NIAGARA | DISTRICT AIRPORT

Niagara District Airport

2025 – 2045 MASTER PLAN

AVIA · NG

AIRPORT CONSULTANTS

October 24, 2025

BY EMAIL ONLY

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RE: Niagara District Airport
2025 - 2045 Airport Master Plan
Final Report
O/Ref: 24-0103-00

Dear Mr. Daniel Pilon,

Avia NG is pleased to submit the FINAL REPORT the ***Niagara District Airport 2025 – 2045 Master Plan.*** The enclosed report has been prepared for the Niagara District Airport Commission and is submitted to the Airport Redevelopment Project Committee.

This report is the culmination of all tasks associated with our approved scope of work and has been prepared at the direction of the Niagara District Airport Commission with a public audience in mind.

Should you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

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FOREWORD

As Board Chair and Chief Executive Officer, we are pleased to present Niagara District Airport's 2025 - 2045 Master Plan – a strategic roadmap for the next 20 years, focused on enhancing air access to the Niagara region through sustainable and achievable growth.

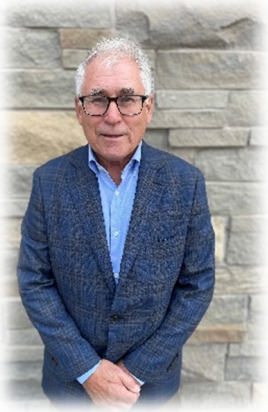
As Niagara's only certified airport, Niagara District Airport is well-positioned to become an indispensable aviation gateway, supporting its half-a-million residents and the 13 million tourists who visit Niagara each year. This Master Plan outlines the path forward to achieve this vision, and we are committed to ensuring that it inspires our daily operations, positioning us for long-term success. The Master Plan is not a rigid framework, but a living document that will evolve in response to our community's needs for years to come.

We'd like to extend our sincere gratitude to our industry partners, the local businesses, the tourism leaders, our municipal owners – the City of St. Catharines, City of Niagara Falls, and Town of Niagara-on-the-Lake – and the additional individuals across the region who participated in the stakeholder engagement process. Hearing from these groups directly about what a better-connected Niagara could look like, and what that would mean for their businesses and communities, was incredibly valuable in creating the final document before you today.

Lastly, we would like to thank the Mayors and Chief Administrative Officers of our municipal owners, our Commission members – in particular, those who served on the Airport Redevelopment Project Committee – our dedicated staff, and Avia NG, whose hard work and enthusiasm brought this document to life.

As we approach our 100th anniversary in 2029, we are committed to honouring the Airport's history and significance every step of the way – once a training school for World War II pilots, and now an aspiring transportation hub for Niagara.

Niagara District Airport's 2025 - 2045 Master Plan represents not only a shared and achievable vision, but a commitment to transformational and community-driven growth for the Niagara region.



Greg Wight

Board Chair

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Chief Executive Officer

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Executive Summary

EXECUTIVE SUMMARY

The Niagara District Airport 2025 – 2045 Master Plan envisions a future where tourists and business travelers arrive to the region by stepping off a flight minutes away from beautiful vineyards, historic sites, shopping, and entertainment; while Niagara residents board a flight significantly closer to home, that is destined for North American travel destinations.

Through a strategic redevelopment, Niagara District Airport ("the Airport"), aims to transform itself from a modest general aviation facility into a modern regional gateway that improves Niagara's connectivity to and from other destinations in North America and fuels economic growth in the region.

The vision outlined in the Master Plan is about unlocking the Airport's potential and supporting growth in one of Canada's top tourist destinations. At completion, it will unlock over $1 billion in economic output and bring over 7 million passengers through the Niagara region over the course of the plan.

A Region with Untapped Potential

The Master Plan began with a simple but pressing question: What role should the Airport play in Niagara's future? For decades, the Airport has operated steadily, serving training flights, helicopter operations, maintenance shops, and private charter flights. In 2023, the Niagara District Airport Commission ("the Commission") launched a new Strategic Plan that made clear the need for a bolder roadmap. Avia NG Inc. was retained to prepare the first comprehensive Master Plan in over 30 years, drawing on technical analysis, community consultation, and economic forecasting to develop a plan for the Airport's transformation. The result is an ambitious but realistic vision of what the Airport can become – an indispensable gateway connecting the Niagara region to the rest of North America.

The region has a growing population of 540,000, with over 40,000 jobs currently supported by tourism. Despite this level of activity, residents, and visitors have to travel through airports located in Hamilton, Buffalo, or Toronto to connect to markets beyond (see **Figure ES-1**). A route and catchment demand analysis using 2019 data from Market Information Data Transfer and Airports Council International estimated that Niagara generated approximately 2.1 million airline passengers. However, these figures reflect travel captured through scheduled commercial airports in Hamilton, Buffalo, and Toronto, excluding low-cost carriers. It does not explicitly quantify the magnitude of tourism-driven air travel that would materialize if direct air access were available within Niagara itself. The Niagara region welcomes roughly 13 million visitors annually, many of whom currently arrive by automobile or motor coach. Even a modest conversion of that visitor segment to air travel would significantly exceed the modelled baseline.

Tourism uplift represents a latent market that traditional aviation-demand modelling cannot easily capture because it depends on route availability, fare competitiveness, and marketing alignment with destination promoters. Experience from comparable regional airports, such as Kelowna, Charlottetown, and Thunder Bay shows that once scheduled service is introduced, visitor traffic often grows two- to three-times faster than resident demand in the first decade of operation. Applying even a conservative adjustment of 10 to 15% of Niagara's annual visitor base to short-haul leisure markets would translate to several hundred thousand additional enplaning passengers, underscoring that the 2.1 million annual passengers should be interpreted as a floor rather than a ceiling.

The factors that limit the Airport's capacity today, such as short runways and a small terminal, represent a clear roadmap for enhanced capabilities moving forward. By

addressing these constraints through phased investment, the Airport can transform its challenges into strengths. For instance, extending the Airport's existing runway is not just a capital investment; it is a signal to airlines and the public that Niagara is serious about connectivity. In this way, the Master Plan reframes limitations as opportunities waiting to be unlocked.

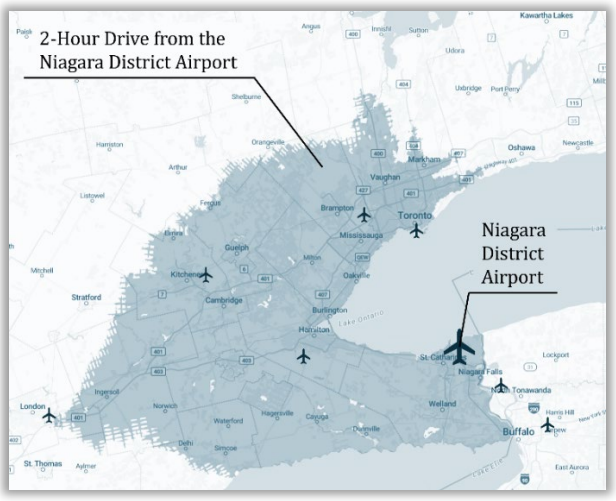


Figure ES-1 Proximity to Competing Commercial Airports

(Source: AVIA NG/DKMA Analysis)

The Airport Today

Today, the Airport sits on 362 acres of land in Niagara-on-the-Lake, surrounded by vineyards and beautiful countryside. Less than a 15-minute drive to the Niagara Falls tourism district, historical Niagara-on-the-Lake and the St. Catharines downtown core, the Airport is centrally located in the region and a short drive to all major destinations.

The Airport has three bi-directional runways – the longest at 5,000 ft. – a small air terminal building, multiple aprons, a NAV CANADA Flight Service Station, and basic support facilities. These facilities support general aviation activities such as flight training, helicopter tours, aircraft maintenance, sightseeing, and business travel. A handful of tenants, including the St. Catharines Flying Club, National Helicopters, and Allied Aviation, keep the Airport active and connected to the local community.

As constructed the Airport's constraints are clear. The terminal is small, there are no passenger screening facilities, there are no permanent customs facilities, and the runways are too short for many commercial aircraft. For the past two decades, activity has remained steady but modest, only recovering to pre-COVID-19 pandemic levels in 2025 (40,000+ aircraft movements).

In many ways, the Airport's current state reflects both its resilience and its challenges. The Airport has succeeded in maintaining a consistent role in private aviation, flight training, and aircraft maintenance despite limited infrastructure, proving its operational reliability, and strategic location. However, without investment, the Airport cannot attract and sustain commercial service needed to bring visitors, jobs, and better connectivity to the region.

Opportunities and Challenges

The Airport's strengths are compelling: a central location in Niagara, its proximity to the region's tourist attractions, and easy access to U.S. markets. Its surrounding lands allow for measured growth, and its governance model provides stability.

But there are weaknesses: short runways, limited terminal capacity, no passenger screening or customs, and outdated support facilities. The Airport is competing with strong neighbours – Hamilton, Buffalo, and Toronto Pearson – and faces the same threats as the aviation industry worldwide: climate change, extreme weather, and economic uncertainty.

With the right investments, the Airport has the potential to:

- Attract scheduled Canadian and U.S. flights.
- Serve as a reliever airport for Pearson, offering lower costs, and faster turnarounds for low-cost carriers.
- Expand landside commercial development.
- Become a hub for advanced mobility technologies, including electric and hybrid aircraft and vertiports for eVTOLs.

Source: BETA Technologies

The Airport's future depends on turning constraints into catalysts for growth. For example, the lack of customs and security screening, while a challenge today, provides a blank canvas for the design of modern, efficient facilities tailored to future passenger needs. Similarly, while competition from nearby airports is a consideration, Niagara's unparalleled tourism draw gives it a natural advantage that those airports cannot replicate. By addressing infrastructure gaps and leaning into Niagara's unique strengths, the Airport can redefine its position in the regional aviation landscape.

A Phased Roadmap for Growth

The Master Plan sets out a carefully staged development pathway that balances ambition with realism. Growth is organised into stages each tied to demand, funding, and operational capacity and phased over the short-, medium- and long-term planning horizons.

Enabling Program Stage (2025): Upon acceptance of the Airport Master Plan and prior to entering Stage 1, management will embark on an Enabling Program Stage (EPS) to prepare the Airport for transition to Stage 1 operations. Key program elements include:

- Funding Strategy – secure resources to support preliminary and detailed design studies.
- Air Service Development Strategy and Carrier Commitment – work with airlines to obtain expressions of interest that strengthen funding applications.
- Finalize Concept of Operations – confirm how initial passenger services will be delivered and supported.
- Design and Procurement Strategy – prepare for terminal expansion and related infrastructure works.

Stage 1 (2029): Stage 1 includes infrastructure improvement projects anticipated in the short- to medium-term, with the goal of preparing the Airport for scheduled commercial air service. Predicated on the successful completion of the EPS, the following construction projects would be undertaken:

- Short-term (0–5 years): essential investments. These include expanding the existing terminal and associated parking lot, upgrading aprons, building a new Combined Services Building (CSB) to house maintenance and firefighting making improvements to the airport's vehicle entrance, construction of new Runway End Safety Areas (RESA), servicing new commercial development areas, and acquiring strategic parcels of land.
- Medium-term (6-10 years): construction of new commercial development areas.

Stage 2 (2034): Involves additional infrastructure projects associated with improving the Airport's level-of-service. These projects are anticipated to occur over the medium- to long-term. Following a realization of initial growth and securing of adequate grant funding, the following would be initiated:

- Medium-term (6–10 years): transformational improvements. The main runway will be extended to 2,286 m (7,500 ft.) and widened, enabling narrow-body jets to operate without restrictions. A new passenger terminal will be constructed, complete with Canadian Air Transport Security Authority (CATSA) security screening and Canada Border Services Agency (CBSA) customs facilities. A parallel taxiway will be added, and the fuel farm will be expanded. Additional improvements will include a new approach lighting system, ILS and precision GNSS approaches, a new RESA for Runway 24, a new roundabout and road network improvements, and extended site servicing for continued facility development.
- Long-term (11+ years): sustained expansion and innovation. The terminal and aprons will continue to expand. Commercial development opportunities will be pursued on the airport's lands. Emerging technologies, such as electric regional aircraft, hybrid propulsion, and eVTOLs, will be integrated into operations.

In total, the capital program represents approximately $195 million in investment. Each stage builds on the last and delivers standalone benefits, ensuring that progress is visible and measurable. Even the earliest investments, such as apron improvements and terminal expansions will improve the passenger and tenant experience immediately, while laying the groundwork for larger projects to follow.

Recommended Development Plan

Figure ES-2 illustrates how the Airport's lands will evolve to support the vision. This plan is not just a layout; it's a strategic guide that includes the runway extension, new terminal, apron expansions, commercial zones and supporting infrastructure, and demonstrates how today's modest facilities can evolve into a regional gateway.

The plan reassures the Commission, municipal councils, and residents that growth will be orderly, efficient, and strategically guided.

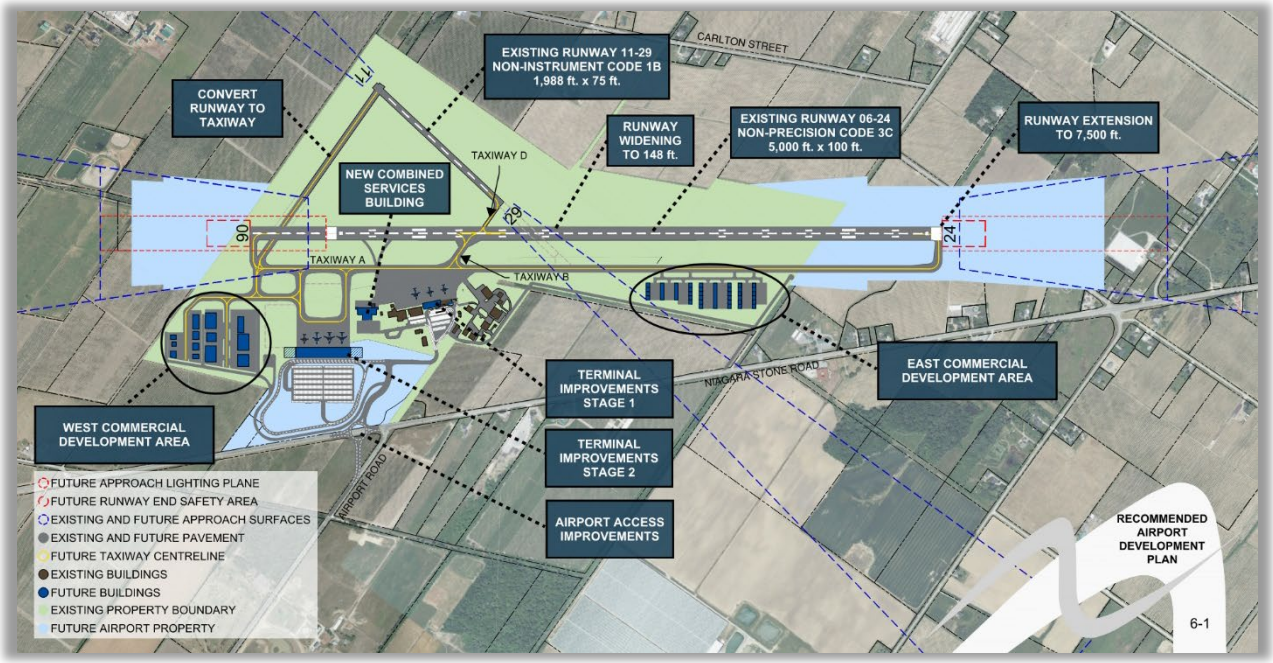


Figure ES-2 Recommended Land Use Development Plan

(Figure 6-1 from the 2025 – 2045 Airport Master Plan, Source: AVIA NG)

It represents a commitment to phasing projects in a way that balances ambition with economic stewardship. Each element shown on the plan has been sequenced to avoid overbuilding before demand materialises, while still reserving the land and corridors needed for long-term growth. This protects the Airport against piecemeal or reactive development, ensuring that every dollar invested contributes to a coherent vision.

The plan underscores that the Airport is more than its runways and terminal. By setting aside land for commercial and industrial development, integrating space for advanced mobility technologies, and improving surface access, the plan links aviation growth with broader economic development and widespread community benefits. It positions the Airport not only as a transportation hub but also as a catalyst for tourism, business investment, innovation and enhanced connectivity in the region.

The Economic Case

Airports are economic engines, and the numbers make a powerful case for investment.

In 2024, the Airport supported 119 jobs, $9.6 million in wages, $15.2 million in GDP, and $32.7 million in economic output.

Figure ES-3 Cumulative Economic Impact Upon Completion

By 2045, with an expected 574,000 annual passengers and over 51,000 flights annually, the Airport is projected to support 507 jobs, $40.3 million in wages, $69.3 million in GDP, and $157.6 million in output. The construction program itself will generate over 1,100 jobs and nearly $400 million in output, with almost 90% of those benefits staying in Ontario.

Figure ES-4 Economic Contribution in 2045

These economic impacts are particularly significant when considered against the broader context of Niagara's economy. Tourism, agriculture, and advanced manufacturing all rely on efficient connectivity to thrive. By enhancing the Airport's role, the region strengthens the competitiveness of these industries and creates new opportunities for local workers. The Airport becomes not just a beneficiary of Niagara's growth but an active enabler of it.

Safeguarding and Sustainability

The Master Plan recognizes that growth must be responsible. It recommends updating of Airport Zoning Regulations (AZRs) to protect airspace, modelling future noise impacts to guide compatible land use, and implementing a climate resilience plan.

Environmental stewardship is woven into the plan. Initiatives include sustainable aviation fuels, solar energy, electrification of airport vehicles, and green building design. Perhaps most exciting is the potential for a dedicated vertiport, making Niagara one of the first regions in Canada to embrace advanced air mobility.

From noise modelling to land-use planning, sustainability measures are designed to protect community quality of life while building resilience against climate risks. This proactive approach helps align the Airport with broader municipal and provincial sustainability objectives.

The Role of Effective Governance

The Airport is owned by the Town of Niagara-on-the-Lake, City of Niagara Falls, and City of St. Catharines, and is managed by a Commission with representation from the three municipalities. This governance model has served the Airport well, balancing local accountability with professional oversight. As larger infrastructure projects move forward, this model positions the Airport to access provincial and federal programs such as the Airports Capital Assistance Program (ACAP) and the National Trade Corridors Fund (NTCF), unlocking new opportunities and investments for the Niagara region.

Effective governance requires not only structure but proactive leadership. The Commission will need to continue championing the Airport, advocating with senior levels of government, engaging with airlines, and demonstrating to residents why investment is worthwhile. The Master Plan provides the roadmap, but governance will drive implementation.

Enabling Program Stage: A Bridge to the Future

A unique feature of this Master Plan is the concept of the EPS that builds upon what has already been started to further develop a concept of operations in the 2026–2028 period that balances near-term opportunities with longer-term infrastructure planning. This stage is an interim step designed to build momentum before full commercial service begins in 2029. The EPS would enable Dash 8 (Q400) turboprop operations with up to approximately 10,000 to 20,000 passengers (enplaned and deplaned) annually, focusing on charter and ad hoc traffic. It recognises limitations such as interim terminal needs, lack of CATSA screening, and parking shortages, but it offers a pragmatic way to test the market, attract airline interest, and demonstrate feasibility.

This stage is intended to generate early momentum while laying the groundwork for full commercial service commencing with Stage 1 in 2029, supported by an additional estimated $55 million capital investment and an initial forecast of up to 173,000 passengers. Longer-term development stages are forecast to grow activity toward 574,000 passengers by 2045 and 611,000 passengers by 2048.

Next Steps

To move forward, the Master Plan recommends the following actions:

1) Adopt the finalized Airport Master Plan with commission approval (2025), as part of the EPS preparatory work, including developing detailed concepts for interim facilities, ground access, and CATSA compliance, while prioritizing charter and ad hoc service in the 2026-2028 period.
2) Develop and resource a government funding strategy (provincial/federal), ensuring alignment with broader regional priorities (2025).
3) Engage with potential airline carrier partners to gauge interest in commercial service, supported by a defined marketing strategy and value proposition (2026).
4) Advance design development and impact assessments for Stage 1 expansion, in coordination with funding approvals (2026).
5) Position the Airport for long-term growth by maintaining competitiveness on airport charges, expanding value-added services, and integrating with regional tourism and business development strategies.

The success of the Master Plan will depend on turning recommendations into tangible actions. Early wins such as securing funding commitments, expanding terminal capacity, or striking agreements with service providers will be critical for driving progress. By focusing on visible, achievable steps in the near term, the Airport can build confidence among residents, partners, and governments.

A Gateway for the Next Generation

The Niagara District Airport 2025–2045 Master Plan is ultimately a story of possibility. It envisions a future where Niagara welcomes visitors directly by air, where residents have convenient travel options, where businesses have seamless connectivity, whether by air, transit or car, and where aviation innovation takes root. It shows industry leaders, municipal partners and residents that the Airport is more than a runway — it is a catalyst for jobs, growth, and connectivity.

The path forward is clear: careful stewardship, staged investment, and unwavering commitment. With these priorities in mind, the Airport can become a true gateway to the region, helping Niagara attract more visitors, support economic growth, expand connectivity for residents and generate opportunities of the next twenty years and beyond.

This Master Plan proposes not only infrastructure improvements, but also the potential for a lasting legacy. The investments made over the next two decades will shape how Niagara is experienced by residents, visitors, and businesses for generations. The Airport's transformation into a true regional gateway will stand as a symbol of Niagara's ability to think big, plan responsibly, and deliver results that benefit the entire community.

Introduction

1 INTRODUCTION

1.1 BACKGROUND

Niagara District Airport [the Airport] is a Transport Canada certified aerodrome, located in Niagara-on-the-Lake, Ontario on land owned by the Town of Niagara-on-the-Lake, and governed by the Niagara District Airport Commission [the Commission], which is comprised of representatives from the Town of Niagara-on-the-Lake, the City of St. Catharines and the City of Niagara Falls.

In 2024, the Commission released its 2023-2026 Strategic Plan, which established the need for a new Airport Master Plan. The Commission then embarked on the process of preparing an Airport Master Plan by retaining the services of Avia NG, an airport planning and engineering firm with local experience, to guide the Commission through the process as part of what would become known as the Niagara District Airport Redevelopment Project.

Over the years, the Airport has played a vital role in connecting the Niagara region to broader provincial and national networks, serving not only as an aviation hub but also as an economic driver for the surrounding communities. Responding to evolving transportation needs and regional growth, the Commission has continually assessed opportunities to expand services and enhance the Airport's status within the region.

The project has provided the Commission with answers related to the process of transitioning the Airport to a regional commercial airport and has directly led to the completion of the first Master Plan since 1992.

The preparation of this Airport Master Plan was made possible through the support and contributions of numerous partners and stakeholders. The Commission acknowledges the valuable input provided by the Airport Redevelopment Project (ARP) Committee, the City of St. Catharines, the City of Niagara Falls, the Town of Niagara-on-the-Lake, and other regional stakeholders. The Commission also recognizes the technical expertise of Avia NG and DKMA, whose analyses and studies informed many of the findings and recommendations contained in this document.

1.2 STRATEGIC VISION

This Airport Master Plan sets out a roadmap for the next 20 years to help the Niagara District Airport realize its 2023-2026 Strategic Plan and achieve its vision of becoming an indispensable aviation gateway, while supporting the mission and priorities established by the Commission. Part of this plan included setting the Vision, Mission and Values for the Airport for the foreseeable future.

1.2.1 VISION STATEMENT

A vision statement is an inspirational statement that communicates an organization's current and long-term objective. The current vision for the Airport, as set by the Commission, reads:

VISION

To become an indispensable aviation gateway.

1.2.2 Mission Statement

A mission statement defines the organization's purpose and primary objectives set in the present tense. The current mission statement for Niagara District Airport reads:

To provide an elevated airport experience for customers and community.

1.2.3 Values

Values are the principles that influence decision-making and guide actions within an organization. Coupled with the vision statement, values act as an organizational compass to provide a sense of purpose and direction for the team. The current value statement for the Niagara District Airport reads:

Safety. Efficiency. Integrity. Customer-Focused. Teamwork.

1.3 Planning Objectives

In development of a master plan, it is important to establish what the key objectives are as a master plan can take on various forms and place emphasis on different things. Accordingly, this Master Plan articulates a clear set of planning objectives that reflect the Commission's strategic goals and priorities, alongside specific aims, guiding principles, and foundational assumptions tailored to the plan's unique context.

1.3.1 Planning Goals

In addition to setting the Vision, Mission, and Values for the organization, the Commission identified two complementary planning goals to guide the Airport's development. Short-term goals **(Figure 1-1)** include finishing studies and the Airport Master Plan to identify development opportunities and that lends itself to the development of a business case for growth. Long-term goals (**Figure 1-2**) focus on securing partners and funding to implement airside development and attract both scheduled and charter passenger services.

Figure 1-1 Short-Term Planning Goal

(Source: Niagara District Airport)

Figure 1-2 Long-Term Planning Goal

(Source: Niagara District Airport)

1.3.2 Commission Priorities

In support of realizing these goals, the Commission has made clear its priorities, which focus on Advocacy, Alignment, Analytics and the Asset (**Figure 1-1**). In that regard the planning objectives set for the 2025 - 2045 Master Plan for the Airport have aimed to align with and exemplify these priorities.

Figure 1-3 Commission Priorities

(Source: Niagara District Airport)

1.3.3 Airport Master Plan Objectives

The principal purpose of an airport master plan is to establish a rational development concept for an airport that protects for long-term operational and business objectives while accommodating short-term improvements. Flexibility to accommodate potential unpredictability in demand for air services and commercial development is key. An airport master plan serves as a planning framework and management tool to assist airport management in making informed and strategic decisions about the need and timing for infrastructure improvements over the horizon of the master plan.

The airport master plan is not a regulatory document, but rather a long-term vision with the flexibility to respond to changes in industry trends, socio-economic conditions and regulatory requirements. As a guiding document, the airport owner is not bound to implement any of its recommendations. Rather, the implementation and phasing of recommendations will be assessed with respect to a number of criteria, including operational necessity, financial capability and cost/benefit.

The primary objectives of this Airport Master Plan include, but are not limited to, the following:

- Assess existing infrastructure and identify potential deficiencies.
- Review the Airport in context to changes in regulatory environment.
- Assess opportunities for commercial air service and prepare an activity forecast with growth scenarios.
- Prepare a comprehensive Airport Development Plan and Land Use Plan that reflects improvements to airside and landside infrastructure, terminal building and support facilities, and site services to support anticipated demand in a safe, efficient and cost-effective manner, and directs the Airport towards fulfilling its vision and mission while respecting its values.

1.3.4 Planning Principles and Assumptions

This Airport Master Plan was prepared in accordance with industry standards and best practices, including compliance with various regulatory standards and airport planning and design guidance. The following is a list of key resources referenced in the preparation of this Airport Master Plan:

- TP 312 Aerodrome Standards and Recommended Practices – 4th and 5th Edition
- TP 1247 Aviation - Land Use in the Vicinity of Aerodromes
- Canadian Aviation Regulations (CARs)
- ICAO Annex 14 Aerodromes Design and Operations
- IATA Airport Development Reference Manual 12th Edition
- Aircraft manufacturer's airport planning manuals
- Municipal zoning bylaws

1.4 The Master Planning Process

Development of the Niagara District Airport 2025 - 2045 Master Plan has followed the typical master planning process, as illustrated in **Figure 1-4**, which is supported by the International Civil Aviation Organization (ICAO) and the International Air Travel Association (IATA). This process, as typically described, includes seven steps, which, when undertaken sequentially, enable the development of a master plan.

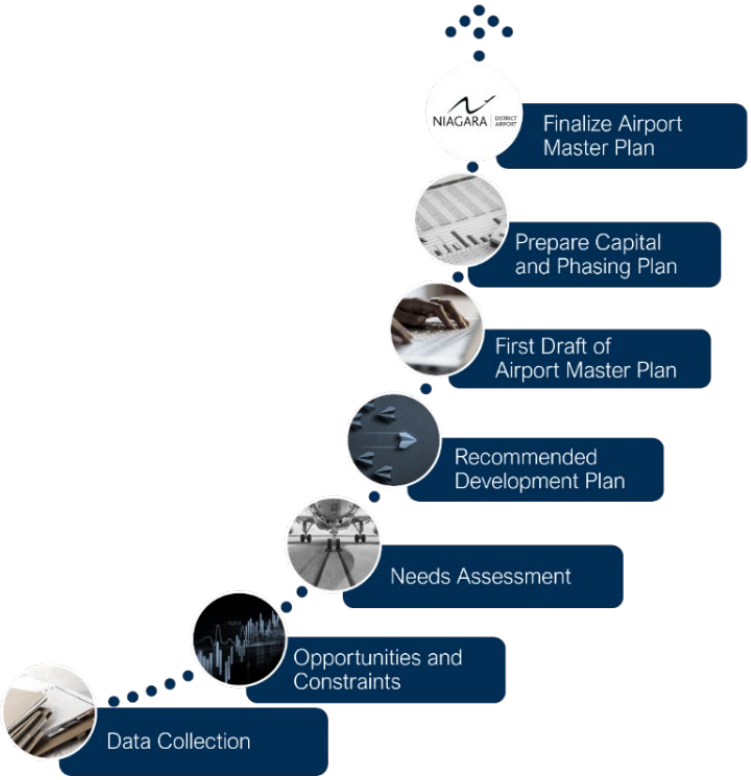


Figure 1-4 Airport Master Planning Process

(Source: Avia NG)

The first the step in the master planning process is **Data Collection**, which involves the evaluation and inventory of the airport – determining the existing conditions, reviewing available documentation, including past studies, statistics and other information that may be relevant to the master plan process.

Stakeholder and public consultations typically begin at this point to obtain as much information as possible about the airport to consider during master plan development.

Based on the data collected, the **Opportunities and Constraints** step is used to identify areas where future development at the airport could occur, as well as areas and conditions where development may be hindered or otherwise found to be more difficult.

An analysis of Strengths, Weaknesses, Opportunities, and Threats (SWOT) is completed to better understand the airport's position competitively within the region and its potential catchment area. Refer to Appendix C for the outcome of this analysis.

An aviation activity forecast is typically commissioned at this stage to generate anticipated future conditions upon which the master plan will be based.

The next step in the process is a **Needs Assessment**, which is used to identify the infrastructure, facilities, lands and other requirements to be met in order to accommodate the forecasted or anticipated growth opportunities for the airport over the planning horizon. In the case of Niagara District Airport, the planning horizon has been set as 20-years, covering the period 2025 to 2045.

Community and environmental impacts are also considered at this stage, and preliminary development options to accommodate future airport growth start to be illustrated and evaluated.

After the evaluation of airport development options, a recommended option is selected and refined to form the **Recommended Development Plan**, based on which the Recommended Land Use Plan is formed. As part of this step, considerations are given to ensuring flexibility to accommodate variations in demand and development course corrections. This helps to ensure that the airport develops in a way that is malleable and flexible enough to maximize the inclusion of future opportunities.

The next step in the process is to prepare the **First Draft of the Airport Master Plan**, a report and series of illustrations that bring all of the earlier steps together in one combined package. Following the endorsement of the first draft, a **20-year Capital and Phasing Plan** is prepared to guide development priority and typically includes estimated costs required to undertake such development.

Lastly, and following a suitable period for reviews, feedback and refinement, the final step in the master planning process is to **Finalize the Airport Master Plan** and issue as a completed report.

Depending on the size and complexity of the airport, as well as external influences, the master planning process can take between one and two years to complete. In the case of Niagara District Airport, the process was started in July of 2024 and was approved by the Commission on October 15, 2025.

1.5 Public and Stakeholder Consultation

1.5.1 Stakeholder Engagement

Airport stakeholders were consulted as part of the master planning process. These consultations were undertaken through a series of interviews and questionnaires administered either directly by Avia NG's team or indirectly through Airport Management and the Commission. Inputs obtained from these consultations have helped inform the direction and content of the Master Plan. Key stakeholders consulted during the master planning process included:

- Airport Management
- Allied Aviation
- CASARA (Civil Air Search and Rescue Association)
- Casino Niagara
- City of St. Catharines
- City of Niagara Falls
- Eagle Rock Aviation
- Genaire Ltd.
- Greater Niagara Chamber of Commerce
- Konon Holdings
- National Helicopters
- NAV CANADA
- Niagara Falls Air Tours
- Niagara Falls Convention Centre
- Niagara Falls Hotel Association
- Niagara-on-the-Lake Chamber of Commerce
- Niagara Parks
- Niagara Region
- Niagara Tourism
- St. Catharines Flying Club
- Tourism Partnership of Niagara
- Town of Niagara-on-the-Lake and
- Wine Industry

In addition, a number of other stakeholders were offered opportunities to provide input with interviews arranged through Airport Management.

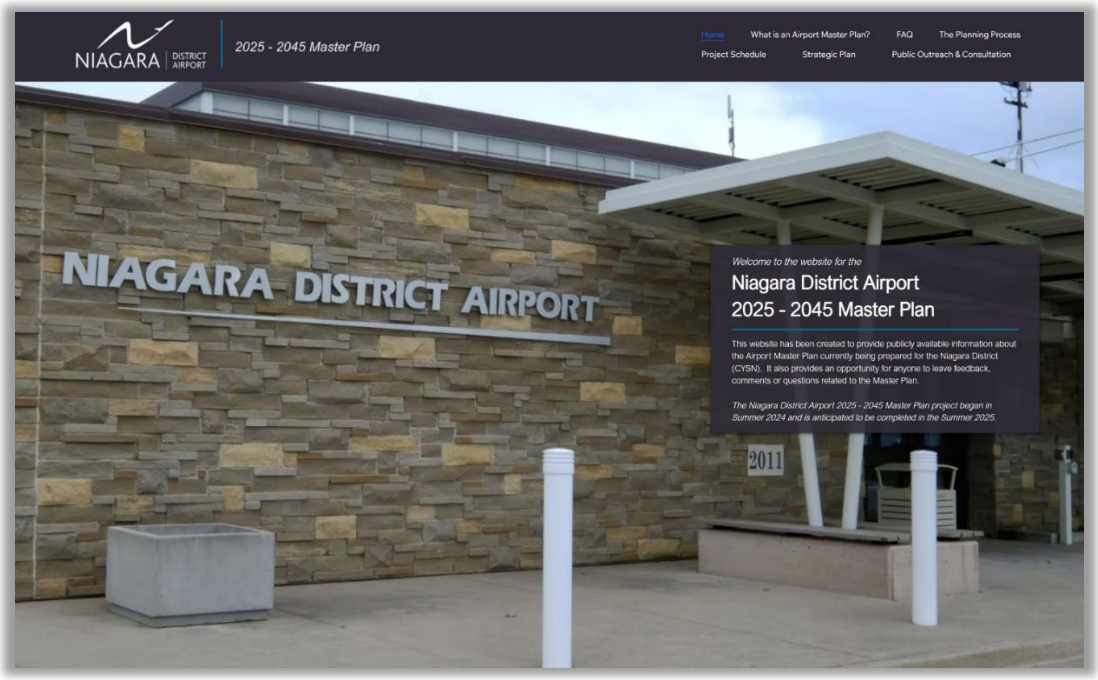
1.5.2 Public Information Sessions

An important component to a robust master planning process is to engage with airport users. In the case of Niagara District Airport, engagement extended to include the public.

The public was invited to attend two Public Information Sessions held at the Airport on May 7, 2025. The first, from 3:00 p.m. to 5:00 p.m., with the second from 6:00 p.m. to 8:00 p.m. in order to provide flexibility for in-person attendance. Presentation boards were displayed throughout the Airport Terminal Building (ATB) for public viewing, while members of Avia NG's team, Airport Management and various Commissioners were available to answer questions. Turnout for the event was in line with expectations, with public attendance estimated at between 60 to 70 people. The Commission intends to present the completed Master Plan at an additional public information session scheduled as part of the broader Fall 2025 outreach initiative.

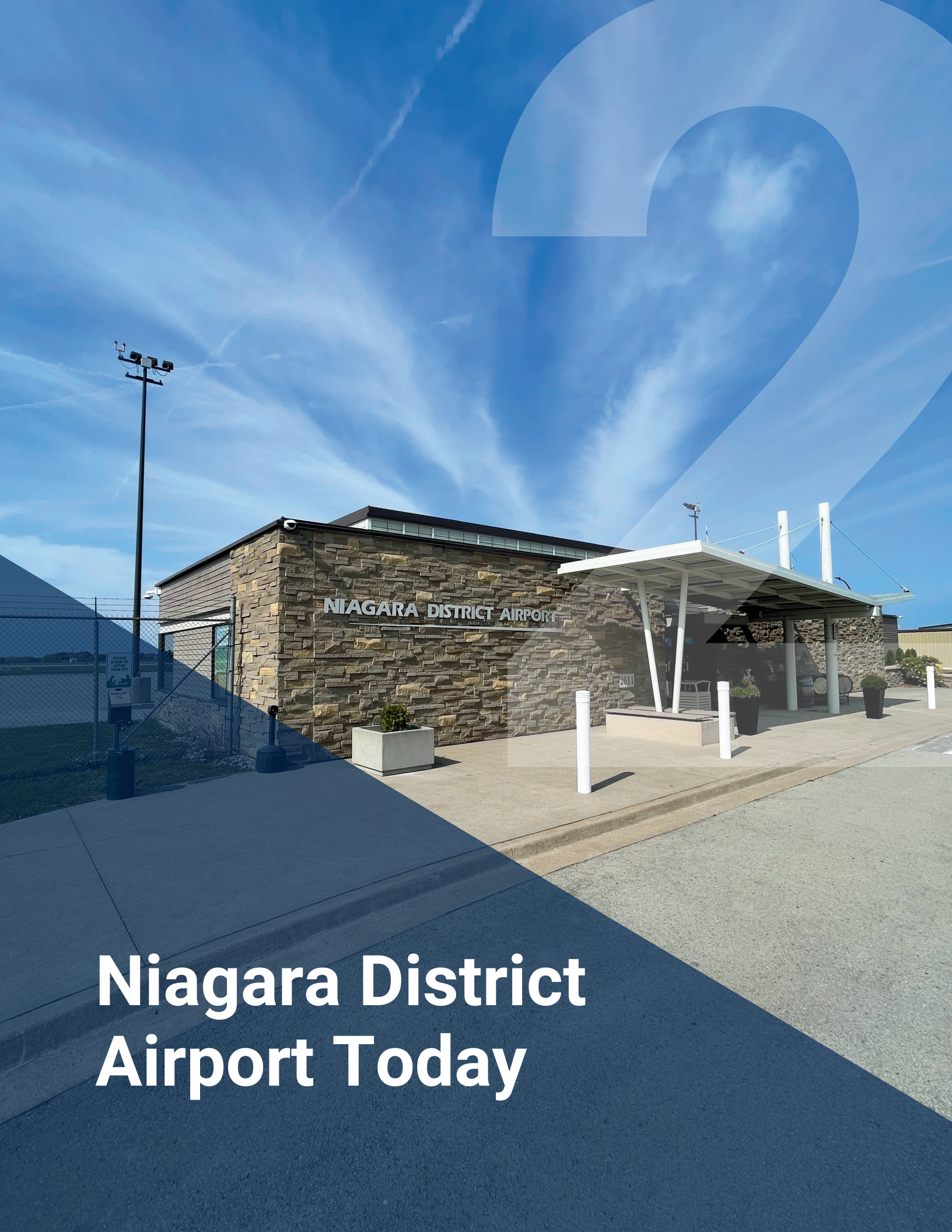
1.5.3 Project Website

A project specific website [1] was created to provide information about the Airport Master Plan and provide the public with an opportunity to provide feedback, comments or questions related to the Master Plan. The website described what an Airport Master Plan is, provided responses to frequently asked questions, and explained the master planning process. It also listed the project schedule and status, shared the Niagara District Airport Strategic Plan 2023-2026, described public outreach and consultation, and provided a comment form for public feedback.



Niagara District Airport 2025 - 2045 Master Plan Website

[1] https://www.niagaradistrictairportmasterplan2025-2045.ca/



Niagara District Airport Today

2 NIAGARA DISTRICT AIRPORT TODAY

2.1 AIRPORT SETTING

Niagara District Airport is a key general aviation hub in Niagara's renowned wine region, centrally situated in the heart of Niagara.

As illustrated in **Figure 2-1**, the Airport is located approximately 3.5 km north of the Queen Elizabeth Highway (QEW) and one kilometre east of the Welland Canal. The Airport is accessed by vehicle from Niagara Stone Road and Airport Road.

The Airport occupies approximately 146 hectares (362 acres) of relatively flat land, and is surrounded by agricultural lands, comprised mostly of vineyards and designated as 'Protected Countryside' under the provincial Greenbelt Plan.

The Airport is in proximity to a number of significant Ontario tourist attractions, including Niagara Falls, the historic town of Niagara-on-the-Lake, scenic beaches and lookouts along Lake Ontario, the Niagara Escarpment, and Southern Ontario's premier wine country.

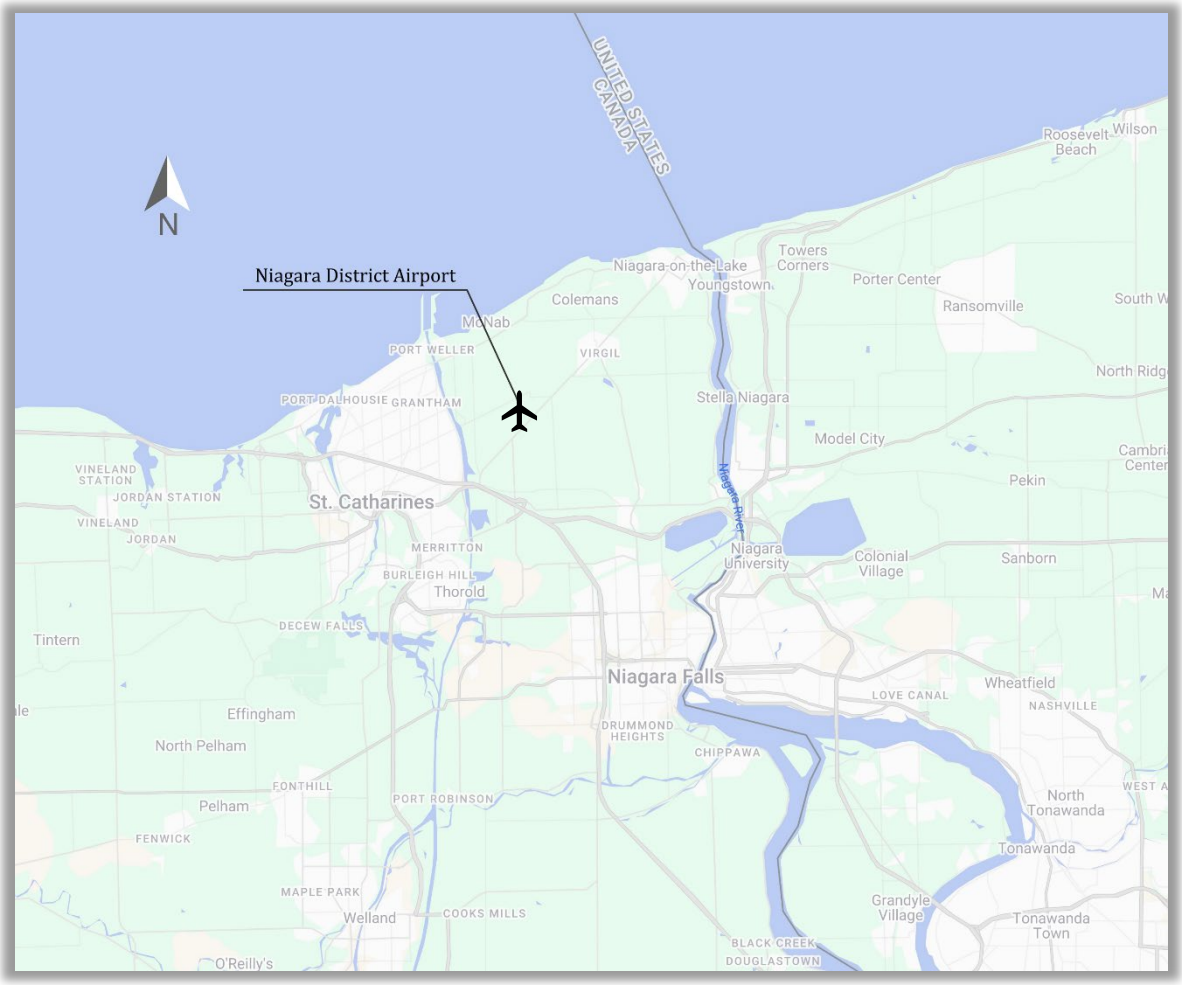


Figure 2-1 Airport Setting

(Source: Google My Maps)

2.2 Regional Context

The Regional Municipality of Niagara is located on a broad peninsula of land separating Lake Ontario from Lake Erie. Its eastern edge is defined by the Niagara River and the Canada–United States border, with the state of New York lying just beyond.

The Niagara region is comprised of twelve municipalities and has a population of approximately 540,000 as of 2024, with the largest population centres being St. Catharines, Niagara Falls, and Welland. St. Catharines, located less than two km from the Airport, has a population of approximately 145,000.[2]

Major employment sectors include accommodation, food and beverage, retail trade, health care, manufacturing, and construction. The region is well known for its wine and fruit production, with numerous wineries and fruit farms supporting tourism through wine tours, fine dining, and farmers' markets.

The area is one of the largest tourism regions in Canada, and the largest tourism destination in Ontario, with a variety of natural features, including the Niagara Falls, cultural/historical heritage sites, the vineyards and agriculture. The region welcomed nearly 13 million visitors in 2017, generating approximately $2.4 billion in tourism expenditures[3]. Visitors from the United States accounted for 3.2 million visits, while overseas visitors accounted for 1.1 million. It is important to note that more recent statistics are available; however, the region is still recovering from the COVID-19 pandemic and has not reached the 2017 volume. In 2018, tourism alone accounted for about 40,000 jobs in the region.

The QEW highway, which runs through the region just south of the Airport, is a vital transportation corridor supporting trade, tourism, and daily commuting for a significant portion of the population.

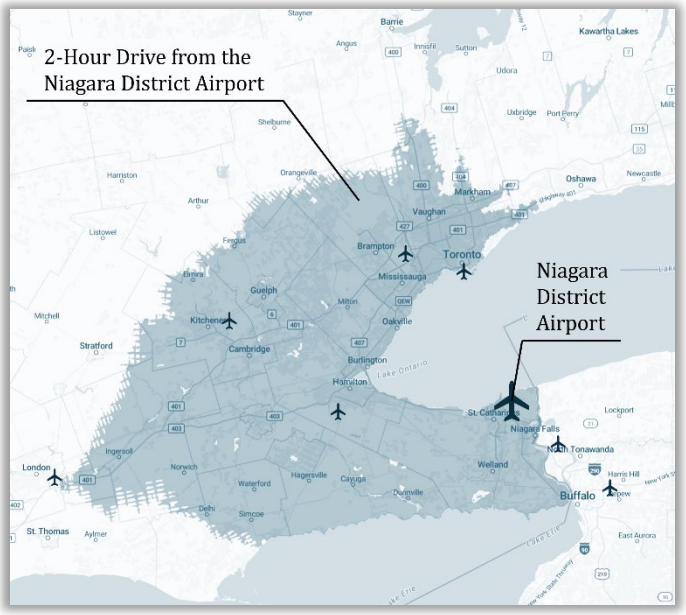


Figure 2-2 Regional Map

(Source: AVIA NG)

Over 12 million passenger vehicles and two million commercial vehicles cross the Canada-United States border through Niagara Falls and Fort Erie every year. The highway supports the carriage of one-third of the goods imported and exported between the two countries.

The QEW provides the Airport with a strong connection to the broader region and exposure to cross-boarder traffic.

As shown in **Figure 2-2**, several airports within a two-hour drive of Niagara District Airport form part of the broader regional network with which it competes. Notable airports include:

- **Hamilton International Airport (CYHM):** Located in Mount Hope, Ontario, Hamilton International Airport is one of Canada's major air cargo airports and supports significant passenger activity from leisure air carriers and ultra low-cost carriers (ULCC), including WestJet, Sunwing, Porter and Air Transat. In 2024, CYHM accommodated nearly 325,000 annual passengers and 755 million kg of air cargo[4]. CYHM has two runways, the longest of which is 3,048 m (10,000 ft.) with a

[2] City of St. Catharines, "Demographics," 2023. https://www.stcatharines.ca/en/business-and-economic-development/demographics.aspx

[3] Niagara Region, "Niagara Tourism Profile," 2019. https://niagaracanada.com/wp-content/uploads/sites/7/2019/11/Niagara-Tourism-Profile_FINAL.pdf

[4] John C. Munro Hamilton International Airport, "2024 Year in Review," 2025. https://flyhamilton.ca/wp-content/uploads/2025/04/Hamilton-International-2024-Year-in-Review-Web.pdf

Category II Instrument Landing System offering pilots a level of service comparable to Toronto Pearson International Airport (CYYZ).

- **Niagara Falls International Airport (KIAG):** Located immediately across the Canada-United States border in Niagara Falls, New York, the Niagara Falls International Airport caters to American ULCCs including Spirit Airlines and Allegiant, with most flights serving southern US destinations. KIAG is a joint civil-military airfield, and shares its runways with the Air Force reserve command's Air Refueling Wing. Although passenger traffic is significantly down following the COVID-19 pandemic, in the past KIAG served over 200,000 passengers annually, of which, 80% are believed to have originated from Canada. KIAG has three runways, the longest one having a length of 2,995 m (9,825 ft.) with a Category I Instrument Landing System.
- **Buffalo International Airport (KBUF):** Buffalo International Airport is the primary airport in Upstate New York, serving approximately five million annual passengers, of which 47% are estimated to originate in Canada. KBUF is served by many US legacy air carriers including American, United and Delta Airlines, as well as low-cost carriers (LCCs) such as Southwest Airlines and JetBlue. KBUF offers flights to major urban centers in the Eastern and Midwest US, as well as sun destinations in the US, and seasonally to Mexico. KBUF has two runways, the longest being 2,682 m (8,800 ft.) with a Category I Instrument Landing System.
- **Niagara Central Dorothy Rungeling Airport (CNQ3):** Located in the Town of Pelham, Ontario, Niagara Central Dorothy Rungeling Airport caters to General Aviation (GA) sport and recreational flying, with several based private aircraft. CNQ3 is provided with two paved runways, the longest of which is 1,065 m (3,493 ft.) and lighted, and one turf runway.
- **Grimsby Airport (CNZ8):** Located in the Town of Grimsby, Ontario, Grimsby Airport has a single 877 m (2,878 ft.) paved runway. The GA airport is primarily for recreational use and serves as a base for a number of single-engine aircraft.
- **Stoney Creek Airport (CPF6):** Located in Stoney Creek, Ontario, the Stoney Creek Airport is used for recreational purposes as well as a base for a helicopter maintenance facility. CPF6 is privately operated, and prior permission is required in order to use the airport. CPF6 has a 867 m (2,846 ft.) paved runway and a shorter turf runway.

The proximity of airports such as Hamilton International, Niagara Falls International, and Buffalo International pose challenges for Niagara District Airport to develop a significant level of scheduled passenger activity in the future. These challenges, further discussed in Chapter 4, will place pressure on the Commission to ensure that the Airport is equipped to compete.

These three airports have established commercial air service catering to the travel needs of those living in the Niagara region catchment area and have existing terminal and airside infrastructure to support large passenger aircraft.

If Niagara District Airport is positioned to offer comparable or superior service, the success of nearby airports serves as clear evidence, independent of any formal study, of the regional demand for commercial air service.

Regional airports such as Niagara District Airport also provide advantages over larger hub airports. They can attract low-cost carriers seeking lower operating costs and faster turnaround times, while offering passengers a smoother and less congested travel experience. Proximity to Toronto Pearson Airport further strengthens this value proposition, as Niagara can relieve pressure on the hub while still providing convenient access to major domestic and international networks. For travellers, this translates into cost savings, reduced delays, and a more efficient and accessible gateway to the region.

2.3 Airport History

In September 1929, the original airport began operations on the eastern edge of St. Catharines, near the Welland Canal and what was then known as Kings Highway 8. Home to the St. Catharines Flying Club, the Airport was subsequently relocated three miles northeast in 1935 to its present location.

With the outbreak of World War II, the Airport was deeded to the federal government and under the soon-to-be-formed British Commonwealth Air Training Plan (BCATP), with the Number 9 Elementary Flight Training School being established in the fall of 1940. During this time the three-runway triangular configuration, typical of BCATP airfields, was constructed.

Operating with De Havilland Tiger Moths, approximately 1,848 pilots graduated under this plan, which was subsequently terminated on January 15, 1944. The Airport then became the home to Number 4 Wireless Training Unit

of the Royal Canadian Air Force, operating in this capacity until August 15, 1945.

Following the war, the City of St. Catharines regained possession of the Airport land under a long-term lease from the federal government for $1 per year.

Aerial View of the Airport during World War I

(Source: Niagara District Airport)

The Niagara District Airport Commission was established in 1959, comprising representatives from four financially supporting municipalities, with a mandate to oversee the Airport's maintenance and operations. In 1996, ownership of the airport lands was transferred from the federal government to the Town of Niagara-on-the-Lake. In 2006, a new Municipal Operating Agreement maintained management responsibilities with the Niagara District Airport Commission, acting as a Municipal Services Board, consisting of members from St. Catharines, Niagara Falls and Niagara-on-the-Lake. They serve four-year terms, and are tasked with setting strategic direction, overseeing operating policies and budgets, and appointing management of the facility.

Currently, Niagara District Airport is owned by three municipalities: Niagara-on-the-Lake, City of Niagara Falls and City of St. Catharines, and is managed by a Commission with representation from each municipality.

The Airport is a true GA facility, supporting activities from sport flying and flight training to business aviation, charters, air taxis, and sightseeing. While it has previously offered scheduled commercial service – most recently with FlyGTA – the airport aims to establish such services in the future alongside its diverse aviation operations.

2.3.1 Existing Tenants

Seven privately held companies are either based at the Airport or currently rent facilities. Key tenants identified by the Airport for consultation included the following:

- **St. Catharines Flying Club:** The oldest flying club in Canada, the St. Catharines Flying Club (SCFC) operates six aircraft (two Cessna 172Ms and four Piper Warrior IIs [5]), all based at the Airport at any one time. Approximately 75% of the Airport's local movements are accounted for by the SCFC. At any given time, they have about two dozen active students working towards a license, all of whom are typically from the Niagara region. SCFC produces approximately 30 commercial and private pilot graduates annually.
- **Genaire Limited:** Genaire is a local family-owned business, founded in 1951, and has been a tenant of the Airport for decades. Although the operations are off-site, the business provides manufacturing, repair and overhaul of aerospace equipment for governments, private corporations and aircraft operators, including Ontario-based employers such as L3Harris, ORNGE, and CargoJet, among many others. The business serves a niche market by focusing on repairing aircraft fuel cells. While aviation focused, most of the airport activity generated by the business occurs landside from the shipping and receiving of parts.
- **Allied Aviation Services, Inc.:** Allied Aviation is the only fixed base operator (FBO) and fuel service provider at the Airport. Allied Aviation Services, Inc., and its subsidiaries and affiliated companies, is one of the largest fuel service providers to the global aviation industry. Allied Aviation operates out of a 1,250 m^2 hangar and offers heated aircraft storage, a customer and pilots lounge, pick-up and drop-off services, and a loaner vehicle. In addition to providing aircraft fueling services, Allied Aviation also provides space for an

[5] St. Catharines Flying Club, "Our Instructors and Fleet," n.d. https://stcatharinesflyingclub.com/about/instructors-and-fleet/

Aircraft Maintenance Engineer (AME). Deicing services are currently not available. Historically, eight to nine aircraft have been based at this facility, of which the majority are turbine powered. Most of the itinerant traffic serviced by Allied Aviation originates from the United States and is believed to be tourism related.

- **National Helicopters:** National Helicopters leases space within the Airport's ATB and offers helicopter charter and sightseeing flights. National Helicopters operates two Bell Long Ranger helicopters with up to six passengers. Its aircraft, when not in use, are stored at Allied Aviation's hangar. Their activity is highly seasonal, with about 80% of their business occurring between Victoria Day and Labour Day. Off-season activity is only on weekends. Their loads are typically in the two–six passenger range. National Helicopters historically flies about 4,000–5,000 passengers per year.
- **Eagle Rock Aviation:** Eagle Rock Aviation is an aircraft maintenance repair and overhaul (MRO) service provider that has been based at the Airport for over 25 years. The business caters to a mix of commercial and private aircraft owners. Synergies with other aircraft manufacturing companies has helped to contribute to Eagle Rock's success.
- **CARES Niagara:** CARES Niagara is a member of the Civil Air Search and Rescue Association (CASARA), providing volunteer air and ground search and rescue services, primarily in Southern Ontario. CARES Niagara's base, located at the Airport, includes administrative offices, classrooms, and equipment storage. CARES Niagara currently does not currently base an aircraft at the Airport.

2.4 Activity

Historically, aviation activity at the Airport has revolved around GA in various forms, including sport and recreational activities, flight training, sightseeing, business and tourism, and to varying degrees air taxi and scheduled commercial activities. Currently, the Airport has no scheduled commercial operations and recorded 32,501 aircraft movements in 2024. The following provides a summary of this activity.

2.4.1 Aircraft Movements

Historical aircraft movement data is published by Statistics Canada, drawing on records from NAV CANADA's Flight Service Station (FSS). Overall, aircraft movements at the Airport have generally followed national trends, experiencing a gradual decline through the 2000s, modest growth prior to the COVID-19 pandemic, and a sharp downturn during the pandemic period. Activity has since rebounded, with movements expected to return to historic growth patterns by 2025. Two main factors explain this trend: First, local traffic has remained relatively stable over the past two decades (19,570 movements in 2000 compared with 18,025 in 2024), but itinerant flights have dropped significantly, averaging a 3.2% annual decline. As a result, itinerant flights accounted for more than 60% of all activity in 2000, but by 2024 represented less than half of airport traffic.

Second, the Airport, like many others across Canada and around the world, has not fully recovered from the COVID-19 pandemic. In 2019, the Airport recorded 44,626 movements; by 2024, activity had fallen 27% to 32,501. The pandemic was compounded by the loss of FlyGTA, which had previously operated about 2,000 commercial passenger flights annually (primarily with a Piper PA-31 Navajo (Chieftain) aircraft) to destinations in Ontario, most notably Toronto–Billy Bishop Airport. Although this service was valued by the local business community, it was ultimately discontinued due to the impact and limitations on air traffic during the COVID-19 pandemic. Traffic levels for the past twenty years have been shown in **Figure 2-3**.

Looking at longer-term patterns, traffic remained flat or declining until 2014, when itinerant activity began to climb again. By 2019, itinerant movements had reached 22,351, which was higher than the pandemic years but still well below the 2001 peak of 30,966. Local activity, driven largely by flight training, peaked in 2019 at 22,275 movements, the highest level recorded in the past two decades. Like many sectors, aviation was heavily impacted by the COVID-19 pandemic. The Airport saw steep declines in both local and itinerant movements in 2020 and 2021. Since then, activity has started to rebound, and the 2025 movements are trending to reach pre-COVID-19 pandemic levels. It was observed that the gradual increases are recorded in both categories.

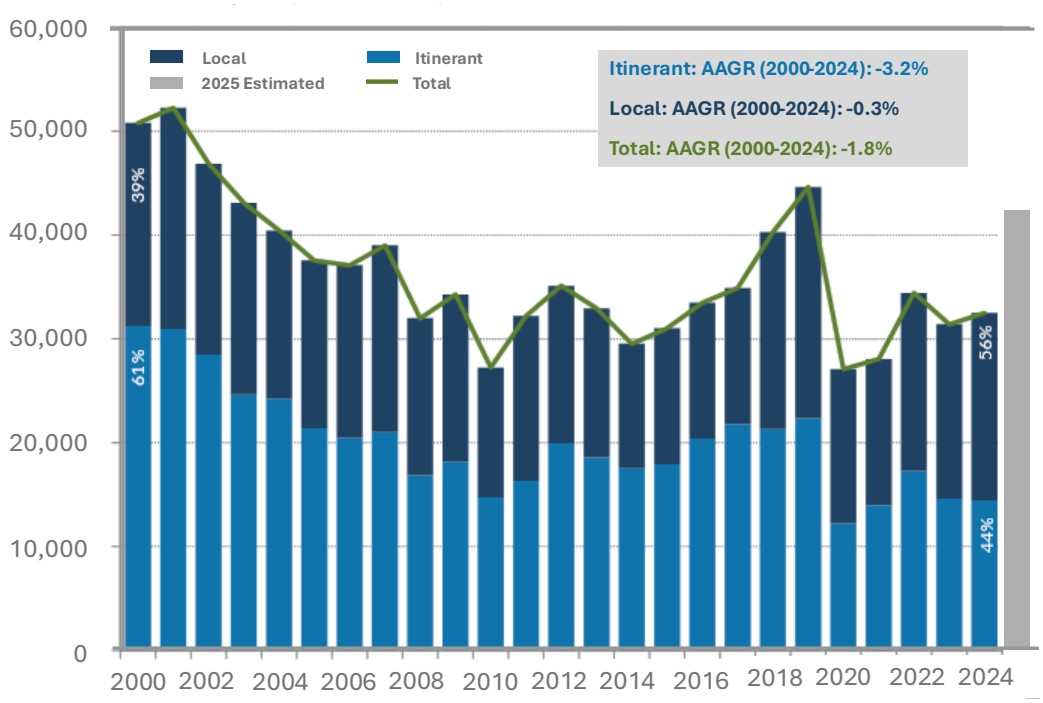


Figure 2-3 Historic Aircraft Movements

(Source: Statistics Canada; 2025 data is based on January to September actual movements and estimated 10% growth for October to December.)

2.4.2 Passenger Activity

Passenger activity at the Airport primarily consists of limited scheduled air service, charter operations, and sightseeing flights. FlyGTA operated scheduled passenger flights to Billy Bishop Toronto City Airport starting in 2017, carrying around 3,600 arriving and departing passengers that year. This number increased to approximately 5,500 passengers by 2019 before operations ended in 2020 due to the COVID-19 pandemic.

In addition to scheduled services, between 8,000 to 10,000 passengers annually take sightseeing flights commencing and concluding at the Airport, which are generally provided by National Helicopters and Niagara Air Tours.

2.4.3 Air Cargo Activity

Air cargo at the Airport has only occurred occasionally, mostly for small couriers or urgent parts deliveries for local manufacturers. No official cargo activity, based on landed weight, has been recorded at the airport.

2.5 Airport Infrastructure, Facilities and Commercial Development

The Airport owes much of its current status to the infrastructure that has been developed and maintained over time. The Airport, its infrastructure, facilities and commercial developments, can be broken down into a number of major elements, including airside, landside, the terminal area, and commercial development areas. **Figure 2-4** below and in **Appendix B** illustrate the existing layout of the Airport.

2.5.1 Airside

The Airport's airside infrastructure is comprised of three paved asphalt runways, four taxiways, a main apron, and multiple smaller private-use apron areas and taxilanes associated with tenants. The following provides an inventory of existing airside infrastructure. Conditions, where reported, have been based on previously completed conditions assessments in 2019 and 2024. Actual conditions may vary as a result of the time that has elapsed.

Figure 2-4 Existing Conditions Plan

(Source: AVIA NG)

2.5.1.1 Runways

The Airport has three runways, described as follows with technical characteristics presented in **Table 2-1**.

The Airport has three bi-directional runways – Runway 06-24, Runway 11-29 and Runway 01-19 – four taxiways and two aprons. According to the Airport Operations Manual (AOM) and recently completed conditions assessments, these runways have the following characteristics:

- **Runway 06-24**, the primary runway, has a length of 1,523.90 m (5,000 ft.) and width of 30.5 m (100 ft.). Both ends of the runway have a reference code of 3C and non-precision level of service. A pavement load rating of (PLR) of 8.0 has been declared for the runway allowing it to accommodate frequent use by small to medium sized business jets. The runway is provided with medium intensity edge lights, threshold/runway end lights, precision approach path indicator (PAPI) lights, and omni-directional approach lighting systems (ODALS). The pavement and lighting systems were rehabilitated in 2010 and is considered to be in fair condition with a remaining service life of approximately six to 10 years.

Table 2-1 Runway Characteristics

(Source: AOM, Amendment 9)

Characteristics	06	24	11 *NOTAM: Closed*	29 *NOTAM: Closed*	01	19
AGN/Runway Code	IIIA/3C NP		I/1B NI		I/1B NI	
Dimensions	1523.90 m x 30.5 m		606.08 m x 23 m		761.29 m x 23 m	
Surface	Asphalt		Asphalt		Asphalt	
Pavement Load Rating	8.3	8.3	6.0	6.0	6.2	6.2
Displaced Threshold	N/A	N/A	N/A	N/A	N/A	*NOTAM: 523 ft.*
Runway End Safety Areas	91.5 m x 152.0 m	N/A	N/A	N/A	N/A	N/A
TORA	5,000 ft.	5,000 ft.	1,988 ft.	1,988 ft.	2,498 ft.	2,498 ft.
TODA	5,984 ft.	5,200 ft.	2,972 ft.	2,288 ft.	2,798 ft.	3,348 ft.
ASDA	5,000 ft.	5,000 ft.	1,988 ft.	1,988 ft.	2,498 ft.	2,498 ft.
LDA	5,000 ft.	5,000 ft.	1,988 ft.	1,988 ft.	2,498 ft.	2,498 ft.
Minima	840 ft. ASL (519 ft. AGL) 1.5 sm visibility	840 ft. ASL (519 ft. AGL) 1.5 sm visibility	VFR - ½ sm	VFR - ½ sm	VFR - ½ sm	VFR - ½ sm

TORA: Take-off Run Available
TODA: Take-off Distance Available
ASDA: Accelerate-Stop Distance Available
LDA: Landing Distance Available

- **Runway 01-19**, a secondary runway, has a length of 761.29 m (2,498 ft.) and width of 23.0 m (75 ft.). Both ends of the runway have a reference code of 1B and non-instrument level of service. The runway has no lighting and is therefore used only during daylight hours and under visual flight rules (VFR) conditions. The runway has a declared pavement load rating (PLR) of 6. The runway pavement is in poor condition and in need of rehabilitation.
- **Runway 11-29**, another secondary runway, has a length of 606.08 m (1,988 ft.) and width of 23.0 m (75 ft.). Both ends of the runway have a reference code of 1B and non-instrument level of service. The runway has no lighting and therefore used only during daylight hours and under visual flight rules (VFR) conditions. The runway has a declared pavement load rating (PLR) of 6. The runway pavement is in poor condition and in need of immediate rehabilitation. For that reason, the runway was closed in 2020.

Figure 2-5 presents the latest aerodrome chart for the Airport from the NAV CANADA - Canada Air Pilot (CAP), current to the June 12, 2025, issue.

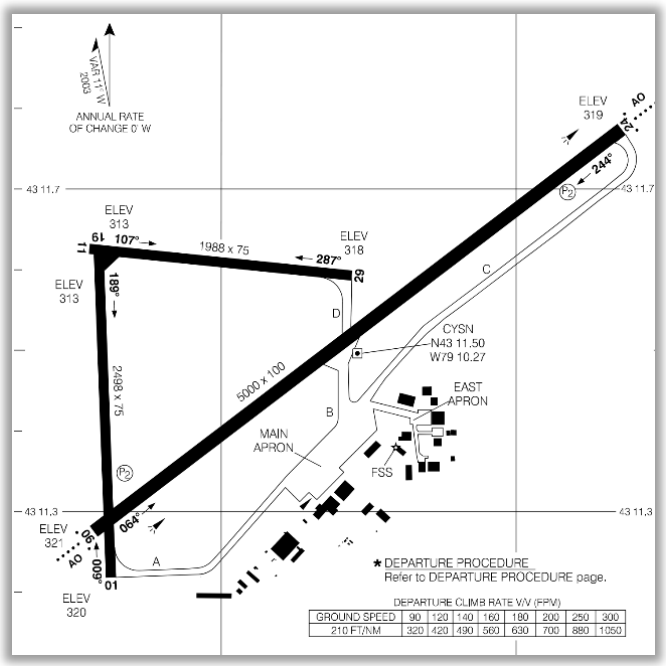


Figure 2-5 Aerodrome Chart

(Source: NAV CANADA - Canada Air Pilot 7)

2.5.1.2 Taxiways

The Airport is provided with four primary asphalt paved taxiways that support aircraft to and from the runways and main apron. All the taxiways are 15 m (49 ft.) in width and have medium intensity edge lighting. The taxiways have a declared pavement load rating of between 7.5 and 8 and can accommodate AGN IIIA aircraft. With the exception of Taxiway Delta, the pavements are in fair condition with a remaining service life of approximately six to 10 years. Taxiway Delta is in poor condition and in need of rehabilitation prior to re-opening. Taxiway characteristics are presented in **Table 2-2**.

In addition to the primary taxiways, there are a number of smaller taxiways or taxilanes that provide access to private hangars and smaller apron areas or ramps. These are in various conditions and have not been recently assessed.

2.5.1.3 Aprons

Airside apron infrastructure includes two primary aprons and a number of smaller private use aprons or ramp areas that support private GA.

The main apron, located in front and northwest of the Air Terminal Building (ATB), is approximately 25,000 m² (280,000 sq. ft.) in area. The apron is provided with edge lighting and flood lights. The apron is used by both fixed wing and rotary wing aircraft, although no designated final approach and take-off area is identified. In 2023, the pavement classification rating is 8.3. The pavement is in generally fair condition with a remaining service life of approximately six to 10 years. However, some areas of ponding have been observed which may shorten the service life if not addressed. Apron characteristics are described in **Table 2-3**.

Table 2-2 Taxiway Characteristics

(Source: AOM Amendment 9)

Characteristics	Alpha	Bravo	Charlie	Delta *NOTAM: Closed*
AGN/Taxiway Code	IIIA /C	IIIA/C	IIIA/C	I/C
Width	15.0 m	15.0 m	15.0 m	15.0 m
Surface	Asphalt	Asphalt	Asphalt	Asphalt
Edge Lights	Yes Medium Intensity	Yes Medium Intensity	Yes Medium Intensity	Yes Medium Intensity

Table 2-3 Apron Characteristics

(Source: AOM, Amendment 9)

Characteristics	Main Apron	East Apron
Dimensions	283 m x 91 m	24 m x 24 m
Surface	Asphalt	Asphalt
Edge lights	Yes	No
Flood Lights	Yes	No

The east apron, used by a number of private GA tenants, is approximately 576 m^2 (6,400 sq. ft.) in area. The apron has no edge lighting or flood lighting besides what is provided as exterior lighting on the hangars. The pavement is in generally fair to poor condition.

2.5.1.4 Radio Navigational Aids

No navigational aids are located directly on the Airport. Non-precision instrument approaches to Runway 06-24 are accommodated through satellite-based GPS technologies providing Localizer Performance with Vertical Guidance (LPV) procedures and Lateral Navigation only (LNAV) procedures.

Located in the infield, electronic equipment includes a weather station, VHF receiver and direction finding (DF) equipment.

2.5.1.5 Instrument Flight Procedures

While not considered physical infrastructure, the Airport currently has six instrument arrival procedure options available for aircraft arriving at the Airport under IFR. Key characteristics for CYSN-IAP-3A and CYSN-IAP-3B are summarized in **Table 2-4**.

The Canada Air Pilot IAP charts for both Runways 06 and 24 are show in **Figure 2-6** and **Figure 2-7.**

Table 2-4: Existing Instrument Flight Procedures

(Source: NAV CANADA – Canada Air Pilot 7)

Instrument Flight Procedure	Decision Altitude (ft.)	Decision Height (ft.)	Advisory Visibility (SM)
RNAV (GNSS) RWY 06 (CYSN-IAP-3A)			
LPV	571	250	1
LNAV/VNAV	816	495	1 ¾
LNAV	780	459	1 ½
RNAV (GNSS) RWY 24 (CYSN-IAP-3B)			
LPV	569	250	1
LNAV/VNAV	569	250	1
LNAV	680	361	1 ¼

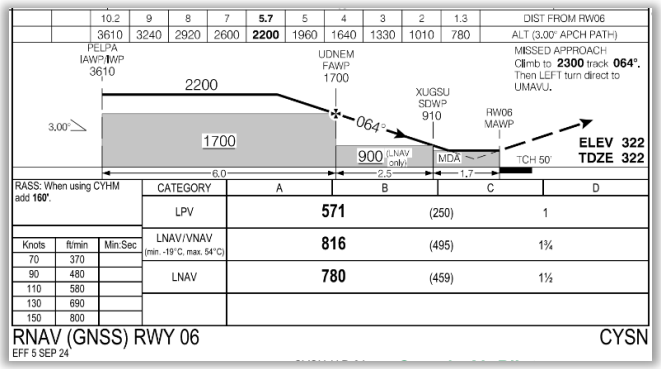


Figure 2-6 Runway 06 Instrument Approach Procedure

(Source: NAV CANADA - Canada Air Pilot 7)

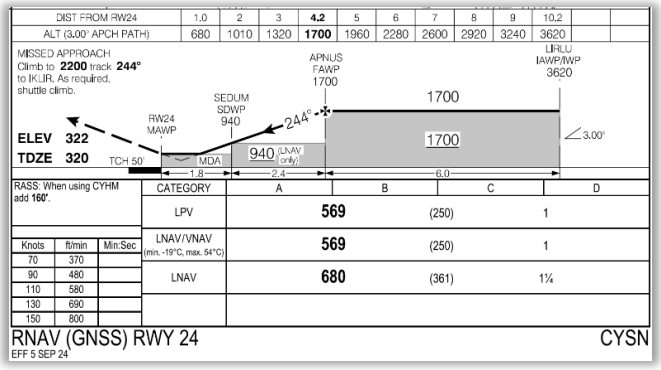
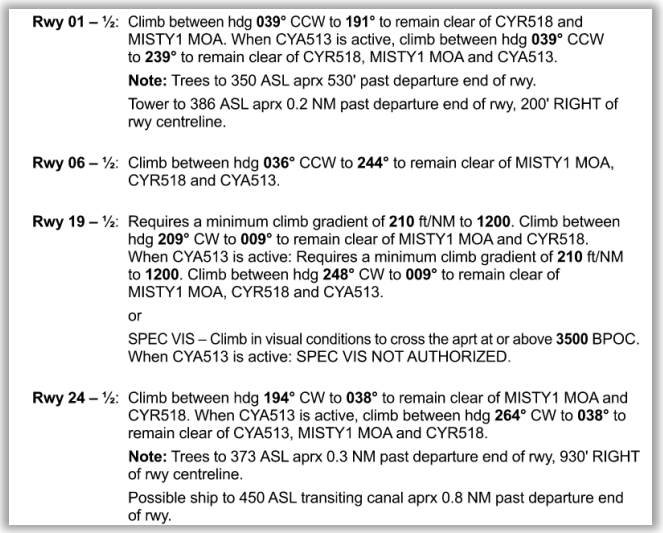


Figure 2-7 Runway 24 Instrument Approach Procedure

(Source: NAV CANADA - Canada Air Pilot 7)

In addition to the six identified RNAV IAP, the Airport also has Instrument Departure Procedures (IDPs) for Runway 01, 06, 19 and 24. These IDP are illustrated in **Figure 2-8**.



Rwy 01 – ½: Climb between hdg **039°** CCW to **191°** to remain clear of CYR518 and MISTY1 MOA. When CYA513 is active, climb between hdg **039°** CCW to **239°** to remain clear of CYR518, MISTY1 MOA and CYA513.

Note: Trees to 350 ASL aprx 530' past departure end of rwy.

Tower to 386 ASL aprx 0.2 NM past departure end of rwy, 200' RIGHT of rwy centreline.

Rwy 06 – ½: Climb between hdg **036°** CCW to **244°** to remain clear of MISTY1 MOA, CYR518 and CYA513.

Rwy 19 – ½: Requires a minimum climb gradient of **210** ft/NM to **1200**. Climb between hdg **209°** CW to **009°** to remain clear of MISTY1 MOA and CYR518. When CYA513 is active: Requires a minimum climb gradient of **210** ft/NM to **1200**. Climb between hdg **248°** CW to **009°** to remain clear of MISTY1 MOA, CYR518 and CYA513.

or

SPEC VIS – Climb in visual conditions to cross the aprt at or above **3500** BPOC. When CYA513 is active: SPEC VIS NOT AUTHORIZED.

Rwy 24 – ½: Climb between hdg **194°** CW to **038°** to remain clear of MISTY1 MOA and CYR518. When CYA513 is active, climb between hdg **264°** CW to **038°** to remain clear of CYA513, MISTY1 MOA and CYR518.

Note: Trees to 373 ASL aprx 0.3 NM past departure end of rwy, 930' RIGHT of rwy centreline.

Possible ship to 450 ASL transiting canal aprx 0.8 NM past departure end of rwy.

Figure 2-8 Instrument Departure Procedures

(Source: NAV CANADA - Canada Air Pilot 7)

The availability of multiple RNAV instrument approaches and departure procedures significantly enhances the operational reliability of the Airport. These procedures allow aircraft to arrive and depart safely under a wider range of weather conditions, reducing the risk of delays or diversions. For airlines and operators, this increases confidence in scheduling and helps ensure on-time performance. For the Airport, it strengthens its value proposition to potential carriers by demonstrating that modern navigation infrastructure is already in place to support commercial service, charter operations, and business aviation with minimal weather-related disruptions.

Combined, these Instrument Flight Procedures enable pilots to navigate safely on arrival and departure in instrument meteorological conditions with reference to equipment and instrumentation in the cockpit. Without these procedures in place, the Airport's usability would decline, potentially impacting revenue, as more flights could be unable to operate under varying weather conditions.

2.5.2 LANDSIDE

The Airport is accessed from the single intersection of Niagara Stone Road and Airport Road, which connects the Airport to the City of St. Catharines and the broader Niagara Region. Access to the ATB is via a loop road with direct access to the terminal curb as well as shared public and tenant car parking. Access to commercial lots is provided via secondary roads that split off from the main access road.

The condition of these roads varies somewhat but is in general in fair condition with a service life remaining of six to 10 years.

Vehicle parking associated with the ATB is provided in a single small lot located directly across from the entrance of the ATB.

A total of 100 stalls, including four disabled and three bus stalls are available for public and tenant use. The existing pavement condition is fair to good with a service life between eight to 10 years.

2.5.3 AIRPORT TERMINAL BUILDING

The current ATB, opened in 2011, covers about 557 m^2 (6,000 sq. ft.) and includes a shared arrivals-departures lounge, administrative offices, and tenant spaces. While suitable for general and corporate aviation, the terminal lacks CATSA screening and international arrival facilities, preventing Niagara originating flights from using most airport terminals and limiting flights to use of FBOs. **Figure 2-9** provides illustration of the existing ATB layout.

2.5.4 AIRPORT SUPPORT FACILITIES

2.5.4.1 Airport Maintenance Building

The airport maintenance garage is a 370 m^2 (4,000 sq. ft.) steel-clad facility located along the east side of the terminal access road. Airport Management considers its condition to be fair but undersized for current needs. It contains two heated maintenance bays and several unheated storage bays, which are too narrow for snowplows or sweepers.

2.5.4.2 NAV CANADA Flight Service Station Facility

NAV CANADA's (FSS), located just east of the ATB, features an elevated control cab with 360° views and a single-story base building that houses equipment and administrative functions. Formerly a full air traffic control tower, the facility is currently limited to a FSS function, delivering information and advisory services – such as runway conditions, weather updates, and local traffic – to pilots rather than directly controlling aircraft movements at the Airport. The FSS also manages vehicle movements in aircraft maneuvering areas as an additional beneficial service to the Airport.

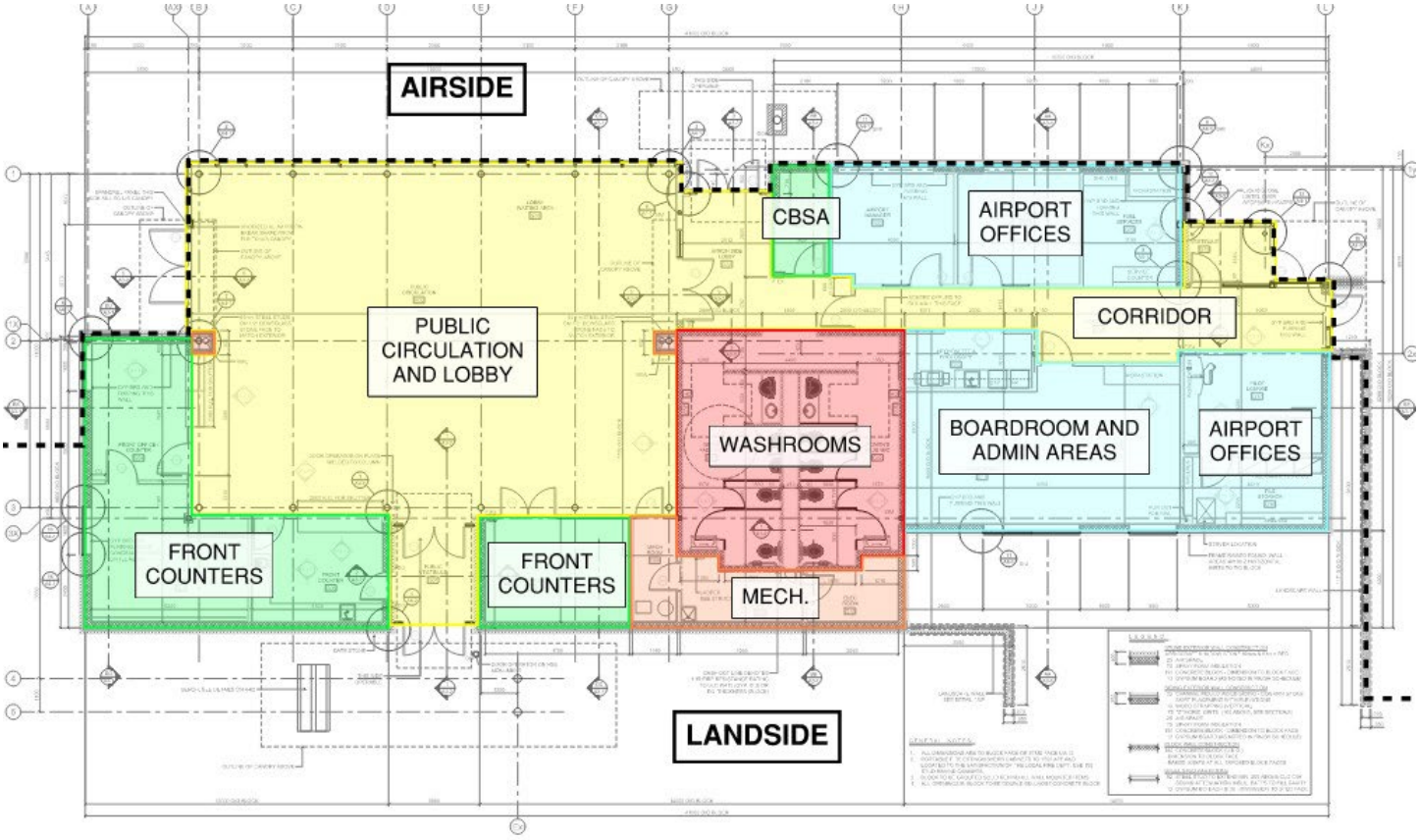


Figure 2-9 Existing Terminal Floor Plan

(Source: Niagara District Airport)

2.5.4.3 Fuel Storage

The Airport has a single fuel farm operated by Allied Aviation, with Jet A-1 (45,000 L) and Avgas (22,500 L) storage tanks. Additional storage, maintained by the Airport, includes 4,500 L of diesel and 1,300 L of gasoline. Capital improvements have been aimed at addressing product transfer compliance and the addition of secondary containment. The site allows for future expansion, however the cost-benefit of relocating the facility to a location that would allow for through-the-fence transfers airside without the need for fuel trucks to cross back and forth should be considered.

2.5.4.4 Aircraft Deicing Facilities

The Airport lacks a facility to contain and collect aircraft deicing fluids. Ideally, the Airport should have a designated deicing area with a sloped pad leading to catch basins and a storage tank, allowing collected fluids to be discharged into the sanitary sewer or hauled off site for disposal. This would include strong glycol mitigation and management provisions.

2.5.5 Commercial and Industrial Land Development

Approximately four hectares of land are currently used or designated for aviation activities requiring airside access, including Allied Aviation, the St. Catharines Flying Club, and hangars for private aircraft. Hangar sizes range from small strip and T hangars to larger ones of roughly 880 m^2 (9,500 sq. ft.) that hold multiple aircraft.

Currently, approximately 1.7 ha of land are designated for non-airside commercial development. This area includes the facilities operated by Genaire and CARES Niagara, neither of which require airside access. The amount of available land at the airport suitable for commercial activities without airside access is limited.

2.5.6 Utilities and Services[6]

2.5.6.1 Water Supply and Distribution

Potable water service for the Airport is provided via a 400 mm diameter pipe from Niagara Stone Road. The Town of Niagara-on-the-Lake provides the water and sanitary sewer service. The system has sufficient capacity to accommodate current and near-term development needs of the Airport. Water distribution is limited to the southwest corner of the Airport. Further distribution will be required to support additional commercial development on the Airport.

2.5.6.2 Sanitary Sewage

The Airport's 300 mm sanitary sewer collection system, installed in 1996 alongside a pumping station with a 10 L/S operational capacity, is currently adequate for serving the existing and near-term development needs of the Airport. An upgrade to the pumping station occurred in 2011, which included the installation of a flow meter and chamber.

2.5.6.3 Electrical Power Supply and Distribution

Electrical power is provided to the Airport from Niagara Stone Road and it is supplied by Niagara-on-the-Lake Hydro. The three-phase system is adequate to support existing and near-term development needs of the Airport. Power to the airfield lighting systems and visual aids is controlled from the Field Electrical Centre (FEC) located adjacent to the ATB. No deficiencies have been reported for existing and near-term development needs.

2.5.6.4 Natural Gas

Natural gas is available on the Airport and provided by Enbridge. No conditions assessments were available and no issues or deficiencies with the distribution system have been reported

[6] Note: Detailed utility master plan and associated demand-capacity studies are subject to future study and engineering design.

Trends

3 TRENDS

This chapter consists of two primary sections: Socio-Economic Trends and Aviation Industry Trends. Having a solid understanding of the trends that have influence over the growth of aviation activity is crucial to establishing a robust forecast of demand for airport services.

3.1 SOCIO-ECONOMIC TRENDS

This section sets the stage for the assumptions concerning the economic growth rates and demographic trend projections that have been considered with the development of forecasts and growth scenarios as further discussed in Chapter 10. Accordingly, this section reviews and assesses:

- The performance of the economy, (including tourism); and
- The evolution of the demographic profile.

3.1.1 THE ECONOMY

Niagara's economy is a diverse mix of tourism, manufacturing and agriculture sectors. The region is a major hub for trade with the United States, with a strong manufacturing sector and a globally renowned tourism industry.

Tourism is a major engine of growth with millions of visitors annually spending billions of dollars in the region. The region has a strong manufacturing base, with a history in the automotive industry and agricultural production—particularly fresh fruits, vegetables, and wine.

According to Statistics Canada, in 2021 GDP totalled $18.7 billion. As **Figure 3-1** shows, the GDP growth rate for Niagara lagged Ontario between 2009 and 2021 (2.9% vs. 4.1%). In an effort to reverse the trend, Niagara has undergone important economic changes recently and benefitted from large investments that should position the region well for the future. For example, Asahi Kasei Corporation announced a $1.6 billion investment to build a battery plant in Port Colborne. However, the economic activity in Niagara is currently soft (and will remain soft for some time), reflecting challenging economic conditions across the country because of the tariff war with the United States.

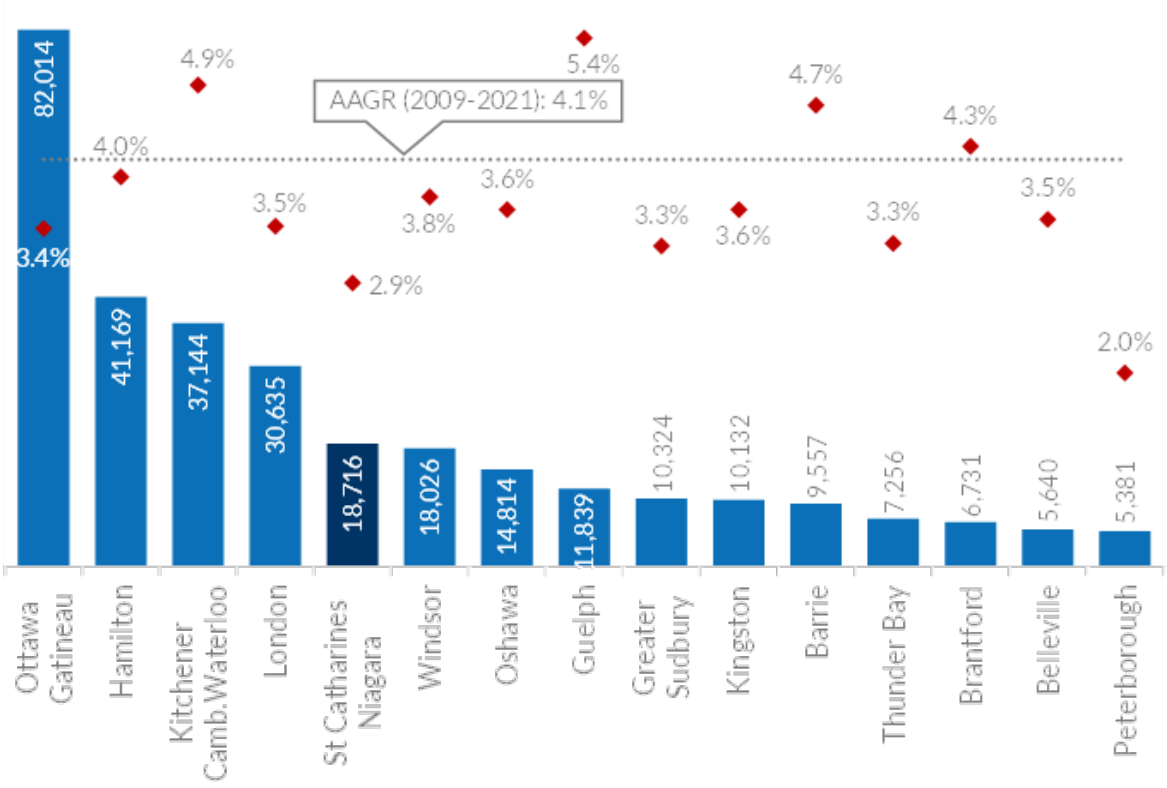


Figure 3-1 Nominal GDP by Key Regions in Ontario

(Source: Statistics Canada)

3.1.2 DEMOGRAPHICS

Changes in an area's population are driven by two factors: natural increase (births minus deaths) and net migration (arrivals minus departures). A strong regional economy with job opportunities will help a region retain its population and attract new residents from other regions and abroad. In 2024 it is estimated that the population of Niagara reached nearly 540,000 residents, up by 0.9% p.a. since 2004 (see **Figure 3-2**). In comparison the population, at a provincial level has increased by 1.1% p.a. As a result, Niagara's population share within the province has declined (3.5% in 2004 vs. 3.3% in 2024.) Considering the fact that its economy has developed less rapidly than the province, a declining population share does not come as a surprise.

3.1.3 TOURISM

Niagara has long been one of Canada's most prominent tourism destinations, offering a wide variety of attractions including natural wonders, cultural heritage, wineries and entertainment. The region is best known for the world-famous Niagara Falls, but also features casinos, wineries, golf courses, the Shaw Festival Theatre, and a rich culinary and cultural scene that draws visitors year-round.

In 2019, over 9.3 million tourists visited the region, with about 65% coming from Ontario. Americans and overseas travellers accounted for roughly 30% of visitors, with the remainder from elsewhere in Canada (see **Figures 3-3** and **3-4**). In 2022, an estimated 8.3 million tourists visited the region. While international figures for 2023 are not yet available, nearly 8.4 million domestic tourists were recorded, representing a 15% increase over 2019 levels.

According to Niagara Economic Development, in 2023 the tourism industry supported 37,261 direct jobs, though this remains 16% below pre-pandemic levels, reflecting the lasting effects of the COVID-19 pandemic. Despite this decline, tourism continues to serve as a leading economic driver for the region.

The vast majority of tourists are 'same day' visitors who are less likely to travel by air than those who overnight. The number of tourists who overnight varies by year, but pre-pandemic it was over four million tourists annually with the majority originating from Canada. Post pandemic, the figures for overseas and US visitors are not available but by 2022 Canadian overnight tourists had recovered from the pandemic.

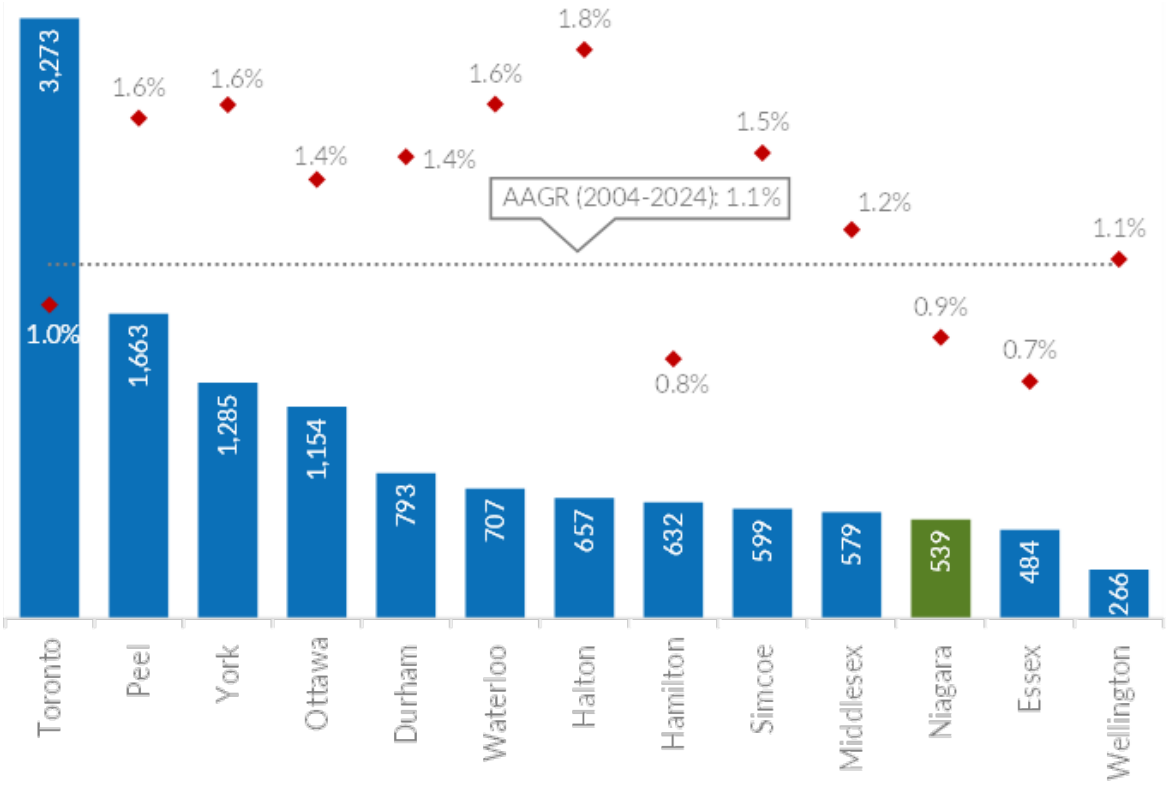


Figure 3-2 Largest Divisions in Ontario in 2024 and 2004-2024 Growth

(Source: Statistics Canada)

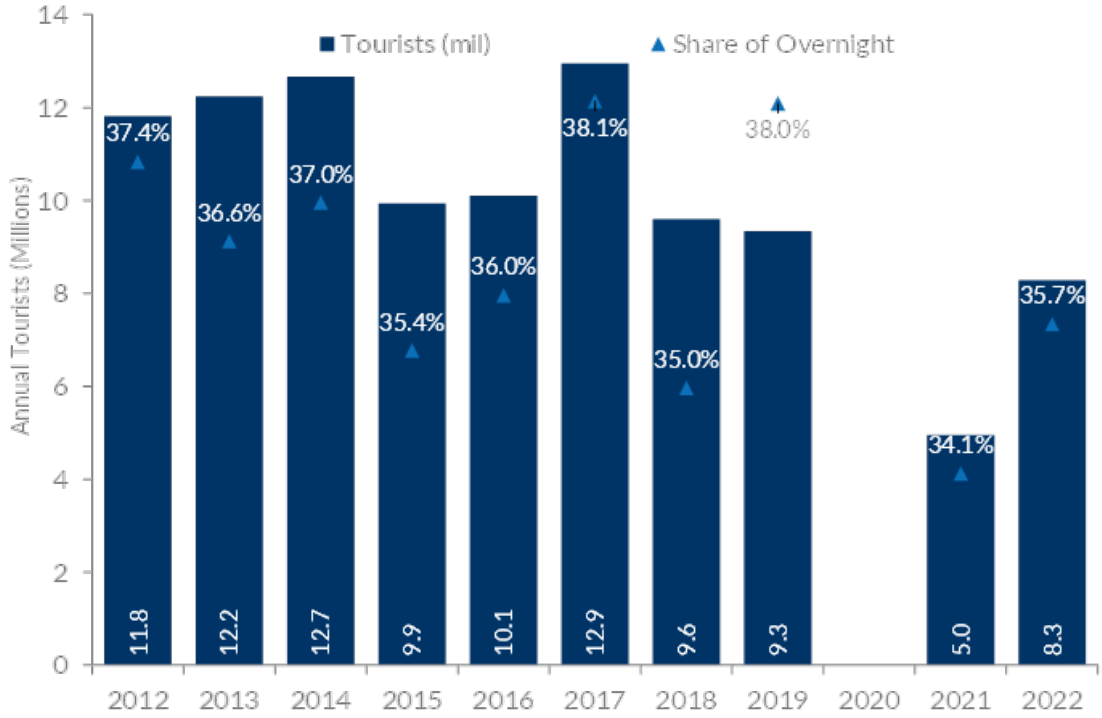


Figure 3-3 Estimated Annual Tourists and Share of Overnight Tourists, Region of Niagara, 2012-2022

(Source: Government of Ontario)

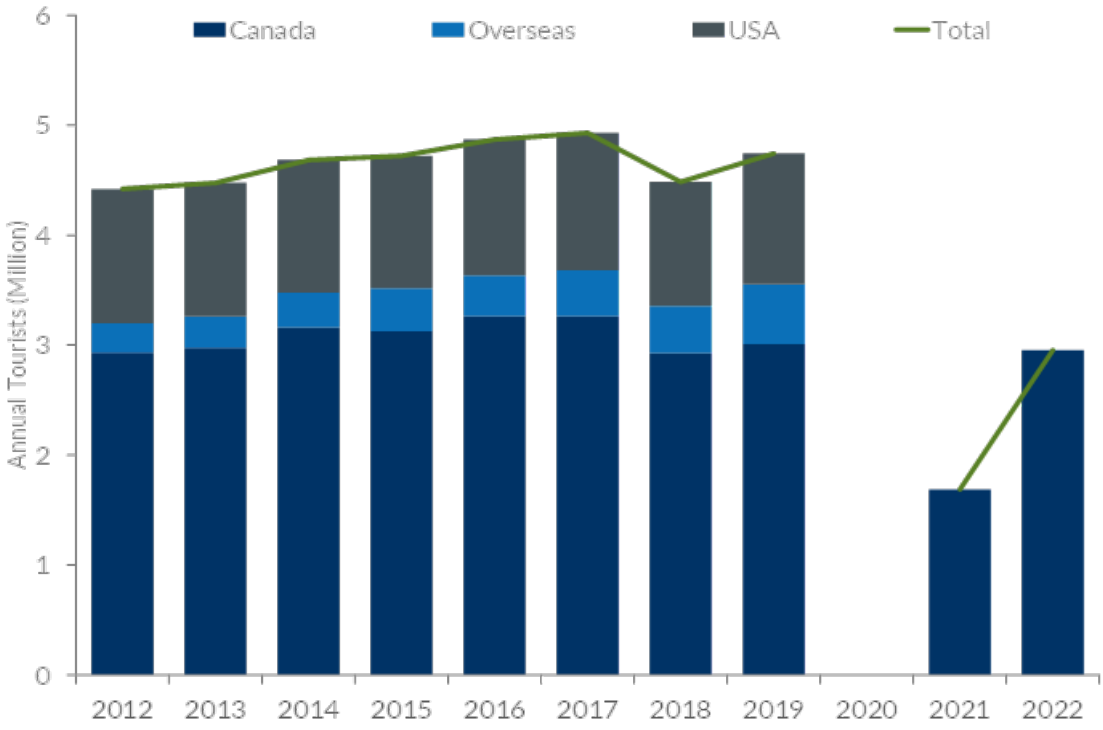


Figure 3-4 Estimated Annual Overnight Tourists by Key Region of Origin, Region of Niagara, 2012-2022

(Source: Government of Ontario)

3.2 Aviation Industry Trends

3.2.1 General Aviation Trends: Past, Present, and Future Outlook

GA encompasses all civil aviation operations outside of scheduled commercial airline services. This includes recreational and sport flying, corporate and business aviation, aerial work (e.g., agricultural spraying, medevac), and flight training. Over the past two decades, the GA sector has experienced a complex evolution shaped by demographic shifts, economic cycles, regulatory changes, and technological innovation.

3.2.1.1 Historical Trends (2005 - 2025)

Flight Training

Flight training has emerged as a growth segment within GA, particularly in response to the global pilot shortage that began to intensify in the mid-2010s. Between 1995 and 2016, while private pilot hours declined, flight training hours increased significantly. This trend was driven by:

- Rising demand for commercial pilots pre-COVID-19 pandemic.
- Expansion of flight schools and training fleets.
- Increased international student enrollment in North American training programs.

The COVID-19 pandemic temporarily disrupted this growth, but local aircraft movements grew at an average annual rate of 13% from 2014 to 2019.

Recreational and Sport Flying

Recreational flying has faced headwinds such as an aging pilot population, rising costs of aircraft ownership and maintenance, and competition from lower-cost leisure alternatives. These factors contributed to a long-term decline in private pilot hours. However, the introduction of Light Sport Aircraft (LSA) and simplified licensing in some jurisdictions has helped sustain interest among hobbyists.

Business Aviation

Business aviation has remained resilient, particularly among high-net-worth individuals and corporations seeking flexibility and time efficiency. The 2008 financial crisis caused a temporary dip, but the sector rebounded steadily. During the COVID-19 pandemic, business aviation saw a surge in demand due to health concerns and reduced airline schedules.

3.2.1.2 Current State and Emerging Trends

Technology and Innovation

- Electric and Hybrid Aircraft: Manufacturers are developing electric propulsion systems to reduce operating costs and emissions.
- Advanced Air Mobility (AAM): Urban air taxis and eVTOL aircraft are gaining traction, with regulatory frameworks under development.
- Digitalization: Flight planning, maintenance tracking, and pilot training are increasingly supported by digital platforms and AI.

Regulatory and Safety Enhancements

Transport Canada and the FAA have emphasized risk-based oversight and performance-based regulations. Programs like SMS (Safety Management Systems) and the integration of RPAS (Remotely Piloted Aircraft Systems) into controlled airspace are reshaping operational norms.

3.2.1.3 Future Outlook

Flight Training

The FAA Aerospace Forecast (2025–2045) projects continued growth in student pilot certifications and training activity, driven by:

- Airline fleet expansion.
- Retirement of senior pilots.
- Global demand, especially from Asia-Pacific and the Middle East. However, growth may be tempered by simulator-based training alternatives and economic volatility affecting discretionary spending.

Recreational Flying

While traditional recreational flying may continue to decline, new entrants—such as drone hobbyists and ultralight pilots—could reshape the landscape. Community flying clubs and fractional ownership models may also help reduce cost barriers.

Business Aviation

Business aviation is expected to grow steadily, supported by increased corporate travel demand, expansion of fractional ownership and charter services, and technological advances in aircraft efficiency and connectivity. The sector may also benefit from infrastructure investments at regional airports.

3.2.1.4 Summary

GA is a dynamic and diverse sector that has weathered significant challenges over the past two decades. While private recreational flying has declined, flight training and business aviation have shown resilience and growth. Looking ahead, the sector is poised for transformation through innovation, regulatory evolution, and shifting user demographics. To remain competitive and responsive, stakeholders must invest in infrastructure, embrace emerging technologies, and adapt to evolving market demands.

3.2.2 Commercial Aviation Trends: Past, Present, and Future Outlook

Commercial aviation has undergone profound transformation over the past two decades, shaped by economic cycles, technological innovation, regulatory shifts, and global disruptions such as the COVID-19 pandemic. This section explores the evolution of the industry from 2005 to 2025 and project its trajectory through 2045, with a focus on airline operations, passenger demand, and fleet modernization.

3.2.2.1 Historical Trends (2005 - 2025)

Passenger Demand and Traffic Growth

From 2005 to 2019, global passenger traffic grew steadily, driven by economic expansion in emerging markets, liberalization of air services, growth of low-cost carriers (LCCs) and ultra-low-cost carriers (ULCCs), and rising middle-class demand for air travel. However, the COVID-19 pandemic caused an unprecedented collapse in demand. Global airlines lost $118 billion in 2020, with nearly 60% of the fleet grounded. Recovery began in 2022, with traffic returning to near-2019 levels by 2024 in many regions.

Airline Operations and Business Models

The past two decades saw consolidation among legacy carriers, expansion of ULCCs, increased use of regional jets and point-to-point networks, and greater reliance on ancillary revenue streams. During the pandemic, airlines focused on preserving liquidity, reducing capacity, and renegotiating leases. Post-pandemic, many carriers prioritized profitable core routes and deferred expansion into new markets.

Fleet Modernization

Fleet renewal has been a key strategy for improving fuel efficiency and reducing emissions. Trends include retirement of older widebodies (e.g., Boeing 747, Airbus A340), adoption of new-generation aircraft like the Boeing 787, Airbus A350, and A220, and increased use of narrowbodies for long-haul routes (e.g., A321XLR).

3.2.2.2 Current State and Emerging Trends

Demand Recovery and Forecasts

Passenger volumes are rebounding under baseline and optimistic scenarios throughout most regions in Canada. Rebounding demand will lead to challenges around peak periods as airlines look to reassert themselves at the most opportune times. Cargo activity, which surged during the pandemic, is stabilizing but remains a key revenue stream for cargo focused airports.

Route Development and Airport Strategy

Airports are focusing on attracting new carriers and routes, especially to underserved markets, balancing seasonal and year-round service, and enhancing infrastructure to support growth in both passenger and cargo operations. Airlines that previously withdrew service from certain markets are cautiously reinstating them or exploring a more diversified route network as part of strategy to shield against the impacts of strained trade relationships and global volatility.

Sustainability and Regulation

In recent years, there has been increased attention both globally and nationally on the implementation of government measures to address climate change. The aviation industry is recognised as a significant contributor to greenhouse gas emissions, and, over the Master Plan period, numerous policy responses are anticipated—both domestically and internationally—that will target the aviation and transportation sectors to reduce these emissions. Internationally, various initiatives are underway, such as IATA's CORSIA scheme and the European Union's *Fit for 55* packages, which seek to mitigate aviation emissions through mechanisms including carbon offsetting, technological advancements (such as sustainable aviation fuels and new aircraft technologies), and pricing strategies aimed at internalising emission costs. The Government of Canada's climate change plan includes a commitment to achieving net-zero emissions by 2050, encompassing the aviation sector; however, specific measures targeting the aviation industry have yet to be detailed. Considerable uncertainty remains regarding how climate policies affecting aviation will be implemented in Canada, the potential impact on operational costs and airfares, and possible changes in traveller behaviour resulting from

heightened climate awareness and regulatory actions. Should more stringent demand-suppression measures be enacted, travel demand may fall below current projections; however, it is presently challenging to determine the precise effects such policies may have on the Canadian aviation industry or travel demand at the Airport.

3.2.2.3 Future Outlook (2025 - 2045)

Over the long term, several key trends—including shifts in the economy, government policy, advancements in aircraft technology, and the enduring impacts of the COVID-19 pandemic—are expected to influence activity levels at airports and throughout the aviation sector. The intrinsic relationship between economic activity, reflected through household incomes and business operations, and air travel demand is anticipated to remain the primary driver of aviation growth. Elevated economic activity will likely continue to stimulate increased demand for aviation services. Within regional economies, sectors such as tourism and diversified business enterprises are projected to contribute significantly to ongoing growth in travel demand, supporting both general and sectoral expansion.

Looking ahead, the aviation industry may experience persistent effects resulting from the COVID-19 pandemic, with business travel emerging as one area of potential long-term change. The widespread adoption of video conferencing and remote working, established during the pandemic, suggests that a portion of pre-pandemic business travel may not fully return. Research published in 2020 indicates that global business travel demand could be permanently reduced by 20–40%, equating to a 4–8% decrease in overall traffic volumes. For markets where business travel comprises a substantial share of airport activity, this shift may result in lower long-term growth than previously forecasted. It is important to note, however, that declines in business travel are expected to be most pronounced in the services sector—particularly for sales-related trips, presentations, and internal meetings—while industries requiring on-site presence, such as resource extraction, engineering, and construction, are less likely to see significant reductions. Consequently, regions like Niagara may experience a comparatively smaller impact from the global decline in business travel.

Commercial aviation has historically demonstrated strong resilience, consistently recovering from crises and adapting to evolving market conditions. Although the pandemic has reshaped industry trajectories, long-term fundamentals remain robust, though some short-term volatility related to trade uncertainty and economic policy may persist. The coming decades will be characterized by sustainable growth, technological innovation, and changing passenger expectations. To maintain competitiveness, industry stakeholders must proactively embrace change, invest in infrastructure and sustainability initiatives, and align with global developments in mobility and connectivity.

<u>Passenger Growth and Market Shifts</u>

Global passenger traffic is expected to more than double by 2044. The global fleet will nearly double, with strong growth in Asia-Pacific and Latin America. Emerging markets will drive demand, supported by expanding middle classes and competitive airline networks.

<u>Airline Strategy and Innovation</u>

Future airline strategies will emphasize digital transformation (e.g., AI-driven pricing, biometrics), flexible fleet deployment and network planning, and partnerships and alliances to expand reach without overextending resources.

<u>Technology Adaption</u>

Emerging aircraft technologies, such as battery-electric, hybrid, and zero-emission fuel cell propulsion technologies are expected to emerge in the global aviation market during the Master Plan timeline. While the first generation of electric aircraft are not anticipated to be certified for commercial service until the late 2020s, over the coming 20 years it is expected that aircraft with these new alternative fuel technologies will emerge and be in use in Canada and across the world. Based on current development activity,[7] it is anticipated that initially these zero-emission commercial aircraft will be primarily small in size, likely less than 20 or 35 seats and have a relatively short operational range.[8] Larger aircraft are likely to emerge in the 2030s or later. Currently no major Canadian airline has purchases of electric aircraft[9] but some airlines (e.g., Air Canada) have intention to procure electric aircraft during

[7] Air Canada has committed to purchase 30 hybrid-electric airplanes, with first deliveries scheduled for 2028.

[8] The Heart Aerospace ES-19, expected to be one of the first commercial battery-electric aircraft in service, is a 19-seat aircraft with a projected operational range of 400 km (215 NM).

[9] Seaplane operator Harbour Air is developing battery-electric engines to retrofit older piston, radial, and turboprop aircraft but their operations are strictly limited to the Southwest Coast of British Columbia.

the Master Plan period. However, there remains significant uncertainty as to which airlines may operate such aircraft with the potential that larger operators, (e.g., Jazz Aviation, Porter, WestJet Encore) may opt to wait until larger hybrid or fuel cell aircraft. This will be more direct size replacement to their existing fleets of 70+ seat aircraft rather than downgauging to smaller 20-50 seat aircraft. The shift to battery electric, hybrid, and fuel cell aircraft will also impact airport design and power/fuel delivery requirements, though exactly how remains uncertain until aircraft become certified for use and technological systems are more fully developed.

Infrastructure and Policy

Airports and governments will need to invest in terminal and runway capacity, modernize air traffic management systems, and address community concerns around noise and emissions. Terminal facilities will need to be designed to be more flexible and less carrier-specific in order to hedge against volatility and make the most of opportunities that present themselves.

Land use compatibility planning around airports will become of greater focus and importance as population density and high-rise development pressures increase.

Air Service and Passenger Activity Forecasts

4 Air Service and Passenger Activity Forecasts

4.1 Introduction and Methodology

Niagara District Airport's future role reflects a growing opportunity to strengthen regional connectivity by capturing passenger demand now served by surrounding airports. Unlike most commercial airports, the Airport has no historic base of scheduled passenger service upon which to build a traditional forecast. This absence requires a forward-looking methodology that draws upon market analysis, catchment assessment, and comparative evidence from other regional airports.

The approach used in this study consists of five steps:

1. Define the catchment area and identify the geographic sectors it encompasses.
2. Assess total demand from residents and visitors, using 2019 as a baseline year and proxy for 2025.
3. Determine how demand is currently served by surrounding airports, recognizing the leakage of traffic.
4. Identify potential priority routes that align with catchment flows.
5. Develop forecast scenarios that estimate the Airport's possible passenger capture, aircraft movements, and overall growth trajectory under different conditions.

This method ensures that the forecast is both evidence-based and defensible. The forecasts are the central driver of infrastructure needs, financial projections, and ultimately the justification for investment. This process is illustrated in **Figure 4-1**.

The forecasts developed here form the demand basis for facility, land use, and financial planning discussed in Chapters 5 and 6.

4.2 Competitive Landscape

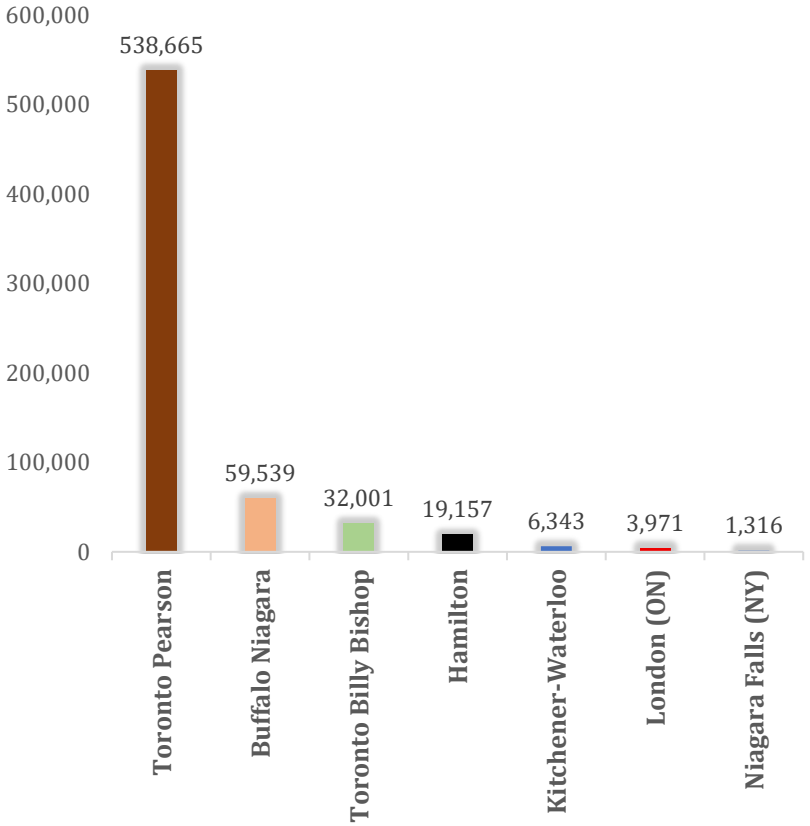
The Niagara region benefits from its position within the Southern Ontario Airport Network (SOAN), a highly active aviation market that links several major passenger and cargo hubs across North America. Toronto Pearson International Airport remains the dominant hub, handling nearly 50 million passengers annually and projected in its 2017 Master Plan to grow beyond 65 million annual passengers. Although Pearson is constrained during peak periods, it maintains significant off-peak capacity, and the SOAN framework anticipates that regional airports such as Hamilton, Waterloo, and Niagara can absorb portions of future demand.

Hamilton International Airport has established itself as a strong player in low-cost transborder and cargo traffic, while Billy Bishop Toronto City Airport specializes in business traffic and select domestic markets. Buffalo Niagara International Airport captures substantial cross-border demand from Ontario residents, including many Niagara travelers who value U.S. fare structures and network access.

This competitive landscape is illustrated in **Figure 4-2**, which maps the relative position of the Airport within the SOAN. The figure highlights the proximity of larger competing airports, underlining the challenge of leakage but also the potential role the Airport could play in absorbing overflow demand.

Figure 4-1 Study Methodology Flow Diagram

(Source: Avia NG analysis)



Airport	Number of Airlines	Number of Routes
Toronto Pearson International (YYZ)	49	190
Buffalo Niagara International (BUF)	8	32
Billy Bishop Toronto (YTZ)	2	15
John C. Munro Hamilton International (YHM)	6	25
Region of Waterloo International (YKF)	3	16
London International (YXU)	5	8
Niagara Falls International (IAG)	1	3
*Border crossing time not included		

Figure 4-2 Average Weekly Departing Seats in 2024

(Source: DKMA Analysis based on OAG)

The diagram reinforces that while the Airport faces strong competition from nearby airports, it also sits in the centre of a large and diverse catchment that generates over two million trips annually.

This competitive environment highlights both the challenge and the opportunity for the Airport. While neighboring airports provide passengers with multiple alternatives, they also prove the scale of the market available. The Airport's role lies in capturing niche segments (i.e. shorter ground-access trips, targeted domestic links, and specialized leisure markets) that can enhance regional connectivity while relieving pressure on Pearson.

Niagara's market is highly diverse, with passengers traveling to more than 600 destinations in 2019. However, traffic is concentrated in a relatively small number of short- and medium-haul routes. This concentration highlights both the scale of total demand and the realistic opportunity for the Airport: capturing service to a limited set of priority destinations rather than attempting to serve all markets.

4.3 Demand within the Catchment Area

4.3.1 Total Passengers

The Niagara catchment generated approximately 2.1 million passengers in 2019, comprising 1.0 million resident trips and 1.1 million visitor trips. For clarity, the 2.1 million passenger figure represents total passenger trips (combined arriving and departing passenger movements) generated within the Niagara catchment. Subsequent references to airport-specific forecasts express activity in departing (enplaning) passengers, consistent with industry convention for airport planning and capacity analysis. This breakdown is derived from Marketing Information Data Transfer (MIDT) booking data (residents) and Airports Council International (ACI) survey-based estimates (visitors). The 2019 base year was chosen because it represents the last full pre-pandemic period of normal aviation activity and is widely accepted by industry analysts as a benchmark for medium-term forecasting. However, since the data compiled is not a perfect representation of demand due to portions of aviation activity not being fully reported, such as ticket sales by Low-Cost Carrier Airlines, the actual number of airline passengers may exceed these estimates and should therefore be consider conservative.

It is important to stress that this figure of 2.1 million trips does not automatically equate to demand that can be captured by the Airport. Instead, it represents a gross pool of traffic within the region. The share of this pool that the Airport could realistically attract will depend on airline strategies, airport infrastructure, competitive pressures, and the ability of the Airport to offer a compelling alternative to Pearson, Hamilton, and Buffalo.

To frame this in context, the 2.1 million trips equate to approximately 2.3 trips per resident of the Niagara region, which is lower than the national Canadian average of 3.4 trips per resident. This discrepancy reflects both the lack of local air service options and the tendency for Niagara residents to drive to larger hubs. If the Airport were to capture even 10% of these flows, it would represent approximately 210,000 annual passengers, a level sufficient to justify scheduled service by regional jet aircraft.

4.3.2 Passengers by Route Area

The 2.1 million trips generated in the catchment are divided into four broad market sectors:

- Domestic (DOM): Represents approximately 36% of total demand. Traffic is concentrated on short-haul routes to Toronto, Montréal, and Ottawa, with secondary flows to Western Canadian gateways (Calgary, Vancouver). These routes reflect both business and visiting-friends-and-relatives (VFR) travel.
- United States Transborder (USA): Accounts for 28% of total demand, dominated by New York, Chicago, and Florida leisure destinations. Business traffic to northeast U.S. hubs is highly time-sensitive, while Florida traffic shows strong seasonality.
- International (INT): Makes up 14% of total demand, with London, Frankfurt, and Paris as the top gateways. International traffic is largely outbound Canadian residents using major hubs; inbound tourism represents a smaller but growing share.
- Sun (SUN): Represents 22% of total demand, with heavy seasonal peaks to Cancun, Punta Cana, Varadero, and Montego Bay. This segment is highly leisure-oriented and typically served by charter or low-cost carriers.

These proportions are summarized in **Table 4-1**, which provides a breakdown of catchment demand by sector. The table demonstrates that while demand is balanced across multiple sectors, U.S. and sun destinations account for nearly half of all trips.

Figure 4-3 provides a graphical representation of this breakdown, highlighting the relative size of each sector. The strong presence of U.S. and sun markets underscores the Airport's potential role in serving both business and leisure demand.

Table 4-1 Catchment Demand by Sector

(Source: AVIA NG)

Sector	Estimated Annual Passengers	Share of Catchment (%)	Key Observations
Domestic (Canada)	~756,000	36%	Heavily concentrated in Montréal and Ottawa; secondary flows to Calgary and Vancouver.
U.S. Transborder	~588,000	28%	New York and Chicago dominate; Florida market represent nearly one-third of sector demand.
International	~294,000	14%	Primarily Europe (UK, Germany, Italy); served via hubs in Toronto, Montréal.
Sun Destinations	~462,000	22%	Concentrated in Cancun, Punta Cana, Varadero; highly seasonal peaks.
Total	**~2,100,000**	**100%**	Balanced market but strong tilt toward U.S. and sun travel.

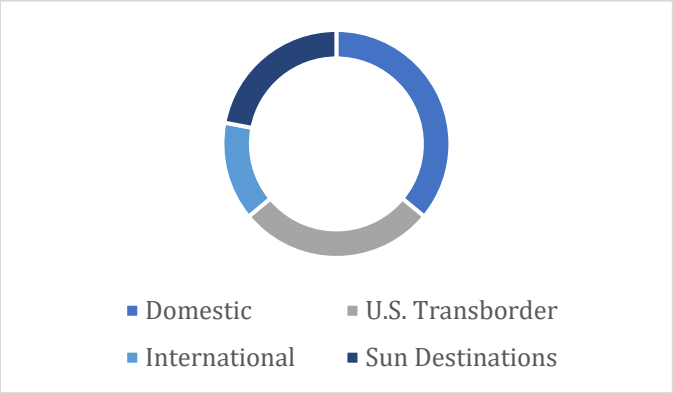


Figure 4-3 Catchment Demand by Sector

(Source: AVIA NG)

The figure (4-3) also demonstrates that while international demand is smaller in relative terms, it still represents more than 280,000 trips annually, which is a meaningful opportunity if connections through Canadian hubs can be established.

The high concentration of demand in a small number of routes is advantageous for the Airport, as it reduces the number of services required to capture a significant portion of the market.

The distribution of demand across sectors suggests that the Airport will need to pursue a mix of business focused domestic and U.S. routes, as well as leisure-oriented sun destinations, in order to capture a representative share of catchment traffic.

These proportions align with national averages for mid-sized Canadian catchments but show above average reliance on U.S. gateways. This is consistent with Niagara's geographic proximity to Buffalo and the strong appeal of lower U.S. airfares.

4.3.3 Passengers by City Pair

Further analyzing each sector reveals that traffic is highly concentrated in a handful of markets:

- Domestic: Montréal and Ottawa together account for nearly 50% of all domestic traffic from the catchment. Calgary and Vancouver add another 20%. These four city-pairs represent the bulk of realistic domestic opportunities for the Airport.
- United States: New York and Chicago are the largest business destinations, representing nearly 35% of U.S.-bound demand. Florida markets (Orlando, Fort Lauderdale, Tampa) represent another 30%. Together, these two groups account for nearly two-thirds of transborder demand.
- International: London Heathrow dominates international flows at 42% of the category, followed by Frankfurt at 18% and Paris Charles de Gaulle at 12%. These routes are overwhelmingly captured through Pearson.
- Sun: Cancun alone accounts for 26% of sun demand, followed by Punta Cana (21%) and Varadero (19%). These concentrated flows suggest that two to three targeted routes could serve the bulk of sun demand.

As shown in **Table 4-2**, the leading city pairs of Montréal, Ottawa, New York, Chicago, and Orlando, together account for the majority of catchment demand, demonstrating that a limited set of markets drives passenger flows.

The table highlights that demand is concentrated in a relatively small number of routes, which provides the Airport with a clear and focused set of targets for potential service development.

The high concentration of demand in a small number of routes is advantageous for the Airport, as it reduces the number of services required to capture a significant portion of the market.

Figure 4-4 illustrates the relative passenger volumes for the ten largest city-pairs, reinforcing how a handful of destinations dominate catchment demand.

This concentration supports a phased approach to route development: if the Airport can secure even two or three of these markets, it will capture a disproportionately large share of total demand.

Table 4-2 Estimated Passenger Demand at the Niagara District Airport in Year 10 (2035) [10]

(Source: DKMA estimates)

Route Area	City / Airport	Est. Pax	Rank (2019)	Rank (2035)
Dom	Ottawa (YOW)	104,159	1	1
Dom	Montreal (YUL)	96,796	2	2
TB	Newark (EWR)	80,659	5	3
Dom	Vancouver (YVR)	71,356	4	4
Sun	Cancun (CUN)	65,725	8	5
TB	Fort Lauderdale (FLL)	50,470	9	6
Sun	Varadero (VRA)	48,529	10	7
Sun	Punta Cana (PUJ)	44,287	12	8
Sun	Montego Bay (MBJ)	39,086	14	9
Dom	Calgary (YYC)	34,640	6	10
TB	Chicago – O'Hare (ORD)	29,015	36	11
TB	Las Vegas (LAS)	22,349	21	12
TB	Boston (BOS)	10,660	32	13

[10] Note: Table 4-2 illustrates route-level demand potential under a high growth scenario following a commercial service maturity period of approximately 10 years. This scenario was selected because it better represents the approximate maximum market opportunity used to define potential route development targets.

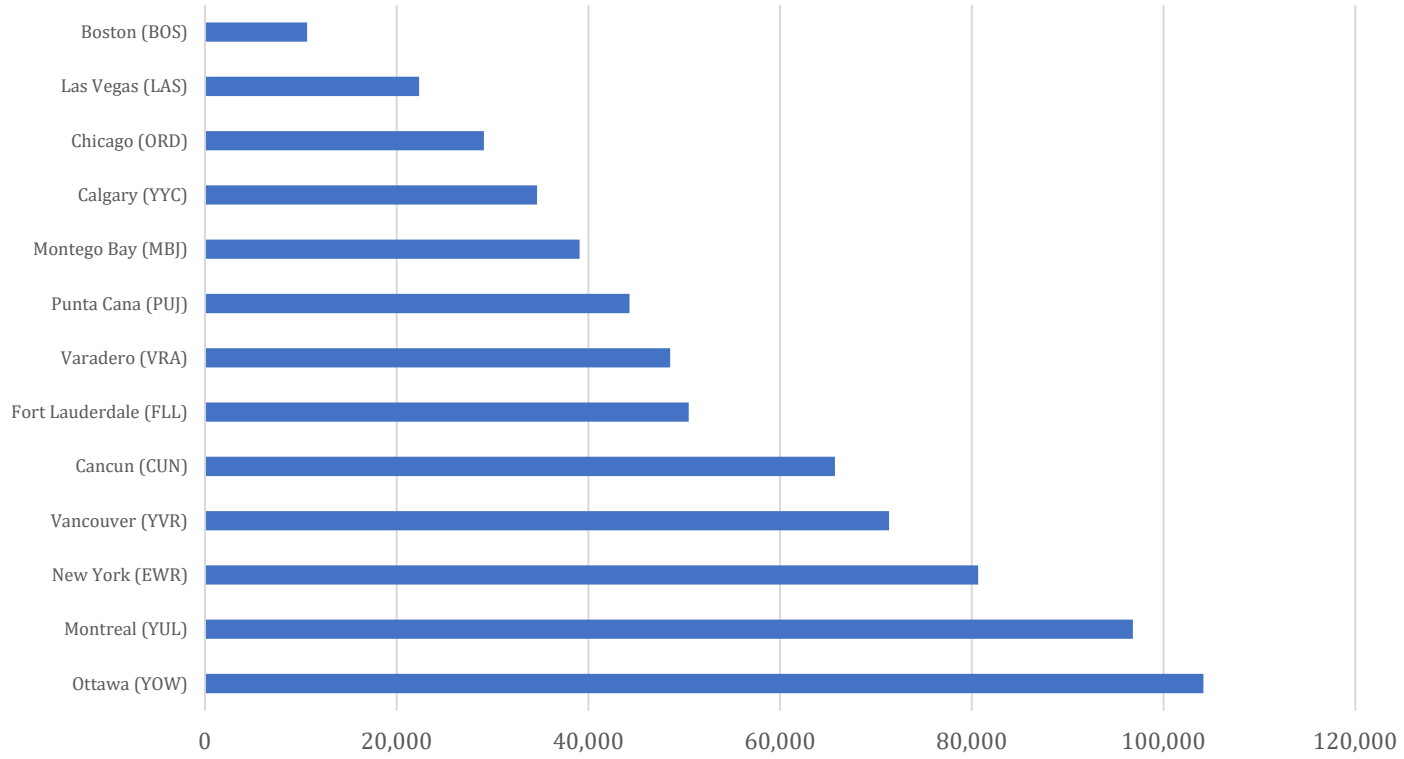


Figure 4-4 Top 10 Catchment City-Pairs by Passenger Volume (2019)

(Source: AVIA NG based on DKMA Estimates)

4.4 Potential Route Development

The analysis of catchment demand by city-pair (**Table 4-4**) provides a clear basis for identifying potential priority routes that could realistically be pursued by the Airport. While the catchment generates over 2.1 million trips annually, the majority of this traffic is concentrated in a limited number of markets. This concentration means that the Airport can target a small portfolio of strategic routes that together represent a large share of demand.

4.4.1 Domestic Markets

Among Canadian destinations, Montréal and Ottawa are the most promising candidates for initial Airport service. Both routes are short-haul, high-frequency markets where air travel is driven primarily by business and government passengers, as well as connecting traffic beyond the hubs. Together, these two markets represent nearly half of all domestic trips generated in the catchment (**Table 4-4**).

- Montréal (YUL): Strong origin-and-destination (O&D) demand plus connectivity to Air Canada's second hub. Service would appeal to both Niagara-based business travelers and visitors. A Montréal connection also provides a significant one-stop link to major European and international markets via Air Canada's global network, positioning the Airport as a convenient feeder to transatlantic and long-haul destinations.
- Ottawa (YOW): Similar rationale, with the added advantage of government travel and conference traffic.

Calgary (YYC) also emerges as a mid-haul domestic opportunity, albeit at a later stage of development. Demand is smaller than for Montréal and Ottawa, but the route offers direct access to Western Canada and connectivity through WestJet's primary hub.

4.4.2 U.S. Transborder Markets

The United States represents 28% of catchment demand, and traffic is highly concentrated in two business-oriented markets and a handful of leisure destinations.

- New York (JFK/EWR/LGA): Collectively the largest U.S. market for Niagara residents and businesses. A service to either JFK or EWR would connect to major hub networks, while LaGuardia would target business O&D.
- Chicago (ORD): The second major U.S. hub market, offering both point-to-point demand and extensive connectivity through American and United.

Together, New York and Chicago account for approximately one-third of transborder traffic from Niagara. These markets are highly competitive but provide the best opportunity for the Airport to capture time-sensitive business travelers who would value reduced ground access times.

Leisure-focused U.S. markets also show strong potential:

- Florida (Orlando, Fort Lauderdale, Tampa): Collectively, Florida destinations account for nearly 30% of U.S. demand. Seasonal peaks are well-suited to low-cost or charter carriers.

4.4.3 Sun Markets

The Sun sector is a defining feature of the Niagara market. In 2019, nearly one-quarter of catchment demand was for Mexico and Caribbean leisure destinations. This is disproportionately high compared to many other Canadian catchments of similar size.

- Cancun, Punta Cana, Varadero: Together, these three markets account for nearly two-thirds of total sun traffic (**Table 4-4**).
- Such concentration means that even one or two charter or seasonal services could capture a substantial portion of this sector.

These markets also align with the business models of Canadian leisure carriers (e.g., Sunwing, WestJet Vacations, Air Transat), which already serve similar catchments.

4.4.4 Screening and Prioritization

The markets outlined above were assessed against several criteria:

- Catchment demand volume (**Table 4-4**).
- Connectivity value (hub access, onward flows).
- Competitive overlap with Pearson, Hamilton, and Buffalo.
- Operational feasibility at the Airport, including runway length requirements.
- Airline network fit, based on current strategies of Canadian and U.S. carriers.

On this basis, Montréal, Ottawa, New York, Chicago, and Orlando emerge as the most realistic near-term opportunities. Sun destinations such as Cancun and Punta Cana are strong candidates for charter or seasonal service, contingent on leisure carrier partnerships.

4.4.5 Implementation Notes

It is critical to emphasize that these route opportunities are not commitments. Airlines determine service based on their own network economics and priorities. The Airport's role is to:

- Demonstrate market demand through credible data (as presented in this chapter).
- Ensure infrastructure can accommodate potential services (e.g., runway extension).
- Actively engage with airlines to highlight the Airport's competitive advantages (reduced ground travel times, uncongested facilities, supportive local government).

4.4.6 Link to Forecasts

The identification of these markets serves as the input to the passenger forecast scenarios in Section 4.5. While not all routes may materialize, the forecasts assume varying levels of success in attracting these markets, which in turn drives passenger volumes and aircraft movement projections.

4.5 Aviation Activity Forecasts and Growth Scenarios

The development of aviation forecasts is one of the most critical components of an airport master plan. For the Airport, the forecasts serve not only as projections of future passenger volumes and aircraft movements, but also as justifications for capital investment and policy direction. Because the Airport has no historical base of scheduled passenger service, the forecasts are inherently more vulnerable to scrutiny than those of airports with a track record of airline operations. This makes it essential that the methodology, assumptions, and outcomes are transparent, evidence-based, and defensible.

4.5.1 Forecast Methodology & Approach

The forecasting framework integrates both demand-side and supply-side elements.

Demand-Side Drivers Include:

- Population growth: Niagara region's population is projected to increase from 485,000 in 2025 to up to 694,000 by 2051, based on the 2021 "Made-in-Niagara Forecast."
- Income and economic growth: Regional GDP is projected to grow at ~1.6% annually, with tourism and cross-border trade remaining key sectors. Rising household incomes drive higher propensity to travel, particularly for leisure and discretionary trips.

- Air travel propensity: Niagara residents currently make ~2.3 trips per person annually, compared to ~3.4 trips provincially. Convergence toward the provincial average by 2045 would add more than 600,000 additional trips to the catchment.
- Visitor demand: Tourism growth targets from Destination Ontario suggest international visitation to Niagara will continue to increase, which contributes directly to inbound air demand.

Supply-Side Drivers Include:

- Airline fleet modernization: Regional carriers are phasing out turboprops in favor of jets (Embraer E2, Airbus A220). This affects route economics and airport requirements.
- Hub capacity constraints: Toronto Pearson is projected to exceed 65M annual passengers in the mid-2030s, creating opportunities for secondary airports to absorb regional flows.
- Competitor airport performance: Hamilton has grown strongly in cargo and LCC markets and Waterloo has captured stable domestic services. These provide relevant comparators for the Airport's potential trajectory.
- Policy and regulation: Government support for SOAN may influence carrier decisions.

Approach:

- Top-down: Applies growth rates to catchment demand, adjusted for propensity and leakage factors.
- Bottom-up: Assesses each candidate route (Section 4.4) based on airline economics, fleet compatibility, and competitive overlap.
- Reconciliation: Results are calibrated to ensure that scenario forecasts remain realistic compared to comparator airports and regional travel trends.

4.5.2 Passenger Forecasts

The forecasts explore three growth scenarios: low, base, and high to capture a range of possibilities.

Low Growth Scenario:

- The Airport fails to secure sustained scheduled service.
- Ground access leakage to Pearson, Hamilton, and Buffalo continues at current levels.
- Traffic growth is limited to GA and irregular charter operations.
- Passenger volumes remain below 90,000-100,000 annual passengers through 2045.
- This scenario highlights risks if no infrastructure investments are made and no proactive airline engagement occurs.

Base Growth Scenario:

- The Airport attracts core domestic routes (Montréal, Ottawa) and at least one U.S. hub (New York or Chicago) by 2030.
- Seasonal leisure services to Cancun or Punta Cana are introduced by mid-2030s.
- Catchment capture rises to 25-30% by 2045, equivalent to 515,000-630,000 annual passengers.
- This aligns closely with comparator airports such as Waterloo, which grew from ~25,000 annual passengers in 2005 to >150,000 by 2015 after securing Ottawa and Calgary routes.
- Importantly, this case demonstrates that the Airport can sustain commercial service without becoming over-extended, by focusing on a handful of high-demand routes.

High Growth Scenario:

- The Airport aggressively secures multiple airline partnerships, leveraging Pearson congestion and municipal support.
- By 2035, the Airport offers year-round service to two to three Canadian cities, 2 U.S. hubs, and at least two sun destinations.
- Capture rate reaches 38-46% of catchment demand, equivalent to 790,000-970,000 annual passengers by 2045.
- This would place the Airport in the same size category as current medium-tier regional airports in Canada (e.g., Moncton, Saskatoon).
- However, this case depends heavily on favorable external conditions, including airline strategies, fuel prices, and economic growth.

4.5.2.1 Sensitivity Analysis

A sensitivity analysis indicates that a +/-10% change in assumed capture rate produces a +/-25,000 to +/-40,000 variation in annual passengers by 2045. This underlines the importance of infrastructure readiness: If the runway extension is delayed, the high growth scenario becomes unattainable.

These assumptions are summarized in **Table 4-3**, which compares the three forecast scenarios by milestone years. The table presents departing passengers, capture rates, and corresponding aircraft movements under each case.

The table makes clear that while the low growth scenario represents a continuation of the status quo, the base and high growth scenarios show meaningful growth potential, with volumes comparable to other successful regional airports.

Figure 4-5 depicts the forecast scenarios graphically, showing the range of potential outcomes over the 20-year planning horizon. The divergence of the curves underscores the importance of airline engagement and infrastructure readiness.

The figure also illustrates that growth accelerates after 2032 under the base and high growth scenarios, reflecting the assumed timing of the runway extension.

4.5.3 Aircraft Movements and Runway Development

Passenger growth translates into aircraft movements, which directly drive facility requirements.

- Low growth scenario: ~47,000 movements annually by 2045, stable GA activity with minor fluctuations.
- Base growth scenario: Movements grow to ~52,000 by 2045, comprising regional jets, narrowbody sun services, and GA activity.
- High growth scenario: Movements exceed ~54,000 by 2045, with narrowbodies operating sun and transborder services.

Runway development is the key enabling factor.

- By 2032, the Airport's runway is assumed to be extended to 7,500 ft. supporting Category C operations (737/A320).
- Without this, the Airport would remain limited to turboprops and light business jets.
- With the extension, the Airport can compete for sun routes and U.S. transborder services.

Table 4-3 Forecast Scenario Summary – Niagara District Airport (2025–2045)

(Source: Avia NG Analysis)

Scenario	Year	Annual Passengers	% Estimated 2025 Catchment	Aircraft Movements (Annual)	Key Assumptions
Low Growth Scenario	2035	~85,000	~4%	~42,000	Incremental GA and ad-hoc charters only.
	2045	~90,000-110,000*	~4-5%	~46,000	No infrastructure investment; continued leakage to other airports.
Base Growth Scenario	2035	~450,000	~22%	~45,000	Addition of domestic (Montréal, Ottawa) and U.S. hub (NYC/Chicago) and seasonal sun service.
	2045	515,000-630,000*	25-30%	~51,000	Stable domestic + transborder + sun routes; runway extension operational.
High Growth Scenario	2035	~650,000	14–16%	~47,000	Multiple domestic and U.S. hubs; 2–3 year-round sun destinations.
	2045	790,000–970,000*	38-46%	~54,000	Full utilization of extended runway; strong airline partnerships; spillover from Pearson congestion.
*Includes sensitivity analysis of +/-10%.					

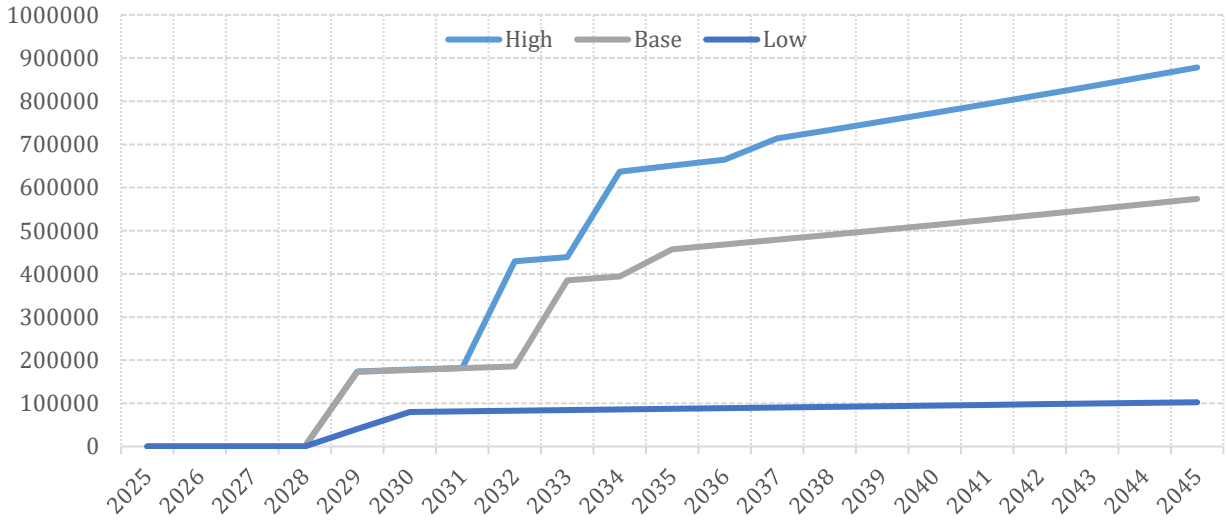


Figure 4-5 Passenger Forecast Scenarios for Niagara District Airport, 2025–2045

(Source: DKMA/Avia NG analysis)

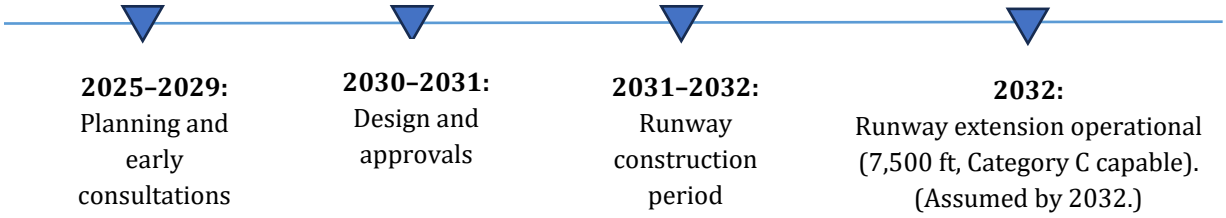


Figure 4-6 Assumed Runway Extension Timeline for Niagara District Airport

(Source: Avia NG analysis)

Figure 4-6 outlines the assumed timeline for the runway extension, linking it directly to the Airport's ability to accommodate Category C jet aircraft.

This assumption is critical to the high growth scenario. Without the extension, the Airport would remain limited to turboprops and regional jets, capping long-term passenger growth.

4.6 Summary and Implications

The demand analysis and forecasts confirm that the Airport sits in a unique position: a large catchment generating over 2.1 million trips annually, but almost no scheduled service to date. This paradox underscores both the scale of opportunity and the risks of inaction.

4.6.1 Key Implications

Key implications of the forecasts are as follows:

- Market concentration and targeting: A small number of routes account for the majority of catchment demand. The Airport should focus on these markets rather than dispersing resources.
- Infrastructure dependency: Passenger growth beyond ~100,000 annual passenger boardings is contingent upon the runway extension to 7,500 ft. Without it, the Airport will remain a GA-focused facility with limited commercial potential.
- Scenario outcomes:
  - Low growth scenario shows the risks of inaction (passenger stagnation).
  - Base growth scenario (515,000-630,000) represents a credible trajectory based on comparators.
  - High growth scenario (790,000-970,000) illustrates upside potential but depends on externalities.
- Financial planning: Passenger forecasts are used to determine revenue estimates such as aeronautical charges, terminal fees, and concession income, which form the basis for developing financial pro formas.

- Facilities planning: Passenger and movement forecasts inform Chapter 5, which sets terminal sizing, apron layout, and support infrastructure.

4.6.2 Risks and Opportunities

The study has identified the following risks and opportunities:

- Risks include overestimating airline interest, delays in runway development, and competition from Hamilton or Buffalo.
- Opportunities include leveraging Pearson congestion, Niagara's tourism brand, and partnerships with carriers seeking uncongested secondary airports.

While the passenger demand forecasts establish a strong foundation for long-term planning, they also warrant important context regarding tourism activity in Niagara. This is a factor that traditional aviation models only partially capture.

4.6.3 Tourism-Related Demand and Uncaptured Potential

While the low growth scenario forecast estimated approximately 2.1 million passengers generated within Niagara's catchment, this figure primarily reflects travel captured through scheduled commercial airports in Hamilton, Buffalo, and Toronto. It does not explicitly quantify the magnitude of tourism-driven air travel that would materialize if direct air access were available within Niagara itself. The Niagara region welcomes roughly 13 million visitors annually, many of whom currently arrive by automobile or motor coach. Even a modest conversion of that visitor segment to air travel would significantly exceed the modelled baseline.

Tourism uplift represents a latent market that traditional aviation-demand modelling cannot easily capture because it depends on route availability, fare competitiveness, and marketing alignment with destination promoters. Experience from comparable regional airports, such as Kelowna, Charlottetown, and Thunder Bay shows that once scheduled service is introduced, visitor traffic often grows two- to three-times faster than resident demand in the first decade of operation. Applying even a conservative adjustment of 10 to 15% of Niagara's annual visitor base to short-haul leisure markets would translate to several hundred thousand additional enplaning passengers, underscoring that the 2.1 million annual passengers should be interpreted as a floor rather than a ceiling.

Accordingly, the Master Plan assumes that tourism-related air travel could elevate total achievable demand well above current forecasts as the Airport gains visibility and connectivity. The forthcoming Air Service Development Strategy should therefore integrate regional tourism data, hotel occupancy trends, and event calendars to refine future forecasts and quantify this "tourism uplift." Recognizing the strength of Niagara's visitor economy in the demand narrative strengthens the Airport's business case and positions it as a direct economic enabler for the broader hospitality and experience sectors.

4.6.4 Conclusion

This chapter does not attempt to forecast a single, definitive future for the Airport. Instead, it presents a spectrum of plausible outcomes that reflect the realities of demand uncertainty, airline decision-making, infrastructure readiness, and broader economic conditions. The three scenarios: Low growth, base growth, and high growth are not predictions of certainty but planning tools designed to illustrate the range of possibilities the airport may face over the next two decades.

By framing these scenarios against a consistent methodological base and grounding them in both catchment demand and comparator evidence, the analysis establishes a credible planning framework. This framework allows airport stakeholders to understand not only the scale of opportunity within the Niagara region, but also the risks of inaction and the conditions required to capture demand.

The forecasts also highlight the importance of strategic choices. For example, without a runway extension, the Airport would remain constrained to turboprop and light jet operations, capping its ability to serve key U.S. and leisure markets. Conversely, with the extension and targeted airline engagement, the Airport could position itself to capture a meaningful share of the 2.1 million annual trips generated in the catchment. These contrasting paths underscore why the scenarios must be seen as tools for planning flexibility rather than as fixed predictions.

Importantly, Chapter 4 links demand forecasts directly to the facility and financial planning in Chapters 5 and 6. The passenger and aircraft movement projections establish the capacity thresholds that drive terminal expansion, apron sizing, and support infrastructure requirements. At the same time, they form the basis of revenue forecasts, operating budgets, and capital planning. In this sense, Chapter 4 is not an isolated exercise but the foundation for the entire Master Plan.

Ultimately, the combination of scenarios, risks, and opportunities provides the Airport with the strategic flexibility to adapt as the market evolves. Whether growth follows the conservative, expected, or optimistic trajectory, the Airport will be better prepared to make informed investment decisions, respond to changing airline strategies, and align its development with the needs of the region it serves.

Needs Assessment

5 NEEDS ASSESSMENT

5.1 POTENTIAL DEVELOPMENT SCENARIOS

The future of Niagara District Airport could see growth occur in various forms. This section explores what those growth scenarios may include to allow for a determination of the associated infrastructure needs described in this chapter.

5.1.1 STATUS QUO

Under this scenario, the Airport would continue to operate as a GA airport with some limited non-screened scheduled passenger activity.

The airside infrastructure would remain as is, with some regular infrastructure renewal and routine maintenance. However, with this Airport Master Plan, the Airport could welcome additional GA tenants within the identified areas noted in the Land Use Plan in Chapter 6.

Under this scenario, the Airport would not reach its highest revenue opportunities, nor would it maximise its opportunity to serve as a catalyst for regional economic development.

5.1.2 STATUS QUO WITH 5,000 FT. RUNWAY (STAGE 1)

The current runway length of 1,523.90 m (5,000 ft.) would limit commercial services by turboprop aircraft and light corporate jets.

The current terminal is not suited for passenger screening services. However, with an expansion of the air terminal building to accommodate CATSA passenger and baggage screening, the airport would be capable of supporting scheduled domestic passenger flights.

The Airport also has the potential to see an increase in GA activities with marketing to new tenants. The increase in GA traffic and introduction of the domestic commercial services would result in increased overall activities, including sightseeing tours, flight training, charter services and MRO activities. This scenario will be referred to Stage 1 – Status Quo throughout the report.

5.1.3 COMMERCIAL SERVICES (STAGE 2)

Stage 2 includes an extension of Runway 06-24 to 2,286 m (7,500 ft.) in addition to Stage 1 improvements. This would allow AGN IIIB aircraft, including large-sized corporate jets and regional passenger jet aircraft to operate from the Airport. The extension would remove or reduce the restrictions required on aircraft using the Airport, thus reaching USA and sun destinations. Doing so would result in the need for expanded CBSA services. Therefore, considerations would be given to a new greenfield terminal.

This scenario presents significant potential for generating increased revenue and economic benefits. Revenue streams would include airport improvement fees, terminal charges, and parking, among other sources. A consistent volume of scheduled and charter passenger activity would necessitate expanded ground handling, line maintenance, and related services, which would subsequently create additional employment opportunities and further increase the Airport's overall revenue.

In this scenario, the Airport could enhance its contribution to the regional economy by offering additional scheduled and seasonal charter passenger services, which would assist the region's tourism sector.

5.2 AIRSIDE INFRASTRUCTURE

5.2.1 RUNWAY CAPACITY

The existing runway system, having the benefit of a full-length parallel taxiway, has the capability of supporting approximately 195,000 to 240,000 annual movements depending on the mix of aircraft, meteorological conditions and the amount of touch and go traffic. Given the forecasted aircraft movements, the Airport has the runway capacity to meet foreseeable demand well beyond the 2045 planning horizon.

5.2.2 RUNWAY LENGTH

The current primary runway length has the length to accommodate up to and including AGN IIIA turboprop aircraft, such as the Q400 and light to medium sized corporate jets. However, to support regional passenger jet aircraft up to AGN IIIB with little to no restrictions and larger sized corporate jet aircraft, Runway 06-24 needs to be expanded to approximately 2,286 m (7,500 ft.).

Based on a separately completed aircraft payload-range analysis, a commercial service range for the Q400 operating from the existing 1,523.90 m (5,000 ft). runway would be between 900 and 1,100 nautical miles as illustrated in **Figure 5-1**.

Figure 5-1 Q400 Range from 5,000 ft. Runway

(Source: AVIA NG)

Increasing the runway length to 2,286 m (7,500 ft.) would allow aircraft such as the Airbus A320-200 and B737-800 to operate, increasing the commercial service range to between 1,800 and 2,400 nautical miles as illustrated in **Figure 5-2**.

Figure 5-2 B737 Range from 7,500 ft. Runway

(Source: AVIA NG)

5.2.3 Runway Usability

Transport Canada recommends [11] runway usability from wind coverage perspective to be 95%. A review of the latest wind data has been completed to calculate the runway usability for each runway and various combinations to determine if there is a need to maintain three runways at the Airport.

It was observed that under VFR scenario the primary bi-directional runway achieves 97.3% usability. Therefore, the primary runway exceeds the recommended runway usability under the VFR scenario. Considerations have been given to closing one of the crosswind runways to reduce operating cost. Combining each crosswind runway with the primary runway, it was observed that Runway 11-29 achieves a higher usability of 98.67% under VFR conditions.

It is recommended that Runway 01-19 be closed, and Runway 11-29 be repurposed and used for GA purposes.

To further enhance the level of service – especially during inclement weather – upgrading Runway 06-24 to Instrument Precision Classification, with the installation of an Instrument Landing System (ILS), would significantly improve operational reliability and align with the expectations of commercial air carriers, who typically require ILS availability.

5.3 Landside Infrastructure

5.3.1 Parking Requirements

The existing access roads and parking lot have the capacity to meet current demand. However, if further growth is realized, in particular the introduction of schedule passenger services, additional parking would be required.

To support both near-term and long-term passenger demand, expansion of the air terminal parking lot will be required. Associated with Stage 1 it is anticipated that between 120 and 200 stalls will be required, with potential need for more subject to the type of passenger that uses the facility. For Stage 2 is anticipated that between 800 and 1200 parking stalls will be required.

5.3.2 Airport Access

The entry road to the Airport is currently a two-way intersection to a frequently travelled road, Niagara Stone Road (Highway #55). The introduction of commercial service in Stages 1 and 2 would result in a significant increase to traffic flow, which would require a new signalled intersection or a vehicle roundabout to enhance safety and improve the airport access. Refer to **Figure 5-3** for an

[11] Transport Canada, TP 312 – Aerodrome Standards and Recommended Practices, 5th Edition (2015), Section 3.1.2 Runway Orientation.

illustration of the roundabout concept prepared for the Airport Master Plan.

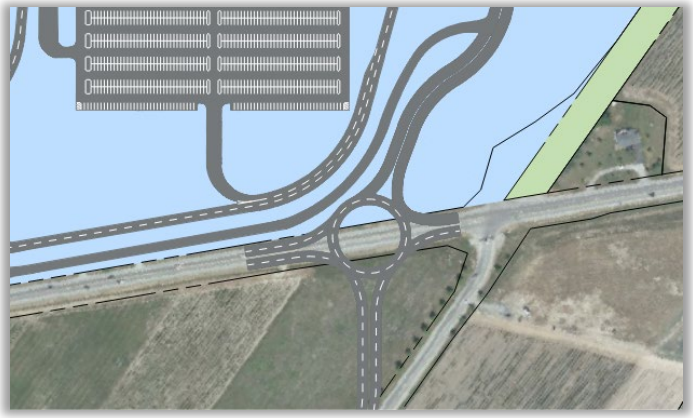


Figure 5-3 Proposed Airport Access Improvement

(Source: AVIA NG)

The roundabout introduces a realignment of the access road to the Airport. This new road would be used to access Stage 1 and Stage 2 terminal expansions.

5.4 Commercial Development

During stakeholder engagement, it was noted that the Airport currently does not have land readily available for future airside commercial development, including private tenants. It was indicated that the Airport has turned away potential tenants due to lack of clarity on areas that would be best suited for commercial use without conflicting with the Airport's future, including potential terminal building relocation. It is recommended that the Airport designate land for commercial use and ensure these lands are accessible and site servicing are available.

5.4.1 Dedicated Helicopter/e-VTOL Operating Area

The establishment of a dedicated helicopter or eVTOL operating area would help position the Airport as a central hub for helicopter or eVTOL air taxi operations within the Niagara region. As eVTOL technologies are introduced, the development of a commercial vertiport could facilitate commuter and air taxi services connecting the Niagara region to downtown Toronto, Toronto-Pearson Airport, and additional destinations. The resulting concentration of helicopter and eVTOL activities has the potential to attract ancillary businesses that support this sector. An ability to repurpose the existing ATB to that of a multi-tenant FBO catering to both fixed and rotary wing aircraft could be an option following the construction of a new ATB as part of Stage 2 of the Airport's redevelopment.

5.5 Airport Terminal Building

The existing ATB was designed specifically to support GA activities, including helicopter tours and private charters.

To support the potential introduction of commercial services, the terminal would need to be expanded to accommodate passenger screening, a sterile area, and dedicated immigration services in the future.

To support the Stage 1 and 2, passenger volumes identified in Section 4.3, at an appropriate level of service, several functional areas in the terminal would be needed.

The following text summarizes potential air terminal building development at the Airport based on passenger forecast scenarios prepared by DKMA consultants. DKMA prepared three forecasts, or more appropriately described as 'growth scenarios' given that the Airport has no historical passenger traffic in which to base a forecast. The three growth scenarios prepared by DKMA include:

- Low growth scenario achieving 51,300 annual enplanements by 2045
- Base growth scenario achieving 239,600 annual enplanements by 2035 (Intermediate Stage)
- Base growth scenario achieving 300,000 annual enplanements by 2045

This would be achieved through a modular terminal design concept that allows for sequential lateral expansions of the departures/arrivals halls to the north and east as demand grows. The site layout preserves clear expansion zones on both sides of the Stage 1 building, enabling the terminal footprint to grow incrementally without major operational disruptions.

As the Airport currently does not have scheduled air service, the High Growth Scenario was not included in the terminal requirements analysis as it was deemed to be less probable, given no current scheduled passenger service.

5.5.1 Peak Hour Passenger Demand Assumptions

Air terminal buildings are typically sized based on their capacity to accommodate a planning peak hour passenger demand at appropriate levels of passenger service. Given that there is no historical passenger data in which to determine peak hour passenger demand, several assumptions were made based on DKMA's projected annual enplanements. The planning month is expected to be approximately 10% of annual enplanements, with a planning day equal to a small share of that monthly activity. Within the planning day, the peak hour is taken as a

proportion of total daily traffic, ranging from 20% to 50% depending on the growth scenario.

The planning peak hour passenger demand for each terminal development scenario was determined by assigning a mix of aircraft types where a 90% load factor approximates the peak hour passengers derived through the above analysis. The forecast analysis prepared by DKMA assumes that annual deplanements (arriving passengers) are the same as enplanements (passenger boarding their flight); therefore, the planning peak hour for enplanements and deplanements is assumed to be the same.

5.5.2 Terminal Development Scenarios

Three terminal development scenarios were considered for the expansion of the existing terminal building and described in the subsequent sections.

Throughout this section, the use of enplaned and deplaned passengers is important to identify as the terminal sizing is contingent on the type of passengers and their movements.

5.5.2.1 Scenario 1 – Low Growth 51,300 annual Enplanements

The Peak Hour Passenger Demand was calculated as:

- 51,300 annual enplanements x 10.6% = Peak Month of 5,438 enplanements
- 5,438 enplanements x .04% = 218 Peak Planning Day enplanements
- 50% of 218 = 109 Peak Hour Passengers

Translating the Peak Hour Passengers to actual aircraft seats at a 90% load factor equates to 1 x Q400 (78 seats) + 1 x ATR42 (45 seats) = 123 seats x 90% load factor = 110 passengers. To accommodate this peak hour passenger demand, a terminal of approximately **2,030 m²** would be required.

As functionally described in **Table 5-1**, the terminal is sized and equipped to accommodate scheduled regional services and limited international operations. Key processing and service elements include:

- Peak Gating Capacity – two Q400-type aircraft (≈138 seats each)
- Passenger Screening – Canadian Air Transport Security Authority (CATSA) facilities
- Customs/Immigration – limited CBSA space (≈72.6 m^2), with flexibility to supplement using land-border agents for occasional international arrivals
- Baggage Claim – common-use area designed for both domestic and international arrivals.

Since the Airport does not currently have scheduled air service, expanding the existing terminal is the most practical and cost-effective approach. If service grows in the future, a new facility can then be considered to meet passenger demand.

Figure 5-4 illustrates the approximate size of the proposed terminal, assuming the existing air terminal would be expanded to accommodate the additional functional requirements.

Figure 5-4 ATB Scenario 1 Footprint

(Source: AVIA NG)

5.5.2.2 Scenario 2 – Base Growth 239,600 Enplanements (2035)

The Peak Hour Passenger Demand was calculated as:

- 239,600 annual enplanements x 10.6 = Peak Month of 25,397 enplanements
- 25,397 enplanements x .04 = 1,016 Peak Planning Day enplanements
- 20% of 1,016 = 203 Peak Hour Passengers

Translating the Peak Hour Passengers to actual aircraft seats at a 90% load factor equates to 1 x EMB 195-E2 (132 seats) + 1 x Q400 (78 seats) = 210 seats x 90% load factor = 189 peak hour passengers.

To accommodate this peak hour passenger demand, a terminal of approximately **3,489.9 m²** would be required. This scenario is considered an interim initial build, where the design of the facility would have the flexibility to accommodate future expansion without compromising ongoing operations. The terminal, as functionally described

in **Table 5-1**, would be sized to accommodate CATSA passenger and hold bag screening, and CBSA international arrivals functions. Domestic flights would likely include Ottawa and Montréal, and possibly seasonal destinations in western and eastern Canada. Given the possibility of a limited number of seasonal international flights to sun destinations, it is assumed the baggage claim area would be shared between the domestic and international sectors. International arrivals would need to be scheduled at times when there are no domestic arrivals.

The following diagram (**Figure 5-5**) illustrates the approximate size of the proposed terminal. For the proposed terminal to remain in the current location, it is assumed the existing air terminal would likely have to be demolished. A more likely scenario is that a new greenfield air terminal would be constructed at another site for commercial passenger operations and the existing terminal would remain as a GA terminal and administrative building. A major constraint of constructing a new air terminal at the current site would be the lack of vehicle parking.

Figure 5-5 ATB Scenario 2 Footprint

(Source: AVIA NG)

5.5.2.3 Scenario 3 – Base Growth 300,000 Enplanements (2045)

The Peak Hour Passenger Demand was calculated as:

- 300,000 annual enplanements x 10.6 = Peak Month of 31,800 enplanements
- 31,800 enplanements x .04 = 1,272 Peak Planning Day enplanements
- 20% of 1,016 = 254 Peak Hour Passengers

Translating the Peak Hour Passengers to actual aircraft seats at a 90% load factor equates to 1 x EMB 195-E2 (132 seats) + 2 x Q400 (156 seats) = 288 seats x 90% load factor = 259 peak hour passengers.

To accommodate this peak hour passenger demand, a terminal of approximately **4,553.9 m²** would be required. The terminal, as functionally described in **Table 5-1**, would be sized to support multiple flights during the peak hour. Domestic flights would likely include Ottawa and Montréal as well as destinations in western and eastern Canada. This scenario assumes there is sufficient international traffic to warrant a dedicated international baggage claim area sized to accommodate a single Boeing 737-800/Max 8 aircraft having 189 seats. This would allow for simultaneous domestic and international arrivals. It is also assumed CBSA would have a more permanent presence at the Airport.

The proposed terminal would be too large to be accommodated on the site of the current air terminal, nor would there be sufficient land to accommodate required surface parking. The proposed air terminal would likely have to be accommodated in the southwest corner of the Airport.

Figure 5-6 illustrates the approximate size of the proposed terminal.

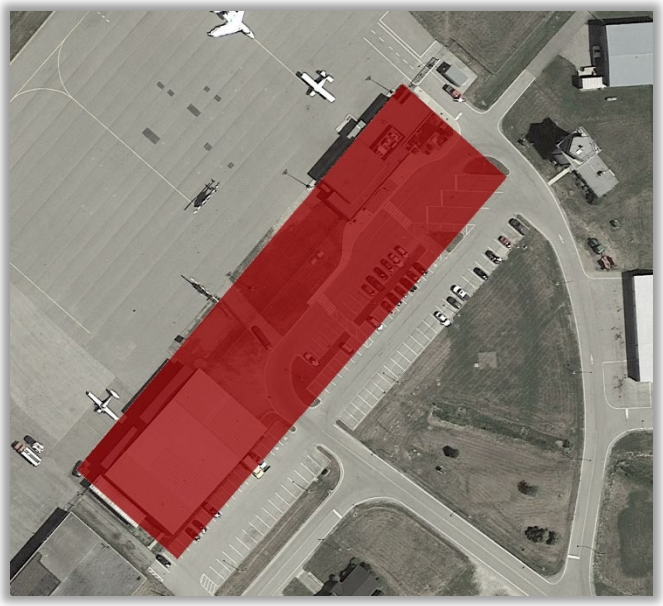


Figure 5-6 ATB Scenario 3 Footprint

(Source: AVIA NG)

5.5.3 Summary of ATB Sizing Options Explored

To support the introduction of scheduled passenger service at the Airport the existing air terminal building would need to be expanded to accommodate CATSA passenger and baggage screening as well as having an adequately sized secure holdroom and a proper inbound baggage facility plus back of house facilities. Under the Low Growth Scenario, these facilities could likely be accommodated with an expansion to the existing terminal building where the check-in function could likely be accommodated in the existing building and the remainder of the facilities provided in new construction. This approach would minimize the financial risk on the part of the Airport while providing the minimal facilities required to support regularly scheduled domestic flights and the occasional ad hoc international flight.

For the Base Growth Scenario, it is likely that a new greenfield air terminal would be required, as the existing site would not have sufficient area in which to accommodate the terminal building and associated parking. This new terminal could be designed in such a manner as to support peak hour passenger demand associated with a 2035 (10-year) planning horizon, but with the flexibility inherent in the initial design to support, with a subsequent expansion, peak hour passenger demand associated with a 2045 (20-year) planning horizon. Such a concept would reduce the risk of over-constructing the initial terminal.

The approach for the Airport in supporting commercial scheduled passenger operations would be to construct an addition to the existing air terminal building (Low Growth Scenario) as a first step in attracting and sustaining scheduled passenger service, and if successful, giving consideration to a new greenfield air terminal (Base Growth Scenario) that can support the future expansion of activities in a staged manner.

Table 5-1 describes the air terminal requirements.

It is strongly recommended design work for these improvements occur well in advance of construction operations, approximately two to three years in advance, to allow for comprehensive planning and engineering exercises to occur.

Table 5-1 Air Terminal Requirements

Area/ Function	Scenario 1 Requirements (m^2)	Scenario 2 Requirements (m^2)	Scenario 3 Requirements (m^2)
Departures Lobby	161	215	228
Check-In	60.5	104.5	138
Pre-Board Security Screening	128	211	308
Holdroom	239	505	642
Baggage Make-Up	145	200	395
Baggage Claim	254	502	482
International Arrivals / CBSA	249.6	435	785
Arrivals Hall	62	96	109
Administration	128	206	206
Airline Support	40	80	80
Building Support	107	142	142
Other Dwell / Circulation Office/Mechanical	30%	30%	30%
Total Ground Floor	**2,030.7 m^2**	**3,489.9 m^2**	**4,553.9 m^2**

5.6 Airport Support Facilities

5.6.1 Combined Services Building

The Airport's current maintenance garage is located on the landside and is used to store its equipment. This results in mixed-use activity between landside and airside areas, which can lead to salt and debris being tracked onto the airside, increasing the risk of aircraft corrosion.

The garage is also not sized to accommodate heavy airfield maintenance snow removal equipment such as plow/sweeper combination.

It is recommended that the Airport builds a CSB that has direct airside access and is sized to accommodate required equipment and store them outside of the elements. The equipment storage bays should also double as wash bays and should have drive-through capabilities.

The CSB should also include airport operations office space, washroom facilities, and storage room for small equipment.

Although the Airport is currently not required to implement and does not have aircraft rescue and firefighting services (ARFF), the future CSB should include provisions to support ARFF Category 6.

It is recommended that the Airport's new combined services building be approximately 800 to 1,000 m^2 and ARFF services be operational before reaching 200,000 annual passengers. In Stage 1, development of the CSB will focus on providing the essential footprint, utility connections, and space allocations needed to support current operations and accommodate required equipment. In Stage 2, the CSB will be expanded to incorporate dedicated ARFF facilities, ensuring compliance with Category 6 requirements for sustained traffic levels in excess of 200,000 annual passengers. This phased approach provides a cost-effective balance by avoiding premature capital outlay in the early years while ensuring that ARFF capacity can be scaled in line with actual growth in passenger volumes and regulatory triggers.

5.6.2 NAV CANADA Flight Service Station

The existing NAV CANADA control tower supports the current FSS operations. During stakeholder engagement, concerns were raised about visibility from the FSS to certain apron areas due to the tower's location. However, these concerns have largely been addressed through the installation of cameras, including on Taxiway Charlie, and existing systems now provide coverage for almost the entire apron. As a result, apron visibility is generally sufficient, and no major gaps requiring further CCTV installation have been identified at this time.

5.6.3 Fuel Farm

The existing fuel farm accommodates current fuel storage requirements; however, its location landside, with no direct airside access, limits efficiency and creates operational challenges. Relocating the facility in conjunction with the development of the CSB would provide direct airside accessibility, reducing the need for towing fuel across active roadways and improving safety and efficiency of refuelling operations.

The current location has also been flagged for environmental considerations, as the proximity to drainage pathways increases the risk of surface water contamination. A relocated facility would allow the Airport to implement improved environmental safeguards, including modern containment systems and monitoring technologies.

In terms of capacity, the existing farm is adequate for present activity but may not be sufficient to accommodate anticipated GA and commercial service growth over the planning horizon. Expansion of storage capacity should be considered to ensure adequate fuel availability for increased itinerant activity, potential scheduled service, and charter demand. Future planning should evaluate an optimal storage volume that would be confirmed through detailed design, with the flexibility to expand as traffic levels grow.

5.7 Utilities and Site Services

The introduction of new greenfield terminal building would require an extension of the current water and sewer from the existing lines. Extending these services could also support the western commercial development area, located west of the potential greenfield terminal building.

Site servicing would need to be extended to the east commercial development area.

It is recommended that an Airport Site Servicing study be completed to determine existing capacity and potential future demand required to support the greenfield terminal and two new commercial development areas.

5.8 Ground Transportation

The Airport is currently accessible primarily by personal vehicles, taxis, and charter bus services, as there is no dedicated public transit connection to the site. This limits

travel options for airport employees, tenants, passengers, and visitors, and places full reliance on private vehicles. To address this gap and increase potential passenger traffic, a public ground transportation system could be established. Possible options include scheduled GO Transit bus routes, integration with regional and local transit networks, and dedicated taxi services aligned with key flight schedules. Collaboration between the Airport and the municipalities would encourage public use of the facility, improve regional accessibility, and potentially support the expansion of commercial air services.

Niagara District Airport Tomorrow

6 NIAGARA DISTRICT AIRPORT TOMORROW

This chapter outlines the long-term development vision for the Airport, including planning concepts, a recommended development plan, and the proposed land use strategy. It also provides a summary of passenger terminal development. Given the anticipated growth at Niagara District Airport, the chapter concludes with considerations related to airport ownership and governance, which may need to evolve as activity levels rise and funding requirements shift.

6.1 LAND USE AND DEVELOPMENT PLANNING

The Airport of the future is envisioned as a regionally significant transportation hub that builds on its existing diverse aviation operations while accommodating scheduled commercial air service. Through a phased development strategy spanning the next two decades, the Airport will evolve to meet growing demand and opportunities to further support the Niagara region's economic development. This chapter presents and describes the Airport Development Plan, Land Use Plan and implementation strategy to guide the growth and development of the Airport through 2045.

6.1.1 RECOMMENDED DEVELOPMENT PLAN

Based on the needs assessment presented in Chapter 5, a recommended development plan was prepared.

The recommended development plan, shown in **Figure 6-1** below and in **Appendix B**, presents the vision for the long-term development of the airport and addresses the infrastructure requirements airside, landside, terminal building and support facilities. For details specific to phasing, additional details can be found in Chapter 9.

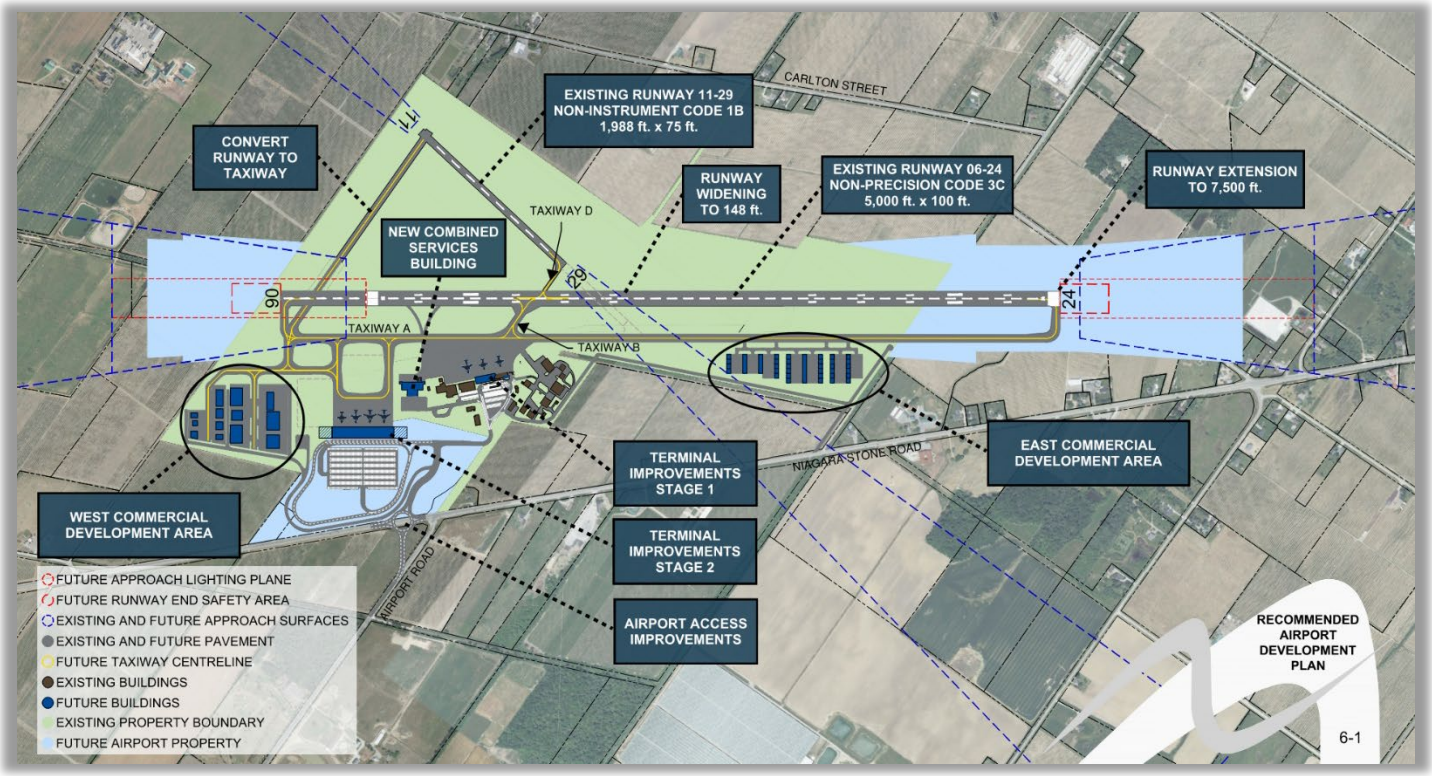


Figure 6-1 Recommended Airport Development Plan

(Source: AVIA NG)

Specific improvements include:

- Strengthening of existing pavements.
- Expansion of the existing ATB (Stage 1).
- Housing of CATSA and CBSA facilities.
- New CSB with Fire Hall.
- Relocation of impacted tenant facilities to new West and East Commercial Development Areas.
- Additional landside parking for the existing terminal (Stage 1).
- Extension of Runway 06-24 to 2,286 m (7,500 ft.) with widening and rehabilitation of existing.
- New AGN IIIB taxiways and apron expansion.
- Upgrade of Runway 06-24 to Instrument Precision with Category 1 ILS.
- Development of a new greenfield terminal with dedicated landside parking facilities, roadways, and commercial apron (Stage 2).
- Repurposing of existing ATB to an FBO following completion of the new greenfield passenger terminal (Stage 2).

6.1.2 Recommended Land Use Plan

The purpose of an Airport Land Use Plan is to identify the land areas by use and location within and beyond the Airport Master Plan planning horizon. The Airport Land Use Plan is designed to ensure continued operation, effective use of the land and cost-effective development. **Figure 6-2** below and in **Appendix B** illustrates the recommended Airport Land Use Plan.

These areas may include environmentally sensitive areas that have yet to be identified and may be part of the subsequent studies as required in accordance with the Impact Assessment Act[12].

The land designations identified in the Airport Land Use Plan include the following:

Airside Systems Reserve:

Airport land which needs to be protected from encroaching development. This includes the runway system, taxiways, aprons, approach paths, navigational aids and approach lighting plane. This area includes electronic zoning and OLS clearance up to approximately nine to 10 m above ground level.

Airport Reserve:

Land parcels within the airport property boundaries that are not yet assigned to any land use designations but are held in reserve for contingency requirements, and to provide an effective buffer zone for the continuance of safe airport operations.

Airport Support:

These areas are protected for facilities related to airport services. These facilities include maintenance garage, fire hall, combined services building, storage, utility buildings, and radio navigational antennas.

Terminal Reserve & Parking:

These areas include the Air Terminal Building and associated infrastructure, including parking lot, access roads, main terminal apron area.

Airside Commercial:

Airside commercial land is designated for uses that require direct access to the runway and taxiway system, such as air cargo operations, equipment servicing, storage of goods and materials, and light manufacturing or assembly activities. These would include aviation related uses like hangars, aircraft maintenance facilities, fixed base operations, hangars, aprons, and tie-down areas.

Landside Commercial:

The land would be reserved for commercial use that does not require direct access to the runway or taxiway system and does not impact the operation of the Airport or flight safety. Uses include warehousing and storage, light industrial, ground transportation, car rental facilities/parking, and office facilities.

[12] Under Canada's Impact Assessment Act (IAA), airport expansions are evaluated for potential environmental, social, health, and economic impacts, including effects on Indigenous rights and knowledge. An initial determination by the Impact Assessment Agency of Canada (IAAC) decides if a formal impact assessment is needed, based on factors like the project's potential to cause significant adverse effects. If a project is on federal lands, specific rules under Section 82 of the IAA also apply, requiring a federal authority's determination unless the Governor in Council decides otherwise.

Right-of-Way:

Public access comprising the ground transportation system, including access roads not included as part of the Terminal Reserve.

Land Acquisition:

Land outside of the airport boundaries that could accommodate airport related uses in the future, should the demand for such arise.

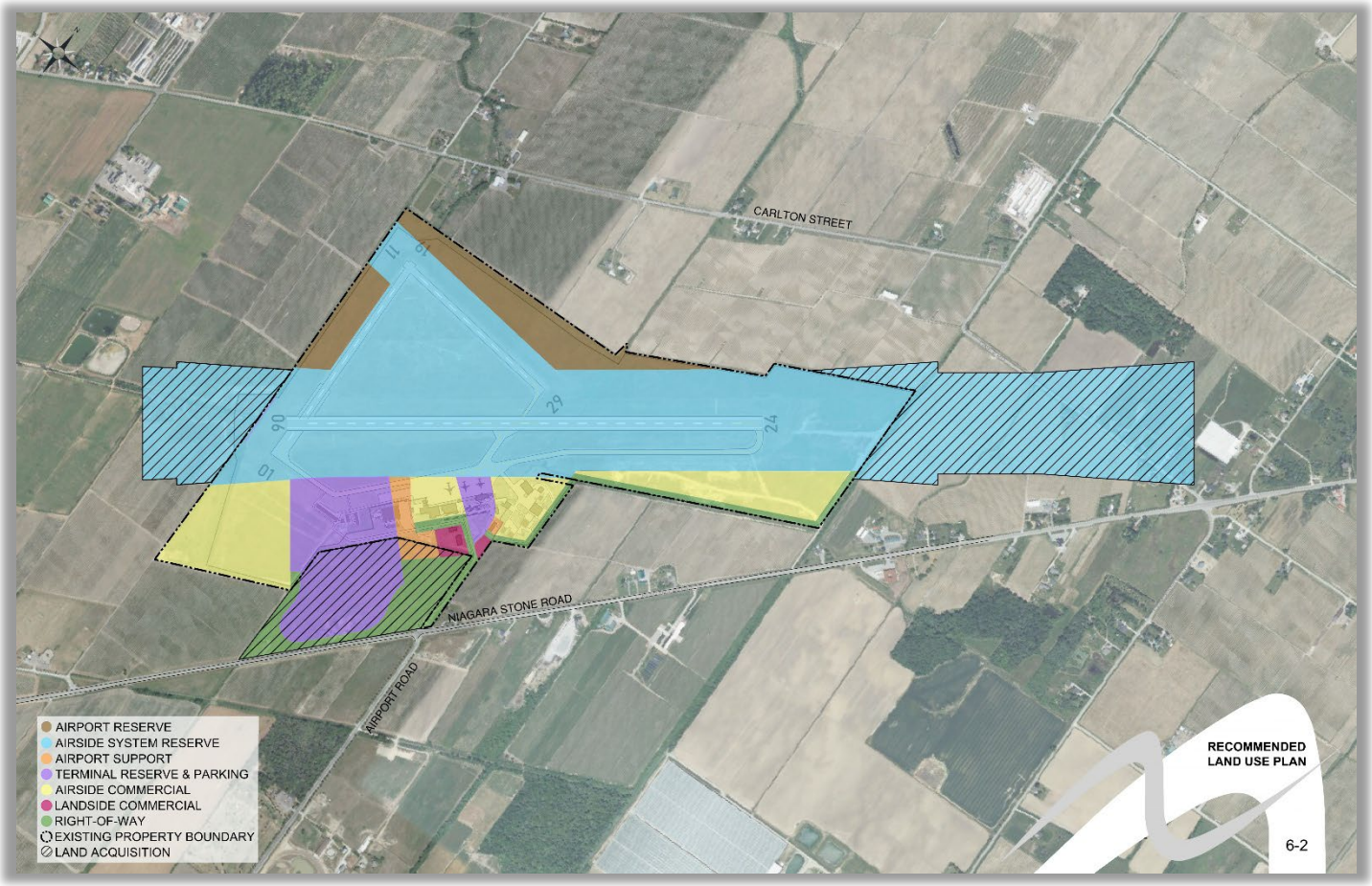


Figure 6-2 Recommended Airport Land Use Plan

(Source: AVIA NG)

6.2 Passenger Terminal Development

The needs assessment explored scenarios under which terminal development could occur. From this, a two-stage approach was recommended, with the first stage reflective of continued investment in the existing terminal to provide an expanded facility that will meet the near-term requirements of the Airport as scheduled air service begins to be established.

Stage 1 has been illustrated in **Figure 6-3** below and provides for an 1,800 to 2,030 m^2 terminal.

The second stage of terminal development is proposed to handle what may occur if scheduled air service grows in line with what has been presented as a base growth scenario. Under this growth scenario, it would become disruptive to continue to expand the existing terminal to accommodate the growth while continuing to operate. A new greenfield location was selected to provide the ability to construct a new terminal alongside operation of the existing one, with minimal disruption. The new greenfield terminal site has been sized to accommodate demand, both within and beyond the planning horizon set for this Master Plan, and in that regard includes land reserved for additional terminal building expansion, parking lot expansion and additional

apron area. The size of the terminal proposed for initial construction has been estimated at between 4,000 m^2 and 5,000 m^2 and will be subject to further review as scheduled traffic starts to develop it at the airport.

Following the opening of the greenfield terminal as part of Stage 2, it is envisioned that the existing terminal, expanded as part of Stage 1, can be repurposed as a larger FBO and used to position Niagara as a premier business aviation airport and future eVTOL hub.

Refer to **Figures 6-3** and **6-4**, also in **Exhibit 6-3** of **Appendix B** for illustration of the terminal stages.

Figure 6-3 Terminal Development Stage 1

(Source: AVIA NG)

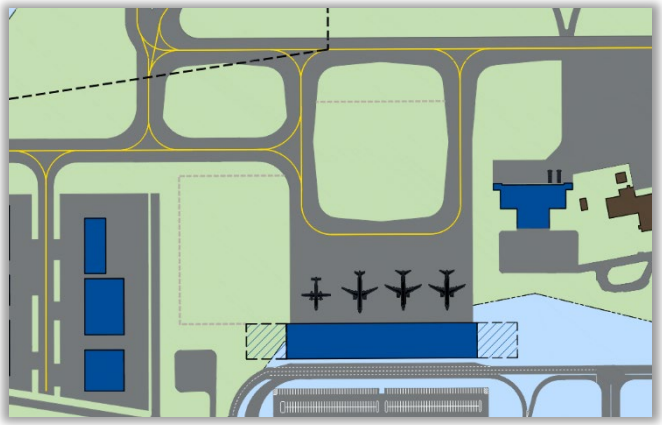


Figure 6-4 Terminal Development Stage 2

(Source: AVIA NG)

6.3 Airport Governance and Ownership

6.3.1 Existing Governance Model

Table 6-1 summarizes the existing governance structure for the Airport.

6.3.2 Other Governance Models

Across Canada, airports of comparable size and role operate under a variety of governance arrangements, each reflecting local priorities, funding structures, and legislative environments. In some cases, airports are managed directly by a single municipality through a dedicated department, with elected officials retaining close control over budgets, capital planning, and operations. Elsewhere, airports are governed through municipally owned corporations or boards, which provide an arm's-length structure similar to a commission, but with added flexibility to adopt corporate practices, manage staff directly, and pursue commercial partnerships. Regional models also exist, where multiple municipalities jointly establish an authority or board of directors, ensuring representation from each partner while pooling resources for long-term planning and investment.

In addition to municipal and regional frameworks, some airports fall under the stewardship of independent, not-for-profit airport authorities, particularly where traffic volumes are higher or where significant federal and provincial funding opportunities exist. These authorities operate under long-term leases with Transport Canada and are tasked with reinvesting surpluses back into airport operations and infrastructure. At the smaller end of the spectrum, airports may also be managed through contracted third-party operators, particularly when day-to-day operations are modest and the focus is on cost efficiency. Governance structures are often subject to review as airports grow and management requirements evolve, with adjustments made to ensure continued accountability, financial sustainability, and responsiveness to community needs. In this context, the commission model used at the Airport represents one of several well-established approaches that can adapt over time.

Table 6-1: Niagara District Airport Governance Structure (Existing Model)

(Source: AVIA NG)

Element	Details
Ownership	Town of Niagara-on-the-Lake, City of St. Catharines, City of Niagara Falls
Governing Body	Niagara District Airport Commission (NDAC)
NDAC Composition	9 members total: • 3 municipal councillors (1 from each municipality) • 6 municipal appointees (three from St. Catharines, two from Niagara Falls, one from Niagara-on-the-Lake)
Supporting Body	Airport Liaison Committee (ALC)
ALC Composition	Mayors and Chief Administrative Officers (CAOs) from the three municipalities
ALC Role	Provide guidance to NDAC and act as liaison between the Commission and municipal councils
Key Commission Responsibilities	• Establish annual operating and capital budgets • Present budgets to municipal councils for approval • Protect and maintain the airport as a community asset • Plan and support operations and infrastructure sustainably
Municipal Contributions (2025)	$1,269,000 total from three municipalities
Governance Model Characteristics	• "Airport Commission" model • Operates largely independently from councils ("arm's length") • Maintains municipal oversight • Aims to develop a self-sufficient operating environment • Encourages community-wide participation

Airport Safeguarding

7 AIRPORT SAFEGUARDING

An airport's long-term viability depends on its ability to sustain operations and accommodate growth in air traffic. To this end, it is equally important to preserve lands for future airport expansion as it is to preserve the airspace surrounding the airport from conflicting land uses for the safe and efficient movement of aircraft in present and future operations. Safeguarding refers to the collection of tools that can be used to protect airspace surrounding an airport. This section discusses safeguarding considerations as applicable to Niagara District Airport.

7.1 SURROUNDING LAND USE

According to the Niagara-on-the-Lake Official Plan and Zoning By-law, the Airport is surrounded by lands zoned as Agricultural, specifically "specialty crop areas" for viticulture and tender fruit agriculture such as grapes, peaches or cherries. Permitted uses within this zoning designation include agricultural uses and agriculturally related uses such as farmers markets, produce stands, nurseries, greenhouses and single detached dwellings, but overall, the overarching intent is for designated lands to be protected for long-term agricultural use.

The Airport is also located on lands designated under the Province of Ontario's Greenbelt Plan (2017) as Protected Countryside and a Specialty Crop area, specifically the Niagara Peninsula Tender Fruit and Grape Area. Given the municipal and provincial land designations, it is unlikely the lands surrounding the airport will have a change in use over the horizon of the Airport Master Plan.

With the exception of existing uses, lands falling within the Specialty Crop Area "shall not be re-designated in official plans for non-agricultural uses. Non-agricultural uses may be permitted [but are] generally discouraged in specialty crop areas and may only be permitted after the completion of an agricultural impact assessment."

Under Section 4.2 of the Provincial Greenbelt Plan, infrastructure can expand, subject to approval under the *Canadian Environmental Assessment Act* or similar environmental approval, provided it "supports agriculture, recreation and tourism, towns/villages and hamlets resource use or the rural economic activity that exists and is permitted within the Greenbelt; or it serves the significant growth and economic development expected in southern Ontario beyond the Greenbelt by providing for the appropriate infrastructure connections among urban centres and between these centres and Ontario's borders." Future airport expansion would require planning, design, and construction to minimize wherever possible the amount of the Greenbelt occupied by such infrastructure and impacts to natural Greenbelt features and otherwise comply with the conditions described in the Provincial Greenbelt Plan.

As part of this Airport Master Plan, a review was undertaken of the Official Plans, Zoning By-laws and Secondary Plans for the Niagara region and the municipalities within it, including Niagara-on-the-Lake; St. Catharines; Niagara Falls; and Thorold. It was found that the Niagara region and all municipalities with a substantial portion of their lands being subject to the existing AZRs contain policies and principles in their Official Plans related to maintaining compatible land uses in the vicinity of the Airport and adherence to the restrictions imposed by the current AZRs.

While the Official Plans consistently reference the AZRs, they do not incorporate Transport Canada's NEF 30 noise exposure contours or the land use compatibility guidance contained in TP 1247. These additional overlays are outside the scope of local planning documents and would need to be addressed through federal policy references and airport-led consultation. As such, safeguarding against potential noise and land use conflicts will require continued dialogue with the Region and municipalities. Official Plans, Zoning By-laws and Secondary Plans have all been generally in line with the Niagara Region's Official Plan; however, some larger urban areas designated for intensification and growth may project into airport airspace and require further safeguarding analysis in collaboration with the municipalities.

7.2 AIRCRAFT NOISE

7.2.1 NOISE MANAGEMENT

Aircraft noise is typically the cause of most adverse responses from the public regarding airport operations. Implementing an appropriate noise management program can help to mitigate the impact of airport related noise.

A balanced approach to noise management includes:

- **Reducing the noise at its source.** This includes attracting newer aircraft types with advancements in engine and propeller technology that reduce noise levels. The potential promotion and introduction of electric regional passenger aircraft and vertical takeoff and landing (VTOL) in the near future could significantly reduce airport related noise levels;
- **Land-use planning.** Through appropriate land use planning, noise sensitive land uses can be restricted from developing adjacent to the airport and under the flight paths;
- **Noise mitigation procedures**. Implementing arrival and departure procedures that minimize the impact of noise on residential areas; and
- **Operating restrictions.** Restricting the operating hours of the airport and/or certain activities such as maintenance engine runups.

The estimation of annoyance resulting from exposure to aircraft noise is essential in determining the appropriateness of land uses surrounding an airport and assisting municipalities in restricting the development of noise sensitive land uses in proximity to airports, which in turn protects the long-term viability of an airport. As part of this Master Plan, a noise study has been undertaken following Transport Canada recommendations to gauge the need for a noise management plan and/or to make recommendations concerning appropriate land uses surrounding the airport.

In Canada, the Transport Canada Noise Exposure Forecast (NEF) model is the metric used by airports and municipalities to determine the potential impacts of noise on the community. The NEF system considers the subjective human reaction to specific aircraft noise stimulus. The NEF analysis considers the daily distribution of aircraft movements, the mix of aircraft types, loudness, and the distribution of movements on specific runways.

Noise Exposure Projections (NEP) are similar to NEFs but consider projected aircraft movements at least 10 years into the future and consider changes in the level of activity, aircraft mix, and runway usage.

The output of the NEF model are computer-generated contours that do not describe specific noise levels, but rather anticipated community response to noise. **Table 7-1** describes the predicted community response associated with the contours generated by the NEF model. It should be noted that Transport Canada recommends that no new residential development and other noise sensitive uses, such as schools, be permitted in areas greater than 30 NEF. Other noise sensitive uses such as hospitals, nursing homes, libraries, auditoriums, and cemeteries should only be allowed in areas above 30 NEF where a detailed noise analysis has been undertaken and appropriate noise attenuation measures, including acoustic insulation, are included in the building design. Noise contours of 25 NEF and greater are likely to result in some level of public response in the area; therefore, the 25 NEF contour is often used to define the limit of residential development.

Table 7-1 Community Response Prediction

Response Area	Response Prediction
Over 40 NEF/NEP	Repeated and vigorous individual complaints are likely. Concerted group and legal action might be expected.
35-40 NEF/NEP	Individual complaints may be vigorous. Possible group action and appeals to authorities.
30-35 NEF/NEP	Sporadic to repeated individual complaints. Group action is possible.
Below 30 NEF/NEP	Sporadic complaints may occur. Noise may interfere occasionally with certain activities of the resident
It should be noted that the above community response predictions are generalizations based upon experience resulting from the evolutionary development of various noise exposure units used by other countries. For specific locations, the above response areas may vary somewhat in accordance with existing ambient or background noise levels and prevailing social, economic and political conditions.	

7.2.2 Noise Exposure Forecast Baseline

To prepare future projection of noise exposure contours, a 'baseline' was consolidated, using the NAV CANADA Tower Aircraft Movement (TAM) database. The baseline takes into consideration the activity level at the Airport that reflects normal day-to-day operations, with no construction activities. Since the FSS at the Airport is not open 24 hours a day, despite the airport being open 24 hours a day, the evening aircraft movements are not recorded in the TAM database. During consultation with the Airport, it was confirmed that the Airport does not experience a significant number of evening flights.

7.2.3 Noise Exposure Projection

In accordance with the terms set for this Master Plan's development, two 2045 Noise Exposure Project contours were modelled using the baseline aircraft movements statistics and projected to 2045.

7.2.3.1 2045 NEP Scenario 1 – Status Quo

The first scenario was modelled to reflect current airport operations with growth of GA activities. According to the activity forecasts prepared by DKMA for this Master Plan, the baseline forecast indicates the local movements are anticipated a modest growth to 2045 with an Annual Average Growth Rate (AAGR) of 1.3%. The itinerant movements are expected to experience an increase of 2% AAGR by 2045. Refer to **Table 7-2** for a detailed summary of the aircraft movements in Scenario 1.

Since no evening traffic was recorded in the TAM database, 5% of the aircraft movements were reallocated to the evening to account for potential increased in evening traffic movements. This is critical when evaluating noise exposure contours since the model calculates the annoyance with evening flights at a higher rate.

Figure 7-1 below and in **Appendix B** illustrate the NEP contours based on the GA activity projected to 2045 based on the aircraft movement forecasted herein.

Table 7-2 2045 NEP Scenario 1 Aircraft Movements

Year	Itinerant	Local
2023	14,598	16,808
Growth (AAGR)	2.0%	1.3%
2045	22,351	23,777

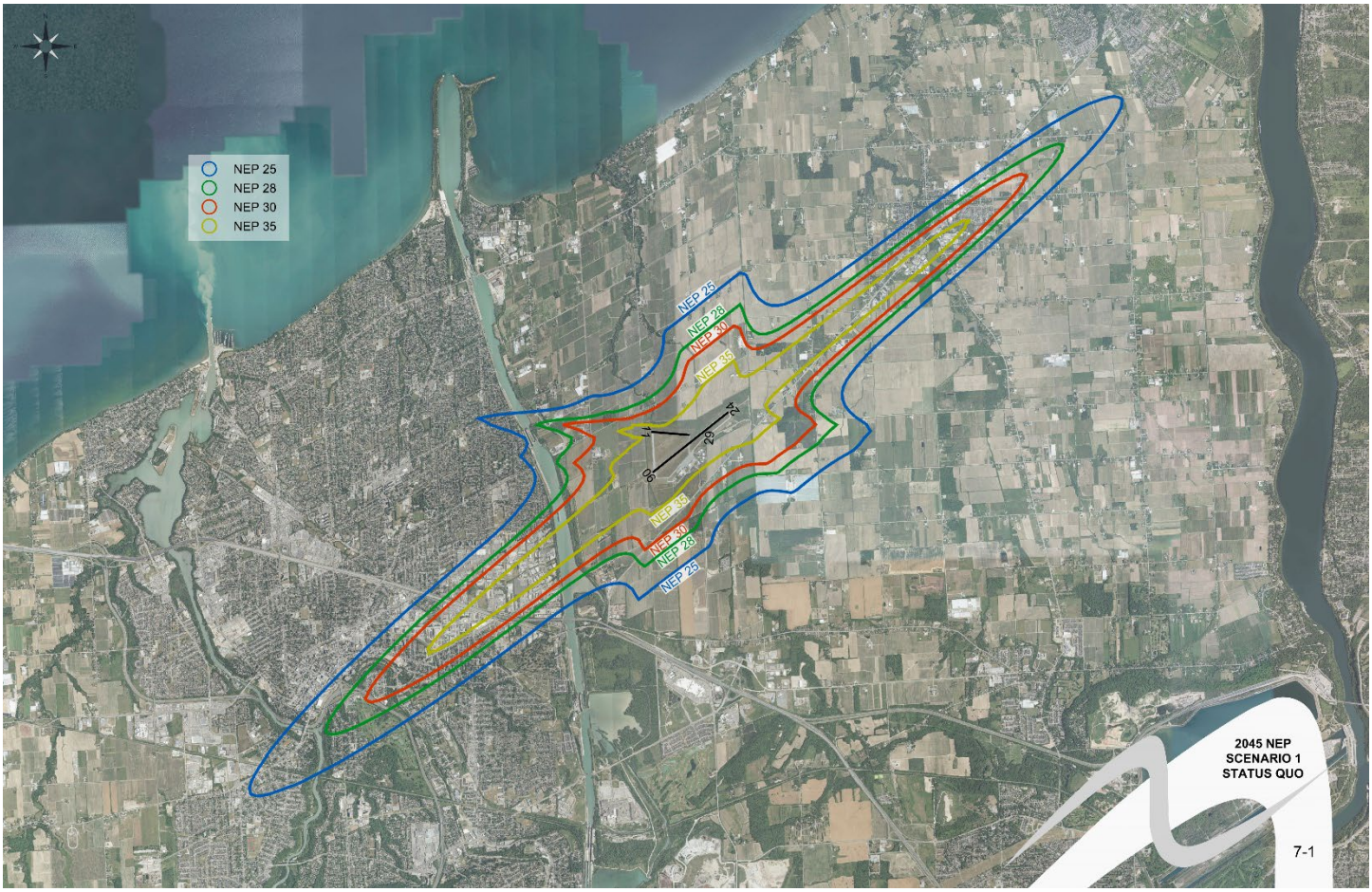


Figure 7-1 2045 NEP Scenario 1 – Status Quo

(Source: AVIA NG)

7.2.3.2 2045 NEP Scenario 2 – Commercial Services (Baseline Forecast)

The second scenario was modelled based on the potential commercial services beginning at the Airport. According to the activity forecasts prepared by DKMA for this Master Plan, the baseline forecast indicates itinerant movement growth of 2.9% with commercial services, resulting in approximately 12 arrivals and 12 departures.

Two commercial aircrafts were assumed to arrive and depart from the Airport during the evening hours.

For modelling purposes, the Baseline Forecast assumes two commercial jet aircraft (Category C, such as Q400 or E175 types) arriving and departing during the evening period (approximately 19:00–23:00 local time). These assumptions are consistent with the flight activity forecasts presented in Chapter 4, which anticipate regional services timed to connect with eastern and western hub banks. The 'evening period' is not intended to represent overnight operations (23:00–07:00), which typically generate higher annoyance levels under Transport Canada's NEF methodology.

Refer to **Table 7-3** below for a summary of the projected aircraft movements for 2045, with commercial services. The resultant contours are illustrated in **Figure 7-2** which can also be found in **Appendix B**.

Table 7-3 2045 NEP Scenario 2 Aircraft Movements

Year	Itinerant	Local
2023	14,598	16,808
Growth (AAGR)	2.9%	1.3%
2045	27,671	23,777

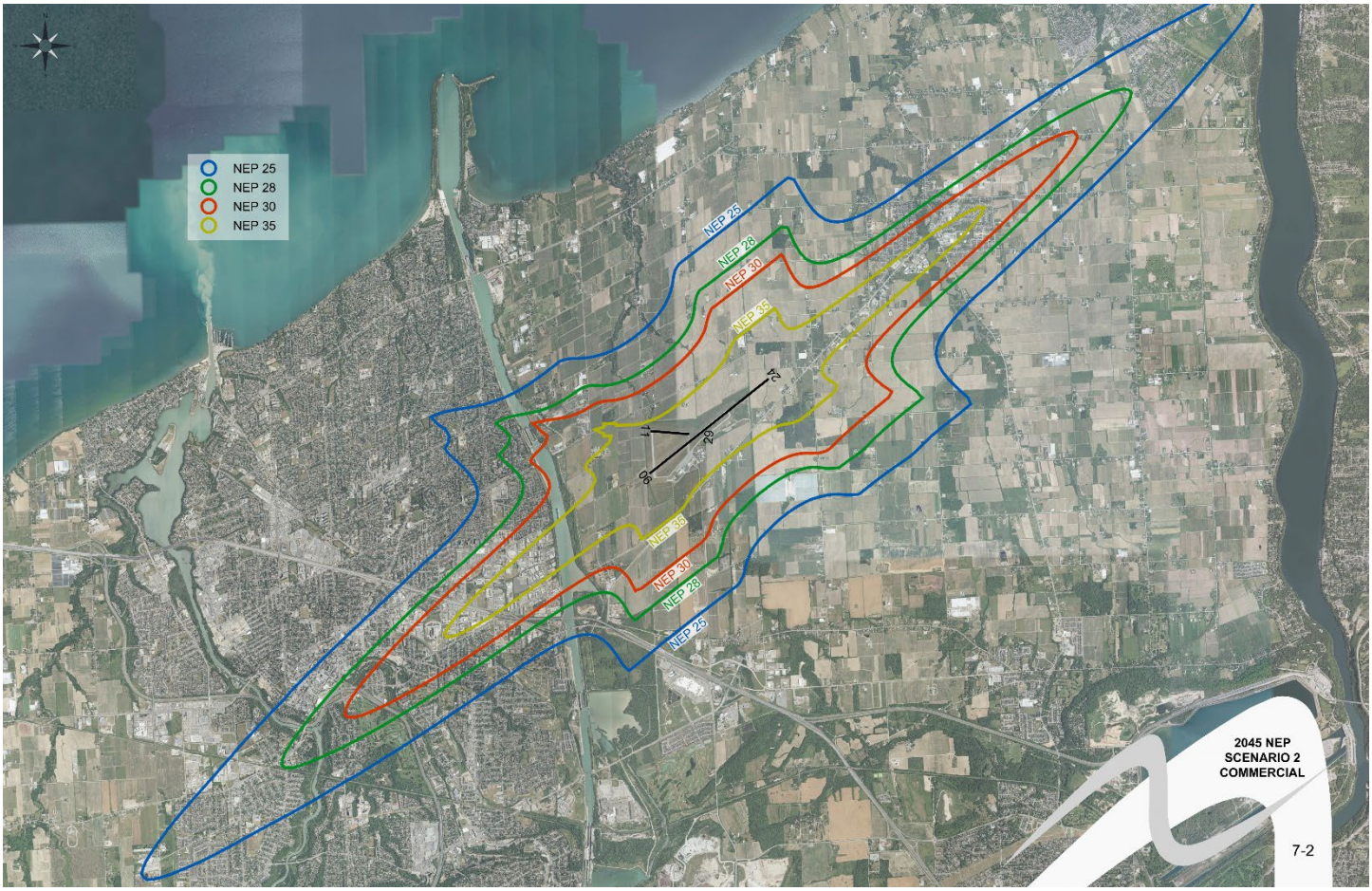


Figure 7-2 2045 NEP Scenario 2 – Commercial

(Source: AVIA NG)

7.2.4 Noise Study Recommendations

The noise exposure contours were prepared for the Airport using the Transport Canada NEF Calc software and can be referenced as a planning tool to evaluate land uses for sensitivity to aircraft noise. Given the rural setting of the Airport and relatively distant proximity to communities, noise has not historically been an issue for the Airport. Based on the prepared NEP contours, projected growth, and the proximity of neighboring development, it is possible that some of the neighbouring communities may be affected by increased noise activity. However, the Airport can work with the municipality to help mitigate some of the noise impacts. Some of the noise mitigation includes:

- Conduct further noise studies before putting forward recommended NEF planning contours.
- Following further due diligence studies, including sensitivity analysis, it is recommended that noise contours be incorporated into municipal plans and by-laws to require noise impact studies for new residential development areas.
- Implement noise abatement procedures, if required to reduce the noise impact to key communities and noise sensitive areas.

7.3 Obstacle Limitation Surfaces

All airports have an obligation to declare and maintain Obstacle Limitation Surfaces (OLS), which are a set of imaginary inclined and straight surfaces that delineate maximum heights of objects. These surfaces are designed around key movement areas for aircraft during take-off and landing, which are the most critical phases of flight. Standards pertaining to OLS are found in TP 312 *Aerodrome Standards and Recommended Practices* and internationally within International Civil Aviation Organizations (ICAO) Annex 14 Volume 1 *Aerodrome Design and Operations*. OLS characteristics are decided for each runway based on the level-of-service and daily operations. At the Airport, OLS for

all three runways are based on TP 312 4th Edition, the characteristics of which are documented in the Airport Operation Manual (AOM). The current airport OLS is illustrated in **Figure 7-3**.

Although the Airport has the obligation under the Canadian Aviation Regulations (CARs) to maintain its OLS free of intrusions, there are no standards or regulations applicable to landowners within the limits of the OLS to remain clear of the Airport's OLS unless they are protected by AZRs.

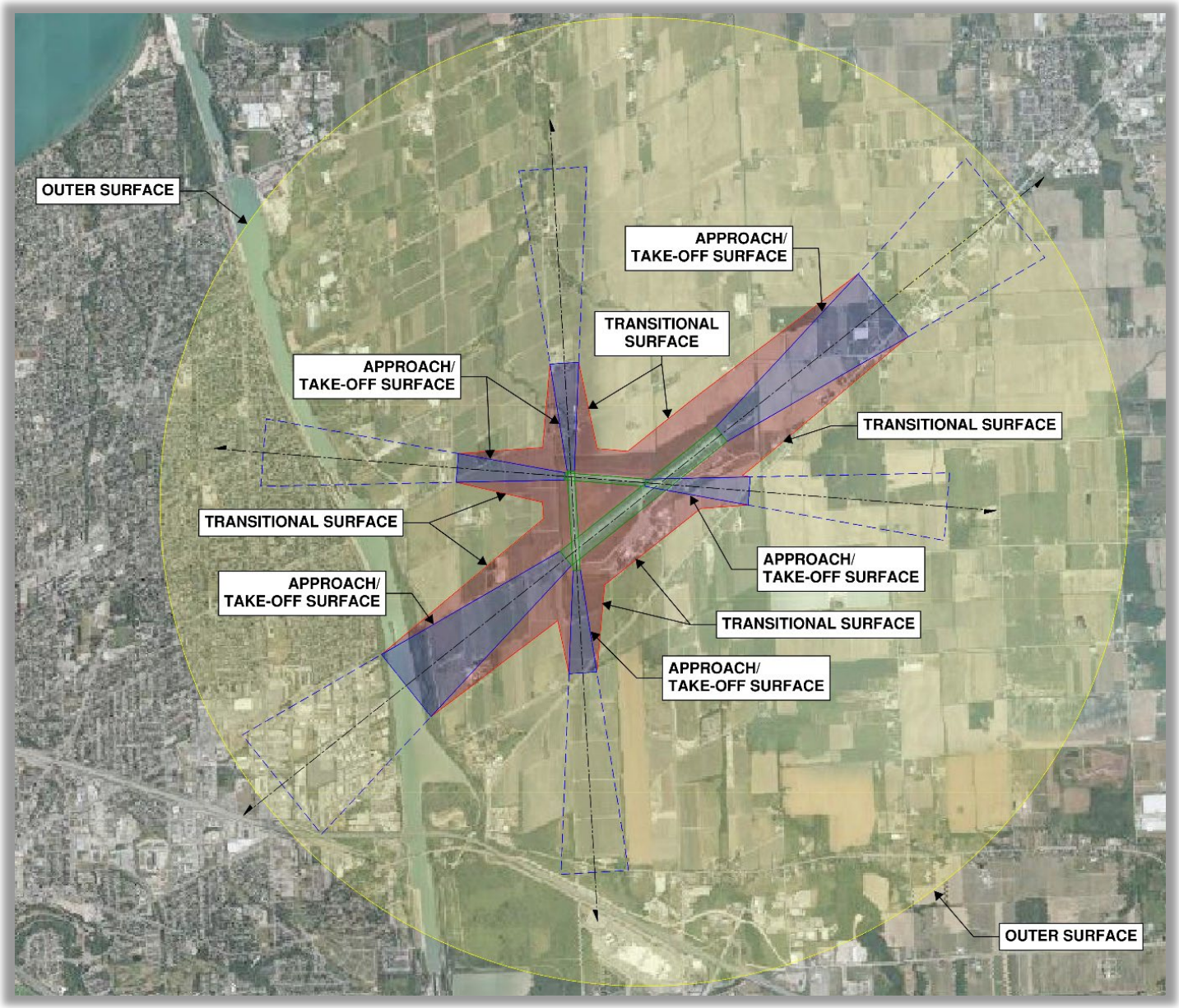


Figure 7-3 Niagara District Airport Obstacle Limitation Surfaces

(Source: AVIA NG)

7.4 AIRPORT ZONING REGULATIONS

AZRs are a set of federally enacted regulations that legally place restrictions on lands in the vicinity of airports in the interest of protecting airport and aircraft operations. These restrictions typically take three main forms: height limitations for buildings, natural growth and other structures; land use controls for metallic and/or frequency-emitting structures; and land use controls for waste disposal sites. AZRs are put into place to prevent development that is incompatible with airport and aircraft operations from locating on the lands surrounding the airport. In so doing, they also prevent incompatible development from encroaching airports as urban development areas expand outwards toward them. While OLS are typically based on current runway operations and existing conditions, AZRs can also be established to protect airspace for anticipated future runway enhancements and improved levels of service.

The Airport is protected by the restrictions of St. Catharines Airport Zoning Regulations (SOR/84-901), which were enacted in 1984 by the Minister of Transport to protect the long-term use and certification of the Airport, which was previously called the St. Catharines Airport. The AZR is applicable to lands surrounding the Airport, but not the airport lands themselves. Within the airport property, development, including height limitations, is guided by the obstacle limitation surfaces (OLS). The current AZR surfaces are illustrated in **Figure 7-4.**

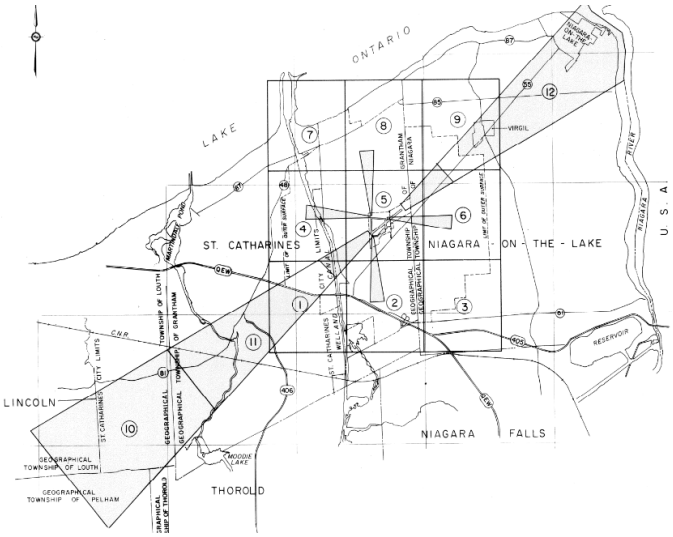


Figure 7-4 Current Niagara District Airport Zoning Regulations

(Source: Transport Canada, 1984)

The primary intent of the AZR surfaces has been to ensure adequate OLS protection based on the existing and future airport configuration as was contemplated at the time of enactment. However, since implementation of the existing AZR, changes in regulatory requirements have been observed and a long-term need to extend the Airport's primary runway has been identified as part of airport master planning efforts which were not previously accounted for in the existing AZR. Additionally, the increased use of, and reliance on, Instrument Flight Procedures (IFPs) that extend well beyond the limits of traditional AZRs has exposed a risk of impact from high-rise development in the larger urban areas in the region.

Based on this knowledge, separate from this Airport Master Plan, an AZR Gap Analysis was recently completed to identify gaps, or under-protected areas, in the current AZR for the existing and future potential runway configurations, including from the perspective of IFP minima. One of the key conclusions for the study was that the current AZR should be updated to reflect the restrictions that would adequately protect the existing and proposed future runway configurations at the Airport as well as critical airspace for the final stages of IFPs. The recommended extent of AZRs is illustrated in **Figure 7-5**.

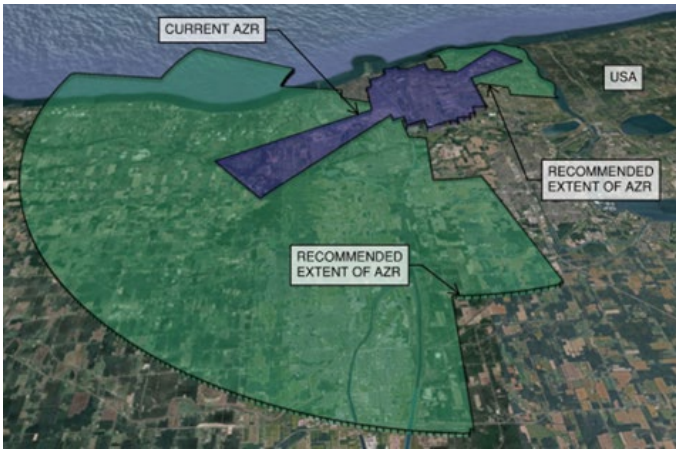


Figure 7-5 Recommended Extent of AZR per AZR Gap Analysis Study

(Source: AVIA NG)

Figure 7-5 portrays the broader area that may require updated protection to accommodate existing and future runway configurations, including consideration of IFPs.

It is important to note that the green areas on the map do not represent federally imposed height restrictions. Rather, they reflect areas where future zoning updates may be

needed to ensure obstacle protection surfaces (OLS) and AZR requirements are met as aviation operations evolve.

The illustration provided is not indication of height constraints but rather the general area where height constraints may need to be implemented in order to preserve use of instrument flight procedures. Generally, it is anticipated that these constraints will reduce as distance from the airport increases.

Due to the complexity of the design criteria associated with IFPs and the corresponding obstacle evaluation surfaces, exact heights of the recommended AZR were not proposed as part of the Gap Analysis.

The study also noted that the AZR landscape in Canada is changing to increase airspace protection going beyond certification requirements by increasing protection for instrument flight procedures. Concurrently, several municipalities in the Niagara region are experiencing development pressure to increase the housing supply. As such, the study analyzed areas of land for which intensification was designated and identified whether the intensification provisions could result in the potential for conflict with AZR or IFP airspace, if such development were to occur. The geographic area covered by IFPs is significant, and as such the study noted that it does not suggest that the entirety of airspace needed for IFP use be protected, but rather to recommend that areas subject to real or perceived risk of conflict with future development be addressed. Through further consultation with impacted municipalities, the maximum height of anticipated future development could be identified and the AZR extent could be set based on those heights.

Overall, the study concluded that multiple areas in the Niagara region exist outside the extent of the existing AZR that, if left uncontrolled, may pose a threat to the preservation of existing and future airport operations. Given these gaps in protection, an amendment to the AZR was recommended for the long-term preservation of the Airport as a GA and commercial use facility.

Environmental Sustainability

8 Environmental Sustainability

8.1 Environmental Impacts Considerations

Niagara District Airport recognizes the need to protect the environment while continuing to meet the demands of the aviation community it serves. The Airport strives to balance operational requirements and environmental stewardship through policy, procedures and capital investments.

Responsible environmental practice employs operational procedures and environmental protocols to minimize the impact of airport operations on the environment. The Airport has in place several policies and practices to ensure that it, and its tenants, minimize impacts to the environment.

The suggested improvements, identified in the Airport Development Plan [13] will have minimal environmental impact. However, processes need to be undertaken to minimize impacts during construction. This includes field monitoring, implementation of sediment and erosion control measures, and recycling of construction materials where possible. As well, although most of the recommended improvements are on lands that have been impacted or disturbed in the past, it is recommended vegetation be restored upon construction completion, and during construction measures be introduced to minimize impacts on adjacent lands and stormwater outfall leaving the airport property.

Over the course of any airport development project, consideration should be given toward the impact that the new development, including construction activity, will have on the natural environment. In certain cases, airport and aviation projects may be subject to the *Impact Assessment Act* (IAA), which was enacted by the Federal Department of Environment and Climate Change to replace the Canadian Environmental Assessment Act. The purpose of the IAA is to prevent and/or mitigate adverse environmental, economic, health and social effects from various projects to allow for informed decision making in support of sustainability.

Source: BETA Technologies

In addition to considering impact on the environment in existing operations and future projects, the Airport may play a role in supporting technological innovations aimed at environmental sustainability, implementing sustainable development practices and increasing climate resilience.

8.2 Technological Innovations

There are several emerging technological innovations being developed with the goal of furthering environmental sustainability that may play a role at the Airport in the future, and bring about economic opportunity for new types of development.

8.2.1 Electric Regional Aircraft

Firms such as Boeing, Airbus, JetBlue, and Rolls-Royce are making significant investment into electric aviation research and development. Although electric propulsion is not currently suitable for medium- to long-haul flights, there is the likelihood in the near future that air-taxi or commuter-type air service using electric aircraft could become a reality. There are several manufacturers that are currently working on prototype aircraft that could become operational within the next five to 10 years.

[13] For clarity, the term "Airport Development Plan" in this section refers to the phased development program and capital projects recommended in this Master Plan (see Chapters 6 and 9). It is not a separate planning document.

One example is a Cessna 208B Grand Caravan powered by a 750-horsepower electric motor manufactured by magniX.[14] With an anticipated range in excess of 160 km (100 miles), the magniX Caravan aircraft could easily provide commuter flights between Niagara District Airport and Billy Bishop Toronto City Airport at a fraction of the operating cost of a conventional turboprop aircraft. Vancouver's Harbour Air, which is converting its conventional powered DHC Beaver and Otter seaplane fleet to incorporate magniX electric technology, anticipates the operating costs of the electric aircraft to be 50 to 80 % lower than current combustion engines.[15]

Lower operating costs would reduce the cost of the flight and could promote a viable and environmentally sustainable commuter service for those living in the Niagara area who work in downtown Toronto. The lower cost of airfares could also promote increased tourism-related air travel between Toronto and the Niagara region.

8.2.2 Electric Vertical Takeoff and Landing Aircraft

Electric Vertical Takeoff and Landing Aircraft (eVTOL) technology has advanced considerably in the last few years. Several firms are known to be flying full scale prototype eVTOL aircraft, and firms like Uber, United Airlines and American Airlines have committed to the purchase of such aircraft for urban air mobility services in the future. Many of these aircraft may be certified for commercial operation in the near future. For example, in 2023 the Joby S4 aircraft received a Part 135 Air Carrier certificate for commercial air taxi operations in the United States and is now actively testing the S4 in multiple parts of the world.[16] The Joby aircraft is able to accommodate one pilot and four passengers, with speeds of up to 320 km/h (200 m/h) and a range of over 240 km (150 miles).[17]

The Airport, similar to airports such as Billy Bishop Toronto City Airport and Victoria International Airport, may be similarly positioned to capture early opportunities for eVTOL use. The proximity to significant urban population combined with transportation challenges over short distances with the presence of Lake Ontario may accentuate marketable opportunities for short-haul air taxi service using eVTOL technology. Operating at lower costs and less noise than a traditional helicopter, it is foreseeable that sightseeing operators could make use of eVTOL aircraft in the future, providing quieter, more sustainable, and zero greenhouse gas (GHG) emission operations.

To support the potential for such technologies, the vision for the Airport should include a vertiport, separated from fixed wing operations, not only for conventional helicopters, but also to accommodate the potential introduction of eVTOL aircraft in the future.

8.2.3 Alternative Fuels and Energy Sources

Recent years have seen increased proliferation and research of alternative fuels and energy sources, which are produced from renewable sources and show potential to reduce greenhouse gas (GHG) and particulate matter emissions as well as reduce reliance on traditional fossil fuels. A number of alternative fuels are being trialled in vehicles ranging from aircraft to ground service equipment (GSE), while alternative energy sources are being increasingly incorporated as part of new technologies to provide power to buildings, equipment, and more.

Source: BETA Technologies

[14] Garrett-Glaser, B., "First Flight of MagniX eCaravan Showcases Maturity of Electric Aviation," 2020. https://www.aviationtoday.com/2020/05/29/historic-flight-of-magnixs-ecaravan-showcases-maturity-of-electric-aviation/

[15] Harbour Air, "Going Electric," 2020. https://harbourair.com/going-electric/

[16] Joby Aviation, "Our Story," n.d. https://www.jobyaviation.com/about/

[17] eVTOL News, "Joby Aviation S4 2.0 (pre-production prototype)," 2024. https://evtol.news/joby-s4

Sustainable Aviation Fuels

With growth in global air travel demand, the aviation industry began investing in measures to reduce reliance on traditional fossil jet fuels and reduce harmful emissions generated by flight. Sustainable Aviation Fuels (SAF), in contrast to traditional fossil fuels, are created from renewable sources, such as municipal solid waste, certain agricultural and forestry byproducts, and other sustainable sources. They have the potential to reduce carbon dioxide emissions by up to 80% across the fuel's life cycle in certain applications. [18] Global climate change and environmental initiatives, such as ICAO's Carbon Offsetting Reduction Scheme for International Aviation (CORSIA) and the United Nations Paris Agreement, have outlined requirements aimed at reducing reliance on fossil fuels and lessening carbon footprints, including incorporation of SAF. Consequently, air carriers have began incorporating SAF blends into traditional jet fuels and manufacturers are experimenting with SAF production methods, incorporation into aircraft fuel tanks, and storage at airports. Future aircraft using the Airport may operate on partial or full SAF blends, and future air operators or tenants may express the desire to store SAF at the Airport in the long term.

Hydrogen

Another alternative energy source currently being investigated for use in vehicular and aircraft propulsion is hydrogen. It is seen as another promising pathway toward a future with reduced reliance on carbon and fossil fuels. One manufacturer, ZeroAvia, is working with aircraft owners, operators and manufacturers to develop hydrogen-electric solutions for aircraft retrofits. For example, several prototype powertrains are currently being developed for regional aircraft with capacities ranging from 10-20 and 40-80 seats. [19] Airbus is currently working on a hydrogen-powered commercial aircraft to bring to the airliner market through the ZEROe project. In early 2025 it was announced that hydrogen fuel cell technology would be the propulsion technology used for this aircraft. [20] Hydrogen and hydrogen-electric propulsion offer significant advantages over traditional methods, including drastically reduced—or in some cases nearly eliminated—greenhouse gas and particulate emissions across the fuel life cycle, lower energy costs, and cleaner, quieter engine performance compared to conventional combustion engines.

Solar

Solar power is generated through the collection of solar energy gathered directly by photovoltaic cells or indirectly through storing gathered solar energy in batteries for later use in aircraft motors, propellers, on-board systems, and more. Solar power has limited application in aircraft propulsion due to the lengthy recharge time, inconsistent energy output from night and overcast conditions, and the weight of solar-power batteries. However, recent technological advancement has resulted in prototype stratospheric aircraft for high-altitude, long-endurance (HALE) purposes, such as long-term data collection. [21] Given their design and intended missions, these aircraft would be minimalistic in structure and operated without onboard pilots. Solar power as a clean energy source is able to make a greater impact in powering infrastructure and equipment, such as building lighting or electrical signs and appliances. Airports and facilities of all kinds are increasingly seeing various solar electrically powered elements as an alternative to electrical fixtures that rely on traditional combustion as a fuel source to generate the electricity to power these elements.

Electrification

Electrification involves the retrofit and/or replacement of equipment traditionally reliant on internal gasoline or diesel combustion with sources of electric power. Outside of the airport environment, electrification has been notable in electric vehicles, such as those manufactured by Tesla, Chevrolet or Nissan. Within the airport environment, a growing trend has been the electrification of airport vehicles, particularly ground service equipment (GSE), such as baggage tractors, passenger buses and maintenance equipment. According to a study by IATA, electric ground support equipment (eGSE) can produce 35–52% less carbon dioxide emissions and reduce noise emissions by up to 5.5–8.3 dB per aircraft turnaround compared to

[18] Aviation Benefits Beyond Borders, "What is Sustainable Aviation Fuel?," n.d. https://aviationbenefits.org/faqs/what-is-sustainable-aviation-fuel/

[19] ZeroAvia, "The Clean Future of Flight," n.d. https://zeroavia.com/

[20] Airbus, "ZEROe: Our Hydrogen-powered Aircraft," 2025. https://www.airbus.com/en/innovation/energy-transition/hydrogen/zeroe-our-hydrogen-powered-aircraft

[21] Airbus, "Solar flight," n.d. https://www.airbus.com/en/innovation/energy-transition/solar-flight

traditional GSE. While the study focused on average conditions in the European Union, GSE electrification offers broad benefits, including significantly lower air pollution, improved energy efficiency, and quieter operations compared to gasoline or diesel powered equipment.

8.3 Sustainable Development Practices

In the move towards action on addressing climate change, there is a push for the aviation industry to become more environmentally sustainable. For airlines and air operators, this push means increasingly efficient route planning, including participation in performance-based navigation (PBN) and descent procedures, transition to alternative fuels and energy sources, and/or minimization of waste in operations.

Although aircraft operations account for most emissions at an airport, there is also an increasing push for airports themselves to become more environmentally sustainable, energy efficient, and to reduce their carbon footprint. One such initiative is through the Airport Council International Europe's (ACI-Europe) Airport Carbon Accreditation (ACA) Program. As of 2021, a total of 23 ACI member airports in Canada are enrolled in the ACA program and are taking steps to assess, manage and reduce carbon emissions.[22] The ACA program provides airports with a framework to reduce their carbon footprint and benefit from increased efficiency, leading to long-term benefits in environmental, economic and social sustainability.

However, there are many initiatives, large and small, which can be pursed towards achieving a more sustainable airport operation, which includes:

- Optimizing the layout or configuration of aircraft manoeuvring surfaces, such as expanding the supporting taxiway system. This reduces taxi distances and engine idling times during periods of high traffic and congestion, and can reduce ground based aircraft emissions.
- Sourcing renewable energy sources, including solar, wind, hydrogen and geothermal, some of which could be provided on-site.
- Optimizing building performance and sustainability using increased insulation and the use of renewable and sustainable building materials, technologies, fixtures and equipment. Certain airports choose to pursue LEED (Leadership in Energy and Environmental Design) certification and/or other building efficiency measures. Many manufacturers continuously innovate in areas related to reducing energy consumption and waste production at airports.
- Reducing the volume and types of waste sent to landfills. Volume of waste can be reduced through implementation or modification of waste management practices and policies for air terminal building garbage collection, hazardous waste handling and construction processes by-product handling.
- Minimizing the airport's water footprint by the reuse of collected rainwater and installation of water-saving fixtures such as faucets and water outputs.
- Encouraging the use of electric vehicles by providing charging stations for private vehicles, busses, and ground support equipment. Installation of energy-efficient appliances and equipment will ensure customer experience and airport operations processes are upheld while minimizing energy use.
- Encouraging the use of public transit to reduce private vehicle usage. Collaboration with nearby communities and/or the Region to enhance transit connectivity to the Airport could allow a long-term solution to encourage more public transit use by airport staff, tenants and users.
- Many case studies have documented creative smaller-scale solutions devised by airports of all sizes to increase environmental sustainability as part of their operations. Installations such as green roofs or height-restricted landscaping and vegetation, and waste reduction measures such as paperless policies for resource conservation, can have measurable impacts that promote environmental sustainability.

[22] Transport Canada, "Aviation Action Plan: Annual Report 2020 & 2021," 2023. https://publications.gc.ca/collections/collection_2024/tc/T40-3-2020-eng.pdf

As the need to address climate change becomes more pronounced, the onus will be on all segments of industry and commerce to reduce their carbon emissions, airports included. It is recommended the Airport undertake a Sustainability Plan that maps current sources of GHG emissions and areas of improvement in energy and resource use reduction. The plan should also examine climate resilience and identify areas where the airport may be impacted by projected changes in the climate that may lead to a rise in average temperature, increased severe weather events, and increased potential for flooding.

8.4 Climate Resilience

As global weather patterns have shifted over the past few decades, maintaining resilience to the impacts of climate change has become increasingly important for both cities and facilities such as airports. Climate change impacts vary based on geographic location; however, a key impact is the increased intensity, frequency and duration of precipitation events and broader ranges of temperatures and extremes expected during the year. Climate resilience can be addressed through two major areas: infrastructure and equipment planning, and design and operational planning.

Airport climate resilience means making appropriate preparations to minimize disruption and mitigate impacts of increasingly extreme weather events at airports. Preparations involve assessing and identifying climate risks both in the present day and in the future; identifying vulnerabilities in existing airfield infrastructure systems; and developing plans to address those climate risks in the short-, medium- and long-term. In the short-term, existing assets and equipment may be retrofitted. For example, heat-resistant paving materials may be used to resurface airfield movement areas, or equipment may be upgraded to tolerate operations in higher temperatures. Meanwhile, future infrastructure may be developed with increased resilience. For example, strategic grading practices for future airfield pavements or navigational aids may promote better drainage such that the probability of flooding or water pooling after extended rainfall events is reduced. Climate resilience measures undertaken for both existing and future infrastructure and equipment planning and design, should form a component of and be described within an Airport Sustainability Plan.

Another method of planning for increased resilience of infrastructure for climate resilience is through the Public Infrastructure Engineering Vulnerability Committee (PIEVC) [23] Protocol. This analysis paves the way for identifying mitigation strategies which can further feed into an Airport Sustainability Plan.

Operational planning may also be utilized to prepare responsiveness to extreme weather events. An airport's ability to respond quickly and efficiently to an extreme weather event can significantly influence the level of disruption experienced by the airport. Emergency Response Plans (ERP), which are required to be reviewed at least annually per the Canadian Aviation Regulations, should be examined from the perspective of natural disaster and/or extreme weather response and edited, as necessary, to establish clear lines of communication and chains of coordination.

[23] PIEVC is a Canadian risk assessment framework developed to evaluate how public infrastructure may be vulnerable to current and future climate impacts (e.g., extreme weather, temperature shifts, flooding).

Capital Planning and Phasing

9 CAPITAL PLANNING AND PHASING

9.1 INFRASTRUCTURE AND LAND DEVELOPMENT STRATEGY

Given the absence of current air service and the significant capital investment required to support it, a phased approach is recommended to balance cost, benefit, and risk. Accordingly, development is proposed in two primary stages: Stage 1 and Stage 2, with an introductory phase to prepare for the changes.

9.1.1 ENABLING PROGRAM STAGE

Upon acceptance of the Airport Master Plan and prior to entering Stage 1, management should embark on an EPS to prepare the Airport for transition to Stage 1 operations. Key program elements include:

- Funding Strategy – secure resources to support preliminary and detailed design studies.
- Air Service Development Strategy and Carrier Commitment – work with airlines to obtain expressions of interest that strengthen funding applications.
- Finalize Concept of Operations – confirm how initial passenger services will be delivered and supported.
- Design and Procurement Strategy – prepare for terminal expansion and related infrastructure works.

9.1.2 STAGE 1

Once the Airport is in receipt of grant funding, the Airport will officially enter Stage 1. There are two main purposes for this stage: 1) trial commercial services with an expansion of the existing terminal building, and 2) obtain the information necessary to support a new greenfield terminal building. These key elements include the following:

- Procure and complete design and construction of the new terminal building expansion and airside improvements.
- Preparation of preliminary design concepts for the future Greenfield terminal and associated infrastructure, including consideration of potential runway extensions and the environmental impact assessments (federal or provincial) that may be triggered.
- Completion of all remaining studies, including those required by the *Impact Assessment Act*.

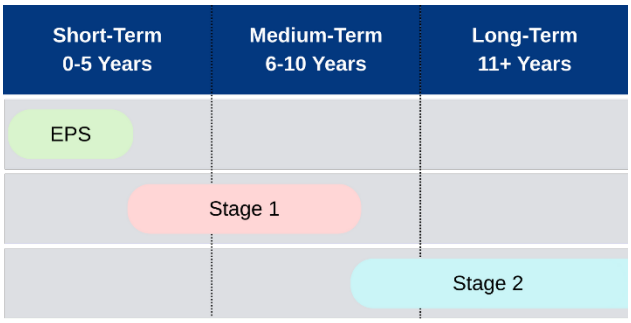
9.1.3 STAGE 2

Stage 2 would be triggered upon reaching 200,000 annual passengers, or an anticipated erosion of acceptable level of service. The Airport would then initiate detailed design and secure grant funding for the new greenfield terminal and supporting infrastructure.

9.2 RECOMMENDED CAPITAL PHASING PLAN

Figure 9-1 below, and in **Appendix B,** illustrates the suggested development Phasing Plan for the Airport. Development is broken into Short- (1 to 5-year), Medium- (6 to 10-year) and Long-Term (11+ years) categories. This timeline is assuming that the EPS is completed, growth is supported, and funding is secured. Therefore, this is not to suggest that recommended improvements need to be undertaken within these timeframes, but rather provide an estimated timeline based on the outcome of this Master Plan, and is subject to the outcome of additional studies. Implementation and phasing of improvements are dependent on a number of criteria including operational necessity, financial capability, and cost/benefit. The Phasing Plan provides a high-level overview of the recommended infrastructure improvements and the priority in which they would be undertaken.

Table 9-1 Development Stage v. Timeline



In addition to regularly scheduled maintenance of airside pavement, landside pavements, equipment, buildings and others, the suggested Capital Phasing Plan is as follows:

9.2.1 Stage 1

Stage 1 includes infrastructure improvement projects anticipated in the short- to medium-term, with the goal of preparing the Airport for scheduled commercial air service.

9.2.1.1 Short-Term (0-5 Years)

Predicated on the successful completion of the EPS, the following would be undertaken in the short-term:

- Design and construction of the existing terminal building expansion of 1,800 to 2,030 m^2 terminal.
- Design and construction of new Combined Services Building, including two new firetrucks to support ARFF CAT 6.
- Design and construction of airside pavement upgrades of Apron I and Taxiway Alpha.
- Design and construction of existing parking lot expansion.
- Design and implementation of airport vehicular entrance improvements.
- Design and construction of new RESAs for Runway 06-24.
- Design and completion of environmental assessment for extension of Runway 06-24 and associated parallel taxiway.
- Design and construction of new commercial development areas, subject to demand.
- Land acquisition to support commercial services and future greenfield terminal.

9.2.1.2 Medium-Term (6-10 Years)

Assuming the successful completion of short-term airport improvements, the following would be undertaken, subject to demand and identification of need over the medium-term:

- Continued design and construction of new commercial development areas, subject to demand.

9.2.2 Stage 2

Associated with Stage 2 are additional infrastructure projects improving the Airport's level-of-service and anticipated to occur over the medium- to long-term.

9.2.2.1 Medium-Term (6-10 Years)

Following a realization of initial growth and securing of adequate grant funding, the following would be initiated as part of the medium-term:

- Construction of runway widening and extension to 2,286 m (7,500 ft.).
- Upgrade approach lighting systems.
- Design and implementation of ILS and Precision GNSS Approaches.
- Construction of new RESA for Runway 24 extension.
- Construction of full parallel taxiway, including widening to existing 23 m.
- Design and construction of new greenfield terminal, including new parking lot and taxiways/apron.
- Design and construction of new roundabout and road network improvements.[24]
- Extend site servicing to new greenfield terminal.
- Expand fuel farm to support growth.
- Completion of additional studies, including but not limited to those required of the Impact Assessment Act.

9.2.2.2 Long-Term (11+ Years)

In the long-term horizon, as airport improvements initiated in the medium-term are completed, the focus shifts to projects that enhance overall system capacity, provide flexibility for future growth, and modernize facilities in support of evolving industry standards. Recommended priorities include:

- Development of additional GA hangars, apron space, and supporting services.
- Modernization of GA infrastructure to support business and recreational aviation.
- Renewal and replacement of airfield maintenance and emergency response equipment (snow-clearing fleet, firefighting vehicles, and airside support units).
- Terminal enhancements, airside upgrades, and landside commercial development as justified by traffic growth or regulatory requirements.

[24] This is a project by the Niagara Region. The Airport supports moving ahead with this project.

9.3 Capital Cost Estimates

Table 9-2 describes the current order of magnitude cost to maintain the Airport today. **Table 9-3** describes the order-of-magnitude cost estimates associated with key infrastructure improvements identified in the short- to long-term time frames, excluding business as usual operations. Costs include general conditions / mobilization fee and a contingency. **Table 9-4** summarizes the business-as-usual expenses and the infrastructure improvements associated with the level of service change.

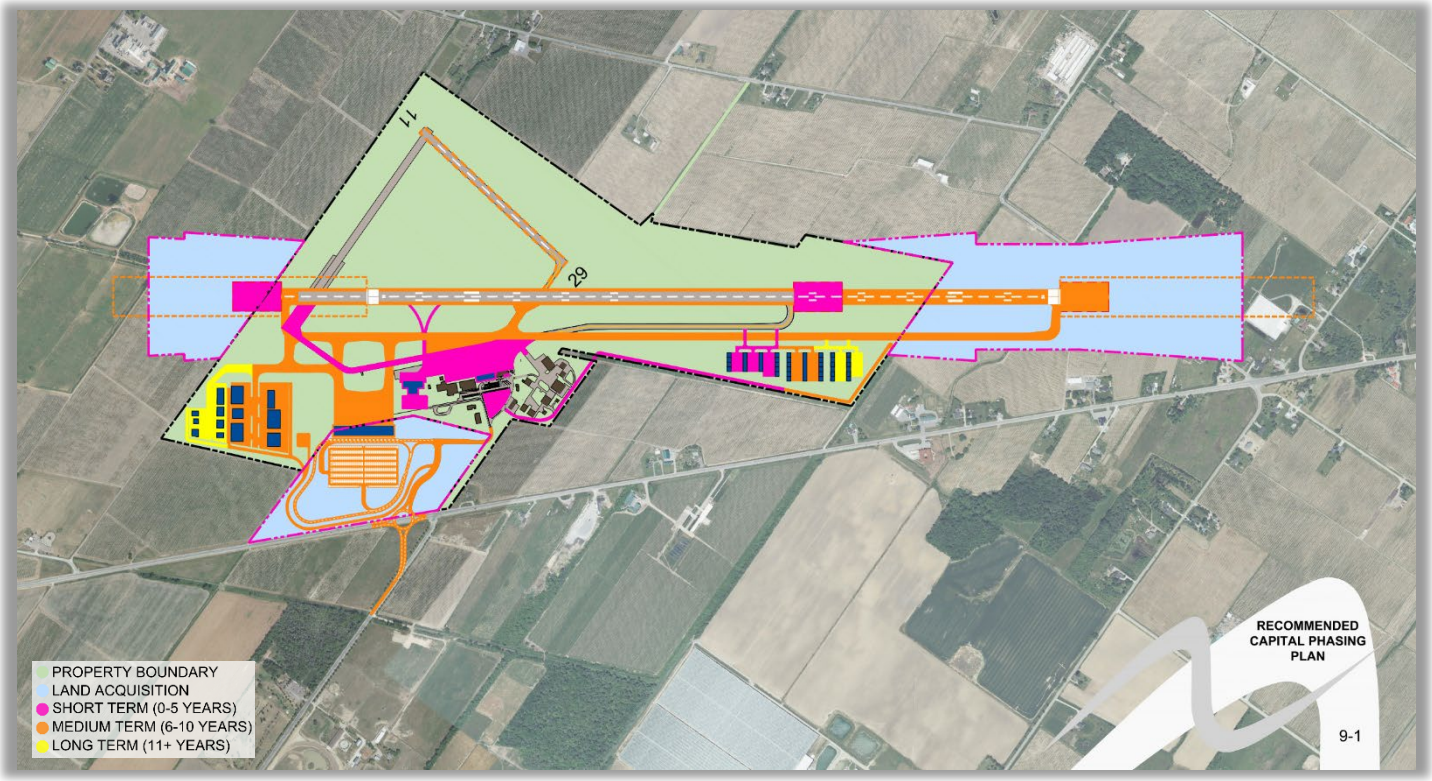


Figure 9-1 Recommended Capital Phasing Plan

(Source: AVIA NG)

Table 9-2 Capital Cost Estimates Associated with Business as Usual

Item	Description	Short-Term (0-5 yrs)	Medium-Term (6-10 yrs)	Long-Term (11+ yrs)	Total Est. Cost
1.0 Airside Infrastructure					
1.1	Runways	$35,000	$0	$105,000	**$140,000**
1.2	Taxiways/Aprons	$406,000	$2,211,000	$593,000	**$3,210,000**
1.3	Airfield Lighting	$81,790	$138,000	$510,000	**$729,790**
	Section 1.0 Total	**$522,790**	**$2,349,000**	**$1,208,000**	**$4,079,790**
2.0 Landside Infrastructure and Equipment					
2.1	Roads	$93,000	$250,000	$105,000	**$448,000**
2.2	Parking	$98,000	$1,149,000	$201,000	**$1,448,000**
2.3	Fuel Farm	$42,000	$42,000	$127,260	**$211,260**
2.4	Signage and Gates	$800	$2,000	$61,725	**$64,525**
	Section 2.0 Total	**$233,800**	**$1,443,000**	**$494,985**	**$2,171,785**
3.0 Buildings					
3.1	Terminal Building	$0	$0	$0	**$0**
3.2	Other Facilities (CSB, Maintenance Garage, Hangar 11 and ATB Maintenance)	$2,813,000	$68,329	$196,000	**$3,077,329**
	Section 3.0 Total	**$2,813,000**	**$68,329**	**$196,000**	**$3,077,329**
4.0 Others					
4.1	IT Equipment	$135,000	$136,000	$289,419	**$560,419**
4.2	Vehicles and Equipment	$4,777,000	$3,371,000	$3,664,895	**$11,812,895**
4.3	Supporting Studies	$0	$0	$0	**$0**
4.4	Land Acquisition	$0	$0	$0	**$0**
4.5	Site Servicing	$0	$0	$13,594	**$13,594**
	Section 4.0 Total	**$4,912,000**	**$3,507,000**	**$3,967,908**	**$12,386,908**
	Grand Total (2025 CAD)	**$8,481,590**	**$7,367,329**	**$5,866,893**	**$21,715,812**

Table 9-3 Capital Cost Estimates Associated with Commercial Air Service Growth Only

Item	Description	Short-Term (0-5 yrs)	Medium-Term (6-10 yrs)	Long-Term (11+ yrs)	Total Est. Cost
1.0 Airside Infrastructure					
1.1	Runways	$2,250,000	$73,486,400	$0	**$75,736,400**
1.2	Taxiways/Aprons	$3,899,705	$23,189,929	$1,094	**$27,090,728**
1.3	Airfield Lighting	$0	$2,339,909	$479	**$2,340,388**
	Section 1.0 Total	**$6,149,705**	**$99,016,238**	**$1,573**	**$105,167,516**
2.0 Landside Infrastructure and Equipment					
2.1	Roads	$4,772	$7,878,999	$95,650	**$7,979,421**
2.2	Parking	$495,792	$1,329,014	$2,130,292	**$3,955,098**
2.3	Fuel Farm	$500,420	$420	$0	**$500,840**
2.4	Signage and Gates	$0	$0	$0	**$0**
	Section 2.0 Total	**$1,000,984**	**$9,208,433**	**$2,225,942**	**$12,435,359**
3.0 Buildings					
3.1	Terminal Building	$9,450,000	$22,974,000	$5,614,000	**$38,038,000**
3.2	Other Facilities (CSB, Maintenance Garage, Hangar 11 and ATB Maintenance)	$9,000,629	$0	$187	**$9,000,816**
	Section 3.0 Total	**$18,450,629**	**$22,974,000**	**$5,614,187**	**$47,038,816**
4.0 Others					
4.1	IT Equipment	$438	$306	$0	**$744**
4.2	Vehicles and Equipment	$3,200,674	$516	$0	**$3,201,190**
4.3	Supporting Studies	$1,000,000	$0	$0	**$1,000,000**
4.4	Land Acquisition	$25,000,000	$0	$0	**$25,000,000**
4.5	Site Servicing	$0	$1,000,000	$0	**$1,000,000**
	Section 4.0 Total	**$29,201,112**	**$1,000,822**	**$0**	**$30,201,934**
	Grand Total (2025 CAD)	**$54,802,430**	**$132,199,493**	**$7,841,702**	**$194,843,625**

Table 9-4 Capital Cost Estimates Associated with BAU and Commercial Air Service Growth

Item	Description	Short-Term (0-5 yrs)	Medium-Term (6-10 yrs)	Long-Term (11+ yrs)	Total Est. Cost
1.0 Airside Infrastructure					
1.1	Runways	$2,285,000	$73,486,400	$105,000	**$75,876,400**
1.2	Taxiways/Aprons	$4,305,705	$25,400,929	$594,094	**$30,300,728**
1.3	Airfield Lighting	$81,790	$2,477,909	$510,479	**$3,070,178**
	Section 1.0 Total	**$6,672,495**	**$101,365,238**	**$1,209,573**	**$109,247,306**
2.0 Landside Infrastructure and Equipment					
2.1	Roads	$97,772	$8,128,999	$200,650	**$8,427,421**
2.2	Parking	$593,792	$2,478,014	$2,331,292	**$5,403,098**
2.3	Fuel Farm	$542,420	$42,420	$127,260	**$712,100**
2.4	Signage and Gates	$800	$2,000	$61,725	**$64,525**
	Section 2.0 Total	**$1,234,784**	**$10,651,433**	**$2,720,927**	**$14,607,144**
3.0 Buildings					
3.1	Terminal Building	$9,450,000	$22,974,000	$5,614,000	**$38,038,000**
3.2	Other Facilities (CSB, Maintenance Garage, Hangar 11 and ATB Maintenance)	$11,813,629	$68,329	$196,187	**$12,078,145**
	Section 3.0 Total	**$21,263,629**	**$23,042,329**	**$5,810,187**	**$50,116,145**
4.0 Others					
4.1	IT Equipment	$135,438	$136,306	$289,419	**$561,163**
4.2	Vehicles and Equipment	$7,977,674	$3,371,516	$3,664,895	**$15,014,085**
4.3	Supporting Studies	$1,000,000	$0	$0	**$1,000,000**
4.4	Land Acquisition	$25,000,000	$0	$0	**$25,000,000**
4.5	Site Servicing	$0	$1,000,000	$13,594	**$1,013,594**
	Section 4.0 Total	**$34,113,112**	**$4,507,822**	**$3,967,908**	**$42,588,842**
	Grand Total (2025 CAD)	**$63,284,020**	**$139,566,822**	**$13,708,595**	**$216,559,437**

9.4 Infrastructure Funding

9.4.1 Business Case Development

Before any major capital investment is made to expand existing airport facilities, an outline business case should be prepared. This business case would build on the conclusions of the Airport Master Plan and supporting studies and would provide a structured justification for pursuing infrastructure expansion. Key elements would include estimated costs, funding requirements, potential funding sources, risk considerations, timeframes, required changes, and stakeholder impacts.

While many of these factors are addressed within this Master Plan, this document does not itself constitute a business case. Instead, it provides the foundational analysis required to support future business case development.

Financial modelling conducted as part of this study confirmed that the Airport remains financially viable under scenarios where significant government grant funding is secured. These scenarios are considered realistic and supportable frameworks for advancing the Master Plan,

provided appropriate levels of government funding are secured. This reinforces the importance of grant funding as a prerequisite for implementing the recommended capital program.

9.4.2 Government Funding Program

There are several funding programs administered through the federal government that could be investigated for applicability to the Airport and proposed future development and upgrades to infrastructure. These funding programs include the Airports Capital Assistance Program (ACAP), National Trade Corridors Fund (NTCF) and potential future funding that may arise from the federal government's initiatives to support infrastructure development in Canada.

9.4.3 Provincial Funding Programs

In addition to federal sources, provincial funding can also play a critical role in advancing airport infrastructure projects. The Province of Ontario has shown growing interest in supporting aviation and regional economic development, particularly where airports contribute to broader transportation and economic objectives.

Provincial programs may offer opportunities to fund planning studies, infrastructure upgrades, or economic development initiatives that align with provincial priorities. These opportunities can vary over time depending on program availability and government priorities.

The Commission should maintain active engagement with provincial agencies to identify and pursue relevant funding streams. Building strong provincial relationships will help position the Airport as a strategic partner in supporting regional mobility, economic development, and climate resilience initiatives.

9.4.4 Airports Capital Assistance Program (ACAP)

ACAP is a Transport Canada funding program established in 1995 to help certified airports improve safety, protect assets, and reduce operating costs. Since its inception, ACAP has supported over 1,200 projects across Canada with more than $1.25 billion in funding.

The Airport has previously been successful in securing ACAP funding, demonstrating the value of the program for smaller airports. At present, the Airport does not qualify due to the absence of scheduled commercial passenger service. However, re-establishing scheduled service with more than 1,000 departing passengers annually would restore eligibility. For airports of Niagara's scale, ACAP can be especially beneficial in offsetting the high costs of maintaining critical safety and airside infrastructure.

Funding priority is typically given to:

- Rehabilitation of airside facilities or acquisition of firefighting equipment (ARFF).
- Purchase of new heavy mobile equipment.
- Improvements to the safety of air terminals.

It is also noted that while a 1,828.8 m (6,000 ft.) runway length is generally recommended for ACAP-eligible airports, in some other jurisdictions or contexts the benchmark may be 2,286 m (7,500 ft.). Once scheduled service is re-established, the Airport should proactively pursue ACAP opportunities to support future safety upgrades and expansion projects.

9.4.5 National Trade Corridors Fund

The National Trade Corridor Fund (NCTF) was created to fund airport, rail, port, access road and other transportation facility infrastructure projects in Canada. As of 2022, the total amount of funding available through the NTCF for projects was $4.6 billion, administered through rounds of funding driven by calls for proposals related to specific themes such as addressing supply chain issues or to facilitate trade diversification. Although the last call for proposals closed in April 2023, it is recommended the Airport monitor any future calls for proposals as the fund is still active and the funding envelope is intended to expire on March 31, 2028.

9.4.6 Future Federal Funding Opportunities

In the past, the federal government administered and accepted applications for funding under the Airport Critical Infrastructure Program (ACIP), Transportation Assets Risk Assessment (TARA) program, and the Clean Transportation System – Research and Development (CTS-RD) Program. Although these funding programs have been discontinued and/or are no longer accepting applications, new opportunities may arise in the future over the 20-year planning horizon of this Master Plan that the Airport projects may be eligible for. It is recommended the Commission remain abreast of any new funding opportunities for the possibility to apply to obtain funding for future airport projects.

Economic Impact

10 ECONOMIC IMPACT

An Economic Impact Study (EIS) was conducted by Avia NG and DKMA as part of the Airport Redevelopment Project for Niagara District Airport and the results incorporated into this Airport Master Plan. The study was completed in two phases:

Phase 1 (Existing): An estimate of the economic footprint of the Niagara District Airport's operations in 2024; and

Phase 2 (Projection): A projection of the size of the Airport's economic footprint in the year 2045 under a scenario in which a minimum of five daily commercial flights is introduced at the Airport.

A high-level summary of the Economic Impact Study is documented in **Figures 10-1** and **10-2**.

10.1 OVERVIEW

An airport is a key component of a region's infrastructure and plays an important role in facilitating the flow of domestic and international commerce. In collaboration with airlines, the airport fulfills its role by enabling the movement of people and goods. Passenger services support face-to-face business interactions, tourism, and the reunification of family and friends, while cargo services facilitate the flow of inputs for industrial production and the distribution of finished goods. All these movements have a positive and significant impact on a region's economic growth. Moreover, in the case of the Airport, its role in enabling regional tourism is particularly important. Direct air access to Niagara's world-renowned attractions, including wineries, Niagara Falls, and cultural destinations, will support longer visitor stays, higher spending, and increased conference and event activity.

Beyond their immediate transportation function, airports act as powerful economic catalysts. They support business attraction and retention by improving regional connectivity, enabling firms to access national and international markets more efficiently. Airports stimulate tourism by providing convenient access for visitors, which in turn supports hotels, restaurants, cultural attractions, and related services. They also generate employment both directly, through on-airport jobs in aviation and support services, and indirectly, through supply chains and induced household spending. Improved air connectivity can also attract new investment, encourage innovation, and enhance the competitiveness of regional industries, contributing to sustained economic growth.

Economic impact can be measured in several ways, including employment, income, Gross Domestic Product (GDP) and economic output, as summarized in **Figure 10-3**. All these measures help quantify the gross level of economic activity being generated by the source. As a result, they can be useful in developing an appreciation for projects, investments, and economic sectors.[25]

Figure 10-1 Cumulative Economic Impact Upon Completion

Figure 10-2 Economic Contribution in 2045

In addition to employment, the two most common measures of economic contribution are gross domestic product (GDP) and economic output. GDP represents the

[25] Economic impact is different from a cost-benefit analysis that weighs benefits against costs.

value added by labour and capital in the production of final goods and services resulting from economic activity. This measure is net of the value of intermediate goods and services used up to produce the final goods and services. Economic output is the dollar value of industrial output produced and roughly corresponds to the gross revenue of goods or services produced by an economic sector. As such, GDP removes the revenues to suppliers of intermediate goods and services and only includes the revenues from value-added production. Alternatively, economic output adds all revenues at each stage of production together as a measure of total production in the economy. Economic output will most often be greater than GDP (also termed value-added). In service industries and the public sector, economic output is often simplified to equate to total wages paid.

To estimate economic output for a sector, one might add up the gross revenues of the various firms in that sector. However, to find GDP for a sector, care must be taken to avoid double-counting. The revenues of one firm providing service to another are not incremental GDP. For example, in the aviation manufacturing sector, one cannot add the value of an aircraft engine to the value of the completed aircraft. The engine is already included in the final price of the aircraft and counting both would overstate the sector's true contribution to GDP.

10.1.1 Categories of Economic Impact

The three major components of economic impact are *direct, indirect, and induced impacts*, as described in the sections below. These distinctions are used for the estimation of the total economic impact of the Airport.

Employment (Full-time Equivalents)	•The number of full-time equivalents (FTEs) or person years generated by a particular source. •Certain jobs may only be part-time or seasonal, the number of jobs is generally greater than the number of FTEs.
Wages	•The income (i.e. wages, salaries, bonuses, benefits and other remuneration) earned by the associated workforce.
Gross Domestic Product (GDP)	•GDP is a measure of the **value added** by labour and capital used to produce final goods and services. •This measure is **net** of the value (i.e. cost) of intermediate goods and services used in the production of the final goods and services. GDP can thus be thought of as economic output less intermediate inputs.
Economic Output	•The **gross** dollar value of industrial output produced. Sometimes referred to as "economic activity," it reflects the spending (i.e. capital improvement plus revenue) by firms, organizations and individuals.

Figure 10-3 Measures of Economic Impact

10.1.1.1 Direct Impacts

Direct impacts account for the economic activity of the target sector itself. For instance, all employment that is directly related to the operation and management of the Airport, including businesses located on-site at the airport as well as airport-dependent businesses located offsite, would be considered direct employment. Thus, the direct employment base includes airline employees, fixed base operators, ground handling, customer service, and airport staff, etc.

10.1.1.2 Indirect Impact

Indirect impacts are those that result because of the direct impacts. This involves employment in downstream industries that arise from the presence of the Airport. For instance, indirect employment includes the portion of employment in supplier industries that are dependent on sales to the air transport sector, e.g., food wholesalers that supply food for catering on flights, or firms supplying maintenance or support services for the Airport.

10.1.1.3 Induced Impact

Induced employment is generated from expenditures by individuals employed directly or indirectly by the airport. For instance, if a NAV CANADA employee at the Airport decides to renovate her home, this would result in induced employment hours in the general economy as the renovation would support hours of employment in the construction industry, the construction materials industry, etc. Induced impact is often called the "household-spending effect."

Total impacts are the sum of direct, indirect, and induced effects. These three categories of impacts are summarised in **Figure 10-3.**

Figure 10-4 Ontario Multipliers

These three impacts are measured by using Statistics Canada's Input-Output Interprovincial Economic Impact Model (IO model). The IO model depicts inter-industry relationships within an economy, providing a measure of the interdependence between a given industry and the rest of the economy: e.g., quantifying the value of inputs derived from supplier industries that are required by a given industry to produce one dollar of final output. These inter-industry relationships are derived from the Supply-Use Tables produced by Statistics Canada. In addition, the IO model contains employment multipliers which express the relationship between employment and output. The Ontario Multipliers are illustrated in **Figure 10-4**.

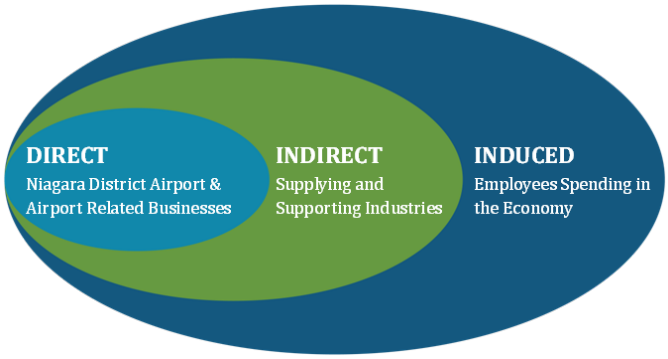


Figure 10-5 Categories of Economic Impact

10.2 EIS Results

The outcome of the economic impact study is as follows and illustrated in **Table 10-1** and **Figure 10-6**:

- Current Operations (Phase 1 - 2024): The Airport's existing commercial activities generate nation-wide economic impacts including economic output of $32.7 million, a GDP impact of $15.2 million, and labour income of $9.6 million. In addition, the Airport's current operations support 119 full-time-equivalent jobs (FTE) nation-wide. It is important to note that over 90% of these impacts are captured within Ontario.
- Projected Operations (Phase 2 - 2045): The Airport's role in enabling tourism is particularly important. Direct air access to Niagara's world-renowned attractions, including wineries, Niagara Falls, and cultural destinations, will support longer visitor stays, higher spending, and increased conference and event activity. Consequently, with the introduction of five daily commercial flights, the Airport's operational impact is projected to expand dramatically by 2045. Nation-wide, in 2045, its operational activities are estimated to generate economic output of $157.6

million, $69.3 million in GDP, and $40.3 million in labour income. In addition, the Airport's operations in 2045 are projected to support 507 jobs (FTE) nation-wide. Similar to the impact of the Airport's current operations, nearly 90% of these projected impacts are expected to take place within Ontario.

Cumulative Capital Expenditures (Phase 2 - to 2045): The anticipated capital investments at the Airport between the present and 2045 will generate additional economic activity through construction, equipment procurement, and professional services. These investments will create short-term construction jobs and long-term operational benefits, with multiplier effects across the regional economy. These expenditures are estimated to generate the following cumulative impacts: economic output of $390.3 million, GDP impact of $176 million, labour income of $109 million, and 1,166 jobs (FTE). Again, approximately 90% of this impact is expected to remain within Ontario, demonstrating the localized benefits of infrastructure investment.

The Airport's impact on economic output is projected to grow from $32.7 million in 2024 to $157.6 million in 2045. This excludes the economic impact of planned capital expenditures to develop the Airport.

Table 10-1 Economic Impact of Niagara District Airport (Nation-wide)

	Employment	Wages ($ Millions)	GDP ($ Millions)	Economic Output ($ Millions)
Phase 1	119	9.6	15.2	32.7
Phase 2 (Operations & Capital)	1,673	149.3	245.3	547.9

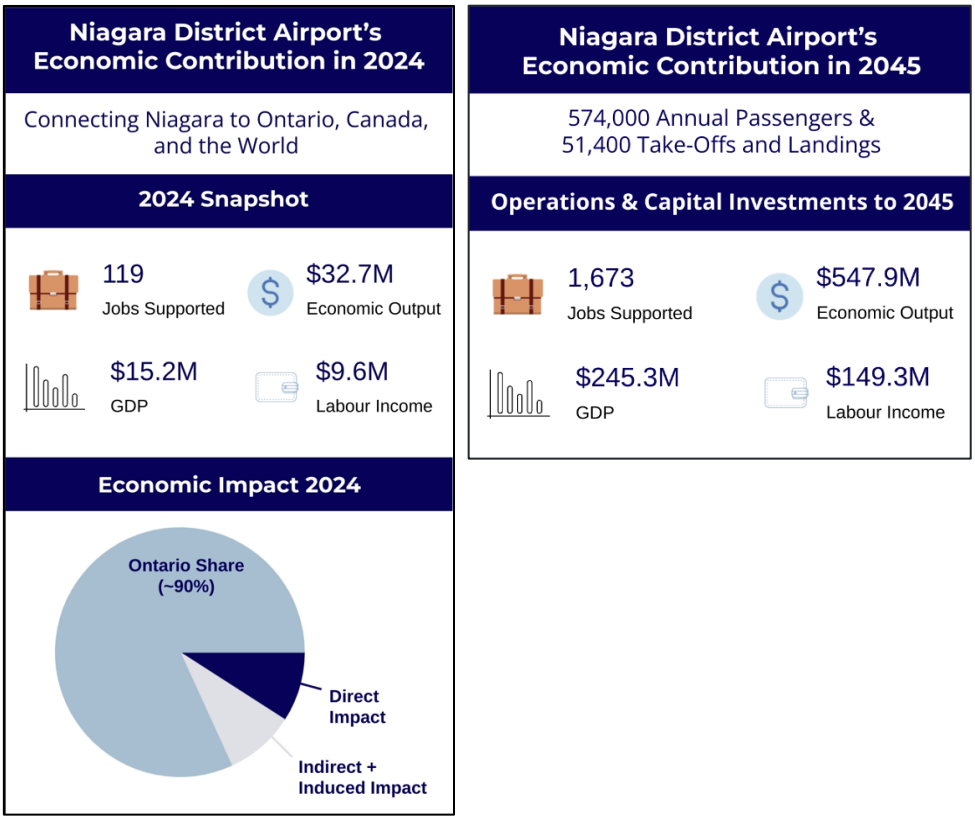


Figure 10-6 Niagara District Airport Economic Contribution

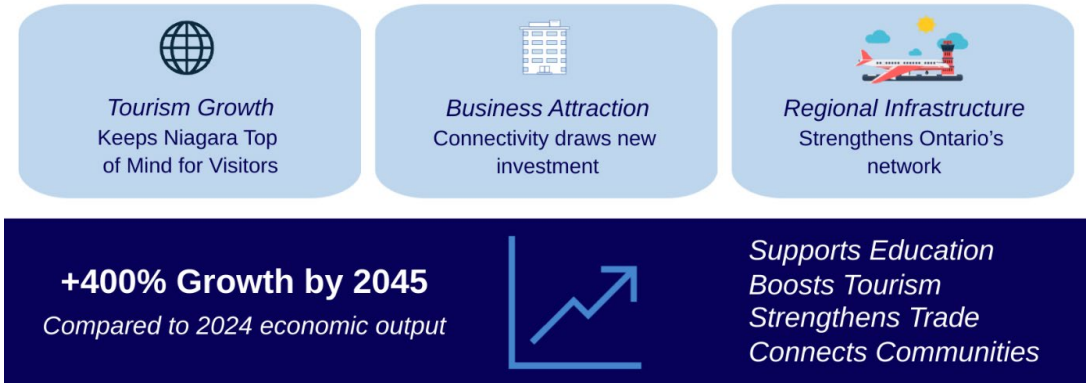


Figure 10-7 Looking Ahead

Cumulative capital expenditures (present – 2045) made by the Airport are projected to support 1,170 jobs, generating $109 million in wages. Beyond the Airport's direct, indirect and induced economic impact, the Airport generates intangible benefits to the regional economy by facilitating increased trade, attracting new businesses and encouraging new investment.

Overall, the Airport's planned expansion (addition of five daily commercial flights) and associated capital investments are projected to drive substantial increases in GDP, labour income, and employment. These impacts will significantly amplify the Airport's role as a key component of regional, provincial and national infrastructure, and underscore its potential to serve as a key catalyst for tourism growth in the region.

10.3 Study Methodology

The economic impact analysis was carried out using Statistics Canada's Input–Output (IO) model, which estimates how airport activities and investments generate ripple effects through the regional, provincial, and national economies. The model captures three types of impacts: direct impacts generated by the airport and on-site businesses, indirect impacts on suppliers and supporting industries, and induced impacts resulting from employee spending in the broader economy. Together, these effects provide a comprehensive picture of how the airport contributes to economic activity.

Two categories of airport activity were analyzed. The first focused on the impacts generated by ongoing airport and tenant operations. The second examined the economic effects associated with planned capital investments required to support future development. These two perspectives provide a balanced view of the airport's current and potential contributions.

The impact of operating expenditures was assessed through a structured approach. A survey was conducted to collect employment and wage data from both the airport and its tenants. While most tenants declined to share revenue figures, employment information was available and sufficient for modelling purposes. The data were then categorized according to Statistics Canada's industry classifications to ensure consistency with the IO model. Employment figures for part-time and seasonal positions were converted into full-time equivalents (FTEs) to allow for standardized analysis. Using Statistics Canada's FTE employment multipliers, the team estimated the total economic output, employment, and GDP impacts associated with ongoing airport operations. This method allowed the analysis to focus on employment as the key input, which is often the most reliable data point for airports of this scale.

The impact of capital expenditures was assessed by translating planned investments into industry-specific "shocks" within the IO model. This involved identifying the industries that would supply goods and services for various types of projects, such as new terminal buildings or infrastructure upgrades, and then allocating expenditure amounts across these industries based on Statistics Canada's Supply-Use tables. For example, a $100 million investment in non-residential structures might be distributed with approximately $45 million allocated to construction-related industries, including non-residential building construction, heavy and civil engineering, and specialty trades; around $25 million to manufacturing industries such as fabricated metal products, cement and concrete products, and steel mills; and the remaining amounts to other supporting sectors. These allocations reflect the typical distribution of construction expenditures across the economy and ensure that the modelling is grounded in realistic supply relationships.

Once these allocations were established, they were converted into industry shares and applied to Statistics Canada's IO model. This step produced estimates of total direct, indirect, and induced economic impacts, including output, employment, wages, and GDP, resulting from the planned capital investments. By combining this with the operational impact analysis, the study provides a clear understanding of both the ongoing and future economic contributions of the Airport.

Next Steps

11 Next Steps

11.1 Summary

Niagara District Airport is a Transport Canada certified GA airport supporting a mix of activities including recreational flying, flight training, corporate flight activities, rotary wing operations, sightseeing flights and some limited scheduled and ad hoc passenger activity.

Looking ahead, there is an opportunity for the Airport to become a significant part of the region's transportation infrastructure, supporting economic growth and better connectivity in the region.

Through investment and a staged growth strategy, the Airport has the opportunity to expand beyond its current GA base and transition toward scheduled commercial service.

A staged pathway has been identified, beginning with an EPS that builds upon the work started with this Master Plan to develop a concept of operations in the 2025–2028 period that balances near-term opportunities with longer-term infrastructure planning.

The EPS would permit Dash 8 (Q400) turboprop operations with approximately 10,000 to 20,000 passengers (enplaned and deplaned) annually, while recognizing constraints such as lack of CATSA screening, interim terminal requirements, and landside capacity. This stage is intended to generate early momentum, primarily through charter and ad hoc traffic, while laying the groundwork for full commercial service commencing with Stage 1 in 2029, supported by an additional estimated $55 million capital investment and an initial forecast of up to 170,000 passengers.

Longer-term development stages are forecast to grow activity toward 574,000 passengers by 2045 and 611,000 passengers by 2048 and poised for significant annual growth each and every year thereafter. At the Plan's completion, it would unlock over $1 billion in economic output and bring over 7 million passengers through the Niagara region. The construction program itself will provide immediate economic stimulus by generating over 1,100 jobs and nearly $400 million in economic output, with almost 90% of those benefits staying in Ontario.

Figure 11-1 Recommended Next Steps

11.2 Enabling Program Stage Considerations

An assessment of EPS operations highlights several facility-based limitations:

- **Airside:** Dash 8 operations are not materially constrained, though pavement load ratings and RESA provisions as well as taxiway widening must be confirmed. Glycol mitigation planning will be required to manage environmental risks and operator responsibilities.
- **Terminal:** Interim expansion will be needed to provide sufficient space for check-in, baggage drop-off, reclaim, office space, and Airport staff. Additional space will also be required to meet CATSA pre-board screening and baggage screening standards. Interim structural solutions (e.g., pop-up or modular facilities) must be designed to not interfere with Stage 1 construction.
- **Landside:** Existing parking and road access are insufficient to accommodate peak demand; parking capacity would need to roughly double, and Highway 55 access could become a chokepoint during peak hours.
- **Plan of Operations:** Firefighting availability is not anticipated to require ARFF upgrades at this stage, though thresholds must be confirmed.
- **Air Carrier Requirements:** Variability in airline needs (charter vs. scheduled) could present challenges in ground handling and service standards.
- **Cost:** Interim baggage and passenger processing solutions could carry significant cost implications, with "non-screened passengers flights" potentially requiring alternative screening procedures.

While these limitations represent challenges, none are insurmountable. By clearly identifying airside, terminal, landside, and operational constraints in advance, the Airport can prioritize mitigation strategies and avoid costly surprises. This transparency also helps demonstrate to stakeholders that the EPS is a managed, interim step designed to bridge existing capacity with future commercial operations.

11.3 Recommended Next Steps

Building on both the strategic goals identified earlier and the realities of the EPS operations, the following listed in **Figure 11-1** and detailed below are recommended:

1) Adopt the finalized Airport Master Plan with commission approval (2025) as part of the EPS preparatory work, developing detailed concepts for interim facilities, ground access, and CASTA compliance, while prioritizing charter and ad hoc service in the 2026-2028 period.
2) Develop and resource a government funding strategy (provincial/federal), ensuring alignment with broader regional priorities (2025).
3) Engage with potential airline carrier partners and secure commitments to commercial service, supported by a defined marketing strategy and value proposition (2026).
4) Advance design development and impact assessments for Stage 1 expansion, in coordination with funding approvals (2026).
5) Position the Airport for long-term growth by maintaining competitiveness on airport charges, expanding value-added services, and integrating with regional tourism and business development strategies.

Taken together, these steps form a pragmatic roadmap that balances ambition with realism. They ensure that short-term activities such as charter and ad hoc services generate momentum, while medium-term actions secure funding, airline partners, and regulatory compliance for Stage 1. By phasing the work in this way, the Airport minimizes risk, maximizes early opportunities, and positions itself for sustained, achievable growth and long-term success.

11.4 Conclusion

The EPS concept of operations is feasible provided that prerequisite investments are made in interim facilities, regulatory compliance, and CATSA screening is obtainable. This approach offers a pragmatic bridge between today's GA focus and tomorrow's commercial passenger service, enabling the Airport to capture near-term opportunities, attract airline interest, and ensure a smooth transition to full scheduled operations by 2029.

Looking ahead, the Airport's ability to implement the EPS effectively will also build confidence among potential airline partners, funding agencies, and the local community. Demonstrating tangible progress in the 2027–2028 window will reinforce the credibility of the long-term plan and underscore Niagara District Airport's role as a regional economic driver. Success at this early stage is therefore not only operationally necessary but strategically critical to achieving the Airport's 2045 vision of creating transformational, community-driven growth that brings opportunities, investments and significant benefits to the entire Niagara region.

Appendix A

Acronyms, Glossary, and Airport Codes

APPENDIX A
ACRONYMS, GLOSSARY AND AIRPORT CODES

ACRONYMS

AAGR	Annual Average Growth Rate
AAM	Advanced Air Mobility
ACA	Airport Carbon Accreditation
ACAP	Airport Capital Assistance Program
ACI	Airports Council International
ACIP	Airport Critical Infrastructure Program
AGN	Aircraft Group Number
AGL	Above Ground Level
ALC	Airport Liaison Committee
AME	Aircraft Maintenance Engineer
AMP	Airport Master Plan
AOM	Airport Operations Manual
ARFF	Airport Rescue and Firefighting
ASDA	Accelerate-Stop Distance Available
ASL	Above Sea Level
ATB	Air Terminal Building
ATC	Air Traffic Control
AZR	Airport Zoning Regulation
BCATP	British Commonwealth Air Training Program
CAAM	Canadian Advanced Air Mobility Consortium
CAO	Chief Administrative Officer
CAP	Canada Air Pilot
CARs	Canadian Aviation Regulations
CASARA	Civil Air Search and Rescue Association
CATSA	Canadian Air Transportation Security Authority
CBSA	Canada Border Services Agency
CCTV	Closed Circuit Television
CORSIA	Carbon Offsetting Reduction Scheme for International Aviation
CSB	Combined Services Building
CTS-RD	Clean Transportation System – Research and Development Program
DF	Direction Finding (Equipment)
ERP	Emergency Response Plan
EU	European Union
eVTOL	Electric Vertical Takeoff and Landing
FAA	Federal Aviation Administration
FBO	Fixed Base Operator
FEC	Field Electrical Centre
FSS	Flight Service Station
FTE	Full-Time Equivalents
GA	General Aviation
GDP	Gross Domestic Product
GGH	Greater Golden Horseshoe
GHG	Greenhouse Gas
GNSS	Global Navigation Satellite System
GSE	Ground Service Equipment
GTA	Greater Toronto Area
GTHA	Greater Toronto and Hamilton Area
HALE	High-Altitude, Long-Endurance
IAA	Impact Assessment Act
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IDP	Instrument Departure Procedure
IFR	Instrument Flight Rules

IFP	Instrument Flight Procedure
ILS	Instrument Landing System
LCC	Low-Cost Carrier
LDA	Landing Distance Available
LEED	Leadership in Energy and Environmental Design
LPV	Localizer Performance with Vertical Guidance
LNAV	Lateral Navigation
LSA	Light Sport Aircraft
MIDT	Marketing Information Data Transfer
MRO	Maintenance / Repair / Overhaul
NDA	Niagara District Airport
NDAC	Niagara District Airport Commission
NEF	Noise Exposure Forecast
NEP	Noise Exposure Projection
NM	Nautical Mile
NOTL	Niagara-on-the-Lake
NTCF	National Trade Corridors Fund
O & D	Origin and Destination
OAG	Official Airline Guide
ODALS	Omnidirectional Approach Lighting System
OLS	Obstacle Limitation Surfaces
PAPI	Precision Approach Path Indicator
PBN	Performance Based Navigation
PIEVC	Public Infrastructure Engineering Vulnerability Committee Protocol
PCR	Pavement Classification Reporting
PLR	Pavement Load Rating
QEW	Queen Elizabeth Way (Highway)
RESA	Runway End Safety Area
RNAV	Area Navigation
RPAS	Remotely Piloted Aircraft Systems
SAF	Sustainable Aviation Fuel
SAR	Search and Rescue
SCFC	St. Catharines Flying Club
SM	Statutory Mile
SMS	Safety Management Systems
SOAN	Southern Ontario Airport Network
SWOT	Strengths, Weaknesses, Opportunities and Constraints
TAM	NAV CANADA Tower Aircraft Movement Database
TARA	Transportation Assets Risk Assessment Program
TODA	Take-off Distance Available
TORA	Take-off Run Available
UAM	Urban Air Mobility
ULCC	Ultra-Low-Cost Carrier
VFR	Visual Flight Rules
VHF	Very High Frequency

GLOSSARY

AAM – Advanced Air Mobility: The use of electric and hybrid aircraft for urban, suburban, and rural air transportation operations.

ACA – Airport Carbon Accreditation: A voluntary global certification program, managed by ACI, that evaluates and recognizes airports' efforts in measuring and reducing their carbon emissions through a structured, tiered framework.

ACI – Airports Council International: Airports Council International is the global association representing airports worldwide. It develops policies, standards, and training to support airport operations.

ACAP – Airport Capital Assistance Program: A federal Canadian funding initiative that offers financial support for infrastructure improvements at local and regional airports.

AGN – Aircraft Group Number: The purpose of the AGN is to provide a simple method for interrelating the numerous technical specifications concerning the aerodrome and the characteristics of the critical aircraft for which the aerodrome.

CAP – Canada Air Pilot: Canada Air Pilot means an aeronautical information publication published by NAV CANADA that contains information on instrument procedures.

ALC – Airport Liaison Committee: A collaborative group of airport representatives and community or government stakeholders, created to address airport-neighbourhood issues and provide oversight on airport developments.

AMP – Airport Master Plan: A long-term strategic document that outlines an airport's future development, infrastructure needs, and operational requirements.

AOM – Airport/Aerodrome Operating Manual: A comprehensive manual outlining procedures and standards for safe operations, including ground handling, emergency response, and regulatory compliance.

ASDA – Accelerate-Stop Distance Available: The runway length available for an aircraft to accelerate and then safely stop during an aborted takeoff.

CASARA – Civil Air Search and Rescue Association: A national volunteer organization in Canada that provides aviation-based search and rescue support, typically working with the Canadian Forces and other agencies.

CATSA – Canadian Air Transportation Security Authority: The federal Crown corporation responsible for screening passengers and baggage at Canadian airports and setting security protocols.

CBSA – Canada Border Services Agency: The federal agency accountable for border enforcement, immigration, customs services, and international trade regulations at Canada's air, land, and marine ports of entry.

CORSIA – Carbon Offsetting Reduction Scheme for International Aviation: A global market-based mechanism under ICAO to offset international aviation CO_2 emissions and stabilize growth in emissions starting in 2021.

CSB – Combined Services Building: A facility on airport property that housing multiple support services such as maintenance and firefighting functions often consolidated to improve operational efficiency.

DF – Direction Finding (Equipment): Radiodetermination using the reception of radio waves for the purpose of determining the direction of a station or object.

FBO – Fixed Base Operator: A commercial enterprise that has been granted the right by an airport authority to operate on that airport and provide aviation services, such as fuel, parking and hangar space, to the General Aviation (GA) community.

FEC – Field Electrical Centre: A substation on airport lands responsible for distributing electrical power to airfield lighting and systems.

FSS – Flight Service Station: A ground-based facility providing pilots with weather briefings, flight planning assistance, and emergency services via remote communications.

FTE – Full-Time Equivalent: Unit of measurement that represents the workload of one full-time employee, even if that workload is distributed among multiple part-time employees or other non-standard work arrangements.

GA – General Aviation: All civil aviation operations other than scheduled airline services, including private flying, flight training, aerial work, and more.

GNSS – Global Navigation Satellite System: Satellite-based navigation systems (like GPS, GLONASS, Galileo) used to determine precise aircraft positioning globally.

GSE – Ground Service Equipment: Tugs, carts, power units, deicing vehicles, etc. used to service aircraft on the ground.

IAA – Impact Assessment Act: The Impact Assessment Act outlines a process for assessing the impacts of major projects and projects carried out on federal lands or outside of Canada.

IATA – International Air Transport Association: A global trade association representing airlines, developing safety, efficiency, and regulatory standards for commercial aviation.

ICAO – International Civil Aviation Organization: A UN agency that establishes global aviation standards, procedures, and policies to support safe and orderly development of international civil aviation.

IFR – Instrument Flight Rules: A set of regulations and procedures for flying based on instrument navigation and air traffic control, used in low visibility or controlled airspace.

ILS – Instrument Landing System: precision runway approach aid based on two radio beams which together provide pilots with both vertical and horizontal guidance during an approach to land.

LDA – Landing Distance Available: The length of runway declared available and suitable for landing operations.

LEED – Leadership in Energy and Environmental Design: A green building certification program assessing environmental and energy performance in infrastructure projects.

LPV – Localizer Performance with Vertical Guidance: A type of GNSS-based approach providing both lateral and vertical guidance, offering precision similar to an ILS without ground based equipment.

LNAV – Lateral Navigation: An instrument flight mode that provides only lateral, not vertical, navigation guidance.

MIDT – Marketing Information Data Transfer: A commercial data service providing airlines and travel companies with booking and reservation data for analysis.

MRO – Maintenance / Repair / Overhaul: Term for aviation services to inspect, repair, and overhaul aircraft and components.

NEF – Noise Exposure Forecast: Measurement of the actual and forecasted aircraft noise in the vicinity of airports.

NEP – Noise Exposure Projection: Predictive modeling of future noise exposure based on projected aircraft traffic and operations at an airport.

OAG – Official Airline Guide: A comprehensive global air travel intelligence provider offering airline schedules, flight status, and related data services.

OLS – Obstacle Limitation Surfaces: Imaginary surfaces defining limits to which objects may project into the airspace around an aerodrome to protect aircraft operations.

PAPI – Precision Approach Path Indicator: Lights that provide glide slope information to pilots on final approach to ensure correct descent angle.

PIEVC – Public Infrastructure Engineering Vulnerability Committee Protocol: A Canadian engineering protocol to assess the vulnerability of public infrastructure to climate change and extreme weather impacts.

PLR – Pavement Load Rating: A measure used to determine the maximum load a pavement structure can safely carry without damage.

Runway End Safety Area: A clear, graded area at the end of a runway, symmetrical about the extended runway centerline, designed to reduce the risk of damage and injury in the event of an aircraft undershoot or overrun.

RNAV – Area Navigation: A method of navigation which permits the operation of an aircraft on any desired flight path. It allows its position to be continuously determined wherever it is rather than only along tracks between individual ground navigation aids.

RPAS – Remotely Piloted Aircraft Systems: Unmanned aircraft systems operated remotely by a pilot on the ground, commonly known as drones.

SAF – Sustainable Aviation Fuel: Alternative aviation fuels derived from renewable resources that reduce carbon emissions compared to conventional jet fuel.

SMS – Safety Management Systems: A systematic approach to managing safety, including organizational structures, accountabilities, policies, and procedures designed to ensure safe operations.

SWOT – Strengths, Weaknesses, Opportunities, and Threats: A strategic planning tool used to identify internal and external factors that can impact a project or organization.

UAM – Urban Air Mobility: A concept involving the use of highly automated aircraft to provide on-demand, passenger or cargo air transportation services within urban areas.

VFR – Visual Flight Rules: A set of regulations under which a pilot operates an aircraft with reference to the ground.

Airport Codes

ICAO Code	IATA Code	Airport Name
CNQ3	-	Niagara Central Dorothy Rungeling Airport
CNZ8	-	Grimsby Airport
CPF6	-	Stoney Creek Airport
CYHM	YHM	Hamilton International Airport
CYKF	YKF	Region of Waterloo International Airport
CYOW	YOW	Ottawa Macdonald–Cartier International Airport
CYSN	YCM	Niagara District Airport
CYUL	YUL	Montréal–Trudeau International Airport
CYVR	YVR	Vancouver International Airport
CYYZ	YYZ	Toronto Pearson International Airport
KBUF	BUF	Buffalo International Airport
KEWR	EWR	Newark Liberty International Airport
KFLL	FLL	Fort Lauderdale–Hollywood International Airport
KIAG	IAG	Niagara Falls International Airport
KORD	ORD	Chicago O'Hare International Airport
MDPC	PUJ	Punta Cana International Airport
MMUN	CUN	Cancún International Airport

Appendix B

Report Figures

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REPORT FIGURES

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STEWART ROAD

CARLTON STREET

GRANTHAM TOWNLINE ROAD

LINE 4 ROAD

11

19

RUNWAY 01-19: 2,498 ft. x 75 ft.

RUNWAY 11-29: 1,988 ft. x 75 ft.

TAXIWAY D

29

RUNWAY 06-24: 5,000 ft. x 100 ft.

06

24

TAXIWAY B

01

AIRPORT TERMINAL BUILDING

FLIGHT SERVICE STATION

NIAGARA STONE ROAD

AIRPORT ROAD

TAKE-OFF/APPROACH SURFACES

PAVEMENT

TAXIWAY CENTRELINE

BUILDINGS

PROPERTY BOUNDARY

EXISTING CONDITIONS PLAN

2-4

AIRSPACE REQUIREMENTS

NOISE CONSIDERATIONS

STEWART ROAD

TAKE-OFF / APPROACH SURFACE DIV. 10%

CARLTON STREET

GRANTHAM TOWNLINE ROAD

LINE 4 ROAD

11

19

RUNWAY 01-19: 2,498 ft. x 75 ft.

RUNWAY 11-29: 1,988 ft. x 75 ft.

RUNWAY WIDENING FOR ROUTINE JET USE

2 OR 3 RUNWAYS

POTENTIAL RUNWAY 06-24 EXTENSION TO 7,500 FT.

TAXIWAY D

RUNWAY 06-24: 5,000 ft. x 100 ft.

29

90

24

TAXIWAY B

TAXIWAY C

TAXIWAY A

01

ADDITIONAL GENERAL AVIATION HANGARS AND LOTS OR FUTURE AVIATION OPPORTUNITIES

AIRPORT TERMINAL BUILDING

EXPANDED PASSENGER TERMINAL AND PARKING FOR NEW TERMINAL

ADDITIONAL GENERAL AVIATION HANGARS AND LOTS FOR FUTURE AVIATION OPPORTUNITIES

NIAGARA STONE ROAD

AIRPORT ROAD

ROAD INTERSECTION AND ENTRANCE IMPROVEMENTS

TAKE-OFF/APPROACH SURFACES

PAVEMENT

TAXIWAY CENTRELINE

BUILDINGS

PROPERTY BOUNDARY

CONSTRAINTS AND OPPORTUNITIES

CONVERT RUNWAY TO TAXIWAY

EXISTING RUNWAY 11-29
NON-INSTRUMENT CODE 1B
1,988 ft. x 75 ft.

RUNWAY WIDENING TO 148 ft.

EXISTING RUNWAY 06-24
NON-PRECISION CODE 3C
5,000 ft. x 100 ft.

RUNWAY EXTENSION TO 7,500 ft.

NEW COMBINED SERVICES BUILDING

TERMINAL IMPROVEMENTS STAGE 1

TERMINAL IMPROVEMENTS STAGE 2

AIRPORT ACCESS IMPROVEMENTS

WEST COMMERCIAL DEVELOPMENT AREA

EAST COMMERCIAL DEVELOPMENT AREA

CARLTON STREET

NIAGARA STONE ROAD

AIRPORT ROAD

TAXIWAY A

TAXIWAY B

TAXIWAY D

11

29

90

24

- FUTURE APPROACH LIGHTING PLANE
- FUTURE RUNWAY END SAFETY AREA
- EXISTING AND FUTURE APPROACH SURFACES
- EXISTING AND FUTURE PAVEMENT
- FUTURE TAXIWAY CENTRELINE
- EXISTING BUILDINGS
- FUTURE BUILDINGS
- EXISTING PROPERTY BOUNDARY
- FUTURE AIRPORT PROPERTY

RECOMMENDED AIRPORT DEVELOPMENT PLAN

CARLTON STREET

GRANTHAM TOWNLINE ROAD

LINE 4 ROAD

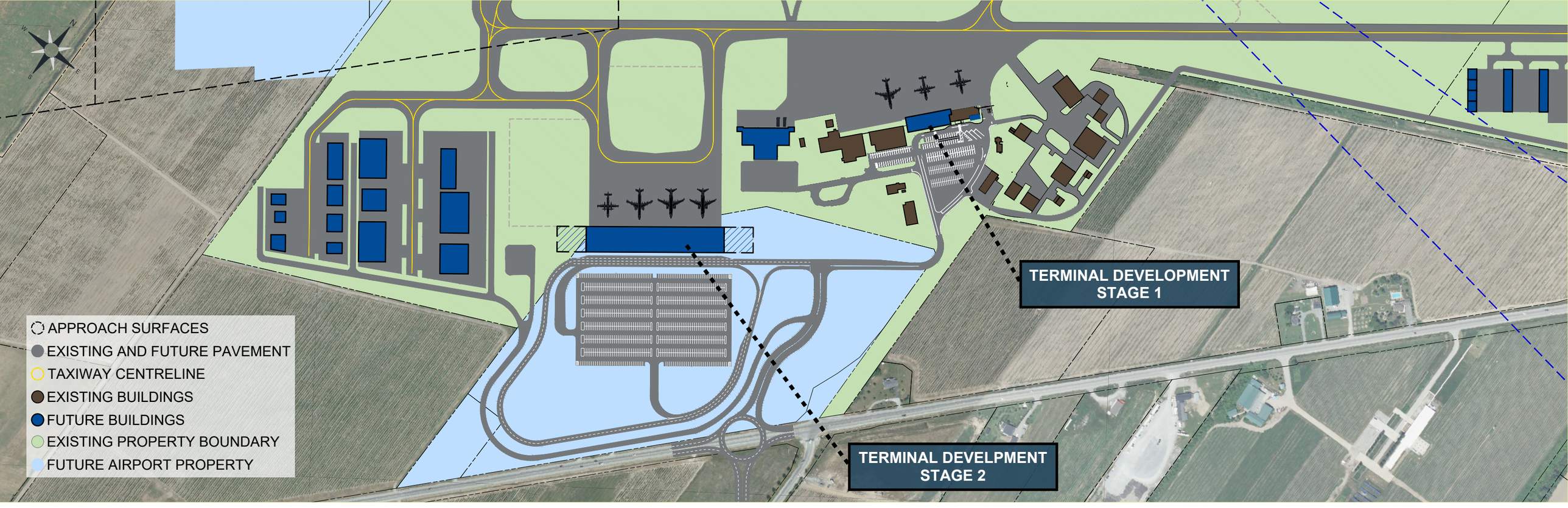
NIAGARA STONE ROAD

AIRPORT ROAD

- AIRPORT RESERVE
- AIRSIDE SYSTEM RESERVE
- AIRPORT SUPPORT
- TERMINAL RESERVE & PARKING
- AIRSIDE COMMERCIAL
- LANDSIDE COMMERCIAL
- RIGHT-OF-WAY
- EXISTING PROPERTY BOUNDARY
- LAND ACQUISITION

RECOMMENDED LAND USE PLAN

6-2



TERMINAL DEVELOPMENT STAGE 2

TERMINAL DEVELOPMENT STAGE 1

TERMINAL AREA PLAN

NEP 25
NEP 28
NEP 30
NEP 35

NEP 25
NEP 28
NEP 30
NEP 35

42
29
11
90

NEP 35
NEP 30
NEP 28
NEP 25

2045 NEP
SCENARIO 1
STATUS QUO

7-1

NEP 25
NEP 28
NEP 30
NEP 35

NEP 25
NEP 28
NEP 30
NEP 35

24
29
11
90

NEP 35
NEP 30
NEP 28
NEP 25

2045 NEP
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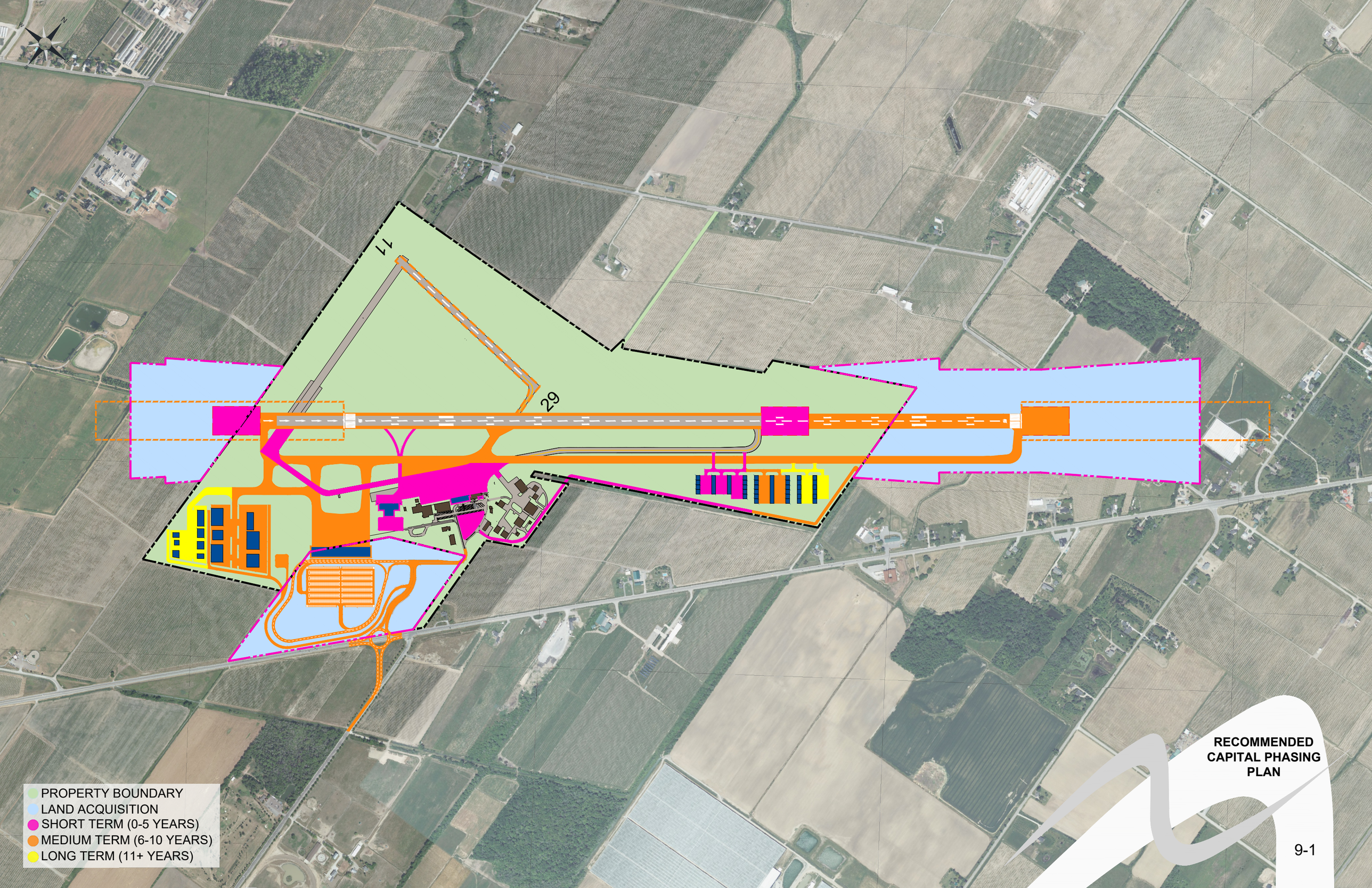

RECOMMENDED CAPITAL PHASING PLAN

9-1

Appendix C

Strengths, Weaknesses, Opportunities, and Threats Analysis

APPENDIX C STRENGTHS, WEAKNESSES, OPPORTUNITIES, AND THREATS ANALYSIS

A Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis was completed by Avia NG based on data collected and observations made throughout the Airport Master Planning. A summary of the key points is identified in **Figure AC-1** and **Figure AC-2**.

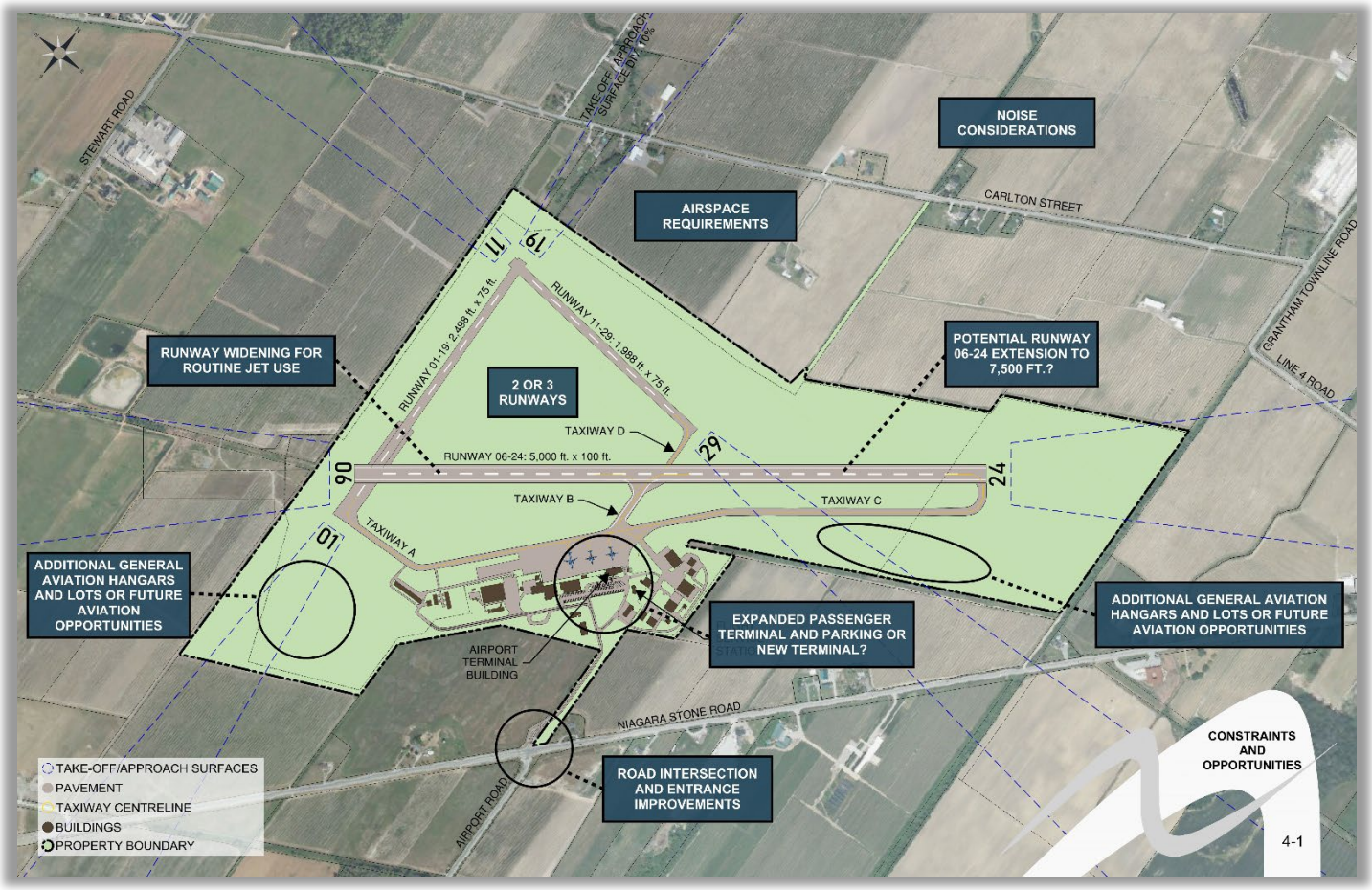

Figure AC-1 Constraints and Opportunities

(Source: AVIA NG)

Figure AC-2 Summary of SWOT Analysis

Strengths

Niagara District Airport demonstrates a range of strengths with direct relevance to future development and growth.

Location: The Airport is located in the Town of Niagara-on-the-Lake, positioned within close proximity to the region's two largest cities, St. Catharines and Niagara Falls. Its location provides quick access to major regional and cross-border markets, as well as direct connectivity via the Queen Elizabeth Way (QEW) highway to the Greater Toronto Area and the United States border. The airport is also surrounded by agricultural and protected lands, which helps preserve its operational flexibility by reducing potential conflicts with future urban encroachment.

Diversification: A wide range of aviation operations are already ongoing at the Airport, including flight training, charters, medivac, aircraft maintenance repair and overhaul (MRO), Fixed Base Operator (FBO), Search and Rescue (SAR) and more. A diverse operation provides a foothold for myriad growth and expansion, or attraction of new, supporting aviation uses.

Catchment Area: Given its central location and proximity to multiple larger cities and several smaller towns and communities with a combined population of over 540,000 people, the Airport has a significant catchment area to draw passengers and/or airport users from.

Tourism: Niagara is one of Canada's most popular tourist destinations, known internationally for attractions such as Niagara Falls, local wineries, the Shaw Festival, heritage districts, and entertainment venues including casinos and resorts. This diversity of destinations generates consistent year-round visitor activity, which both sustains aviation demand at the Airport and creates opportunities for future growth in support of the tourism industry.

Certification: The Airport has the benefit of already being certified by Transport Canada, which is a prerequisite to enabling scheduled passenger air service as certification often demonstrates a higher level of investment and commitment in the airport's operations.

Airport Zoning Regulations: Historically airspace surrounding the Airport has been protected through enacted Airport Zoning Regulations (AZRs). While the current AZRs are inadequate for the protection of the long-term development and continued use of the Airport, having the AZRs in place has helped to preserve the Airport's current certification and use, and furthermore provides a foothold in the process to update them to align with the Airport's latest expansion plans.

Support for Growth: The Airport is managed by the Commission and supported financially by three separate municipalities. The Municipality and Commission are unified in their commitment to supporting growth of the Airport, both in terms of GA and commercial service, which is an alignment not always present.

Infrastructure: The Airport has a number of facilities that are characteristic of larger airports that have scheduled passenger air service, demonstrating an initial, pre-existing level of preparedness to accommodate such air traffic in the future. Firstly, the Airport has a Flight Service Station (FSS) with the ability to upgrade to an Air Traffic Control (ATC) tower in the future. The Airport also has 24-hour customs clearance through the Canada Border Services Agency (CBSA) with a local talent pool available to draw from for expanded services if needed in the future. Finally, Avgas and jet fuel are both available at the Airport.

Weaknesses

A few aspects of the Airport have been identified as potential areas for improvement.

Aeronautical Infrastructure: Several facilities at the Airport need replacement and/or upgrade within the short- or medium-term to be able to accommodate increased aircraft movements or general airport growth. For example, the primary runway would need extension before the use of commercial jets for schedule air service could be accommodated. Likewise, there is currently a lack of instrument landing system (ILS) and precision approaches to the runways at the Airport, which precludes flight in certain weather conditions and reduces runway and airport usability.

Safeguarding: The current AZRs do not adequately protect the existing runway configuration or accommodate potential future extensions and therefore require updating. Surrounding municipalities have not incorporated provisions in their development planning policies—based on Transport Canada's Noise Exposure Forecast (NEF)—to prevent incompatible land uses or developments sensitive to aircraft noise.

Passenger Infrastructure: At present, the Airport's current terminal building is not sized or equipped for handling the volume of passengers created by commercial flights and scheduled air service. As well, the Airport does

not currently have any on-site food and beverage services, requiring catering to be brought to the Airport. At present, the Air Terminal Building has minimal amenities for passengers and future expansion could consider adding such to bolster customer experience and make the Airport more desirable to fly into.

Transit Connectivity: There is currently no public transit service to and from the Airport, which limits transportation options for airport employees, tenants, users, and passengers. Establishing a transit route or small network would strengthen regional accessibility, reducing reliance on personal vehicles and improving connectivity for both business and leisure travellers. Business activity would be better supported through a transit link to nearby hotels and conference centres, while leisure travellers would benefit from seamless connections to the wider Niagara region. In particular, integration with regional and intercity services such as GO Transit, VIA Rail, local bus networks, and other Niagara transit systems would expand access to the Airport and ensure it is well connected within the region's broader transportation network.

Airport Access: The Airport is accessed by a single road at the intersection of Niagara Stone Road and Airport Road, which is only controlled by a pair of stop signs. Upgrading the intersection to a roundabout would facilitate traffic flow and safety in the area and provide easier ground transportation access to the Airport.

Development Uncertainty: In recent years, the Airport has missed opportunities to expand and accommodate additional tenants due to a lack of clarity on development direction and allocation of commercial development lands. If left unaddressed, these barriers would be a deterrent towards attracting new business.

Land Availability for Runway Extension: The Airport currently owns limited lands off the ends of the existing runways. For runway extensions to occur, lands to the northeast or southwest of the Airport would need to be acquired, which may be challenging due to high land values associated with established viticulture and/or agricultural lands.

Marketing Efforts: At present, marketing initiatives and social media presence for the Airport appear limited. A future business plan should include a comprehensive marketing strategy that goes beyond general promotion. This strategy should be grounded in market research to clearly identify and understand key customer segments such as business travellers, flight training organizations, leisure users, and prospective tenants and to clearly assess their specific needs. With this knowledge, the Airport can position its strengths and opportunities more effectively, tailoring services, incentives, and messaging to attract and retain users. A balanced approach that combines traditional awareness-building with targeted outreach will ensure the Airport competes more effectively within both the regional and provincial aviation markets.

Serviced Lands: Although the Airport has multiple greenfield areas identified as ideal for future GA hangarage and/or aviation opportunity development, these lands are not yet serviced or otherwise prepared for immediate construction should such opportunities arise in the near term.

Opportunities

Given the Airport's strengths, there are several opportunities that could materialize to enable future growth and development of the Airport.

Infrastructure and Facility Expansion: There is ample vacant land, both within the airport property boundary and immediately adjacent to it, that could be utilized or purchased for the purpose of infrastructure expansion, including airport support facilities or the expansion of paved airside surfaces. ATB or nearby landside facility expansion, for airport support or otherwise, could also be pursued given the relatively low development density south of the main apron.

Aviation Business: Several underutilized land parcels within the airport property boundary present opportunities for new development. These parcels could accommodate the expansion of operations for existing tenants as well as attract prospective new airport and/or landside tenants. Importantly, the development of these lands has the potential to generate new non-aeronautical revenue streams, directly supporting the airport's long-term financial sustainability and reducing reliance on traditional aviation revenues.

Air Service Potential: The Airport is an integral component of the Southern Ontario Airports Network (SOAN), which comprises several airports located primarily within Ontario's Greater Golden Horseshoe region. While Toronto Pearson International Airport remains Canada's busiest facility in terms of aircraft movements and passenger volume, it is projected to operate beyond its capacity for new flights. The SOAN aims to address rising air travel demands across southern Ontario by utilising

secondary airports to alleviate congestion at Toronto Pearson.

Following the Federal Government's decision not to proceed with the Pickering Airport—citing adequate capacity within the SOAN—the Airport is well positioned to accommodate overflow commercial air service due to its strategic advantages and proximity to major destinations. Despite ongoing fluctuations in the regional air service market, opportunities exist for new air routes as airlines seek to leverage connections with key tourism and economic hubs. Moreover, increasing congestion driven by population growth and limitations in ground transportation infrastructure further underscores the importance of establishing scheduled passenger air service at the Airport.

Business and Corporate Aviation: There is growing demand for business and corporate aviation across North America, and the Airport is well-positioned to capture a share of this activity. The United States has the world's largest private jet fleet, with over 15,000 aircraft, while Canada has approximately 532 registered business jets. With proximity to the U.S. border and the Niagara region's strong economic base, there is a clear opportunity to expand fixed-base operator (FBO) and maintenance, repair, and overhaul (MRO) services at the Airport to attract this traffic.

Flight Training and Education Partnerships: The Airport's location near Niagara College presents opportunities for new or expanded aviation-related education and training programs. Partnerships with post-secondary institutions and flight schools could strengthen the local talent pipeline, increase flight training activity, and enhance the Airport's role as a centre for aviation education in Ontario.

Landside Business Partnerships: Beyond aviation uses, the Airport can explore partnerships with local businesses to create non-aviation commercial opportunities on its lands. This may include logistics, retail, or tourism-oriented businesses that benefit from direct airport access, contributing to diversified revenue streams.

Connectivity and Cross-Border Traffic: Improved regional connectivity, such as expanded bus services linking Niagara to Toronto Pearson and other hubs, further positions the Airport as an accessible alternative gateway. In addition, the Airport benefits from unique CBSA grandfather rights that can facilitate select cross-border operations. Given the significant number of Canadian travellers using nearby airports such as Buffalo International (KBUF) and Niagara Falls International (KIAG), there is potential to recapture a portion of this traffic by offering competitive services directly from Niagara.

Advanced Air Mobility: Several Urban Air Mobility (UAM) and Advanced Air Mobility (AAM) manufacturers are quickly moving toward large-scale testing of autonomous and/or electric Vertical Take-off and Landing (VTOL) aircraft within North America. The Airport is conveniently located across Lake Ontario from Toronto and Billy Bishop Airport. Historic FlyGTA air service at the Airport has demonstrated that there is a market for air taxi services between the Niagara region and downtown Toronto. Therefore, there exists opportunity for future use of more environmentally sustainable and cost-effective eVTOL transport to accommodate the demand for shorter-haul flights across Lake Ontario between the two economic centres. The Canadian Advanced Air Mobility (CAAM) Consortium also highlights opportunities for airports such as the Airport to increase air connectivity between regional airports and to multimodal travel hubs by offering shorter-haul eVTOL service in the future [26].

Interest from Government: The Airport has received expressions of interest from multiple levels of government – municipal, regional, provincial and federal – related to scheduled passenger commercial air service being established at the Airport. Establishing such services would align with and support governmental growth priorities, both in the region and provincially.

THREATS

There are also some threats to airport growth and development, which should be focused on and addressed.

Competition: The Airport is part of a significant network of airports in Southern Ontario and is also near some economically significant airports of considerable size and scale by the Canada-United States border, which have established roles in the regional airports system. Growing competition from nearby air cargo hubs (e.g., Hamilton International Airport), and scheduled passenger service airports (e.g., Hamilton and Buffalo International Airports

[26] CAAM, "Advanced Air Mobility Comes to Toronto," 2021. https://canadianaam.com/toronto-white-paper/

provides aviation operators with several alternatives to base or expand their operations beyond the Airport. Strategic air service and/or airport tenant attraction strategy would be beneficial once the Airport is ready to grow further.

Hangar Shortage: A shortage of hangar space is currently observed at the Airport, meaning that prospective airside tenants requiring hangar space would have limited accommodation or face wait times for additional space to become available.

Absence of CATSA Screening: Without access to CATSA passenger and baggage screening services, the Airport is unable to accommodate scheduled commercial air carriers. This significantly limits the Airport's ability to attract and retain airline partners, as security screening is a regulatory requirement for most scheduled domestic and all international flights. The absence of CATSA services represents a critical barrier to growth, as the Airport may lose opportunities to competing regional airports that already have screening infrastructure in place.

Incompatible Land Uses: Proximity of residential development and designated growth areas, if not controlled in a manner that ensures compatibility with continued airport use, can lead to organized forms of action and challenges that can thwart airport growth.

Ease of Land Acquisition: Lands surrounding the Airport are among the highest valued agricultural lands in Ontario, known for their viticulture and tender fruit agriculture potential. This may increase opposition to airport boundary expansion and complicate matters regarding land acquisition in the future.

Competing Transportation Modes: The establishment of new transport modes, such as the Hoverlink ferry route proposed to operate between St. Catharines and downtown Toronto, may compete for commuters with cross-lake air service, such as the potential eVTOL transport opportunity identified in Section 4.1.3.

Severe Weather Events: In the recent past, two major rainfall events have resulted in flooding of portions of the Airport. While lasting damage was not recorded, the events were disruptive and impacted vehicle parking, landside access and use of a taxiway. These events have highlighted a vulnerability to the impacts of extreme weather events. Airports can better prepare for potential increases in frequency, duration and impact of weather events associated with climate change through factoring climate resiliency measures into infrastructure design to better mitigate impacts when such events occur. One method is through the use of the Public Infrastructure Engineering Vulnerability Committee (PIEVC) protocol, which is a family of resources and frameworks designed to offer a systematic method of identifying infrastructure vulnerabilities and rectifying them.

Land Protections: The lands surrounding the Airport are part of the Ontario Greenbelt and subsequently designated "Protected Countryside" and "Niagara Peninsula Tender Fruit and Grape Area" under the Ontario Greenbelt Plan (2017). Acquisition and redesignation of airport-adjacent lands may trigger the necessity for impact assessments and challenges related to airport development that will need to be thoroughly studied.