



Feasibility Study and Business Case

**Niagara District Airport &
Niagara Central Dorothy Rungeling Airport**

FINAL REPORT

The Regional Municipality of Niagara
Campbell West Building
1815 Sir Isaac Brock Way
Thorold, Ontario
L2V 4T7

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Submitted by:

HM Aero Inc.
532 Montreal Road, Suite 209
Ottawa, Ontario
K1K 4R4

EXECUTIVE SUMMARY

Introduction

The Regional Municipality of Niagara (the Region) commissioned HM Aero Aviation Consulting (HM Aero Inc.) to complete a Feasibility Study and Business Case examining business opportunities and the future development potential of Niagara District Airport and Niagara Central Dorothy Rungeling Airport (Niagara Central Airport). This Study provides decision-makers at the Region and others with an understanding of the potential business opportunities and required developments to position both facilities as stronger economic assets within Niagara Region.

The objectives of the Study, for both airports, are to: categorize and describe the facilities; identify future roles and long-term (20-year) growth objectives; consult with over 100 regional stakeholders to determine economic linkages; complete infrastructure assessments; review their financial positions; identify business opportunities; prepare Airport Development Concepts; generate 20-year revenue and expenditure forecasts; and provide strategic recommendations to support development.

Niagara District Airport is best suited to supporting scheduled passenger air services; charter passenger air services; general aviation commercial and industrial activities; charter air cargo operations; and recreational general aviation recreational and flight training. Niagara Central Airport is best suited to supporting general aviation commercial, recreational, and flight training activities. Continued participation by regional municipal leaders in the Southern Ontario Airport Network and the Southern Ontario Municipal Aerospace Council is encouraged to continue identification of future business opportunities for both Niagara airports.

A socioeconomic profile of Niagara Region was developed to serve as a high-level description of the social and economic environment of Niagara Region, and how it relates to current and future activity at Niagara District Airport and Niagara Central Airport. Airports are important parts of the region(s) that they serve, as they support social and economic links that many sectors rely on to sustain their operations and growth; whether it be for personnel transport, or the movement of goods. In the context of Niagara Region, this includes supporting the flows of passengers and goods which contribute to the tourism, manufacturing, and agricultural sectors.

Niagara District Airport

Niagara District Airport is a Certified Airport located within the Town of Niagara-on-the-Lake. The Airport's infrastructure includes three runways, four taxiways, an apron, and several private taxiways. The Airport can support unrestricted operations by the De Havilland Canada Dash 8-400 turboprop airliner on its 5,000' primary runway, and occasional use by larger turbofan aircraft such as the Boeing 737 and business aviation aircraft.

The Airport supports scheduled passenger air services to Toronto Billy Bishop Airport, charter passenger and air cargo services, corporate aircraft, air tour operators, general aviation commercial and industrial activities, flight training, and recreational aviation. The facility also supports glider familiarization flights by the Royal Canadian Air Cadets, as well as military, law enforcement, coast guard, and air ambulance operations. The Airport supported over 40,000 aircraft movements and almost 5,000 passengers in 2018.

Ten businesses are located at the Airport, providing services that include: aircraft maintenance; aircraft ground support and handling; flight training; aerial sightseeing; and custom fabrication, engineering, and testing.

The Airport lands are owned by the Town of Niagara-on-the-Lake and the Airport is operated by a Commission of nine members. Three members are Councillors representing the City of St. Catharines, City of Niagara Falls, and the Town of Niagara-on-the-Lake. The remaining six members are appointed by these three municipalities. Under the supervision of the Commission, the Airport is operated by a staff of seven employees, led by the Chief Executive Officer. The Airport is funded through a model whereby the net cost of operating the Airport after deducting operating revenues and grants is divided between the three contributing municipalities on a per capita basis.

The stakeholder engagement program identified several reoccurring themes, including: the immediate requirement for development lands to support business growth, limitations of the governance model in terms of the ability to alter annual budgets to respond to market conditions, and the need to incur debt to fund capital rehabilitation and expansion projects. Several business and tourism stakeholders believe that there are passenger air service opportunities to Montreal, QC and New York, NY. More effective collaboration between the Airport and local tourism organizations and businesses is required to realize these air service development opportunities.

The infrastructure assessment included visual inspections and interviews with Airport operational staff. The condition of the Airport's infrastructure assets was found to range from 'Very Poor' to 'Good' on a five-point scale. It is recommended that Runway 11-29, Runway 01-19, and Taxiway 'D' be rehabilitated within the immediate term, with an estimated capital cost of approximately \$1.2 million. Rehabilitation projects are recommended for the other runway, taxiway, access road, and parking lot pavements between Years 5 and 15. Minor improvements and repairs are also required to the sanitary sewer system, maintenance building, and Genaire Hangar.

Historical revenues and expenses over the previous five years were reviewed. Airport revenue totalled \$315,733 in 2018, excluding grants provided by the funding municipalities. This included land lease payments (\$178,520) and aircraft landing and parking fees (\$67,466); the latter increased by over 50% between 2017 and 2018 as a result of scheduled passenger air service growth. Operating expenses in 2018 totalled \$709,287, including personnel costs of \$404,983; this value increased from \$294,164 in 2015 as a result of the labour requirements associated with maintaining a Certified Airport supporting passenger air services. Grants from the City of St. Catharines, City of Niagara Falls and Town of Niagara-on-the-Lake accounted for 55% of the 'revenue' within the annual financial statements. Annual municipal grants ranged from \$305,000 in 2015 to \$396,000 in 2018. Therefore, the Airport is reliant on subsidies to close the annual revenue-expense gap, and these subsidies have increased over the past five years.

Further to the expected continued growth of passenger air services between Niagara District Airport and Toronto Billy Bishop Airport, high potential opportunities may exist for air services to Montreal, QC and New York, NY. These flights would serve the significant number of domestic and international tourists from Quebec and New York that visit Niagara Region and Niagara Falls on two to five-day tours. The introduction of a seasonal 19-seat scheduled passenger air service to Montreal (St. Hubert Airport) has been assumed, beginning in 2022, as well as a seasonal 74-seat charter passenger air service from New York (Newark Airport) beginning in 2023. Both air services are assumed to increase in service frequency throughout the 20-year forecast period.

Other high potential business development opportunities include: a 30,000 sq. ft. Fixed Base Operator; six 15,000 sq. ft. hangars; an Aircraft Maintenance Organization; eight general aviation hangars; and two large T-hangars. Non-aeronautical revenue opportunities include vehicle parking, outdoor advertising, food services, and revised airport fees. Lower potential opportunities include aviation education partnerships with Brock University and Niagara College, the introduction of charter passenger air services to “sun” destinations, and charter air cargo services.

To support the identified business development opportunities, a new Aircraft Group Number (AGN) IIIA taxiway is required to provide access to airside commercial development lots, and helicopter operations should be relocated to a dedicated area. The Air Terminal Building should be expanded to support a Peak Design Volume of 133 passengers, and Canada Border Services Agency facilities are required to handle passengers from New York. Groundside improvements include new and extended roads to access the Southwest and East Development Areas; new and expanded parking areas; the preparation of development lots; and minor upgrades and extensions of the potable water and sanitary sewage systems.

The future development and operation of the Airport is challenged by the ineffectiveness of the current governance model, whereby all major decisions must be agreed upon by elected officials of the three funding municipalities. Historical Airport business development projects have been turned down as the funding municipalities did not agree to support these investments. Capital investment is required to respond to demand that has increased over the previous decade, allowing the facility to be better positioned as an economic driver within Niagara Region.

A 20-year financial forecast has been prepared that includes projected revenues and expenses, as well as capital and operational costs to support the identified business opportunities. The forecast models significant growth in passenger traffic in Year 1, with annual aeronautical revenues increasing to \$660,000. The realization of business development opportunities is modelled to have a positive impact on long-term financial viability, and 2020 is expected to be the first year where the Airport cost-revenue gap is closed. Annual deficits are expected to range from \$580,000 in 2020 to as high as \$2.3 million in 2023 to support the expansion of the Air Terminal Building. Capital rehabilitation costs are estimated at \$1.2 million between 2020 and 2024, but could be reduced following the preparation of a formal Airport Master Plan that determines which airport infrastructure elements are required to support the business opportunities identified within the Feasibility Study and Business Case.

Niagara Central Airport

Niagara Central Airport is located within the Town of Pelham, approximately 3 km west of the City of Welland. The Airport’s infrastructure includes two runways, two taxiways, an apron, and a seaplane base on the Welland River. The longest runway is 3,493 ft. and can support small turboprop aircraft such as the De Havilland Canada Dash 8-100. The facility is a Registered Aerodrome; therefore, scheduled passenger air services are not permitted on account of its non-Certified status.

More than 100 aircraft and several businesses are based at the Airport, including Skydive Niagara, the St. Catharines Flying Club, Tarczy Aircraft, and Accipiter Radar Technologies. The facility also acts as a base for Royal Canadian Air Cadet glider operations and supports law enforcement and air ambulance flights. Aircraft movements have not been recorded since 2012 (12,135 movements).

The Airport is jointly owned by the City of Welland, Township of Wainfleet, Town of Pelham, and City of Port Colborne. Similar to Niagara District Airport, the Airport’s net annual operating cost is divided between the four owner municipalities on a per capita basis.

The Airport is operated by the Niagara Central Airport Commission and overseen by a part-time Airport Manager, with volunteers supporting facility maintenance activities.

Stakeholder consultations indicate that the facility has strong support from its users and local business groups. The four funding municipalities had varying opinions on the economic and social importance of the facility; while some see the Airport as a potential economic driver, others are skeptical as to its overall benefit based on its historical financial performance and activity levels. Identified limitations on Airport growth include the lack of funds for capital rehabilitation projects and the deficient state of the utilities and services (potable water and sanitary sewer).

Pavements at Niagara Central Airport were reported to be in 'Poor' to 'Good' condition, with rehabilitations recommended for Runway 05-23, Runway 16-34, and Taxiway 'B' in the immediate term. Rehabilitation projects are recommended for the parking lots, access roads, and aprons within the two to ten-year timeframe. It is recommended that the feasibility of upgrading the sanitary sewage treatment system be studied when planning for future development.

A review of the past five years of Airport financial statements indicates that land lease payments are the primary source of revenue, recorded at over \$79,000 in 2018. The second highest source of revenues was listed within the 'other' category – a combination of revenue items totalling \$37,974 that have been inconsistently categorized as new accounting personnel, procedures, and systems have been implemented. Revenues totaled \$126,661 in 2018, excluding municipal grants. Total operating expenses were reported at \$220,757 in 2018, with the largest expense being amortization (\$60,348) related to the rehabilitation of the Hangar 3 roof. Expenses have exceeded revenues over the past five years, with annual deficits ranging between \$18,040 (2016) and \$119,229 (2017). The facility has relied on grants from its four funding municipalities to close the revenue-expense gap, and these subsidy amounts have increased, on average, within the past five years. Interest on loans payable to the three funding municipalities was also identified in the Airport's financial statements; this is an unconventional practice whereby the municipalities loaned themselves almost \$400,000 to fund airside pavement rehabilitations, and subsequently pay themselves interest.

Business development opportunities over the next 20 years include three new hangars supporting Aircraft Maintenance Organizations (between 5,000 and 15,000 sq. ft.), thirteen 2,500 sq. ft. general aviation hangars, and two large T-hangars. Also considered is the establishment of a restaurant and the designation of potential employment lands, pending the identification of surplus lands through a formal Airport Master Plan. Lower potential opportunities include canoe and kayak tourism outfitters along the Welland River, skydive and flight training package opportunities with great lakes cruises, charter passenger and cargo air services, high-volume professional flight training, and aviation industrial development.

In addition to infrastructure rehabilitation projects, capital projects required to support business development include two AGN II taxiways, the expansion of the groundside access road network, seaplane facility upgrades, and the upgrading and expansion of the potable water and sanitary sewage systems.

The Commission governance model is a limitation on the growth of the Airport. Elected or appointed commission members have varying views on the importance of investing in Airport facilities to support future economic growth, resulting in challenges in securing funding for infrastructure projects. Other development constraints include the lack of municipal services and the impacts of the Welland River floodplain on the southeast portion of the property.

The 20-year revenue and expenditures forecast for Niagara Central Airport demonstrates that annual deficits (grants) within the study period gradually decrease. This illustrates that the identified business opportunities and the related assumptions are expected to have a positive impact on the Airport's financials. Short-term annual deficits are expected to range from \$78,230 in 2024 to \$2.5 million in 2020 to support necessary rehabilitation projects. Total capital rehabilitation costs for the short-term are estimated at \$2.4 million.

Conclusions

Conclusions with respect to business development and economic growth at Niagara District Airport and Niagara Central Airport include:

- The two airports serve different roles, however both are important to the regional economy.
- Both Niagara District Airport and Niagara Central Airport are supported by annual operating grants to address cost-revenue gaps; however, funding capital rehabilitations and expansions is a challenge. This is a problem typically faced by municipal and regional airports across Canada. Airports should be viewed as economic development tools and funded accordingly, instead of being treated as financial liabilities.
- Annual cost-revenue gaps may be improved if the governance structures of both airports are changed. The requirement to obtain unanimous approval from the councils of the funding municipalities for major projects may be hindering business and economic growth at the facilities.
- Niagara District Airport has not been able to leverage its full economic potential because the financial support to expand and develop the facility is not provided by all three funding municipalities. This is expected to continue unless changes are made to the Airport's governance structure and a business-oriented mindset is applied to decision-making.
- Transportation access to and from the Greater Toronto Area has been identified as a potential barrier to economic growth in Niagara, particularly in the tourism sector. Current scheduled passenger air services operating at Niagara District Airport offer quick and efficient connections to downtown Toronto. Therefore, this service is expected to continue to grow in popularity among the Niagara business community.
- Niagara District Airport is expected to close its cost-revenue gap if proactive investments are made in Air Terminal Building expansion and land development. Niagara Central Airport is expected to realize increased revenues; however, significant infrastructure rehabilitation efforts are required to restore the service life of critical airside pavements.
- Operating costs are much lower at Niagara Central Airport compared to Niagara District Airport due to its less onerous regulatory obligations, as the facility is operated as a Registered Aerodrome and does not support scheduled passenger air services.
- While fewer business development opportunities have been identified for Niagara Central Airport, the facility plays an important role by supporting air ambulance, law enforcement, flight training, and general aviation commercial and recreational activities. The presence of almost 100 based aircraft, demand for affordable aircraft hangars across southern Ontario, and the steady rate of historical development suggests that there is continued demand for this facility.

- The Feasibility Study and Business Case identifies infrastructure requirements to support business development and economic growth; however, there are other infrastructure and land use considerations that should be addressed at both sites through the preparation of a comprehensive Airport Master Plan.

Recommendations

HM Aero has formulated a series of recommendations that outline the steps to effectively invest in and develop Niagara District Airport and Niagara Central Airport so they can be better positioned to promote business and economic development within Niagara Region:

- Both airports should be operated to maximize future potential economic benefits
- Niagara District Airport should continue to be operated as a Certified Airport. Niagara Central Airport should be operated as a Registered Aerodrome, however future infrastructure projects should be planned in a manner that would not prevent certification.
- The Action Plans presented within the Feasibility Study and Business Case should be followed, including the preparation of Airport Master Plans, completion of governance reviews for both airports, and increased engagement with tourism partners and potential air carriers.

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1 INTRODUCTION

1.1 Background

The Regional Municipality of Niagara (the Region) commissioned HM Aero Aviation Consulting (HM Aero) to complete a Feasibility Study and Business Case examining business opportunities and the future development potential of Niagara District Airport and Niagara Central Dorothy Rungeling Airport (Niagara Central Airport). This Feasibility Study and Business Case was prepared on behalf of the Region's Economic Development Department through the execution of an extensive stakeholder engagement program, comprehensive research of previous studies conducted at both airports, and through the application of HM Aero's understanding of aviation industry trends and opportunities as they relate to aviation facilities within Niagara Region.

Airports are widely recognized as economic drivers in prospering regions and as municipalities compete nationally and internationally to attract new business opportunities, airports have become increasingly competitive with one another.

This study provides policy and decision makers at the Regional Municipality of Niagara, and the airport-funding municipalities of St. Catharines, Niagara Falls, Niagara-on-the-Lake, Welland, Port Colborne, Pelham and Wainfleet with an understanding of the potential business opportunities and the related developments required to better position both facilities as stronger economic engines, creating jobs and attracting additional business to Niagara Region.

1.2 Study Objectives

The objectives of the Feasibility Study and Business Case for Niagara District Airport and Niagara Central Airport are as follows:

- Identify and describe both airports in the context of their history, the services they provide, how they are governed, the general infrastructure and a description of airport activity;
- identify future airport roles and long term (20-year) growth objectives for both facilities;
- engage leaders of regional government, local businesses, airport tenants and Niagara hospitality and tourism stakeholders to identify linkages between the local economy and both airports;
- complete an infrastructure condition assessment of airport-owned facilities and infrastructure;
- provide an understanding of the current financial position of both airports, and the financial challenges that could impact requirements for capital funding to support ongoing operations, capital rehabilitations and infrastructure expansions;
- complete an external analysis examining the socioeconomic profile of Niagara Region, the major industries, employees, economic contributors and transportation systems and challenges;
- identify high and low potential future business opportunities for both airports that are aligned with the local economy, and the required infrastructure and operational requirements to support these opportunities;

- prepare Airport Development Concepts that present a realistic approach to infrastructure development within the 20-year study planning horizon that provide value-for-money when considering investing to support business growth;
- prepare 20-year revenue and expenditures forecasts identifying potential revenues, capital costs, operational costs and investment and funding requirements to support business and economic development at both airport facilities; and
- provide strategic recommendations presented within an Action Plan to identify specific steps to further develop both airports to support the identified business opportunities and to enable the airports to act as improved economic drivers within the community.

It is important to note that this study does not include analysis and the provision of recommendations related to changes in airport ownership or operational models, including airport governance. The study assumes that both Niagara District Airport and Niagara Central Airport will continue to be owned by the funding municipalities and operated by their respective Airport Commissions throughout the 20-year study period. However; HM Aero is of the understanding that negotiations are currently occurring between the funding municipalities of both airports and the Region to discuss potential options and means of transferring airport ownership to the Regional Municipality. While these issues are considered outside the scope of this Feasibility Study and Business Case, relevant airport governance concerns related to the future development of Niagara District Airport and Niagara Central Airport have been identified within this study.

1.3 The Regional Municipality of Niagara

Within the province of Ontario, residents are governed locally by their community (town or city) council, regionally by Regional Municipalities or Counties, provincially by the Government of Ontario, and at the federal level by the Government of Canada. Each level of government is its own entity, but also exists in relation to the next highest level.

Niagara is home to twelve local municipalities – five cities, five towns, and two townships. Together, these twelve communities form the Regional Municipality of Niagara, whose council is formed of representative members from each of the twelve communities. The Region is responsible for facilities and services that are most effectively and efficiently managed on a regional scale such as planning and development, public health and emergency services, public works, and economic development.

Currently, the Region does not have a formal role in the ownership, operation, marketing, planning and decision making at Niagara District Airport or Niagara Central Airport. However; the Region has an interest in the economic development potential of both airports, and wishes to explore options, opportunities and constraints to be addressed to better position the facilities as stronger economic drivers for Niagara businesses and residents.

2 AIRPORT PROFILES

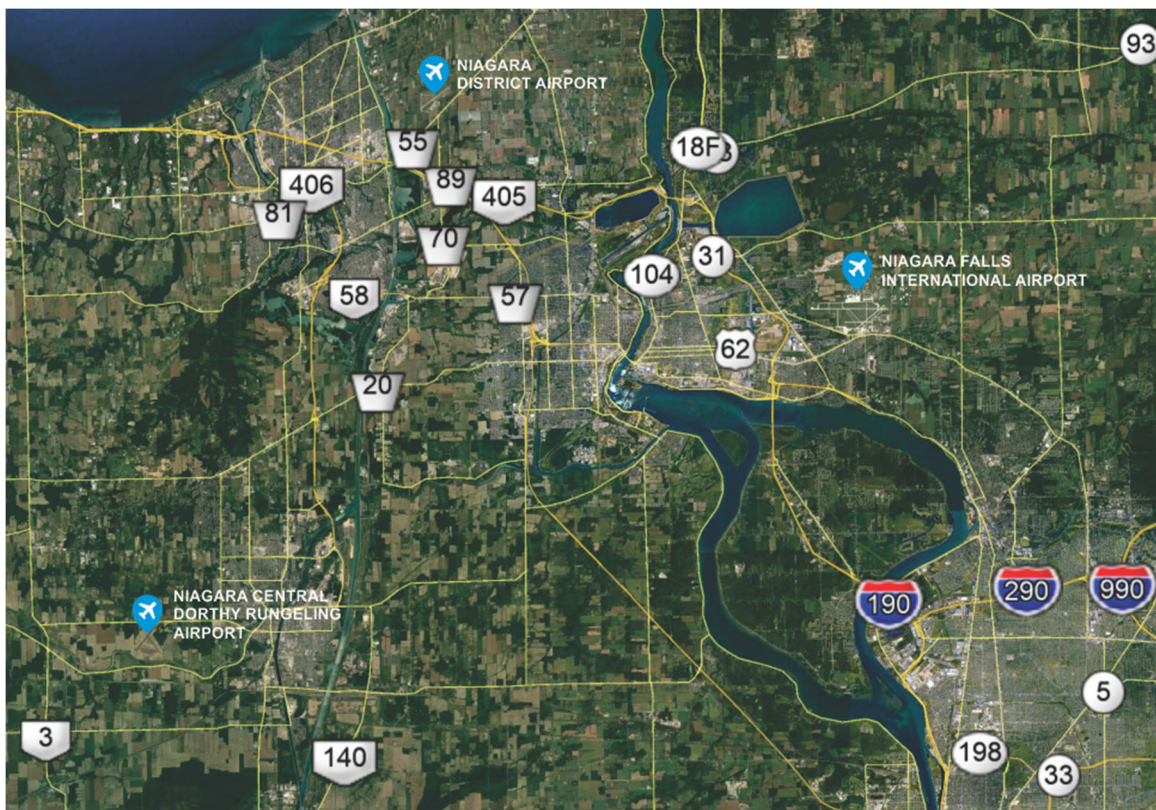
Both Niagara District Airport and Niagara Central Dorothy Rungeling Airport (Niagara Central Airport) have extensive histories within the Niagara Region and have supported various roles and aviation services since their inception.

Included herein is a description of each airport, their primary infrastructure elements, governance structures, activity levels, tenants and airport roles. Other data required to understand the characteristics of each facility has also been identified to provide an understanding of the airport's roles and their overall economic and social contributions to residents, businesses, and visitors to Niagara Region.

2.1 Niagara District Airport

The Niagara District Airport is located within the town of Niagara-on-the-Lake approximately 3.5 km north of the Queen Elizabeth Highway (QEW). The airport site is approximately 128 hectares and is surrounded by vineyards and other agricultural land uses. The Airport's location is illustrated in Figure 2.1 – Niagara Airports Location Map.

Figure 2.1 – Niagara Airports Location Map



2.1.1 Passenger Air Services

Several air carriers have attempted to operate scheduled passenger air services at Niagara District Airport, beginning in the 1950's; however, many of these services lasted a short period of time - until 2016 when FlyGTA introduced scheduled passenger air services (air taxi services) from Niagara District Airport to Toronto Billy Bishop Airport.

The service is operated by a 9-seat Piper Navajo aircraft and is marketed for its short 11-minute average flight time between Niagara Region and downtown Toronto. Flight frequencies average from as low as six round-trip flights per day in the winter months, to sixteen flights per day in the summer season.

2.1.2 Airport Governance

Governance is defined as the exercise of authority, direction, and control of an organization to ensure a defined purpose is achieved. In terms of an airport, a governance structure is further defined by how decisions affecting the development and operation of an airport are made and who provides the required financial support.

The Niagara District Airport Commission is responsible for operating the Niagara District Airport and was formed in 1959. The Commission operated the Airport under a land lease agreement with Transport Canada, with revisions to the Agreement in 1964. At the time, the Commission consisted of council and business members and was supported by St. Catharines, Niagara Falls, Niagara-on-the-Lake, Niagara Township, Louth, Merriton, Stamford, Port Dalhousie, Grantham and Thorold. With the incorporation of regional government and through amalgamation, there became four supporting or funding municipalities: 1) St. Catharines; 2) Niagara Falls; 3) Niagara-on-the-Lake; and 4) Thorold. At that time, these four municipalities were represented on the Niagara District Airport Commission.

In September of 1996 the ownership of the Airport lands was transferred by the Government of Canada to the Town of Niagara-on-the-Lake, providing that the Town continued to operate the facility as an airport, and to administer and maintain the facility in compliance with the requirements of Transport Canada. The 1996 agreement extends for a term ending December 31, 2026.

Furthermore, changes have occurred in the governance of the Airport – within the last 20-years the City of Thorold elected to no longer financially support the facility and does not hold a position on the Commission, leaving three municipalities responsible for the governance of the facility – St Catharines, Niagara Falls, and Niagara-on-the-Lake.

The Commission is comprised of nine members, three of whom are elected municipal councillors from the three owner municipalities, with the remaining six being appointed: three by St. Catharines, two by Niagara Falls, and one by Niagara-on-the-Lake.

The Commission meets on a monthly basis to discuss and vote on matters related to airport operations, finance and development (among other topics) on behalf of the owner municipalities. An Airport Liaison Committee (ALC) has been established, comprised of membership from Mayors and Chief Administrative Officers from the three funding municipalities. The purpose of the ALC is to give direction to the Commission and to serve as a liaison between the Commission and the respective councils of each of the three funding municipalities. Each Mayor has a turn at chairing the ALC for a period of one year, at which time the Chair position is rotated to another Mayor. The ALC is required to hold a minimum of two meetings per year. One of the required meetings deals with strategic business planning and preparation of the Airport's annual budget.

Further to the above, the Commission is also required to present a business plan to the respective councils of each of the three funding municipalities on a yearly basis, together with the budget. The annual budget is approved by the Commission at their November meeting and is submitted to the Clerks of the funding municipalities prior to the 30th of November for consideration by the respective councils. Spending outside of annual budgets required approval from all three funding municipalities.

2.1.3 Airport Operations

Under the supervision of the Commission, Niagara District Airport is operated by a staff of seven employees, led by the Chief Executive Officer:

1. a Manager of Airside/Groundside Operations;
2. an Airport Operations Coordinator
3. an Airport Maintenance Supervisor;
4. a full-time Airport Maintenance Specialist;
5. one seasonal Airfield Maintenance Specialist; and
6. an Executive Assistant (half time).

The Manager of Airside/Groundside Operations is responsible for overseeing the day-to-day operations and maintenance of the airport and manages the Airport's Safety Management System – a resource intensive regulatory compliance assessment program that ensures the Airport's compliance with the Canadian Aviation Regulations (CARs), and the integrity of the Airport Certificate. The Maintenance Supervisor is responsible for the day-to-day maintenance of the airside and groundside infrastructure at the facility, as well as all airport-owned buildings. Seasonal staff are called-in as required during the winter months to assist with snow clearing activities.

Niagara District Airport is classified as a certified aerodrome by Transport Canada that allows the facility to support scheduled passenger air services open to the public as opposed to a registered aerodrome where scheduled passenger air service operations are not permitted.

The Airport supports unrestricted aircraft operations 24 hours per day, 7 days a week. Nav Canada operates a Flight Service Station (FSS) at the Airport during the hours of 07:15 to 21:00 local time.

The Airport offers a high level of annual availability by supporting two satellite-based (GPS) Localizer Precision with Vertical Guidance (LPV) Instrument Flight Procedures (IFPs). Runway 06 supports a Minimum Descent Altitude (MDA) of 339' Above Ground Level (AGL), with a visibility minimum of 1 Statute Mile (SM). A similar LPV procedure for Runway 24 provides an MDA of 320' AGL, with a minimum visibility limit of 1 SM.

2.1.4 Current Role

Defining an airport role is the fundamental starting point in classifying current activity and determining a future position in terms of long term activities and development at the site.

Niagara District Airport's current role supports:

- Scheduled Passenger Air Services;
- Charter Passenger and Air Cargo services;
- Air Tour Operators;
- General Aviation Commercial;
- General Aviation Industrial;
- Flight Training; and
- Recreational Flying Activities.

In addition to supporting scheduled passenger air service, Niagara District Airport is known for serving General Aviation Commercial (corporate) aviation activities in support of local and visiting businesses owners, VIPs, and tourists visiting Niagara Region – both domestically and internationally. The facility is also a base for aerial site seeing tours of Niagara Falls, private and commercial flight training, and supports a Fixed Base Operator (FBO) facility, aircraft maintenance organizations, and private hangars.

Further to the above, the Airport supports essential several government services, such as air ambulance (medevac) operations, law enforcement activities, and military operations by the Department of National Defence. The facility is also utilized to support crew changes by the Canadian Coast Guard and acts as a training base for the Royal Canadian Air Cadets.

The Airport is the largest aerodrome in the Niagara Region, offering a 5,000' runway length. It is also the closest certified Canadian airport to Niagara Falls.

2.1.5 Airport Infrastructure

A brief description of the current infrastructure at Niagara District Airport is provided herein as it relates to the Feasibility Study and Business Case. The information presented in the following sections was obtained through a review of current aeronautical publications (such as the Canada Flight Supplement and Canada Air Pilot), the Airport Operations Manual (AOM), and confirmed through site visits and visual inspections.

Niagara District Airport's principal infrastructure consists of three runways, four taxiways, a primary apron facility, and a series of private taxiways connecting to hangar developments.

Design Aircraft

Airports are designed to permit regular operation of aircraft up to and including a specific size known as the 'design' or the 'critical aircraft'. The three most significant operational parameters necessary for airport planning and design are the design aircraft's runway length and width requirements, pavement loading and manoeuvring characteristics. Sometimes each of these critical planning parameters may be dictated by a different design aircraft.

According to the current Airport Operations Manual (AOM) the design aircraft for Niagara District Airport is the Boeing 737; however, following the publication of TP312, 5th Edition, B737 variants are considered to be within the Aircraft Group Number (AGN) IIIB category - as opposed to Code C under 4th Edition Standards. Considering the current infrastructure layout and operational services provided at the Airport, HM Aero believes that the design aircraft should be an AGN IIIA aircraft type (such as the DHC8-400). Although this discrepancy in the designation of the design aircraft for Niagara District Airport does not impact the business development opportunities and Recommended Development Plans presented in the Feasibility Study and Business Case, it is recommended that a future design aircraft be identified as part of a formal Airport Master Plan exercise.

Runways

Runway 06-24 extends to a length of 5,000' (1,524 m), with a width of 100' (30 m) and is classified by Transport Canada's Aerodrome Standards and Recommended Practices (TP312) as a 3C – Non-Precision (NP) under 4th Edition.

Runway 06-24 is equipped with high intensity threshold-end and edge lights, and both runway ends are supported by Precision Approach Path Indicator (PAPI) systems that provide visual slope guidance to aircraft on approach. Runways 06 and 24 are also supported by Omni-Directional Approach Lighting Systems (ODALS) and an Aircraft Radio Control of Aerodrome Lighting (ARCAL) system, allowing aircraft operators to activate the aerodrome lighting system outside Nav Canada's operational hours.

Runway 01-19 is the second longest runway at the Airport extending 2,498' (761 m) in length, with a corresponding width of 75' (23 m). This runway facility is classified as Code B – Non-Instrument (NI), also under 4th Edition Standards. Runway 01-19 is not equipped with edge lighting and is therefore considered to be day-use only.

Runway 11-29 extends to a length of 1,988' (606 m), with a width of 75' (23 m). Runway 11-29 is certified under TP312 4th Edition standards as a Code 1B facility.

Similar to Runway 01-19, Runway 11-29 is not equipped with edge lighting and is considered to be day-use only. Furthermore, Runway 11-29 has been closed and consultations with the Niagara District Airport Commission indicate that the long-term requirement and use of this runway facility is currently being contemplated.

Taxiways and Aprons

Niagara District Airport operates a network of four taxiways connecting aprons and airside development areas to the runway infrastructure network:

1. Taxiway Alpha connects the main apron to the thresholds of Runway 01 and 06, has a declared width of 15.0 m (50') and is capable of supporting AGN IIIA (Code C) aircraft types;
2. Taxiway Bravo extends from the near midpoint of Runway 06-24, to the northern corner of the main apron. Taxiway Bravo has a declared width of 15.0 m and is capable of supporting AGN IIIA (Code C) aircraft types;
3. Taxiway Charlie is a partial parallel taxiway supporting Runway 06-24 and connects the main apron to threshold of Runway 24. Taxiway Charlie also has a declared width of 15.0 m (50') and can also support AGN IIIA (Code C) aircraft; and
4. Taxiway Delta connects the near midpoint of Runway 06-24 to the threshold of Runway 29 and also has a declared width of 15.0 (50'). The AOM states that Taxiway Delta is also capable of supporting AGN IIIA (Code C) aircraft types.

The Airport provides a main apron supporting the Air Terminal Building, Allied Aviation, and the St. Catharines Flying Club. The main apron has dimensions of 283 m x 91 m (930' x 300'), is comprised of an asphalt surface, and is provided with edge lighting. The Main Apron supports a wide variety of aircraft, including small General Aviation aircraft, corporate aircraft types, and commercial aircraft up to and including the B737 in size.

Niagara District Airport's East Apron connects to Taxiway Charlie and supports commercial and private hangar developments adjacent to the apron and to a series of private taxiways. The East Apron has dimensions of 24 m x 24 m (80' x 80') and is comprised of an asphalt surface. The East Apron is partially supported by illuminated edge lighting.

2.1.6 Airport Activity

Aircraft Movements

The Airport has a diverse mix of aircraft movement activity. Figure 2.2 illustrates the historical aircraft movement activity by type of operation, as reported by Statistics Canada¹. Definitions used by Statistics Canada to categorize aircraft movements are specified in Table 2.1, as they apply to Niagara District Airport.

Historical aircraft movement growth levels have fluctuated over the past eight years at Niagara District Airport; however, average annual growth has been positive at a rate of 5.4%.

As demonstrated within Figure 2.2, itinerant aircraft movements account for more than half of the total movements, although local aircraft movement activity is still considered to be significant. The volume and relatively flat growth of local aircraft movements within the past ten years can be attributed to flight training and aerial sightseeing activities. Figure 2.3 summarizes historical itinerant aircraft movement activity by class of operation for the past eight years at the Airport.

¹ [Table 23-10-0027-01 Itinerant movements, by type of operation, airports with NAV CANADA flight service stations, annual](#)

Figure 2.2 – Historical Aircraft Movements by Type - NDA

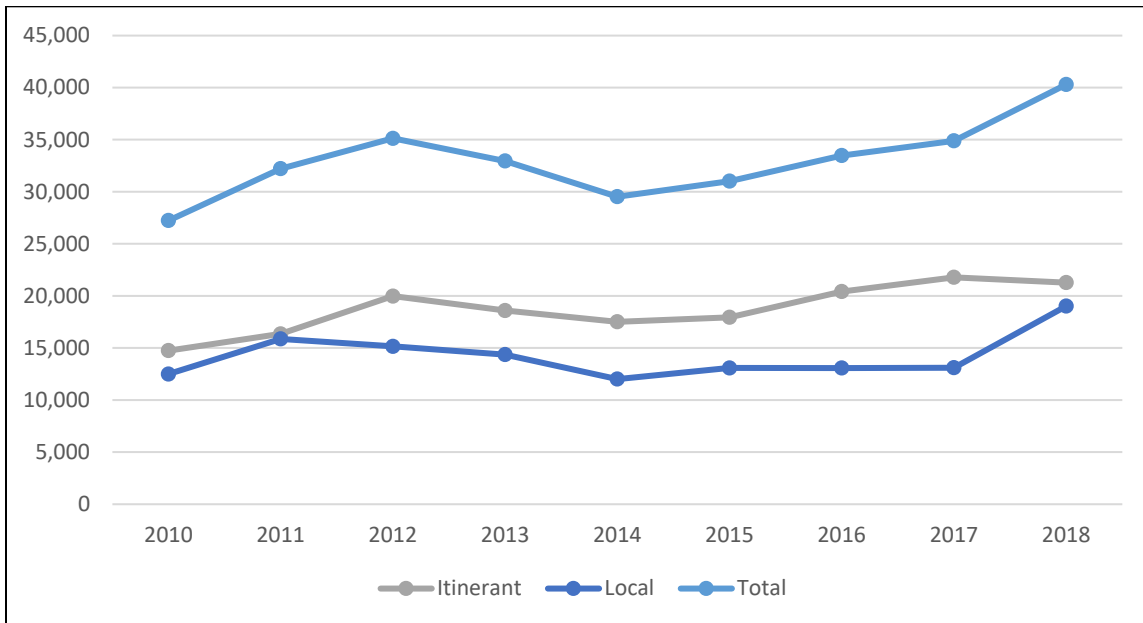


Figure 2.3 – Historical Itinerant Aircraft Movements by Class - NDA

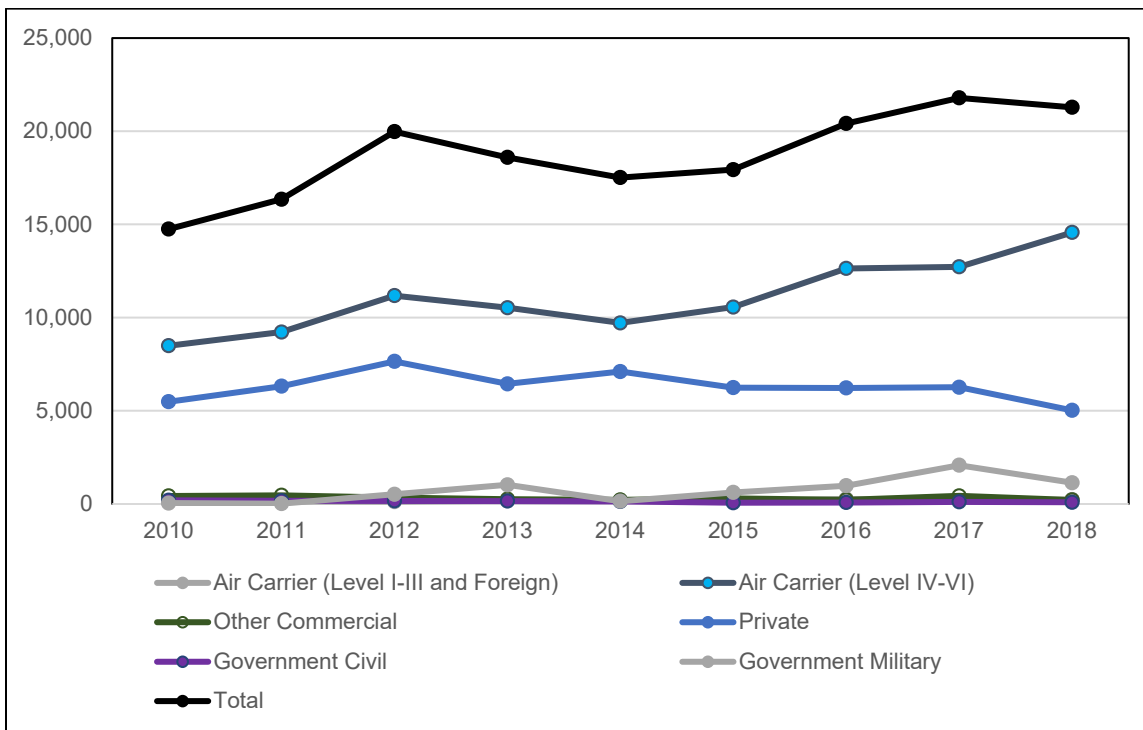


Figure 2.3 demonstrates that itinerant aircraft movements have also experienced varying levels of growth over the past decade at the facility. Annual rates range from almost 22% (comparing 2011 and 2012), to more than -6% (comparing 2011 and 2012). The average growth rate in itinerant aircraft movements was just over 5% during the eight-year period.

Recent growth in itinerant aircraft movements is attributed to the increase in air carrier (Level IV-VI) movements related to the FlyGTA scheduled passenger air service that commenced in 2016.

Table 2.1 – Aircraft Movement Definitions and Classifications

Term	Definition
Aircraft Movement	A takeoff, landing or simulated approach by an aircraft.
Itinerant Movements	Movements in which aircraft proceed to or arrive from another location; or where aircraft leave the circuit but return without landing at another airport.
Local Movements	Movements in which the aircraft remains in the circuit.

Passenger Volumes

Niagara District Airport supports scheduled passenger, charter, and private air services (in addition to aerial sightseeing operations). Scheduled passenger services are solely attributed to the air taxi service operated by FlyGTA to/from Toronto Billy Bishop Airport, and charter and private aircraft operations also contribute to overall annual passenger volumes.

Historical annual scheduled service passenger volumes (enplaned and deplaned passengers) for the Airport are shown in Table 2.2 beginning in 2017 – the first full calendar year where the airport was served by FlyGTA.

Table 2.2 – Historical Scheduled Passenger Volumes – NDA

Year	Passenger Volumes
2017	3,608
2018	4,764
2019	5,485

Airport Tenants and Businesses

Niagara District Airport is home to a wide variety of airport businesses that provide a range of aviation-related support services. Each of the major tenants and businesses are identified and briefly described in Table 2.3.

2.1.7 Land Use Context

The land uses in the vicinity of Niagara District Airport present both opportunities and constraints. Sensitive land uses may result in operational restrictions being placed on the Airport, such as modified flight procedures or noise curfews. However, businesses that benefit from synergistic relationships with the Airport can encourage land development, creating aviation-oriented clusters.

Existing and Permitted Land Uses

The land use context of Niagara District Airport is dominated by agricultural uses. The Airport is designated as Protected Countryside in Schedule A of the Niagara Region Official Plan (2014, as consolidated) and as Niagara District Airport in Schedule A of the Niagara-on-the-Lake Official Plan (2017, as consolidated). The surrounding area is subject to the Agricultural, Non-Farm Rural, and Conservation designations.

North: Immediately to the north of the Airport property boundary are multiple parcels that are farmed for grapes in support of wine production, with associated support buildings. Isolated rural residential development has occurred along Carlton Street and McNab Road, with approximately 15 single-detached dwellings located to the north.

East: The eastern context of the Airport includes large vineyards. Several rural commercial and institutional uses are located to the east, including vineyard boutiques, visitor centres, a greenhouse, and a place of worship. Numerous residential dwellings are also located east of the Airport.

South: Similar to the northern and eastern Airport contexts, the lands to the south are primarily used as vineyards with limited rural residential development. Significant commercial, industrial, institutional, and residential development has occurred three kilometres south of the Airport, clustered around Queen Elizabeth Way. This includes Niagara College and the Outlet Collection at Niagara.

West: The lands to the west include a dairy farm and extensive vineyard operations. Approximately two kilometres from the Airport, across the Welland Canal, is the urban area of St. Catharines. Land uses along the extended centreline of Runway 06-24 include an industrial park, large format retail stores, and residential subdivisions.

Implications and Opportunities

The predominantly agricultural nature of the land use context is favourable in terms of compatibility with Airport operations. While limited rural residential development has occurred, the majority of nearby land uses are not overly sensitive to the externalities of aircraft operations. Further, existing municipal planning policies generally limit residential development in the vicinity of the Airport. The St. Catharines Airport Zoning Regulations (SOR/84-901) were registered in 1984 and control development height in the vicinity of Niagara District Airport, as well as bird hazards. It is anticipated that new on-Airport development can be accommodated in a manner that is compatible with the contextual land uses described above, given the lack of sensitive land uses.

The rural agricultural and commercial businesses that dominate the Airport context may have potential synergies for new development. Following a review of Airport land requirements through a Master Plan, surplus lands could be leased to interested parties for agricultural purposes. Examples could include the cultivation of grapes or a greenhouse operation. Additionally, the rural context of the Airport is favourable for photovoltaic power generation given the lack of land uses that would be negatively affected. This practice has been employed successfully at airports such as Windsor and Thunder Bay given the availability of large areas of land. Benefits include long-term land lease payments and environmental sustainability.

It is recommended that a comprehensive review of existing municipal planning policies with respect to Airport land use compatibility be completed as part of a formal Master Plan. This review should be supported by the preparation of Noise Exposure Forecast (NEF) contours to identify areas where the future development of sensitive land uses should be limited. In addition, it is also recommended that surplus lands be identified as part of a formal Master Plan for the Airport, potentially for consideration for future sale to assist in offsetting the cost of some of the capital rehabilitation and expansion requirements identified within this Feasibility Study and Business Case.

Table 2.3 – Major Tenants and Businesses - NDA

Tenant/Business	Description
Allied Aviation	Operates a Fixed Base Operator (FBO) facility and an accompanying hangar providing aircraft fuelling, storage, ground servicing and pilot support services.
CARES (Niagara)	CARES (Civil Air Rescue Emergency Service) Niagara is a member organization of the Civil Air Search and Rescue Association) comprised of volunteers who promote aviation safety and assist the Canadian Armed Forces within their search and rescue mandate.
St. Catharines Flying Club	A Transport Canada certified flight training unit offering professional flight training and aircraft rental services to residents of Niagara Region. The St. Catharines Flying Club has been in operation since 1928.
FlyGTA	FlyGTA provides scheduled passenger air services between Niagara District Airport and Toronto Billy Bishop Airport on a year-round basis. The air carrier operates a 9-seat Piper Navajo aircraft and leases space within the air terminal building to support the company's operations.
Genaire	Genaire is a wholly owned Canadian company providing a wide range of custom fabrication, engineering, painting, metal shearing and testing services to the military and civil aviation industry. The company has been in operation at Niagara District for more than 50 years and their 30,000 square foot facility houses their sheet metal, hydraulic, radome, ground handling, pallet, and destructive testing departments.
Recreational Aircraft Association (RAA)	The RAA's Niagara chapter has a presence at Niagara District Airport and holds monthly meetings at Niagara District Airport from September through June.
Eaglerock Aviation	Eaglerock Aviation is an Aircraft Maintenance Organization (AMO) providing a wide variety of services, including but not limited to single and multi-engine aircraft maintenance for aircraft under 12,500 lbs., pre-purchase inspections, aircraft restorations, and aircraft importing and exporting.
FlyGTA	FlyGTA provides scheduled passenger air services from the Airport and leases space within the Air Terminal Building to support passenger check-in and customer service activities.
Nav Canada	Operates a Flight Service Station (FSS) at the airport providing airport advisory service to aircraft operators at, and in the vicinity of the Airport.
Niagara Air Tours	Niagara Air Tours offers fixed wing aerial sightseeing tours of Niagara Falls, the Welland Canal and other points of interest, including Fort George and Fort Niagara. The organization also offers air taxi services between Niagara District Airport and Toronto Billy Bishop Airport and provides customers with connections to ground transportation services and tourism excursions.
Niagara Helicopters	Niagara Helicopters provides rotary wing aerial sightseeing tours of Niagara Falls and the surrounding area. The organization also offers corporate charter, filming and photography and aerial survey services. The company's operations are based out of the Air Terminal Building.

2.2 Niagara Central Dorothy Rungeling Airport

Niagara Central Airport is situated within the limits of the town of Pelham, approximately 3 km west of the City of Welland, and within the Regional Municipality of Niagara. Located within the heart of the Niagara Peninsula, the facility serves residents and users within the City of Welland, the Town of Pelham, the City of Port Colborne, and the Township of Wainfleet. The Airport site is approximately 166 hectares in size and is surrounded primarily by agricultural land uses.

Niagara Central Airport is a registered aerodrome facility that is jointly owned and operated by the municipalities of Welland, Wainfleet, Pelham and Port Colborne.

The Airport supports a wide variety of General Aviation (GA), recreational, and small corporate aircraft operators. The facility's primary runway is approximately 3,500' in length; however, it does not support scheduled passenger air services. The Airport is home to several businesses, including Skydive Niagara, the St. Catharines Flying Club, Tarczy Aircraft, and Accipiter Radar Technologies. Like Niagara District Airport, Niagara Central Airport is a former BCATP facility that operated three runways; however, Runway 11-29 has since been decommissioned due to infrastructure deterioration, although the Airport reported in the summer of 2019 that this runway was being rehabilitated with a turf surface.

2.2.1 Airport Governance

Similar to Niagara District Airport, Niagara Central Airport is governed under a commission-type model whereby each municipality has representation on the Board.

Niagara Central Airport is jointly governed by four municipalities – Welland, Pelham, Port Colborne, and Wainfleet and is operated by the Niagara Central Airport Commission. The Airport lands were purchased from Transport Canada in 1969. As defined in the Welland-Port Colborne Airport Act, the Commission is comprised of seven members: three (3) from Welland, two (2) from Port Colborne, one (1) from Pelham, and one (1) from Wainfleet.

The Commission submits an annual budget to the owner councils, and approval is required from all respective councils to deviate from annual budgets. The net cost of operating the Airport after deducting operating revenues and grants is divided between the owner municipalities on a per capita basis.

2.2.2 Airport Operations

Under the supervision of the Commission, Niagara Central Airport is operated by a part-time Airport Manager, as well as volunteer positions providing support for airport maintenance activities.

Niagara Central Airport is classified as a registered aerodrome where scheduled passenger air service operations are not permitted. The Airport supports aircraft operations 7 days a week, 365 days a year; however, because parachuting operations occur at the facility, aircraft overflights are not permitted.

The Airport offers a satellite-based (GPS) Lateral Navigation (LNAV) Instrument Flight Procedures (IFPs) for Runway 05 supporting a Minimum Descent Altitude (MDA) of 519' Above Ground Level (AGL) and a visibility minimum of 1 ½ Statute Miles (SM).

2.2.3 Current Role

The Airport Role statement is the fundamental starting point in classifying current activity and determining a future position in terms of long-term activities and development at the site.

Niagara Central Airport's current role supports the following activities:

- General Aviation Commercial,
- charter passenger operations;
- flight training; and
- recreational flying activities.

The Airport is known for serving General Aviation Commercial activities in support of local and visiting businesses owners and tourists visiting the Niagara Region.

2.2.4 Airport Infrastructure

A brief description of the current infrastructure at Niagara Central Airport is provided herein as it relates to the Feasibility Study and Business Case. The information presented in the following sections was obtained through a review of current aeronautical publications (such as the Canada Flight Supplement and Canada Air Pilot) and confirmed through a site visits and inspections.

The Airport's principal infrastructure consists of two runways, two taxiways, and a primary apron facility.

Design Aircraft

Niagara Central Airport has not designated a design aircraft. However, a review of the current infrastructure suggests the facility was designed to accommodate small AGN III aircraft types (e.g. the DHC8-100).

Runways

Runway 05-23 is 3,493' (1,065 m) in length, with a width of 100' (30 m) and is equipped with medium intensity threshold-end and edge lights. Both runway ends are supported by Abbreviated Precision Approach Path Indicator (APAPI) systems that provide visual slope guidance to aircraft on approach. Runways 05 and 23 are also supported by Aircraft Radio Control of Aerodrome Lighting (ARCAL) systems, allowing aircraft operators to activate the aerodrome lighting system remotely.

Runway 16-34 extends to 2,663' (812 m) in length, with a corresponding width of 50' (15 m).

In cooperation with the local Canadian Owners and Pilots Association (COPA) chapter, Niagara Central Airport has recently rehabilitated Runway 11-29 with a turf surface capable of supporting smaller General Aviation aircraft. This runway is intended for seasonal use and is not currently listed as operational within aeronautical publications.

In addition to the runway infrastructure identified above, the Airport operates a water aerodrome on the Welland River through an easement providing direct access to a dock and launch ramp. Although not currently registered in aeronautical publications, this facility is considered to be a significant asset, as many comparable airports do not have the ability to provide adequate facilities to operate both land and seaplanes in such close proximity.

Taxiways and Aprons

The Airport is equipped with two taxiways connecting aprons and airside development areas to the runway infrastructure network:

1. Taxiway Alpha connects the main apron to Runway 05-23, has a width of 23.0 m (75') and is capable of supporting AGN IIIA (Code C) aircraft types.
2. Taxiway Bravo connects the main apron to the threshold of Runway 34. Taxiway Bravo also has a declared width of 15.0 m (50') and is capable of supporting AGN IIIA (Code C) aircraft types.

The Airport provides a Main Apron supporting airport businesses and itinerant aircraft. The Main Apron has dimensions of 360 m x 45 m (1180' x 148'), is comprised of an asphalt surface, and is provided with edge lighting. The Main Apron supports a wide variety of aircraft, including small General Aviation aircraft and corporate aircraft types.

2.2.5 Airport Activity

Consultations with the airport operator revealed that aircraft movement volumes at Niagara Central Airport are not recorded; however, a review of historical publications released by Statistics Canada indicates that aircraft movement activity was measured at 12,135 in 2012.

Annual passenger volumes are also not recorded at Niagara Central Airport.

Airport Tenants and Businesses

NCDRA is home to airport businesses that provide a range of aviation-related support services. Each of the major tenants and businesses are identified and briefly described in Table 2.4.

2.2.6 Land Use Context

As described in Section 2.1.7 for Niagara District Airport, the contextual land uses of Niagara Central Airport can present both constraints through sensitive land uses and synergistic development opportunities.

Existing and Permitted Land Uses

Niagara Central Airport is located in a predominantly rural land use context, with minimal development having occurred in the immediate vicinity. The site is designated as Rural Area in the Niagara Region Official Plan and Airport in the Town of Pelham Official Plan (2014, as consolidated).

North: The lands to the north are designated Industrial in the Town of Pelham Official Plan, with uses along Webber Road including self-storage facilities, automotive businesses, and trucking companies. Minimal residential development has occurred to the north, with uses limited to isolated single-detached dwellings.

East: The lands to the east are subject to three Pelham Official Plan designations: Good General Agricultural, Environmental Protection One, and Environmental Protection Two. The eastern context is primarily undeveloped and includes large forested areas, agricultural fields, and two golf courses. The developed boundary of Welland is approximately three kilometres to the east.

South: Immediately to the south of the Airport is the EC Brown Memorial Park and a wetland complex. Further south, across the Welland River, are multiple rural residential properties and a golf club along Concession Road 27.

West: The western context is defined by agricultural cropping fields, forested areas, and several residential dwellings along River Road and Cream Street. The land use designations to the west include Good General Agricultural and Environmental Protection areas.

Implications and Opportunities

The most significant sensitive land uses are the rural residential dwellings to the south, along Concession Road 27. The distance of these dwellings from the Airport and separation of the Welland River are expected to improve the compatibility of new development. However, the Airport context lacks significant commercial or industrial uses that may benefit from synergistic relationships with the operations of the facility.

As with Niagara District Airport, it is recommended that a municipal planning review for Niagara Central Airport be completed as part of a formal Master Plan that includes the preparation of NEF contours. In addition, it is also recommended that surplus lands be identified as part of a formal Master Plan at Niagara Central Airport as there may be an opportunity to designate surplus lands to support non-aviation economic growth, especially adjacent to Webber Road. If surplus airport lands were to be identified within a Master Plan, a real estate appraisal could be conducted to determine the potential value of the lands which could be sold without impacting long-term airport growth. The future sale of surplus lands could assist in offsetting the cost of some of the capital rehabilitation and expansion requirements identified within this study.

Table 2.4 – Major Tenants and Businesses - NCDRA

Tenant/Business	Description
Accipiter Radar Technologies Inc.	Provides wide-area situational awareness solutions for applications that impact the safety and well-being of the public, individuals, and the environment. Accipiter Radar has a facility based at Niagara Central Airport; however, they do not conduct regular aviation-related business at the Airport.
Niagara Skydive Centre	The Niagara Skydive Centre operates 7 days a week and is comprised of full-time and part-time professionals who have been trained to the highest standards established by the Canadian Sport Parachute Association (CSPA) and the United States Parachute Association (USPA). The Niagara Skydive Centre offers skydiving excursions for groups and individuals.
St. Catharines Flying Club Flight School Satellite Campus	Services offered include introductory flights, private and commercial instruction, night ratings, OTT, multi-engine commercial, IFR, sightseeing and aircraft rental. The St. Catharines Flying Club leases space at Niagara Central Airport to support their satellite flight training base.
Tarczy Aircraft	Specializes in aircraft maintenance and repairs, annual inspections, and pre-purchase aircraft inspections.

Further to the above, Niagara Central Airport also acts as a base for glider flight training by the Air Cadets and is also used to support law enforcement and medevac activities.

2.3 Airport Roles

There are several airports within southern Ontario that support varying types of aviation activity and provide different roles – sometimes acting as a system of airports whereby certain aviation activities are encouraged at certain airports, in an informal or formal manner. In the context of this report, airport roles are referred to as the primary services they currently provide, and the aviation markets in which they intend to serve in the future. Airport roles fall within three major categories:

1) Passenger

- Scheduled Passenger Air Services: Major airlines, regional airlines, low-cost carriers, air taxi services, commuter services.
- Charter Passengers Air Services: Seasonal destinations, leisure airlines, planned tours, private passenger transport, etc.

2) Cargo

- Scheduled Cargo: Integrators (all cargo flights), forwarders (belly cargo).
- Charger Cargo: Just-in-Time (JIT) express delivery, unique one-time cargo shipments.

3) General Aviation

- General Aviation Commercial: Business aviation, corporate aircraft, corporate charters.
- General Aviation Industrial: Maintenance Repair and Overhaul (MRO), aerospace manufacturing, aircraft parts and supplies.
- General Aviation Recreational: flight training, private aircraft.

Provided herein is a characterization of the primary airport players within southern Ontario, and a description of some of the business development initiatives that are ongoing to promote further business development at airports in southern Ontario.

2.3.1 Niagara District Airport

The assumed future role for Niagara District Airport has (in part) been derived from Niagara District Airport's vision and mission:

Vision – *To continue to be Niagara Region's hassle-free aviation hub offering VIP service to leisure and business travelers, and recreational flyers.*

Mission – *Contribute to the economic prosperity of the Niagara Region by providing air connectivity for business and leisure travellers.*

Considering the above and the perspective roles of airports within southern Ontario, in addition to HM Aero's research, analysis and input received from an extensive stakeholder consultation program, Niagara District Airport is best suited to support the following airport roles within the next 20-years:

- | | |
|-------------------------------------|-------------------------------------|
| 1. Scheduled Passenger Air Services | 5. Cargo Charter |
| 2. Charter Passenger Air Services | 6. General Aviation Recreational |
| 3. General Aviation Commercial | 7. General Aviation Flight Training |
| 4. General Aviation Industrial | |

2.3.2 Niagara Central Airport

In absence of an official mission and vision statement for Niagara Central Airport and considering the competitive environment in which the Airport operates, HM Aero believes that the Airport is best suited to support the following roles within the next 20 years:

1. General Aviation Commercial;
2. General Aviation Recreational; and
3. General Aviation Flight Training.

Niagara Central Airport has a significant base of private and commercial aircraft operators, and the facility is seen as an attractive location for the development of recreational aircraft hangars and smaller-scale aviation commercial businesses within southern Ontario.

2.3.3 Airport Business Development Initiatives

In recent years, airports and municipalities within southern Ontario have initiated efforts to work together to promote business development. Two specific initiatives are relevant to business development activities at Niagara District and Niagara Central Airport – the Southern Ontario Airport Network, and the Southern Ontario Municipal Aerospace Council.

The Southern Ontario Airport Network (SOAN)

In May 2017, the GTAA entered into informal agreements with a group of airports in southern Ontario, referred to as the Southern Ontario Airport Network (SOAN)². The SOAN is comprised of 12 commercial airports with Windsor Airport at the western extent and Kingston at the eastern extent (see Figure 2.4), excluding Sarnia Airport which has since been added to SOAN.

Niagara District Airport is included within SOAN's membership, and the GTAA has held recent meetings with the Niagara District Airport Commission to discuss current and future roles that could be served by the Airport as Toronto Pearson International Airport becomes more congested. In terms of supporting SOAN and providing additional capacity to 'offload' certain traffic segments from Toronto Pearson International Airport, Niagara District Airport could benefit from this informal relationship by providing development lands to support aviation industrial and aviation commercial activities, as identified in Chapter 7 – Business Development Opportunities. The SOAN does not include Niagara Central Airport, although this Airport does play a role within Niagara Region.

The Southern Ontario Municipal Aerospace Council (SOMAC)

The Southern Ontario Municipal Aerospace Council (SOMAC) was announced by Mississauga Mayor Bonnie Crombie at the May 2019 SOAN summit³. SOMAC is an organization with representatives from over 20 municipalities across Southern Ontario representing 11 airports, including Niagara District Airport.

SOMAC facilitates municipal collaboration, awareness building, and policy advocacy with the mandate of increasing aerospace investment in southern Ontario. The Council convenes twice per year to discuss opportunities for aerospace growth and development. The cornerstone of the organization's strategy is the exploitation of each of its member airports' competitive advantages. The most significant action by SOMAC to-date was its participation in the June 2019 Paris Air Show, during which representatives communicated the strengths of Southern Ontario's aviation industry to potential aerospace businesses.

² Source: <https://www.soairportnetwork.com/>

³ Source: <https://www.insauga.com/mayor-bonnie-crombie-to-become-chair-of-new-southern-ontario-council>

Figure 2.4 – Southern Ontario Airport Network, Member Airports



Source: Southern Ontario Airport Network, May 2017

The primary advantage of SOMAC is that the involvement of municipal representatives (Mayors and Regional Chairs) can enable a more holistic understanding of the economic strengths and benefits of each airport. Business attraction campaigns require messaging that extends beyond the strengths of the airport facilities themselves, including matters such as workforce availability, education, transportation, servicing, and taxation. Municipal governments are well-positioned to provide this data through existing economic development materials and the knowledge of their elected representatives. Therefore, the inclusion of Niagara District Airport in SOMAC may support future business development efforts at the facility.

Municipal leaders representing Niagara's Airports and the Niagara District Airport Commission are well connected to both SOAN and SOMAC and been actively engaged with both initiatives through stakeholder meetings. Although specific growth opportunities have not yet been identified for Niagara District Airport or Niagara Central Airport through these initiatives, continued involvement in SOAN and SOMAC by municipal leaders and Airport operators is encouraged to assist with business development.

2.4 Other Area Airports

HM Aero has identified airports within southern Ontario and western New York State whose operations and business offerings are utilized by residents of, and visitors to the Niagara Region. Niagara's geographic position connecting western New York State to southern Ontario provides for access to a wide range of airport facilities, serving a diverse mix of business sectors and markets.

2.4.1 Toronto Pearson International Airport

Toronto Pearson International Airport (Toronto Pearson Airport) is the main passenger and commercial freight service airport within the Greater Toronto Area (the GTA), and is the primary international air service gateway for southern Ontario. Toronto Pearson Airport is an integral part of Ontario's airport infrastructure and ranks second among North American Airports for international connectivity. The airport supports non-stop flights to 175 international destinations, including almost 60 U.S. cities and a domestic air service network. Toronto Pearson Airport served almost 50 million passengers in 2018.

Toronto Pearson Airport is continuing to emerge as an international airport of importance and the facility continues to be positioned as an international and transborder air service hub. The Airport's activity consists mostly of air carrier movements, with a small share of corporate General Aviation traffic. As the Toronto Pearson Airport continues to move towards becoming a stronger hub for international and transborder air services, it is anticipated that smaller passenger air services and General Aviation Commercial traffic will be encouraged to operate from other airports within southern Ontario to provide the desired capacity for larger narrowbody and widebody scheduled passenger air services that yield higher revenues for the Airport. The continued growth of Toronto Pearson Airport is expected to result in the creation of additional business opportunities for airports within southern Ontario as aerospace manufacturers, General Aviation Commercial businesses, and other aviation-related businesses are looking for alternative sites to develop their businesses.

Many residents in Niagara utilize the air services offered from Toronto Pearson Airport. During off-peak times, Toronto Pearson is within a one to two-hour drive from most communities in the Region; however, during peak travel periods this could be increased to as much as 3.5 hours.

2.4.2 Billy Bishop Toronto City Airport

Billy Bishop Toronto City Airport (Toronto City Airport) is located on Toronto Island approximately 5 km southwest of downtown Toronto and is operated by Ports Toronto. The Airport provides passengers in the City of Toronto and southern Ontario with regional air travel destinations. The facility is also an important location for smaller propeller-operated corporate aviation and flight training activities. As mentioned previously, scheduled passenger air services are provided by FlyGTA to/from Toronto City Airport and Niagara District Airport.

Toronto City Airport plays an important role as Toronto's secondary airport, which changed significantly in 2007 when Porter Airlines began operations using 70-seat DHC8-400 aircraft. This led to a significant decline in local aircraft movements at the facility (generally supporting flight training operations), and air carrier aircraft movements (takeoffs and landings) now make up the majority of activity at the Airport.

Although Toronto City Airport is considered to be a significant economic asset for the City of Toronto and the Golden Horseshoe, its expansion capabilities are limited as turbofan aircraft are prohibited from operating at the facility, and runway extension capability is limited as each end of the primary runway is surrounded by water, indicating that a runway extension could be cost prohibitive and could come with significant environmental impacts.

It is expected that Toronto City Airport will continue to grow as a connecting point between Niagara District Airport, the City of Toronto, and further Canadian and U.S. destinations within the next 20-years, and beyond. The Airport's current air service profile and its close proximity to Niagara District Airport (via air) makes it an attractive air service growth partner for Niagara Region.

2.4.3 Hamilton John C. Munro International Airport

John C. Munro Hamilton International Airport (Hamilton Airport) is owned by the City of Hamilton and operated under contract by Tradeport International Corp., a member of Vantage Airport Group. The Airport is located 14 km south of downtown Hamilton and approximately 70 km southwest of downtown Toronto.

Scheduled passenger air services and air cargo activity account for a significant portion of aviation activity at Hamilton Airport and the airport has ambitious plans to become a gateway to southern Ontario for low-cost carriers. Hamilton airport is approximately 40 km from St. Catharines and has become more accessible to Niagara residents since the development of the Red Hill Valley Expressway in 2007.

The past two decades have witnessed a long series of experiments, with many short-lived services operating from Hamilton Airport. Swoop, a low-cost division of WestJet, uses Hamilton as its primary gateway to southern Ontario. In 2019, Norwegian Air Shuttle offered summer-only flights to Dublin and Air Transat and Sunwing also offer seasonal services.

Nonetheless, Hamilton Airport experienced several setbacks during its journey to become a stronger airport supporting scheduled and charter passenger air services. In 2010, WestJet eliminated two thirds of its flights, putting greater focus on their operations at Toronto Pearson. In 2015, Air Canada Rouge cancelled plans for a Hamilton-Calgary flight and low-cost carrier Flair Airlines shifted its southern Ontario base to Toronto Pearson in 2018. Furthermore, Air Canada ended its nonstop Montreal flights in mid-2019.

Notwithstanding the above, it is expected that Hamilton Airport will continue to act as an airport serving residents and tourists visiting the Niagara Region; however, it is expected that Toronto Pearson will continue to capture the majority of international, domestic and transborder passenger traffic within the next 20-years and beyond. In addition, Hamilton Airport's strong presence within the scheduled air cargo market is expected to continue within the next 20-years. This is substantiated by the fact that the City of Hamilton has made significant investments in land development and servicing surrounding the airport.

2.4.4 Region of Waterloo International Airport

The Region of Waterloo International Airport (Waterloo Airport) is owned and operated by the Regional Municipality of Waterloo and services the cities of Waterloo, Kitchener, Cambridge, Guelph and surrounding communities. In general, the Airport's primary catchment area extends a distance of approximately 35 km around the airport, with a secondary catchment area extending to Hamilton, London, Owen Sound, and points further in southwestern Ontario. The Airport supports Scheduled Passenger Air Services, Charter Air services, General Aviation flight training and corporate aviation services.

WestJet offers year-round flights to Calgary from Waterloo, with additional summer-only services. Sunwing Airlines also offers seasonal weekly services to various sun destinations from Waterloo Airport, depending on the season. The airport once supported nonstop flights to Detroit, Chicago, Montreal and Ottawa; however, these services are no longer in operation. The Airport is within a one-hour drive of both Hamilton and Toronto Pearson Airports (off-peak times), and competes with these airports for passenger air services. The volume of air service passengers utilizing Waterloo Airport who originate or terminate in Niagara is expected to be limited, primarily due to the closer proximity of Hamilton Airport and the greater air service frequencies and connections offered at Toronto Pearson Airport.

2.4.5 Buffalo International Airport

Buffalo (Niagara) International Airport (Buffalo Airport) is located in western New York state and serves both legacy airlines and low-cost carriers (such as JetBlue and Southwest Airlines). The airport offers direct domestic air service links throughout the United States and the intense competition amongst carriers and the presence of low-cost carriers is resulting in highly competitive airfares. Buffalo Airport acts as a main air passenger gateway to Niagara's attractions for American tourists, and international tourists travelling via the U.S. In addition, Buffalo Airport is used by residents of Niagara Region, typically destined for cities with the U.S.

Since Buffalo Airport is located in the U.S., passengers travelling to/from Canada are subject to wait times related to border crossings in Fort Erie, Niagara Falls and Queenston, which can cause significant delays during peak travel periods. The presence of these border crossings limits the potential for Buffalo Airport to further support tourism-related air travel to the Niagara Region, as tour operators are seeking air service options with minimal disruptions. Any significant demand for tourism-related passenger air services for the Niagara Region would be better served from an airport within southern Ontario.

2.4.6 Niagara Falls International Airport (NY)

Niagara Falls International Airport (Niagara Falls Airport) was historically operated as a military base supporting operations by the United States Air Force on the American side of the Niagara River. Lower volume passenger air services have been offered from Niagara Falls Airport. However, with the introduction of the low-cost carrier revolution in the U.S., passenger air services were re-introduced in 2007. Allegiant Airlines and Spirit offer low-cost services from Niagara Falls to sun destinations within Florida and South Carolina.

2.4.7 Aviation Commercial and Industrial Airports

Further to the southern Ontario airport facilities identified above, there are additional airport facilities that play various roles within the aviation commercial and industrial market segments that could be considered relevant to future business development opportunities at Niagara District Airport and Niagara Central Airport:

Oshawa Executive Airport

Oshawa Executive Airport (Oshawa Airport) is located in the City of Oshawa, within the Regional Municipality of Durham at a road distance of approximately 50 km from downtown Toronto. The Airport is owned by the City of Oshawa and operated under private contract and is considered as a General Aviation/corporate airport servicing the eastern communities of the GTA. Significant growth in activity levels have been experienced at Oshawa Airport as a result of the pending closure of Buttonville Airport. The Airport is home to General Aviation flight training operators, supports ad-hoc cargo shipments and could be seen as a competitor to Niagara District Airport when considering its role in supporting corporate aviation within the Golden Horseshoe.

The long term viability of Oshawa Airport is expected to depend on the Government of Canada's decision to develop a new airport on the Pickering Lands (which have been held in reserve by Transport Canada since the 1970s). If the Government of Canada elects to allow development of a new airport on the Pickering Lands, the Oshawa Airport will likely be identified as redundant and the lands will be sold for higher-value, non aviation-related uses by the City of Oshawa.

Peterborough Airport

Peterborough Airport is situated approximately 105 km northwest of downtown Toronto and serves aviation industrial, General Aviation, flight training and corporate aviation activities. The facility is home to Seneca College's School of Aviation (which relocated from Toronto Buttonville Airport in 2014), and supports occasional and seasonal passenger charter air services to U.S. destinations. In addition, Peterborough Airport is home to Flying Colours Corporation; an organization specializing in aircraft completion and finishing services, as well as a cluster of aircraft maintenance and parts supply organizations (amongst others). Peterborough Airport experienced a significant expansion effort in 2010 when the City of Peterborough (in partnership with the Government of Ontario and the Government of Canada) invested more than \$27 million to encourage job creation and economic development in the region. Since the expansion, more than 420 Full-Time Equivalent (FTE) jobs have been created, and airport-related GDP contributions have increased by \$32 million annually.⁴

Toronto Buttonville Airport

Toronto Buttonville Airport was once the GTA's busiest and primary General Aviation airport. During its peak, Toronto Buttonville Airport supported a large proportion of the GTA's General Aviation Commercial (business aviation) and flight training traffic. The Airport is privately owned by Toronto Airways, but is operated as a public facility available to all General Aviation and corporate aviation users.

The future of Buttonville Airport has been in question for many years due to urban development encroachment around the airport boundaries, and the high value development potential for airport lands. There have been several closure dates announced for Buttonville Airport; however, there have been land development approval issues between the developer and the Regional Municipality that have extended the facility's closure date. Recent discussions with the airport operator indicate that a revised date for the closure of the airport facility is still being determined.

2.4.8 General Aviation Recreational Airports

There are at least five additional airports that support General Aviation Recreational activities within southern Ontario for recreational aircraft operators and/or support businesses. The following airports primarily support General Aviation flight training, recreational and a small percentage of General Aviation Commercial traffic. These airports have similar characteristics to Niagara Central Airport, as they support many private aircraft operators, some who have developed their own hangars.

1. Brantford Airport;
2. Burlington Airport;
3. Grimsby Airpark;
4. Guelph Airport; and
5. Tillsonburg Airport.

⁴ Source: Peterborough Airport Strategic Plan, 2017

3 STAKEHOLDER ENGAGEMENT

3.1 Introduction

The HM Aero project team conducted an extensive stakeholder engagement program in support of the development of the Feasibility Study and Business Case. With the assistance of the Regional Municipality of Niagara and the airport operators, more than 100 stakeholders were identified and engaged throughout the development of the study.

HM Aero classified stakeholders within three categories for the purpose of preparing the Feasibility Study and Business Case for Niagara District Airport and Niagara Central Airport:

1. Airport Tenants and Users;
2. Niagara Business and Tourism; and
3. Government

Feedback from each of the three stakeholder groups was collected using three engagement methods during the study process:

1. In-person Interviews (26);
2. Telephone Interviews (33); and
3. Online Survey Engagement (13/49 Responses).

A summary of the general feedback and common themes identified throughout the stakeholder engagement process as it relates to future business development and economic growth at both airports is identified in the following sections. The HM Aero project team also conducted stakeholder consultations with senior members of the two airport commissions for Niagara District and Niagara Central. General themes discovered as a result of the stakeholder engagement process are described in the following sections.

3.2 General

Awareness of Airport Facilities in Niagara

Aviation operators and businesses within Niagara Region have a general awareness of facilities and operations at both Niagara District Airport and Niagara Central Airport. It has been observed that the recent introduction of scheduled passenger air services from Niagara District Airport to Toronto Billy Bishop Airport has raised overall awareness of the facility's presence within Niagara Region. However, the business and tourism sector has limited knowledge of the existence and operational characteristics of Niagara Central Airport (aside from local businesses and government who are involved in the Airport's operation and have previously utilized the airport facilities). This can likely be attributed to Niagara Central Airport's role as a centre for General Aviation Commercial and recreational activities serving niche aviation markets not usually desired by the general public. In addition, Niagara Central Airport's remote location could also be contributing to the lack of awareness amongst the general public, especially compared to Niagara District Airport's location in close proximity to the QEW, and Niagara Stone Road connecting St. Catharines to Niagara-on-the-Lake.

Alignment of Funding Municipalities – Long Term Vision

Consultations with senior members of the Niagara District Airport and Niagara Central Airport Commission and members of municipal and regional governance indicate that the current airport governance models for both Niagara District Airport and Niagara Central Airport could be considered to be hindering future growth at both facilities.

Both airport commissions are not provided with the required authority and autonomy to quickly respond to business development opportunities and further develop the airport facilities to better support aviation-related economic growth. The requirement for council approvals to deviate from annual budgets and fund airport infrastructure developments is considered by many to be a significant barrier to growth at both facilities. Further to the above, the majority of stakeholders engaged during the study process believe that local government leaders (the funding municipalities) do not see the airports as economic drivers within Niagara Region based on past performance and decision making.

Transportation Access to/from Niagara Region

Transportation access to the Greater Toronto Area (including downtown Toronto) was cited by several stakeholders as being a barrier to future business development in the Niagara Region. The businesses and tourism sectors specifically referenced lengthy and unpredictable travel times to/from Niagara to the GTA as a potential barrier to economic growth. Consultations with senior staff at the Niagara Falls Convention Centre and Niagara Casinos indicated that there may be potential missed business opportunities. When larger corporations are seeking destinations for conferences and events, access from the nearest scheduled passenger service airport is typically one of their first inquiries. The 1.5 hour (or greater during peak times) driving time between Toronto Pearson Airport and Niagara Falls, and the land border crossing from Buffalo Airport are considered to be two barriers to further economic growth in Niagara's tourism sector. Major players in Niagara's tourism sector indicated that affordable, frequent, and convenient transportation links to Toronto, the United States and beyond are lacking for the Niagara Region.

3.3 Niagara District Airport

The following common themes were identified through engagement with various stakeholders, as they relate to Niagara District Airport and related business growth and economic development at the site:

- Consultations with senior management at Niagara District Airport indicates that there is significant demand for commercial land development at the facility; however, the current shortage of development-ready lands is hindering business growth at the Airport. This demand was also confirmed through consultations with current airport businesses operating at Niagara District Airport.
- Significant efforts have been made to study and quantify future business development opportunities in passenger air services (scheduled and charter services) at Niagara District Airport within the past ten years; however, the funding municipalities are misaligned in terms of their understanding of the importance of investing in airport facilities and the economic value they bring to their surrounding regions. Obtaining funding to support further infrastructure development at Niagara District Airport has been a historical challenge and is expected to continue under the current airport governance model.
- The current governance model limits the Niagara District Airport Commission's ability to make changes to their annual budget. The Commission has the authority to approve changes to the annual budget, but only up to \$25,000, provided the change does not result in a deficit, and notice is given to the Airport Liaison Committee. This significantly limits the Commission's ability to quickly respond to business development opportunities and could be seen as a barrier to future economic growth.

- The Commission does not have the ability to incur debt, limiting its ability to fund capital infrastructure rehabilitations and expansions and potentially restricting business growth at the facility.
- Several stakeholders within the Niagara business and tourism category believe that there are future passenger service opportunities from Niagara District Airport to destinations such as Montreal and New York City. Niagara Region welcomes a significant number of tourists from Quebec on an annual basis, and consultations suggest that there is demand to provide Niagara tourism excursions to international travelers visiting New York City from places such as Korea, Spain, and other countries. Many stakeholders within the Niagara business and tourism category feel that the local economy would benefit from additional air service offerings that serve the Niagara Region, through Niagara District Airport. Improved ground transportation connections from Niagara District Airport to Niagara Falls, and other Niagara tourism attractions (such as wineries, the Shaw Festival, etc.) would also help support growth of these air services, once provided.
- Some stakeholders feel that Niagara District Airport and Niagara's businesses and tourism sectors need to better collaborate to define demand and market air service development within the Niagara Region. Efforts have been made in the past where collaboration has occurred between Niagara Tourism and Niagara District Airport; however, the funding municipalities of the airport could not agree on investment strategies to support future airport activity growth. Niagara's tourism sector has stated that they would be willing to collaborate with Niagara District Airport to further develop passenger air services to Niagara and potentially bundle gaming, winery, Shaw Festival, or Niagara Falls Attraction tours; however, it was suggested that this type of engagement is preferred with one airport owner – not several funding municipalities with different agendas and opinions on the long term value of the Airport.
- Airport tenants indicated (on several occasions) that the inability to develop aviation commercial facilities in a timely manner is hindering business and economic growth potential at the Airport. In addition, tenants raised concerns with the decision-making process related to future airport development, and whether past decisions have been made in the best long-term interest of the Airport, and the local economy.

3.4 Niagara Central Airport

The following general business and economic development-related themes were identified through engagement with Niagara Central Airport Stakeholders:

- The Airport has strong support from its local users, businesses and interest groups (such as the local Canadian Owners and Pilots Association chapter). Airport users see the facility as having significant potential for future business development, mainly in the General Aviation Commercial and recreational markets.
- The four funding municipalities of Niagara Central Airport have varying opinions on the economic and social importance of the facility – some are strongly in favor of supporting future development, while others question the value of investment when considering the facility's perceived economic impact and service offerings for the general public. Some of the funding municipalities see the airport as a potential economic driver for the Region, while others are skeptical as to the Airport's overall benefit based on past financial performance and activity levels.

- Airport users identified the need for an improved public terminal facility, and airport restaurant and rehabilitation of runways and taxiways as required improvements to support activity growth at Niagara Central Airport.
- Many airport tenants see the lack of modern utilities and services (potable water and sanitary sewer) as potential constraints to future business growth at the airport facility. The provision of potable water and sanitary services could make the airport more attractive for aviation commercial and industrial developments; however, significant investment would be required by the funding municipalities would be required to provide services to the airport facility.
- Several airport stakeholders identified the lack of funding to support infrastructure rehabilitations as a constraint to development of Niagara Central Airport. Some of the same stakeholders also identified the lack of effective management as a barrier to future business growth.

4 INFRASTRUCTURE ASSESSMENT

The following infrastructure assessment describes and illustrates the existing condition of airport infrastructure at both Niagara District Airport and Niagara Central Dorothy Rungeling Airport. This task was completed by undertaking a visual inspection supported by stakeholder consultations at both sites. The condition assessment does not include any destructive testing or close circuit television (CCTV) camera inspections.

The condition assessment follows a five-point (Very good, Good, Fair, Poor Very Poor) condition rating system in alignment with industry accepted standards for asset management condition grading.

Tables 4.1 and 4.2 summarize the findings from the airside and groundside pavement assessment with the following section providing justification for the rating along with photos illustrating the extent of the deficiencies that were observed on site.

Table 4.1 – Pavement Infrastructure Assessment Summary – Niagara District Airport

Niagara District Airport	Condition	Remaining Service Life
Runway 06-24	Fair/Good	8-10 Years
Runway 11-29	Very Poor	0 Years
Runway 01-19 (excluding Rwy 01 threshold)	Very Poor	0-1 Years
Taxiway A	Good	8-10 Years
Taxiway B	Very Good	10-15 Years
Taxiway C	Good	8-10 Years
Taxiway D	Poor	0-1 Years
Apron I	Fair	5-8 Years*
Access Roads	Fair	8-10 Years
Parking	Good	10+ Years

**Apron I is considered to be in Fair Condition. However, localized improvements in front of Allied Aviation are required in the immediate term (0-1 Years)*

Table 4.2 – Pavement Infrastructure Assessment Summary – Niagara Central Airport

Niagara Central Dorothy Rungeling Airport	Condition	Remaining Service Life
Runway 05-23	Poor	0-1 Years
Runway 16-34	Poor	0-1 Years
Taxiway B	Poor	0-1 Years
Taxiway A	Good	8-10 Years
Apron I	Fair	6-8 Years
Access Road	Fair	6-8 Years
Parking – West Lot	Poor	1-2 Years
Parking – East Lot	Good	6-8 Year

4.1 Niagara District Airport

4.1.1 Airside Infrastructure

Runway 06-24

Runway 06-24 was last rehabilitated in 2010 under the Federal Infrastructure Stimulus Fund (ISF). In general, the pavement surface is in fair/good condition with low severity transverse and longitudinal cracking throughout the entire surface. There are a few locations where low to medium severity alligator cracking was observed. The airport should continue with their routine pavement crack sealing program to extend the service life of the main runway.

Two years prior to the runway requiring rehabilitation, it is recommended that the airport apply to the Airport Capital Assistance Program (ACAP) Funding Program.

Condition: Fair/Good

Remaining Service Life: 8-10 Years, before a rehabilitation is required.



Runway 11-29

Runway 11-29 is considered to be in Very Poor condition with medium/high severity ravelling over the entire asphalt surface. Alligator cracking and evidence of ponding were observed during the visual inspection.

Boreholes were drilled through the pavement structure in the summer of 2018; however, they were not appropriately backfilled, resulting in depressions in the pavement surface and subsequent ponding.

The Runway is currently closed and should remain closed until the runway is rehabilitated.

Condition: Very Poor

Remaining Service Life: 0 Years, the runway should remain closed until a rehabilitation is completed.



Runway 01-19

Runway 01-19 is considered to be in Very Poor condition with medium severity transverse and longitudinal cracking over the majority of the asphalt surface with the exception of the area rehabilitated as part of the 2010 airport improvement project. Evidence of vegetation growth and alligator cracking were observed during the visual inspection. The Runway is currently operational. However, if the runway is to remain serviceable the runway surface should be rehabilitated immediately to reduce the risk of Foreign Object Debris (FOD).



Condition: Very Poor

Remaining Service Life: 0-1 Years, the runway needs a major rehabilitation in the near term.

Taxiway A

Taxiway A was last rehabilitated in 2010 as part of the Federal ISF fund. The Asphalt surface is considered to be in fair/good condition with the presence of minor transverse cracking and is starting to show from normal wear and tare. There are a number of locations that are showing signs of low to medium severity block cracking. The airport should continue its crack sealing efforts to extend the service life of Taxiway A.



Condition: Good

Remaining Service Life: 8-10 Years, before a major rehabilitation is required.

Taxiway B

Taxiway B provides access to the mid-point of Runway 06-24 and Taxiway D leading to the threshold of Runway 11. Taxiway B was last rehabilitated in 2010 is considered to be in very good condition.

Condition: Very Good

Remaining Service Life: 10-15 Years, before a major rehabilitation is required.



Taxiway C

Taxiway C is a partial parallel taxiway that provides access to the button of Runway 24. Constructed in 2010 as part of the ISF improvement project, the pavement surface is in good condition. However, a recent facility audit found that a number of catch basins supporting the drainage for Taxiway C where not flush with the asphalt surface and need to be lowered. There are also signs of low severity vegetation growth through low severity longitudinal cracking.

Condition: Good

Remaining Service Life: 8-10 Years, before a major rehabilitation is required.



Taxiway D

Taxiway D was observed to be in poor condition with medium to high severity weathering with a number of high severity depressions coupled with alligator cracking.

Vegetation growth through the pavement structure was also observed.

Condition: Poor

Remaining Service Life: 0-1 Years



Apron I

Apron I was expanded as part of the 2010 ISF project and encompasses an area of approximately 5,500 m². The pavement surface is generally in fair condition. However, an area in front of Allied Aviation is experiencing ponding of water. A localized repair will be necessary to ensure positive drainage is established.

Condition: Fair

Remaining Service Life: 5-8 Years, with localized repairs required in the immediate term.



4.1.2 Groundside Infrastructure

The primary access road serving the Niagara District Airport is considered to be in fair condition. However, the roadway will require crack sealing and localized repairs to the shoulders in order to extend the service life of the pavement. There were also a number of areas requiring base repairs evident by settlement which should be completed as soon as possible. Cracking sealing is also required in a number of locations along the access road.

Condition: Fair

Remaining Service Life: 8-10 Years before a full rehabilitation is required, with localized repairs and crack sealing required in the near term.



Main Access Road at Niagara District Airport

The parking lot appears to be in good condition with a single crack running likely a result of a cold joint during the construction/rehabilitation process. This joint should be monitored, and crack sealing should be considered in the future.



Main Parking Lot at Niagara District Airport

Condition: Good

Remaining Service Life: 10+ Years before a full rehabilitation is required, with localized crack sealing required in the future.

4.1.3 Utilities and Services

A description of the current utilities and services are provided herein, with recommendations for improvements where required.

Sanitary Sewer

The existing 300 mm sanitary sewer collection system was installed in 1996 along with a pumping station with an operational capacity of 10 L/S. The system has sufficient capacity to serve the existing and future developments of the airport facility. An upgrade of the station was undertaken in 2011 during which time a flow meter and chamber were installed.

However, consultations have identified that during wet weather events there appears to be infiltration resulting in extraneous flows in the sewer system in excess of the 10 L/S operational capacity of the pumping station. It is recommended that the airport complete CCTV investigation to determine the source(s) of extraneous flows.

Potable Water

Potable water service is provided via a 400 mm Diameter Pipe that was installed in 1984. The system has adequate capacity for the existing and anticipated demand that would be realized by further developing the airport facility. Similar to the sanitary sewer system, leaks along the water service lines have been reported but primarily on services and/or internal piping with local tenants and not on the main water distribution line.

Natural Gas

Natural gas is available at the airport but the cost of implementing a gas service is typically the responsibility of the developer or hangar owner. No reported deficiencies with the existing natural gas distribution system were identified during consultations.

Electrical

All airfield lighting systems are controlled from the Field Electrical Centre (FEC), located in a building adjacent to the Air Terminal Building. Electrical power for airfield lighting systems and visual aids is fed to the FEC, transformed to the correct voltage for specialized aviation applications, and distributed to various equipment on the site. No deficiencies were reported with the existing electrical distribution system on site. The existing three phase electrical service is considered adequate to support the existing and any future developments.

4.1.4 Airport Owned Buildings

The Niagara District Airport currently owns a number of buildings on site, including the Air Terminal Building, maintenance shop, and the hangar occupied by Genaire.

Air Terminal Building

The Air Terminal Building supporting passenger activity and airport operations was opened in 2011 and is considered to be in very good condition. The airport operations component of the facility includes one large boardroom, four offices, a small kitchenette and a common use facility. Apart from routine maintenance associated with the management and upkeep of a building, no capital investments have been identified for the existing Air Terminal Building.

Maintenance Facility

The maintenance facility at the airport includes two heated bays and three unheated bays which store airport maintenance equipment. New natural gas tube heating was installed three years ago on the two heated bays. Consultations with local maintenance personnel suggest that the metal roof supporting the facility is in fair condition, however, a number of leaks have occurred over the past several years during large rainfall events potentially due to missing flashing. The airport should consider localized repairs to the roof to prevent future leaks as part of typical building upkeep measures.

Genaire Hangar

The roof of the structure was last replaced in 2009 and is considered to be in good condition. As part of the 2009 roof replacement, there were a number of minor structural beam improvements completed on the building. The slab foundation appears to be in good condition with limited cracking or settlement observed. However, it was noted that during periods of large rainfall events, there has been flooding occurring near the storage/material department of the structure. This is likely due to poor exterior grading that was observed along the southwest edge of the building and site. The building would benefit from exterior grading improvements which would normally be considered routine maintenance and upkeep of the facility.

4.2 Niagara Central Airport

4.2.1 Airside Infrastructure

Runway 05-23

Runway 05-23 was observed to be in good condition with minor transverse and longitudinal cracking in select locations along the runway surface.

However, the runway was recently overlaid with a fibre reinforced asphaltic emulsion overlay with trap rock stone screenings that can easily become dislodged from the pavement surface presenting a risk of Foreign Object Damage (FOD) to aircraft.

In addition, the overlay also appears to be non-uniformly distributed along the runway surface as evidence by the pockets of fibre reinforced emulsion as shown.

The airport manager has indicated that regular sweeping of the surface is required to remove loose stone screening.

This approach to resurfacing the runway is not a recognized rehabilitation method for an airport environment and due to the risk of FOD and it is recommended that the runway be rehabilitated in the near term.

Condition: Poor, due to the Risk of FOD

Remaining Service Life: To reduce the risk of FOD, the runway surface should be rehabilitated by milling and paving the runway surface in the near term (0-1 Years).



Runway 16-34

Runway 16-34 was generally observed to be in good condition with minor transverse and longitudinal cracking at select locations. A recent resurfacing similar to Runway 05-23 expect limestone screenings were used in the surfacing mixture. This material is easily dislodged from the runway surface and may present a risk of FOD as evident from the necessary runway sweeping from Airport Management.

The two photos depict an overview of the pavement surface from the Threshold of Runway 34 along with a zoomed in photo illustrating the material. The second photo also shows the base material penetrating the runway wearing course.

Due to the unknown depth of asphalt on Runway 16-34, it is recommended that a geotechnical investigation be carried out to determine the thickness of the asphalt to determine if a traditional mill and pave would be an appropriate rehabilitation method.

Condition: Poor, due to the risk of FOD

Remaining Service Life: The surface should be rehabilitated in the near term (0-1 Years) to remove the risk of FOD and more specifically remove the recently installed surface treatment.

Taxiway A

Taxiway Alpha appears to be in good condition and should not require any major rehabilitation work within the next 10 years. However, the airport should consider crack sealing to extend the service life of Taxiway A beyond the next 10 years.

Condition: Good

Remaining Service Life: 10-12 Years



Taxiway B

Similar to Runway 16-34, Taxiway B recently underwent a resurfacing project similar to runway 16-34. While the Taxiway appears to be in fair condition, the surface material is a risk of FOD and requires routine sweeping of the loose stone screenings.

Moderate settlement was also observed at the intersection of Taxiway B with Runway 16-34 which is resulting in minor ponding on the taxiway surface.

During the time of the site visit, minor settlement was also observed along the southeast edge of the Taxiway in front of the private GA hangars.

Condition: Poor, with a Risk of FOD

Remaining Service Life: The surface should be rehabilitated in the near term (0-1 Years) to remove the risk of FOD.



Apron I

Apron I was observed to be in fair condition throughout the entire surface with localized repairs needed in a number of locations. Minor settlement and ponding was observed between the airport operations building and hangar 1. While minor transverse cracking was observed throughout most of the pavement surface which is associated with normal pavement degradation over time.

Condition: Fair

Remaining Service Life: 5-7 Years with localized improvements required in the near term (1-2 Years).



4.2.2 Groundside Infrastructure

The groundside access road providing access to the Niagara Central Airport facility was observed to be in fair condition. However, the west parking lot situated to the south of the operations building appears to be in poor condition with alligator and block cracking. This surface should be rehabilitated in the near term.



West Parking Lot at Niagara Central Airport

The east parking lot to the south of the airport owned hangar was observed to be in good condition and should not require any remedial works within the next 10 years.

4.2.3 Airport Owned Buildings

The Niagara Central Airport currently owns three building on site including the Terminal Operations Building and two hangars.

The Terminal Operations Building is a temporary ATCO-type structured used by airport management. The facility consists of one office, a small kitchen and a common lounge area that can be used for flight planning. There were no reported deficiencies with respect to the operations building during consultations.



Terminal Operations Building at Niagara Central Airport

Hangar 1 supports operations by Niagara Skydive Centre as well as a satellite location for the St Catharines Flying Club. The building appears to be in fair condition with no capital investments needed in the facility to support the current operations of the facility.



Hangar 1 at Niagara Central Airport

The airport also owns Hangar 3 which is illustrated in the photo below. Hangar 3 is leased to the local Air Cadets 83 Squadron. The roof of the structure was last replaced in 2017 and is considered to be in good condition.



Hangar 3 at Niagara Central Airport

4.2.4 Utilities and Services

Sanitary Sewer

The existing sanitary system at Niagara Central Airport was originally constructed in 1939 to support 250 RCAF Pilots in Training and is considered to be in fair condition. However, due to the age of the system, the airport should consider upgrading the service to support existing and future developments.

Potable Water

Currently, there is no potable water service connection at the airport. Each tenant at the facility has their potable water trucked to site and deposited into a below ground cistern or above grade water tank.

Firefighting services are provided on a voluntary basis by the Town of Pelham and the City of Welland. This service is considered adequate for the current facility.

Natural Gas

Currently, there is no natural gas connections available in the vicinity of the Niagara Central Airport.

Electrical

The airport is currently serviced with single phase 4.8 kV power. In the event the airport has the demand to go to three phase power the closest connection point is located on Effingham Street.

5 FINANCIAL REVIEW

As part of the Feasibility Study and Business Case, HM Aero obtained historical financial information for Niagara District Airport and Niagara Central Airport to support a review of the historical and current fiscal situation at both airport facilities. Audited Financial Statements were provided by both the Niagara District and Niagara Central Airport Commissions for review as part of the study for the previous five years. Supplemental operating and capital budget information was also provided to the HM Aero project team by the Niagara District Airport for review and analysis.

The intent of the financial review provided in the following sections is to identify potential trends and significant financial changes in income and expenses within the previous five years that are worth noting as they relate to the Feasibility Study and Business Case. Summaries of the financial statements for both Niagara District Airport and Niagara Central Airport are provided in Tables 5.1 and 5.2 respectively.

5.1 Niagara District Airport

5.1.1 Revenues

- Grants are provided to Niagara District Airport by the three funding municipalities on an annual basis – the City of St. Catharines, the City of Niagara Falls, and the Town of Niagara-on-the-Lake. These grants account for approximately 55% of the recorded revenue at the airport in 2018. Although listed as revenues within the annual financial statements, for the purpose of this study they have been categorized as subsidies as they essentially assist in closing the annual cost-revenue gap each year. The total subsidy provided to Niagara District Airport in 2018 totalled \$396,064. Grants from the funding municipalities were budgeted as \$439,800 for 2019 – an 11% increase from 2018. This 2019 grant amount reflects a 2.2% increase from 2018, in addition to outstanding payments from the funding municipalities that were unpaid in the previous year.
- Total revenues, excluding grants provided by the funding municipalities totalled \$315,733 in 2018. Niagara District Airport's 'real' revenue budget for 2019 was \$334,900 – a 7% forecast increase.
- The largest source of 'real' revenue for Niagara District Airport within the previous five years was found to be Rentals. It is assumed that this revenue is generated from leases for airport lands, airport buildings, and through other methods such as advertising within the Air Terminal Building. Rental income decreased by approximately 19% between 2017 and 2018 due to the sale of the hangar currently occupied by Allied Aviation.
- The next highest source of revenue at Niagara District Airport is landing and parking fees. Landing and parking fees were ranked as the third-highest revenue generators at Niagara District Airport, up until 2016 when FlyGTA introduced scheduled passenger air services to/from Toronto Billy Bishop Airport. Revenues within the landing and parking fees category have grown substantially within the past five years, growing by more than 50% between 2017 and 2018.
- Fuel operations are the third highest source of revenue at Niagara District Airport. Revenue generated under this category increased by more than 20% between 2015 and 2016, likely due to the introduction of scheduled passenger air services at the Airport.

- Other sources of revenue at Niagara District Airport include events, miscellaneous, and interest; however, they only accounted for 14% of real revenues in 2018.

Table 5.1 – Historical Financial Statement Summary – Niagara District Airport

	2014	2015	2016	2017	2018
Income					
Events	\$774	\$7,455	\$4,950	\$600	\$8,417
Fuel operations	\$17,902	\$19,840	\$23,864	\$25,678	\$24,286
Interest	\$1,620	\$2,383	\$2,401	\$2,596	\$4,709
Landing and Parking	\$16,974	\$15,317	\$25,631	\$45,068	\$67,466
Misc	\$12,171	\$12,908	\$17,776	\$21,787	\$31,753
Deferred Revenue	\$0	\$44,721	\$0	\$12,996	\$622
Rentals	\$207,799	\$214,255	\$224,024	\$220,400	\$178,520
Total Gross Income	\$257,240	\$316,879	\$298,646	\$329,125	\$315,773
Operating Expenses					
Maintenance-Building	\$30,366	\$79,899	\$36,139	\$50,279	\$59,663
Maintenance- Vehicles	\$36,415	\$45,764	\$55,202	\$50,492	\$65,764
Operations	\$141,913	\$132,402	\$156,395	\$265,084	\$178,877
Personnel	\$301,866	\$294,164	\$337,161	\$413,059	\$404,983
Total Operating Expenses	\$510,560	\$552,229	\$584,897	\$778,914	\$709,287
Total Expenses	\$510,560	\$552,229	\$584,897	\$778,914	\$709,287
Income - Expenses	-\$253,320	-\$235,350	-\$286,251	-\$449,789	-\$393,514
Profit / Loss	Loss	Loss	Loss	Loss	Loss
Municipal Grants	\$328,500	\$305,001	\$356,400	\$435,326	\$396,064

5.1.2 Expenses

- Total operating expenses for 2018 were reported at \$709,287. The reported 2018 capital budget for Niagara District Airport was \$280,300.
- Niagara District Airport's highest expense category in 2018 was personnel at \$404,983 – approximately 57% of total annual expenses.
- Operational expenses were the third highest expense category in 2018, reported at \$178,877 – 25% of the total annual expenses. Total operating expenses dropped by \$69,628 from 2017 to 2018; however, expenses related to building and vehicle maintenance increased by more than \$24,000.

5.1.3 Analysis

- Overall expenses have exceeded 'real' revenues at Niagara District Airport within the previous five years. Real annual deficits (revenues – expenses) range from as low as \$253,320 in 2014, to as high as \$396,064 in 2018.
- There was a 33% rise in operating expenses from 2016 to 2017 related to obtaining equipment, hiring additional staff and improving airport operational services to support the introduction of scheduled air services in 2016.
- Niagara District Airport has relied on subsidies from the three funding municipalities to assist in closing the cost-revenue gap. The subsidies provided are considered to be substantial and have increased, on average, within the past five years.

- Unless the cost-revenue gap can be further closed by increasing revenues and/or decreasing costs, subsidies will continue to be required from the funding municipalities to support airport operations.
- The Financial Statements demonstrate that Niagara District Airport is not financially self-sustainable, and subsidies are required to fund ongoing operations. The Airport Commission will be faced with additional financial challenges when capital is required to support needed infrastructure rehabilitations, when required. A review of supplemental budget information provided by the Niagara District Airport Commission indicates that \$1,550,000 in capital projects have been deferred to 2020 or beyond to support rehabilitations to Runways 11-29 and 01-19, and procurement and installation of a back-up generator for the Field Electrical Centre.
- The inability of the Niagara District Airport to financially support infrastructure expansion to promote business development is considered as a significant constraint to future airport growth and economic development.

5.2 Niagara Central Airport

5.2.1 Revenues

- Similar to Niagara District Airport, grants are provided to Niagara Central Airport from the funding municipalities – the City of Welland, the City of Port Colborne, the Town of Pelham, and the Township of Wainfleet. These grants account for almost 65% of the annual reported revenue at the Airport in 2018. For the purpose of this study, grants have been categorized as subsidies as they essentially assist in closing the annual cost-revenue gap each year. The total subsidy provided to Niagara Central Airport in 2018 was reported to be \$82,219. Budgeted subsidy values for 2019 were not provided to the HM Aero project team for review and inclusion within the Feasibility and Business Case.
- Total revenues, excluding subsidies provided by the funding municipalities totalled \$126,661 in 2018.
- The largest source of ‘real’ revenue for Niagara Central Airport in 2018 was rentals – reported at \$79,689. Rental revenues are collected through hangar and land leases. Rental revenues decreased by almost \$10,000 from 2017 to 2018.
- The next highest source of revenue at Niagara Central Airport is categorized as ‘other’ within the financial statements. ‘Other’ revenues were reported at \$37,974 in 2018. Consultations with senior members of the Commission indicate that a recent change in financial reporting software would account for the increase in ‘other’ revenues.

5.2.2 Expenses

- Total operating expenses for 2018 were reported at \$220,757, down from \$256,620 in the previous year.
- Niagara Central Airport’s highest expense category in 2018 was amortization at \$60,348. This amortization is related to roof rehabilitations for Hangar 3. The Airport’s highest expense category in 2017 was repairs and maintenance at \$122,701.
- The second highest expense category for 2018 as reported to be salaries and wages at \$33,526, down from \$42,681 in 2017.

- Other significant expense items reported in the 2018 Audited Financial Statements include property taxes, insurance, utilities, consulting, and interest on loans – totalling \$86,769 in 2018. Expenses related to promotion and marketing, legal, audit and accounting, office and honorariums were also listed within the 2018 Statements; however, they are not considered to be significant as they only account for 14% of total annual expenses.

Table 5.2 – Historical Financial Statement Summary – Niagara Central Airport

	2014	2015	2016	2017	2018
Revenue					
Fuel Operations	\$22,657	\$30,316	\$39,682	\$18,538	\$6,425
Interest	\$627	\$935	\$477	\$390	\$1,138
Other	\$35,767	\$4,653	\$38,587	\$29,728	\$37,974
Donations					\$1,435
Rentals	\$63,564	\$74,110	\$73,841	\$88,735	\$79,689
Total Gross Revenue	\$122,615	\$110,014	\$152,587	\$137,391	\$126,661
Operating Expenses					
Amortization	\$15,113	\$14,348	\$17,911	\$29,742	\$60,348
Property Taxes	\$31,862	\$32,258	\$23,208	\$5,931	\$28,010
Salaries and Wages	\$50,242	\$49,754	\$51,280	\$42,681	\$33,526
Repairs and Maintenance	\$15,122	\$26,265	\$23,461	\$122,701	\$23,012
Insurance	\$8,082	\$8,109	\$14,984	\$16,192	\$17,535
Light, Heat, Water	\$9,600	\$9,880	\$9,019	\$9,222	\$14,519
Consulting	\$5,900	\$4,206	\$5,400	\$7,000	\$14,145
Interest on Loans				\$4,771	\$12,560
Promotion and Marketing	\$12,985	\$282	\$3,042	\$1,654	\$8,793
Legal, audit and accounting	\$11,886	\$6,974	\$6,578	\$5,898	\$4,353
Office	\$9,431	\$13,378	\$14,419	\$9,728	\$2,709
Honorariums	\$1,350	\$1,225	\$1,325	\$1,100	\$1,249
Total Expenses	\$171,573	\$166,679	\$170,627	\$256,620	\$220,759
Income - Expenses	-\$48,958	-\$56,665	-\$18,040	-\$119,229	-\$94,098
Profit / Loss	Loss	Loss	Loss	Loss	Loss
Municipal Grants	\$80,300	\$84,450	\$82,800	\$121,556	\$82,219

5.2.3 Analysis

HM Aero's analysis of the Audited Financial Statements for the Niagara Central Airport Commission resulted in the following findings:

- Overall expenses have exceeded 'real' revenues at the Airport within the previous five years. Annual deficits (revenues – expenses) range from as low as \$18,040 in 2016, to as high as \$119,229 in 2017.
- Similar to Niagara District Airport, Niagara Central Airport has relied on subsidies from the three funding municipalities to assist in closing the annual cost-revenue gap. The subsidies provided by the funding municipalities have increased, on average, within the past five years.
- Budgeted earnings for fuel were \$40,000 in 2018; however, reported fuel net earnings for 2018 were \$6,425. The difference between 2018 forecast value and the reported earnings is significant and is mainly attributed to the previous Commission's decision to no longer provide Jet A aviation fuel for purchase.

- Revenues recorded from fuel operations reduced significantly from 2016 to 2018 from \$39,682 to \$18,538. This likely occurred as a result of the Airport entering into a contract whereby the fuel facilities are leased to the Niagara Skydive Centre, and the fuel dispensing is contracted to the St. Catharines Flying Club. The Airport receives a concession for each litre of fuel sold; however, it is likely much lower than the typical \$0.05/ L concession charge by similar Airports. This new contractual arrangement has resulted in a significant decrease in one of the primary revenues for the airport – reflecting questionable business decisions made by prior members of the Commission.
- One of the line items within the Financial Statements has been identified as interest on loans. Analysis suggests that these loans are payable to the same funding municipalities that provide grants. This is considered to be an unconventional practice as the municipalities pay subsidies to close the annual cost-revenue gap at the Airport, and the interest expense on the loan (payable to the same municipalities) is adding to overall expenses that are eventually offset by the annual subsidy. Essentially, the funding municipalities loaned themselves money to fund airside pavement rehabilitations and are paying interest to themselves. The outstanding loan amount was reported at \$399,790.

5.3 Cost Reduction

As part of the Feasibility Study and Business Case, HM Aero has identified areas where cost savings may be realized if both Niagara District Airport and Niagara Central Airport were to enter into an agreement to work together to reduce operational costs. However, since Niagara District Airport is a certified facility that requires extensive self-regulation through Safety Management Systems and related personnel, training and equipment maintenance and operational costs, Niagara District Airport may have more to offer Niagara Central Airport. Further, the driving distance of more than 30 km between the two facilities and the different roles they serve limit opportunities for cost-saving initiatives.

Resource Sharing: There may be personnel resource sharing opportunities whereby staff from Niagara District Airport could assist staff at Niagara Central Airport in identifying operational efficiencies and sharing best practices. Examples where resource sharing may be appropriate include, but are not limited to, airport maintenance and inspections, training materials, activity recording, leasing agreement details, and administrative practices.

Marketing and Business Development: As Niagara District Airport and Niagara Central Airport have been identified as having slightly different future roles, there may be opportunities for the two airports to collaborate on marketing and business development initiatives aimed at increasing activities at both airports. For example, Niagara District Airport could refer interest in developing smaller recreational hangars to Niagara Central Airport where more land is readily available for development at a lower cost. In return, larger aviation-related commercial businesses that may have an interest in Niagara Central Airport could be referred to Niagara District. In addition, the two airports could consider marketing ‘Niagara Airports’ at industry trade shows and within industry publications, promoting Niagara’s ‘airport system’ and highlighting the airport roles and services available to potential businesses and users.

6 REGIONAL CONTEXT

6.1 Socioeconomic Profile

6.1.1 Overview

This section provides a high-level description of the social and economic environment of Niagara Region, and how it relates to current and future activity at Niagara District Airport and Niagara Central Airport. Airports are important parts of the region(s) that they serve, as they support social and economic links that many sectors rely on to sustain their operations and growth; whether it be for personnel transport or the movement of goods.

The Regional Municipality of Niagara consists of twelve municipalities on the Niagara Peninsula, commonly known as the Niagara Region. The Municipality occupies the southeastern extreme of the Golden Horseshoe, a densely populated area of southern Ontario stretching from Oshawa, around the western end of Lake Ontario, and eastwards to the Niagara River.

The Niagara Region borders Lake Ontario and Lake Erie and is home to the full extent of the Welland Canal that connects both bodies of water. Major natural features include the Niagara Escarpment and Niagara Falls – one of the seven natural wonders of the world, and an attractive destination for domestic and international tourists. In 2017, the Niagara Region welcomed nearly 13 million visitors with total tourism expenditures of \$2.4 billion.⁵ Hamilton lies to the west of Niagara Region, and Buffalo to the southeast, in New York State. Figure 6.1 shows a simplified map of the Municipality and its twelve member municipalities.

Figure 6.1 – Niagara Region and its Municipalities



⁵ Source: Niagara Region Economic Development Strategy: 2019-2024, 2019

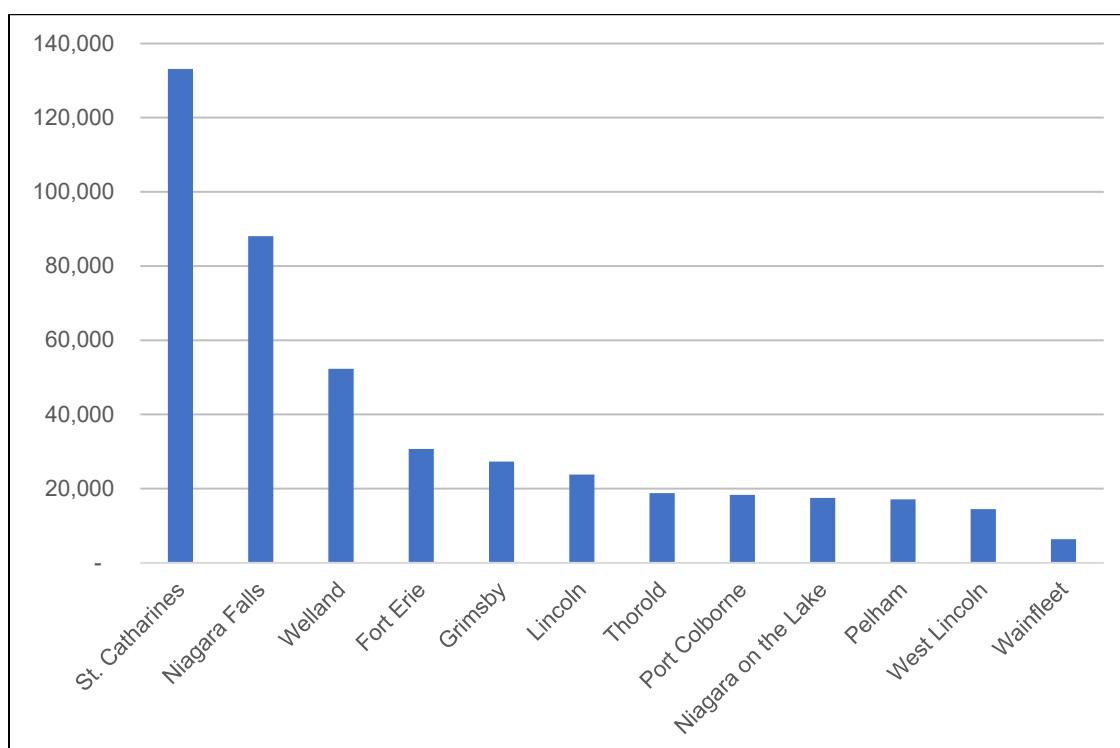
6.1.2 Demographics of the Niagara Region

Population

According to the 2016 Census, the Municipality had a population of 447,888⁶. Taken as a whole, the Municipality would rank as the seventh largest municipality in Ontario (after Brampton, Kitchener-Waterloo, Hamilton, Ottawa, Mississauga, and Toronto).

Figure 6.2 illustrates the distribution of population in Niagara Region for each of the twelve municipalities that form the Regional Municipality of Niagara. Figure 6.2 also demonstrates a mix of highly populated urban areas within the Regional Municipality of Niagara such as St. Catharines and Welland, and rural the areas of Pelham, West Lincoln, and Wainfleet.

Figure 6.2 – Population of the Regional Municipality of Niagara



Source: Statistics Canada 2016 Census

Figure 6.3 summarizes population growth trends for the Province of Ontario between 1996 and 2016.

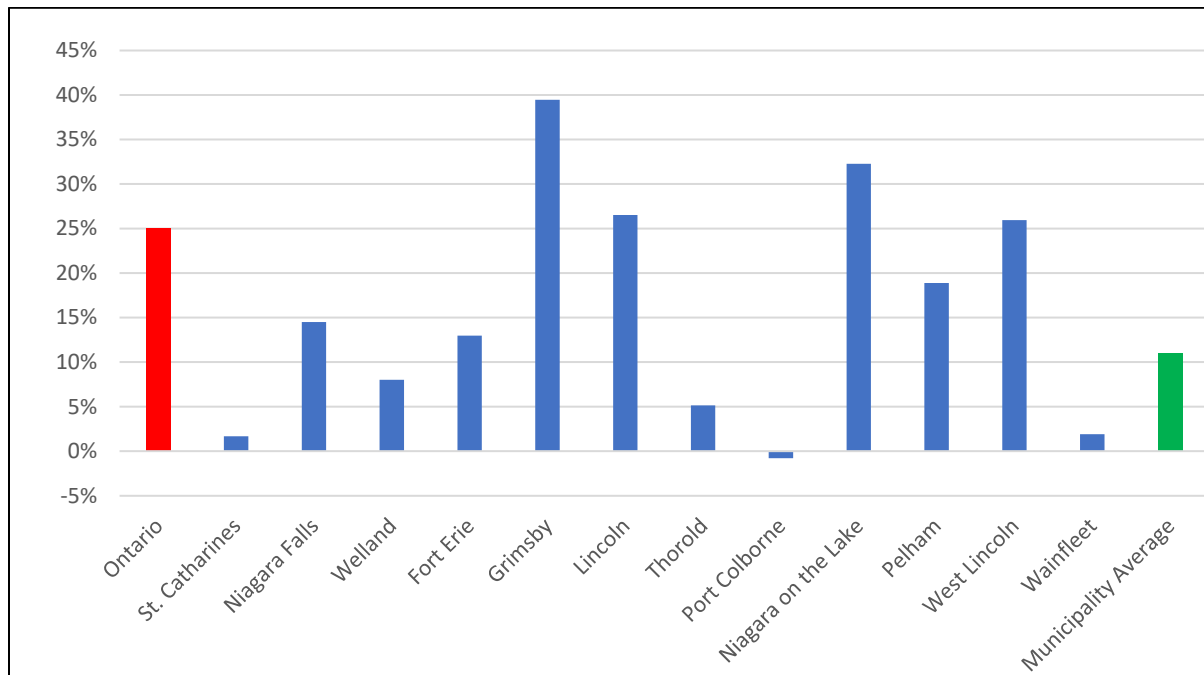
Strong immigration in the Greater Toronto Area helped stimulate the provincial population growth rate within the past two decades. Grimsby, Lincoln and West Lincoln benefitted from their proximity to Hamilton and Toronto and have seen growth based on resident relocations from the Greater Toronto Area (GTA). The urban areas of St. Catharines, Thorold, and Port Colborne experienced limited growth within the 20-year period, or even declines as evident in the case of Port Colborne. This sector has seen growth in employment since 2012⁷ as the sector is beginning to embrace new technologies to become more competitive in the marketplace.

⁶ Source: Statistics Canada Census of the Population, 2016.

⁷ Source: Niagara Region Economic Development Strategy: 2019-2024, 2019

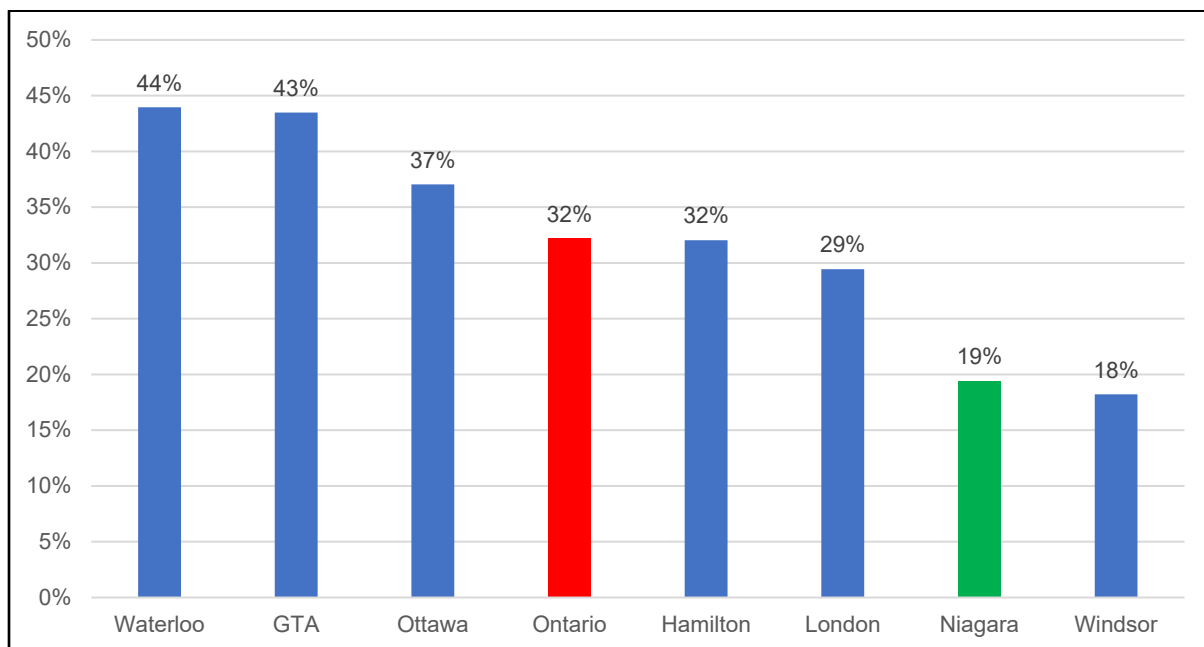
Further to the above, the Ontario Ministry of Finance develops population projections for every area in Ontario. Figure 6.4 shows expected growth between 2016 and 2041 for selected areas.

Figure 6.3 – Population of the Regional Municipality – Percent Change 1996-2016



Source: Statistics Canada 2016 Census

Figure 6.4 – Projected Percentage Population Growth Rates: 2016-2041



Source: Ontario Ministry of Finance

Figure 6.4 illustrates that Ontario's largest cities (by population) are expected to experience the strongest growth. The Kitchener-Waterloo area will experience particularly strong growth because of its concentration of advanced manufacturing and the technology businesses. The Niagara Region is expected to experience slower growth than the largest cities or the province.

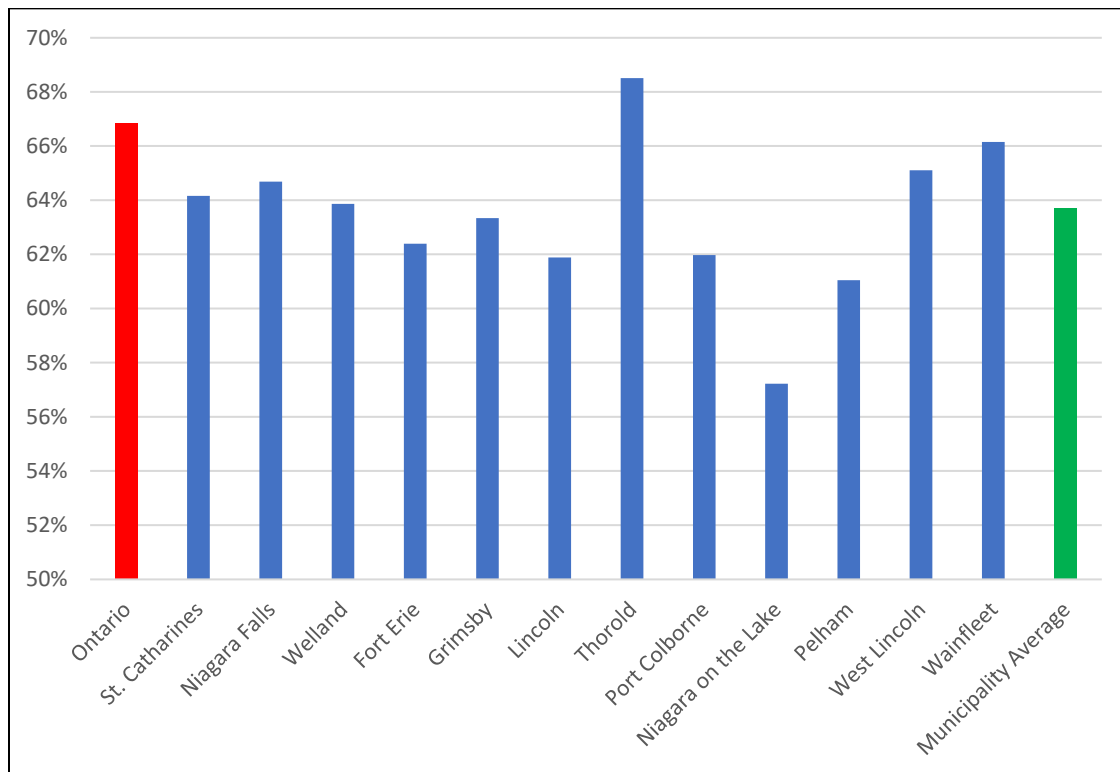
Conversely, Niagara's tourism sector is very strong, and continues to grow. Niagara's Agribusiness sector is also very strong and is a fundamental pillar of the Region's economy.

Age Profile of Population

The age distribution of a community is an important measure of its ability to support economic activity. The number of persons aged between 15 and 66 years measures the potential size of the local labour force.

Figure 6.5 portrays the share of persons 15-66 years old in the total population for Ontario, the Municipality as a whole and for each municipality within Niagara Region. Thorold exceeds the Ontario average. The employable age group comprises slightly over 63 percent for the Niagara Municipality. Wainfleet, West Lincoln, Thorold, Niagara Falls, and St. Catharines exceed the Niagara average. Niagara on the Lake, with 57 percent of its population in the employable age group, has the lowest proportion in the Municipality.

Figure 6.5 – Percent of Niagara Population Aged 15-66 Years



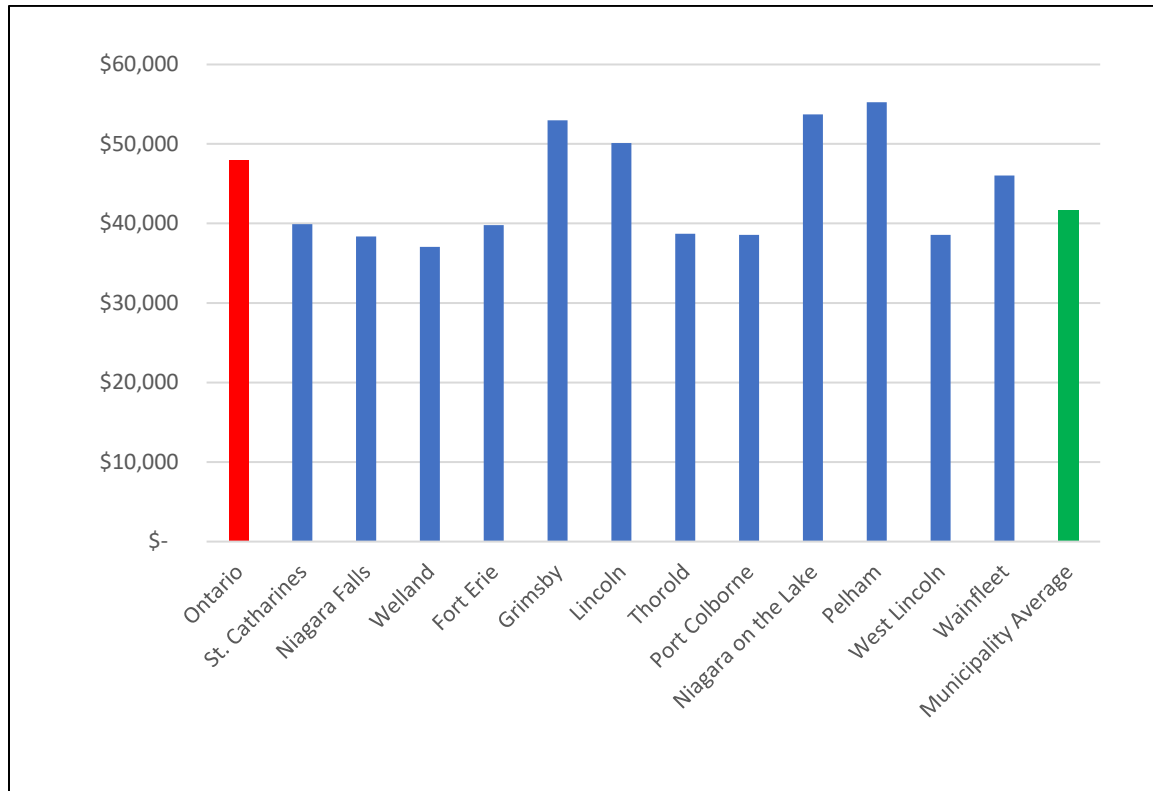
Source: Statistics Canada 2016 Census

Personal Income

Personal income is an important determinant of the demand for air travel. Figure 6.6 shows that the Niagara Region has lower average personal incomes than Ontario as a whole. The Ontario average reflects the large, high income communities of the Greater Toronto Area and Ottawa.

The high income of Grimsby likely reflects the income of residents who work in nearby cities and commute. Predominantly rural areas, including Wainfleet, Lincoln, Niagara on the Lake, and Pelham enjoy higher incomes than either the regional average or Ontario as a whole.

Figure 6.6 – Average Personal Income by Niagara Municipality



Source: Statistics Canada 2016 Community Profile

Educational Attainment

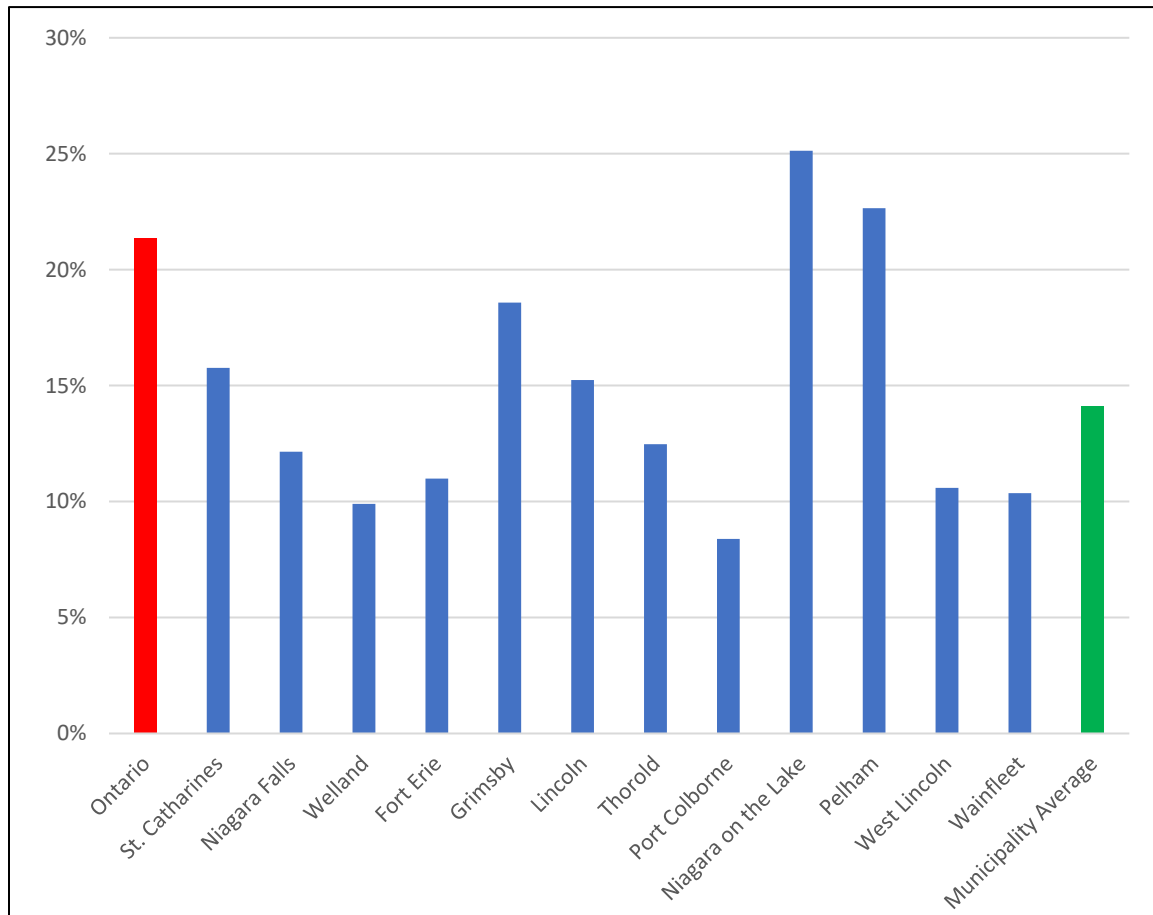
A region's ability to support new, knowledge-intensive industries depends partly on the level of education of the populace. Figure 6.7 shows the level of educational attainment for Ontario, the Niagara Region, and the twelve communities within the Region and presents average educational attainment by the percentage of the population holding a bachelor's degree or higher.

The values presented within Figure 6.7 closely match income levels portrayed in Figure 6.6. The Niagara Region has a lower educational attainment than the province, although Niagara on the Lake and Pelham both exceed the provincial average. Grimsby and Lincoln exceed the regional average but fall short of the level for Ontario and Fort Erie, Port Colborne and Welland lie below the regional average. These communities have historically relied on heavy manufacturing to support their economic base and this sector may have had modest educational requirements for production work.

Brock University in St. Catharines is an important part of the Niagara's economy as universities provide a supply of highly educated workers. They often perform environmental and socioeconomic research focused on the immediate community and some universities see their role as promoting economic development through facilitating entrepreneurship and serving as incubators for new companies. They also create a national and international identity for the community.

Many of the world's most prominent industrial clusters, such as the Silicon Valley, Toronto's medical research complex, the medical and electronic research complexes around Boston and the sophisticated businesses near Kitchener-Waterloo owe their existence to local universities.

Figure 6.7 – Proportion of Niagara's Population Holding Bachelor's Degree or Higher



Source: Statistics Canada 2016 Community Profile

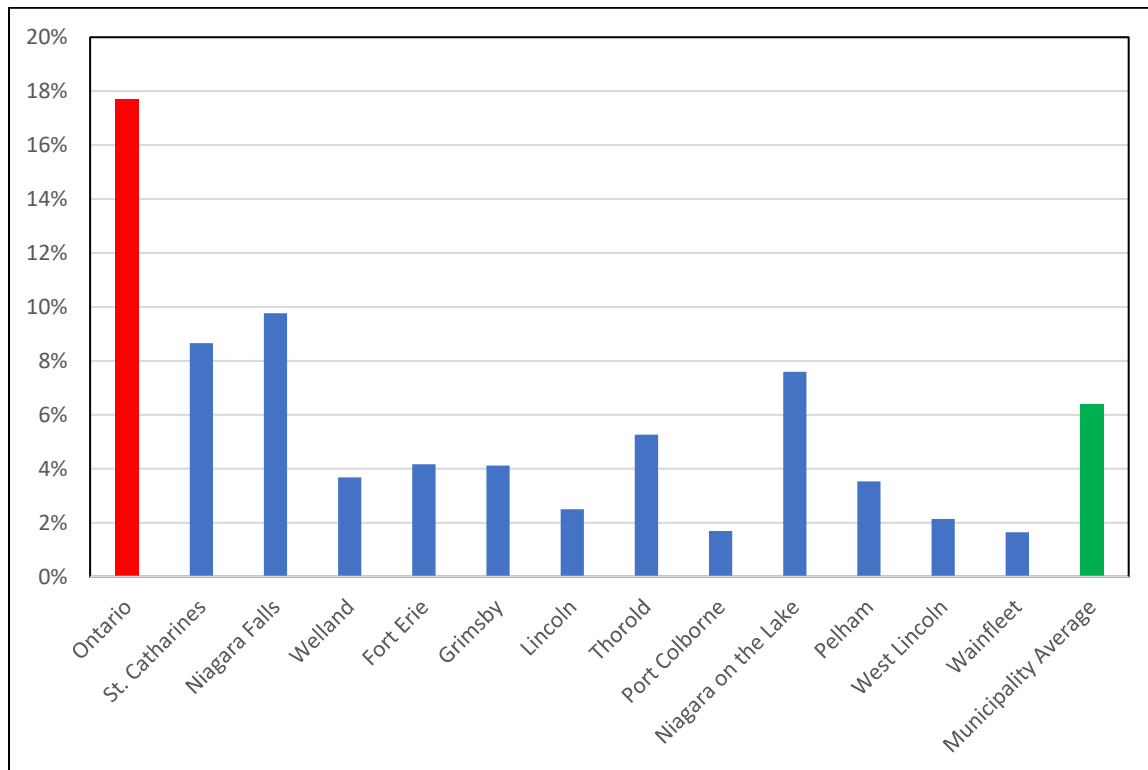
Immigration

Canada has been welcoming many immigrants, which has resulted in a significant change in the social and economic composition of the country. The Greater Toronto Area has been a preferred destination for many immigrants as it arguably offers the best prospects for employment, and most immigrant groups already have an enclave or a significant presence in the GTA.

Figure 6.8 shows the proportion of the population composed of persons who immigrated to Canada since 2001. The popularity of the GTA accounts for the large proportion for the province.

Immigrants to the Niagara Region have tended to prefer Niagara Falls, St. Catharines, and Niagara on the Lake. The manufacturing centres of Welland, Fort Erie, and Port Colborne have proven somewhat less popular likely because of fewer employment opportunities.

Figure 6.8 – Immigrants, 2001-20016 as Share of Total Population



Source: Statistics Canada Survey of Communities, 2016

6.1.3 Niagara's Economic Base

The Niagara Region was traditionally a centre of heavy industry, benefitting from the hydroelectric plants on the Niagara River, the proximity of large Canadian and U.S. markets, and access to the Welland Canal; making the Region a key player on the St. Lawrence-Great Lakes Seaway. The factors harming the Region's heavy manufacturers are not unique to the Region. They include the North American Free Trade Agreement, which shifted manufacturing, especially for automobiles, to Mexico. Low-cost producers in Asia, especially China, have displaced many manufacturing employees and manufacturers now aggressively seek economies of scale and frequently close small or marginal plants. In addition, computer-controlled equipment now performs many manufacturing tasks once carried out by labourers.

In March 2019, Niagara Economic Development released the "Niagara Economic Development Strategy 2019-2024."⁸ The report summarizes several important initiatives. It states that the increased costs of living in the Greater Toronto Area and the growth of inter-regional transit services would make the Niagara Region an attractive alternative for residents and businesses. In 2016, the Region was designated as the first municipality in Ontario to receive a Foreign Trade Zone designation.

⁸ Source: Niagara Region Economic Development Strategy: 2019-2024, 2019

Furthermore, the Economic Development Strategy Report prepared by Niagara Economic Development in 2019 highlights some of the positive factors of Niagara Region's economic base:

- Niagara has recently experienced a record level of industrial and commercial investment. For example, from 2015 to 2017 investment in industrial building construction grew by 362%;
- Niagara has experienced a significant growth in the number of jobs over the last five years: from 2013 to 2018 the job growth rate was estimated to be 10.1%, significantly higher than the percentage job increase in Ontario during the same period (9.4%), and higher than the percentage job increase in Canada (6.5%);
- In 2018, Niagara's tourism sector supported almost 40,000 jobs and more than 2,800 businesses across a variety of industries including transportation, travel arrangement, accommodation, food beverage, beverage manufacturing, and arts, entertainment and recreation.
- Niagara's manufacturing exports have been recently been estimated at \$4.2 billion per annum, compared to total tourism expenditures of \$2.4 billion. This highlights that although the tourism sector is important to Niagara's economy, the manufacturing industry contributes far more to investment and regional GDP.

Table 6.1 summarizes employment levels by the top five sectors. It portrays a regional economy that is strongly focused on services. While large scale "traditional" manufacturing remains, much of the manufacturing activity involves small companies, using highly sophisticated manufacturing processes.

Table 6.1 – Employment by Economic Sector

Sector	2011 Jobs	2019 Jobs	Change	% Change
Accommodation and Food Services	22,627	28,605	5,978	26%
Retail Trade	25,817	27,502	1,685	7%
Health Care and Social Assistance	22,155	27,266	5,111	23%
Manufacturing	17,523	16,552	-970	-6%
Construction	14,597	15,215	618	4%

Source: Emsi 2019.1

Of the top five employment sectors in Niagara Region, only manufacturing experienced a loss of jobs between 2011 and 2019. Although the number of manufacturing jobs within the Region has declined, investments in manufacturing are at a record-high and the sector has stabilized.

Although not listed in Table 6.1, Niagara's economy is also strongly focussed on the agricultural sector, supported by the Region's mild climate and fertile soils. This sector and the manufacturing sector are critical to the economy of the Niagara Region.

In addition, the Region, in collaboration with Statistics Canada, has measured the economic impact of tourism on the Region. Their research shows that tourism supported 39,995 direct jobs in Niagara; an increase of 6,059 jobs or 17.9% over 2011. In 2018, 2,834 businesses were involved in tourism with 67.8% of the firms having fewer than 20 employees and 3.4% had more than 100 employees. In 2017, The region received 12.95 million visitors, of which 4.92 million stayed overnight. This high volume of visitors to Niagara has the potential to result in new and expanded air service development opportunities for Niagara Region.

Further strengthening Niagara's competitive advantages, the Region has also applied for an Economic Trade Corridor designation. This will help capitalize on its location in the Ontario heartland and its proximity to population centres in the United States.

Considering the foregoing, the presence of airport facilities within Niagara Region (both Niagara District Airport and Niagara Central Airport) should result in future regional economic benefits as the facilities further support the flow of passengers and goods for Niagara's business sectors, including but limited to tourism, manufacturing, and agriculture.

6.2 Land Transportation Systems

6.2.1 Road

The Niagara Region is served by a network of provincial highways connecting the Niagara Peninsula to the rest of the Golden Horseshoe and the GTA, western New York State, and southwestern Ontario.

The Queen Elizabeth Way (QEW) is considered to be the primary highway serving the Niagara Region connecting the Peace Bridge in Fort Erie with downtown Toronto. The QEW acts as a significant economic tool in transporting people and goods and is a tremendous economic asset for Niagara Region. The QEW is becoming increasingly congested during peak travel periods and travel times between the Niagara Region are considered to be unpredictable by many Niagara residents. This increased congestion is driving the need to examine other transportation alternatives that can reliably and efficiently connect Niagara residents to the GTA (primarily downtown Toronto) – especially those within the business community.

Highway 405 connects the QEW to the Queenston/Lewiston border crossing and Interstate 190, and Highway 406 extends from the QEW just west of St. Catharines, to the communities of Thorold, Welland and Port Colborne to the south. Highway 420 connects the QEW to the Rainbow Bridge border crossing with Niagara Falls, New York.

A series of regional roads operated and maintained by the Region connect the smaller municipalities within the Region, such as Regional Road 55 (connecting St. Catharines and Niagara-on-the-Lake), Regional Road 20 (connecting Niagara Falls and Hamilton via Pelham), and Regional Road 81 (connecting St. Catharines and Hamilton via Jordan and Grimsby).

There have also been decade-long discussions of developing a 'mid-peninsula highway' in the Niagara Region connecting Hamilton to Fort Erie. A commons interim report published in February 2019 indicated the lack of a mid-peninsula highway is become a major obstacle in realizing the full 'trade corridor' potential of the area because transport trucks are being delayed in the capacity constraints being realized on the QEW.

The proposed location for the mid peninsula highway is in close proximity to the Niagara Central Airport, and if constructed (although timelines for further planning and environmental assessments are not known), its presence could provide additional economic growth opportunities for the facility.

6.2.2 Rail

Passenger rail services within the Niagara Region are provided by Via Rail and GO Transit:

- Via rail provides daily passenger service (through a partnership with Amtrack) within their 'Quebec City-Windsor Corridor' providing connections to between Toronto and New York with stops at Grimsby, St. Catharines and Niagara Falls within Niagara Region. The passenger train service to Toronto departs Niagara Falls at 17:45, and the service to Niagara Falls departs Toronto at 08:20.

- GO Transit recently extended their passenger rail service to the Niagara Region from Hamilton, providing increased passenger rail service within the Golden Horseshoe. However, this service includes one daily (weekday) train departure from Niagara Falls at 05:19, arriving at Toronto Union Station at 07:50, with a stop at St. Catharines (among others outside Niagara Region). The westbound train to Niagara departs Toronto Union Station at 17:15 daily (weekdays) arriving in St. Catharines at 19:22, and Niagara Falls at 19:47. During the weekends, service frequencies are increased with four daily eastbound train departures from Niagara Falls at 08:23, 11:30, 19:20, and 23:00, and three westbound departures from Toronto Union Station at 09:00, 16:18, and 20:10. GO Transit supplements bus services operating on the QEW, increasing connection frequencies between communities in Niagara and the Golden Horseshoe; however, these services are prone to congestion during peak periods.

Both Canadian National Railway (CNR) and the Canadian Pacific Railway (CPR) operate the primary rail networks within the Niagara Region:

- CN operates their mainline rail network (referred to as the Grimsby Subdivision), connecting the Whirlpool International Bridge crossing in Niagara Falls to New York State with their Oakville Subdivision in Hamilton. Passenger rail services provided by Via Rail and GO Transit are operated on this subdivision.
- CP's infrastructure within Niagara Region consists of a mainline track (the Hamilton Subdivision) connecting Fort Erie with Hamilton (through Welland), further extending to their Galt Subdivision in Guelph Junction. Passenger rail services are not provided on CP's rail infrastructure within the Niagara Region.

6.2.3 Marine

Although previous attempts have been made to operate a passenger ferry service from St. Catharines to downtown Toronto, they proved to be unsuccessful and ceased operations. However, a PEI-based company called Redrock Power Systems has indicated interest in re-instituting a passenger ferry service utilizing a new technology focussing on hydrogen fuel cells for marine applications. The companies recently received funds towards completing a feasibility study for a zero-emissions ferry on Lake Ontario from the Federal Government's Clean Transportation Systems Research and Development Program. Although the introduction of this ferry service is still in its conceptual stages, the introduction of this type of passenger ferry service across Lake Ontario could become an attractive alternative to the current road, rail and air connections between Niagara and downtown Toronto. Niagara Region is home to the St. Lawrence Seaway, connecting Lake Erie to Lake Ontario via the Welland Canal. Although the Seaway acts as a significant economic tool for transporting high volume shipments of cargo and freight, marine passenger transport via the Welland Canal is considered to be limited (aside from speciality passenger cruises and private vessels).

7 BUSINESS DEVELOPMENT OPPORTUNITIES

Potential aeronautical and non-aeronautical-related business development opportunities have been identified for both Niagara District Airport and Niagara Central Airport. The described opportunities have been selected based on the anticipated future airport roles for both facilities, as well as projected demand based on assumptions that have been informed through stakeholder consultations, research, analysis, and HM Aero's understanding of aviation industry trends as they relate to the Niagara Region.

The business development opportunities identified for both Niagara District Airport and Niagara Central Airport are based on the airports serving the roles as described within Section 2.3. Future airport roles for Niagara District Airport and Niagara Central Airport have been defined based on a review of the strategic goals, visions, and objectives for each airport (where available), and HM Aero's understanding as to how each airport can be positioned as stronger economic drivers within Niagara Region.

7.1 Aeronautical Opportunities

7.1.1 Niagara District Airport

Market research, stakeholder consultations, and HM Aero's understanding of the future airport role and service types for Niagara District Airport have identified the following potential business opportunities that, based on HM Aero's opinion, are the most feasible options for business growth at the facility within the next 20-years.

The Airport can pursue many aeronautical business opportunities - many of which have been identified in studies in previous years. For the purpose of this study, HM Aero has identified high potential business opportunities for the airport facility, primarily within market segments related to scheduled and charter air passenger services, and General Aviation Commercial activities. In addition, potential aeronautical business opportunities have been identified in the General Aviation Commercial and industrial categories. Assumptions related to activity growth are described within the identified business opportunities and development requirements, cost estimates, and revenue projections supporting the opportunities are provided within Chapter 8 – Development Concepts, and Chapter 9 – Revenue and Expenditures Forecast.

Scheduled Passenger Air Services

Scheduled passenger air services are generally the most visible activity for virtually any airport. Most residents interact with the airport solely through scheduled passenger air services and they value their airport according to its offering of scheduled flights. Airports lacking scheduled passenger air services often suffer from lower visibility and often the mistaken perception of serving only the wealthiest residents of their communities. However, scheduled passenger air services have been operating at Niagara District Airport for a period of approximately three years – a change that many airport users may argue was long overdue.

A description of the anticipated growth of current scheduled passenger air services, as well as the addition of new services at Niagara District Airport are described in the following sections:

- **Niagara District Airport to/from Toronto Billy Bishop Airport:** Starting in September of 2016, FlyGTA commenced operation of a scheduled passenger air service operating 9-seat Piper Navajo aircraft (air taxi category) between Niagara District Airport and Toronto Billy Bishop Airport.

Flight frequencies have gradually increased, and as of September 2019, the air carrier was providing as many as sixteen round-trip flights per day in the summer months, to as few as six round-trip flights per day in the winter months.

Consultations with a wide range of stakeholder groups indicate that this service is desired in Niagara, and many members of the business community have utilized this air service or are planning to in the very near future. The Niagara business community is citing travel times to downtown Toronto from Niagara as a major constraint to business development in Niagara Region (many people plan for as much as 3 hours of travel time when driving from Niagara to Toronto for a weekday morning meeting), which points to an increasing demand for this type of air service.

HM Aero anticipates that this scheduled passenger air service will continue to gain popularity amongst residents in Niagara Region, as well as international travellers wishing to visit the Niagara Region. Consultations with FlyGTA indicate that the organization has a sister company 'Visit Canada' who is marketing flights from Toronto Billy Bishop Airport on the international market. Furthermore, FlyGTA is planning to offer air travellers with a 'one stop' airfare purchasing experience through a travel agency whereby passengers will be able to purchase round-trip tickets to/from Niagara District Airport, through Toronto Billy Bishop Airport via FlyGTA and Porter Airlines – offering flight connections to over 26 domestic and transborder destinations. The provision of U.S. transborder pre-clearance facilities at Toronto Billy Bishop Airport makes this an attractive offering for U.S.-bound passengers from Niagara⁹. Even if Canada Border Services Agency (CBSA) facilities are provided at Niagara District Airport, it is unlikely that U.S. preclearance will be implemented - limiting the number of direct U.S. destinations from Niagara District Airport.

For the purpose of identifying specific business development opportunities at Niagara District Airport, it is assumed that FlyGTA (or a similar carrier) will continue to operate scheduled passenger air services to/from Toronto Billy Bishop Airport throughout the planning horizons of this study, and beyond. More specifically, HM Aero has assumed (through consultations with FlyGTA) that this service will be upgraded to a 9-seat King Air 200 (BE20) turbine aircraft type starting in the first quarter of 2020.

The growth of scheduled passenger services has been forecast based on 2018 reported passenger volumes, with a 30% annual growth rate applied until the end of Year 5 (2024). After Year 5, a 3% annual growth rate is assumed until the end of the forecast period. This type of growth is reflective of an air service that initially stimulates the Niagara Region market, with growth stabilizing after the short-term.

Infrastructure upgrades or operational changes at the airport are not expected to be required to continue supporting the FlyGTA scheduled passenger air service. Potential revenue impacts related to the growth of this air service include, but are not limited to passenger fees, fuel sales, and vehicle parking.

Notwithstanding the above, the sum of all the infrastructure to support the identified business developments identified within Chapter 7 will define the 20-year Airport Development Concepts (Chapter 8), the cost estimates, and the Revenue and Expenditures Forecast (Chapter 9) for Niagara Districted Airport.

⁹ Source: <https://www.thespec.com/news-story/9451962-canada-and-u-s-agree-to-expand-precleanance-options-for-travellers-goods/>

- Niagara District Airport to/from Montreal St. Hubert Airport:** Research, analysis, consultations, and consideration of airline industry trends indicates that a scheduled passenger air service from Niagara District Airport to Montreal has strong potential. The Niagara Region is currently welcoming a significant number of visitors from Quebec, and HM Aero is of the belief that collaborative efforts between local tourism authorities, operators, and the Airport could drive demand for air services from Niagara to Montreal. Montreal's St. Hubert Airport supports commuter passenger air services, including 19-seat Jetstream 32 (JS32) operations, to more than 10 destinations within Quebec. The airport facility would be an attractive gateway to/from the Montreal area as scheduled air services are provided from smaller FBO-type facilities, without the requirement for CATSA passenger screening. This would allow the Niagara District Airport to support additional scheduled passenger air services, without providing CATSA passenger screening services. In addition, Montreal St. Hubert Airport is less congested and has lower aeronautical fees, which could result in competitive airfares when compared to Toronto Billy Bishop-Montreal Trudeau and Toronto Pearson-Montreal Trudeau air services.

HM Aero has assumed that this air service would commence in year three once air service marketing efforts have been undertaken to further quantify demand for scheduled passenger air services between Montreal and Niagara Region.

A summary of the projected activity levels related to the initiation of a new Niagara District Airport – Montreal St. Hubert Airport (CYHU) scheduled passenger air service is shown within Table 7.1. Assumptions considered for generating activity levels are identified for the short, medium and long-term planning horizons, in addition to the year in which the service change is expected to commence or experience a significant change in aircraft type or flight frequency. It has been assumed that rotary wing operations will relocate from the Air Terminal Building in Year 3 to provide segregation between fixed and rotary wing enplaning and deplaning activities.

Table 7.1 – YSN-YHU Scheduled Passenger Air Service Growth

	Short Term (1-5 Years)		Medium Term (6-10 Years)		Long Term (11-20-years)	
		Yr.		Yr.		Yr.
<i>Potential Aircraft Type and # of Seats</i>	Jetstream 32 (JS32) 19 Seats	3	Jetstream 32 (JS32) 19 Seats	8	Dash 8-400 (DHC8-400) 74 Seats	15
<i>Flight Frequency</i>	Four Times Per Week (Seasonal Apr. 1 till Sept. 30)		Four Times Per Week (Seasonal Apr. 1 till Sept. 30)		Eight Times Per Week (Seasonal Apr. 1 till Sept. 30)	
<i>Load Factor</i>	75%		75%		75%	
<i>Annual Aircraft Movements</i>	240		480		480	
<i>Annual Pax (E/D)</i>	3,420		6,840		26,640	
<i>Passenger Peak Design Volume*</i>	29		29		111	
<i>Infrastructure Requirements</i>	None		Parking Expansion		None	
<i>Revenue Impacts</i>	Passenger Fees, Fuel Sales, Vehicle Parking		Passenger Fees, Fuel Sales, Vehicle Parking		Passenger Fees, Fuel Sales, Vehicle Parking	

*Peak air terminal passenger volumes include both arriving and departing passengers.

Charter Passenger Air Services

Charter passenger air services can take several forms, depending on the market being served, and the demand for air services. Charter passenger air services are usually arranged by a private party, or group of parties, who are intending to hire an aircraft to fly persons from Point 'A' to Point 'B'. In some cases, a tour operator may purchase all the seats on a particular aircraft, and market the sale of the aircraft seats combined with other vacation amenities such as hotels, resorts, rental cars, and excursions.

Charter passenger air services have grown in popularity in Canada, especially when high oil prices created significant demand for a skilled workforce in Alberta's oil sands. Energy resource companies (such as Suncor, Imperial Oil, Devon, and others) continue to work with air carriers to provide 'scheduled' charter passenger air services, whereby the aircraft arrive and depart their arrival and destination airports at the same time of day, on the same day of the week. Depending on the specific demand for charter passenger air services, the volume of passengers traveling on these types of service can be significant – resulting in a potentially substantial source of revenue generation. The other benefit to charter passenger air services is that airports are not required to be certified by Transport Canada to support their operation and airports can reduce their costs by providing a lower level of service in terms of airport regulatory oversight (and in the case of Niagara District, the provision of dedicated Emergency Response Services), a requirement for airports when scheduled air service passenger activity equals or exceeds 180,000 per annum.

A description of potential new charter passenger air services anticipated within the next 20-years at Niagara District Airport are presented herein. It is important to note that although potential air service development opportunities have been identified as charter passenger air services, they may also be appropriate within the scheduled passenger air service category, depending on the desired air service origins and destinations, and the air carriers available to provide the air service. The new charter passenger air service business opportunities identified as part of this study are based on HM Aero's research, analysis, input received from stakeholder consultations, review of previous air service studies conducted for Niagara District Airport, and our understanding of air service trends in Canada. Further research and air service development and marketing efforts are recommended to be commissioned to confirm the demand described demand for charter passenger air services described herein.

- **Niagara District Airport to/from New York City:** The introduction of a new charter passenger air service between Niagara District Airport and the greater New York City Area has been identified as a high potential air service opportunity. Consultations with the Niagara tourism industry, and specific tour operators in Niagara Falls, Ontario indicate that a charter air service was attempted between New York City (Newark Airport) and Niagara Falls International Airport (U.S.) in 2008¹⁰. At the time, partnerships were made between local tour operators in Niagara Falls and international tourism marketers in New York to sell day trips to Niagara Falls. The service operated for a brief period using a 32-seat Saab 340 aircraft and the notion of the tour package was very popular amongst international visitors from Spain and South Korea. The charter passenger air service was discontinued after a short period of time as aircraft seat cost was too high to reasonably price and market the tour package, despite significant demand.

HM Aero believes that there is demand for international visitors from New York City to purchase two to four-day excursions in Niagara as part of their overall international travel experience. To capture this continued demand, collaboration between local tour operators, tourism associations, and the airport is strongly recommended to quantify

¹⁰ Source: Direct consultations with Rainbow International Destination Management, LLC – August, 2019

demand and prepare a formal business case to be presented to an air operator, or a specific investor. To lower seat costs and trigger demand, HM Aero believes that this type of service would have to be offered using a larger aircraft, such as the 74-seat DHC8-400, with lower operating costs per passenger seat. Niagara District Airport would be the ideal location to support this service, as it is less than 15 minutes from Niagara Falls, and near other attractions such as some of Niagara's most popular wineries. For the purposes of this study, HM Aero has assumed that this air service would start in year four, following the expansion of the Air Terminal Building at Niagara District Airport, and following provision of CBSA inspection services (although the cost of CBSA inspection service on a low frequency service could be arranged through a cost recovery method with the tour operator).

A summary of the anticipated activity levels associated with the development of a new Niagara District Airport – New York City charter passenger air service is shown within Table 7.2. Similar to the scheduled air service assumptions identified in previous sections, assumptions employed to generate activity levels are identified for the short, medium and long-term planning horizons, as well as the year in which the service change is expected to commence or experience a significant service change has been identified for this business opportunity.

Table 7.2 – YSN-NYC Charter Passenger Air Services Opportunity

	Short Term (1-5 Years)		Medium Term (6-10 Years)		Long Term (11-20-years)	
		Yr.		Yr.		Yr.
<i>Potential Aircraft Type and # of Seats</i>	Dash 8-400 (DHC8-400) 74 Seats	4	Dash 8-400 (DHC8-400) 74 Seats	7	Dash 8-400 (DHC8-400) 74 Seats	15
<i>Flight Frequency</i>	Twice Per Week (Seasonal Apr. 1 till Sept. 30)		Four Times Per Week (Seasonal Apr. 1 till Sept. 30)		Eight Times Per Week (Seasonal Apr. 1 till Sept. 30)	
<i>Load Factor</i>	90%		90%		90%	
<i>Annual Aircraft Movements</i>	120		240		480	
<i>Annual Pax (E/D)</i>	7,992		15,984		31,968	
<i>Passenger Peak Design Volume*</i>	133		133		133	
<i>Infrastructure Requirements</i>	Air Terminal Expansion to 18,000 sq' CBSA		None		None	
<i>Revenue Impacts</i>	Passenger Fees, Fuel Sales, Vehicle Parking		Passenger Fees, Fuel Sales, Vehicle Parking		Passenger Fees, Fuel Sales, Vehicle Parking	

*Peak air terminal passenger volumes include both arriving and departing passengers.

**Assumes that adequate air terminal passenger capacity has been provided based on identified short-term expansion.

General Aviation Commercial

General Aviation Commercial activities can take many forms; however, for the purpose of this study they are defined as businesses and activities that support corporate General Aviation aircraft (business aircraft), and other segments of the General Aviation community – such as a Fixed Base Operator (FBO) facilities that provide aircraft support services (e.g. hangarage, fuelling, catering, concierge services, and other VIP services), or the development of an aviation facility (typical hangars and support buildings) to support corporate aircraft storage or corporate charters. Furthermore, Aircraft Maintenance Organizations (AMOs) that provide aircraft repair and inspection services for commercial and recreational aircraft operators, as well as avionics shops and aircraft painting facilities also fall within the General Aviation Commercial category.

A description of potential new General Aviation Commercial business opportunities suitable for Niagara District Airport are identified and described in the following sections. General Aviation Commercial business opportunities in the short and medium term have been identified based on known short-term demand identified by NDA's Chief Executive Officer, results from the stakeholder consultation program, and HM Aero's understanding of aviation industry trends and demand for appropriate development land at Niagara District Airport. HM Aero has identified five specific General Aviation Commercial business opportunities for Niagara District Airport. It is important to note that demand for lands suitable for General Aviation Commercial development may be higher than estimated within this study, which should be confirmed through the development of a comprehensive Airport Master Plan.

- **Development of a new Fixed Base Operator Facility:** To further enhance Niagara District Airport's vision of being 'Niagara Region's hassle-free aviation hub offering VIP service to leisure and business travelers, and recreational flyers, and to support anticipated demand for these services, the development of a new Fixed Base Operator (FBO) facility has been identified as a potential short-term business opportunity for the Airport. HM Aero has anticipated that the development of this facility would occur within Year 3 once development lands can be made available and demand can be solidified.

Table 7.3 describes the infrastructure requirements, anticipated facility and land parcel sizes, and the areas in which airport revenues will be impacted as part of the Financial Forecast and Revenue Projections.

Table 7.3 – New Fixed Base Operator Facility

	Short Term (1-5 Years)	
		Yr.
<i>Infrastructure Requirements</i>	Hangar Relocations Development Land Preparation	3
<i>Facility Size (typ.)</i>	30,000 sq'	
<i>Land Parcel Size (typ.)</i>	1.5 Acre	
<i>Revenue Impacts</i>	Lease Revenues	

- **New General Aviation Commercial Hangar Developments:** Demand for the development of new commercial hangars to support private and commercial aircraft operations by larger turboprop (and potentially turbofan) aircraft types has been identified at Niagara District Airport. More specifically, HM Aero has identified demand for the development of six new commercial hangars within the 20-year planning horizon of this study. HM Aero has assumed that these hangars will be constructed starting in Year 3 following the preparation of development lands and appropriate servicing extensions, with additional developments in Years 6, 8, 12, 14, 16, and 18.

Table 7.4 identifies the appropriate infrastructure requirements, facility characteristics, and potential revenue impacts as a result of developing new commercial hangars.

Table 7.4 – New General Aviation Commercial Hangar Developments

	Short Term (1-5 Years)	Yr.	Medium Term (6-10 Years)	Yr.	Long Term (11-20-years)	Yr.
	1	3	2	6 8	4	12 14 16
<i>Number of New Developments</i>						
<i>Infrastructure Requirements</i>	Development Land Preparation Utility and Servicing Extensions Access Roads		Hangar Relocations Development Land Preparation Utility and Servicing Extensions Access Roads		Taxiway Construction Development Land Preparation Utility and Servicing Extensions Access Roads	
<i>Facility Size (typ.)</i>	15,000 sq'		15,000 sq'		15,000 sq'	
<i>Land Parcel Size (typ.)</i>	0.9 Acre		0.9 Acre		0.9 Acre	
<i>Revenue Impacts</i>	Lease Revenues		Lease Revenues		Lease Revenues	

- New Aircraft Maintenance Organization (MRO):** Discussions with the Chief Executive Officer at Niagara District Airport identified short term demand for the expansion of an existing Aircraft Maintenance Organization currently operating at the Airport and serving the recreational and small commercial General Aviation market. The operation's current land footprint is constrained, and the business owner is seeking to develop a new hangar facility. HM Aero has assumed that this facility will be constructed in Year 2, following the required preparation of a development parcel to support the MRO and hangar relocations from the Southwest Development Area.

The infrastructure requirements, facility characteristics, and potential revenue impacts related to the development of a new MRO at Niagara District Airport are shown in Table 7.5.

Table 7.5 – New Aircraft Maintenance Organization

	Short Term (1-5 Years)	Yr.
<i>Infrastructure Requirements</i>	Development Land Preparation Utility and Servicing Extensions Access Roads	2
<i>Facility Size (typ.)</i>	15,000 sq'	
<i>Land Parcel Size (typ.)</i>	0.9 Acre	
<i>Revenue Impacts</i>	Lease Revenues	

Further to the General Aviation Commercial business opportunities above, the continued operation of the St. Catharines Flying Club as a Transport Canada-certified flight training unit is assumed as part of this study. Although significant growth in activity at the St. Catharines Flying Club (and potentially through other flight training providers) has not been identified as part of this study; however, the Revenue and Financial Projections presented in Chapter 9 assume continued increases in local aircraft movements at a rate of 3% per annum, based on the rate of inflation plus 1% growth. However, although not specifically identified as a business development opportunity for Niagara District Airport in the next 20-years, potential synergies with Niagara College and/or Brock University could increase flight training activities at the Airport, such as the successful partnerships that have been built between the Rockcliffe Flying Club, the Canadian Aviation and Space Museum, and Algonquin College.

General Aviation Industrial

General Aviation industrial activities typically include medium to large-scale aviation-related trades and businesses, including but not limited to aircraft/component manufacturing, Maintenance Repair and Overhaul (MRO) operations, avionics installation/repair, or aircraft parts supply and distribution services. Making provisions for the establishment of General Aviation industrial activities at Niagara District Airport will ensure flexibility to increase future aeronautical revenues and the overall economic impact of the airport.

For the purpose of this study, HM Aero has identified the potential for the development of a medium-scale MRO facility at Niagara District Airport to support larger turboprop aircraft types. This opportunity has been identified within the long-term planning horizon of this study.

Table 7.6 identifies the appropriate infrastructure requirements, facility characteristics, aircraft movement projections, and potential revenue impacts as a result of establishing a medium-scale MRO facility at Niagara District Airport in the long term.

Table 7.6 – New MRO Facility

	Long Term (11-20-years)	Yr.
		15
<i>Infrastructure Requirements</i>	Commercial Development Lands Utility and Servicing Extensions Access Roads Taxiway(s)	
<i>Facility Size (typ.)</i>	30,000 sq'	
<i>Land Parcel Size (typ.)</i>	2.2 Acre	
<i>Revenue Impacts</i>	Lease Revenues	

General Aviation Recreational

General Aviation Recreational activities are related to aircraft operations being conducted by private aircraft owners, or via rented aircraft – primarily for pleasure. The Airport currently acts as a base for approximately 100 General Aviation aircraft used for recreational purposes.

- **New General Aviation Recreational Facilities:** Through consultations with the Niagara District Airport, demand for the future development of General Aviation Recreational facilities (hangars and t-hangars) has been identified within the short, medium, and long-term planning horizons of this study. More specifically, HM Aero has assumed that eight new private General Aviation Recreational hangars will be established within the next 20-years, along with demand for twenty additional t-hangar aircraft storage positions. It is assumed that the four General Aviation Recreational hangars to the south of Taxiway 'A' will be relocated to the East Development Area in Year 2 to allow for General Aviation Commercial developments.

The infrastructure requirements, facility characteristics, aircraft movement projections, and potential revenue impacts related to the development of new General Aviation Recreational hangars at Niagara District Airport is shown in Table 7.7. Requirements and impacts related to the development of new t-hangars is shown in Table 7.8.

Table 7.7 – General Aviation Recreational Hangar Developments

	Short Term (1-5 Years)	Yr.	Medium Term (6-10 Years)	Yr.	Long Term (11-20-years)	Yr.
<i>Number of New Developments</i>	3	2 3 4	3	6 8 10	2	13 16
<i>Infrastructure Requirements</i>	Taxiway Construction Development Land Preparation Access Roads		Development Land Preparation		Taxiway Construction Development Land Preparation Access Roads	
<i>Facility Size (typ.)</i>	2,500 sq'		2,500 sq'		2,500 sq'	
<i>Land Parcel Size (typ.)</i>	0.45 Acre		0.45 Acre		0.45 Acre	
<i>Revenue Impacts</i>	Lease Revenues		Lease Revenues		Lease Revenues	

Table 7.8 – General Aviation Recreational T-Hangar Developments

	Short Term (1-5 Years)	Yr.	Medium Term (6-10 Years)	Yr.	Long Term (11-20-years)	Yr.
<i>Number of New Developments</i>	1 (10 Positions)	3			1 (10 Positions)	13
<i>Infrastructure Requirements</i>	New Taxiway Connections Development Land Preparation Access Road Parking Area				New Taxiway Connection Development Land Preparation Access Road Parking Area	
<i>Facility Size (typ.)</i>	12,000 sq'				12,000 sq'	
<i>Land Parcel Size (typ.)</i>	1.2 Acres				1.2 Acres	
<i>Revenue Impacts</i>	Lease Revenues				Lease Revenues	

Other Low Potential Business Development Opportunities

Further to the above, business development activities at Niagara District Airport could be explored in additional areas identified by the HM Aero project team. These additional (low potential) prospects have been identified as potential opportunities that may not come to fruition within the planning horizons of this study but should be monitored by the Airport as industry conditions change, as partnerships are formed, and as demand changes. It is important to note that the potential opportunities identified below are not included within the Revenue and Expenditures Forecast or the Development Concepts.

- **Aviation Education Partnerships:** As demand for air travel increases, so will the demand for pilots. Transport Canada, the International Civil Aviation Organization (ICAO), and other regulators and industry associations have acknowledged that there will be a worldwide shortage of aircraft technicians and pilots to maintain and operate the aircraft fleets required to transport the forecasted number of passenger enplanements and deplanements¹¹. This is driving demand for aviation educational programs, including flight training; however, professional flight training programs require extensive capital and profit margins can be very thin.

¹¹ Source: <https://www.cbc.ca/news/politics/pilot-shortage-programs-1.5381158>

Potential partnerships could be formed with educational institutions and flight training units (such as Niagara College and the St. Catharines Flying Club) to develop professional flight training programs at Niagara District Airport (or Niagara Central Airport), or other aviation education programs such as aircraft maintenance and manufacturing.

However; in September of 2019 it was announced that the Province of Ontario approved a new Commercial Flight and Aviation Leadership Program to be offered by Fanshawe College in London, Ontario starting in the fall of 2020¹². Fanshawe has teamed with Diamond Flight Centre (a professional flight training unit based at London International Airport). This type of aviation education partnership between Diamond Flight Centre, Fanshawe, and the London International Airport Authority is an example how the private and public sector can offer aviation educational programs that typically result in significant economic impact (such as Seneca College's professional pilot training program's relocation to Peterborough Airport).

Although it is unlikely that these types of partnerships will form at Niagara District Airport in the short and medium-term (due to the recent government announcement regarding Fanshawe and based on consultations with Niagara College), it is recommended that the Niagara District Airport Commission continue discussions with Niagara College and Brock University to determine demand and requirements to bring aviation education programs (flight training, aircraft maintenance, airport emergency response, and other aerospace-related programs) to the Niagara Region. Consultations with the Niagara District Airport Commission suggest that strategic discussions are currently occurring between the Airport and Brock University to examine potential partnerships in the areas of pilot training; emergency response training; intermodal connectivity within a Foreign Trade Zone; package delivery growth; and, educational study opportunities.

- **Charter Passenger Air Services to Sun Destinations:** Previous studies at Niagara District Airport have identified a potential demand for seasonal passenger charter air services (sun charters) to Florida. A 2014 study entitled "BUF and IAG: Selected Passenger and Flight Data" prepared by RRC and associates identified approximately 672,000 annual enplaned Canadian passengers at Buffalo Niagara International Airport (613,000 enplanements) and Niagara Falls International Airport (59,000 enplanements) in 2013. Of these 672,000 annual enplaned Canadian passengers, 42% were traveling to Orlando (with the second top destination being New York City). If appropriate facilities were provided at Niagara District Airport to support charter passenger air services to Florida (Orlando or potentially Fort Lauderdale) and only 5% of this seasonal market could be captured in Niagara Region, it would result in approximately 114,000 passenger enplanements per annum (approximately 830 passenger enplanement per week based on a seventeen week operational season from December 1 to May 1). However, if this type of service were to be offered at Niagara District Airport with larger narrow body aircraft types (such as the B737), consideration would have to be given to upgrade Runway 06-24 to an AGN IIIB Non-Instrument facility as per the requirements of TP312, 5th Edition. It is recommended that this be further examined as part of a formal Airport Master Plan for Niagara District Airport.

¹² Source: <https://blackburnnews.com/london/london-news/2019/09/13/fanshawe-college-offer-new-first-kind-aviation-training-program/>

- **Cargo Charter Services:** With the growing demand of e-commerce and expedited package deliveries¹³, Niagara District Airport could play a role in supporting higher volume air cargo delivery services, potentially through a shipping partner such as Purolator, FedEx or other courier organizations. In addition, as remote piloted aircraft become more popular and technology evolves there could be a potential market for package deliveries using unmanned aircraft, although this would have to be carefully considered as mixing remote piloted aircraft and traditional manned aircraft types at a conventional airport would require careful regulatory and operational coordination.

It is recommended that these additional aeronautical business opportunities be reviewed on a periodic basis as economic conditions evolve, globally, within Canada and within the Niagara Region.

7.1.2 Niagara Central Airport

Similar to the methodology used to identify future business opportunities for Niagara District Airport, HM Aero completed a detailed review of previous studies, consulted with a wide-range of stakeholders, and applied our knowledge and understanding of the current and future aviation industry in southern Ontario to identify appropriate and realistic opportunities for business growth at Niagara Central Airport.

Although fewer business opportunities have been identified for Niagara Central Airport when compared to Niagara District Airport, HM Aero is of the opinion that the airport facility will continue to play an important role within Niagara Region by providing infrastructure and services to support General Aviation Commercial and recreational activities (in addition to supporting medevac and law enforcement activities). Furthermore, as economic development within central Niagara Region continues (especially with the potential long-term construction of the Mid-Peninsula Corridor)¹⁴, the Airport's role could expand to support General Aviation industrial activities, charter passenger, and/or cargo charter services.

Nonetheless, in the context of this study, HM Aero has identified high potential future business opportunities for the Airport as described in the following sections. Assumptions related to activity growth are described within the identified business opportunities. Development requirements, cost estimates, and revenue projections supporting the opportunities are provided within Chapter 8 – Development Concepts, and Chapter 9 – Revenue and Expenditures Forecast.

General Aviation Commercial

In the context of Niagara Central Airport, General Aviation Commercial facilities are defined similarly to Niagara District Airport in the sense that they support corporate General Aviation aircraft and other segments of the General Aviation market (such as recreational aircraft users). General Aviation Commercial facilities at airports with the size and scope of Niagara Central Airport typically provide services including but not limited to aircraft repair and inspection, aircraft painting, avionics repair, and aircraft interior refinishing.

A description of potential new General Aviation Commercial business opportunities suitable for Niagara Central Airport are identified and described in the following sections.

¹³ Source: <https://www.canadianshipper.com/features/couriers-e-commerce-drives-growth-express-segment/>

¹⁴ Source: <https://www.stcatharinesstandard.ca/news-story/9204517-commons-committee-recommends-mid-peninsula-highway/>

General Aviation Commercial business opportunities have been identified based on HM Aero's understanding of the demand for typical services provided by General Aviation Commercial businesses at regional and municipal airports while considering the significant number of recreational aircraft based at the facility (more than 100), and the current lack of General Aviation Commercial support services.

HM Aero has identified five General Aviation Commercial business opportunities for Niagara Central Airport within the 20-year planning horizon of this study. It is important to note that demand for lands suitable for General Aviation Commercial development may differ from those estimated within this study, which should be verified through the development of a comprehensive Airport Master Plan.

- New Aircraft Maintenance Organizations (AMOs):** The opportunity for the future establishment of AMOs (or related businesses) at Niagara Central Airport has been identified. More specifically, HM Aero has assumed that three additional AMO-type businesses will develop at the Airport within the next 20-years. For the purposes of the business case, it has been assumed that the first AMO-type facility will commence operations in Year 5, followed by two additional developments in Years 10 and 20. As mentioned previously, HM Aero anticipates that the AMO-type businesses could offer services such as aircraft inspection and repair (most likely), avionics repair, aircraft painting, and/or aircraft interior refinishing. In addition, the presence of a seaplane base at Niagara Central Airport (made possible through an easement adjacent to the Welland River) makes the facility an attractive location for the growth of seaplane and seasonal float/ski/wheel conversions carried out by AMOs. Any new AMO-type business establishing at the Airport would likely focus on serving the General Aviation Recreational market segment, and potentially smaller turboprop aircraft in the General Aviation Commercial market.

The required infrastructure developments, facility characteristics, and revenue impacts related to the development of new General Aviation Commercial facilities at Niagara Central Airport are shown in Table 7.9.

Table 7.9 – AMO-Type Commercial Development

	Short Term (1-5 Years)		Medium Term (6-10 Years)		Long Term (11-20-years)	
		Yr.		Yr.		Yr.
<i>Number of New Developments</i>	1	5	1	10	1	20
<i>Infrastructure Requirements</i>	Rehabilitate Runway 05-23 & Runway 16-34 and Taxiway Bravo Development Land Preparation Utility and Servicing Extensions Access Road Seaplane Base Improvements				Taxiway Construction Development Land Preparation Utility and Servicing Extensions Access Road	
<i>Facility Size (typ.)</i>	5,000-15,000 sq'		5,000-15,000 sq'		5,000-15,000 sq'	
<i>Land Parcel Size (typ.)</i>	0.5 Acre – 0.9 Acre		0.5 Acre – 0.9 Acre		0.5 Acre – 0.9 Acre	
<i>Revenue Impacts</i>	Lease Revenues		Lease Revenues		Lease Revenues	

Further to the General Aviation Commercial business opportunities identified herein, the continued operation of a satellite flight training unit Niagara Central Airport (operated by the St. Catharines Flying Club) is assumed as part of this study. Significant growth in activity at the Niagara Central Airport-based satellite flight training unit has not been identified as part of this study. This also applies for skydiving operations currently being conducted by Skydive Niagara, at Niagara Central Airport.

General Aviation Recreational

General Aviation Recreational activities are related to aircraft operations being conducted by private aircraft owners, or via rented aircraft – primarily for pleasure. Niagara Central Airport currently acts as a base for almost 100 General Aviation aircraft used for both commercial, and mostly recreational purposes.

- **New General Aviation Recreational Facilities:** Through consultations with management at Niagara Central Airport, combined with HM Aero's understanding of demand for affordable development lands suitable for hangar development at regional and municipal airports in southern Ontario, demand for new aviation recreational facilities (hangars and t-hangars) has been identified within the short, medium, and long-term planning horizons of this study. More specifically, HM Aero has assumed that thirteen new private General Aviation Recreational hangars will be established at Niagara Central Airport within the next 20-years (one hangar every 1.5 years over the 20-year period), along with demand for twenty additional t-hangar aircraft storage positions. Development of hangars and t-hangars is anticipated to commence in Year 1.

The infrastructure requirements, facility characteristics, and potential revenue impacts related to the development of new General Aviation Recreational hangars at Niagara Central Airport is shown in Table 7.10, and t-hangar requirements and impacts are shown in Table 7.11.

Table 7.10 – General Aviation Recreational Hangar Developments

	Short Term (1-5 Years)		Medium Term (6-10 Years)		Long Term (11-20-years)	
		Yr.		Yr.		Yr.
<i>Number of New Developments</i>	3	1 2 4	5	6 7 8 9 10	5	12 14 16 18 19
<i>Infrastructure Requirements</i>	Rehabilitate Runway 05-23 & Runway 16-34 and Taxiway Bravo New Taxiway Development Land Preparation Access Roads		Development Land Preparation Access Roads		New Taxiway Development Land Preparation Access Roads	
<i>Facility Size (typ.)</i>	2,500 sq'		2,500 sq'		2,500 sq'	
<i>Land Parcel Size (typ.)</i>	0.45 Acre		0.45 Acre		0.45 Acre	
<i>Revenue Impacts</i>	Lease Revenues		Lease Revenues		Lease Revenues	

Table 7.11 – General Aviation Recreational T-Hangar Developments

	Short Term (1-5 Years)	Yr.	Medium Term (6-10 Years)	Yr.	Long Term (11-20-years)	Yr.
<i>Number of New Developments</i>	1 (10 Positions)	1			1 (10 Positions)	10
<i>Infrastructure Requirements</i>	Rehabilitate Runway 05-23 & Runway 16-34 and Taxiway Bravo New Taxiway Development Land Preparation Access Road				New Taxiway Development Land Preparation Access Roads	
<i>Facility Size (typ.)</i>	12,000 sq'				12,000 sq'	
<i>Land Parcel Size (typ.)</i>	1.2 Acres				1.2 Acres	
<i>Revenue Impacts</i>	Lease Revenues				Lease Revenues	

Other Low Potential Business Development Opportunities

Further to the potential business opportunities identified for Niagara Central Airport in previous sections, business development activities at Niagara Central Airport could be developed in additional areas, as discussed herein. These additional prospects have been identified as potential opportunities that may not come to fruition within the planning horizons of this study; however, it is recommended that they be monitored by the Airport Commission as industry conditions change, as new partnerships are formed, and as demand changes.

It is important to note that the potential opportunities identified below are not included within the Revenue and Expenditures Forecast, nor are they represented within the Development Concepts for Niagara Central Airport.

- **Great Lakes Cruise/Tour Package Opportunities:** Direct consultations with the Niagara South Coast Tourism Association indicated that there is a growing demand for boutique cruises on the Great Lakes, and Port Colborne and Niagara Falls are stops along the routes that are being marketed to potential travellers. Future links to the cruise ship port in Port Colborne could be developed with Niagara Central Airport, offering scenic flights of the Niagara Area, or skydiving lessons through Skydive Niagara.
- **Charter Passenger Air Services:** Although the provision of charter passenger air services at Niagara Central Airport have not been identified within the 20-year planning horizon of this study, there may be a future potential for the airport facility to support charter passenger air services (scheduled charter flights, or ad-hoc charter flights). Consultations with the airport operator suggest that ad-hoc passenger charter activities have occurred in the past and operate on occasion at the Airport (fishing charters to central Ontario were identified). The likelihood of expansion of charter passenger air service at Niagara Central Airport is higher compared to scheduled air services, as these services are beginning to gain popularity at Niagara District Airport (further limiting the air passenger market share at Niagara Central Airport), and Niagara Central Airport is not currently classified as a 'Certified' airport facility by Transport Canada, a condition that is required to accept scheduled air services. Nonetheless, there may be potential for expansion of charter passenger air services to support passenger transport to destinations in Ontario such as Toronto Billy Bishop, London, Muskoka and other U.S. destinations, although these services and destinations have not been confirmed and validated by the project team.

- **High Volume Professional Flight Training:** The airport facility offers an environment that could be attractive for a high-volume flight training unit. Niagara Central Airport is likely better suited to support high volume flight training based on its lower traffic volumes, its remote position outside noise sensitive areas, and the lower land lease costs when compared to Niagara District Airport. High volume professional flight training could be offered at Niagara Central Airport through a private party, or through aviation education partnerships (potentially with the St. Catharines Flying Club and Niagara College).
- **Industrial Development:** The Niagara Central Airport property currently encompasses approximately 166 hectares of land. Although specific General Aviation industrial and non-aviation industrial business opportunities have not been identified for the airport facility within the next 20-years, the relatively flat terrain on the airport site and abundance of airport lands that can be connected to the airfield infrastructure make it a reasonably attractive site for future industrial development. However; municipal servicing extensions (primarily water, sewer and likely three phase power) would need to be provided to the Airport (likely from the intersection of Webber Road and South Pelham Road - a distance of approximately 4 to 4.2 km) at a considerable cost.
- **Cargo Charter Services:** There could be the potential for Niagara Central Airport to play a role in supporting ad-hoc cargo charter delivery services. Demand for this type of service would likely come from local businesses (e.g. just in time parts delivery for manufacturing). Due to the lack of population density in central Niagara Region (when compared to urban areas surrounding the QEW), the likelihood of high-volume cargo shipments originating from Niagara Central Airport (traditional packages or supporting e-commerce delivery) is low. In addition, as remote piloted aircraft become more popular and technology evolves, there could be a potential market for package deliveries using unmanned aircraft, although this would have to be carefully considered as mixing remote piloted aircraft and traditional manned aircraft types at a conventional airport would require careful regulatory and operational coordination.

7.2 Non-Aeronautical Business Opportunities

Non-aeronautical airport revenue can assist in offsetting many cost-revenue gaps currently being realized by regional and municipal airport operators in Canada. Although there are a wide-range of non-aeronautical revenue streams that may be appropriate for a specific airport, many do not have significant impact in terms of increasing overall airport revenues with the exception of airport parking, and potentially concession fees charged by airports with higher passenger volumes.

For the purposes of this study, potential non-aeronautical business opportunities have been identified for both Niagara District Airport and Niagara Central Airport; however, their impacts on revenue generation have not been examined (aside from parking revenues at Niagara District Airport), as the potential opportunities identified are not expected to have a significant impact on closing the cost-revenue gap at both airports. The impact of additional non-aeronautical revenue opportunities should be explored further through the development of a formal Airport Master Plan for both airports.

7.2.1 Niagara District Airport

As mentioned previously, the most significant source of non-aeronautical revenue expected at Niagara District Airport is the generation of car parking revenue serving both scheduled and passenger charter air passengers flying on the existing expanded routes to Toronto and the future proposed routes to Montreal and New York.

For the purposes of calculating future parking revenue potential, HM Aero is anticipating that future parking revenues (as identified in the Revenue and Expenditures Forecast) could be realized at Niagara District Airport as per the assumptions provided in Table 7.12.

Table 7.12 – Non-Aeronautical Parking Revenue Assumptions– Niagara District Airport

<i>Horizon:</i>	Short Term			Medium Term			Long Term		
<i>Destination:</i>	YTZ	YHU	NYC	YTZ	YHU	NYC	YTZ	YHU	NYC
Passengers Per Annum (E/D avg.)	7,997	3,420	7,992	23,526	6,840	15,984	26,478	26,640	31,968
Departing Passengers Per Annum	3,999	1,710	3,996	11,763	3,420	7,992	13,239	13,320	15,984
% Departing Passengers From NDA	75%	50%	5%	75%	50%	5%	75%	50%	5%
Eligible Parking Passengers Per Annum	2,999	855	200	8,822	1,710	400	9,929	6,660	799
% Passengers in Private Vehicles	75%	75%	75%	75%	75%	75%	75%	75%	75%
Average Parking Stay (Days)	0.75	2.5	2.5	0.75	2.5	2.5	0.75	2.5	2.5
# of Chargeable Parking Days Per Annum	1,687	1,603	375	4,963	3,206	749	5,585	12,488	1,499

For the purpose of this study, HM Aero has assumed that the existing non-aeronautical revenues realized by Niagara District Airport will continue to be collected (special events, advertising, cell tower lease lot revenues, etc.) throughout the 20-year planning horizon of this study (growing at the rate of inflation).

Nonetheless, the following non-aeronautical opportunities may be appropriate for Niagara District Airport within the planning horizons of this study:

- **Outdoor Advertising:** The Airport could consider leasing a small parcel of land for outdoor advertising along Regional Road No. 55 (Niagara Stone Road), as this is a high-volume arterial road that connects the town of Niagara-on-the-Lake to the QEW.

- **Food Services (Restaurant):** A few attempts have been made to provide food services at Niagara District Airport; though none proved to be sustainable in the long-term. However; with the increase in scheduled passenger and charter air services within the next 20-years, demand for food services will rise, along with the commercial opportunity. Food services could be provided within an expanded air terminal facility, or within a standalone facility.
- **Introduction of New Fees:** The Niagara District Airport Commission may have an opportunity to further diversify their current non-aeronautical rate structure to increase overall revenues. Although significant increases may not be realized, additional fees could be implemented at the Airport including annual airport maintenance fees for tenants, taxi/shuttle access fees, and/or airport development fees (to name a few).

Further to the above, consultations with management at Niagara District Airport indicate that a solar farm was to be developed on the southeast development lands in 2018; however, changes in Provincial Government policy related to renewable energy made the project cost prohibitive. If Provincial Government policy changes were to occur promoting the development of solar farms, demand for a solar farm installation at Niagara District Airport could become a reality within the next 20-years (cost and revenue estimates related to the implementation of a solar farm are not included within this study).

7.2.2 Niagara Central Airport

Applicable non aeronautical revenue business development opportunities have been identified by HM Aero based on a review of previous studies, stakeholder consultations, and our understanding of revenue generating opportunities suitable for municipal and regional airports in southern Ontario.

In addition to the current non aeronautical revenues collected at Niagara Central Airport (special events), HM Aero believes there may be a demand for the following:

- **Food Services (Restaurant):** Restaurants increase the visibility of airports within the local community and provide a destination for itinerant aircraft operators seeking a meal between their recreational flying activities. There are almost 100 aircraft operators based at the Airport, a skydiving operation, and a strong presence by the Canadian Owners and Pilots Association (COPA). Provision of a restaurant facility at Niagara Central Airport was identified as a medium-high potential opportunity within the 2006 Airport Land Use Plan.
- **Tourism Outfitters:** Niagara Central Airport's presence along the Welland River (including the seaplane easement and dock) could present opportunities for the establishment of a tourism outfitter providing fishing and canoe excursions along the River. This was identified as a medium-low non-aeronautical opportunity in the 2006 Airport Land Use Plan.

7.3 Challenges and Constraints

Research, analysis, stakeholder consultations, and an extensive review of previous studies and information related to the current operations and future development of Niagara District and Airport Niagara Central Airport has enabled HM Aero to identify the current constraints and challenges related to business and economic growth at both airport facilities.

Described herein are the general challenges and constraints identified that apply to both airports, as well as those specific to each airport.

7.3.1 General

The current operational model of both Niagara District and Niagara Central Airport is resulting in barriers to business growth. More specifically, since both airports are owned and operated by a group of funding municipalities, annual budgets and major capital expenditures need to be approved and funded by all funding members and approved by their respective councils. Many of the council members have varying opinions of the importance of investment in the airport facilities to support business and economic growth. Some members believe airport investment brings additional economic growth and prosperity to Niagara Region, while others are of the opinion that Niagara District and Niagara Central are airports where the wealthy gather to fly their private aircraft on weekends and question the value of capital investment and marketing of airport facilities. Furthermore, the current operational models of both airports could be limiting the potential for outside funding, as the Municipal councils may have varying opinions of which community infrastructure assets should be rehabilitated and developed through Provincial and/or Federal Government funding programs.

7.3.2 Niagara District Airport

Political

Niagara Region is an extremely attractive destination for tourists, from within Canada, the U.S., and internationally and Niagara District Airport is within a fifteen-minute drive to Niagara Falls. There have been numerous studies conducted within the past fifteen years that have identified the potential markets and strategies for increasing air services at Niagara District Airport; however, few of these opportunities have come to fruition (aside from the introduction of FlyGTA's air service to Toronto Billy Bishop in September 2013). Effective air service marketing and development requires a commitment from airport owners to invest time and capital into preparing business cases quantifying air service demand, meeting with potential air carriers, and working with airport planners, engineers, and contractors to expand facilities to provide the required passenger and aircraft-related capacities.

HM Aero has observed that the lack of alignment amongst council members within the three funding municipalities (St. Catharines, Niagara Falls and Niagara-on-the-Lake) is limiting the availability of funding to support business development (in air service growth and in other areas of commercial development identified within this study). If the council members amongst the three funding municipalities were more closely aligned in terms of providing funding for future business growth and the funding could be provided more readily, HM Aero believes that many business opportunities will quickly come to fruition (such as the several short term opportunities identified within this study). In other words, if the funding municipalities of Niagara District Airport are unwilling to invest in the Airport to support business and economic growth (even with the feasibility being demonstrated in several previous studies), an alternative airport governance model might be more appropriate to allow the airport to expand and become a better regional economic asset.

Furthermore, consultations with Niagara tourism and attractions stakeholders suggest that there are opportunities to build partnerships with Niagara District Airport to more closely examine the air travel patterns of Niagara visitors and residents, prepare business cases for air service development, and market the introduction of new air services within Niagara; in Canada and Internationally. Some stakeholders have identified the desire to participate in further developing air services at Niagara District Airport; however, they have cited the current ownership and operational structure (airport governance model) as a barrier to growth.

In addition to the above, several business development opportunities within the General Aviation Commercial and General Aviation Recreational business market segments have been identified for Niagara District Airport in the short term (seven).

Consultations suggest that many private and commercial business owners are (and have been) interested in developing commercial and recreational aviation facilities at the site; however, the lack of identified and serviced development lands has hindered development growth. This was also supported through consultations with other stakeholders who indicated a desire to develop facilities at Niagara District Airport but cited the lack of serviced development lands suitable for their operation as a significant barrier to growth.

Physical

There are few significant physical constraints that will limit the development and economic growth of Niagara District Airport within the 20-year planning horizon of this study, and beyond. However, the ability to extend Niagara District Airport's primary runway (Runway 06-24) is constrained to the south by the Skyway Bridge, and to the north by the presence of a water tower approximately 4.3 km to the northeast of the threshold of Runway 24, in the Village of Virgil. Consultations with Niagara District Airport and a desktop analysis indicates that the existing 5,000' runway length can likely be extended to 6,000 without being effected by the water tower and Skyway Bridge (including the future widening of the bridge), but further extensions could be limited. Nonetheless, the current 5,000' runway length has been deemed appropriate to support the business development opportunities for Niagara District Airport (including DHC8-400 charter passenger operations to New York) as identified herein.

During the analysis phase of this study, an additional physical constraint was identified related to the offset distance between the centreline of Runway 06-24 and the centreline of Taxiway 'C'. These centrelines offset distances are defined by the requirements of Transport Canada's Aerodrome Standards and Recommended Practices (TP312 5th Edition) and must be adhered to in order to maintain airport certification. In the case of NDA, the current runway to taxiway centreline offset distance is 90 m, based on an AGN IIIA, Non-Precision operating environment. This allows the airport to support regular use of larger turboprop aircraft types (up to and including the DHC8-400). However, in order to support regular aircraft operations using turbofan (jet) aircraft types within the AGN IIIB category under Non-Precision operations, the offset distance between the centreline of Runway 06-24 and Taxiway 'C' would have to be increased to a minimum distance of 122 m. Research, analysis and stakeholder consultations indicate that Taxiway 'C' was constructed as part of an airport development project in 2010 under the Government of Canada's Infrastructure Stimulus Fund. The current offset distance of 90 m between the centrelines of Runway 06-24 and Taxiway 'C' may inhibit growth of scheduled passenger services. In addition, if the offset distance between the runway and the taxiway were to be increased to 122 m, it will impact the amount of potential commercial development land in the southeast quadrant of the airport. It is recommended that this constraint be investigated further during the development of a formal Airport Master Plan.

Niagara District Airport's passenger support facilities have also identified as minor constraints to development. A high-level desktop analysis of the current Air Terminal Building suggests that the existing Air Terminal Building can support a Passenger Design Volume (PDV) of 40 passengers, at a Level of Service equal to 'C'. Considering the scheduled passenger and charter passenger air service development opportunities identified within this study, expansion of the Air Terminal Building is anticipated to be required in the short term to support increased passenger volumes related to the Niagara – New York City scheduled charter air service.

Based on the identified demand and passenger volumes for the Niagara – New York City scheduled charter air service it is estimated that the current Air Terminal Building will require expansion to support a PDV (arriving and departing passenger seats) of 133 passengers. Further expansions to the Air Terminal Building may be required within the next 20-years if additional air service opportunities are realized at Niagara District Airport.

Further to the above, the lack of Canada Border Services Agency (CBSA) inspection services and passenger pre-board screening provided by the Canadian Air Transport Security Authority (CATSA) has been cited by some stakeholders as a constraint to development at Niagara District Airport; however, it is anticipated that CBSA services can be provided in an expanded Air Terminal Building (at a reasonable cost due to CBSA's close proximity in Queenston), as well as CATSA services; although pre-board passenger screening has not been identified as a requirement within the next 20-years.

In addition, Niagara District Airport's designation as an Airport of Entry (AOE)¹⁵ 15, currently limiting the Airport of Entry and exit for General Aviation air traffic only (e.g. privately operated or small charter aircraft carrying no more than 15 passengers, crew and their baggage). Some airports have cost recovery agreements with CBSA to provide border inspection services under some circumstances; however, based on the identified potential for transborder scheduled charter air services in the short term, it is recommended that the Airport work with CBSA to re-designate Niagara District as a commercial AOE/80 in the short term, and further expanding to support realized passenger air service growth.

7.3.3 Niagara Central Airport

Political

Similar to Niagara District Airport, the elected council members from Niagara Central Airport's four funding municipalities (Welland, Port Colborne, Wainfleet, and Pelham) are seen to have varying views and opinions related to the economic value of the airport facility, and some question the value of future capital and infrastructure investment at the site. If municipal council members were more aligned in terms of their views on the value of investment at Niagara Central Airport, the availability for funding to support infrastructure rehabilitations and expansions may be more readily available. Further to this, alignment amongst the councils for the four funding municipalities could provide for increased business development opportunities as communities can work together to market and build infrastructure to support economic and business growth.

Furthermore, following a review of previous land use plans, development studies and the Airport's financial statements, HM Aero has observed that past decisions made related to infrastructure rehabilitation and development approvals were not in the long-term interests of the facility. More specifically, a commercial hangar was approved to be developed directly adjacent to Apron I, within the designated Air Terminal Reserve identified within the 2006 and 2016 Land Use Plans for Niagara Central Airport. In order to support more sound decision making and alignment with long term strategies and goals and objectives, a different airport governance structure (mainly changes in the makeup of the Commission members, their mandates, and authority levels) might be more appropriate to support planned and structured business and economic growth at the Airport.

In addition, capital rehabilitation investments related to runway, taxiway and apron surfaces were made based on poor decision making, resulting in a pavement surface that is causing Foreign Object Damage (FOD) and other aircraft damage (such as excessively worn aircraft tires). This suggests that the management of the Niagara Central Airport may be lacking the required expertise to make informed decisions based on the best interests of the Airport and the communities in which it serves. The lack of a formal Airport Master Plan identifying future business opportunities and prioritizing capital investments to maximize business and economic growth potential may have contributed to the decision-making process related to the rehabilitation of the runway, taxiway and apron surfaces in 2018.

¹⁵ Source: <https://www.cbsa-asfc.gc.ca/do-rb/offices-bureaux/1025-eng.html>

Consultations with senior members of the Niagara Central Airport Commission indicate that many of historical decisions related to infrastructure rehabilitation, land use, lack of an Airport Master Plan, and revenue generation strategies were made under previous Commission leadership. The 2019 Commission has stated that they are focussed on responsible fiscal management and they are working towards identifying new business opportunities to make the Airport more revenue neutral.

Physical

Few physical constraints to future development have been identified at Niagara Central Airport. Two primary constraints to airport development have been identified herein – the capacity of the potable water and sanitary sewage treatment (septic) system at the Airport, and the presence of a floodplain associated with the Welland River that apply to the Niagara Central Airport Lands.

Although the existing water and sewer system is expected to support the identified business development opportunities identified within this study, HM Aero believes that the extension of potable water and sanitary sewer services would make the Niagara Central Airport lands more attractive for large-scale commercial and industrial development. Significant investment in water and sanitary sewer connections to the City of Welland would be required in order to support any medium to large-scale commercial developments.

The presence of the Welland River to the south of Niagara Central Airport's property is considered to be a minor physical constraint to future airport development. Although part of the Airport lands fall within a designated floodplain, lands suitable for future development can be made available in other locations, with the capacity to support demand in the next 20-years, and beyond.

7.4 Target Business Development Opportunities

Based on research, analysis, stakeholder consultations and review of previous studies related to future business and infrastructure development at Niagara District Airport and Niagara Central Airport, HM Aero has ranked each of the identified high potential business development opportunities (based on revenue potential and capital cost requirements) for both sites in the following sections. Each of the target market business development opportunities are identified in order of priority, with an anticipated year in which the opportunity will come to fruition, as long as the required development and operational requirements are provided to support the opportunities (as identified in subsequent sections of this study). It is assumed that current business activity at both airports will remain and will be supported by the airports throughout the study period, with the additional business development opportunities identified in the following sections further contributing to business growth at Niagara District Airport.

7.4.1 Niagara District Airport

Identified high potential business development opportunities for Niagara District Airport are ranked below and are arranged by the primary airport service types anticipated for the facility within the next 20-years, and beyond. It is important to note that all of the business development opportunities identified by HM Aero are in alignment with Niagara District Airport's long-term vision, mission and business growth goals.

Scheduled Passenger Air Services

- Introduction of New Scheduled Passenger Air Service to Montreal St. Hubert (Year 3)

This new air service has been identified as having the highest potential as few infrastructure development requirements are required at Niagara District Airport to support a 19-seat commuter scheduled passenger air service. Year 3 has been selected as the anticipated year for the service to commence; however, if air service marketing efforts and appropriate business cases can be presented to appropriate air operators within Year 1, this service could commence sooner.

Charter Passenger Air Services

- Introduction of Charter Passenger Air Service to New York City (Year 4)

The provision of charter passenger air services to New York City from Niagara District Airport has been identified as the second priority, as the current Air Terminal Building will require expansion, as well as the provision of CBSA border inspection services. HM Aero has assumed that these projects will commence in Year 2 or Year 3.

General Aviation Commercial

- Development of a new Aircraft Maintenance Organization (AMO) Facility (Year 2)

Consultations with management at Niagara District Airport indicate an immediate demand for serviced airside commercial development lands to support the expansion of an AMO business, complete with a hangar with an approximate size of 10,000 sq' to 15,000 sq'. The development of this facility has been assumed for Year 2.

- Development of a New 30,000 sq' Fixed Base Operator (FBO) Facility (Year 3)

Discussions with Niagara District Airport management identified a developer interested in developing an FBO facility at the Airport in the short term. Year 3 has been identified as the anticipated year in which the facility will begin operations, allowing for serviced airside commercial development lands to be made available to support the facility.

- New General Aviation Commercial Hangar Developments (Year 3+)

Seven new aviation commercial hangar developments have been identified within the 20-year planning horizon of this study. Serviced airside commercial development lands are required to support hangars capable of supporting corporate turboprop and turbofan aircraft types. Year 3 was selected as the timing for commissioning of the first new General Aviation Commercial hangar at Niagara District Airport to allow adequate timing for serviced, development-ready lands to be made available to support new hangars.

General Aviation Recreational

- New General Aviation Recreational Hangar Developments (Year 2+)

Through consultations with the airport operator, stakeholder consultations and HM Aero's knowledge of demand for private recreational hangars in southern Ontario a total of **eight** General Aviation Recreational hangars are projected for construction at Niagara District Airport within the next 20-years, in addition to the demand for **20** aircraft t-hangar parking positions. The commissioning of the first new General Aviation Recreational hangar is anticipated for Year 2, with the first t-hangar (10 new parking stalls) being commissioned in Year 3.

General Aviation Industrial

- New 30,000 sq' Aircraft Maintenance Repair and Overhaul (MRO) Facility (Year 15)

Although anticipated for the long-term planning horizon (or potentially beyond,) HM Aero has assumed that a new MRO facility serving turboprop and narrow body turbofan aircraft will establish operations at Niagara District Airport starting in Year 15. Niagara's skilled workforce, the availability of suitable lands to be prepared for development, and trend of aircraft maintenance and manufacturing moving from airports in major cities makes this opportunity attractive for Niagara District Airport from both a revenue generation, and economic development perspective.

In addition to the aeronautical business development opportunities identified herein, HM Aero has identified passenger car parking revenue as a potential new source of significant revenue, commencing in coordination with the Niagara-Montreal scheduled passenger air service, anticipated to start in Year 3. HM Aero has assumed that the existing non-aeronautical revenue generating activities will continue throughout the 20-year study period (including special events and advertising).

7.4.2 Niagara Central Airport

Similar to Niagara District Airport, provided herein is a listing of the target business development opportunities that are recommended to be pursued at Niagara Central Airport within the short, medium and long term planning horizons of this study, as per the anticipated airport service types identified for the facility.

General Aviation Recreational

- New General Aviation Recreational Hangar Developments (Year 1+)

Consultations with the airport operator have indicated an immediate demand for General Aviation Recreational hangar developments at Niagara Central Airport. In addition, HM Aero's research and analysis suggest that suitable lands for the development of small (approximately 2,500 sq') hangars at airports in southern Ontario is in high demand, and some aircraft owners are willing to drive up to two hours from their residence or business, to their recreational hangar. Considering the foregoing, demand for the construction of **thirteen** new General Aviation Recreational hangars has been assumed for the next 20-years at Niagara Central Airport, in addition to **20** new t-hangar positions (two buildings with ten parking positions each), being commissioned starting Year 1.

General Aviation Commercial

- New Aircraft Maintenance Organizations (AMOs) (Year 5+)

The potential demand for the development of three new AMO facilities (or similar) has been identified by HM Aero at Niagara Central Airport. Aircraft maintenance and support businesses such as small aircraft repair and inspection, avionics shops, aircraft painting facilities, aircraft interior refinishing services and/or seaplane float/ski/wheel conversions are considered as appropriate opportunities for Niagara Central Airport. Development of new AMO-type businesses at Niagara Central Airport is expected to commence in Year 5, with additional AMOs establishing operations in Year 10 and Year 20.

Further to the above, additional non-aeronautical opportunities such as the development of a restaurant and additional outdoor advertising (along Weber Road) will assist in closing the cost-revenue gap and could increase itinerant (visiting) aircraft traffic to Niagara Central Airport (the restaurant especially); however, these revenues have not been quantified as they are not expected to have significant impacts on the business case presented for the next 20-years.

In addition, although the list of high potential business development opportunities for Niagara Central Airport may be considered to be short by some, the airport acts as a significant base for almost 100 aircraft, provides an educational base for the local Air Cadet program, offers local communities with medevac services. HM Aero is of the opinion that although significant business opportunities cannot be identified for the facility at this time, the airport has the potential to grow within central Niagara Region and become a stronger economic driver.

7.5 Infrastructure and Operational Requirements

Included herein is a description of the infrastructure and operational requirements that HM Aero has identified as being required to support the growth of current operations, and future business opportunities identified for both sites in previous sections. The identified infrastructure and operational requirements listed herein include expansions to existing facilities, as well as the development of new facilities. Rehabilitation requirements have been identified in the Infrastructure Assessment provided in Chapter 4.

7.5.1 Niagara District Airport

The required infrastructure and operational requirements identified to support the business development opportunities for Niagara District Airport are described in the following sections. General requirements for infrastructure developments have been identified and are further defined and illustrated within the Airport Development Concepts presented in Chapter 8.

Airside

New Taxiway Developments – In order to support the identified GA Commercial, GA Recreational and GA Industrial business opportunities identified within this study, new taxiway developments will be required to provide airside access to future development lots supporting these opportunities. It is anticipated that a new AGN IIIA taxiway (15 m in width) will be required to support GA commercial and GA Industrial activities in the Southwest Development Area, and new stub taxiways and supporting aircraft aprons will be required to support new T-hangar developments in the East Development Area.

Air Terminal Expansion – Expansion of the current Air Terminal Building has been identified as a requirement to support the growth of scheduled and charter air passengers at Niagara District Airport. More specifically, a short term expansion of 13,000 sq' has been identified to support a passenger Peak Design Volume (PDV) of 133, at a Level of Service (LOS) 'C' as per the requirements of Transport Canada's Systemized Terminal Expansion Program (STEP), and IATA guidelines (assuming flight arrivals and departures do not overlap with other passenger air services identified herein). The provision of Canada Border Services Agency (CBSA) border inspection facilities will be required within the expanded Air Terminal Building to support seasonal charter passenger air services to New York City. Passenger Pre-Board Screening (PBS) has not been identified as a requirement within the 20-year planning horizon of this study (based on the types of air services and destinations identified); however, the Air Terminal Building expansion identified within this study provides adequate space for the implementation of PBS so this service can be initiated, when required.

In order to support passenger enplaning and deplaning activities on the main apron, it is recommended that current rotary wing (helicopter) operators be relocated to a rotary wing operations area, to the south of Taxiway 'C' (as identified within the Development Concepts).

Groundside

Access Roads and Parking – The development of new access roads (or extensions to existing access roads) has been identified as a requirement to support vehicular access to new designated airside and groundside development areas that will support GA Commercial, GA Recreational and GA Industrial business development. More specifically, new paved access roads are required to access development lots identified within the Southwest Development Area, and within the East Development Area. Vehicle parking areas have also been identified as a development requirement to support the new t-hangar developments in the East Development Area.

In addition, expansion of the current vehicle parking area adjacent to the Air Terminal Building will be required to provide additional parking capacity for passengers, as well as the development of parking areas to support T-hangar developments in the East Development Area. Preliminary calculations suggest that the vehicle parking area will require expansion by 2,800 sq. m in the short term to support increased scheduled passenger air services to Montreal St. Hubert.

Development Land Preparation – Significant land development preparation requirements have been identified for Niagara District Airport. It is believed that the current shortage of development-ready land and the backlog of demand for development lots with airside access has resulted in this significant requirement. Approximately 8.4 Ha of land has been identified for future commercial development within the Southwest Development Area within the next 20-years, in addition to 0.56 Ha of development land to support rotary wing operations, and 0.80 Ha for the development of new T-hangars in the East Development Area.

Utilities and Services – The requirement for potable water, sanitary sewer, electrical and telecommunication service extensions have also been identified as a requirement at Niagara District Airport within the next 20-years. Provision of these services is required to support GA Commercial and GA Industrial business uses within the Southwest Development Area. Furthermore, electrical service extensions have also been identified as a requirement to support T-hangar developments within the East Development Area, and the future rotary wing operations area.

Airport Operations

In the context of this Feasibility Study and Business Case, airport operational requirements are the personnel functions required to support the operations defined in Section 2.1.3. Increases in scheduled passenger air services will primarily dictate requirements for additional personnel, depending on the timing and frequency of the services. For example, additional maintenance personnel could be required to provide runway inspection and surface condition reporting services for passenger air services outside of the normal hours of operation. Other examples include where security staff are required to monitor passenger activity during peak periods, and additional administrative support could be required to manage revenue collection, expenses, and financial reporting.

It is expected that two additional Full-Time Equivalent (FTE) employment positions will be required within the next 20 years at the Airport – an additional full-time Airport Maintenance Supervisor (or equivalent) in Year 10, and a Security Officer in Year 20. In addition, consultations with the Niagara District Airport CEO indicated that the Executive Assistant Role is to be expanded to full-time in 2020.

Furthermore, HM Aero has assumed that Niagara District Airport's current Capital Plan has adequately identified the required airport maintenance equipment upgrades and replacement to support their current fleet – which is expected to support airport operations within the next 20 years.

7.5.2 Niagara Central Airport

Similar to Niagara District Airport, the required infrastructure and operational requirements identified to support the business development opportunities for Niagara Central Airport are described in the following sections. General requirements for infrastructure developments have been identified, and are further defined and illustrated within the Airport Development Concepts presented in Chapter 8.

Taxiways – The development of two new AGN II taxiways (10.5 m in width) has been identified as a requirement to support new GA Commercial and GA Recreational business opportunities at Niagara Central Airport. These taxiways should connect to Taxiway A and Apron I, providing airside access to future tenants.

Air Terminal – The specific requirement for an Air Terminal Building has not been identified at Niagara Central Airport within the next 20-years. However, it is recommended that lands be held in reserve if additional passenger charter air service opportunities require support within the next 20-years, or beyond. The 2006 Land Use Plan for Niagara Central Airport designated an 'Air Terminal Reserve' adjacent to Apron 1; however, a commercial hangar was constructed in this location – driving the requirement to designate an area for the potential development of an Air Terminal Building.

Access Roads – An expansion to the groundside access road network has also been identified as a requirement to support future development at Niagara Central Airport. Within the next 20-years, development of gravel-surfaced access roads will be required to support new airside commercial developments: 1) Along the southwestern edge of Apron I; 2) New development lots adjacent to the new AGN II taxiway south of the existing Taxiway 'A'; and 3) New GA recreational development lots adjacent to the next AGN taxiway connecting to Apron 1 and extending south.

Seaplane Facility Upgrades – Upgrades to the dock and ramp within the Seaplane Easement along the Welland River are recommended to further support current and future General Aviation Commercial businesses (specifically AMOs engaging in aircraft float/wheel and float/ski conversions).

Development Lot Preparation – The designation and preparation of additional development lands is required to support identified growth at Niagara Central Airport within the next 20-years. Approximately 1.1 Ha of land has been identified for future GA Commercial developments to the southwest of Apron I, in addition to 3.7 Ha of land south of Apron I and Taxiway 'A' to support GA Recreational activities.

Utilities and Services – Upgrades and expansions to the current potable water and sanitary sewage treatment system have been identified to support future business development at Niagara Central Airport. In addition to the sanitary sewage and potable water system rehabilitations identified earlier, sanitary sewage treatment services are required to be extended to the northwest along the southwestern edge of Apron I to support the GA Commercial development lots identified for future AMO-type businesses. Additional extensions to the potable water and sewage treatment system may also be required to support a new Air Terminal Building (although this has not been identified as a requirement within the next 20-years). Further to the above, electrical and telecommunications service extensions will be required to support all new GA Commercial and GA Recreational development lots.

8 DEVELOPMENT CONCEPTS

8.1 Niagara District Airport Strategy

The 20-year Recommended Development Plan for Niagara District Airport presented in Figures 8.1 and 8.2 is expected to meet the current and future airside, Air Terminal, and groundside requirements identified to support business development opportunities identified within this Business Case and Feasibility Study, and to improve any identified operational deficiencies at the site.

Development is recommended in short (0-5 year), medium (6-10 year) and long term (11-20-year) planning horizons to support current traffic levels and forecasted growth and is presented in Figures 8.3 and 8.4.

Airside development is recommended in addition to groundside developments including infrastructure such as access roads, development lots, and parking areas. To maintain an efficient system, these developments need to occur as activity levels at the airport increase.

Air terminal expansion has been identified as a requirement in the short term to efficiently support forecast passenger movements identified in Chapter 7.

It is important to note that there are additional airport infrastructure investment decisions currently being considered by the Niagara District Airport Commission that should be analyzed within a formal Airport Master Plan. The Feasibility Study and Business Case identifies investments recommended to support identified business opportunities only. An Airport Master Plan would organize and formulate an overall development strategy considering all future infrastructure and operational requirements, including the operation of crosswind runways, the highest and best use of all Airport lands, airfield capacity requirements, staffing, detailed Air Terminal planning, etc.

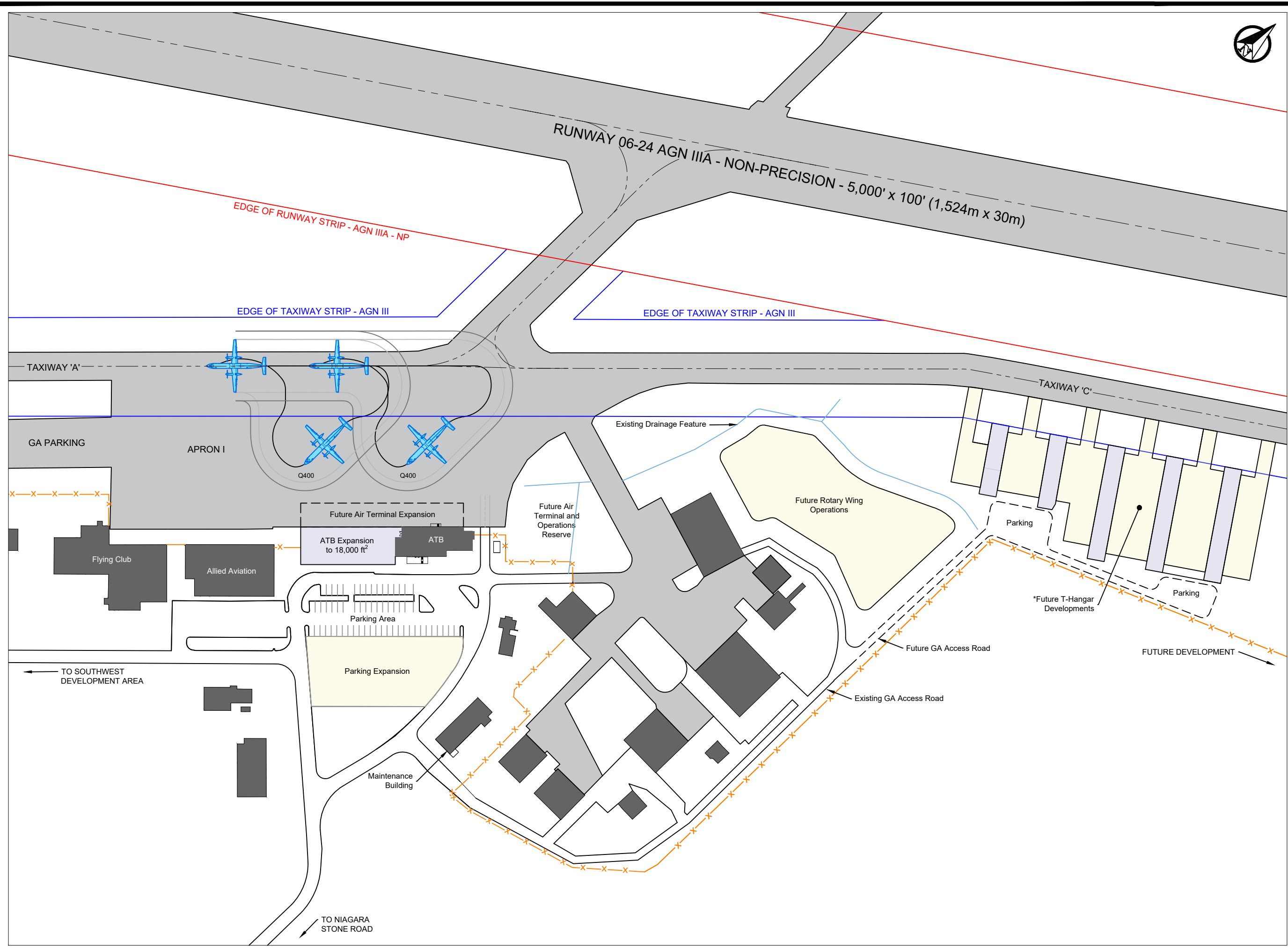
8.2 Niagara Central Airport Strategy

Similar to Niagara District Airport, the Recommended Development Plan for Niagara Central Airport has been prepared to support the business development opportunities identified within the Feasibility Study and Business Case. The Recommended Development Plan for Niagara Central Airport is presented in Figure 8.5.

It is expected that the land development capacity identified within the Recommended Development Plan will support demand within the next 20-years. Development is recommended in phases to support current traffic levels and forecasted growth and is presented in Figure 8.6.

Airside development is recommended in addition to groundside developments including infrastructure such as access roads, development lots, and parking areas.

Like NDA, the Niagara Central Airport Commission should identify the highest and best uses for the airport lands for the airport site as a whole. Furthermore, the Niagara Central Airport Commission could consider developing a formal Airport Master Plan to identify additional land use requirements, leasing strategies, and long and ultimate-term investment requirements beyond the requirements of the Business Case.



General Notes

- 1. FOR PLANNING PURPOSES ONLY
- 2. ALL DIMENSIONS APPROXIMATE
- 3. * T-HANGAR DEVELOPMENTS SHOWN ASSUME AGN IIIA RUNWAY CENTRE LINE TO TAXIWAY CENTRE LINE OFFSETS. CAPABILITY TO SUPPORT AGN IIIB RUNWAY CENTRE LINE TO TAXIWAY CENTRE LINE OFFSETS SHOULD BE INVESTIGATED AS PART OF A MASTER PLAN.

- Existing Airfield Pavement
- Existing Building
- Building Relocation/Addition
- Proposed Development
- Existing Security Fence
- Existing Drainage Feature

3	Draft Report Submission	2019-11-14
2	Revised Draft Submission	2019-10-10
1	Draft Submission for Review	2019-09-20
No.	Revision/Issue	Date

HM Aero Inc.
Suite 209 - 532 Montreal Road,
Ottawa, ON
K1K 4R4

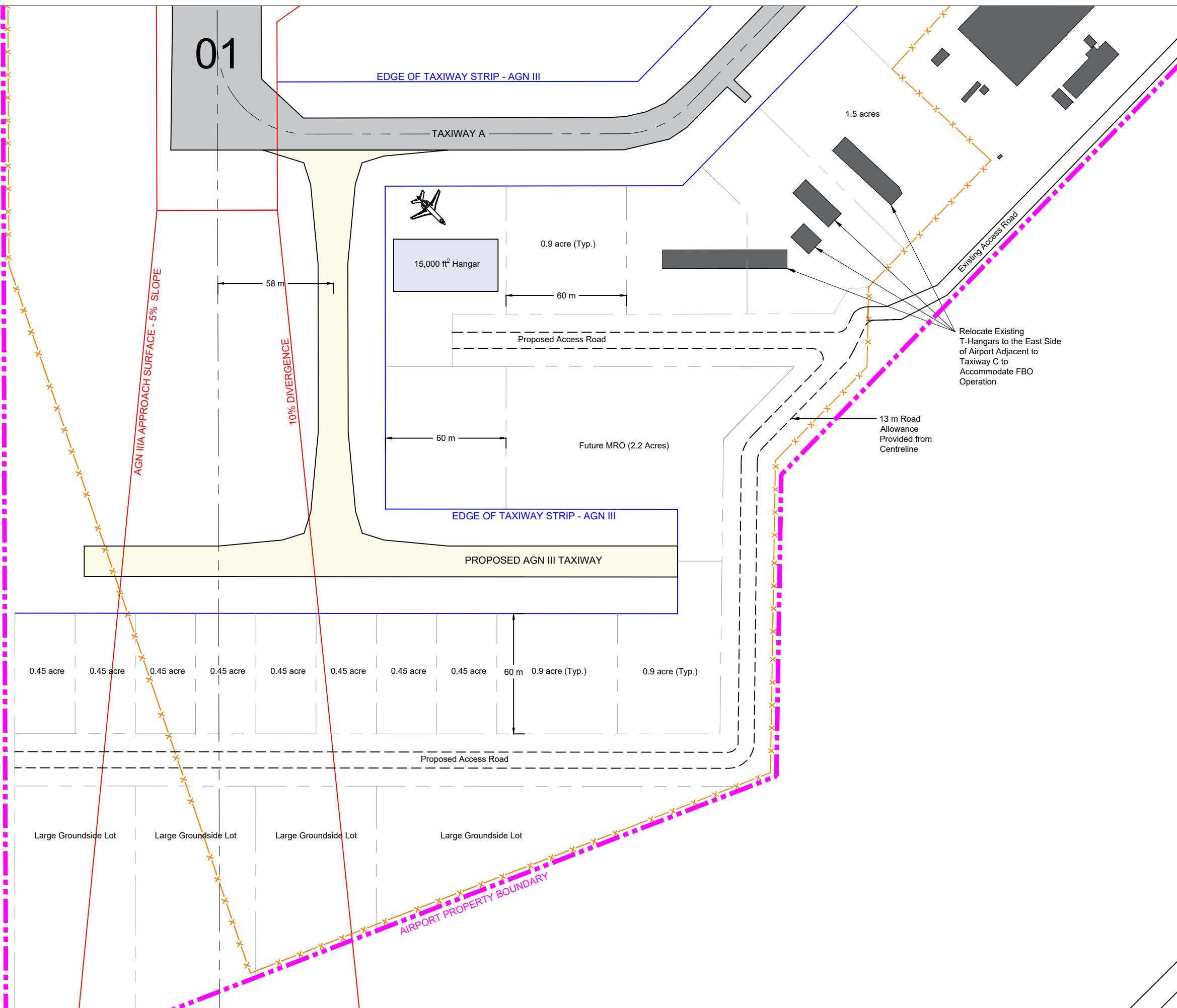
Project Name and Client

Feasibility Study and Business Case

NDA & NCDRA

NDA Recomend Development Plan - Core Area

Project 020	Figure
Date January 2020	8.1
Scale N.T.S	



General Notes

1. FOR PLANNING PURPOSES ONLY
2. ALL DIMENSIONS APPROXIMATE
3. MINIMUM RUNWAY/TAXIWAY SEPARATION DISTANCE FOR A NON-INSTRUMENT RUNWAY AND AGN IIIA TAXIWAY (58 m) - TP3125TH EDITION 3.5.1.4

- Existing Airfield Pavement
- Existing Building
- Proposed Airfield Pavement
- Existing Security Fence
- Airport Property Boundary

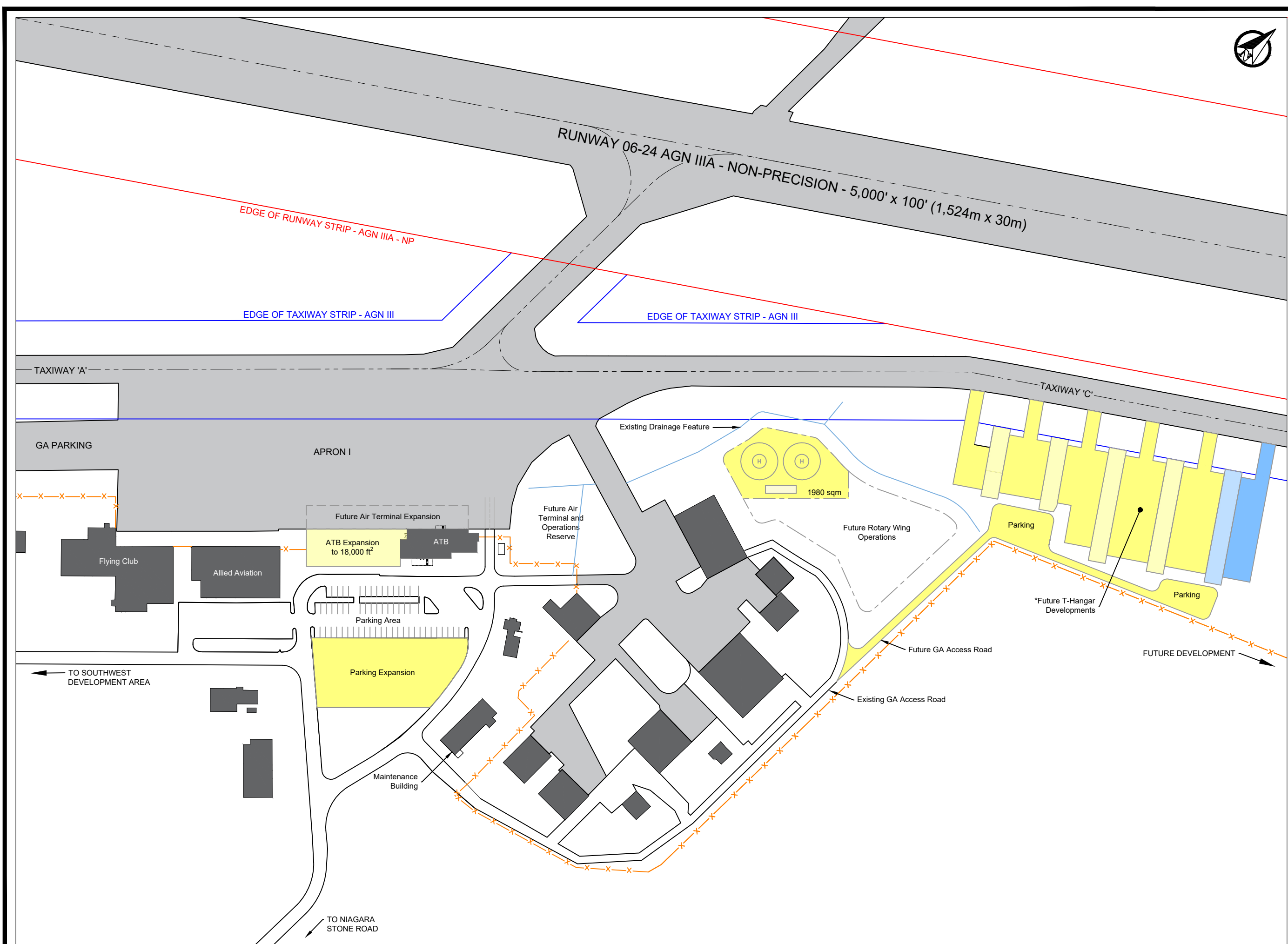
3	Draft Report Submission	2019-11-14
2	Revised Draft Submission	2019-10-10
1	Draft Submission	2019-09-20
No.	Revision/Issue	Date



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Suite 209 - 532 Montreal Road,
Ottawa, ON
K1K 4R4

Project Name and Client
Feasibility Study and Business Case
NDA & NCDRA
**NDA Recommended Development
Plan - South West Area**

Project 020	Figure
Date January 2020	8.2
Scale N.T.S	



General Notes

- 1. FOR PLANNING PURPOSES ONLY
- 2. ALL DIMENSIONS APPROXIMATE
- 3. * T-HANGAR DEVELOPMENTS SHOWN ASSUME AGN IIIA RUNWAY CENTRE LINE TO TAXIWAY CENTRE LINE OFFSETS. CAPABILITY TO SUPPORT AGN IIIB RUNWAY CENTRE LINE TO TAXIWAY CENTRE LINE OFFSETS SHOULD BE INVESTIGATED AS PART OF A MASTER PLAN.

- Existing Airfield Pavement
- Existing Building
- Existing Security Fence
- Existing Drainage Feature
- Short-Term Pavement
- Short-Term Building
- Medium-Term Pavement
- Medium-Term Building
- Long-Term Pavement
- Long-Term Building

3	Draft Report Submission	2019-11-14
2	Revised Draft Submission	2019-10-10
1	Draft Submission for Review	2019-09-20
No.	Revision/Issue	Date

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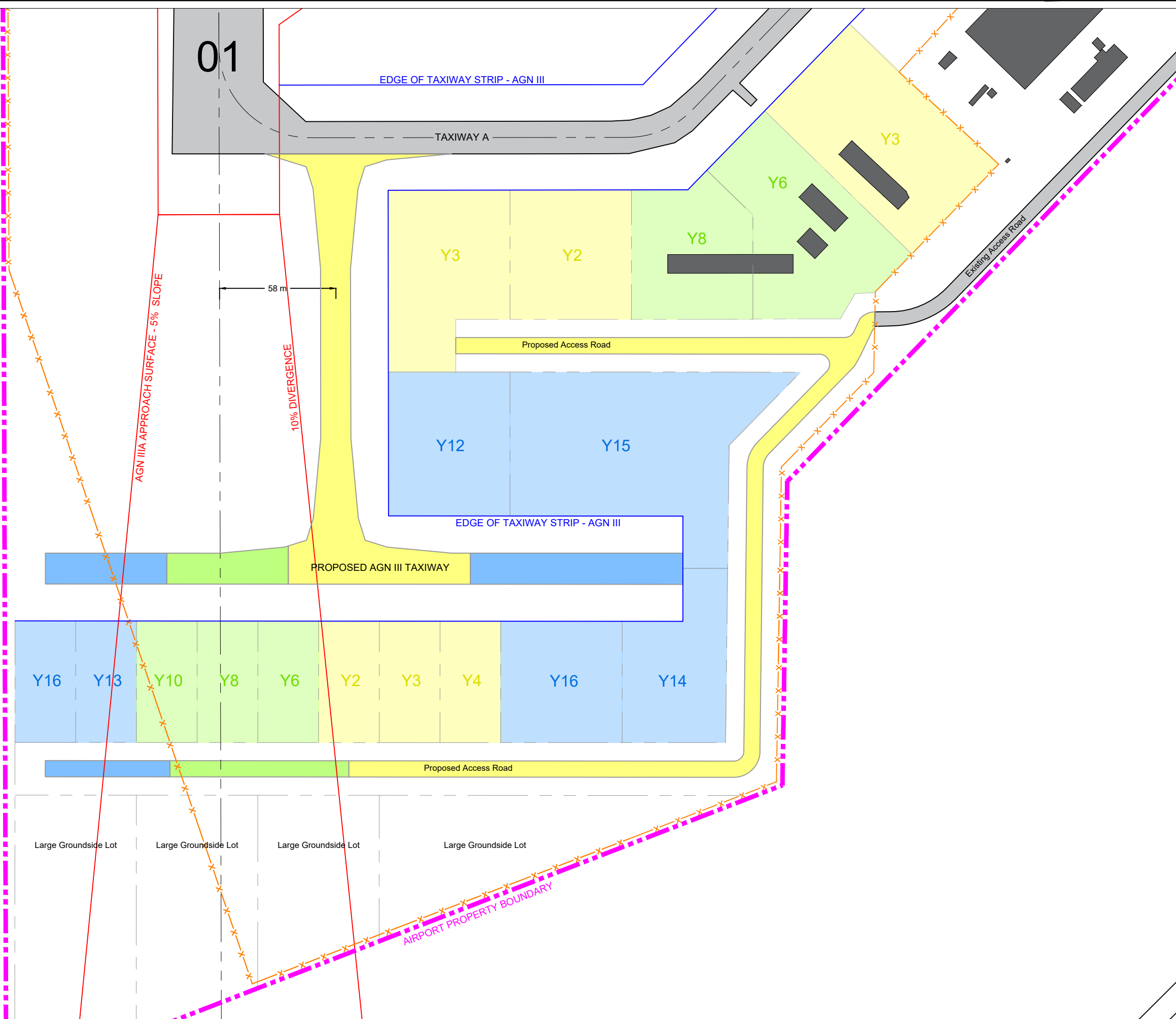
Project Name and Client

Feasibility Study and Business Case

NDA & NCDRA

NDA Recomend Development Plan - Core Area Phasing

Project 020	Figure 8.3
Date January 2020	
Scale N.T.S	



General Notes

1. FOR PLANNING PURPOSES ONLY
2. ALL DIMENSIONS APPROXIMATE
3. MINIMUM RUNWAY/TAXIWAY SEPARATION DISTANCE FOR A NON-INSTRUMENT RUNWAY AND AGN IIIA TAXIWAY (58 m) - TP3125TH EDITION 3.5.1.4

- Existing Airfield Pavement
- Existing Building
- Existing Security Fence
- Airport Property Boundary
- Short-Term Pavement
- Short-Term Lots
- Medium-Term Pavement
- Medium-Term Lots
- Long-Term Pavement
- Long-Term Lots

3	Draft Report Submission	2019-11-14
2	Revised Draft Submission	2019-10-10
1	Draft Submission for Review	2019-09-20
No.	Revision/Issue	Date

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K1K 4R4

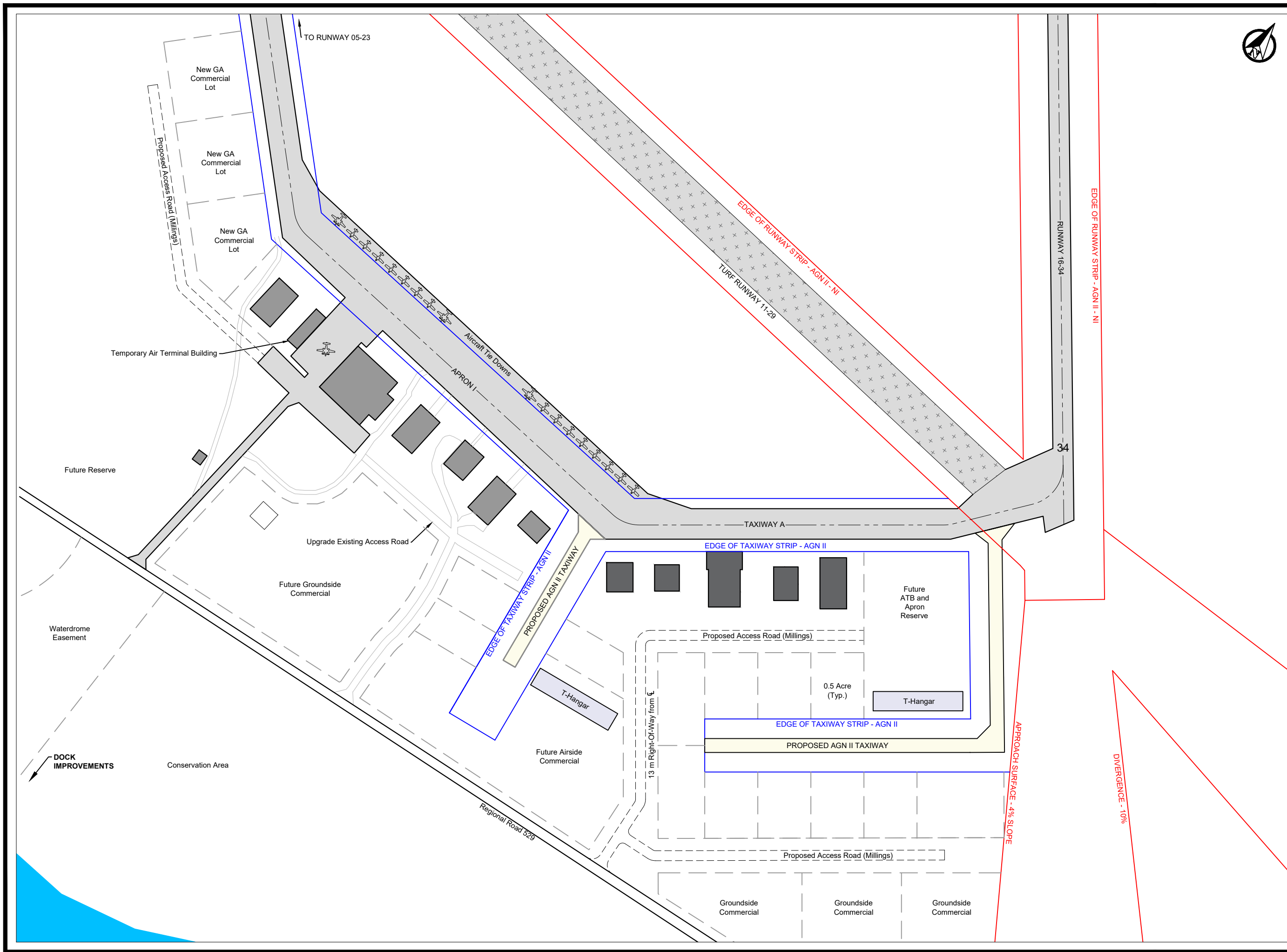
Project Name and Client

Feasibility Study and Business Case

NDA & NCDRA

NDA Recomend Development Plan - South West Area Phasing

Project 020	Figure
Date January 2019	8.4
Scale N.T.S	



General Notes

1. FOR PLANNING PURPOSES ONLY
2. ALL DIMENSIONS APPROXIMATE

-  Existing Airfield Pavement
-  Existing Building
-  Proposed Taxiway
-  Proposed Access Road
-  Turf Runway Surface

3	Draft Report Submission	2019-11-14
2	Revised Draft Submission	2019-10-10
1	Draft Submission for Review	2019-09-20
No.	Revision/Issue	Date



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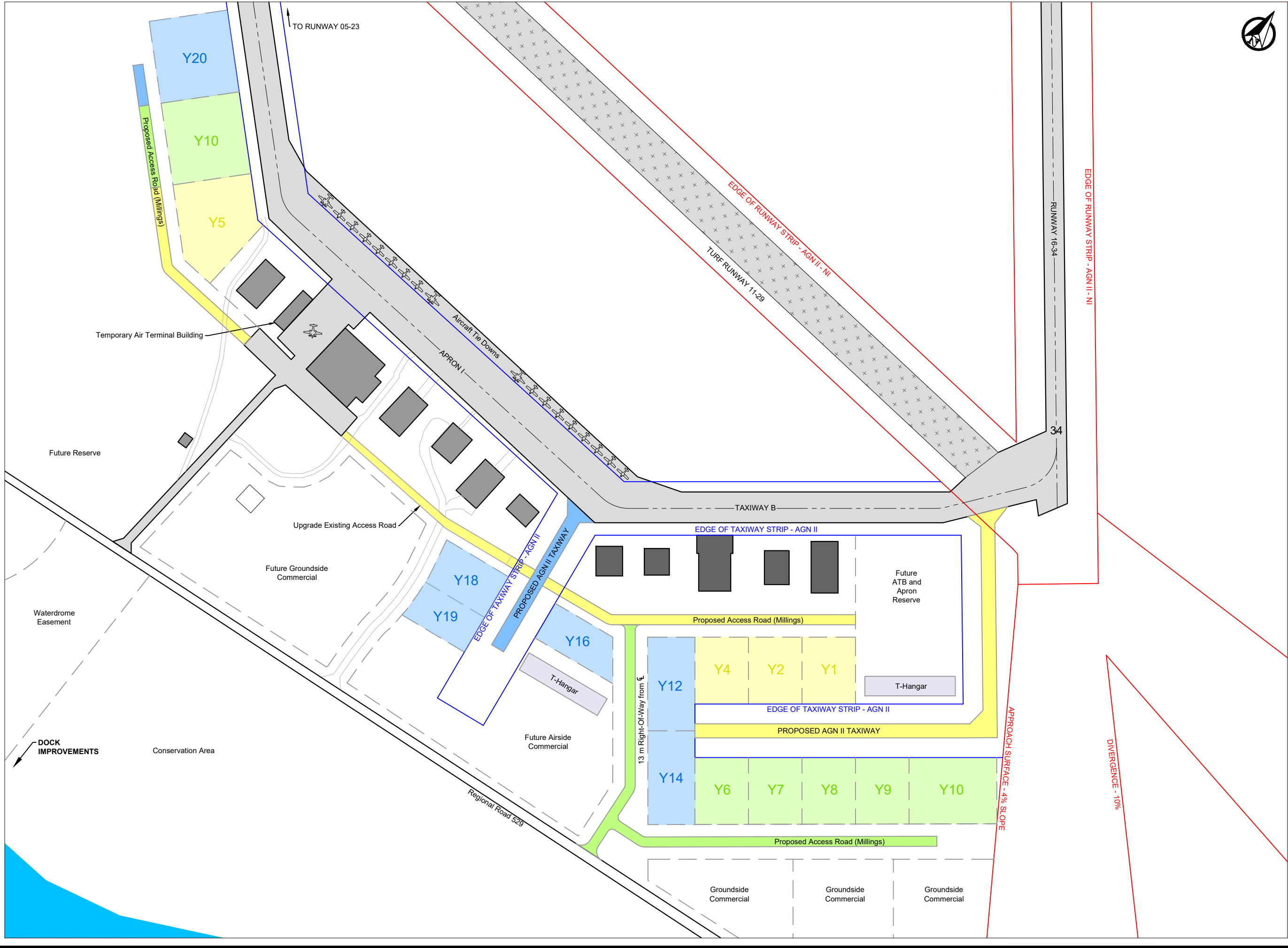
Project Name and Client

Feasibility Study and Business Case

NDA & NCDRA

NCDRA Recommended Development Plan

Project	Figure
020	8.5
Date	
January 2020	
Scale	N.T.S
N.T.S	



General Notes

- 1. FOR PLANNING PURPOSES ONLY
- 2. ALL DIMENSIONS APPROXIMATE

- Existing Airfield Pavement
- Existing Building
- Turf Runway Surface
- Short-Term Pavement
- Short-Term Lots
- Medium-Term Pavement
- Medium-Term Lots
- Long-Term Pavement
- Long-Term Lots

3	Draft Report Submission	2019-11-14
2	Revised Draft Submission	2019-10-10
1	Draft Submission for Review	2019-09-20
No.	Revision/Issue	Date



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Suite 209 - 532 Montreal Road,
Ottawa, ON
K1K 4R4

Project Name and Client

Feasibility Study and Business Case

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NCDRA Recommended Development Phasing

Project 020	Figure 8.6
Date January 2020	
Scale N.T.S	

9 REVENUE AND EXPENDITURES FORECAST

9.1 General

The Financial Forecast tables presented in Appendix C for Niagara District Airport and Niagara Central Airport have been prepared for the next 20-years and include projected revenues and expenses, including capital costs to develop infrastructure to support the identified business opportunities presented in the Feasibility Study and Business Case. Class 'C' capital cost estimates were determined based on similar projects, local unit rates and related industry experience of the project team.

A number of economic factors could affect the results of the model and the success future revenue generation initiatives at both airports, such as the actual rate of traffic growth and commercial land absorption – all factors that are subject to prevailing economic conditions.

9.2 Model Assumptions

A number of assumptions have been made that apply to both Niagara District Airport and Niagara Central Airport within the financial forecast presented in Appendix C.

- Revenues and expenditures for the short and medium term have been developed on an annual basis. Revenues and expenditures for the long term (10-20-years) have been banded within a ten-year period.
- Detailed financial planning is most relevant in the short and medium term, with long term projections having more uncertainty and should be interpreted as an outlook only.
- Projected grants for each airport for the next 20-years have been determined as equal to the estimated deficit amounts.
- Capital cost estimates are in 2019 dollars, growing at inflation to the respective project years. Estimates have been generated based on airport-specific engineering assumptions and local unit rates obtained through direct consultations with contractors in Niagara Region. Cost estimate breakdowns can be found within the Financial Forecast Tables found in Appendix C.
- A 10% engineering and project management contingency should be added to all capital infrastructure projects.
- Inflation has been assumed at 2% per annum throughout the financial forecast tables. Forecasted revenues and expense for 2019 were based on a 2% inflation from the previous year. For new revenues and expenses projected for 2020 and beyond, the 2% inflation rate was applied starting in 2020.

9.3 Niagara District Airport

9.3.1 Model Assumptions

Assumptions specific to the financial forecast tables for Niagara District Airport are as follows:

- Air carrier aircraft movement forecasts have been presented at a rate of 3% per annum (inflation plus 1% growth), with relative increases related to scheduled and charter passenger air services in their respective years, as per details in Chapter 7. Other itinerant and local movements have also been forecast based on a 3% increase per annum.

- Passenger forecasts have been determined based on the identified scheduled and charter passenger air service opportunities and the air service start (or significant change) dates identified in Chapter 7. Passenger growth rates have been established at 3% per annum, starting in 2019.
- Existing revenues have been carried forward throughout the 20-year forecast period, rising at a rate of inflation. These include events, interest, aircraft parking fees, miscellaneous revenues, deferred revenues and rentals.
- Existing expenses have been carried forward through the forecast period, increasing at a 2% inflation rate per annum. These include building and vehicle maintenance, and operations expenses. Personnel expenses have been projected at a rate of 3% per annum for staff retention purposes.
- Additional personnel costs to provide an expanded administrative support role, airport maintenance and security services have been estimated based on Full-Time-Equivalent (FTE) employment positions and estimated salaries in 2019 dollars, including 2% inflation. The Executive Assistant Position is assumed to be added in Year 1, with the second Airport Maintenance Supervisor position provided in Year 10, and a Security Officer position in Year 20.
- Costs related to Canada Border Services inspections have been estimated based on Full-Time-Equivalent (FTE) employment positions percentage, estimated salaries, and flight frequencies for transborder charter passenger services to New York City. CBSA costs have been estimated at \$20,000 per annum starting in Year 4, until the end of Year 6 based on a 0.25 FTE employment position. CBSA costs are expected to increase to \$40,000 per annum based on a 0.5 FTE starting in Year 7, until Year 15 when they are expected to increase to \$80,000 based on a 1.0 FTE employment position.
- Fuel operations and landing and parking revenue values for 2020 have been reduced by the estimated historical values incurred by air carrier operations to avoid double counting in the forecast. Future fuel operations revenue assumes that 20% of air movements will purchase 500 L of fuel, at a concession rate of \$.05/L throughout the forecast period.
- Landing fees related to air carrier operations assume a \$20 per landing throughout the forecast period. Other itinerant aircraft landing fees have been assumed at \$20 per landing for 5% of the movements throughout the forecast period.
- Passenger fee revenues have been calculated based on a \$20 fee per enplaning passenger for the next 20-years.
- New commercial development lease (rental) revenues have been determined based on a lease rate of \$0.312/sq. foot, per annum, plus 2% inflation for serviced lands as per the commercial lot absorption rates discussed in Chapter 7; and as shown within the Phased Recommended Development Concepts presented in Chapter 8.
- It has been assumed that existing T-Hangar rental revenues will continue at \$0.22 per sq. foot within the first 10-years based on the identified facility relocations illustrated in the Recommended Development Concepts, also increasing at 2% inflation per annum. New T-Hangar leases are assumed to begin starting in Year 3 at the \$0.22/ sq. foot rate, plus inflation.

- Vehicle parking revenues related to scheduled and charter air service passenger activity have been estimated based on projected passenger volumes and the number of chargeable days discussed in Chapter 7, at a rate of \$9/day throughout the forecast period.
- Other non-aeronautical revenues; such as advertising, boardroom rentals, runway rental fees and terminal rentals, have been carried forward based on annual inflation rates throughout the forecast period.

9.3.2 Model Summary Results

- Significant growth in passenger traffic and aeronautical revenue has been identified within Year 1, as a result of information received through direct consultations FlyGTA. Projected revenues are expected to increase to over \$660,000 by collecting passenger terminal, landing, fuel concession and vehicle parking fees at Niagara District Airport.
- The financial forecast demonstrates that the identified business development opportunities will have a positive impact on the long term financial sustainability of the facility. Although significant capital investment will be required to support Air Terminal Building expansion, commercial land development, groundside infrastructure expansions and upgrades and airside infrastructure rehabilitations, the financial forecast demonstrates that short term investment should result in transitioning the airport towards becoming more financially self sustainable.
- Based on the financial forecast assumptions, the results of the financial forecast indicate that 2024 will be the first year where the airport successfully close the cost-revenue gap.
- Annual deficits in the short term range from approximately \$580,000 in 2020, to as high as \$2.3 million in 2023 to support air terminal building expansion. The medium term cost-revenue gap ranges from +\$390,000 in 2026 to \$2.6 million in 2027 as a result of projected timing for rehabilitation of Runway 06-24.

9.4 Niagara Central Airport

9.4.1 Model Assumptions

- Fuel operations revenues have been projected at a rate of 3% per annum to account for inflation and growth in aircraft movements.
- Interest, other, donations and existing rentals have been carried forward throughout the Financial Forecast Tables at a rate of 2% inflation.
- New land lease rentals are projected at a rate of \$0.15 per sq. for hangar developments, and \$1,200 per annum per new aircraft storage lease. Anticipated absorption rates for new hangar leases have been assumed at one new lease every 1.5 years. New T-hangar lease absorption rates have been assumed at one new position each year, throughout the forecast period.
- Tie down fees have been estimated at a rate of \$600 per annum, growing at a rate of one aircraft per year throughout the forecast period.
- All operating expenses have been carried forward from 2018 reported values, growing at 2% inflation.

9.4.2 Model Summary Results

- Annual deficits within the 20-year study period gradually decrease, illustrating that the identified business opportunities and the related assumptions are expected to have a positive overall benefit to the Airport's financials. Years where capital rehabilitations or expansions are identified have significantly higher annual deficits.
- Fuel operations revenues projected for the Airport within the next 20-years could be improved by changing the current lease and dispensing terms with Skydive Niagara and the St. Catharines Flying Club. As seen within the 20-year financial forecast, regional and municipal airports have few sources of revenue and it is recommended that the Airport consider moving fuel operations in-house to achieve a higher per litre concession rate for fuel dispensing.

9.5 Financial Challenges

Airport owners and operators in Canada are continually examining ways to reduce annual cost-revenue gaps in a move towards becoming financially self-sustainable - while at the same time positioning airports as stronger economic engines within their communities. Aging airport infrastructure and increasing regulatory requirements are resulting in increases in airport capital and operational costs, producing a significant challenge – how to invest in airport facilities to achieve value-for-money, while providing business development and economic growth opportunities for the communities they support.

The current annual operating deficits experienced by Niagara District Airport and Niagara Central Airport are expected to continue, unless a change in airport governance is made to allow the airports to operate with a more business-like focus. Several business development opportunities have been identified within this study and significant capital investment has been determined as a short term requirement to support economic growth, especially at Niagara District Airport.

The current requirement to obtain approval from all councils of the funding municipalities to support major capital projects and alter annual budgets will likely continue to hinder the Commissions' ability to respond to business development demand. Effective airport governance entities are provided with autonomy and authority to make decisions that are in the best interests of the airport and the community, with a business-like focus. The current financial challenge of closing the cost-revenue gap experienced by both Niagara District Airport and Niagara Central Airport are expected to continue at their current levels unless the authority to make final decisions regarding major capital rehabilitations and expansions at both airports is given to one single entity, rather than three or four entities that must agree on investment decisions.

An appropriate example of a regional airport that has demonstrated success in business and economic development is the Region of Waterloo International Airport (Waterloo Airport). Waterloo Airport was owned and operated by the cities of Kitchener, Galt, Waterloo and the former Town of Preston. In 1974, the ownership of the facility was transferred to the City of Guelph and the newly formed Regional Municipality of Waterloo. In 1986 the Waterloo-Guelph Airport Commission was formed, and the airport name was changed to the Waterloo-Guelph Regional Airport. The Airport was operated by the Commission until 1996, at which time the Regional Municipality of Waterloo assumed all ownership and operational responsibilities of the facility.

The 1996 change in ownership to the Regional Municipality of Waterloo removed the requirement for approval from both councils of the City of Guelph and the Regional Municipality and allowed the airport to be operated and developed under one entity, and in the best interests of the Region. Furthermore, this ownership change allowed the Regional Municipality of Waterloo to further promote economic development through marketing and investment in the airport facility. Since 1996, the Waterloo Airport has experienced significant growth as exhibited below¹⁶:

- A 20-year Airport Master Plan was prepared in 2000 and approved by Regional Council;
- a new terminal building opened in 2003;
- the primary runway was extended to a total length of 7,000' to better support passenger air services;
- scheduled passenger air services offerings have increased substantially as current flights are available to Calgary and winter sun destinations. Northwest Airlines once offered daily service to/from Detroit, Michigan;
- 120,000 passengers travelled through the airport in 2018;
- more than 25 businesses now operate from the airport, employing over 300 people and,
- the total economic impact generated by the airport was measured to be \$90 million in 2015.

As demonstrated above, there are advantages to implementing an airport governance model whereby long term decision making is made by a single authority, removing the impediment of requiring approvals from multiple municipal councils with varying opinions of the value of airport investment, and the overall contributions they can make to regional economic growth. Although some may argue that business development success at Waterloo Airport cannot be solely attributed to a change in the Airport's governance model in 1996, HM Aero believes that the ownership change to the Regional Municipality of Waterloo enabled the facility to be better positioned as a regional transportation and economic asset, marketed at a regional government level.

9.6 Sources of Capital

Additional sources of capital that may be available to support infrastructure development at Niagara District Airport and Niagara Central Airport are identified below. It is important to note that not all sources of capital may be appropriate to both airports.

Airport Capital Assistance Program (ACAP)

The Airport Capital Assistance Program (ACAP) provides funds to airports to make improvements in airside infrastructure, airport maintenance equipment, air terminal facilities, and other airport projects. The National Airports Policy saw the divestiture of many municipal and regional airports to municipalities, counties or provinces. Transport Canada anticipated that many of these operators would have difficulty obtaining the necessary capital to fund major projects at their respective airports. ACAP assists airports by funding projects that improve airport safety, protect airport assets, and enable efficiencies thus reducing operating costs.

¹⁶ <https://www.waterlooaairport.ca/en/about-ykf/airport-information.aspx>

To be eligible for ACAP funding, an airport must meet the following requirements:

- The airport must not be owned or operated by Transport Canada.
- The airport must be a Transport Canada certified facility.
- The airport must offer year-round regularly scheduled passenger service with an average of 1000 passengers per year.

ACAP prioritizes their funding distribution based on the most critical projects to improve or maintain aviation safety. The ACAP program prioritizes project eligibility into the following categories:

- Priority 1 - Safety-related airside projects
- Priority 2 – Safety-related Heavy airside mobile equipment
- Priority 3 – Safety-related Air Terminal Building/groundside

Due to ACAP's funding being provided for mainly airport safety improvement projects, the program does not fund the following:

- Land purchases;
- Feasibility, planning or zoning studies; or
- Projects which have already been initiated or completed.

The ACAP program is reviewed and renewed every 5 years. The most current ACAP review was in the 2014/2015 Federal Government fiscal year and the program is valued at \$190,000,000 over the subsequent 5 years, or \$38 million per year for the entire country.

NDA is eligible for ACAP funding while NCDRA is not. However, as started above, the funding of capital projects is prioritized on a safety basis so if submissions are made for funding by airports with stronger safety cases, NDA may not receive funding through ACAP in a timely manner.

Taxation

There may be the potential for both airports to draw additional funds to support capital and operational expenses at both airports from residents within the entire Regional Municipality of Niagara. If a partnership could be formed with the Region and the funding municipalities of the two airports, or if a governance change resulted in the Region assuming ownership, a larger resident tax base would be provided, resulting in increased revenues. However, this type of ownership change could result in resistance from municipalities within the Region who do not support or feel that they do not have a use for the airport – for example, Fort Erie and Grimsby.

Gas Tax Fund

An example of infrastructure stimulus funds is the Gas Tax fund (GTF). The GTF is not exclusive to airports and many infrastructure projects compete for funding under this fund as the program is intended to assist in all facets of municipal infrastructure development. Each province and territory have their own eligibility requirements for application.

As an example of the eligibility requirements under the one provincial program, municipal and regional airports are identified and include construction projects such as:

- Primary runway, crosswind runways, secondary runways and taxiways, and runway extensions.
- Aprons and primary taxiway from main/terminal apron to runway
- Airport buildings, including terminal and storage areas/shed
- Development areas, access road, fencing and drainage
- Lighting and navigation equipment

Allocations for 2019-2024 will be based on the census data from 2016. The Federal GTF will continue to provide approximately \$2 billion annually for municipal infrastructure funding. The GTF is indexed at two per cent per year, to be applied in 100 million increments which means that it will grow by \$1.8 billion over the next decade from 2014-2024.

From 2014-2024 the Federal Government will have provided \$32 billion in infrastructure funding across Canada.

Both NDA and NCDRA are eligible for funding through the Gas Tax Fund. This funding model is less prescriptive of what projects can be than ACAP and has a greater annual value. However, because the fund is not exclusive to airports, it is highly competitive.

Public/Private Partnerships

As defined by the Canadian Council for Public-Private Partnerships, public-private partnerships (P3s) are partnerships between governments and the private sector to build public infrastructure like roads, hospitals or schools, or to deliver services. Unlike traditional procurement, the public sector integrates all parts of a P3 project into one contract. Depending on the preferred P3 model, this approach requires the architect, the builder, the lender, and the maintenance and/or operations provider to form a team.

Because the private contributor expects to make a financial return on the partnership, there must be a business case to support the investment. Historically, regional airport projects do not typically lend themselves to P3s because of their difficulty in generating profits. Additionally, these projects often must have very large values and occur over a long period of time to be viable to private investors. For example, the only purely airport P3 undertaken in Canada was the Iqaluit International Airport Project valued at \$376,000,000.

Examples of P3 projects in the Niagara Region include Niagara Health System Improvements (Project Cost: \$850,000,000) and the Niagara Falls Entertainment Centre (Project Cost: \$130,000,000).

10 CONCLUSIONS AND RECOMMENDATIONS

10.1 Conclusions

The HM Aero study team has drawn several conclusions as they relate to future business development and economic growth at Niagara District Airport and Niagara Central Airport. Conclusions are based on research, analysis, extensive stakeholder consultations, and the project team's understanding of the aviation industry in Canada, and the economic profile of Niagara Region:

- Transportation access to/from the GTA has been identified as a potential barrier to further economic growth in Niagara – particularly in the tourism sector. The severe congestion on the QEW during peak periods, the lack of frequent and efficient bus and train connections between Niagara and downtown Toronto and the presence of land border crossings between the Niagara Region and nearby U.S. Current scheduled passenger air services operating at Niagara District Airport offer quick and efficient connections to downtown Toronto for the business traveller, as well as further connections to domestic and transborder destinations served by Porter Airlines. This scheduled passenger air service is expected to continue to gain popularity amongst business travellers in Niagara, and additional scheduled air service connections to Montreal are seen as target markets for
- Niagara District Airport has not been able to leverage its full economic potential because the financial support is not provided from the respective councils of the owner municipalities. This is supported by the extensive library of previous airport development studies, air service development business cases, Airport Liaison Committee presentations, and through feedback received during stakeholder consultations. Most consultations point to a significant immediate term demand airside commercial lands at the Airport. The Commission has limited authority to spend money and alter annual budgets and they are unable to incur debt – constraining their ability to quickly respond to business development opportunities.
- Both Niagara District Airport and Niagara Central Airport are supported by annual operating subsidies that artificially close the cost-revenue gaps. These subsidies allow the airport to operate under their existing configurations and conditions; however, funding capital rehabilitation and infrastructure expansion projects has proven to be difficult in the past. In HM Aero's recent experience developing business cases for several clients, most municipal and regional airports in Canada that do not support high volumes of scheduled passenger services require annual subsidies to support ongoing operations, as well as additional funding to support capital rehabilitation and expansion projects.
- Obtaining funding to support further infrastructure development at Niagara District Airport has been a significant historical challenge and is expected to continue, unless changes are made to the Airport's governance structure.
- Both Niagara District Airport and Niagara Central Airport act in different roles within the Region. Niagara District Airport's role in supporting scheduled passenger, charter, and higher-end General Aviation Commercial aviation operations is expected to remain the same within the next 20-years - considering its strategic proximity to Niagara's major tourism attractions and the QEW.

- Although fewer business development opportunities have been identified for Niagara Central Airport, the facility plays an important role in the region by supporting medevac, law enforcement, flight training, and General Aviation Commercial and recreational activities (among others). The presence of almost 100 resident aircraft at the facility and the steady rate of hangar developments suggests that there is continued demand for General Aviation Recreational and General Aviation Commercial development lands at the Airport.
- Consultations with senior members of the Niagara Central Airport Commission and the Airport Manager, combined with a visual inspection and review of financial records for the facility suggest that previous capital rehabilitation decisions were made that may not be in the best long term interests of the Airport, such as employing fibre reinforced asphaltic emulsion products to rehabilitate airside pavements and significant investment in hangar roof rehabilitation for a facility not occupied by tenants paying fair market value. These decisions were made by previous members of the Commission and the new Commission is reported to be focussed on responsible fiscal management, and they have a strong desire to grow business at the facility in a move towards being revenue neutral.
- Although the Feasibility Study and Business Case has identified airport infrastructure and operational requirements within the next 20-years to support business development and economic growth, there are other airport infrastructure and land use considerations that should be addressed within a formal Airport Master Plan. In the case of Niagara District Airport, there is uncertainty in the value of investing in rehabilitating Runway 11-29 and Runway 01-19, crosswind runways that have reached the end of their service life. An Airport Master Plan would identify the long term requirements for the crosswind runways, as well as other infrastructure requirements and a long-term highest and best use land use plan. Although not as essential in the short term, Niagara Central Airport would also benefit from the development of a 20-year Airport Master Plan examining all potential uses for current airport lands, future land requirements to support runway extensions, leasing strategies, and potential surplus lands that could be developed to support non-aviation economic growth.
- Annual operating costs are much lower at Niagara Central Airport, when compared to Niagara District Airport. This can likely be attributed to the fact that Niagara Central Airport has fewer staff members, is not required to be certified by the Canadian Aviation Regulations (CARs), and operates within a smaller infrastructure footprint.
- Recent discussions with some of the General Aviation airport operators in southern Ontario indicate that there is a significant demand for development-ready lands to support private hangar developments within southern Ontario for General Aviation Recreational and small General Aviation Commercial operations. Some private aircraft owners are willing to drive up to 1.5 hours from their place of residence to their hangar if there are competitive lease rates and airport user fees, and an attractive airport operating environment (e.g. low levels of airport congestion, unrestricted airspace, etc.). This is expected to further drive demand for lands suitable for General Aviation Commercial and recreational facility developments within the next 20-years.
- Niagara District Airport is expected to close the cost-revenue gap if initial investments are made in Air Terminal Building expansion and land development at the end of the short term. Niagara Central Airport is expected to realize increased annual revenues; however, significant infrastructure rehabilitation efforts are required in the first year to restore the service life of Runway 05-23, Runway 16-34 and Taxiway 'B'.

- Based on the assumptions within the financial forecast, Niagara Central Airport is expected to continue to require subsidies from the funding municipalities to support infrastructure rehabilitations, expansions, and ongoing operations. Even though a subsidy will continue to be required, management of the Airport with a more business-like focus could reduce subsidy requirements within the 20-year forecast period.
- Annual cost/revenue gaps can likely be improved if a change is made in the governance structure of both Niagara District Airport and Niagara Central Airport. The requirement to obtain unanimous approval from all councils of the funding municipalities may be hindering business and economic growth at the facilities - especially at Niagara District Airport. Further consideration should be given to modifying the airport governance structure so the facility can be managed and operated with a more business-like focus, under a single government entity.

10.2 Recommendations / Action Plan

The HM Aero project team has formulated a series of recommendations that outline the steps to effectively invest in and develop Niagara District Airport and Niagara Central Airport so they can be better positioned to promote business and economic development within Niagara Region. General recommendations are stated in Section 10.2.1, and airport-specific recommendations are included within the respective Action Plans for Niagara District Airport and Niagara Central Airport in Tables 10.1 and 10.2 respectively.

10.2.1 General

- The owner/operators of both Niagara District Airport and Niagara Central Airport follow the Action Plans presented in Section 10.3. The Action Plan provide step-by-step recommendations for the owners/operators of each of the two facilities to better position them as stronger economic drivers within Niagara Region.
- Although fewer business development opportunities have been identified for Niagara Central Airport and there may be continued difficulties in closing the annual cost/revenue gap; it is recommended that the facility continue to be operated as a registered aerodrome where it can continue to act as a facility supporting medevac, law enforcement, and recreational and General Aviation Commercial flying activities. Despite the fact that the Airport may be seen by some municipal leaders as a tax burden to rate payers of the funding municipalities, the presence and operation of the facility should be seen as a community asset which should be continue to be competently operated to support future economic growth in central Niagara Region.
- Niagara Central Airport is not currently designated as a certified airport facility by Transport Canada; however, it is recommended that all future infrastructure developments be designed and constructed as per the requirements of Transport Canada's Aerodrome Standards and Recommended Practices (TP312 5th Edition). This will allow for future flexibility if business opportunities arise related to scheduled passenger air services.

Table 10.1 – Action Plan – Niagara District Airport

Year	Development Period	Airside	Groundside	ATB and Other
2020 - 2024	Short Term (0 to 5 yrs)	- Runway 01-19 Rehabilitation (Year 1) - Runway 11-29 Rehabilitation (Year 2) - Taxiway Delta Rehabilitation (Year 2) - New Taxiway Construction Perpendicular to Taxiway A (Year 2) - T-Hangar Relocation (Year 3) - Development Land Preparation (Year 3) - Utility and Servicing Extension (Year 3) - Relocate Rotary Wing Operations (Year 3)	- Access Roads (Year 2) - Core Area Parking Expansion (Year 3) - T-Hangar Access (Year 3)	- Prepare Airport Master Plan (Year 1) - Complete Governance Review (Year 1) - Prepare Passenger Air Service Business Case (Year 1) - Engage Air Carriers (Year 2) - Air Service Marketing – Increase Demand (Year 3) - Air Terminal Expansion to 18,000 ft² (Year 4)
2025 - 2029	Medium-Term (6-10 yrs)	- Runway 06-24 Rehabilitation (Year 8) - New Taxiway Construction - Extending New Taxiway from Short Term (Year 6) - Development Land Preparation (Year 6) - Utility and Servicing Extension (Year 6) - Apron I Rehabilitation (Year 6)	- Prepare New Access Roads (Year 6) - Rehabilitate Main Access Road	Prepare Airport Capital Assistance Program (ACAP Application for Runway 06-24 Rehabilitation (Year 6 – 2 Years Prior to Planned Runway Rehabilitation)
2030 - 2039	Long-Term (11-20 yrs)	- Taxiway Construction (Year 11) - Development Land Preparation (Year 11) - Utility and Servicing Extension (Year 11)	Prepare New Access Roads and Parking (Year 11)	Update Airport Master Plan (Year 11)

Table 10.2 – Action Plan – Niagara Central Airport

Year	Development Period	Airside	Groundside	ATB and Other
2020 - 2024	Short Term (0 to 5 yrs)	- Rehabilitate Runway 05-23 (Year 1) - Rehabilitate Runway 16-34 (Year 1) - Rehabilitate Taxiway B (Year 1) - New Taxiway Construction - Perpendicular to Taxiway A (Year 2)	- Access Roads with Shoulders and Grading (Year 2) - Commercial Lot Development (Year 2) - East Parking Lot Rehabilitation (Year 2)	- Re-examine Fuel Revenue Arrangements (Year 1) - Complete Governance Review (Year 1) - Prepare Airport Master Plan (Year 3) - Complete Real Estate Land Appraisals for Surplus Lands
2025 - 2029	Medium-Term (6-10 yrs)	- Commercial Lot Preparation (Year 6) - Apron I Rehabilitation (Year 7) - Taxiway Alpha Rehabilitation (Year 9)	- Access Roads Grading (Year 8) - West Parking Lot Rehabilitation (Year 8)	
2030 - 2039	Long-Term (11-20 yrs)	- New Taxiway Construction Perpendicular to Apron I (Year 11) - Commercial Lots (Year 11)	Access Roads with Shoulders and Grading (Year 11)	

Appendix A - Stakeholder Listing

Table A.1 – Project Stakeholder Listing

Organization	Stakeholder Group	Engagement Method
City of Niagara Falls Economic Development	Government	In Person
City of Port Colborne Economic Development	Government	In Person
City of St. Catharines Economic Development	Government	In Person
Regional Municipality of Niagara CAO	Government	In Person
Regional Municipality of Niagara Commissioner of Corporate Services	Government	In Person
Regional Municipality of Niagara Commissioner of Planning	Government	In Person
Regional Municipality of Niagara Economic Development	Government	In Person
Niagara Central Dorothy Rungeling Airport Commission (x2)	NCDRA Commission/Staff	In Person
Niagara Central Dorothy Rungeling Airport Staff	NCDRA Commission/Staff	In Person
Niagara District Airport Commission (x3)	NDA Commission/Staff	In Person
Niagara District Airport Staff (x5)	NDA Commission/Staff	In Person
Genaire Limited	NDA Tenants	In Person
Airbus Helicopters	Business and Tourism	Phone
2021 Canada Games	Business and Tourism	Phone
Brock University	Business and Tourism	Phone
Fallsview Casino and Resort (Mohegan Sun)	Business and Tourism	Phone
Fallsview Group of Hotels	Business and Tourism	Phone
General Motors	Business and Tourism	Phone
Homblower	Business and Tourism	Phone
Meridian Centre	Business and Tourism	Phone
Ministry of Culture, Tourism and Sport (Prov)	Business and Tourism	Phone
Niagara College	Business and Tourism	Phone
Niagara Falls Hotels	Business and Tourism	Phone
Niagara Falls Tourism (DMO)	Business and Tourism	Phone
Niagara Hospitality Hotels	Business and Tourism	Phone
Niagara Parks Commission	Business and Tourism	Phone
Niagara-on-the-Lake Tourism (DMO)	Business and Tourism	Phone
OFA/Niagara North Federation of Agriculture	Business and Tourism	Phone
Scotiabank Convention Centre	Business and Tourism	Phone
Tourism Partnership of Niagara (RTO)	Business and Tourism	Phone
Trinity Capital	Business and Tourism	Phone
Twenty Valley Tourism (DMO)	Business and Tourism	Phone
Vintage Hotels (Lais Properties)	Business and Tourism	Phone
Fort Erie Economic Development and Tourism	Government	Phone
Regional Municipality of Niagara Commissioner of Public Works	Government	Phone
Niagara Region	Government	Phone
Town of Lincoln Economic Development	Government	Phone
City of Niagara Falls	Municipal Mayors	Phone
City of Port Colborne	Municipal Mayors	Phone
City of St. Catharines	Municipal Mayors	Phone
City of Welland	Municipal Mayors	Phone
Town of Niagara on the Lake	Municipal Mayors	Phone
Town of Pelham	Municipal Mayors	Phone
Township of Wainfleet	Municipal Mayors	Phone
FlyGTA Airlines	NDA Tenants	Phone
St. Catharines Flying Club	NDA Tenants	Phone
Arterra Wines	Business and Tourism	Email/Online Survey
Canada BW Logistics	Business and Tourism	Email/Online Survey
Fleet Aviation	Business and Tourism	Email/Online Survey
Heart of Niagara Hotels/Hospitality	Business and Tourism	Email/Online Survey
Outlet Collection at Niagara	Business and Tourism	Email/Online Survey
Spring Creek Carriers Inc.	Business and Tourism	Email/Online Survey
St. Lawrence Seaway Management	Business and Tourism	Email/Online Survey
White Oaks Conference & Resort	Business and Tourism	Email/Online Survey
City of Niagara Falls CAO	Government	Email/Online Survey
City of St. Catharines CAO	Government	Email/Online Survey
City of St. Catharines CAO	Government	Email/Online Survey
City of Welland Director	Government	Email/Online Survey
City of Welland CFO	Government	Email/Online Survey

Organization	Stakeholder Group	Engagement Method
City of Welland General Manager	Government	Email/Online Survey
Town of Niagara-on-the-Lake CAO	Government	Email/Online Survey
Town of Pelham CAO	Government	Email/Online Survey
Township of Wainfleet Deputy Treasurer	Government	Email/Online Survey
Township of Wainfleet CAO	Government	Email/Online Survey
1736132 Ontario Inc	NCDRA Tenants	Email/Online Survey
Accipiter Radar	NCDRA Tenants	Email/Online Survey
Hang Mei Deng Village Lot	NCDRA Tenants	Email/Online Survey
Niagara Skydive	NCDRA Tenants	Email/Online Survey
Private NCDRA Tenants (x3)	NCDRA Tenants	Email/Online Survey
River Bend Fams	NCDRA Tenants	Email/Online Survey
Tarczy Aircraft	NCDRA Tenants	Email/Online Survey
Private NCDRA Tenants (x3)	NCDRA Tenants	Email/Online Survey
Niagara District Airport Commission Members (x6)	NDA Commission/Staff	Email/Online Survey
1057743 Ontario Inc.	NDA Tenants	Email/Online Survey
2054897 Ontario Inc.	NDA Tenants	Email/Online Survey
Allied Services FBO Office	NDA Tenants	Email/Online Survey
Allied Services of Niagara	NDA Tenants	Email/Online Survey
C.A.R.E.S. (Niagara)	NDA Tenants	Email/Online Survey
Eaglerock Aviation Limited	NDA Tenants	Email/Online Survey
Fox Aviation	NDA Tenants	Email/Online Survey
Insight Instruments	NDA Tenants	Email/Online Survey
National Helicopters	NDA Tenants	Email/Online Survey
Pangea Holdings Inc.	NDA Tenants	Email/Online Survey
Private NDA Tenants (x5)	NDA Tenants	Email/Online Survey

Appendix B - Stakeholder Engagement Surveys

Niagara Airports Feasibility Study: Airport Tenant and User Survey

The Regional Municipality of Niagara is currently undertaking a study with HM Aero Aviation Consulting to develop a Feasibility Study and Business Case for Niagara District Airport and Niagara Central Dorothy Rungeling Airport

The intent of the project is to explore aviation markets and the future roles of both airports and identify development opportunities to maximize the economic impact of both airports within the region.

Stakeholder input is a key element to the study. Thank you in advance for your participation.

1. Are you a tenant at, or user of Niagara District Airport or Niagara Central Dorothy Rungeling Airport?

- ☐ Niagara District Airport
- ☐ Niagara Central Airport
- ☐ Both
- ☐ Other (please specify)

2. What is your interest in Niagara District Airport or Niagara Central Dorothy Rungeling Airport?

- ☐ Airport Tenant
- ☐ Airport User
- ☐ Airport Business
- ☐ Other (please specify)

3. What service(s) do you provide as a business/organization?

4. How long have you been based at the airport?

5. What services or features at the airport(s) are important to you and/or your customers?

6. What term best describes your business' current status?

- ☐ Growing
- ☐ Downsizing
- ☐ Stable
- ☐ Not Applicable

7. What do you see as potential constraints or challenges related to developing business at Niagara Central Airport and/or Niagara Central Dorothy Rungeling Airport?

Niagara District
Airport

Niagara Central
Dorothy Rungeling
Airport

8. In your opinion, what services or features at the airport(s) are important to Niagara's future economy?

- ☐ Runway Length
- ☐ Air Terminal Facilities
- ☐ Customs and Border Services
- ☐ Passenger Air Services
- ☐ Business/Corporate Aviation Support
- ☐ Aerial Sightseeing
- ☐ Flight Training and Education
- ☐ Air Cargo
- ☐ Recreation
- ☐ Other (please specify)

9. Do you feel that local government leaders see the airports within the region as economic assets?

- ☐ Yes
- ☐ No
- ☐ If yes, why?

10. What might help improve how the airports are seen and prioritized by government?

11. What role do you see Niagara District Airport and Niagara Central Dorothy Rungeling Airport playing within Niagara Region within the next 20 years?

Niagara District
Airport

Niagara Central
Dorothy Rungeling
Airport

12. In your view, what improvements could be made at Niagara District Airport and/or Niagara Central Dorothy Rungeling Airport to better support activity growth?

Niagara District
Airport

Niagara Central
Dorothy Rungeling
Airport

13. What do you think may change in terms of the roles of each airport as development occurs in Niagara and the aviation industry evolves?

14. Is there one single improvement that you feel would encourage greater use of either airport?

Niagara District
Airport

Niagara Central
Dorothy Rungeling
Airport

15. Do you have any other general comments or additional feedback you would like to provide regarding the future of the Airport(s)?

16. Tell us about your vision of the future of the Airport(s) (if any).

* 17. Please provide your contact information.

Name

Title

Organization

Email Address

Niagara Airports Feasibility Study: Niagara Business and Tourism Survey

The Regional Municipality of Niagara is currently completing a study with HM Aero Aviation Consulting to develop a Feasibility Study and Business Case for Niagara District Airport and Niagara Central Dorothy Rungeling Airport

The intent of the project is to explore aviation markets and the future roles of both airports and identify development opportunities to maximize the economic impact of both airports within the region.

Stakeholder input is a key element to the study. Thank you in advance for your participation.

1. What Niagara business sector does your organization fit within?

- ☐ Manufacturing
- ☐ Professional Services
- ☐ Tourism and Hospitality
- ☐ Government
- ☐ Education
- ☐ Other (please specify)

2. What comes to your mind when you think about Niagara District Airport and/or Niagara Central Airport? (In a few words)

Niagara District
Airport

Niagara Central
Dorothy Rungeling
Airport

3. Does your business make use of facilities at Niagara District Airport or Niagara Central Dorothy Rungeling Airport?

- ☐ Niagara District Airport
- ☐ Niagara Central Dorothy Rungeling Airport
- ☐ Both
- ☐ Neither

4. Do your customers make use of facilities at Niagara District Airport or Niagara Central Dorothy Rungeling Airport?

- ☐ Niagara District Airport
- ☐ Niagara Central Dorothy Rungeling Airport
- ☐ Both
- ☐ Neither

5. Is the proximity of your business to either airport important to you and your customers?

- ☐ Yes
- ☐ No

6. What service(s) do you provide as a business/organization?

7. How many people does your business employ in Niagara?

- ☐ 1-4
- ☐ 5-20
- ☐ 21-49
- ☐ 50-99
- ☐ 100+

8. Did the presence of Niagara District Airport or Niagara Central Dorothy Rungeling Airport influence your company's decision to locate in Niagara?

- ☐ Yes
- ☐ No
- ☐ If yes, which airport (or both)?

9. In your opinion, what services or features at the airport(s) are important to Niagara's future economy?

- ☐ Runway Length
- ☐ Air Terminal Facilities
- ☐ Customs and Border Services
- ☐ Passenger Air Services
- ☐ Business Aviation Support
- ☐ Aerial Sightseeing
- ☐ Flight Training and Education
- ☐ Air Cargo
- ☐ Recreation
- ☐ Other (please specify)

10. Are you aware that Niagara District Airport offers scheduled passenger air services?

- ☐ Yes
- ☐ No

11. Do you feel that local government leaders see the airports within the region as economic assets?

- ☐ Yes
- ☐ No
- ☐ If yes, why?

12. What might help improve how the airports are seen and prioritized by government?

13. What services or features at the airport(s) are important to your business and your customers?

- ☐ Runway Length
- ☐ Air Terminal Facilities
- ☐ Customs and Border Services
- ☐ Passenger Air Services
- ☐ Business Aviation Support
- ☐ Aerial Sightseeing
- ☐ Flight Training and Education
- ☐ Air Cargo
- ☐ Recreation
- ☐ Other (please specify)

14. Have any specific airport-related deficiencies been identified by your employees or customers?

- ☐ Yes
- ☐ No
- ☐ If yes, what?

15. What do you see as potential constraints or challenges related to developing business at Niagara Central Airport and/or Niagara Central Dorothy Rungeling Airport?

Niagara District
Airport

Niagara Central
Dorothy Rungeling
Airport

16. In your view, what improvements could be made at Niagara District Airport and/or Niagara Central Dorothy Rungeling Airport to better support economic development within Niagara Region?

17. Would your organization consider Niagara District Airport or Niagara Central Dorothy Rungeling Airport as a venue for advertising and special events?

☐ Yes

☐ No

☐ If yes, which airport?

18. Do you have any other general comments or additional feedback you would like to provide regarding the future of the Airport(s)?

* 19. Please provide your contact information

Name

Title

Organization

Email Address

Niagara Airports Feasibility Study: Government and Economic Development Survey

The Regional Municipality of Niagara is currently completing a study with HM Aero Aviation Consulting to develop a Feasibility Study and Business Case for Niagara District Airport and Niagara Central Dorothy Rungeling Airport

The intent of the project is to explore aviation markets and the future roles of both airports and identify development opportunities to maximize the economic impact of both airports within the region.

Stakeholder input is a key element to the study. Thank you in advance for your participation.

1. Which tier of government do you most closely represent within Niagara?

- ☐ Local Area Municipality
- ☐ Regional Government
- ☐ Other (please specify)

2. What comes to your mind when you think about Niagara District Airport and/or Niagara Central Dorothy Rungeling Airport? (In a few words)

Niagara District
Airport

Niagara Central
Dorothy Rungeling
Airport

3. Do you feel that the airports within the Niagara region are adequately positioned to support the local economy?

☐ Yes

☐ No

☐ If no, why?

4. In your opinion, what services or features at the airport(s) are important to Niagara's future economy?

☐ Runway Length

☐ Air Terminal Facilities

☐ Customs and Border Services

☐ Passenger Air Services

☐ Business Aviation Support

☐ Aerial Sightseeing

☐ Flight Training and Education

☐ Air Cargo

☐ Recreation

☐ Other (please specify)

5. In your opinion, are there any specific improvements that can be made at the Airport that can better support local businesses and the community?

Niagara District
Airport

Niagara Central
Dorothy Rungeling
Airport

6. Do you feel that local government leaders see the airports within the region as economic assets?

☐ Yes

☐ No

☐ If yes, why?

7. What might help improve how the airports are seen and prioritized by government?

8. When attracting business to the Niagara Region, do businesses and other interested parties inquire about airport facilities and operational capabilities?

☐ Yes

☐ No

☐ Not Applicable

9. What do you see as potential constraints or challenges related to developing business at Niagara District Airport and/or Niagara Central Dorothy Rungeling Airport?

Niagara District
Airport

Niagara Central
Dorothy Rungeling
Airport

10. Is there one single improvement that you feel would encourage greater use of either airport?

Niagara District
Airport

Niagara Central
Dorothy Rungeling
Airport

11. Do you have any other general comments or additional feedback you would like to provide regarding the future of Niagara District Airport or Niagara Central Dorothy Rungeling Airport?

Niagara District
Airport

Niagara Central
Dorothy Rungeling
Airport

* 12. Please provide your contact information.

Name

Title

Organization

Email

Appendix C - Financial Forecast Tables

Niagara District Airport
20-Year Financial Forecast

20-Year Financial Forecast				Short Term										Medium Term			Long Term				
				Year:	0	1	2	3	4	5	6	7	8	9	10	11-20					
				2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030-2039					
Passenger Forecast (E/D)	3%			4,764	5,485	7,131	9,270	15,471	27,180	32,225	33,192	41,439	45,557	46,924	48,332	764,406					
Movement Forecast																					
Air Carrier	3%			14,803	15,247	15,705	16,176	16,901	17,528	18,054	18,595	19,273	20,091	20,694	21,315	253,236					
Other Itinerant	3%			6,473	6,667	6,867	7,073	7,285	7,504	7,729	7,961	8,200	8,446	8,699	8,960	105,800					
Local	3%			19,016	19,586	20,174	20,779	21,403	22,045	22,706	23,387	24,089	24,812	25,556	26,323	310,812					
Total				40,292	41,501	42,746	44,028	45,589	47,077	48,489	49,944	51,562	53,349	54,949	56,598	669,847					
				Year:	0	1	2	Short Term	4	5	6	7	Medium Term	9	10	Long Term					
								3					8			11-20					
				Rate	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030-2039
Revenue (Existing)																					
Events	2%	\$774	\$7,455	\$4,950	\$600	\$8,417	\$8,585	\$8,757	\$8,932	\$9,111	\$9,293	\$9,479	\$9,668	\$9,862	\$10,059	\$10,260	\$10,465	\$116,886			
Fuel operations	2%	\$17,902	\$19,840	\$23,864	\$25,678	\$24,286	\$24,772	\$25,267	\$25,772	\$26,288	\$26,814	\$27,350	\$27,897	\$28,455	\$29,024	\$29,604	\$30,197	\$337,257			
Interest	2%	\$1,620	\$2,383	\$2,401	\$2,596	\$4,709	\$4,803	\$4,899	\$4,997	\$5,097	\$5,199	\$5,303	\$5,409	\$5,517	\$5,628	\$5,740	\$5,855	\$65,393			
Landing and Parking	2%	\$16,974	\$15,317	\$25,631	\$45,068	\$67,466	\$68,815	\$70,192	\$71,595	\$73,027	\$74,488	\$75,978	\$77,497	\$79,047	\$80,628	\$82,241	\$83,885	\$936,893			
Misc	2%	\$12,171	\$12,908	\$17,776	\$21,787	\$31,753	\$32,388	\$33,036	\$33,697	\$34,370	\$35,058	\$35,759	\$36,474	\$37,204	\$37,948	\$38,707	\$39,481	\$440,951			
Deferred Revenue	2%	\$0	\$44,721	\$0	\$12,996	\$622	\$634	\$647	\$660	\$673	\$687	\$700	\$714	\$729	\$743	\$758	\$773	\$8,638			
Rentals	2%	\$207,799	\$214,255	\$224,024	\$220,400	\$178,520	\$182,090	\$185,732	\$189,447	\$193,236	\$197,101	\$201,043	\$205,063	\$209,165	\$213,348	\$217,615	\$221,967	\$2,479,088			
Revenue (New)																					
Fuel Operations	Per L							\$78,523	\$80,878	\$84,505	\$87,640	\$90,269	\$92,977	\$96,366	\$100,457	\$103,471	\$106,575	\$1,266,179			
Landing Fees	\$20							\$163,912	\$249,708	\$260,799	\$270,423	\$278,536	\$286,892	\$297,299	\$309,817	\$319,112	\$328,685	\$3,904,336			
Passenger Fees	\$20							\$71,305	\$92,697	\$154,705	\$271,803	\$322,255	\$331,922	\$414,389	\$455,574	\$469,241	\$483,318	\$7,615,025			
Rentals (Land Leases)	varies							\$6,918	\$27,122	\$73,724	\$81,873	\$83,510	\$113,034	\$115,294	\$140,277	\$143,083	\$122,120	\$2,321,106			
T Hangars	\$2.37							\$0	\$0	\$2,666	\$2,719	\$2,774	\$2,829	\$2,886	\$2,943	\$3,002	\$3,062	\$62,094			
Vehicle Parking	\$9							\$15,183	\$15,183	\$29,610	\$32,985	\$32,985	\$46,656	\$50,022	\$64,449	\$64,449	\$64,449	\$1,288,629			
Total Gross Revenue		\$257,240	\$316,879	\$298,646	\$329,125	\$315,773	\$322,088	\$664,371	\$800,688	\$947,812	\$1,096,081	\$1,165,939	\$1,237,034	\$1,346,234	\$1,450,896	\$1,487,283	\$1,500,834	\$20,842,474			
Operating Expenses (Existing)																					
Maintenance-Building	Inflation	2%	\$30,366	\$79,899	\$36,139	\$50,279	\$59,663	\$60,856	\$62,073	\$63,315	\$64,581	\$65,873	\$67,190	\$68,534	\$69,905	\$71,303	\$72,729	\$74,183	\$828,534		
Maintenance- Vehicles	Inflation	2%	\$36,415	\$45,764	\$55,202	\$50,492	\$65,764	\$67,079	\$68,421	\$69,789	\$71,185	\$72,609	\$74,061	\$75,542	\$77,053	\$78,594	\$80,166	\$81,769	\$913,258		
Operations	Inflation	2%	\$141,913	\$132,402	\$156,395	\$265,084	\$178,877	\$182,455	\$186,104	\$189,826	\$193,622	\$197,495	\$201,445	\$205,473	\$209,583	\$213,775	\$218,050	\$222,411	\$2,484,046		
Personnel	Inflation + 1%	3%	\$301,866	\$294,164	\$337,161	\$413,059	\$404,983	\$417,132	\$429,646	\$442,536	\$455,812	\$469,486	\$483,571	\$498,078	\$513,020	\$528,411	\$544,263	\$560,591	\$6,619,346		
Operating Expenses (New)																					
CBSA Costs	Per FTE	2%									\$22,510	\$23,185	\$23,881	\$49,195	\$50,671	\$52,191	\$53,757	\$1,037,850			
New Personnel Costs	Per FTE	2%						\$30,000	\$31,212	\$31,836	\$32,473	\$33,122	\$33,785	\$34,461	\$35,150	\$35,853	\$127,994	\$1,488,971			
Total Operating Expenses		\$510,560	\$552,229	\$584,897	\$778,914	\$709,287	\$727,523	\$776,244	\$796,678	\$817,037	\$860,446	\$882,575	\$905,294	\$953,217	\$977,903	\$1,003,252	\$1,120,706	\$13,372,005			
Gross Revenue (-) Operating Expenses		-\$253,320	-\$235,350	-\$286,251	-\$449,789	-\$393,514	-\$405,434	-\$111,873	\$4,011	\$130,775	\$235,636	\$283,365	\$331,740	\$393,018	\$472,993	\$484,032	\$380,128	\$7,470,469			
Projeced Rehabilitation Costs							\$0	\$487,641	\$701,400	\$0	\$0	\$0	\$904,901	\$0	\$3,039,645	\$1,348,441	\$0	\$277,632			
Projected Capital Costs							\$0	\$0	\$1,567,183	\$713,650	\$5,490,953	\$0	\$737,036	\$0	\$0	\$0	\$0	\$0	\$726,319		
Total Expenses		\$510,560	\$552,229	\$584,897	\$778,914	\$709,287	\$727,523	\$1,263,885	\$3,065,261	\$1,530,686	\$6,351,399	\$882,575	\$2,547,230	\$953,217	\$4,017,548	\$2,351,693	\$1,120,706	\$14,375,956			
Income - Expenses		-\$253,320	-\$235,350	-\$286,251	-\$449,789	-\$393,514	-\$405,434	-\$599,514	-\$2,264,572	-\$582,875	-\$5,255,317	\$283,365	-\$1,310,197	\$393,018	-\$2,566,652	-\$864,409	\$380,128	\$6,466,518			
Profit / Loss		Loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss	Profit	Loss	Profit	Loss	Loss	Profit	Profit			
Municipal Grants		\$328,500	\$305,001	\$356,400	\$435,326	\$396,064	\$405,434	\$599,514	\$2,264,572	\$582,875	\$5,255,317	-\$283,365	\$1,310,197	-\$393,018	\$2,566,652	\$864,409	-\$380,128	-\$6,466,518			

Rehabilitation Requirements

Item	Description	Cost	2019	2020	Short Term		2023	2024	2025	2026	Medium Term		2029	Long Term 2030-2039
					2021	2022					2027	2028		
R1	Runway 06-24	\$1,942,365									\$2,460,530			
R2	Runway 01-19	\$473,438		\$487,641										
R3	Runway 11-29	\$589,115			\$624,992									
R4	Taxiway Alpha	\$439,730										\$540,812		
R5	Taxiway Bravo	\$225,740												\$277,632
R6	Taxiway Charlie	\$618,980										\$807,629		
R7	Taxiway Delta	\$72,022			\$76,408									
R8	Apron I Full Rehabilitation	\$757,840							\$904,901					
R9	Apron I Spot Repair	\$53,435												
R10	Access Road	\$485,000									\$579,115			
Total 20-Year Rehabilitation Costs		\$5,657,664	\$0	\$487,641	\$701,400	\$0	\$0	\$0	\$904,901	\$0	\$3,039,645	\$1,348,441	\$0	\$277,632

Capital Infrastructure Requirements

Item	Description	Cost	2019	2020	Short Term		2023	2024	2025	2026	Medium Term		2029	Long Term 2030-2039
					2021	2022					2027	2028		
C1	New Taxiway Construction (Perpendicular to Taxiway A)	\$592,020			\$628,074									
C2	Taxiway Shoulder supporting New Taxiway	\$265,710			\$281,892									
C3	Commerical Lots	\$137,622			\$146,003									
C4	Access Road & ROW with Grading	\$370,788			\$393,369									
C5	Parking Lot Expansion	b				\$217,639								
C6	ATB Expansion	\$5,025,000					\$5,490,953							
C7	Future Rotary Wing Operations (Turf)	\$60,945				\$66,596								
C8	Access Road & Parking (Core Area)	\$113,249				\$123,750								
C9	T-Hangar Access (Low PLR)	\$279,726				\$305,664								
C10	T-Hangar Relocation (1)	\$100,000			\$109,273									
C11	T-Hangar Site Prep	\$7,845			\$8,572									
C12	New Taxiway Construction (Extending New Taxiway from ST)	\$108,284							\$129,297					
C13	Taxiway Shoulder supporting New Taxiway	\$62,475							\$74,598					
C14	Commerical Lots	\$99,964							\$119,363					
C15	T-Hangar Relocation (3)	\$300,000							\$358,216					
C16	Access Road & ROW with Grading	\$46,533							\$55,563					
C17	New Taxiway Construction (Extending New Taxiway from MT)	\$102,212												\$137,364
C18	Taxiway Shoulder supporting New Taxiway	\$62,475												\$83,961
C19	Commerical Lots	\$164,325												\$220,839
C20	Access Road & ROW with Grading (West Dev. Area)	\$34,514												\$46,383
C21	Access Road & Parking (Core Area)	\$71,519												\$96,116
C22	T-Hangar Access (Low PLR)	\$97,048												\$130,424
C22	T-Hangar Site Prep	\$8,357												\$11,231
Total 20-Year Capital Costs		\$8,110,611	\$0	\$0	\$1,567,183	\$713,650	\$5,490,953	\$0	\$737,036	\$0	\$0	\$0	\$0	\$726,319

Niagara Central Airport
Forecast Revenue and Expense Statement

		Short Term										Medium Term					Long Term		
		Rate	2014	2015	2016	2017	2018	2019	1 2020	2 2021	3 2022	4 2023	5 2024	6 2025	7 2026	8 2027	9 2028	10 2029	11-20 2030-2039
Revenue	Fuel Operations	3%	\$22,657	\$30,316	\$39,682	\$18,538	\$6,425	\$6,618	\$6,816	\$7,021	\$7,231	\$7,448	\$7,672	\$7,902	\$8,139	\$8,383	\$8,635	\$8,894	\$105,015
	Interest	2%	\$627	\$935	\$477	\$390	\$1,138	\$1,161	\$1,184	\$1,208	\$1,232	\$1,256	\$1,282	\$1,307	\$1,333	\$1,360	\$1,387	\$1,415	\$15,803
	Other	2%	\$35,767	\$4,653	\$38,587	\$29,728	\$37,974	\$38,733	\$39,508	\$40,298	\$41,104	\$41,926	\$42,765	\$43,620	\$44,493	\$45,382	\$46,290	\$47,216	\$527,341
	Donations	2%					\$1,435	\$1,464	\$1,493	\$1,523	\$1,553	\$1,584	\$1,616	\$1,648	\$1,681	\$1,715	\$1,749	\$1,784	\$19,928
	Rentals (Existing)	2%	\$63,564	\$74,110	\$73,841	\$88,735	\$79,689	\$81,283	\$82,908	\$84,567	\$86,258	\$87,983	\$89,743	\$91,538	\$93,368	\$95,236	\$97,140	\$99,083	\$1,106,633
	Rentals (New Land Leases)	\$1.61							\$9,832	\$10,029	\$10,229	\$13,912	\$20,679	\$24,711	\$28,896	\$33,239	\$37,744	\$45,663	\$647,161
	Rentals (New T Hangar Revenues)	\$1,200							\$1,224	\$2,497	\$3,820	\$5,196	\$6,624	\$8,108	\$9,649	\$11,248	\$12,907	\$14,628	\$255,899
Total Gross Revenue			\$122,615	\$110,014	\$152,587	\$137,391	\$126,661	\$129,258	\$142,966	\$147,142	\$151,428	\$159,306	\$170,381	\$178,835	\$187,560	\$196,563	\$205,853	\$218,683	\$2,677,779
Operating Expenses																			
	Amortization	2%	\$15,113	\$14,348	\$17,911	\$29,742	\$60,348	\$61,555	\$62,786	\$64,042	\$65,323	\$66,629	\$67,962	\$69,321	\$70,707	\$72,121	\$73,564	\$75,035	\$838,046
	Property Taxes	2%	\$31,862	\$32,258	\$23,208	\$5,931	\$28,010	\$28,570	\$29,142	\$29,724	\$30,319	\$30,925	\$31,544	\$32,175	\$32,818	\$33,475	\$34,144	\$34,827	\$388,972
	Salaries and Wages	2%	\$50,242	\$49,754	\$51,280	\$42,681	\$33,526	\$34,197	\$34,880	\$35,578	\$36,290	\$37,015	\$37,756	\$38,511	\$39,281	\$40,067	\$40,868	\$41,685	\$465,572
	Repairs and Mainenance	2%	\$15,122	\$26,265	\$23,461	\$122,701	\$23,012	\$23,472	\$23,942	\$24,421	\$24,909	\$25,407	\$25,915	\$26,434	\$26,962	\$27,501	\$28,051	\$28,613	\$319,565
	Insurance	2%	\$8,082	\$8,109	\$14,984	\$16,192	\$17,535	\$17,886	\$18,243	\$18,608	\$18,980	\$19,360	\$19,747	\$20,142	\$20,545	\$20,956	\$21,375	\$21,803	\$243,507
	Light, Heat, Water	2%	\$9,600	\$9,880	\$9,019	\$9,222	\$14,519	\$14,809	\$15,106	\$15,408	\$15,716	\$16,030	\$16,351	\$16,678	\$17,011	\$17,352	\$17,699	\$18,053	\$201,624
	Consulting	2%	\$5,900	\$4,206	\$5,400	\$7,000	\$14,145	\$14,428	\$14,716	\$15,011	\$15,311	\$15,617	\$15,930	\$16,248	\$16,573	\$16,905	\$17,243	\$17,588	\$196,430
	Interest on Loans	2%				\$4,771	\$12,560	\$12,811	\$13,067	\$13,329	\$13,595	\$13,867	\$14,145	\$14,427	\$14,716	\$15,010	\$15,311	\$15,617	\$174,419
	Promotion and Marketing	2%	\$12,985	\$282	\$3,042	\$1,654	\$8,793	\$8,969	\$9,148	\$9,331	\$9,518	\$9,708	\$9,902	\$10,100	\$10,302	\$10,508	\$10,719	\$10,933	\$122,107
	Legal, audit and accounting	2%	\$11,886	\$6,974	\$6,578	\$5,898	\$4,353	\$4,440	\$4,529	\$4,619	\$4,712	\$4,806	\$4,902	\$5,000	\$5,100	\$5,202	\$5,306	\$5,412	\$60,450
	Office	2%	\$9,431	\$13,378	\$14,419	\$9,728	\$2,709	\$2,763	\$2,818	\$2,875	\$2,932	\$2,991	\$3,051	\$3,112	\$3,174	\$3,238	\$3,302	\$3,368	\$37,620
	Honorariums	2%	\$1,350	\$1,225	\$1,325	\$1,100	\$1,249	\$1,274	\$1,299	\$1,325	\$1,352	\$1,379	\$1,407	\$1,435	\$1,463	\$1,493	\$1,523	\$1,553	\$17,345
Total Operating Expenses			\$171,573	\$166,679	\$170,627	\$256,620	\$220,759	\$225,174	\$229,678	\$234,271	\$238,957	\$243,736	\$248,610	\$253,583	\$258,654	\$263,827	\$269,104	\$274,486	\$3,065,657
Gross Revenue (-) Operating Expenses			-\$48,958	-\$56,665	-\$18,040	-\$119,229	-\$94,098	-\$95,916	-\$86,712	-\$87,129	-\$87,528	-\$84,430	-\$78,230	-\$74,748	-\$71,094	-\$67,264	-\$63,251	-\$55,803	-\$387,877
Total Capital Expenses (see Page 2)									\$2,391,587	\$849,691	\$0	\$0	\$0	\$1,484,522	\$134,290	\$433,134	\$0	\$0	\$354,537
Total Expenses			\$171,573	\$166,679	\$170,627	\$256,620	\$220,759	\$225,174	\$2,621,265	\$1,083,962	\$238,957	\$243,736	\$248,610	\$1,738,104	\$392,944	\$696,961	\$269,104	\$274,486	\$3,420,193
Income - Expenses			-\$48,958	-\$56,665	-\$18,040	-\$119,229	-\$94,098	-\$95,916	-\$2,478,299	-\$936,820	-\$87,528	-\$84,430	-\$78,230	-\$1,559,269	-\$205,384	-\$500,398	-\$63,251	-\$55,803	-\$742,414
Profit / Loss			Loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss	Loss
Municipal Grants			\$48,958	\$84,450	\$82,800	\$121,556	\$82,219	\$95,916	\$2,478,299	\$936,820	\$87,528	\$84,430	\$78,230	\$1,559,269	\$205,384	\$500,398	\$63,251	\$55,803	\$742,414

Rehabilitation Requirements														
Item	Description	Cost	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
R1	Runway 16-34 Rehabilitation	\$ 852,080		\$ 903,972										
R2	Runway 05-23 Rehabilitation	\$ 1,176,480		\$ 1,248,128										
R3	Taxiway Alpha Rehabilitation	\$ 341,920									\$ 433,134			
R4	Taxiway Bravo Rehabilitation	\$ 225,740		\$ 239,488										
R5	Apron I	\$ 861,075							\$ 1,028,169					
R6	Access Road	\$ 59,655								\$ 73,368				
R7	Parking Lot - West Lot	\$ 33,735			\$ 35,789									
R8	Parking Lot - East Lot	\$ 49,535								\$ 60,922				
Total 20-Year Rehabilitation Costs		\$ 3,600,220	\$ -	\$ 2,391,586.87	\$ 35,789.46	\$ -	\$ -	\$ -	\$ 1,028,168.58	\$ 134,289.93	\$ 433,134.03	\$ -	\$ -	\$ -
Capital Infrastructure Requirements														
Item	Description	Cost	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
C1	New Taxiway Construction (Perpendicular to Taxiway A)	\$ 313,979			\$ 333,100									
C2	Taxiway Shoulder & TSA supporting New Taxiway	\$ 99,195			\$ 105,236									
C3	Access Roads with Shoulders and Grading	\$ 296,164			\$ 314,200									
C4	Commerical Lots	\$ 57,842			\$ 61,365									
C5	Access Roads	\$ 292,412							\$ 349,156					
C9	Commerical Lots	\$ 89,776							\$ 107,198					
C6	New Taxiway Construction (Perpendicular to Apron I)	\$ 104,660												\$ 140,654
C7	Taxiway Shoulder & TSA supporting New Taxiway	\$ 62,475												\$ 83,961
C8	Access Roads	\$ 13,526												\$ 18,177
C9	Commerical Lots	\$ 83,148												\$ 111,745
Total 20-Year Capital Costs		\$ 1,413,177	\$ -	\$ -	\$ 813,901.16	\$ -	\$ -	\$ -	\$ 456,353.09	\$ -	\$ -	\$ -	\$ -	\$ 354,536.63
				\$ 2,391,587	\$ 849,691	\$ -	\$ -	\$ -	\$ 1,484,522	\$ 134,290	\$ 433,134	\$ -	\$ -	\$ 354,536.63