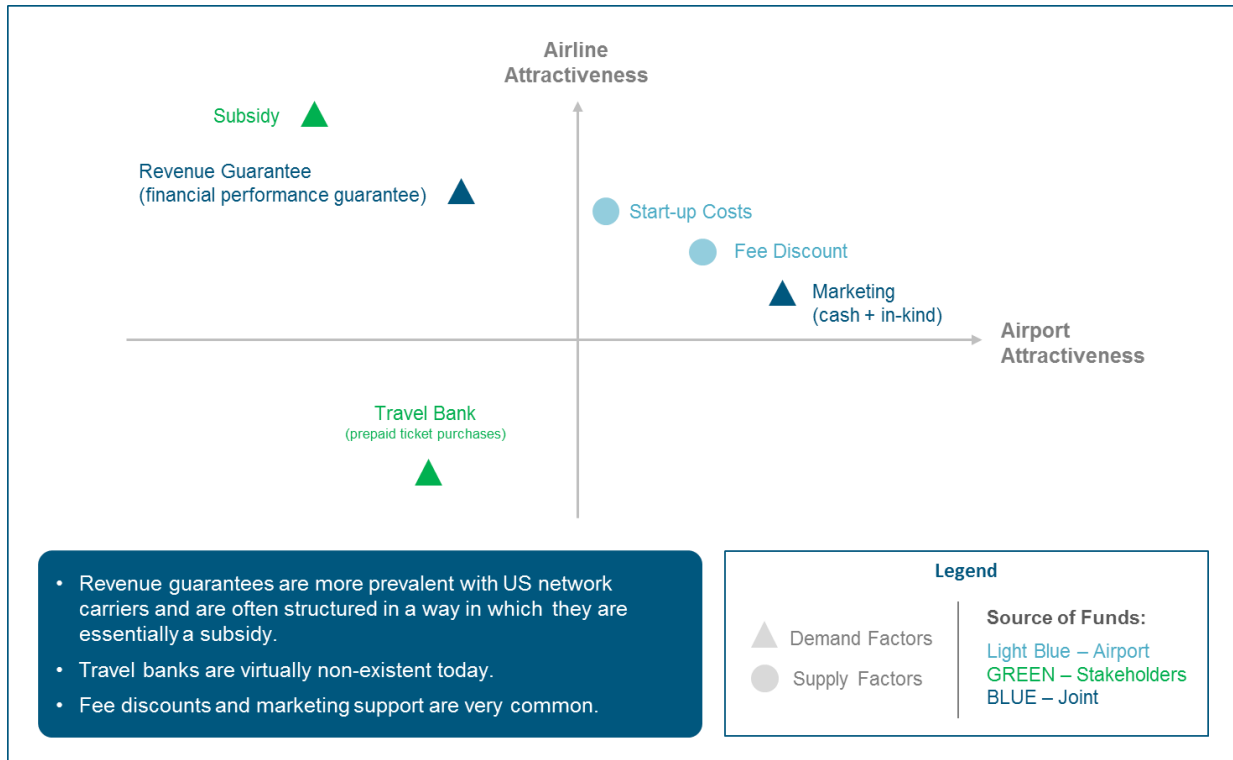
as the use of light-weight composite materials, the CSeries is expected to have excellent airfield performance with the ability to operate off short runways. Specifically, Bombardier indicates that CS300 will be capable of operating off a 5,000 foot runway. This is a significant improvement over current in-production regional jets such as the Embraer E190. With the improvement in operational capability, a YCM medium-range operation could be possible. Air Canada currently has 45 CSeries aircraft on order plus options for another 30 and they are expected to enter service in 2019. With the CSeries not yet in commercial service, it is important to note that runway requirements are based on manufacturers' estimates which tend to be optimistic for new aircraft.

4.2 Airport Incentives

As airlines face more and more pressure to decrease costs, incentives policies are growing in popularity and magnitude around the world. In today's difficult operating environment, airlines have become increasingly risk-averse. Many airlines now require risk-sharing incentives in order to commit to a new air service. Based on InterVISTAS experience, it is estimated that over 90% of all commercial airports in Canada offer incentives in one form or another.

Incentives have often been a source of concern for airport operators, but if used properly, incentives can be a sound investment. Airports should understand their risk before entering an incentive-sharing agreement. To begin, detailed route analysis helps determine if incentives are appropriate and what impact they may have on existing services. In terms of the specific structure of the incentives, it is important to recognize that different carriers want different types of incentives. The key is to ensure that the structure is both attractive to the airline and makes financial sense for the airport. Common incentive structures and their degree of attractiveness for the airlines and airport are outlined in Figure 3.

Figure 3: Types of Service Incentives



In terms of the sources of funding for incentive programs, community stakeholders (e.g. private entities, government, tourism entities etc.) are playing an increasingly important role. InterVISTAS estimates that on average about 40% of the incentive funding in Canada comes from non-airport sources.

Incentives are now a key part of attracting new service. Incentives need to be designed in a way that is both attractive to the airline and supportive of the airport's strategic objectives (e.g. financial, route development, etc.). Increasing cases of non-airport funding sources are raising the bar for incentive packages. To remain competitive airports need to leverage support from their community partners.

In terms of the dollar amounts provided as incentives, it is important to understand that the cost of operating an air services route is usually in the tens of millions of dollars. As such, incentive packages generally have to be quite large in absolute terms to have a meaningful impact for the target airline. A publically available example of this is the Region of Waterloo International Airport commitment to provide American Airlines with up to \$1.4 million (this included \$150,000 from local businesses).

4.3 Social Factors

4.3.1 Terrorism

One of the main external social factors affecting the aviation industry is the growth of geopolitical instability and terrorism. The terrorist attacks in Brussels on the morning of March 22nd is a stern reminder that these threats not only apply to air carriers, but to all players in transportation, including airports, ground handlers, rail operators, and local metro systems. As such, local, regional and federal

transportation authorities will need to place additional attention and focus on enhancing the security measures already in place today. Specifically, security both inside and at the perimeter of airports will continue to be closely scrutinized to ensure a safe travel experience for the air traveller – from curbside to their departure gate.

Costs of airport security are increasing, and are a particular problem in Canada where not only are our fees higher than the US, the Canadian government makes a net profit from the air travellers security charge relative to the costs of operating CATSA, a point emphasized in the recent Emerson report on Canada's Transportation Act and policies. This, along with other high charges in Canada (border fees, rents, property taxes) contributes to slower growth by reduced competitiveness with US airports.

As such, security will continue to be a primary but ever-changing requirement for YCM to facilitate commercial service. Given that increased complexity may lead to higher fees this may be an impediment to growth at YCM and other airports in Canada.

4.3.2 Carbon Emissions

While Prime Minister Trudeau has committed to joining and signing the Paris Agreement for climate change action in April 2016, any efforts to develop a carbon pricing or cap-and-trade system is independent from the agreement. The Paris Agreement sets a number of long-term climate goals without stipulating what mechanisms are put in place to achieve them.

Even if a Canada-wide carbon pricing or cap-and-trade system was developed, aviation would likely be excluded. Instead, Canada (and the US) have committed to adopting the International Civil Aviation Organisation (ICAO) recommended market-based measure to reduce aviation emissions (i.e. avoid subjecting Canadian aviation emissions to both a Canadian and global scheme).

At the 38th ICAO Assembly that took place in October 2013, member states committed to adopting a global market-based measure (MBM) for international aviation emissions. The overall goal of the resolution is for ICAO and its member states with relevant organizations to work together in an attempt to achieve a medium-term goal of keeping the global net CO₂ emissions from international aviation from 2020 at the same level (i.e. carbon neutral growth from 2020).

A number of ICAO working groups and technical discussions (e.g. Committee on Aviation Environmental Protection [CAEP] and Global Aviation Dialogues [GLADs] on aviation MBM) have taken place and have been actively working since then to develop an appropriate model. ICAO has identified 3 possible market-based measures: 1) levies/taxes/charges; 2) emissions trading (cap-and-trade system); 3) a global compulsory offset scheme. It is expected that a proposed/recommended MBM design scheme will be presented at the 39th ICAO Assembly in fall 2016. Prime Minister Trudeau (along with President Obama) have committed to adopting the recommended measure. If adopted by a sufficient portion of ICAO membership, the aviation MBM is expected to be slated for implementation by 2020.

Reducing carbon emissions will be an increasing focus for airlines and airports in the coming years. New aircraft technology will greatly reduce carbon emissions per passenger but traffic growth will more than offset this advantage. In rough numbers, fully priced carbon at \$30 per tonne, is roughly equivalent to adding a second AIF to the ticket price, and will somewhat reduce growth.

4.4 Canada Transportation Act Review

On February 25, 2016, the Minister of Transport tabled the Canada Transportation Act (CTA) Review Report in Parliament. The Review was statutorily required; however, Minister Raitt accelerated the review in 2014, motivated by issues in the grain delivery system. The purpose of the Review was to conduct a long-term assessment of Canada's transportation system in order to identify priorities and potential actions that would support long-term economic growth. Numerous areas were assessed, including airport governance and airline access.

Regarding airport governance, the Report identifies a number of issues hindering the competitiveness of Canadian airports including federal government rents and taxes, ownership models, land leases and investment in infrastructure and facilities. Of these items, changes to airport ownership structures and investment levels will likely be of most relevance for the Niagara District Airport. Specifically, the Review recommends that in order for airports to be cost-competitive they require adequate levels of investment. This could result from increased government funding and/or private sector equity investment (i.e. privatization or partial-privatization of airports). Additional funding or improved access to capital could help Niagara District Airport finance the facility upgrades needed to accommodate commercial service in the short-term as well as longer-term infrastructure improvements such as a runway extension.

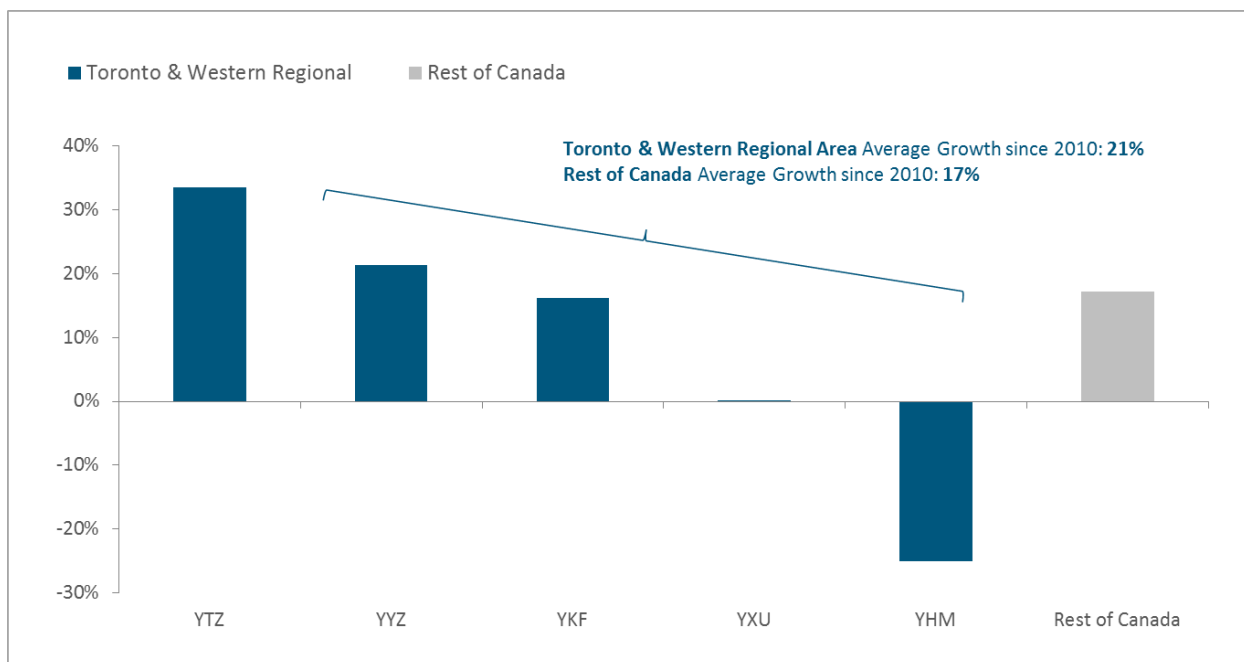
Based on the findings and recommendation of the Report, Minister Garneau is engaging in consultations with the various industry stakeholders. Then, based on feedback from industry stakeholders and the findings and recommendation from the Review, the Government of Canada will move forward with legislation and policy implementations as necessary.

5 Market Trends

5.1 Historical Growth of Demand

When assessing the market potential for new air services, airlines will often look at broad growth trends for the region to gauge potential for adding capacity. As such, if the Southern Ontario market as a whole is performing well and growing, airlines are going to be much more inclined to add new services. As shown in Figure 4, the growth rate for the Toronto and Western Toronto regional area has outpaced the rest of Canada over the past five years, and this is a promising indication of air service growth potential in the future.

Figure 4: Market Demand Growth: 2015 versus 2010



Note: YHM has experienced significant cuts from WestJet in the past few years.

Source: Sabre Global Demand Database

5.2 Southern Ontario Aviation Capacity Constraints

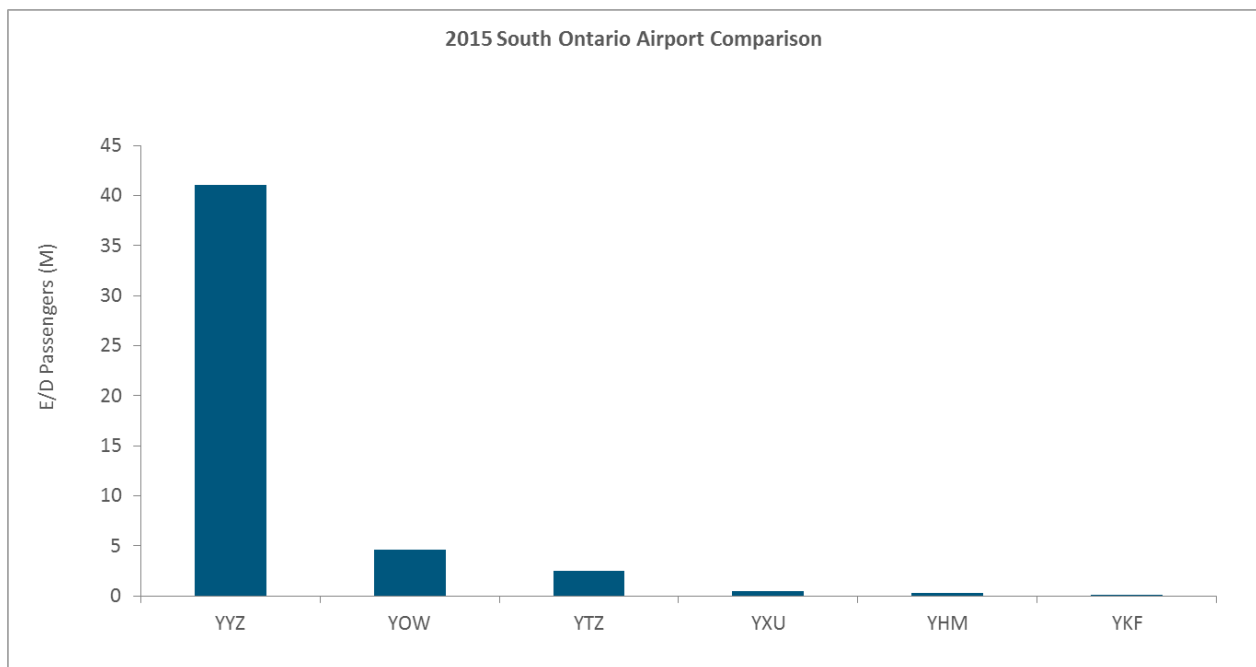
The Greater Toronto Airports Authority (GTAA) released a report in 2015 entitled “Toronto Pearson: Growth, Connectivity, Capacity, The Future of a Key Regional Asset” that was intended to foster a discussion on the future of aviation capacity in southern Ontario. Not since the late-1990s has there been a comprehensive examination of the future of the busiest aviation region in the country. The key driver for the report was the growing capacity constraints at Toronto Pearson, and the ability to meet growing demand. In particular, the role of Toronto Pearson to act as a hub for major carriers such as Air Canada and WestJet could be encumbered.

Although some of the discussion will invariably touch on issues such as the Pickering site, as well as the rapid growth of Billy Bishop Toronto City Airport, there are roles for other regional airports, and it will be important to co-ordinate planning amongst the region's airports. The future potential for road network congestion west of Toronto Pearson (along the QEW/401 corridors) also further complicates access to consumers demanding air travel in the Golden Horseshoe region.

For passenger air services, the primary beneficiaries are expected to be facilities such as Hamilton John C. Munro International Airport (YHM) and the Region of Waterloo International Airport (YKF) – subject to improvements in ground access as outlined in reports authored by Urban Strategies for the GTAA. Diversion of flights from Toronto Pearson to a “reliever” airport is likely to be lower margin traffic such as air charters or smaller aircraft.

As seen in the Figure 5 chart below, Toronto Pearson is the dominant airport in the region, and will eventually reach maximum capacity.

Figure 5: Comparison of Southern Ontario Airports



Source: Airport reporting.

6 Market Benchmarking

6.1 Competitive Environment

In assessing the viability of a new market, airlines will typically start by analyzing some simple benchmarking metrics that provide an initial indication of prospective market size and competitive environment. These will typically include looking at population, average income levels and distance to competing airports.

Situated in close proximity to Canada's busiest airport and multiple competing airports on both sides of the nearby Canada-United States border, YCM faces similar dynamics to a number of other secondary airports in Southern Ontario. Benchmarking against these markets can help determine the opportunity for YCM.

Population and Income

When we benchmark the Niagara Region against other centres in Southern Ontario with existing air service, the population clearly demonstrates market potential. Median household income is slightly below the regional and national averages; however Niagara has a distinct advantage over its peers as a major tourism destination. This inbound tourism demand should more than offset any impact that average income levels may have on outbound demand.

Proximity to Competing Airports

Short distances and travel times between competing airports will affect both an airline's decision to serve YCM, and if so, the type of service offered. In particular, carriers will consider the travel time to the hub airport in Toronto, to any other nearby competing airport (Hamilton) as well as travel time to competing cross-border airports (Niagara Falls and Buffalo, NY). The presence of commercial service at other secondary Southern Ontario airports demonstrates that markets of a comparable size have been able to attract and support local service, both linking into Toronto, other hubs and through point-to-point service.

In the case of a spoke service to Toronto, with driving distances of as little as one hour, the potential to attract local traffic is limited. As a result, the viability of such a service will depend primarily on connecting traffic. While YCM is closer to Toronto than any market currently served, this should not immediately preclude Toronto service from consideration. While slightly further, London-Toronto (Dash 8-300 – 50 seats/Q400 – 74 & 78 seats) and Kingston-Toronto (Beech 1900 – 18 seats/Dash 8-100 – 37 seats) are examples of markets operated almost exclusively for their connecting traffic contributions. Services can be viable with very low local traffic volumes where connecting flows are strong at the hub airport.

In the case of point-to-point service, the fact that both Kitchener and Hamilton, situated closer to Toronto, have been able to attract regularly scheduled service outside the region is encouraging. However, Hamilton also draws traffic from the Niagara Region adding an additional layer of competition. On the transborder front, Niagara's close proximity to airports in Western New York makes the prospects of attracting US service challenging. Airports in Hamilton, London and Windsor have historically struggled attracting and sustaining transborder service due to yield pressures from cross border competition.

Figure 6 summarizes the key metrics that would be utilized by airline planners when undertaking an initial benchmarking assessment of the opportunity for service at YCM.

Figure 6: Summary of Benchmarking Assessment Metrics

Market	Population (2015 Est.)	Household Income	Inbound Tourism	Proximity to Competing Airports			Current Air Service			2015 Air Service Capacity	
				Toronto	United States	Toronto	Other Domestic	Transborder	Annual Seats (Departing)	Seats per Capita	
Niagara	408,200	69,500	High	1 hr	< 1 hr	X	X	X	-	-	-
Hamilton	771,700	82,290	Low	< 1 hr	< 1 hr	X	✓	✓	216,176	0.3	
Kitchener-Waterloo	511,300	82,160	Low	< 1 hr	2 hrs	X	✓	✓	90,716	0.2	
London	506,400	75,980	Low	2 hrs	2 hrs	✓	✓	✓	333,107	0.7	
Windsor	335,800	73,440	Low	4 hrs	< 1 hr	✓	✓	✓	213,626	0.6	
Kingston	169,900	82,950	Low	3 hrs	2 hrs	✓	X	X	46,626	0.3	
Samia	129,500	69,079	Low	3 hrs	1 hr	✓	X	X	21,548	0.2	
Average (excluding Niagara)										0.4	

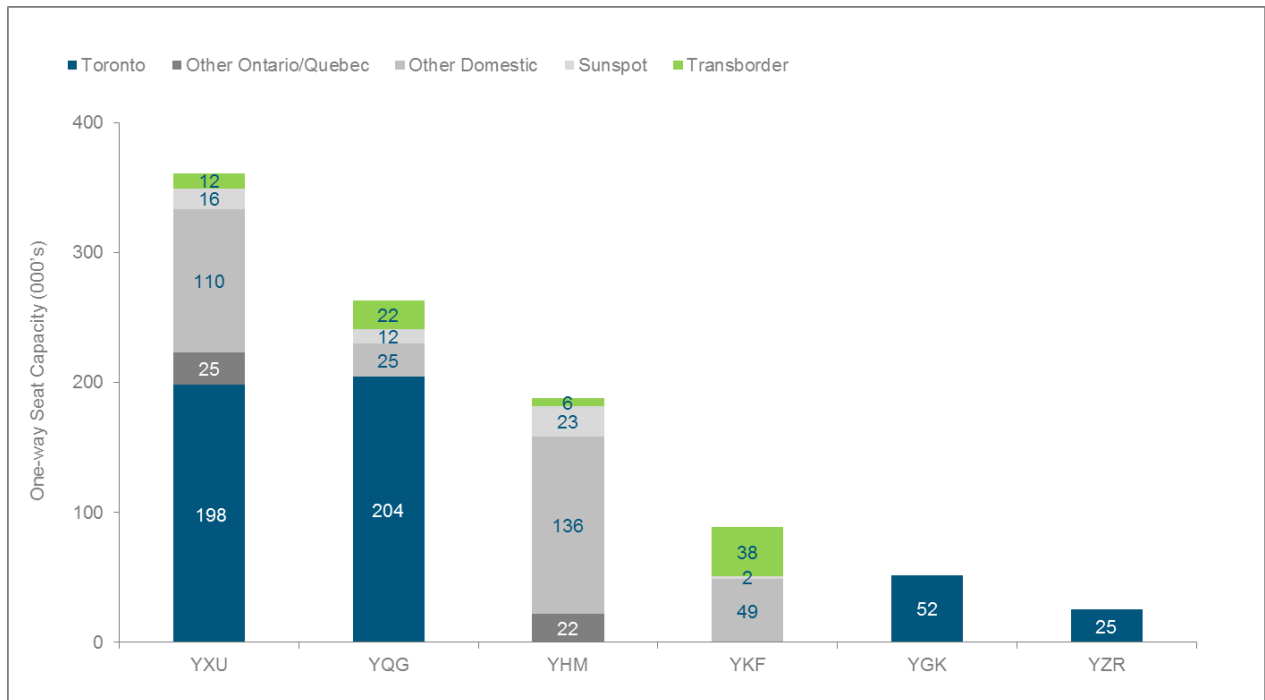
*Population figures based on Statistics Canada 2015 estimates by CMA, income is based on 2013 Statistics Canada data.

*Capacity data sourced using Innovata Schedules via Dlio.

Note: Statistics Canada CMA regions designate Grimsby to the Hamilton area, rather than to Niagara, resulting in the difference in population between the 408,200 shown here versus the 431,346 referenced later in the report.

The majority of seat capacity at smaller airports in the Ontario region is geared towards domestic hub connectivity. As seen below, the region's airports connect primarily to Toronto, Ontario and Quebec, while transborder service is relatively minor.

Figure 7: Seat Capacity by Type of Service (2016)

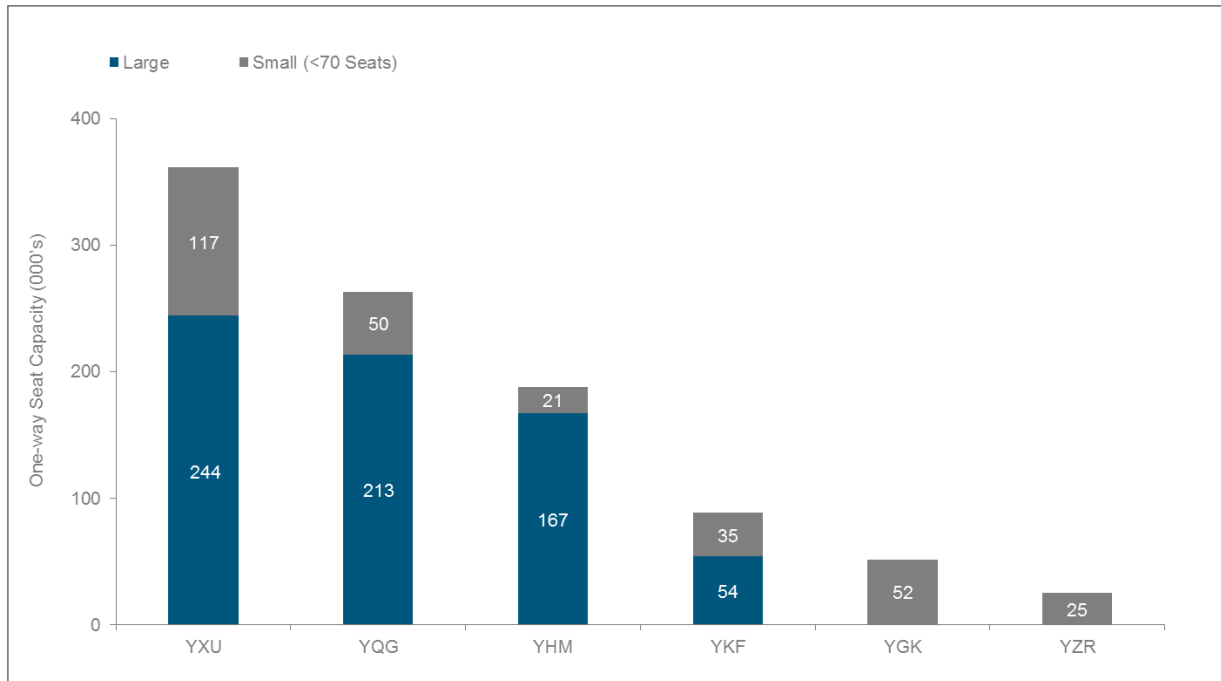


Note: Toronto defined as YYZ and YTZ.

Source: Innovata Schedules via Diio.

With the exception of the very small stations, seat capacity is primarily on larger sized aircraft today. As airlines shift into larger gauges, smaller aircraft (<70 seats) are decreasing significantly.

Figure 8: Seat Capacity by Aircraft Size (2016)



Source: Innovata Schedules via Diio.

Conclusions

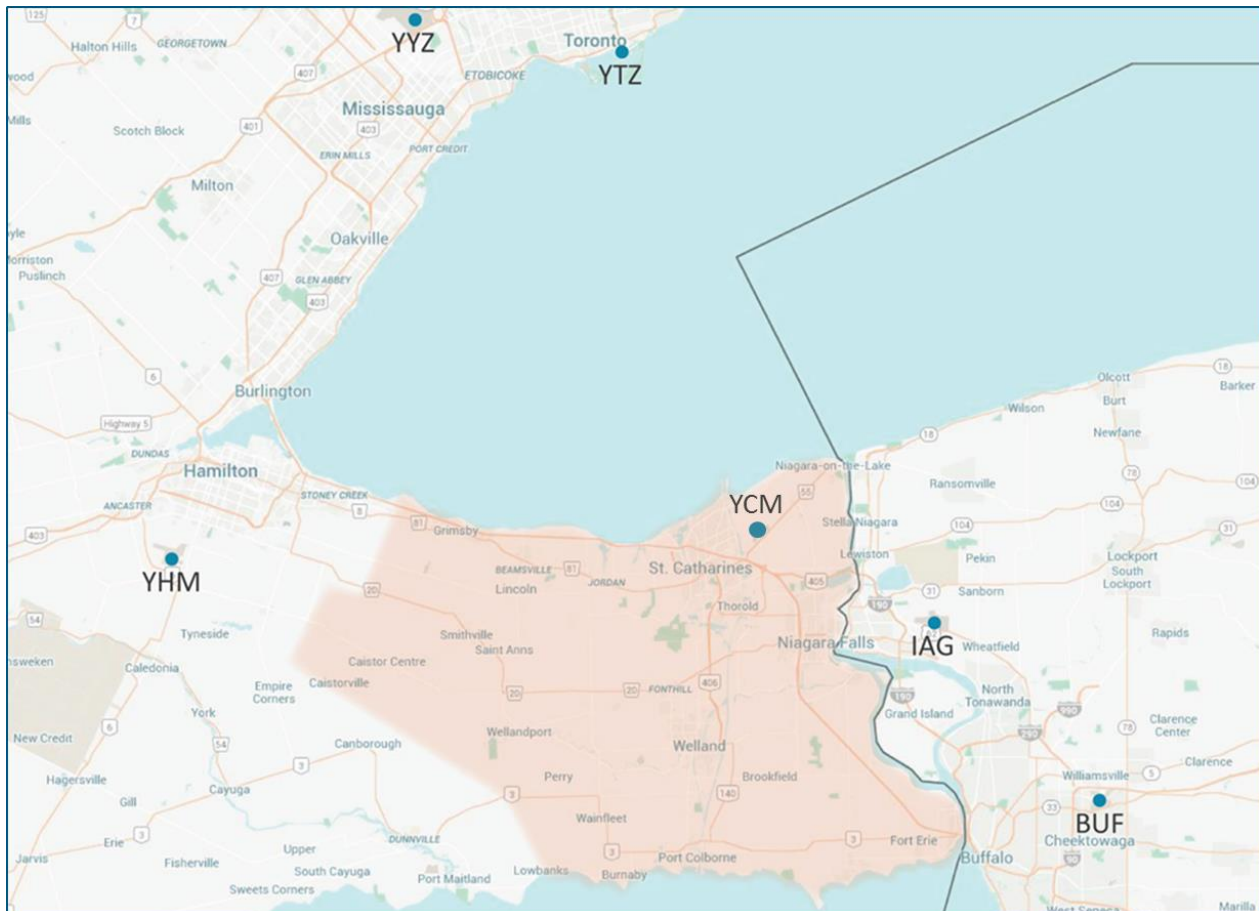
Service levels at secondary Southern Ontario airports are a function of both local market conditions and geographic proximity to competing airports. Benchmarking against markets with existing service demonstrates the Niagara Region has the potential to support commercial service. Using a conservative approach, assuming Niagara could attract only the lowest observed departing seats per capita level in the region, we can estimate the Niagara Region should be able to support just over 80,000 departing seats per year, equating to roughly three Q400 (74-78 seat aircraft) departures daily. With general market potential established, we proceed to establish a more precise estimate of air travel demand for the airport.

7 Market Demand

7.1 Defining the Catchment Area

To determine the appropriate catchment area, InterVISTAS analyzed three key metrics: drive time, airport usage pattern and air service capacity in the region. Analysis reveals that the primary catchment area for Niagara District Airport (YCM) retains the same geographic converge as the Regional Municipality of Niagara. As such, the primary catchment area contains the cities of Niagara Falls, Port Colborne, St. Catharines, Thorold, Welland, Fort Erie, Grimsby, Lincoln, Niagara-on-the-Lake, Pelham, Wainfleet, and West Lincoln. In aggregate, a population of 430,000 (2011 estimate) lives in the primary catchment area.

Figure 9: Niagara Region Primary Catchment Area



7.2 Terminology and Definitions

O/D traffic or origin and destination traffic is the industry standard for measuring air service demand. O/D traffic measures the number of passengers either starting or ending their journey at the intended airport or city. To accomplish this, ticketing data is examined at an itinerary level instead of on a flight or segment level. For example, consider two passengers travelling from Toronto to Vancouver – one takes a nonstop flight and the other connects over Calgary. Both passengers would be counted as Toronto-Vancouver O/D passengers.

7.3 Results of Demand Estimation

Since YCM does not currently have any commercial air service, potential demand from the region is estimated through an assessment of market leakage which is an examination of existing demand to/from areas where YCM is the closest airport, but in the absence of local air service, passengers are using other airports, such as YYZ. When considering the demand estimates, it is important to remember that these figures represent the full potential that is available (i.e. the market size). The share of the demand that could be captured by a new service will be dependent on the type of new service being offered relative to the services being offered by the incumbent airlines. As such, the demand figures presented in this section should not be interpreted as an estimate of the traffic levels for a new service. To arrive at the forecast performance of a new service the market demand (i.e. market size) figures must be combined with market share estimates. Market share estimation and the forecast performance of potential new services is addressed in the “Route Forecasts” section of this report.

In addition to drawing traffic from the immediate St. Catharine’s area, YCM has the potential to draw traffic from the entire Niagara peninsula region (See Figure 9) – an area with an estimated population base of 431,346 (2011 estimate). Depending on the competitiveness of the new air service, YCM may capture additional reverse leakage, which is defined as demand that originates from outside the primary catchment area. One example is a Buffalo resident using YCM to fly to Ottawa if a new nonstop service is available. To be conservative and realistic with our assessment, demand potential has been limited to the primary catchment area only. Another example is the significant amount of traffic that is driving from the Toronto area to Buffalo and Niagara Falls airports in the US. Although these passengers would be driving, right past the Niagara District Airport, it is unlikely that any of this traffic could be captured. These passengers are travelling to US airports to access low cost service to Florida and such service could not be provided from Niagara District Airport as the runway is not long enough to accommodate the necessary aircraft. As such, this traffic has not been considered as a potential source of demand.

A multi-step process is followed to establish market leakage. The first step is to estimate the traffic by origin-destination for each of the study airports. The origin-destination market sizes are estimated using GDS booking data and IATA BSP ticket data for scheduled carriers, and an estimate of passenger load factors applied against direct seat capacity for charter operators or other carriers that do not primarily distribute through the GDS. Estimates are determined by balancing airport enplaned and deplaned passengers by sector (and carrier where the information is available) to the booking and ticketing data, with additional refinement using customs entry data and Canadian resident visits abroad as reported by Statistics Canada.

The second step is to evaluate the share of traffic from each of the study airports. Point-of-sale postal code for the GDS sales is used as a proxy for the passenger’s true point of origin. For example, if the

passenger purchased a Toronto – Montreal ticket from a travel agency in Welland, we assume the demand originates from the Niagara primary catchment area.

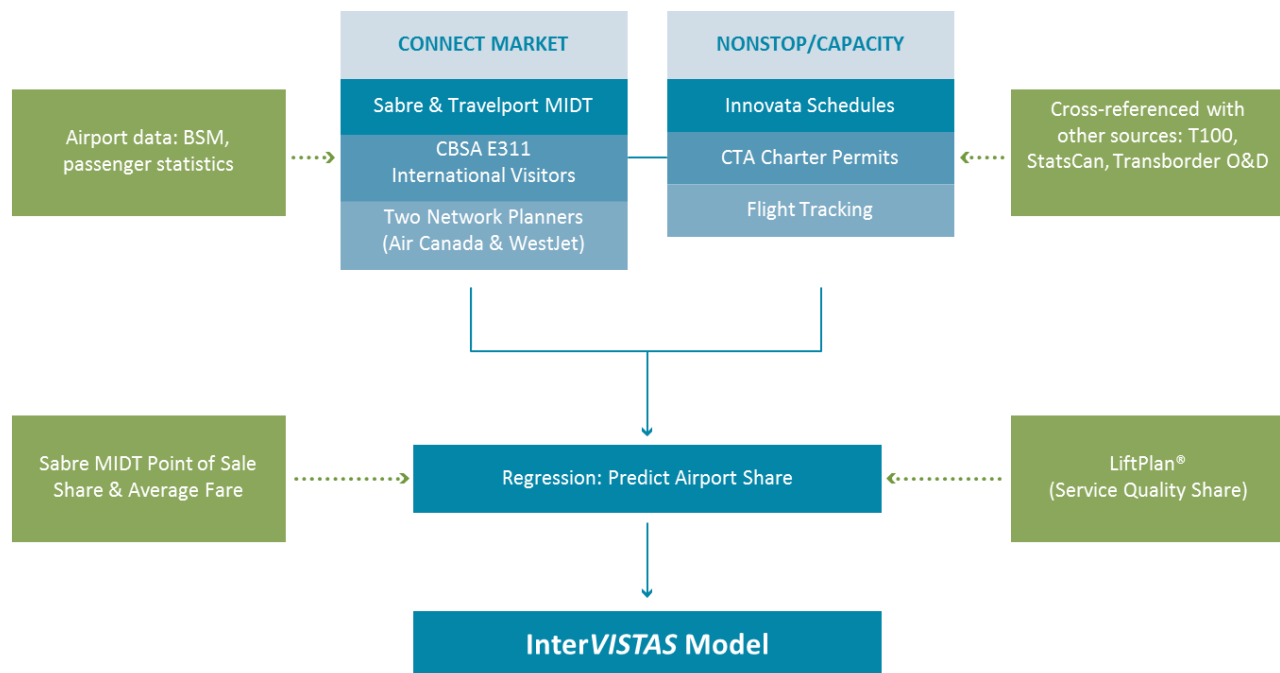
GDS point-of-sale data is, however, insufficient to model all destinations. After cleaning the data for online travel agencies and centralized corporate travel offices that misrepresent the passenger's location, the remaining sample is less than 5% of the total bookings for smaller markets and, as previously noted, does not address charters and many LCC services. This challenge is faced in almost all leakage studies. To address the issue, InterVISTAS have developed a methodology to model the passengers' airport choice behaviour which we can then use to estimate airport market shares. The model regresses the point-of-sale share versus the quality of service and average fare, by destination, for each of the competing airports. Quality of service share is estimated using the LiftPlan market share model while average fares are provided by the Sabre Global Demand database.

The output of the model is an airport attractiveness coefficient for each competing airport from each catchment area. The attractiveness coefficient primarily reflects the relative convenience of ground transportation. The coefficient can be applied to the quality of service share and fare differential to estimate the share of each airport's traffic coming from the relevant catchment area.

The final step is to blend the results with an evaluation of demographic data for the catchment areas, versus all of Southern Ontario, to make sure the estimates are not inconsistent with reasonable travel propensities. In doing so, a number of demographic factors are considering including population and income level, major industries and their corporate affinities.

The chart in Figure 10 provides a summary of the process flow used to develop the market share model.

Figure 10: Market Share Analysis Model



The passenger leakage is divided into two parts, residents of the region and visitors to the region. Given the lack of services at YCM, the airport inevitably sees all of its traffic potential leaking to competing airports. Point-of-sale data from the GDS helps to quantify the amount of residents leaking to other regional airports by analyzing their postal code associated with the ticket purchase. On the other hand, inbound leakage or leakage of visitors to the region requires a combined analysis of inbound tickets, previous quantitative study conducted about the demographics of visitors to Niagara and an assessment of the drive-to-fly ratios for regions in close proximity. A new commercial service would reduce this leakage of traffic and would help support further route development down the road.

In terms of the inbound share of traffic (85%), the high share is consistent with what we would expect for a market like Niagara with significant tourism demand. Furthermore, the propensity to travel figure of 5.0 (2.2 million annual passengers divided by the catchment population of 430,000) is well above the average for Canada of 3.3. This again is consistent with what we observe in markets with a large inbound tourism component.

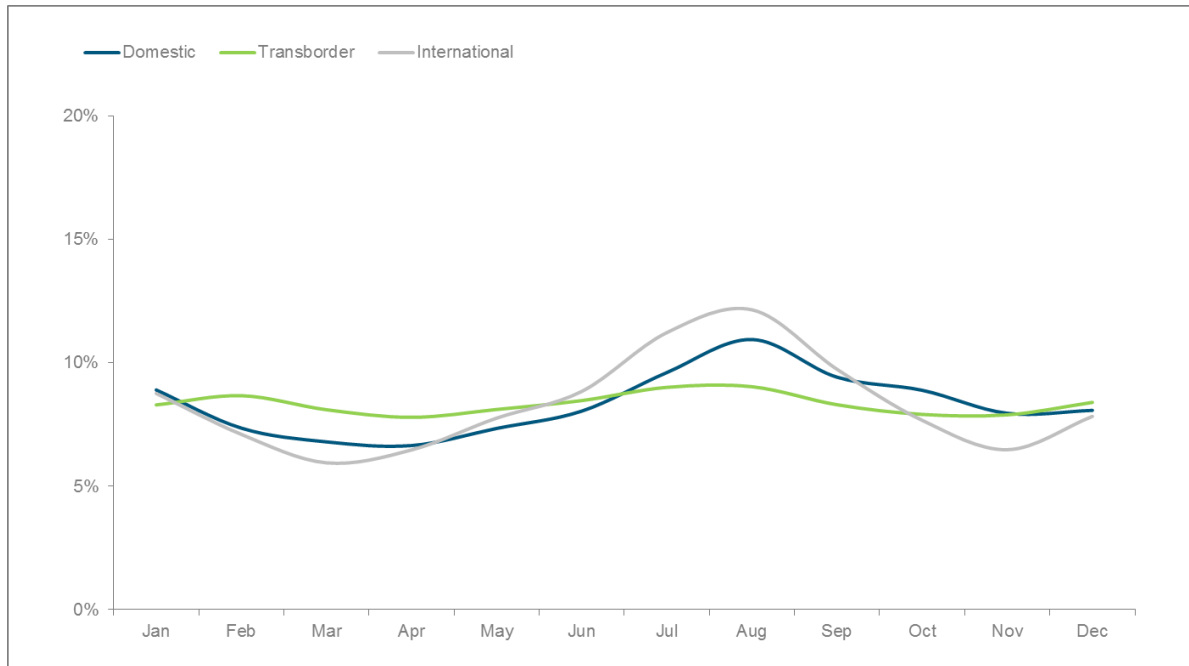
Figure 11: Top 25 O/D Markets for Niagara Region Primary Catchment Area

City	State / Country	Annual Passenger Volume	Passengers per Day Each Way (PDEW)	Inbound Visitor %	Outbound Resident %
New York	NY	148,143	203	80%	20%
Montreal	QC	123,472	169	88%	12%
Vancouver	BC	120,126	165	94%	6%
Calgary	AB	111,463	153	93%	7%
Edmonton	AB	67,728	93	92%	8%
Ottawa	ON	66,139	91	88%	12%
Winnipeg	MB	53,971	74	95%	5%
Halifax	NS	45,310	62	88%	12%
London	GB	44,832	61	91%	9%
Los Angeles	CA	39,330	54	93%	7%
Chicago	IL	38,108	52	78%	22%
Fort Lauderdale	FL	35,135	48	65%	35%
San Francisco	CA	30,151	41	92%	8%
Boston	MA	28,159	39	88%	12%
Orlando	FL	27,946	38	56%	44%
Thunder Bay	ON	26,607	36	85%	15%
Beijing	CN	23,765	33	98%	2%
St John s	NL	23,367	32	88%	12%
Hong Kong	HK	22,545	31	99%	1%
Washington	DC	22,052	30	81%	19%
Tampa	FL	21,213	29	65%	35%
Quebec	QC	20,170	28	80%	20%
Shanghai	CN	20,119	28	96%	4%
Miami	FL	17,368	24	88%	12%
Saskatoon	SK	16,774	23	97%	3%
Other		968,721	1,327	81%	19%
Total		2,162,716	2,963	85%	15%

Note: All 'Other' are markets that have less demand than Saskatoon, but collectively are significant.

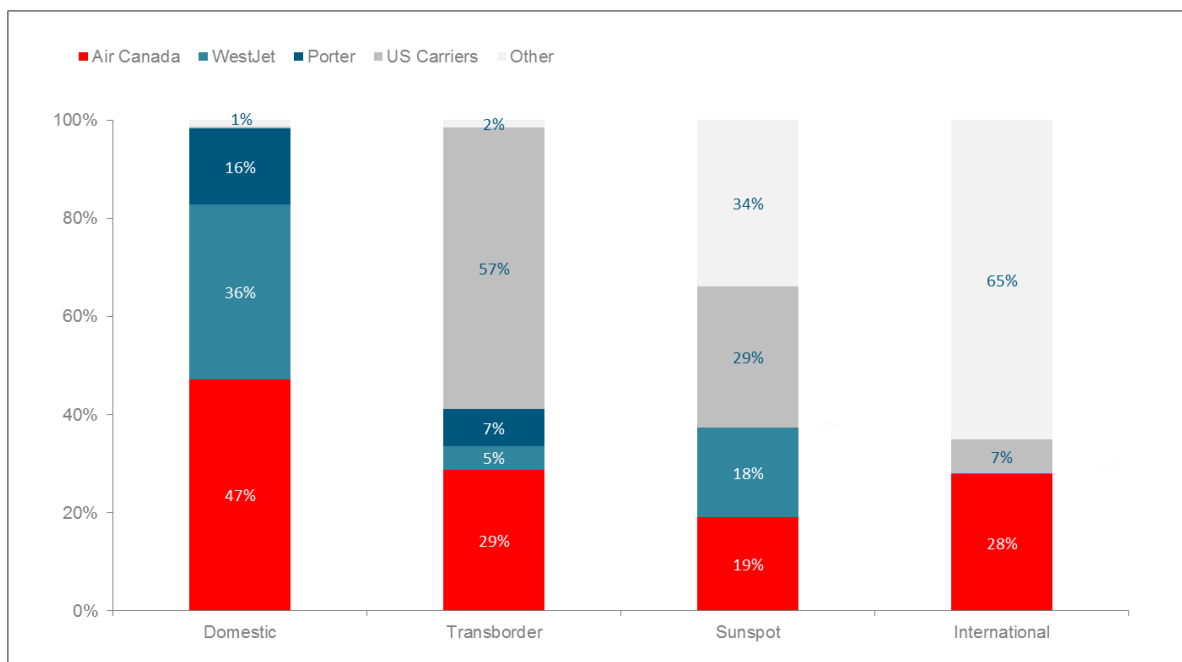
Canadian and northern markets in general have a seasonality profile that tends to peak in the summer months, but there is also distinctive sunspot demand in the winter. Winter is also often buoyed by the winter holiday season and it is not unusual to see increases in passenger activity from December to February.

Figure 12: Seasonality by Sector (as % of Annual Demand) for Niagara Catchment



Air carriers have varying shares in the region depending on the market in which they operate. While Air Canada, WestJet and Porter are dominant in the domestic space, international and US carriers also play a key role in the region.

Figure 13: Carrier Share of Market Demand for Catchment Area Airports by Market (2015)



Total market demand is currently being routed primarily through YYZ.

Some of the potential traffic that YCM could be capturing is also leaking to BUF as seen below. Of note, the largest market, New York, sees only 4% of demand leaking to BUF. This reflects the highly competitive nature of the Toronto - New York market where low fares and high frequency limit cross-border leakage.

Figure 14: Leakage by Airport (as % of Total Demand)

City	State / Country	Niagara Region Demand Airport Usage (as % of Total Demand)				
		BUF	IAG	YHM	YTZ	YYZ
New York	NY	4%	0%	0%	2%	94%
Montreal	QC	0%	0%	0%	2%	98%
Vancouver	BC	0%	0%	0%	0%	100%
Calgary	AB	0%	0%	3%	0%	97%
Edmonton	AB	0%	0%	2%	0%	98%
Ottawa	ON	0%	0%	0%	2%	98%
Winnipeg	MB	0%	0%	0%	0%	100%
Halifax	NS	0%	0%	1%	0%	99%
London	GB	7%	0%	0%	2%	91%
Los Angeles	CA	3%	0%	1%	0%	96%
Chicago	IL	18%	0%	0%	2%	81%
Fort Lauderdale	FL	12%	19%	0%	1%	67%
San Francisco	CA	4%	0%	2%	0%	94%
Boston	MA	9%	0%	0%	0%	91%
Orlando	FL	16%	22%	0%	1%	60%
Thunder Bay	ON	0%	0%	0%	2%	98%
Beijing	CN	18%	0%	0%	0%	82%
St John s	NL	0%	0%	0%	0%	100%
Hong Kong	HK	7%	0%	0%	0%	92%
Washington	DC	9%	0%	0%	6%	85%
Tampa	FL	8%	23%	0%	0%	68%
Quebec	QC	0%	0%	0%	1%	99%
Shanghai	CN	24%	0%	0%	0%	76%
Miami	FL	1%	0%	1%	1%	97%
Saskatoon	SK	0%	0%	0%	0%	100%
Other		11%	1%	1%	1%	86%
Total		7%	1%	1%	1%	90%

7.4 Market Stimulation

In the airline industry it is generally accepted that some level of market stimulation (i.e., market growth) will occur as a result of new air service. This acceptance is based on analysis of new route launches in various markets and the impact these have had on traffic levels. When new service is added it provides more options for travellers which, in turn, results in additional demand. Specifically, new services provide additional travel options, lower prices and increased market visibility, which in turn results in demand from passengers that would not have travelled before deciding to do so due to the improvement in air access. Additionally, it is important to note that stimulation does not occur only in the local market, but occurs in connecting markets where travel times and/or airfares are improved.

When it comes to the level of market stimulation, there are a number of market characteristics that are important to consider. Specifically, markets that have limited service generally tend to produce larger rates of stimulation when new service is added. Additionally, markets that have a higher proportion of inbound leisure travellers tend to experience higher rates of stimulation. This is because inbound leisure travellers have many options when choosing their vacation destinations and as such their decisions will be heavily based on the convenience of available air service and the airfares. In the case of YCM, it is

essentially a tourist destination behind YYZ that will become more visible for the leisure market as new services are introduced. On the other hand, outbound travellers are more likely to be accustomed to a lack of service and many will drive to Buffalo or Toronto to obtain their desired service, despite the lack of convenience and/or lower fares. That being said, there is still potential for outbound stimulation, as business travellers often make travel decisions based on the convenience of air services (less opportunity cost of being out of the office) and airfares.

In order to gauge the potential for stimulation at YCM, a number of recent examples were reviewed. As shown in the table below, history has demonstrated that new services usually result in significant market growth.

Figure 15: Examples of Stimulation in the Canadian Domestic Market

Route	Orig City	Dest City	Airline	Year Started	Average Weekly Outbound Frequency (at start)	Stimulation (change in demand after service start)	
						Incremental Demand (Per Day Each Way)	Stimulation (%)
YBRYC	Brandon	Calgary	WestJet	2013	7x weekly	41.8	∞
YCDYC	Nanaimo	Calgary	WestJet	2013	7x weekly	62.2	395%
YCLYH	Charlo	Halifax	Provincial	2012	3x weekly	4.3	∞
YLWYMM	Kelowna	Fort McMurray	WestJet	2014	7x weekly	38.2	194%
YLWYXC	Kelowna	Cranbrook	Pacific Coastal	2013	6x weekly	11.3	754%
YQFYC	Red Deer	Calgary	Air Canada	2013	20x weekly	24.0	∞
YXJYC	Fort St. John	Calgary	WestJet	2013	7x weekly	50.9	280%
YXSYC	Prince George	Calgary	CMA/WestJet	2013	6x weekly	57.2	439%
Average						36.2	413%

∞ denotes routes with no pre-existing market demand.

Source: Innovata Schedules via Diio.

Note: Stimulation and incremental demand represent observed demand the year after new service enters the market versus the year before start of the service.

In addition to direct stimulation that results from improvement in service there is also a broader type of market stimulation that takes place through increased awareness for the tourism product. For example, using many online booking channels, a potential traveller may not be able to search for “Niagara, Ontario” or some variation of that. Rather they must be aware that Toronto or Hamilton are presently their best alternatives for accessing the Niagara Region. Conversely, with a direct service in the market, a potential traveller could just search “Niagara, Ontario” online and see flight itineraries that take them to/from YCM. This increased visibility often results in incremental tourism demand.

8 Strategic Assessment

8.1 Competitive Position

It is helpful to conduct a SWOT analysis to determine where the airport is positioned relative to its peers and examine how YCM will fit into the Niagara region's travel preferences. This will allow us to identify the type of traveller to target and narrow down which routes/airlines will be the most effective operating at YCM. A SWOT analysis also allows for some degree of situational awareness at a point in time, which can then be updated after a certain length of time to see how the airport has improved (or regressed), and what opportunities can be pursued in the future.

Figure 16: SWOT Analysis

Strengths	Weaknesses
- Large local population base - Strong levels of quantifiable demand - Global tourism destination - No direct competition from existing air service	- Multiple large, well established, competing airports in the region - Lack of existing terminal services/infrastructure to support commercial service (e.g. CATSA) 5,000 ft. runway restricts aircraft type and in turn range of markets that are servable
Opportunities	Threats
- Congestion at YYZ creating opportunity for "reliever" airports - Recapturing large existing demand that is leaking to other airports - Stimulate new travel demand with a local air service option - Convert existing drive/rail traffic	- Population conditioned to using alternative airports will continue to do so - Reduction in small aircraft availability - Improved road/rail linkage to YYZ - Dependence on regulatory approvals to facilitate commercial service - Major service expansion at YHM

Based on the SWOT assessment, it is apparent that the market fundamentals indicate that there is potential for commercial service at YCM. Specifically, a large population base combined with a strong tourism draw are core strengths that are attractive to airline planners. While the reduction of smaller aircraft availability does pose a threat to the development of air service at YCM, there are routes where the aggregate demand (local plus connecting) is sufficient to support larger equipment.

That being said, the key to the viability of any service at YCM will be its ability to provide additional value over competing options. The most likely way value will be created is through the improved convenience that will result from flying directly in and out of YCM. This improvement in convenience could be realized through a number of factors including, but not limited to, a simplified airport experience and reduced

uncertainty around road congestion and drive times. Another way value can be created is through lower fares; however, it is unlikely that carriers would price YCM service below that of competing airports in the area (if anything they will charge a premium in order to capitalize on the convenience aspect).

As such, any service proposed for YCM must have a demonstrable value proposition for travellers. Targeting a carrier with a strong brand and network will help with this aspect. If a service were to be initiated at YCM, it would certainly be advisable for the community to develop a comprehensive marketing program to ensure that the value proposition is clearly articulated in order to build awareness and persuade passengers to adapt their current travel patterns.

8.2 Operational Considerations

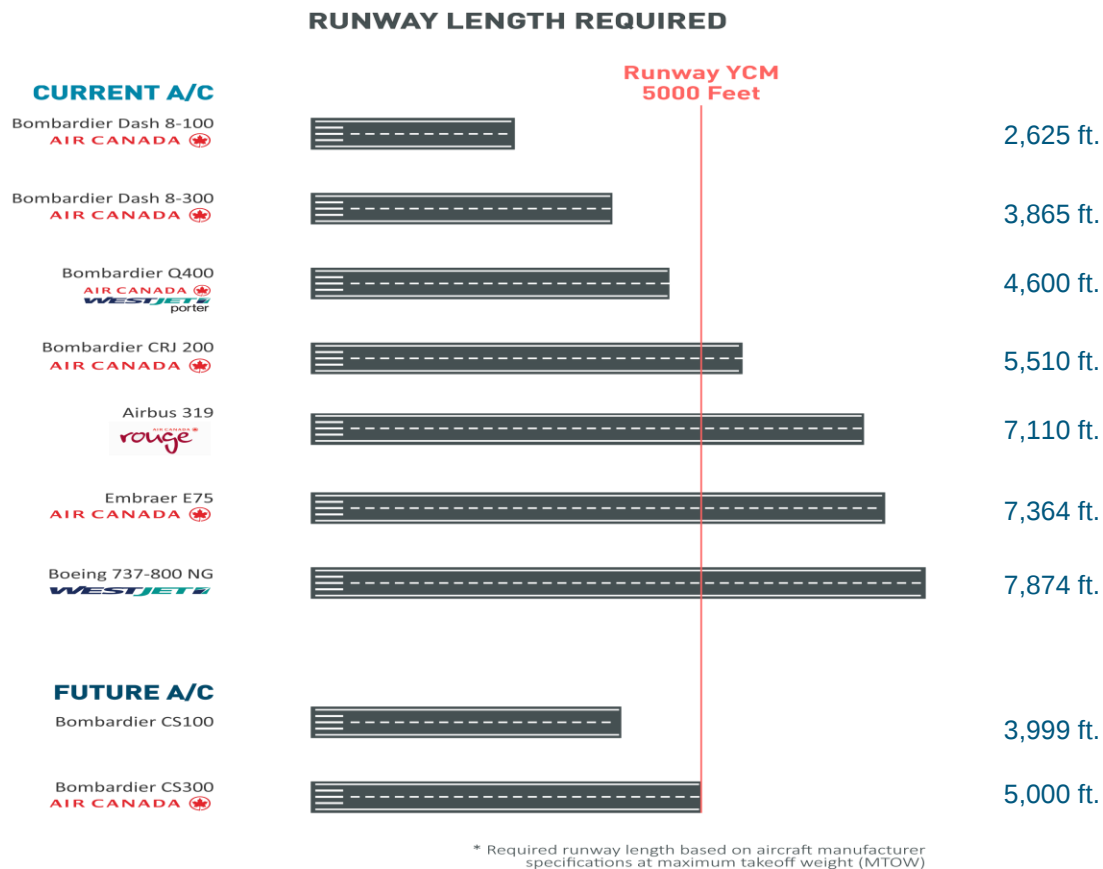
Runway Length

While various infrastructure considerations, both airfield and terminal, will impact a carrier's ability and desire to serve a market, adequate runway length is a critical initial parameter in assessing commercial service viability.

While the required runway length varies greatly between aircraft types, it is also impacted by a variety of operational and environmental factors. These factors include payload (passengers, bags and fuel), weather conditions (temperature, winds, ceiling, rain/snow contamination), navigational aids (lighting, instrumental landing system), obstacles (terrain, constructed obstacles near airfield) and operator specific policies (carrier requirements that exceed manufacturer specifications).

Acknowledging the above factors will impact actual requirements on a case-by-case basis, using manufacturer specifications for required runway length at maximum takeoff weight (MTOW), we can develop a fairly clear, conservative picture of which aircraft would be able to serve YCM reliably.

Figure 17: Runway Length Requirements for Specific Aircraft



Range Limitations

As the above graph illustrates, with a 5,000 foot runway, YCM is presently limited to pursuing regional turboprop service. Air Canada, Porter and WestJet all possess aircraft suited to operating at YCM. However, regional fleets at US carriers are almost exclusively composed of regional jets, making them unable to serve YCM. Air Canada has greater capacity flexibility, with the smaller Dash 8-100 (37-seat) and Dash 8-300 (50-seat) in their fleet in addition to the larger Q400 (74-seat). However, as previously discussed, with the Dash 8-100/300 reaching the end of their service life, Air Canada has plans to phase them out in the coming years. Therefore, we have assumed their growing fleet of modern Q400s as the most probable aircraft for future route expansion at regional airports.

The Q400 also provides the best range capability in the turboprop market and is therefore used to illustrate the maximum range circle for non-stop service from YCM. While the aircraft can fly further with reduced payload, we have modelled the maximum range from YCM based on the longest routes currently flown on regular scheduled service in North America. Based on this analysis, the longest viable route length is approximately 650 nautical miles. This cap on trip length provides a realistic estimate of how far carriers would be willing to operate, limiting the scope of route options to those carriers are likely to consider viable.

While Air Canada has placed an order for the Bombardier CS300 aircraft (45 firm, 30 options), it remains to be seen whether the CSeries is operationally capable of landing on a runway as short as 5,000 ft. Bombardier has released information that would indicate this is possible, but it is currently unclear whether this will be operationally possible with feasible load factors.

Figure 18: Markets Reachable from Niagara District Airport (YCM)



As the range circle illustrates, service from YCM is effectively limited to Ontario and Quebec domestically and the Northeast and eastern Midwest of the United States. Of note, this precludes service to major demand markets in Atlantic and Western Canada as well as the southern United States, particularly Florida.

8.3 Facility and Process Requirements

The airports system in Canada is typified by large hubs such as Toronto Pearson, Vancouver and Montreal that are self-sustaining. Smaller airports such as YCM are challenged with viability due to large capital infrastructure and associated operating costs. While there are opportunities to lever public or private dollars associated with new infrastructure, there also has to be a viable business case to attract carriers. Given carriers are reluctant to spend time analyzing markets that do not have the necessary facilities in place, it is very difficult to get a commitment from an airline before the investment is made by the airport. Nowhere is this more evident than in the ability for the airport to obtain government support for agencies related to security and border processing.

Security

YCM currently does not have services from the Canadian Air Transport Security Authority (CATSA) – the crown corporation created in April 2002 charged with delivering certain security screening services at airports in Canada. The choice of airports designated to have CATSA services is a decision from

Transport Canada. Without security screening that meets Transport Canada and CATSA requirements, there is no possibility of commercial service access to hubs such as Toronto Pearson or Montreal. Moreover, no direct connections are possible through hub airports (e.g. Niagara-Montreal-Paris).

In 2015, an all-party Private Members' Resolution called for the ability for non-designated airports such as YCM to receive CATSA security services. A program was advanced by Transport Canada and CATSA to designate airports such as YCM for services, with equipment and screening officer time charged back to the airport, provided sufficient facilities were available to meet the Aeronautics Act regulations.

In the development of the 2015 program that CATSA and Transport Canada have for non-designated airports, paying fees on a cost recovery basis to receive CATSA services is standard and for now there is no plan to change this formula.

However, CATSA is bound to federal Treasury Board secretariat rules on pricing; it is always possible to challenge the amount of cost recovery. Some airports and communities in Canada have accepted the quotation for the estimated costs for service provision based on a Letter of Intent from CATSA. Other communities have found the costs unreasonable and may be considering a third party consulting group to review overall costs, and to link the initiative to results from the Canada Transportation Act review panel that was tabled before the House of Commons in March 2016.

Border Services

Currently, YCM has services by Canada Border Services Agency (CBSA). However, as an airport of entry for 15 passengers or less ("AOE/15"), there are service limitations. While YCM has 8am to midnight operations available from CBSA (with availability after midnight on a cost recovery basis), there is a limitation for the ability for clearances to occur. Obtaining "AOE/30" or a higher status from CBSA will require a formal review of services. CBSA will ask for the services to be paid for with cost recovery. Similar to other airports, any international service (e.g., from the United States) will require costs to be recovered from the airport or airline. This cost is typically recovered directly from the passenger through a ticket charge; there is however an impact on demand if the pricing is too high for the market to bear.

There is a history of fee-for-service associated with CBSA, and they have a set system for parameters for what is defined as core services, opposed to cost recovery. Generally speaking, any new services given by CBSA will be in a fee-for-service model.

9 Airline Strategies

9.1 Introduction

In general, an airline is more geared towards maximizing its return on assets, rather than maximizing its market share. As such, commercial airline teams are focusing on improving route profitability by taking a disciplined approach to fleet growth. Underperforming routes relative to other route opportunities will likely be targeted for capacity/frequency reduction or cancellation as the aircraft can be deployed more profitably elsewhere. An airline's network strategy will have a direct impact on which new routes have the best potential to support profitable growth. In turn, it is important to understand a carrier's strategy in order to identify which routes provide the best strategic fit. Several major airline operating models prevail in the Canadian aviation industry with applicability to YCM's pursuit of commercial service. They are discussed below with respect to carriers relevant to the Niagara market and how recent carrier trends impact the potential for service at YCM.

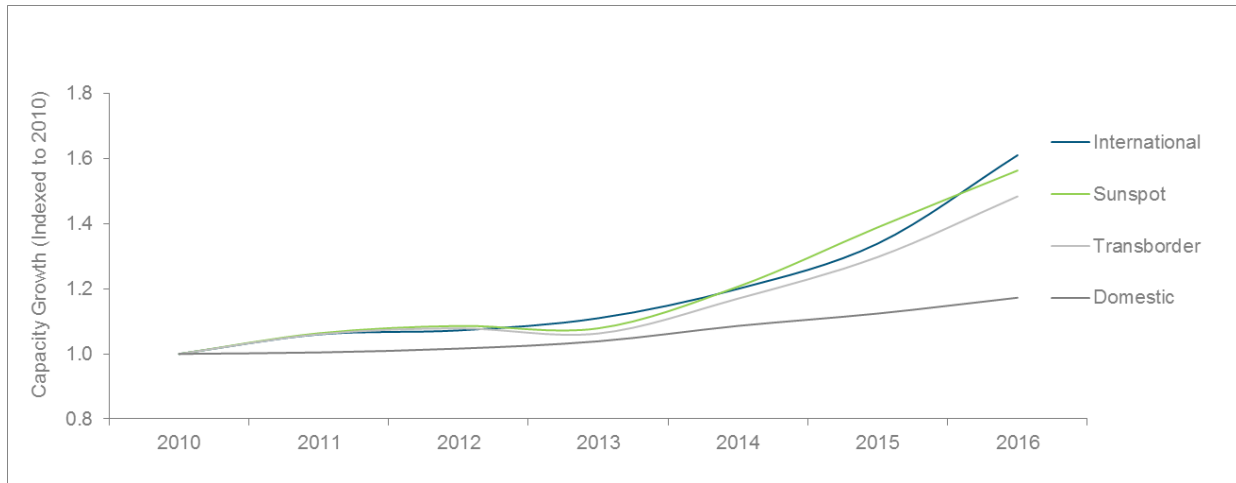
9.2 Full Network Carrier + Leisure Carrier (Air Canada)

The Air Canada business model continues to evolve. In addition to their network hub and spoke flying with the mainline carrier, the creation of Air Canada rouge has allowed the carrier to more effectively compete in low fare, leisure markets.

International expansion is a key area of growth for Air Canada, supported by a fleet of 30 Boeing 787s expected by 2017. Air Canada has already received 15 of these aircraft and has launched new destinations in Asia and in Europe (including mainline Toronto-Dubai service and Vancouver-Osaka service on rouge). In order to support this international growth, Air Canada has also been focusing on building regional feed at its 4 major hubs (YYZ, YUL, YYC and YVR). Additionally, AC has placed orders for 737 MAX and CSeries aircraft to help replace their current narrow-body fleet and have been renegotiating and initiating new contracts with regional providers to reduce costs.

Cost cutting initiatives on the regional side have included the increased use of larger, more cost effective aircraft such as the Q400. It is also strengthening its relationships with its partners in the Star Alliance network through Joint Venture (JV), Anti-Trust Immunity (ATI) partnerships. These partnerships allow partner carriers to coordinate pricing, schedules and sales activities as if the carriers were one company. The Trans-Atlantic JV between Air Canada, Lufthansa, and United Airlines, otherwise known as Atlantic-Plus-Plus (A++), allows the three carriers to better compete in the North America to Europe/Middle East/India markets by allowing close coordination of commercial activities.

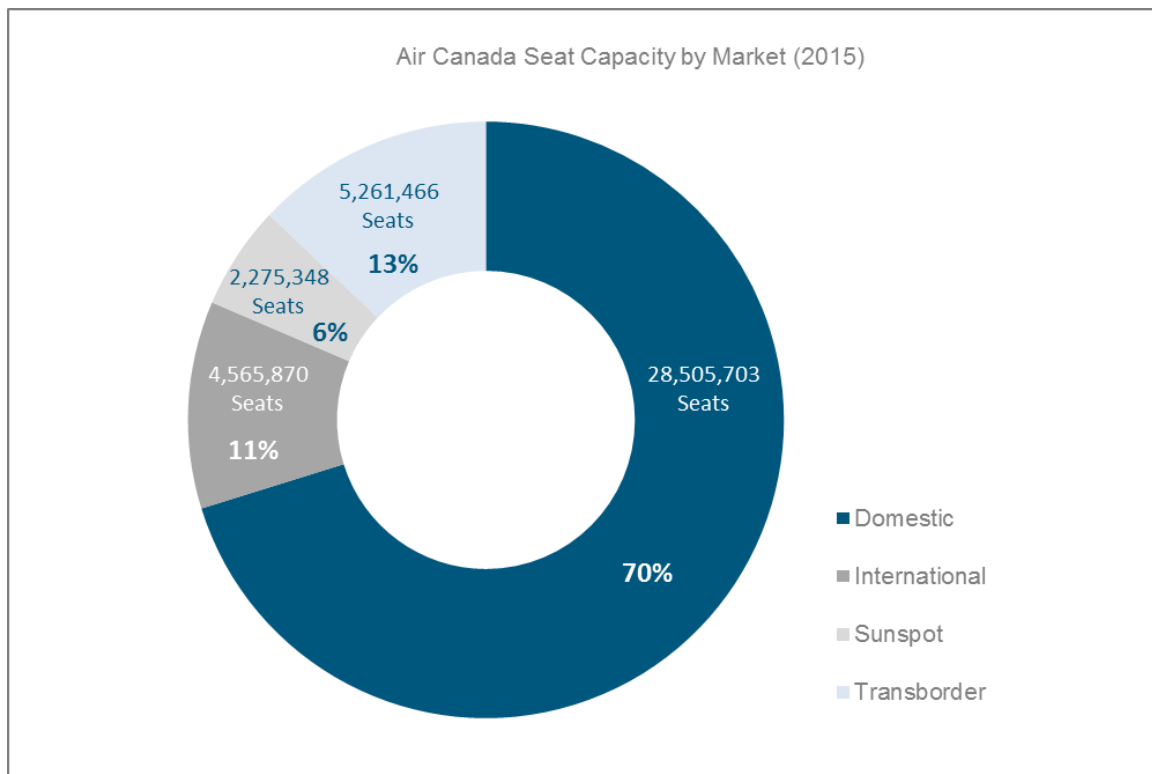
Figure 19: Air Canada Capacity (ASM) Growth Trends



Source: Innovata Schedules via Diio.

Although international expansion has been the main area of focus for Air Canada, domestic service still accounts for the majority of Air Canada's capacity.

Figure 20: Air Canada Seat Capacity Share by Market (2015)



Source: Innovata Schedules via Diio.

Air Canada rouge was launched in summer 2013 and has been very successful as it has continued to expand rapidly. While commercial planning and sales are handled by Air Canada, Air Canada rouge operates under a separate Air Operator's Certificate (AOC), allowing for separate union agreements for its labour force. This allows Air Canada to operate at a lower cost base on select highly price sensitive markets, and hence better compete with leisure carriers. Rouge was initially launched at YYZ and YUL serving exclusively sun spot leisure markets. Air Canada has continued to focus on expansion of rouge's low-cost product and has begun taking over select domestic routes as well (e.g., Kelowna-Toronto, Charlottetown-Toronto, Sydney NS-Toronto).

Financially, AC is doing very well which is helping fuel their appetite for further growth (achieved excellent 2015 financial performance with an adjusted net income of \$1.2 billion – 9% of total revenues). Continuation of cost control measures, lower fuel prices, and transfer of more mainline operations to rouge were the drivers behind 2015 profits.

A focus on growth at their hubs in Toronto and Montreal necessitates continued examination of new regional connecting spokes to increase traffic feed in support of their growing international network. The movement away from smaller regional turboprops also highlights the importance of demonstrating to Air Canada that YCM can support a 70+ aircraft.

Longer term, if the runway were extended, the recent expansion of Air Canada rouge into secondary airports (e.g. Abbotsford, BC) indicates transcontinental or sun service may be possible on a limited frequency/seasonal basis.

9.3 Hybrid LCC (WestJet)

WestJet began as a Low Cost Carrier (LCC) in 1996 and has since evolved into a hybrid, network carrier model. While it continues to operate seasonal, low frequency leisure services, such as Hamilton-Cancun, and point-to-point service to secondary airports, such as London ON-Winnipeg, it has begun to build a robust hub network at its main airport bases in Calgary and Toronto, as well as smaller hub operations in Vancouver and Halifax. The carrier is also growing its list of codeshare partners worldwide, including Delta Air Lines and American in the US, China Southern in China and Emirates in the UAE. Their codeshare partners offer WestJet customers a larger network to more effectively compete with Air Canada's international reach.

Figure 21: WestJet Capacity (ASM) Growth Trends

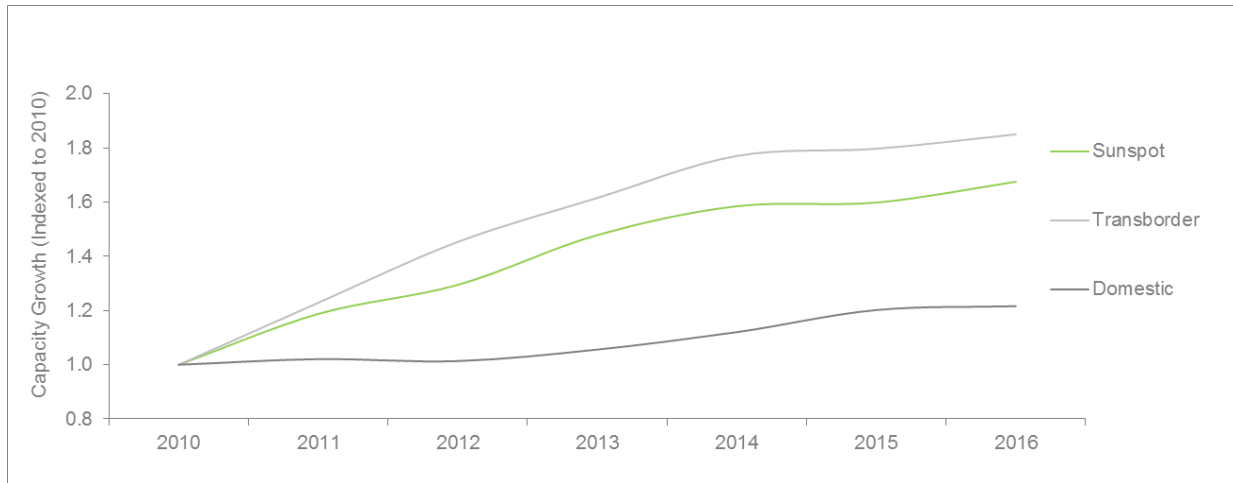
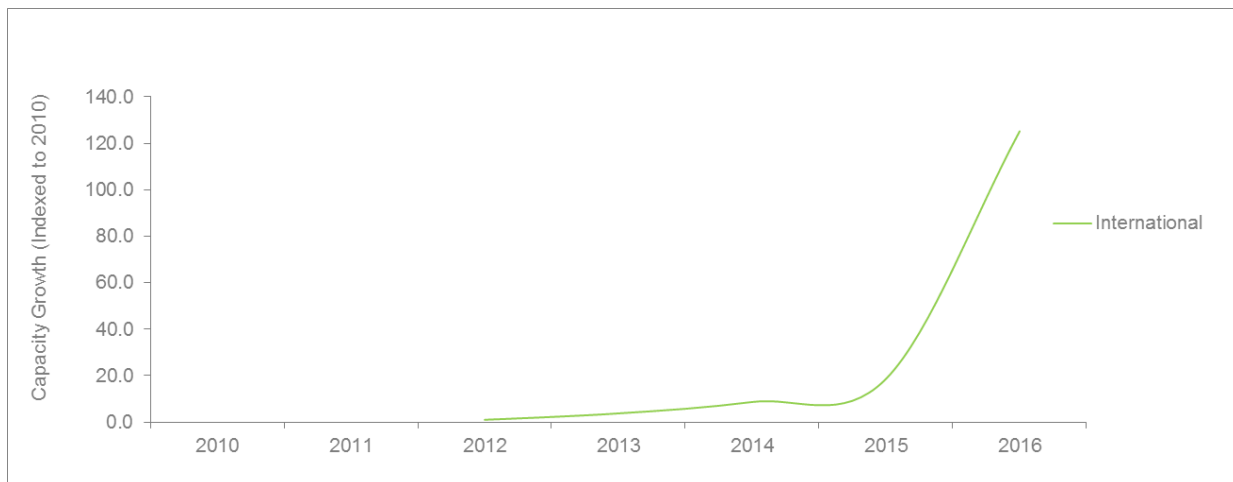
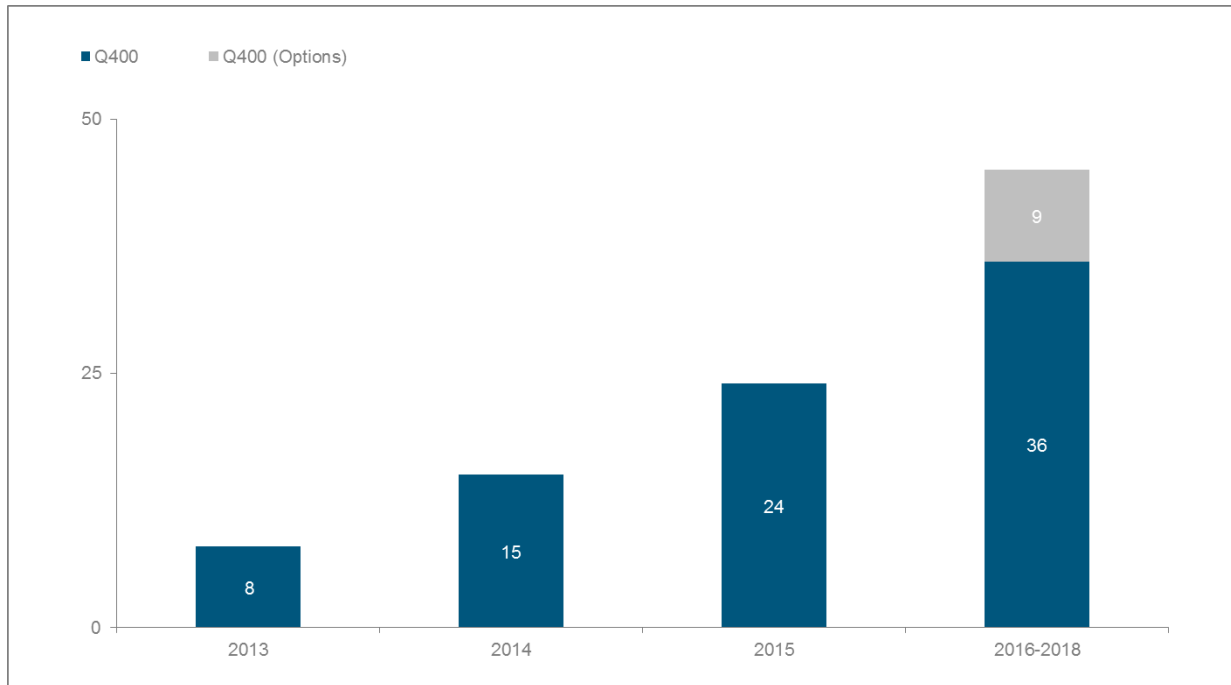


Figure 22: WestJet Capacity (ASM) Growth Trends – International Only



Launched in 2013, WestJet Encore was created as a wholly owned subsidiary to facilitate WestJet's growth into smaller regional markets. Operating a fleet of Q400 aircraft, Encore has expanded rapidly across Canada with an eastern hub established in Toronto in 2015. Over the past year, Encore has improved frequency on existing regional markets (e.g. Thunder Bay-Toronto, Quebec City-Toronto) and added new spokes (e.g. Fredericton-Toronto, London-Toronto). With a current fleet of 27 aircraft, Encore has orders for up to an additional 18 aircraft over the next 3 years.

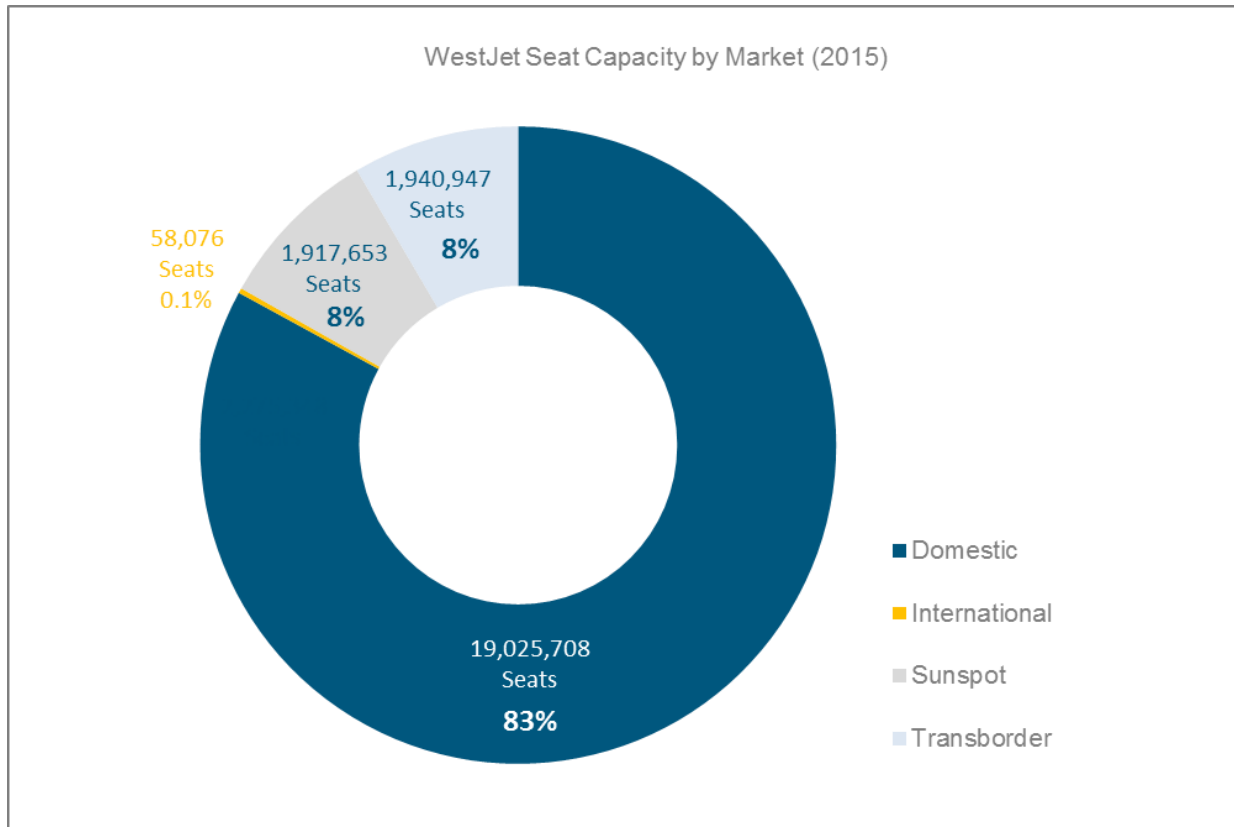
Figure 23: WestJet Encore Fleet Growth



In 2015 WestJet acquired four Boeing 767s to mark their entrance into the wide-body market. These planes are replacing leased Boeing 757s operating between Alberta and Hawaii. Beginning in summer 2016 these aircraft will operate new seasonal service to London-Gatwick from 5 Canadian cities. These aircraft and associated routes are seen as a long haul service trial before deciding on a larger order of wide body aircraft.

WestJet continues to have strong financial performance, with adjusted net earnings of \$368 million for 2015 (9% of total revenues). In 2016 WS expects to increase seat capacity and ASMs, despite shifting capacity from Alberta to Eastern and Central Canada amid falling oil prices.

Figure 24: WestJet Seat Capacity Share by Market (2015)

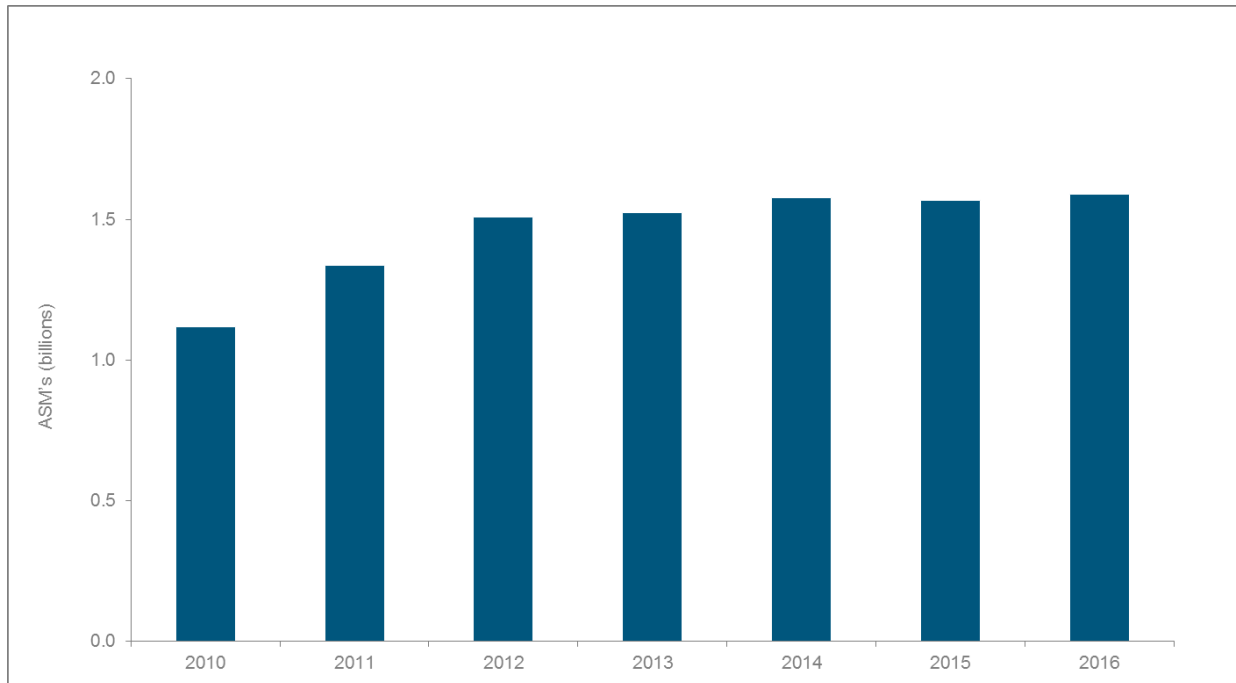


As WestJet continues to develop its regional network at Toronto, it will be looking for new spokes to better compete with its domestic rivals. The recent addition of Encore service from London ON to Toronto demonstrates a willingness to explore predominantly connecting, close proximately markets. A shift in focus to capacity growth in eastern Canada also bodes well for consideration of unserved markets in Southern Ontario such as YCM.

9.4 Regional Carrier (Porter)

Porter Airlines started operations in 2006 and now operates a fleet of 26 74-seat Q400 propeller aircraft. These aircraft can typically fly up to 650 nautical miles under normal operating conditions. Porter's main hub is located at Toronto Island Airport (YTZ), with smaller hub operations at Ottawa and Halifax. While it had plans to fly larger, longer-range jet aircraft (the Bombardier CS100), this was on the condition that it could get approval for a required runway extension at YTZ. With the Trudeau government opposing the extension proposal, Porter will not be able to move forward with jet service at YTZ for the foreseeable future. Additionally, YTZ is heavily slot restricted and it is unlikely that additional landing and takeoff slots will be authorized in the near future.

Figure 25: Porter Capacity Growth (Measured in Available Seat Miles or ASMs)



Without the CS100 jet aircraft in its fleet, Porter will need to look for network growth opportunities outside of its main base at YTZ. Montreal is dominated by Air Canada and complemented with WestJet service. Ottawa seems to be most likely prospect for future Porter growth with the Q400. As Atlantic Canada is generally too far to operate from YTZ nonstop using Q400 aircraft, additional Porter flights to the Maritimes could potentially link into a growing network via Ottawa.

Figure 26: Porter Capacity (ASM) Growth Trends

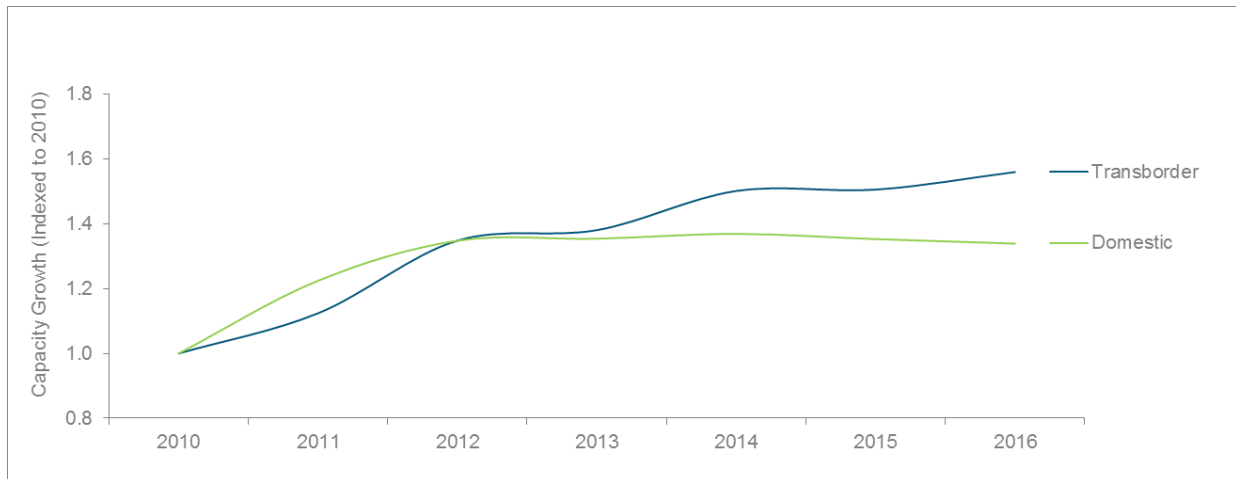
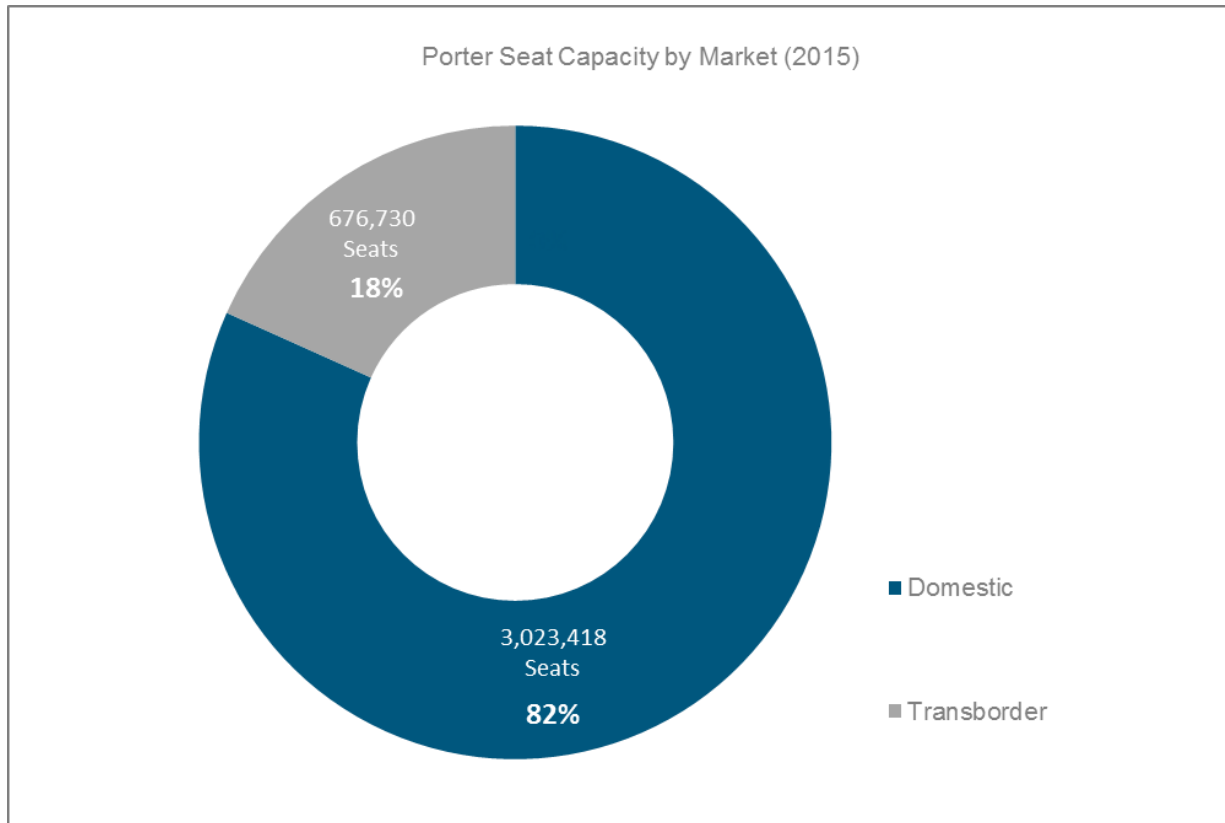


Figure 27: Porter Seat Capacity Share by Market (2015)



Pressure from Air Canada and increasingly WestJet Encore in Toronto necessitates that Porter continue to look at niche opportunities from Toronto. While slot restrictions are an issue, Porter has shown a willingness to tactically shift slots between markets to enhance and expand service. With the advantage of servicing downtown Toronto, Porter has the potential to stimulate local traffic on a YCM route that would likely not be possible via Toronto Pearson. In the longer term, if Porter decides to build up their operation at Ottawa, YCM could again provide a potential niche opportunity.

9.5 Ultra Low Cost Carriers

The Ultra-Low Cost Carrier (ULCC) model has been widely adopted in the United States. Carriers such as Spirit Airlines and Frontier brand themselves as ULCCs to attract travellers seeking low fares. These carriers generally operate one type of aircraft, in an all-economy configuration flying between two cities, point-to-point without transiting through a hub. Their fare structure is often “unbundled”; the carrier applies extra charges to overhead carry-on bags, checked luggage, on-board beverages and snacks, and seat selection. To maintain low operating costs, these carriers often fly from smaller, regional airports with lower fee structures versus larger airports. Due to their low cost of operations, their core airfare is often lower than the average fare from larger network carriers, and hence, can often stimulate traffic demand for leisure-type markets. Generally, these carriers will offer services at low frequency to maximize their aircraft utilization across their network. US ULCCs currently offer domestic US flights, as well as flights to Mexico and the Caribbean. ULCC service from Niagara Falls International Airport in New York, offered by

Spirit and Allegiant, provide service to Florida specifically targeting Canadian origin passengers from the Niagara region and beyond.

Due to taxes associated with cross-border flights, US LCCs and ULCCs have not attempted Canadian service. At some point, domestic opportunities will decline and these carriers will seek international services into Canada and additional points in Mexico, Caribbean, and Central America. Recent weakness in the Canadian dollar is likely to delay such plans, but if pursued, the impact to Niagara is unlikely to be considered as they will target Canadian cities distant from border airports where they already operate.

While no Canadian ULCC has yet to take flight, there are currently three proposed Canadian ULCC startups:

- Jetlines: Based in Vancouver, currently seeking additional funding before starting operations.
- NewLeaf: Based in Winnipeg, the airline was recently cleared by the Canadian Transportation Agency to operate as a reseller of air services.
- FlyToo: Based in Calgary, this startup proposes to use Enerjet aircraft, currently used for Charter operations.

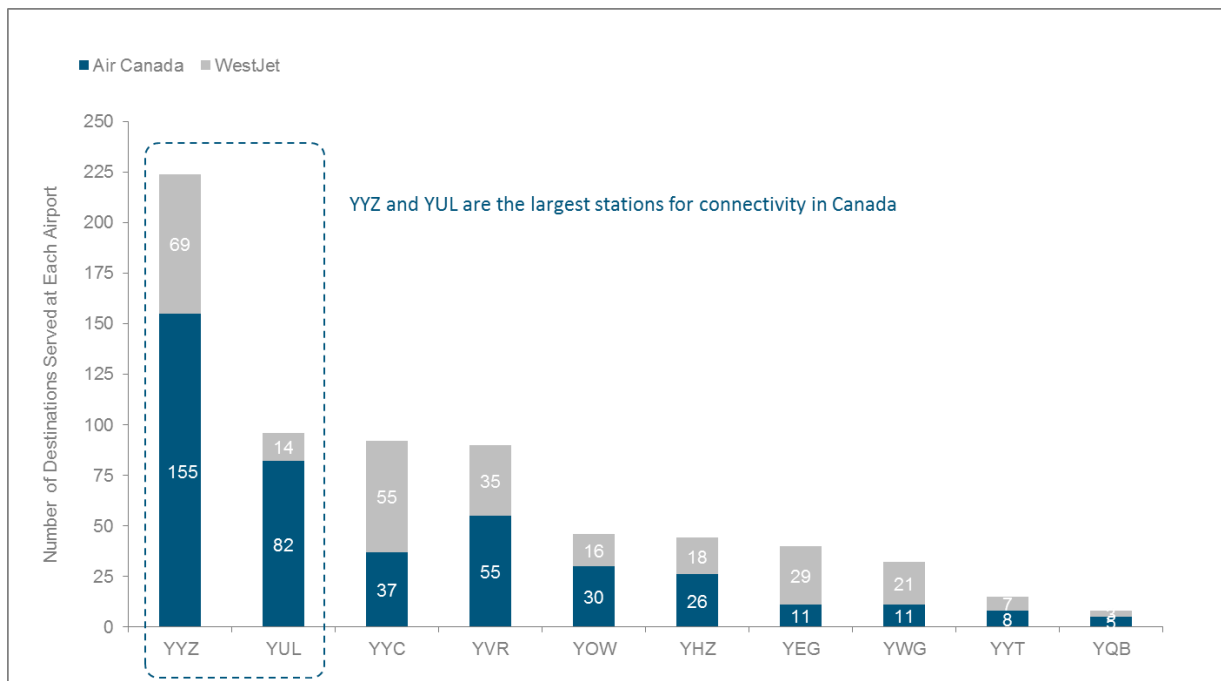
Both NewLeaf and Jetlines have announced their intention to use Hamilton as their gateway to the Greater Toronto Area. This has potential to greatly increase Hamilton's competitive position in drawing traffic from the Niagara Region with lower fares, increased frequencies and additional non-stop destinations available.

10 Assessment of Potential Airlines/Routes

A number of variables will go into selecting potential new commercial services at YCM. Some are obvious like market size, but some are perhaps less clear, and reflect the nuances of Canada's aviation industry. As we have seen in earlier sections, in addition to local market size, airline planners also look at things such as connecting market demand, growth potential, strategic fit and whether competing airports are already served by their airline.

As a region, the Niagara peninsula has a number of air service options to points both domestic and international. The vast majority of potential YCM passengers currently travel to Toronto due to the sheer volume of both domestic and international flight options. Others travel to Buffalo and Niagara Falls, NY for low-cost transborder services, while others access alternative WestJet and other leisure carrier services at Hamilton. As seen below, Toronto and Montreal are the strongest stations in Canada when it comes to connectivity potential.

Figure 28: Canadian Airport Connectivity: Number of Destinations Served (2016)



Source: Innovata Schedules via Diio (2016).

Keeping the above considerations, as well as the limited runway length in mind, it would make sense to target the Big 3 Canadian carriers (Air Canada, WestJet and Porter) as likely first candidates for service. American carriers may hold some potential in the future if it can be demonstrated that YCM is able to sustain commercial service, but recently American carriers have been reluctant to add capacity to regional Canadian markets and have cut service across the country as they struggle with the weak Canadian dollar. These recent trends, combined with limited turboprop fleets make US carriers generally

a poor fit. This is especially true when major US airlines consider that they capture Niagara region market share across the border at Buffalo (BUF).

Although New York City is the largest air travel market for the Niagara region it is unlikely that domestic carriers like Air Canada and WestJet would consider serving this market from YCM because it does not fit with their business models. Specifically, with the exception of sunspot flying, these carriers are focused on operating service to their hubs in order to support their existing operations. Adding service from a small unserved station in Canada into a congested and expensive hub like JFK (New York Kennedy) or EWR (Newark) would not make sense from a commercial or operational standpoint.

As shown in Figure 29, a number of operational feasible route and carrier combinations were scrutinized to identify the top three opportunities. Given the information in Figure 29, especially the market sizes, as well as the aforementioned less tangible parameters, we have chosen the following routes that we feel hold sufficient potential to warrant further analysis in order to determine the viability of service at YCM:

- 1) WestJet – Toronto Pearson (YYZ)
- 2) Porter – Toronto City (YTZ)
- 3) Air Canada – Montreal (YUL)

It should be noted that although service with a small regional operator to/from a fixed base operator (FBO) facility would be possible, and could eliminate the need for CATSA security screening, these types of service hold limited potential. Specifically, these types of services tend to fail due to higher costs, no connectivity feed and weak brand recognition. That being said if an FBO point-to-point carrier is able to establish itself in Southern Ontario and create sufficient brand awareness and operate with lower costs, there may be potential for YCM service to the bigger markets of Toronto-City, Ottawa and Montreal. One example of a carrier attempting establish itself in Southern Ontario is NEXTJETCANADA, with service at Kitchener-Waterloo, Peterborough, Gatineau/Ottawa and Montreal. If this carrier's business model proves viable then additional analysis may be warranted to evaluate the potential for service at YCM.

Figure 29: Opportunities at Niagara District Airport (YCM)

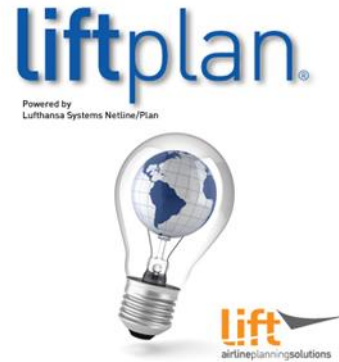
Market	Potential Carrier	Current Service - Within 2 hr. of Toronto			Market Demand		Strategic Fit	Potential For Service	
		Hamilton	Kitchener	London	PDEW	Connectivity			
Domestic									
Toronto-Pearson	WestJet	✗	✗	✓		No service	High	✓	Medium
	Air Canada	✗	✗	✓			High	✓	Medium
Toronto-City	Porter	✗	✗	✗		No service	Medium	✓	Medium
Montreal	Air Canada	✓	✗	✓		169	Medium	✓	Medium
Ottawa	Air Canada	✗	✗	✓		91	Medium	✗	Low
	Porter	✗	✗	✓			Medium	✗	Low
Thunder Bay	Air Canada/Porter	✗	✗	✗		36	Low	✗	Low
Quebec	Air Canada	✗	✗	✗		28	Low	✗	Low
Transborder									
New York	Porter	✗	✗	✗		203	Low	✗	Low
	United	✗	✗	✗			High	✗	Low
Chicago	Porter	✗	✓	✓ ends Jun 2016		52	Low	✗	Low
	Air Canada	✗	✓	✓ ends Jun 2016			Medium	✗	Low
Boston	Porter	✗	✗	✗		39	Low	✗	Low
	Air Canada	✗	✗	✗			Low	✗	Low

Note: PDEW = Passengers per Day Each Way.

11 Routes Analysis

11.1 Route Analysis Methodology

For route forecasting, the LiftPlan model has been used. LiftPlan is a software suite based on Lufthansa Systems' NetLine/Plan. Inputs to the software suite include a complete worldwide schedule, origin/destination (O/D) market sizes – adjusted to reflect results from the YCM leakage study, fares, and a fully customizable set of airline cost categories. Using the input data, LiftPlan is able to generate logical O/D itineraries for every true origin and destination in the market size database. The quality of each itinerary is measured by the market share model, which allocates passengers and revenues to the individual flights in a carrier's network. Specifically, traffic and revenue is allocated based on a logit based quality of service index (QSI) methodology – a technique widely used for network planning in the airline industry. QSI is a way of quantifying a concept which is qualitative (service quality). Moreover, QSI attempts to forecast consumer behaviour by quantifying the relative attractiveness of different flight options. The specific parameters used to quantify the attractiveness of different air service itineraries are derived by the model designers and based on comprehensive statistical analysis of currently observed passenger behaviour. Stimulation is also determined by the changes in the quality and price of available air services.



More importantly, different scenarios can be built by adding/deleting/adjusting individual flights. The tool will then analyse the resulting changes in passengers, incremental revenue gain/loss and the changes in market shares for all airlines in every O/D market.

The Lufthansa Systems model is currently used by major airlines including Lufthansa, Air Canada, Qatar Airways, Cathay Pacific and Turkish Airlines. InterVISTAS has successfully used LiftPlan with airline clients worldwide, ranging from regional carriers to large international Tier I airlines.

All route results shown in the following section are presented on a mutually exclusive basis. That is, the viability of any potential service was assessed independently of other potential services. As such, if a carrier were to initiate a route at YCM this may have an impact on the viability of any subsequent potential routes.

11.2 Route Forecast Results

Overall, the results from these detailed route forecasts indicate that there are multiple airlines that hold potential for a viable commercial service from YCM.

Figure 30: Route Operating Results

Air Canada YUL (Montreal) - YCM (Niagara)	Summer	Winter	Annual Average
Onboard Traffic			
Weekly Frequencies (outbound)	14	14	14
Aircraft Type	Q400	Q400	Q400
Weekly Seats	2,072	2,072	2,072
Weekly Passengers	1,680	1,334	1,507
% Local	28%	41%	34%
% Connecting at Hub	72%	59%	66%
Stimulation as % of Load	10%	12%	11%
Avg. Load Factor	81%	64%	73%

WestJet YYZ (Toronto) - YCM (Niagara)	Summer	Winter	Annual Average
Onboard Traffic			
Weekly Frequencies (outbound)	14	14	14
Aircraft Type	Q400	Q400	Q400
Weekly Seats	2,184	2,184	2,184
Weekly Passengers	1,645	1,269	1,457
% Local	3%	4%	4%
% Connecting at Hub	97%	96%	96%
Stimulation as % of Load	8%	9%	9%
Avg. Load Factor	75%	58%	67%

Porter YTZ (Toronto City) - YCM (Niagara)	Summer	Winter	Annual Average
Onboard Traffic			
Weekly Frequencies (outbound)	14	14	14
Aircraft Type	Q400	Q400	Q400
Weekly Seats	2,072	2,072	2,072
Weekly Passengers	1,283	1,064	1,173
% Local	13%	16%	14%
% Connecting at Hub	87%	84%	86%
Stimulation as % of Load	17%	19%	18%
Avg. Load Factor	62%	51%	57%

Load factors vary from airline to airline, but the resulting loads from the scenario modelling conducted appear to be viable for the carriers in question. For instance, Air Canada posted a system-wide load factor of 84% in 2015, while WestJet posted 80% for the same period. It has been estimated that Porter generally operates at or below 60% load factor, and one of Porter's last publicly released figures (54% YTD February, 2013) indicated this to be true.

With a large local market size, the Montreal service with Air Canada shows the highest potential of the three routes analyzed. To provide some context around the results, it should be noted that only 34% of the traffic would be local traffic going to/from Montreal. This equates to 37 local passengers per day each way which equates 22% market share (as shown previously, total market size is 169 passengers per day

each way). This level of market share is in line with what we have observed in other comparable markets. Additionally, it should be noted that Air Canada could decide to launch service with an aircraft smaller than the Q400 in order to minimize start-up risk (e.g. Beechcraft 1900 (18 seats), Dash 8-100 (37 seats), Dash 8-300 (50 seats)). However for this assessment we chose to use the Q400 as a better indication of long term viability given the eventual phase out of the smaller aircraft.

In terms of market access, YUL is a significant hub for Air Canada and the proposed flights would provide one-stop connectivity to key markets. Of particular interest, is the fact that Air Canada serves some markets out of Montreal that it does not serve out of Toronto. These unique services from YUL include large markets such as Lyon, Nice and Geneva. For service in these markets, itineraries directly from YCM with a connection in YUL would certainly be competitive against the alternative option of driving to YYZ and then connecting via another hub along the way.

WestJet service to Toronto Pearson benefits from the extensive connectivity available throughout their network (including their partner airlines) but shows very limited opportunity for local traffic. Porter service to Toronto-City offers increased local traffic potential with the convenience of the airport's downtown location, but the limited reach of connecting options results in forecasted performance lagging slightly behind WestJet. All routes show seasonal strength in summer consistent with peak tourism demand in the region. Winter forecasts are lower, but still demonstrate demand that is likely sufficient to support year-round service on all markets.

Our market demand analysis indicates that WestJet currently captures a smaller share of the Niagara market than Air Canada. As such, WestJet has more to gain in terms of incremental passenger traffic by initiating service directly to YCM. WestJet has historically employed this type of strategy in Southern Ontario to capture market share to its Western hub in Calgary (WestJet has direct Calgary service to Toronto, Hamilton, Kitchener-Waterloo, London and Windsor).

In the case of Porter, market shares also seem reasonable based on the current competitive environment. For example, on the largest connect market of Montreal, Porter is forecast to achieve 3% market share. Again, this level of market share is in line with what we have observed in other comparable markets. Based on current travel patterns from the leakage study performed by InterVISTAS, Porter is capturing only 1% of the Niagara market. As such, the potential for Porter to gain incremental traffic by initiating service at YCM is significant.

However, generating and maintaining commercial air service at YCM is not without risk. Operating a 74-78 seat aircraft will generally require local community support and there are challenges to year-round service including, but not limited to, aircraft size, ticket pricing, investments in infrastructure and regulatory requirements. These factors will impact YCM's assessment of whether commercial air service is attainable, and sustainable.

12 Recommendations & Implementation

Based on analysis of the overall market dynamics and the three specific route/airline options, it is our conclusion that there is sufficient passenger demand for the market to sustain commercial air service at YCM. The market demand from the Niagara Region primary catchment combined with the current competitive environment provides ample opportunity for a carrier to initiate commercial service at YCM. As such, if the necessary investments are made to develop adequate facilities, processes and infrastructure at the airport for commercial service, there are a number of viable regional service opportunities, with the best and most likely options being service to Toronto or Montreal.

Although the actual airline costs associated with specific routes are only known by the airlines, based on publically available financial statements and industry standards, the analysis indicates that a YCM regional service is expected to be financially viable. Forecast load factors are in line with the airlines' historical performance for regional operations, so combined with typical airfares this metric would support the notion that there is good potential for these services at YCM.

12.1 Implementation Process

Based on this financial and load factor analysis it is expected that some airlines would agree that a regional service at YCM could be viable for them and therefore initiate service in the future. Should the airport wish to move forward with the pursuit of commercial service, the following implementation process, in approximate chronological order, could be utilized:

1. Make necessary facility improvements and ensure regulatory approvals are arranged (as determined by airport operator, as this aspect is outside the scope for this assessment)
2. Development of commercial fee structure for airlines (e.g. landing fees etc.) and passengers (e.g. parking rates etc.)
3. Establish a community consultative group to gather community feedback and input
4. Develop business cases for target airlines
5. Present business cases to network planners at target airlines
6. Engage in negotiations with airlines regarding incentives and community support (if necessary)
7. Facilitate commercial agreement between airport and airline
8. Support new service through community marketing plan

Although steps 2 through 5 could be completed prior to step 1, the carriers are not going to be willing to give serious consideration to a YCM service until the necessary facility improvements have been made. Of particular importance is security screening (provided by CATSA). Having security screening at all stations is a requirement for the major airlines, as the facilities that they use at their hubs require passengers and bags to be properly screened to allow for connections.

13 New Service Implications

13.1 Community Benefits

In terms of the broad implications of new air services, there are numerous benefits for the community as a whole. Air service provides an economic link the rest of the world, facilitating commerce through increased trade, direct investment and knowledge transfer. Often times when companies are looking to set up operations in an area, access to transportation for goods and employees will be one of the key considerations. On the tourism side, having direct air access helps build market awareness that is not available via indirect offerings. For example, using many online booking channels, a potential traveller will not be able to search for “Niagara, Ontario” or some variation of that. Rather they must be aware that Toronto or Hamilton are presently their best alternatives for accessing the Niagara Region. Conversely, with a direct service in the market, a potential traveller could just search “Niagara, Ontario” and see flight itineraries that take them to/from YCM.

In addition to the qualitative benefits discussed above, there is one important benefit that can be quantitatively measured – convenience. Being able to fly directly into Niagara Region will eliminate the time associated with driving to other area airports. For the nonstop local market, the time saving could be fairly significant (e.g. YCM to Montreal (YUL) nonstop versus driving to Toronto Pearson (YYZ) and then flying to YUL). For connecting markets the connection time will add to the elapsed time however it will eliminate the uncertainty associated with driving to other airports. For example, someone going to Halifax may prefer to travel on a YCM-YUL-YHZ (i.e. connect via Montreal) as opposed to driving to Toronto Pearson (YYZ) and then flying nonstop to Halifax (YHZ). Although the Toronto Pearson (YYZ) option may potentially be faster, there is also uncertainty around traffic congestion and conditions for the drive from Niagara Region to Toronto Pearson (YYZ).

13.2 Airport Revenue

At most airports commercial service is the main driver of revenue. Generally, airports will derive their revenues from three sources: airlines, passengers and third-party operators. Additionally, revenue streams are generally classified as either aeronautical or non-aeronautical. It is important to distinguish aeronautical from non-aeronautical as airlines are increasingly pressuring airports to focus on the latter rather than the former. As such, a focus on developing non-aeronautical revenue streams is essential to maintaining a competitive cost structure that is attractive to airlines. Many airports have already adopted this strategy, with some airports in Canada getting almost half their total revenues from non-aeronautical sources.

Figure 31 below summarizes the different mechanisms for generating revenue from each source and classification.

Figure 31: Revenue Generation at Airports

		Classification	
		Aeronautical	Non-Aeronautical
Source	Airline	Landing Fees Terminal Fees Aircraft Parking Fees	-
	Passenger	AIF	Customer Parking Retail & Concession (often revenue sharing)
	Third Party Tenant	De-icing Providers Ground Handling	Advertising Retail & Concession (lease) Car Rentals Taxi Services

When determining the revenue potential for commercial services, the main drivers are aircraft landings, seat capacity and passenger volume. Below in

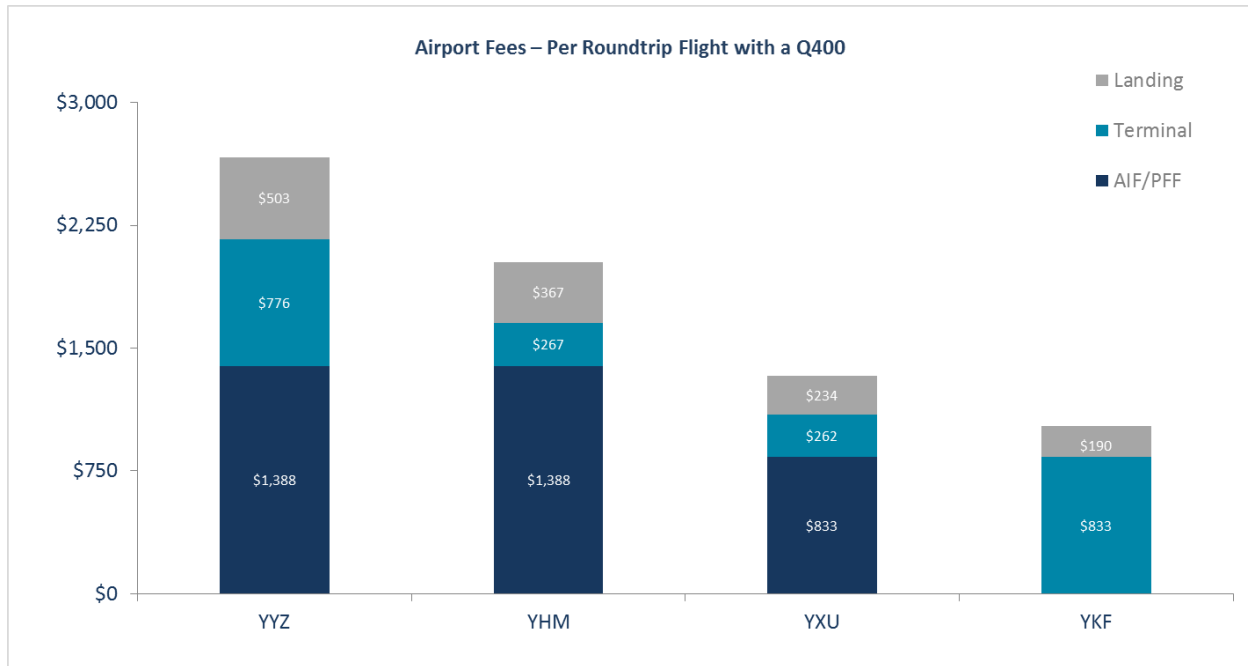
Figure 32 is a summary of these drivers, on an annual basis, for each of the three scenarios. By applying landing, terminal fees and AIF amounts to these figures, a good estimate of the aeronautical fees can be derived. With regards to the non-aeronautical fees, assumptions about per passenger spend rates can be applied to estimate this component. In terms of revenues from third party operators, these need to be considered on a case-by-case basis.

Figure 32: Summary of Annualized Service Metrics

Service Scenario	Aircraft Landings	Inbound Seats	Enplaned Passengers
Air Canada YUL (Montreal) - YCM (Niagara)	730	54,020	39,288
WestJet YYZ (Toronto) - YCM (Niagara)	730	56,940	37,992
Porter YTZ (Toronto City) - YCM (Niagara)	730	54,020	30,593

In terms of determining a specific fee structure for YCM, it is critical that the rates are in line with other stations in the area. For context a sample fee structure comparison is below for stations in the area using a Q400 as an example.

Figure 33: Airport Fee Structure Comparison



Note: Assumes 75% load factor on a Q400 aircraft (78 seats).

Source: Airport fee schedules & InterVISTAS analysis.

Parking at is another key revenue generator for airports, and for the southern Ontario region, typical ranges for parking fees are between \$8-\$18 per day and \$50-\$90 per week.



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