Sarnia Chris Hadfield Airport

Airport Master Plan

Final Report | April 19, 2022

Executive Summary

Purpose and Stakeholder Engagement

Sarnia Chris Hadfield Airport (the "Airport") is owned by the City of Sarnia (the "City") and operated by Scottsdale Aviation. In October 2021, the Sarnia Airport Action Working Group presented its initial report to City Council that included the recommendation that an Airport Master Plan be developed to establish a long-term direction for the Airport. The development of the Sarnia Chris Hadfield Airport Master Plan (the "Master Plan") was commissioned by the City with the following objective:

> *"The goals of this Master Plan are to implement a clear plan to build a sustainable future operation at the airport, to operate a safe airport with a long term vision, to build value and gain return from the asset to fund its future needs, to institute appropriate governance, controls and financial reporting systems, and to attract business and tourism connections."*

The 20-year scope of the Master Plan is divided into three planning horizons: 1) Short-Term, from 2023 to 2027; 2) Medium-Term, from 2028 to 2032; and 3) Long-Term, from 2033 to 2042.

Stakeholder engagement opportunities were advertised through Speak Up Sarnia, the City's social media accounts, municipal website, Sarnia Observer, in two publicly accessible non-agenda reports to City Council, and by outreach by the Sarnia Lambton Economic Partnership, Sarnia Lambton Chamber of Commerce, and on-Airport businesses. A virtual open house was convened on January 11, 2022 and was attended by 58 individuals. Furthermore, resident and business surveys were available from December 2021 until January 21, 2022, with a combined total of 864 responses received. In-person and videoconference meetings were also convened, with a total of 50 interviews completed with individuals representing 25 stakeholder groups, including the City of Sarnia; Lambton County; aviation stakeholders, Airport tenants, and users; and private businesses and organizations.

Airport Profile

Sarnia Airport is classified as a Transport Canada-certified facility. The obligations imposed through the Canadian Aviation Regulations on the certificate holder are numerous, and the Airport is subject to the regulatory oversight of Transport Canada. Maintaining the Airport's certification is a requirement to ensure that the facility can support the return of scheduled passenger air services. Despite the reduction in activity and revenues at the Airport during the COVID-19 pandemic, the facility must continue to be operated in accordance with its certified obligations, included the associated costs.

Sarnia Airport currently supports the operations of six private businesses: Scottsdale Aviation; Huron Aviation, a Fixed-Base Operator; Huron Flight Services, a Flight Training Unit and maintenance provider; Sarnia Aircraft Service, an aircraft component assembly service; Enbridge, which operates pipeline aerial inspections; and Badger Daylighting, which provides hydro-excavation services.

The loss of scheduled passenger air services in March 2020 has had a significant negative impact on overall Airport activity levels. Passenger activity was at its highest levels between 1998 and 2001, with between 23,100 departing passengers and 30,500 departing passengers using the Airport on an annual basis. From 2003 until 2019, passenger activity decreased to an annual average of between 9,500 and 15,000 departing passengers. A modest downward trend in activity levels occurred during this this period, with departing passenger levels decreasing by an average of 2% per year. Air carrier services were terminated in March 2020 during the outset of the COVID-19 pandemic.

The operation and availability of Sarnia Airport confers a range of economic benefits to the region:

- A 2019 economic study estimated that the Airport's total impacts, including direct and indirect metrics were approximately $5.9M in that year;
- Prior to the withdrawal of Air Canada's scheduled passenger air service, the Airport supported 28 to 29 aviation-related full-time employment positions. As of 2022, the facility now supports approximately 15 full-time employment positions;
- The Airport continues to have the ability to support intercommunity travel by scheduled passenger air services and is frequently used by chartered / corporately operated aircraft supporting Sarnia's business and industrial sectors. During the period when air carrier services were provided, it is estimated that 33% of air travel trips in 2019 were completed by visitors to the region. Through the outreach survey with local businesses, it was found that 88% of respondents rely on air travel for staff, executive, and customer travel, as well as cargo shipments. Through consultations, a recurring theme from businesses was the convenience of being able to fly from an airport in close proximity to their origin or destination;
- Sarnia Airport is a base for pipeline aerial inspection operations by Enbridge and is used to support Canadian Coast Guard helicopter operations while conducting icebreaking reconnaissance patrols and maritime infrastructure missions; and
- With respect to economic development and investment attraction, the Airport can improve the value proposition offered by the region in talent attraction and facilitating efficient business operations.

Sarnia Airport is also a key social asset for the City of Sarnia and Lambton County:

- The facility supported an annual average of 29 fixed-wing and rotary-wing critical care transfer flights by Ornge between 2018 and 2021. Although the future opening of the Bluewater Health helipad will decrease the Airport's use, the facility will continue to be required for fixed-wing transfers and during select operational conditions;
- The Airport supports expedited fixed-wing organ donation transportation flights by the Trillium Gift of Life Network, with 7 such flights having occurred between 2017 and 2021;
- The Ontario Provincial Police and Royal Canadian Mounted Police aerial units use the Airport to support their operational missions; the Ontario Provincial Police has used the facility for 26 missions between 2011 and 2021; and
- The refuelling capabilities of the facility support the Ontario Provincial Police, Royal Canadian Air Force, and Canadian Coast Guard while conducting overland and overwater search and rescue missions. The Ontario Provincial Police, for example, has used the Airport 6 times between 2011 and 2021 to support searches for drowning, missing or lost, or suicidal persons.

Development and Growth Opportunities

In addition to the economic and social benefits that the Airport currently provides, development and growth opportunities have been identified to increase revenues and reduce the facility's tax-supported deficit, while also improving its contribution to the regional economy.

Scheduled Passenger Air Services

The restoration of scheduled passenger air services following the withdrawal of Air Canada from Sarnia in March 2020 is a key area of focus of the Master Plan. Based on a quantitative analysis of the Sarnia-Lambton catchment area using pre-pandemic 2019 data, it is estimated that a total of approximately 221,000 arriving and departing passengers originated in, or were destined to, the region. However, the 9,500 to 15,000 annual departing passengers that used the Airport between 2003 and 2019 is a fraction of the total catchment area size. As noted above, passenger activity levels have gradually decreased from their peak in the late 1990s and early 2000s. This trend is due to several interrelated factors, including challenges with the reliability of the service, passenger leakage to nearby airports in Ontario and Michigan, the cost of airfares, and the retirement of smaller regional aircraft that were better suited to the local market and resulting frequency reductions as larger aircraft were deployed. The impacts of the COVID-19 pandemic also will influence future air travel demand.

With respect to passenger leakage, travellers in the Sarnia-Lambton catchment area are within a reasonable driving distance of several major commercial airports, including Detroit Metropolitan Wayne County Airport, London International Airport, and Toronto Pearson International Airport. In 2019, it is estimated that Sarnia Airport captured between 2% and 6% of travellers in Sarnia and Lambton County postal codes, with leakage trends confirmed through stakeholder outreach. The availability of Low-Cost and Ultra Low-Cost Carrier services at secondary airports such as the Region of Waterloo International Airport and Flint / Bishop International Airport further influences traveller behaviour.

While several factors influence traveller behaviour and are challenges to attracting a carrier to commence service to Sarnia Airport, the size of the local catchment area and resident and business air travel requirements identified through the stakeholder outreach program together indicate a potential market opportunity. The primary opportunity recommended for pursuit through the Master Plan is the restoration of passenger services to the hub of a Canadian network carrier (e.g., Toronto Pearson International Airport). The onward connectivity that would be offered through service to a hub airport by an appropriately integrated airline is aligned with local needs, given the diverse range of origins and destinations that require linkages to the local market. The commencement of service to Billy Bishop Toronto City Airport has been identified as a secondary opportunity, in addition to the primary focus of reconnecting service to a hub airport. This route would primarily focus on business, government, and leisure traffic between downtown Toronto and Sarnia.

Through research on local cargo movement needs, an opportunity for service by a cargo-specific air carrier has not been identified. However, the local air cargo market could be leveraged as a supplementary source of revenue for a scheduled passenger air carrier entering the Sarnia market with an integrated cargo division that sells unused space in their baggage holds.

The air service development process will require active involvement by City Staff and aligned economic organizations. As air carriers recover from the financial impacts of the COVID-19 pandemic, the priority for the City will be on demonstrating the potential viability of the local market.

Other Aviation Opportunities

Sarnia Airport is well-suited to support recreational and professional flight training, a unique form of economic activity that generates both employment positions and career education opportunities within the region. Aerial sightseeing flights also contribute to the tourism value proposition of the region and are an experience through which to showcase the natural beauty of Lake Huron and the surrounding area. Both services are currently provided at the Airport, and the business environment of the facility should be planned to support their future success.

With respect to general aviation users flying for business or recreational purposes, the priority of the Master Plan is on increasing the number of based aircraft by permitting new hangar development and through the continued provision of tie-down facilities. While direct actions to attract additional itinerant traffic are not recommended, growth can be facilitated through the continued provision of general aviation infrastructure and a fair aeronautical rates and fees environment.

An opportunity may exist for the Airport to establish a niche as a cost-effective centre for aviation commercial Small and Medium-Sized Enterprises, such as Aircraft Maintenance Organizations, Maintenance, Repair, and Overhaul businesses; aerial work and air taxi operators; and air carriers. Such businesses would increase the economic contribution of the Airport to the region while also increasing aeronautical revenues and improving activity at the facility. For the attraction of aviation commercial development, Sarnia competes with several similarly or better equipped airports in southern Ontario serving larger catchment areas for new aviation commercial development. As noted above, it is expected that the Airport will have to be positioned as a highly financially competitive option to attract new aviation commercial tenants.

Non-Aviation Opportunities

Complimentary non-aeronautical opportunities contribute to the diversification of the Airport's revenues and broader economic role. The 2-acre parcel at the gateway of the Airport is recommended for development for highway-oriented service commercial uses, thereby benefiting travellers on Highway 402 and also Airport users and employees. The divestment of up to 26 surplus acres of Airport property is also recommended, including a 5-acre area designated as Strategic Employment Lands that can support the growth of commercial and industrial activity along Ube Drive. The proximity of the Airport to Highway 402 is an opportunity to generate revenues through advertising signage, and continued agricultural cropping is recommended to maximize the productive use of infield lands with limited development potential.

Airport Development Plan

Over the 20-year horizon of the Master Plan, a systematic strategy has been outlined for the rehabilitation, reconstruction, and replacement of the Airport's airfield and groundside infrastructure, mobile equipment, and supporting systems. The asset recommendations provided within the Master Plan are based on their assessed conditions as of 2022. Recommendations are made for six capital projects to optimize pavement rehabilitation areas during reconstruction to reduce capital costs and right-size the infrastructure for its intended use. These projects include the rehabilitation or reconstruction of Runway 06-24; Taxiways A and C; the General Aviation Apron and Tie-Down Area; and Terminal Building Apron.

In addition to capital projects to preserve the existing capabilities of the Airport and right-size the infrastructure provided based on the anticipated future needs of its various users, a series of projects are recommended to support the attainment of the growth opportunities described previously. The Airport Development Plan establishes three airside and groundside development areas: the General Aviation Development Area (1.2 acres); Aviation Commercial Development Area (9.2 acres); and Groundside Commercial Development Area (2.8 acres).

A two-phased strategy is recommended to support current and potential future levels of service provided by the terminal building. The first phase, which supports operations by regional aircraft with up to 50 seats that have previously served Sarnia (e.g., Dash 8-300), optimizes the terminal building's passenger experience by reconfiguring its functional areas, and completing minor upgrades to the facility's interior aesthetics. The second phase includes improvements and building envelope expansions required to support an air carrier operating larger next-generation regional aircraft in the 70 to 80 seat category, such as the Dash 8-400. This includes the expansion of the departure holdroom and arrivals area, a series of reconfigurations to the existing functional areas, and additional aesthetic improvements.

Airport Divestment vs. Continued Ownership

Prior to the evaluation of alternative models for the governance, funding, administration, and operations and their suitability for Sarnia Airport, consideration must first be given to the topic of whether the City should have a continued role in the ownership and operation of the facility. Widespread attention to the topic of divestment has been given following the loss of scheduled passenger air services (March 2020), Scottsdale Aviation's request for municipal funding due to a significant reduction in revenues (September 2020), and the release of the City of Sarnia Economic Development Strategy that recommended divestment of the facility (September 2020).

Benefits of divesting the Airport would include the one-time revenues gained through the purchase and sale agreement could be redirected to other municipal projects and priorities; negating the requirement for the City to fund the anticipated operating deficit and capital expenditures; the decreased level of effort / involvement by City Staff and City Council; and the potential for a motivated owner to acquire the facility and champion its development for aviation purposes.

The divestment of the Airport may also result in negative consequences that would be detrimental in a number of dimensions. If acquired by a buyer that is uninterested or unable to continue to operate the facility as a publicly available airport, the sale and closure of the facility would eliminate the ability for the economic and social benefits described within the Master Plan (e.g., supporting air ambulance and corporate flights) to be realized throughout the region and would eliminate a transportation option for the Sarnia-Lambton catchment area. With the divestiture of the Airport, the City would have greatly reduced influence over its future; the future owner would be able to operate the Airport with limited municipal input, including on matters such as airfield expansion projects, construction, and addressing aircraft noise.

Additionally, highlighted for attention are implementation considerations that will require further due diligence by the City to fully understand the implications of divesting the Airport. With respect to the 1997 Headlease Agreement with Scottsdale Aviation, penalties may be incurred if the agreement is terminated given the lack of exit clauses in favour of the City, depending on any subsequent amendment agreements. Numerous multiyear land lease agreements have been entered into by Scottsdale Aviation to the end of their headlease agreement in 2027, or by Scottsdale Aviation with the approval of the City to years extending past 2027 (e.g., 2051, 2054, etc.). If the City decides to divest the Airport, subtenants may be entitled to damages depending on the terms of their sublease agreements. The City may need to dedicate resources to readying the property for sale, including by addressing areas of potential environmental contamination.

Lastly, while public discourse around the divestment of the Airport commonly considers alternative land uses (e.g., residential or commercial growth), its redevelopment potential is impacted by its location outside of the current and draft future Official Plan Urban Boundary, and the findings of a recent Municipal Comprehensive Review that do not support a boundary expansion. Significant portions of the site are also constraints by environmental including the Official Plan's one-zone floodplain policy area.

The provision of a service by the municipality is based on the identification of sufficient benefits and / or opportunities that, if the service is not financially self-sustaining, justify the cost of providing said service. Municipal decision-makers must consider whether the past, current, and potential future economic and social benefits of Sarnia Airport justify continued municipal investment in the facility in terms of operating and capital financial contributions, City Staff resources, and City Council attention. As such, the Master Plan has been prepared assuming that Sarnia Airport will continue to be owned and championed by the City of Sarnia to preserve its economic and social role; however, this decision rests with Sarnia City Council as the applicable governing body.

Governance, Advisory Support, Funding, Administration, and Operations

Current Model (1997-2022)

Through the terms of the 1997 Headlease Agreement; the financial support provided through the Airports Capital Assistance Program and post-divestiture Transport Canada fund; and air carrier services that provided significant revenues, the City had a limited role in the governance, funding, administration, and operation of Sarnia Airport from 1997 until 2020. In the experience of the project team, the model that was in place from 1997 until 2022 is highly unique when contextualized by comparable Canadian regional airports. Several key conclusions can be drawn:

- **Governance:** While City Council is the Airport's governing body, the delegation of responsibilities to Scottsdale Aviation significantly reduced the level of effort borne by Council. In the stability of 1997 to 2020, this model was adequate – however, the fundamental changes to the Airport's financial position between 2020 and 2022 have highlighted that this level of effort can increase when decisions with financial and / or strategic implications must be made. Further, the partial detachment of City Council from the Airport may have created expectations that in the future, Council's level of effort could revert to a primarily hands-off approach.
- **Funding:** Public discourse is understood to often centre around the view that the Airport operated at no (or limited) cost to the City from 1997 to 2020. However, Scottsdale Aviation's financial position is partially obscured through its relationship with Huron Aviation, with the net incomes of the latter offsetting the net losses of the former. Through federal funding awards for capital projects supporting infrastructure used by scheduled passenger air carriers, minimal investments in non-air carrier infrastructure, and the gradual drawdown of the Airport Reserve Fund, capital expenses borne by the municipality were limited. However, contributions were not made by the City to refill the Airport Reserve Fund and a significant infrastructure deficit has accumulated. Finally, this model did not remain viable during a fundamental change to the Airport's operating revenues in 2020 as a result of the COVID-19 pandemic.
- **Administration:** While the Airport fell under the administrative purview of the City Solicitor, the majority of such duties were handled by Scottsdale Aviation. The 1997 Headlease Agreement did not clearly delineate the differing duties of the City and Scottsdale Aviation. The lack of administrative responsibilities for City Staff reduced the municipality's level of effort but resulted in the creation of silos of knowledge within Scottsdale Aviation and not within the City. The transfer of the Airport portfolio to the Director of Economic Development has increased the City's involvement in, and knowledge of, the Airport and represents a more collaborative and sustainable approach to administrative functions with Scottsdale Aviation.
- **Operations:** Scottsdale Aviation maintains the Airport in accordance with its various Transport Canada-approved plans and procedures, and consultations with users and aircraft operators found that the routine maintenance and operations have historically been performed at an appropriate level of service. However, the challenge of Scottsdale Aviation being unable to absorb the numerous fixed costs associated with operating the Airport in absence of air carrier revenues highlights a fundamental flaw in the existing funding and operational model.

A two-phase approach is recommended to address governance and advisory support more appropriately, funding, administration, and operations. This approach is supported by a review of comparable airports in southern Ontario and the professional experience of HM Aero, and is structured around a series of guiding principles, including providing short-term stability, mechanisms for financial support, and increased accountability and effectiveness.

Short-Term Model (2023-2027)

In the short-term, it is recommended that the Airport continues to be owned by the City and governed by Sarnia City Council. The Sarnia Airport Action Working Group is recommended to be disbanded and a new Sarnia Airport Advisory Committee implemented with a revised mandate to focus on business development and intermunicipal cooperation, including representation from both the City and Lambton County. From an administrative perspective, it is expected that the numerous priorities recommended to be advanced in the short-term will exceed the residual capacity of City Staff – accordingly, a new Airport Administrator position is recommended, under the oversight of the Director of Economic Development. With respect to operations, it is recommended that the 1997 Headlease Agreement be terminated, and a new fee-for-service Airport Operating Agreement be established with Scottsdale Aviation. This Agreement would clearly outline minimum service levels and contractual obligations to be performed by Scottsdale Aviation, with a predetermined fee to be levied for the provision of such services. The financial implications of the fee-for-service model would be reduced by the City assuming all revenues associated with the Airport (e.g., landing fees, passenger fees, lease payments, etc.). Increased interdepartmental cooperation within the City would also be required.

Long-Term Model (2028-2042)

Once the short-term priorities of the Airport are successfully implemented and the immediate challenges faced in 2022 and 2023 are addressed, it is recommended that the City consider a more appropriate long-term model. Through the formation of a Sarnia Airport Municipal Services Corporation, the City of Sarnia and Lambton County would become jointly responsible for Airport ownership, governance, and funding, with a proportional contribution level to be determined through subsequent negotiations between the two municipalities. The administrative oversight of the Airport would be transitioned to a Chief Executive Officer reporting to the Municipal Services Corporation Board of Directors, and financial requests would be raised to each contributing municipality through their annual budgeting processes. The fee-for-service Airport Operating Agreement model would continue to apply through the extension of the short-term agreement, or through a competitive procurement and selection process to ensure maximum value to the City.

Financial Outlook and Implementation

Through the 20-Year Capital Plan, a total of $19.2M in funding is recommended between 2023 and 2042, with 69% of project funds ($13.3M) recommended between 2023 and 2027 to address the infrastructure deficit that has accumulated in the preceding years and pursue business development initiatives. Of the Capital Plan total, 85% of project funds are associated with recapitalization projects to ensure the continued availability of existing assets, while 15% of funds are dedicated to growth-supportive expansion initiatives. It is recognized that implementing the Capital Plan will be challenging given the numerous competing priorities of the City; outreach with Lambton County is recommended to identify opportunities for funding support, and continued efforts should be made to identify provincial and federal grant funding opportunities that can be leveraged.

A pro-forma statement has been prepared to illustrate the potential future financial position of the Airport between 2023 and 2042. Similar to comparable regional airports in Canada that are operated to confer economic and social benefits to their surrounding regions, operating deficits are modelled in all years of the Master Plan. Operating deficits range between $176,000-$483,000 in the short-term planning horizon, $74,000-$237,000 in the medium-term planning horizon, and $45,000-$174,000 in the long-term planning horizon. This gradually improving trend is subject to the numerous assumptions of the pro-forma, including active and targeted business development efforts that result in the successful attainment of opportunities with revenue generating potential. Given the financial challenges of the Airport between 2020 and 2022 and the new approach to funding and operations recommended for implementation, it should be recognized that numerous factors will influence the actual tax-supported position of the facility in the coming years.

Considering capital project costs in addition to the operating deficit and assuming that no grant support can be secured, annual municipal funding support ranges between $956,000-$9,174,000 in the short-term planning horizon, $100,000-$1,552,000 in the medium-term, and $74,000-$1,665,000 in the long-term. The higher short-term deficits are reflective of the need to address the accumulated infrastructure deficit, and the long-term deficits are comparable to other regional airports in Canada. Taken together, the Master Plan has been prepared to provide adequate facilities to support current activities and business growth, while attempting to reduce the cost-revenue gap in the long term. The anticipated financial requirements of the Airport underscore the importance of initiating exploratory discussions with Lambton County in the short-term to address capital contributions, and later both capital and operating contributions through the participatory governance model recommended. The pursuit of provincial and federal grant programs will also be of significant importance to reduce the costs of recommended capital projects.

The Master Plan has been prepared during a unique time in the facility's history, with fundamental questions are being asked as to whether the City should have a continued / future role in owning and advancing the Airport. The current and potential future economic and social benefits that the Airport provides to residents and businesses throughout Sarnia and Lambton County have been articulated through the Master Plan, and a strategy has been recommended to advance the sustainable development and management of the facility. The question of whether the current and potential future economic and social benefits of the Airport justify the municipality's involvement in its governance, funding, administration, and operation is a matter within the purview of Sarnia City Council and should be decided to establish a clear direction for the facility.

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List of Acronyms

Acronym	Definition	Acronym	Definition
ACAP	Airports Capital Assistance Program	MRO	Maintenance, Repair, and Overhaul
AGL	Above Ground Level	MSC	Municipal Services Corporation
AGN	Aircraft Group Number	MTOW	Maximum Take-Off Weight
AMO	Aircraft Maintenance Organization	OMGWS	Outer Main Gear Wheel Span
ASL	Above Sea Level	OPP	Ontario Provincial Police
CAR	Canadian Aviation Regulation	PAP	Peak Arriving Passenger
CASM	Cost per Available Seat Mile	PDL	Peak Departure Load
CATSA	Canadian Air Transport Security Authority	PFF	Passenger Facility Fee
CBSA	Canada Border Services Agency	PLR	Pavement Load Rating
CEO	Chief Executive Officer	RASM	Revenue per Available Seat Mile
COPA	Canadian Owners and Pilots Association	RATI	Regional Air Transportation Initiative
CPA	Capacity Purchase Agreement	RCMP	Royal Canadian Mounted Police
DHC	De Havilland Canada	RFEI	Request for Expressions of Interest
FBO	Fixed Base Operator	RFP	Request for Proposals
FTE	Full-Time Equivalent	RON	Remain Over Night
FTU	Flight Training Unit	SAAWG	Sarnia Airport Action Working Group
IATA	International Air Transport Association	SME	Small and Medium Sized Enterprise
ICAO	International Civil Aviation Organization	SSALR	Simplified Short Approach Lighting System with Runway Alignment Indicator Lights
LPV	Localizer Performance With Vertical Guidance	VHF	Very High Frequency
LNAV	Lateral Navigation	VNAV	Vertical Navigation

List of Airport Codes

ICAO	IATA	Airport
CYZR	YZR	Sarnia Chris Hadfield Airport
CYYZ	YYZ	Toronto Pearson International Airport
CYTZ	YTZ	Billy Bishop Toronto City Airport
CYHM	YHM	John C. Munro Hamilton International Airport
CYXU	YXU	London International Airport
CYQG	YQG	Windsor International Airport
CYKF	YKF	Region of Waterloo International Airport
CYYC	YYC	Calgary International Airport
CYEG	YEG	Edmonton International Airport
KDTW	DTW	Detroit Metropolitan Wayne County Airport
KFNT	FNT	Flint Bishop International Airport

1 INTRODUCTION

1.1 Background

Sarnia Chris Hadfield Airport (the “Airport”) is owned by the City of Sarnia (the “City”) and operated by Scottsdale Aviation (the “Airport Operator”). In February 2021, the Sarnia Airport Action Working Group (SAAWG) was formed with the mission of informing and advising City Staff and Council on the opportunities and strategic direction of the Airport that would contribute to its future as a significant economic driver. In October 2021, the SAAWG presented its initial report to City Council that outlined 18 recommendations regarding the future of the Airport. The second of these recommendations was that an Airport Master Plan be developed to establish a long-term direction for the Airport and validate the key recommendations of the SAAWG’s initial report.

In August 2021, the City was awarded approximately $1.9M in grant funding through the Regional Air Transportation Initiative (RATI) administered by FedDev Ontario. The RATI program was initiated by the federal government in response to the COVID-19 pandemic to support access to air transportation and regional ecosystems. In particular, the RATI program has the goal of enabling the continuation of existing air routes and ensuring that airports remain operational and able to contribute to regional economic growth, while adapting to new post-COVID-19 realities. The development of the Sarnia Chris Hadfield Airport Master Plan (the “Master Plan”) was one of the City’s initiatives funded through the RATI program. HM Aero Inc. (“HM Aero”) and its subconsultants, IDEA Inc. (“IDEA”) and ASM Global Route Development (“ASM”), were subsequently retained by the City in December 2021 to prepare the Master Plan.

1.2 Master Plan Objectives

The Sarnia Chris Hadfield Airport Master Plan has been commissioned by the City with the following objectives:

> *“The goals of this Master Plan are to implement a clear plan to build a sustainable future operation at the airport, to operate a safe airport with a long term vision, to build value and gain return from the asset to fund its future needs, to institute appropriate governance, controls and financial reporting systems, and to attract business and tourism connections.”*

Bombardier Challenger 300 departing Sarnia Airport

1.3 Master Plan Structure and Interpretation

The Master Plan is structured across the following Sections:

1. **Introduction –** Establishes the background, objectives, and structure of the Master Plan;
2. **Stakeholder Engagement Program –** Provides an overview of the comprehensive efforts made to consult with the community, businesses, and individuals / groups with a vested interest in the Airport;
3. **Context Review –** Describes the regulatory, geographical, demographic, and economic context within which the Airport is situated, as well as intercommunity transport options;
4. **Airport Profile –** Establishes the baseline and historical usage of the Airport;
5. **Growth Opportunities and Demand Assessment –** Considers the opportunities that may exist to increase the Airport's activity levels and economic role;
6. **Corporate Strategy –** Describes the visionary and future-oriented direction to be pursued for the Airport;
7. **Airport Infrastructure Assessment –** Identifies infrastructure deficiencies and projects based on current asset conditions and future demands based on the growth opportunities;
8. **Airport Development and Land Use Plan –** Implements the capital projects contemplated for the Airport in a systematic and well-planned manner;
9. **Business Development and Growth Strategies –** Outlines a plan for the City and its strategic partners to pursue the growth opportunities identified in Section 5;
10. **Continued Ownership vs. Divestment –** Reviews the considerations for and against the City having a continued role in owning Sarnia Airport;
11. **Governance, Funding, Administration, and Operations Strategy –** Details recommended improvements to how the Airport is governed, operated, and funded;
12. **Financial Outlook and Strategy –** Provides an overview of the future financial position of the Airport and recommendations for changes in how revenue is captured by users; and
13. **Master Plan Implementation –** Compiles all recommendations made throughout the Master Plan in a systematic strategy on an annual basis, as well as guidance on reviewing the document and tracking progress.

The 20-year scope of the Master Plan is divided into three planning horizons: 1) Short-Term, from 2023 to 2027; 2) Medium-Term, from 2028 to 2032; and 3) Long-Term, from 2033 to 2042.

A core consideration of the planning process is an understanding of what elements are in the control of the City as the owner of the Airport, and what factors are external from the scope of the Master Plan. Within the City's control is the degree to which it is a responsible and proactive airport owner, which encompasses dimensions such as infrastructure investments, ensuring safe and effective governance and operations, and marketing the opportunities that exist. External to the Master Plan are factors such as household earnings and travel patterns, demographic shifts, and the broader health of the regional economy. While such factors may be addressed under the purview of community and economic development, such dimensions generally transcend the Master Plan.

The Master Plan is not a statutory document and the recommendations put forth in this report do not bind or oblige the City to proceed per the direction established herein. While it is the recommendation of the project team that the Master Plan should be followed to the degree possible, it is recognized that doing so is at the discretion of the City as the Airport's owner and governing authority.

2 STAKEHOLDER ENGAGEMENT PROGRAM

A comprehensive stakeholder outreach and consultation program was completed by HM Aero in cooperation with the City. The stakeholder consultation program was structured to accomplish two interrelated objectives: 1) providing information to residents, businesses, and stakeholders on the purpose of the Master Plan and the planning process ("Informing"); and 2) receiving the views of interested parties as they relate to the future of the Airport ("Engaging").

2.1 Informing

To share information about the Master Plan and ensure that residents, businesses, and other stakeholders had access to resources regarding the project, the following initiatives were completed.

2.1.1 Advertising

Outreach and marketing for the Master Plan was completed by the City under the oversight of the Director of Economic Development. Engagement opportunities were advertised through the City's social media accounts, municipal website, Saturday editions of the Sarnia Observer through the Civic Corner section, and in two publicly accessible non-agenda reports to City Council. In addition to the City-led marketing initiative, aligned organizations such as the Sarnia Lambton Economic Partnership, Sarnia Lambton Chamber of Commerce, and on-Airport businesses also shared information about the Master Plan and engagement opportunities.

2.1.2 Speak Up Sarnia

A project webpage was launched on Speak Up Sarnia in December 2021 and was updated throughout the duration of the planning process. The project webpage provided background on the Master Plan; the scope and schedule of the project; contact information for the City and HM Aero; and links / resources. The project webpage also outlined all publicly available opportunities for engagement.

2.1.3 Project Open House

A virtual open house was convened using Zoom Webinar on January 11, 2022 to provide an overview of the Master Plan. The open house was facilitated by HM Aero and included a presentation covering an overview of the Airport; the Master Plan objectives and process, including opportunities for engagement; and select focus areas of the project. A question-and-answer session was facilitated by two representatives from HM Aero and the City's Director of Economic Development. Key metrics from the open house are as follows:

- 82 individuals registered and 58 individuals attended;
- 42 questions were posed to HM Aero and the City through the question-and-answer tool;
- 15 questions, comments, or remarks were made through the chat function; and
- 1 attendee provided verbal comments.

2.2 Engaging

Stakeholder input was facilitated through four primary means: a project open house, outreach surveys with residents and businesses, and detailed interviews with Airport stakeholders and key regional representatives. Findings from the stakeholder engagement program are documented through the Master Plan where applicable, and all views received were reviewed by HM Aero as part of the planning process.

2.2.1 Project Open House

As noted previously, a virtual open house was held on January 11, 2022 and included opportunities for participants to ask questions and provide comments. A total of 42 questions were received, 15 comments or remarks were made, and 1 attendee provided verbal comments. Comments were recorded by HM Aero for consideration in subsequent planning efforts.

2.2.2 Resident Outreach Survey

The resident outreach survey was launched in December 2021 and was available until January 21, 2022. The 12-question survey was structured to explore resident air travel needs, factors that influence their travel decision-making, and views about the Airport more broadly. As shown in Table 2.1, 837 responses were received to the resident survey. Of these responses, 815 (97.4%) were from individuals residing in Lambton County. The largest proportion of respondents were residents of the City of Sarnia, which comprised 75.4% of all responses received.

Table 2.1 - Places of Residence, Resident Outreach Survey

Place of Residence		Respondents	Proportion of Respondents
Lambton County	City of Sarnia	631	75.4%
	Township of St. Clair	57	6.8%
	Town of Plympton–Wyoming	54	6.5%
	Municipality of Lambton Shores	26	3.1%
	Town of Petrolia	16	1.9%
	Village of Point Edward	10	1.2%
	Aamjiwnaang First Nation	6	0.7%
	Township of Enniskillen	5	0.6%
	Kettle & Stony Point First Nation	2	0.2%
	Township of Brooke-Alvinston	2	0.2%
	Township of Warwick	1	0.1%
	Township of Dawn-Euphemia	1	0.1%
	Elsewhere in Lambton County	4	0.5%
Outside of Lambton County		16	1.9%
No Response		6	0.8%
Total		**837**	**100.0%**

2.2.3 Business Outreach Survey

As with the resident survey, the business outreach survey was launched in December 2021 and was available until January 21, 2022. The survey included 24 questions and was structured to collect data on the passenger and cargo air service needs of businesses and organizations in the catchment area, as well as factors that influence demand for such services. A total of 25 responses were received to the business survey as shown in Table 2.2. Most businesses were located in the City of Sarnia (64% of all respondents), and 88% of respondents were located within Lambton County. As shown in Table 2.3, 68% of respondents were small businesses with 20 or fewer employees, 16% employed between 21 and 100 individuals, and 16% employed more than 101 individuals.

Table 2.2 - Place of Business, Business Outreach Survey

Place of Business		Respondents	Proportion of Respondents
Lambton County	City of Sarnia	16	64%
	Township of St. Clair	1	4%
	Town of Plympton–Wyoming	1	4%
	Town of Petrolia	1	4%
	Village of Point Edward	2	8%
	Township of Enniskillen	1	4%
Outside of Lambton County		3	12%
Total		**25**	**100%**

Table 2.3 - Number of Employees, Business Outreach Survey

Business Size	Respondents	Proportion of Respondents
≤ 20 Employees	17	68%
21 – 50 Employees	1	4%
51 – 100 Employees	3	12%
101 – 500 Employees	3	12%
≥ 501 Employees	1	4%
Total	**25**	**100%**

2.2.4 Stakeholder Interviews

HM Aero and the City collaboratively developed a list of project stakeholders with a vested interest in, or knowledge of, the Airport. Meetings were convened with interested parties in-person, virtually, or through the receipt of written comments. A total of 50 interviews were completed with individuals representing 25 different stakeholder groups, as documented in Table 2.4.

Table 2.4 - Stakeholder Interviews

Stakeholder Group	Number of Interviewees
Governmental Stakeholders	
City of Sarnia (Council)	2
City of Sarnia (Senior Management)	5
Lambton County	2
Aviation Stakeholders	
Sarnia Airport Action Working Group	9
Scottsdale Aviation / Huron Aviation	3
Huron Flight Services	1
Enbridge (Aviation Division)	1
Sarnia Aircraft Service	1
Private Hangar Tenants	4
NAV CANADA	1
Ornge	1
Ontario Provincial Police (Aviation Division)	1
Canadian Owners and Pilots Association – Flight 70	2
Private Businesses, Organizations, and Stakeholders	
Sarnia Lambton Chamber of Commerce	2
Sarnia Lambton Industrial Alliance	1
Sarnia Lambton Economic Partnership	1
Sarnia Lambton Workforce Development Board	1
Sarnia Lambton Business Development Corporation	1
NOVA Chemicals	1
Lambton College	1
RS Air Services	1
Toolrite	1
Eastern Canada Response Corporation (ECRC-SIMEC)	1
Korny Korners Farm	2
Private Medical Physicians	2

3 CONTEXT REVIEW

3.1 Plans and Previous Reports

3.1.1 City of Sarnia Official Plan

The City of Sarnia Official Plan (2014, as amended) outlines the overarching land use and planning structure to be followed within the municipality. The importance of the Airport is recognized in the preamble of Section 4.8, stating that the Official Plan shall: *"…protect this significant transportation asset from land use conflicts, competing uses, and ensure there are no negative impacts on the long-term function of the Airport."*

The Official Plan recognizes the Airport as a unique and major transportation asset, and establishes three overarching objectives:

1. That the Airport will be protected from incompatible development;
2. That a land base will be provided for airport-related services; and
3. That the City will support the maintenance of air services and promote the upgrading of the facilities and level of service available.

Elsewhere in the Official Plan, it is noted that the Airport will be used to provide a secure land base for airport-related uses within the growth area hierarchy.

3.1.2 City of Sarnia Economic Development Strategy

The City of Sarnia commissioned the preparation of a High Level Economic Development Strategy to provide recommendations for how six municipally owned assets can be best positioned to contribute to the economic future of the area, including the Airport. The Strategy was completed in September 2020. With respect to the Airport, the authors recommended that the facility be divested from municipal ownership, with the funds received to be directed to the Sarnia Waterfront and / or Sarnia Research & Business Park.

The recommendation made to divest the Airport from City ownership was supported by the following considerations:

- Mixed opinions among City Council and the consulted public regarding the municipality's role in airport ownership;
- The loss of Air Canada services in March 2020; and
- Concerns over the operating and capital financial sustainability of the facility.

Despite the recommendations of the High Level Economic Development Strategy, the decision has not been made to divest the Airport from City ownership to-date.

3.1.3 1979 Sarnia Airport Master Plan

The previous Airport Master Plan was prepared in 1979 by Transport Canada during the federal government's period of ownership of the Airport. The 1979 Master Plan identified the role of the Airport as being a "Local Commercial" facility to support short haul scheduled and charter services, as well as flight training and recreational flying. At the time of the document's preparation, Great Lakes Airlines provided approximately 10 flights per day to the community from London and Toronto.

The 1979 Master Plan forecast that aircraft movements would increase from 56,600 in 1981 to 98,200 in 2001, and that passenger activity would grow from 56,800 enplaned and deplaned passengers in 1977 to 115,000 passengers in 2001. As noted in Section 4.3 of this document, the forecast activity levels of the 1979 Master Plan have not been realized at the Airport in the last 25 years. The 1979 Master Plan provided a series of recommendations, several of which were implemented including:

- The development of the current terminal building, Taxiway B, terminal building apron, and associated parking and access infrastructure;
- The connection of the Airport to the municipal potable water system; and
- The installation of a Category I Instrument Landing System.

While the 1979 Master Plan was prepared using the best available information at that time, the document is now outdated considering the changing activity levels of the Airport over time and broader shifts in the aviation industry both locally and nationally.

3.1.4 2021 Sarnia Airport Action Working Group Report

In October 2021, the SAAWG released its report to City Council that included a series of 18 recommendations pertaining to the future of the Airport. This report was received by City Council with the subsequent direction that a subject matter expert be retained to further explore the feasibility of the recommendations contained within the report. Each of the recommendations articulated through the SAAWG report have been reviewed during the preparation of the Master Plan, and are as follows:

1. Governance Model Changes;
2. Master Plan Preparation;
3. General Aviation Growth;
4. Incentives for New Carrier;
5. New Hangar Development;
6. Gas Storage Revenue;
7. Capital and Operating Funding;
8. Lambton County Participation;
9. Billboard Revenue;
10. Increase Farmland Lease;
11. Explore Lambton College Partnership;
12. Extend SAAWG Term;
13. Create Hadfield Space Centre;
14. Increased Community Engagement;
15. Promote General Aviation Tourism;
16. City Department Use;
17. Land Development; and
18. Solar and COGEN Savings

3.2 Regulatory Context

Airports in Canada can be classified as either registered aerodromes or certified airports. Certified airports are aerodromes for which a certificate has been issued by Transport Canada; per Canadian Aviation Regulation (CAR) 302.01(1), there are three triggers for certification:

1. An aerodrome is located within the built-up area of a city or town;
2. Scheduled passenger air services are provided; or
3. If the Minister of Transport deems certification to be in the public interest and would further the safe operation of the aerodrome.

Sarnia Airport's certificate was issued in 1989 and is held on behalf of the City by Scottsdale Aviation. The obligations imposed through the CARs on the certificate holder are numerous, and the Airport is subject to the regulatory oversight of Transport Canada. Among the obligations imposed on the Airport are the requirement for regular quality assurance audits; conducting operations in accordance with the Airport Operations Manual, Safety Management System, Emergency Response Plan, Wildlife Management Plan, Winter Maintenance Plan; and ensuring that the physical infrastructure and obstacle environment are compliant with TP312 – Aerodrome Standards and Recommended Practices. All recommendations and designs of the Master Plan will be compliant with TP312 5th Edition.

Maintaining the Airport's certification is a requirement to ensure that the facility can support the return of scheduled passenger air services. Further, maintaining the Airport in compliance with its obligations as a certified facility ensures that users, the travelling public, staff, and other parties are afforded a minimum standard of safety. It is imperative that effective processes are in place to ensure that the City, as the owner, has oversight of the Airport and is aware of potential matters that may threaten the certification of the facility. This matter is discussed further in Section 10.

3.3 Geographic Context

3.3.1 Local Context

Sarnia Airport is located within the municipal boundary of the City of Sarnia, approximately 2.5 km east of the main urban area and 8 km northeast of the downtown core. The Airport is accessible by road from Sarnia via Highway 402 and Airport Road, with the interchange with Highway 402 located immediately south of the site. The Airport is well-located and can be reached by road from most points in the City of Sarnia within an approximately 20-minute drive, including the Blue Water Bridge border crossing, the significant concentration of industrial operations along Vidal Street S, all business parks, the downtown area, Lambton College, Bluewater Health, and all major residential areas.

The Airport is primarily accessed by personal automobiles, taxis, and commercial vehicle services. Sarnia Transit does not have a regularly scheduled route serving the terminal building, although a stop at the intersection of Ube Drive and Airport Road is served by Route 15 – Bright's Grove. Route 15 provides service from the Murphy Road Terminal ten times per day from Monday to Friday, eight times per day on Saturdays, and six times per day on Sundays. Prior to the termination of air carrier services at the Airport, Route 15 was extended on a rider as-requested basis to the terminal building. With the anticipated restoration of air carrier services in the future, it is recommended that this flexible approach to transit access be reinstated to provide an additional option for travellers.

The convenience of the Airport's location and accessibility are positive factors that influence traveller decision-making, by enabling timely access to trip origins and destinations. The convenience of the Airport is expected to be a significant component of future air service marketing efforts.

Figure 3.1 - Local Context

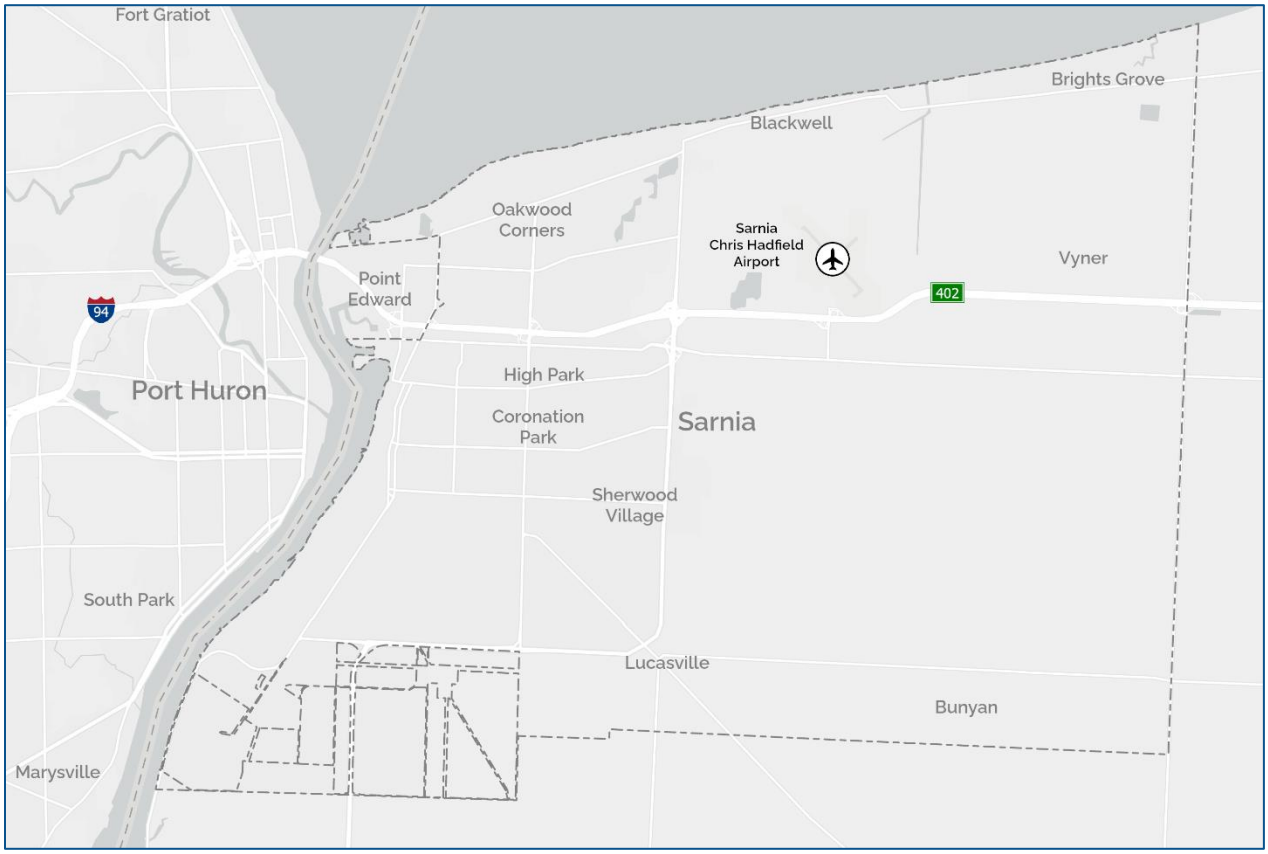
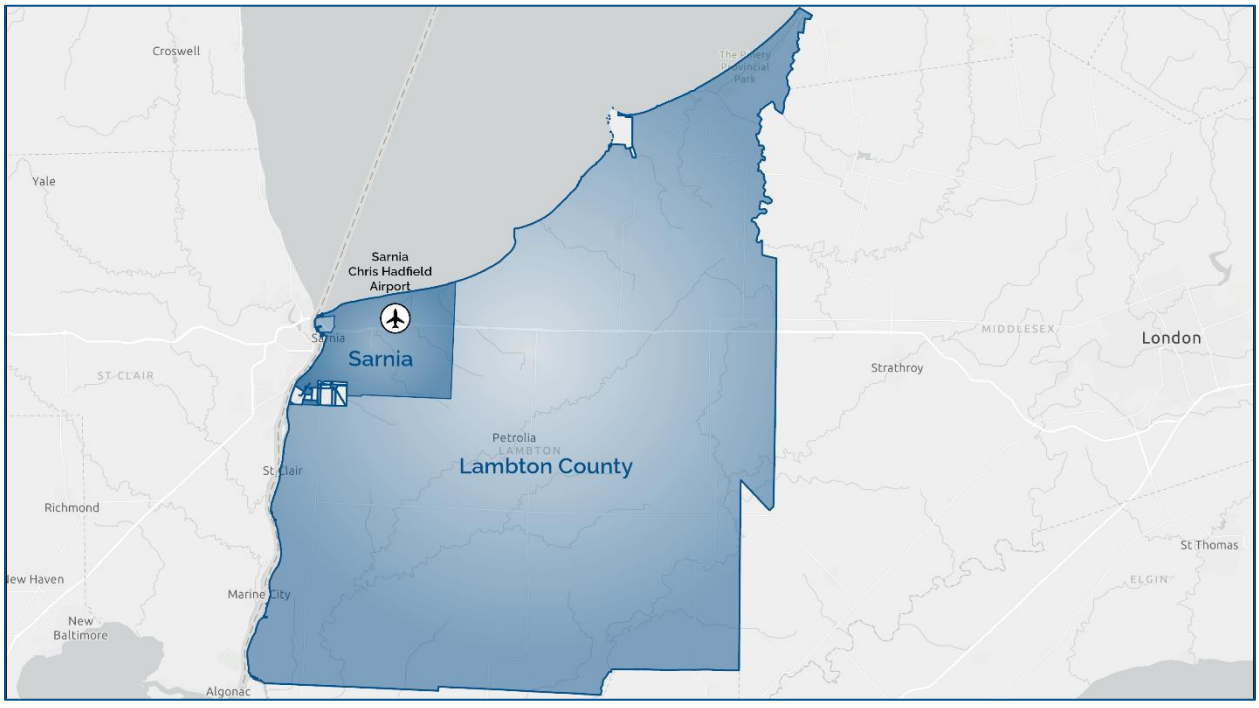


Figure 3.2 - Regional Context



3.3.2 Regional Context

Sarnia is located in the northwestern portion of Lambton County along the southern shores of Lake Huron. Within the provincial context, the location of Sarnia along the southwestern periphery of Ontario results in significant travel distances to major urban centres such as London, the Greater Toronto Area, and Ottawa (Table 3.1). Residents and visitors have a variety of reasons to travel between Sarnia and these destinations, as well as others in the province, including for business, governmental travel, accessing healthcare, and tourism. The distance of Sarnia to major origins and destinations throughout Ontario is compounded by the limited intercommunity transportation options that are available. Through consultations with local economic stakeholders and industry associations, it is understood that the distance of Sarnia to other urban centres in Ontario is a challenge that affects business travel, goods movement, and workforce recruitment.

Sarnia benefits from its proximity to the border between the United States and Canada, which enables easy access into Michigan. The Blue Water Bridge, which connects Sarnia / Point Edward with Port Huron across the St. Clair River, is one of the busiest border crossings for personal and commercial vehicles in Ontario and opens access to communities throughout Michigan. As examined in Section 5.1.3, this international proximity is beneficial as it facilitates access by American air travellers entering the Canadian airport system. However, cross-border leakage to airports in Detroit and Flint is a significant influence on air travel demand at Canadian airports, including Sarnia Airport.

Table 3.1 - Driving Distances and Times to Key Destinations (From Sarnia)

Community / Destination	Driving Distance	Driving Time*
London – London International Airport	120 km	1h15m
Flint – Flint Bishop International Airport	120 km	1h20m**
Detroit – Detroit Metropolitan Wayne County Airport	130 km	1h45m**
Windsor – Windsor International Airport	150 km	1h45m
Greater Toronto Area – Toronto Pearson International Airport	270 km	2h30m
Greater Toronto Area – Downtown Toronto	290 km	2h50m
Ottawa – Downtown Ottawa	670 km	6h45m
* All driving time estimates are based on typical traffic conditions and may increase ** Estimates subject to border crossing times		

3.4 Demographic Context

Population data for the City of Sarnia and Lambton County was reviewed for the period of 2001 to 2021 to understand the changing demographics of the catchment area. As shown in Table 3.2, the population of Sarnia was approximately 72,000 in 2021 and has remained relatively stable throughout the five reviewed census periods, ranging between a minimum of 70,900 in 2001 and a maximum of 72,400 in 2011. Lambton County's population in 2021 reached 128,000, returning to levels previously experienced in 2006 – similar to Sarnia, the population of Lambton County was relatively stable across the five census periods. The growth rates experienced in both Sarnia and Lambton County lag significantly behind the levels experienced in Ontario as a whole; while the provincial population increased by 5.8% with the 2021 census, the populations of Sarnia and Lambton County increased by 0.6% and 1.2%, respectively.

Table 3.2 - Statistics Canada Census Population Data (2001-2021)

Year	City of Sarnia		Lambton County		Province of Ontario	
	Population	Change	Population	Change	Population	Change
2021	72,047	0.6%	128,154	1.2%	14,223,942	5.8%
2016	71,594	-1.1%	126,638	0.3%	13,448,494	4.6%
2011	72,366	1.3%	126,199	-1.6%	12,851,821	5.7%
2006	71,419	0.8%	128,204	1.0%	12,160,282	6.6%
2001	70,876	-	126,971	-	11,410,046	-

While the growth in population experienced within Sarnia and Lambton County has lagged below the level experienced provincially, select forces may result in population growth increasing in future years. As part of its 2021 Growth Management Program, the City of Sarnia commissioned the preparation of an economic and demographic prospects report which was completed in February 2021 by metroeconomics. The report estimates that population growth will increase because of a forecast increase in Economic Base jobs (those jobs that drive the overall economy versus the jobs that serve the population) of 13% between 2020 and 2051. The assumption of growth in the future is also predicated on increased immigration to fill employment positions that are opened as older cohorts retire. The Base Case projection of the February 2021 report assumes that the population of Sarnia will increase from approximately 71,500 residents in 2016 to 88,700 in 2051, and that the population of the Census Agglomeration[1] will increase from 95,200 in 2016 to 118,100 by 2051.

The historical stagnation of the Sarnia-Lambton catchment area population does not represent a growing market for air travel from new residents. However, potential increases in the population of the region can represent a significant opportunity for air service demand, as new residents immigrate to the region to contribute to its economic growth. As will be explored later in the Master Plan under the theme of economic development, the availability of reliable intercommunity air transportation options contributes to the quality of life for residents, enabling them to travel to and from the region for discretionary purposes. As the demographic prospects report also links future growth closely with immigration, it is reasonable to conclude that new residents of the area will have family ties elsewhere in Canada or abroad, further increasing demand for travel options.

[1] The report identifies the Census Agglomeration to include the City of Sarnia, Township of St. Clair, Town of Plympton-Wyoming, Village of Point Edward, and First Nations Reserve of Sarnia 45.

3.5 Economic Context

The economic composition of the Sarnia-Lambton catchment area influences the demand for passenger and cargo air services, as well as other Airport-oriented activities. Major industries and employers that have significant transportation needs as part of their business operations may drive demand for services at the Airport, depending on the unique factors of their operation. Based on data provided by the Sarnia Lambton Economic Partnership, economic activity in the catchment area is dominated by the following sectors:

1. **Petrochemicals and Refining:** The Sarnia-Lambton catchment area is home to Canada's second largest cluster of companies in the petrochemical and refinery sectors. Petrochemicals and refining are also the largest component of the regional industrial sector. The major corporations engaged in the petrochemical and refining sector typically have national and international linkages between offices, as well as the requirement to ship just-in-time cargo to support repairs to equipment and machinery.
2. **Plastics and Rubber Manufacturing:** Sarnia is a pillar of the Canadian plastics and rubber manufacturing sector and supports operations by major multinational companies such as ARLANXEO, Cabot, Dow Canada, NOVA Chemicals, INEOS Styrolution, Imperial Oil, Origin Materials, and ReVital Polymers. Through consultations with NOVA Chemicals and industrial representatives, it is understood that the Airport is used to transport just-in-time cargo through scheduled and charter air services to maintain essential equipment without interrupting manufacturing processes.
3. **Advanced Manufacturing:** The advanced manufacturing sector originally grew while supporting the dominant oil, gas, and refining industries, and has since diversified to include the production of chemicals, industrial equipment, automotive parts, and other products. This diversification has included next-generation manufacturing such as software embedded technologies, 3D printing, additive manufacturing, and robotics. An estimated $16.1B in exports are generated annually through the region's advanced manufacturing sector. The advanced manufacturing sector is reliant on importing component parts into the catchment area, including just-in-time deliveries; as well as exporting finished manufactured products to their customers.
4. **Energy and Cleantech:** The Sarnia Lambton catchment area is a significant centre for gas, solar, and wind energy production and transmission. With respect to energy transportation, major businesses including Enbridge and TC Energy maintain pipeline infrastructure in the area. Pipeline aerial inspection services are currently provided by Enbridge from its rotary-wing base at the Airport.
5. **Hybrid Chemistry Cluster:** Over 35 chemical facilities comprise the Hybrid Chemistry Cluster, including major multinational corporations with distributed locations.
6. **Tourism:** The Sarnia-Lambton region has a range of tourism attractions, including the significant opportunities of the region's access to Lake Huron. Historical data is not available on the number of tourists arriving in the region by scheduled passenger air services and by general aviation. However, the provision of a range of transportation options is a key factor in ensuring that the tourism opportunities of the area can be widely accessed.
7. **Value-Added Agriculture:** Approximately 2,100 farms operate in the Sarnia-Lambton catchment area, and the agricultural sector is a significant component of the regional economy. While most of the good's movement associated with this sector occurs by road, rail, and sea, the agricultural sector commonly relies on the aviation sector for the movement of parts required to maintain equipment and machinery, as well as for the movement of skilled technicians.

Based on the National Occupational Classification data provided in the Statistics Canada 2016 Census Profile, the composition the economy can be further explored as shown in Table 3.3. The City of Sarnia and Lambton County census datasets have been benchmarked against values for the Province of Ontario. Two occupational classifications exceed the proportional levels seen provincially: Sales and Service; and Trades, Transportation, and Equipment Operators. The proportional compositions of the workforce engaged in Natural and Applied Sciences and Manufacturing and Utilities classifications is comparable to the provincial level; and representation in these four occupational groups is consistent with the key economic sectors identified by the Sarnia Lambton Economic Partnership. Sarnia's role as a regional hub for health, educational, and governmental services is also signalled by the proportional composition of the population engaged in such sectors.

Table 3.3 - National Occupational Classifications (2016)

National Occupational Classification	City of Sarnia Census Subdivision	Lambton County Census Division*	Province of Ontario
Management	8%	10%	11%
Business, Finance, and Administration	12%	12%	16%
Natural and Applied Sciences	7%	6%	7%
Health	7%	8%	6%
Education, Law, Social, Community, and Government Services	10%	10%	12%
Art, Culture, Recreation, and Sport	2%	2%	3%
Sales and Service	28%	24%	23%
Trades, Transportation, and Equipment Operators	16%	18%	13%
Natural Resources and Agriculture	1%	3%	2%
Manufacturing and Utilities	5%	6%	5%
Not Applicable	3%	2%	2%
Total Labour Force Population Aged 15 Years (25% Sample Data)	**34,340**	**61,455**	**7,141,675**

* The Lambton County census division includes the City of Sarnia census division; accordingly, the economic composition of Sarnia influences the data reported for the County as a whole

Another dimension of the regional economy is the number of major employers that maintain national or international footprints to support their operations. The following non-exhaustive list of major employers or economic stakeholders in the region is accompanied by the location of their primary headquarters, based on publicly available information:

- Arlanxeo: Headquartered in The Hague, the Netherlands;
- Imperial Oil: Headquartered in Calgary, AB;
- Shell Canada: Headquartered in Calgary, AB;
- Enbridge: Headquartered in Calgary, AB;
- TransAlta: Headquartered in Calgary, AB;
- NOVA Chemicals: Headquartered in Calgary, AB with executive offices in Pennsylvania;
- DOW: Headquartered in Calgary, AB;
- Suncor: Headquartered in Calgary, AB;
- ECRC-SIMEC: Headquartered in Ottawa, ON with bases throughout eastern Canada; and
- Federal Bridge Corporation: Headquartered in Ottawa, ON.

Based on the operations of these stakeholders, among others, the Sarnia-Lambton catchment area is uniquely interconnected beyond its geographic boundaries to other locations throughout North America and internationally. A common theme identified through consultations with regional businesses and economic organizations is the need for time-effective transportation options for staff, senior management / executives, and owners travelling between corporate locations and visiting or welcoming current and prospective customers.

3.6 Intercommunity Transportation

Demand for passenger, cargo, and other forms of air services at the Airport is influenced by the availability of competing intercommunity transportation options. In Sarnia, such options include the movement of people and goods by road, rail, and sea. For an individual seeking to travel to or from Sarnia or for a company examining how to move goods, consideration will be given to the merit of each option, including factors such as:

- The relative costs of each mode of transportation;
- The trip time, convenience, and degree to which the mode aligns with their preferred travel plans;
- For the movement of goods and cargo, whether a given mode can accommodate the product to be shipped (e.g., oversized cargo, dangerous goods); and
- The degree to which each mode is reliable and can confidently be assumed to be successful.

3.6.1 Road Network

Intercommunity travel by road is primarily facilitated through Highway 40, connecting Sarnia with Chatham and Highway 401 to the south; and Highway 402, which provides a direct route to London and Highway 401 to the east. Highway 402 also travels through Sarnia and connects with Interstate 94 at the Blue Water Bridge. Intercommunity travel by road primarily occurs by personal vehicles, with the driving distances and times between Sarnia and key destinations as noted previously in Table 3.1.

Transit service between London (including a stop at London International Airport) and Sarnia is currently being provided through a pilot project funded by the Ontario Ministry of Transportation, with service offered three times per day in each direction. By connecting Sarnia with London International Airport, this transit route would compete with Sarnia Airport for serving local air travel needs. Intercommunity service is also offered through Huron Shores Area Transit to destinations in Bluewater, Kettle & Stony Point First Nation, Lambton Shores, North Middlesex & South Huron.

The opportunity for improved intercommunity bus services was highlighted in the Province's January 2020 report entitled Connecting the Southwest: A Draft Transportation Plan for Southwestern Ontario. Following the release of this report, the Southwest Task Force was formed by the Province of Ontario in 2021 with a focus on improving connections between transportation modes and ensuring that service planning is informed by local needs. Potential bus service improvements that may develop because of the Southwest Task Force's work would improve the availability of this mode as an intercommunity transportation option.

As examined in the Geographic Context, the distance and associated driving times of Sarnia to other urban centres and key destinations in Ontario positively influences local demand for more time-effective air services. However, demand for air travel to and from Sarnia Airport will also be affected by the financial implications of flying versus driving; for more cost-conscious market segments, the real or perceived financial savings of driving may outweigh the time savings of flying. Accordingly, travel by road is a competing intercommunity transportation option.

The movement of goods and cargo by truck and other commercial vehicles (e.g., courier services) is a significant transportation category. Through consultations with local economic representatives and businesses, it is understood that high value of time shipments (e.g., just in time deliveries) are commonly flown to or from a nearby airport with air cargo services (e.g., London, Hamilton, and Toronto Pearson) and then moved by road to or from Sarnia. The movement of freight by road, while typically a slower transportation option versus air cargo, is viewed as a competing force that influences demand for air cargo services at the Airport.

3.6.2 Rail Network

VIA Rail provides limited passenger rail services to Sarnia, which is the terminus station on its route from Sarnia to Toronto with stops in communities such as London, Kitchener, and Guelph. As of January 2022, service is provided once per day in each direction: Train 84 departs to Toronto at 8:40 AM and arrives at 1:40 PM, while Train 87 departs from Toronto at 5:40 PM and arrives at 10:20 PM. The Sarnia – Toronto route is not integrated in VIA Rail's High Frequency Rail network improvement proposal, and information on planned service improvements is not publicly available. Rail service improvements are also being studied under the purview of the Southwest Task Force.

While VIA Rail service is an intercommunity transportation option, the low frequency of the route and travel times to and from Toronto (approximately 5h00m) are competitive disadvantages. For travellers with higher values of time or for whom VIA Rail's schedule does not align with their plans, the restoration of passenger air services at Sarnia Airport may represent a competitive travel option. Conversely, although service improvements have not been publicly announced, more frequent and / or faster rail service to and from Sarnia has the potential to decrease demand for regional air services from Sarnia Airport.

Freight rail services are provided by Canadian National Railway, which connects Sarnia through its various sidings and subdivisions in the region to its network in Canada and the United States. Typically, the types of goods moved by rail differ from those moved by air, and the availability of freight rail services in Sarnia is not viewed a significant competing factor for air cargo services.

3.6.3 Marine Network

The Sarnia Harbour is owned by the City of Sarnia and is located on the St. Lawrence Seaway System on the eastern shore of the St. Clair River. The Sarnia Harbour is used by vessels operated by companies such as Algoma Central, Canada Steamship Lines, and Lower Lakes Towing Ltd. for the shipment of cargo such as grain and petroleum products. Expansion plans are underway as of 2022 for a new $6M dock to accommodate over-sized loads carried by specialized roll-on, roll-off vessels.

The availability of seaborne transportation services through the Sarnia Harbour does not represent a significant competitor to the Airport for the movement of goods and cargo. The existing types of products moved through the Harbour (e.g., bulk commodities, oversized cargo) are primarily high volume, high weight, and / or oversized loads that are not required to be moved rapidly to their destination and would be economically or logistically unviable to transport by air.

4 AIRPORT PROFILE

The Airport Profile outlines the historical and current usage of the facility, including on-site businesses and tenants, activity levels, economic and social benefits, and community perspectives.

4.1 History

In the 1950s, the Airport lands were privately owned by local businessmen Bill Moon and Eric Colbert as Sarnia Airport Ltd., with flight training and charter activities commencing in 1957 with a 2,000 ft. grass runway (now Runway 06-24). An agreement was signed between the City, Sarnia Airport Ltd., and local industrial leaders (Imperial Oil, Holmes Foundry, and Dow Chemical) in 1958. Through this agreement, the industrial group provided $150,000 to the City to purchase the Airport lands, and the City leased the property to Sarnia Airport Ltd. A cost sharing agreement was established between the City and Transport Canada in 1958 to subsidize operations from 1958 and 1960, and the grass runway was extended, paved, and lit. Runway 14-32 (now Runway 15-33) was constructed in 1963 with financial assistance from Transport Canada and subsequently extended in 1972. The current terminal building and supporting infrastructure was developed in 1983 under Transport Canada's oversight.

In 1960, the City conveyed ownership of the Airport to Transport Canada, with the facility then being leased back to the City. The City in turn contracted Great Lakes Airlines to operate the facility on behalf of the municipality, with this arrangement lasting until 1987 when Scottsdale Aviation began operating the Airport on behalf of Transport Canada. The Airport was divested by Transport Canada in 1997 as part of its National Airports Policy, with the facility conveyed to the City including all lands, buildings, and equipment. At the time of divestiture, Transport Canada allocated $900,000 to the City to be held in reserve to support future Airport operations. Scottsdale Aviation continues, post-divestment and to this day, to operate the Airport on behalf of the City. The Airport was renamed in honour of Canadian astronaut Chris Hadfield in 1997.

4.2 Airport Businesses and Tenants

Sarnia Airport currently supports the operations of six private businesses and four private hangar tenants:

- **Scottsdale Aviation:** Through a headlease agreement with the City, Scottsdale Aviation is responsible for the operation of the Airport. This includes meeting the facility's regulatory obligations as a certified airport and maintaining the airside and groundside areas.
- **Huron Aviation:** Offers aircraft ground support services as a Fixed-Base Operator (FBO), including fuelling, ground handling, marshalling, and other similar activities.
- **Huron Flight Services:** A Transport Canada-licensed Flight Training Unit (FTU) that offers pilot training with its fleet of Cessna 172s and a Piper PA-28. Huron Flight Services also provides aircraft maintenance and aerial sightseeing services.
- **Sarnia Aircraft Service:** Provides aircraft component construction services.
- **Enbridge:** Maintains a hangar to the south of the terminal building to support its rotary-wing pipeline and infrastructure inspection operations.
- **Badger Daylighting:** Provides hydro-excavation services from its base in a former aircraft hangar.
- **Private Tenants:** Four private tenants have developed hangars for their aircraft.

4.3 Activity Levels

The historical usage and activity of the Airport can be quantified through data available on the number of aircraft landings at the facility, as well as the number of passengers departing on scheduled passenger air carrier services.

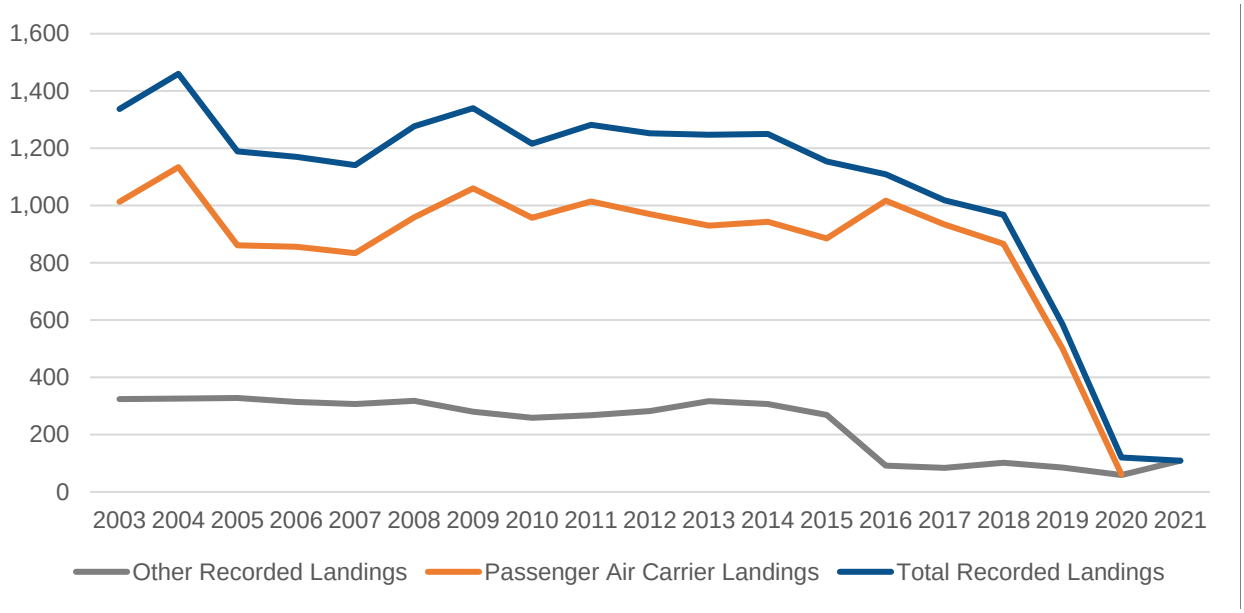
4.3.1 Aircraft Landings

Aircraft landings have been recorded by the Airport Operator since 2003. Only aircraft movements that incurred a landing fee were recorded by the Airport Operator; based on the Airport's 2021 fee structure, this includes twin-engine piston aircraft, turboprop aircraft, and turbofan aircraft. Accordingly, this data does not capture landings of:

- Single-engine piston aircraft that are predominantly operated by general aviation and flight training users; and
- Twin-engine, turbofan, and turboprop aircraft that are based at the Airport but that pay an Airport User Fee as opposed to landing fees.

As shown in Figure 4.1, recorded aircraft landings decreased from 1,460 landings in 2004 to 968 landings in 2018. Between 2003 and 2018, an annual average of 1,213 landings were recorded. Activity subsequently decreased to 585 landings in 2019, 120 landings in 2020, and 109 landings in 2021.

Figure 4.1 - Recorded Aircraft Landings (2003-2021)



Note: The data presented above does not include landings for which a fee was not levied and underrepresents total activity at the Airport

Between 2003 and 2018, passenger air carrier activity by Air Canada through its regional partners varied between approximately 800 and 1,100 annual landings. The decrease in total recorded landings in 2019 and 2020 was largely driven by the reduction in scheduled passenger services by Air Canada as a result of planned frequency reductions and unplanned operational disruptions (i.e., cancelled flights). Passenger air carrier landings decreased from 866 in 2018 to 500 in 2019 and 120 in 2020, at which point Air Canada withdrew from the Sarnia market.

An annual average of 300 landings were recorded by operators other than Air Canada between 2003 and 2015. As shown in Figure 4.1, activity in this category decreased from 269 landings in 2015 to 92 landings in 2016. In subsequent years, an average of 89 landings per year were recorded between 2016 and 2021.

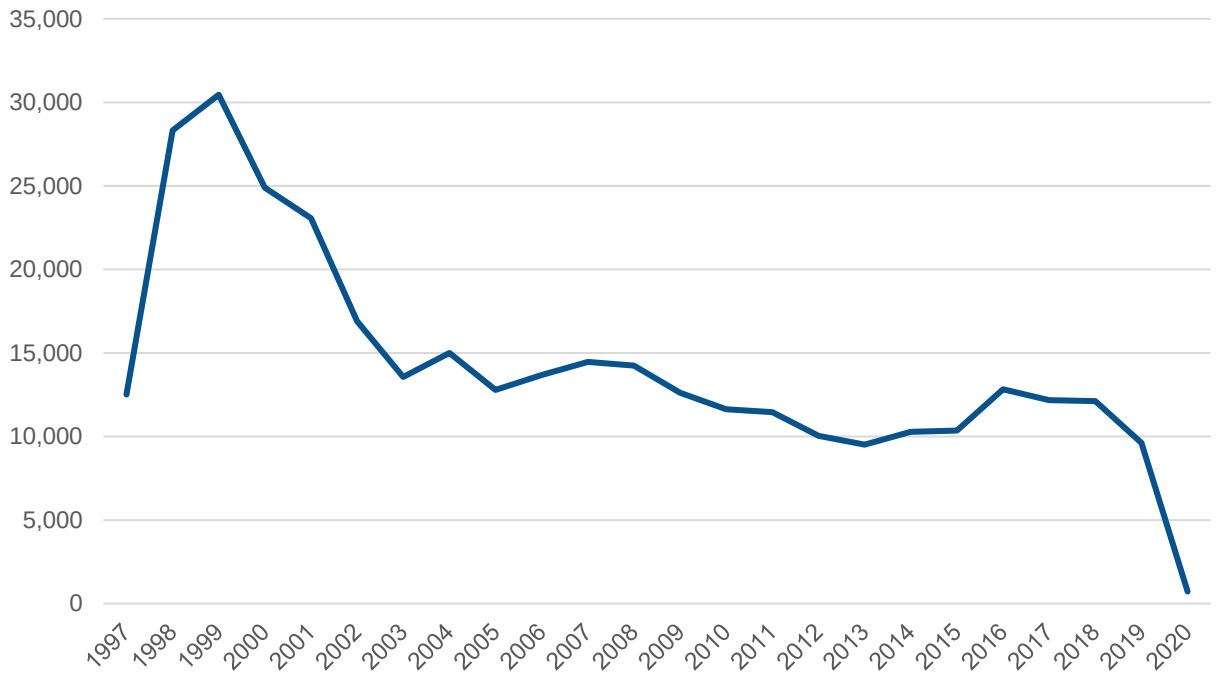
4.3.2 Departing Passengers

Scheduled passenger and cargo air carrier services are not currently provided at the Airport. In recent history, Air Canada was the sole airline operating at Sarnia. Air Canada provided daily services to Toronto Pearson International Airport, with flights operated under its Air Canada Express brand through Capacity Purchase Agreements (CPA) with Air Georgian from 2002 to 2018 and by Jazz Aviation from 2018 until 2020.

In the opening months of the COVID-19 public health crisis, Air Canada announced that it would temporarily suspend operations in April 2020 due to uncertainties regarding the pandemic, and subsequently announced that it would withdraw from the Sarnia market as of July 2020. Air Canada's final flight from Sarnia was operated on March 21, 2020. Among the reasons cited by the airline for this decision was the underperformance of the route, with load factors prohibitively low to justify continued service.

The Airport Operator records the number of departing passengers for the purpose of levying the Passenger Facility Fee, with this data being available from July 1997 until March 2020 when airline operations at the Airport ceased. Figure 4.2 shows the number of passengers departing from Sarnia between 1998 and 2019; partial-year data in 1997 is excluded.

Figure 4.2 - Departing Passenger Activity Levels (1998-2019)



Passenger levels were at their highest between 1998 and 2001, with activity ranging between approximately 23,100 departing passengers and 30,500 departing passengers in this period. During this time, scheduled service was provided by both Air Canada and Canadian Airlines through their regional affiliates. In January 2001, Canadian Airlines was acquired by Air Canada, and Sarnia was served solely by Air Canada until the airline's withdrawal in 2020. Passenger traffic decreased significantly from approximately 23,100 departing passengers in 2001 to 16,900 departing passengers in 2002 and 13,600 departing passengers in 2003, possibly due to decreased inter-carrier competition and / or the consolidation of services by Air Canada following its acquisition of Canadian Airlines.

As shown in Figure 4.2, from 2003 until 2019, annual activity ranged between approximately 15,000 and 9,500 departing passengers. A modest downward trend in activity levels occurred during this period, with departing passenger levels decreasing by an average of 2% per year. Air carrier services were terminated in March 2020, with approximately 700 departing passengers handled between January and March 2020.

4.4 Economic Benefits

Sarnia Airport is a key part of the regional economy, and its availability and operations have a range of benefits to businesses and employers. The economic impacts of the Airport are explored through quantitative measures, including direct and indirect benefits and employment totals; the enabling force of intercommunity air access; the operations of aerial work providers that support key economic sectors; and the role of the facility as an economic development asset.

4.4.1 Quantitative Economic Impact Estimates

A multiplier and regression-based economic impact study was completed for the Airport by students at the Wilfrid Laurier University – Lazaridis School of Business & Economics in 2019. This study was designed to capture the direct impacts of on-Airport activities, as well as the indirect economic benefits realized in Sarnia and throughout Lambton County by industries and businesses that support the operation of the Airport.

The 2019 Economic Impact Study estimated that the Airport's total direct impacts because of salaries paid to employees and the overall revenues of the facility were approximately $1.3M in that year. When accounting for indirect impacts, the Study estimated that $5.9M was added to the regional economy, for a total estimated economic impact of approximately $7.2M in value-added Gross Domestic Product realized within the region in 2019. The multiplier model outcomes are presented in Table 4.1.

Activity at the Airport has decreased since the preparation of the 2019 Economic Impact Study, primarily due to the loss of scheduled passenger air services and associated employment reductions. Further, the accuracy of the direct, indirect, and total economic impact estimates prepared are contingent on the degree to which the multipliers chosen appropriately capture actual benefits in the region. However, the Study provides value by highlighting that indirect economic benefits (i.e., the ripple effect of benefits realized by off-Airport businesses) are part of the facility's total economic footprint and have measurable impacts to the region.

Table 4.1 - 2019 Economic Impact Study, Multiplier Model Outcomes

Input	Direct Impacts	Indirect Impacts	Total
Airport Revenues and Expenses	$968,122	$4,535,259	**$5,503,381**
Other Revenue Producing Airport Functions	$287,416	$1,374,467	**$1,661,883**
Total	**$1,255,538**	**$5,909,726**	**$7,165,264**

To supplement the discussion provided regarding the 2019 Economic Impact Study, aviation-oriented businesses based at the Airport were surveyed by HM Aero to determine their current employment levels (Table 4.2). Prior to the withdrawal of Air Canada from the Sarnia market, the Airport supported 28 to 29 aviation-related employment positions. While the loss of Air Canada services has resulted in staffing reductions in businesses that previously supported the passenger and cargo-processing functions of the Airport, the facility continues to support approximately 15 positions in the region.

Table 4.2 - 2019 and 2021 Airport Employment Counts

Business	Employment Positions		Employment Types
	2019	2021	
Scottsdale Aviation / Huron Aviation	8-9	4	Airport Management Airport Maintainers Terminal Operations Staff Aircraft Ground Handlers
Huron Flight Services	5	5	Certified Flight Instructors Aircraft Maintenance Engineers
Sarnia Aircraft Service	-	1	Aircraft Restoration / Metalwork
Enbridge (Aviation Division)	5	5	Flight Operations Maintenance Personnel
Canadian Air Transport Security Authority	10	0	Pre-Board Screening Personnel
Total	**28-29**	**15**	

4.4.2 Intercommunity Access

The Airport supports intercommunity access by air, historically by scheduled passenger air carrier services and currently by corporate, charter, and other commercial operators, as well as general aviation.

Scheduled Passenger Air Carrier Services

Sarnia Airport received scheduled passenger air carrier services until March 2020, most recently through Air Canada's daily route to Toronto Pearson International Airport. As noted in Section 4.3.2, in the final years of Air Canada's services to the region, the Airport was used by approximately 12,200 passengers in 2017, 12,100 passengers in 2018, and 9,700 passengers in 2019. While the number of arriving passengers is not tracked, a reasonable assumption is that the number of arriving passengers is similar to the number of departing passengers. A catchment area market analysis completed by ASM indicates that for the 60-mile area surrounding Sarnia Airport, 33% of air travel trips in 2019 were completed by visitors to the region.

Through the outreach survey with local businesses, it was found that 88% of the sample of 25 businesses rely on air travel to support their operations. Among respondents that indicated that they use air travel to support their operations, an average of 35 trips per year were generated per business. Through stakeholder consultations, it was found that scheduled passenger air carrier services were used as a tool for enabling more efficient business operations by:

- Facilitating travel between corporate locations for staff, senior management, executives, and owners;
- Providing access to Sarnia for current and prospective customers, and providing travel options for staff conducting customer outreach visits and trade missions; and
- Supporting the delivery and shipment of cargo, including just-in-time products required to maintain business continuity (e.g., replacement parts for industrial equipment).

A recurring theme noted through consultations was the convenience of being able to fly from an airport near their origin or destination, that being the numerous businesses located throughout the catchment area. Air travel needs for businesses in the region continue to be met through alternative airports in locations such as London, Toronto, and Detroit – however, the travel times to these facilities were commonly cited as disadvantages from a business operations perspective.

Corporate, Charter, and Other Commercial Operators

As examined in Section 4.3.1, Sarnia Airport is also used by aircraft arrivals other than scheduled passenger air carriers. For the types of landings that are recorded by the Airport Operator (i.e., movements that incur a landing fee), an annual average of 300 landings in this category were logged between 2003 and 2015, and an annual average of 89 landings have been recorded between 2016 and 2021. Through a review of the historical landing dataset, operators at the Airport have included:

- Air carriers providing chartered services, including Air Creebec, Air Nunavut, Cameron Air, Chrono Aviation, Northern Air, and Sunwest Aviation;
- Aircraft registered to corporate flight departments, including Bayer AG, Cascades, Cintas, Canadian National, Domtar, Enbridge, Esso, Imperial Oil / ExxonMobil, Irving Oil, NOVA Chemicals, NLG, Pioneer, Shell, Shaw, Suncor, TC Energy, U-Haul, and Walmart;
- Aircraft operated by fractional ownership and corporate charter providers, such as AirSprint, Chartright, Fast Air, FlyGTA, Flexjet, Flight Exec, Flightpath, Levaero, Max Aviation, NetJets, Private Air, Propair, SkyService, Starlink Aviation, and VEE Neal Aviation; and
- Operators engaged in aerial work, such as Canadian Helicopters, Hydro One, the Ministry of Natural Resources and Forestry, and NAV CANADA.

Similar to the discussion regarding scheduled passenger air carrier services, Sarnia Airport enables access into and out of the region by corporate, charter, and other commercial operators that support the functioning of key economic stakeholders in the region. Corporate aviation is typically used for the transportation of individuals with very high values of time, such as senior management teams, executives, and owners.

Bombardier Challenger 300 operated by Chartright

Business aviation enables executives and staff to travel between multiple destinations efficiently, which is a key priority to maximize productivity. The availability of Sarnia Airport for corporate aircraft movements eliminates the need for the approximately 1h15m drive from London Airport or 2h30m drive from Toronto Pearson, improving the ability for each business to operate in the region more efficiently. While the total number of landings recorded for major corporate operators may be low, stakeholder consultations repeatedly indicated that the availability of the Airport is a significant advantage for these “low frequency, high impact” trips.

General Aviation Access

Data on smaller itinerant general aviation aircraft arriving at the Airport is not recorded by the Airport Operator, as such movements do not incur landing fees. Consultations with general aviation stakeholders indicate that the Airport is used by private aircraft operators visiting the region for recreational and business purposes.

4.4.3 Aerial Work Support

Aerial work providers that are based at, or operate from, the Airport directly support two major components of the regional economy.

Pipeline Inspections: The Airport is a permanent base of operations for Enbridge’s Aviation Division. Enbridge operates over 900 hours of inspection patrols from Sarnia annually that extend to locations such as Montreal, Buffalo, Chicago, and Akron using its based Airbus H125 helicopter. Maintenance is also conducted on Enbridge’s Ontario and Minnesota-based helicopters in Sarnia. The number of Enbridge helicopter operations from the Airport has increased from between 85 and 89 per year between 2016 and 2018 to 108 in 2019 and 118 in 2020, and consultations with Enbridge indicate that the aerial inspection workload may continue to increase following its merger with Union Gas in 2019.

As examined in the economic review, the pipeline infrastructure maintained by Enbridge is an integral part of the functioning of the regional economy, and its routine aerial inspection is key to ensuring the safe functioning of these assets.

Enbridge Hangar

Canadian Coast Guard Operations: The Canadian Coast Guard operates a fleet of rotary-wing aircraft across Canada in support of its various mandates, including two helicopters based in Parry Sound. Sarnia Airport is used as a refuelling location when required by the Coast Guard’s rotary-wing assets while conducting reconnaissance patrols in support of icebreaking operations on Lake Huron. Coast Guard helicopters are also used to conduct maintenance on navigation and communications infrastructure. Sarnia Airport has been used by the aerial assets of the Coast Guard an average of 3 times per year between 2018 and 2021.

The usability of the Sarnia Harbour and Lake Huron for shipping is key to the health of the regional economy. While the Airport is not a base for Coast Guard helicopter operations, its availability to support the organization's mandate contributes to effective and safe marine operations.

4.4.4 Economic Development

Economic development is a priority of both the City of Sarnia and other communities in the catchment area. Under the umbrella of economic development, focuses commonly include attracting new investment, ensuring that existing businesses are retained in the community and grow their operations, and creating an environment that facilitates upstart businesses through entrepreneurship. With respect to economic development, the City of Sarnia's stated goals per its 2017-2020 Corporate Strategic Plan is to support revitalization and growth by:

1. Investing in infrastructure needed to revitalize the City and support growth;
2. Creating a business-friendly environment;
3. Collaborating with stakeholder networks to attract and retain new business, industry and institutional services; and
4. Collaborating with stakeholders to encourage land development.

Airports are assets for economic development and are often framed as part of regional value propositions, given the varying ways in which these facilities are used by employers and businesses as profiled in the preceding sections. The infrastructure required by prospective businesses varies based on their operational needs; the continued availability of the Airport is a key advantage for businesses that require efficient intercommunity transportation options, the ability to ship high value goods quickly through air cargo, and / or the flexibility to utilize corporate and charter air services.

Consultations with the Sarnia Lambton Economic Partnership and Sarnia Lambton Chamber of Commerce confirmed that the Airport acts as an asset in investment attraction efforts, depending on the specific transportation requirements of prospective businesses.

An additional dimension of economic development centres around workforce recruitment. For businesses seeking to recruit talented individuals to their workforces, the quality of life provided in Sarnia or Lambton County (as applicable) was noted to be an area considered by prospective candidates. The availability of air carrier services at the Airport enables broader access throughout Canada and internationally for individuals resettling in the Sarnia-Lambton catchment area, improving the value proposition offered by the region in talent attraction.

Applying an economic development lens to the Airport cannot necessarily be tied to quantitative performance indicators, given the nuanced and numerous factors that influence business expansion and retention decisions. However, preserving the capabilities of the Airport as an economic enabler was viewed as a key priority through discussions with regional stakeholders.

4.5 Social Benefits

The social benefits of the Airport include aviation services that enhance the quality of life of residents of the area, either through access to emergency response services (healthcare, law enforcement, and search and rescue), or through the availability of an additional intercommunity transportation option. While quantitative metrics can be used to articulate the frequency of each of these benefits, their impact or value is less easily communicable – for example, while organ donation transportation flights (Section 4.5.1) occur relatively infrequently, such flights can have significant patient outcomes.

4.5.1 Healthcare Access

Consultations were completed with Ornge and two local physicians to understand how the Airport contributes to the functioning of the regional healthcare system. A recurring theme during consultations with both physicians was that although the total number of Airport-related healthcare cases may be low on an absolute values basis, the facility provides significant quality of care benefits by supporting critical care transfers, organ transportation flights, and interfacility patient transfers.

Critical Care Transfers

Where patient care needs exceed the services that can be provided at Bluewater Health, individuals are transported to higher level of care facilities by ground and air ambulances. Ornge is the not-for-profit corporation that is responsible for providing air ambulance interfacility transportation services in Ontario. This mandate is fulfilled by Ornge's in-house fleet of fixed-wing and rotary-wing aircraft, as well as by contracted fixed-wing aircraft operators.

Air ambulance data at the Airport was provided by Ornge for the period of 2018 to 2021, as shown in Table 4.3. Between 2018 and 2021, an average of 29 air ambulances used the Airport on an annual basis. Of the 117 air ambulance missions that occurred between 2018 and 2021, 75% were operated by rotary-wing aircraft, while 25% were operated by fixed-wing aircraft.

Table 4.3 - Air Ambulance Transfers (2012-2021)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Rotary-Wing Air Ambulance	12	29	10	7	8	7	18	27	13	30
Fixed-Wing Air Ambulance							8	6	6	9
Total	**12***	**29***	**10***	**7***	**8***	**7***	**26**	**33**	**19**	**39**

Movement data for 2011-2017 is based on the landing records maintained by the Airport Operator and excludes operations by contracted air carriers. Data for 2018-2021 is based on values provided directly by Ornge, including operations by contracted air carriers.

At the time of the Master Plan's preparation, Bluewater Health was in the pre-construction phase of developing a helipad to the south of the hospital for use by rotary-wing air ambulance aircraft. Of the estimated project cost of $800,000, 50% was funded by Lambton County with the balance generated through fundraising. The intent of this project is to reduce patient transportation times by removing the ground transfer between the hospital and the Airport. When completed, it is anticipated that most rotary-wing air ambulance transfers will operate from the hospital helipad. Based on consultations with Ornge and local critical care physicians, the Airport will continue to be required to support urgent patient transfers when:

- A fixed-wing asset is assigned to a patient transfer (25% of 2018-2021 air ambulance transfers);
- The Airport's Instrument Approach Procedures are required during Instrument Meteorological Conditions;
- Wind conditions preclude the use of the helipad's two proposed approach paths; or
- Refuelling is required.

Organ Donation Transport Flights

The Trillium Gift of Life Network is responsible for delivering and coordinating organ and tissue donation and transplantation services within Ontario. Ornge operates under contract to the Trillium Gift of Life Network to provide transportation services for transplant and organ recovery teams, with services primarily delivered by fixed-wing turbofan aircraft operated by subcontracted air carriers. Through consultations with a local physician, it is understood that turbofan aircraft are typically used given the longer duration missions flown to reach organ donors and recipients in Ontario and across Canada.

Sarnia Airport's historical usage for successful organ transportation flights is shown in Table 4.4. Through stakeholder consultations, it is understood that the availability of the Airport enables local organ donors and their families to stay in Sarnia for their procedure. Travel times for transportation teams and organs are also reduced by not needing to use an alternative airport, such as London.

Table 4.4 - Organ Transportation Flights (2017-2021)

2017	2018	2019	2020	2021
2	2	-	-	3
Note: These statistics do not include flights whereby a team flew to Sarnia, but the organ was not received for onward transportation.				

Interfacility System Capacity Transfer Flights

Through consultations with a local physician, it is understood that Sarnia Airport was used during the COVID-19 pandemic to support interfacility patient transfer flights to balance the system-wide capacity of hospitals in Ontario. Bluewater Health, given the capabilities of its Intensive Care Unit, reportedly received multiple patient transfers from other hospitals whose capacities were being exceeded amid peak waves of the pandemic.

4.5.2 Law Enforcement

Sarnia Airport is used on a mission-specific basis by the Ontario Provincial Police (OPP) and Royal Canadian Mounted Police (RCMP), based on the respective mandates of each organization. As shown in Table 4.5, the OPP operated from Sarnia on 26 law enforcement missions between 2011 and 2021, or an average of 2.4 times per year. Missions conducted from the Sarnia Airport by the OPP's fixed-wing and rotary-wing assets included traffic enforcement, support to investigations, personnel transportation, and searches for wanted persons and high-risk warrants. In addition to operations by the OPP, landing records maintained by the Airport Operator indicate that the RCMP operated at the Airport five times between 2011 and 2021.

Table 4.5 - Law Enforcement Movements (2011-2021)

		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Ontario Prov. Police	Barricaded Person									1		
	Criminal Investigation										2	
	Drug Investigation			1								
	High Risk Warrant											2
	Personnel Transport							2		2		
	Photo Crime Scene			1	1			1				
	Search - Wanted/Escaped Person(s)		1							1	2	
	Traffic Enforcement	3						3				3
Royal Canadian Mounted Police		3			1							1
Total		**6**	**1**	**2**	**2**	**-**	**-**	**6**	**-**	**4**	**4**	**6**

4.5.3 Search and Rescue

The OPP, Royal Canadian Air Force (RCAF), and Canadian Coast Guard participate in search and rescue operations according to their organizational mandates and the specifics of each incident. Generally, the OPP is responsible for overland search and rescue while the RCAF and Canadian Coast Guard are engaged in overwater missions, although assets from each agency may be used in differing circumstances based on operational needs. The proximity of Sarnia Airport to Lake Huron means that the facility is well-located to support overwater search and rescue operations through the refuelling of fixed-wing and rotary-wing aviation assets.

Records made available by the OPP indicate that Sarnia Airport was used by the organization's EC135 rotary-wing assets six times between 2011 and 2021 to support searches for drowning, missing or lost, or suicidal persons. Through a review of landing records for RCAF aircraft and assuming that all such records were associated with search and rescue missions or related training, 13 movements were recorded by Air Force fixed-wing (CC-130 Hercules) and rotary-wing (CH-146 Griffon) aircraft during the same period (Table 4.6).

Similar to the discussion provided for air ambulance and law enforcement operations, search and rescue missions are low frequency, high importance operations. In addition to the recorded numbers of movements attributed to such operations, the availability of the Airport and refuelling facilities is a strategic advantage that will facilitate future operations if they are required.

Table 4.6 - Search and / or Rescue Movements (2011-2021)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Ontario Provincial Police	1							1		1	3
Royal Canadian Air Force*		2					5	1	2	3	
Total	**1**	**2**	**-**	**-**	**-**	**-**	**5**	**2**	**2**	**4**	**3**

* RCAF movements exclude operations by aircraft unlikely to be conducting Search and Rescue, including the CC-144 Challenger (executive transport) and CT-156 Harvard II (trainer)

4.5.4 Intercommunity Access

In addition to the economic benefits of passenger air services, the historical availability of air carrier services from Sarnia Airport provided social benefits to residents by enabling them to travel for personal reasons, including vacations, visiting friends and relatives, or other causes. Based on a catchment area analysis completed by ASM, 67% of air travellers within a 60-mile radius of Sarnia Airport in 2019 were residents, demonstrating the importance of this segment.

As noted in Section 3.6, there are limited intercommunity transportation options aside from travel by personal vehicles. Intercity bus and rail services are infrequent and, for individuals having to travel beyond Toronto or other stops in southern Ontario, necessitate connections and extended travel times. The restoration of passenger air services would introduce a new travel option for residents of the region, providing direct access into the national and international air travel system and thereby improving local travel options.

4.6 Community Perspectives

General community perspectives on the Airport were studied by the City of Sarnia between October 2020 and December 2020, following an October 26, 2020 motion of City Council directing City Staff to consult with the community regarding the future of the facility. Engagement efforts included a virtual open house (41 attendees and 16 commenters), online survey (231 respondents), and the receipt of written comments (27 respondents) by community members.

Among the key themes identified by City Staff in their December 2020 report of the engagement findings, the following was learned:

- 86% of respondents indicated that the Airport is an asset to Sarnia;
- 81% of respondents indicated that the Airport has the potential to better support the local economy;
- 76% of respondents did not agree with the approach of the City selling the Airport; and
- 66% of respondents indicated that the most appropriate action the City can take is to continue to operate the Airport and invest in its future.

Pitts Special S-1 Aerobatic Biplane

5 GROWTH OPPORTUNITIES AND DEMAND ASSESSMENT

5.1 Passenger Air Carrier Service Market Assessment

5.1.1 Historical Passenger Air Carrier Services

Until March 2020, Sarnia Airport supported scheduled passenger air carrier services to Toronto Pearson International Airport. As examined previously, the Airport was served by Air Canada and Canadian Airlines through their respective regional affiliates until 2001 when the latter carrier was acquired by the former. Since 2001, Air Canada has been the sole carrier providing scheduled services to the Sarnia market through its Air Canada Express brand. The final seven years of Air Canada's operations in Sarnia are documented in Table 5.1.

Table 5.1 - Historical Air Canada Services (2014-2020)

Year	Annual Departing Passengers	Typical Frequency (Daily Flights Each Way)		Typical Aircraft	
		Weekday	Weekend	Type	Capacity (Seats)
2014	10,282	4	1-4	Beechcraft 1900D	18
2015	10,357	4	1-3	Beechcraft 1900D	18
2016	12,828	4-5	1-4	Beechcraft 1900D	18
2017	12,176	4-5	1-4	Beechcraft 1900D	18
2018	12,121	2-5	2-5	Beechcraft 1900D	18
				DHC Dash 8-100	37
2019	9,618	2-3	2-3	DHC Dash 8-100	37
				DHC Dash 8-300	50
2020	724	1-2	1-2	DHC Dash 8-300	50

From 2014 until 2018, Air Georgian was the CPA carrier operating services to Sarnia on behalf of Air Canada using 18-seat Beechcraft 1900s. During this time, between four and five weekday flights were scheduled between Sarnia and Toronto, with weekend frequencies ranging between one and five flights. In October 2018, Air Georgian's Toronto Beechcraft 1900 CPA operation was closed, and service was transitioned to Jazz Aviation using the 37-seat De Havilland Canada Dash 8-100. Weekday and weekend frequencies subsequently decreased to between two and three flights in 2019. In 2019, service was transitioned to the 50-seat Dash 8-300 and in the final three months of the route in 2020, the scheduled frequency was between one and two flights per day.

In the opening months of the COVID-19 pandemic, Air Canada announced that it would temporarily suspend operations in Sarnia as of April 2020 due to resultant declines in air travel. Air Canada subsequently announced that it would withdraw from the Sarnia market as of July 2020. Air Canada's final flight from Sarnia was operated on March 21, 2020. Air Canada cited the underperformance of the route for this decision, with load factors prohibitively low to justify continued service.

As examined previously in Section 4.3.2, the number of departing passengers on the Sarnia to Toronto route ranged between approximately 9,500 passengers and 15,000 passengers from 2003 until 2019. A modest downward trend in activity levels occurred during this period, with departing passenger levels decreasing by an average of 2% per year.

Through stakeholder consultations and the project team's understanding of the Canadian regional air carrier market, several factors contributed to this decrease:

- **Service Reliability:** Flights were frequently delayed and cancelled because of weather, aircraft mechanical issues, and crew shortages. For both leisure and business travellers, the unreliability of the service was repeatedly cited as a reason for travellers to choose other airports.
- **Inter-Airport Leakage:** As will be examined in Section 5.1.3, travellers in the Sarnia-Lambton catchment area have numerous other airports within a reasonable driving distance that are available, including London and Toronto Pearson in Ontario, and Detroit and Flint in Michigan.
- **Service Costs:** For cost-conscious travellers, the premium paid to begin or end their trip in Sarnia contributed to inter-airport leakage. While the premium paid for a connecting service to the Sarnia market is less impactful for business travel, individuals travelling for discretionary purposes have a lower level of price elasticity, especially when the difference in fare is multiplied over two or more individuals in a household, and those variable costs per household are compared to the fixed costs per household of driving.
- **Fleet Upgauging:** The removal of the 18-seat Beechcraft 1900 in 2018, 37-seat Dash 8-100 in 2020, and 50-seat Dash 8-300 in 2022 from Air Canada's CPA is an external factor that signals a shift in the carrier's network planning strategy. Through fleet upgauging (i.e., deploying larger aircraft on an existing route), the capacity available per flight exceeded demand, resulting in low load factors on aircraft with generally higher operating costs. Upgauging in Sarnia was also associated with frequency reductions to maintain a similar overall capacity level in the market. In turn, this reduced flexibility for travellers in scheduling their trips and contributed to inter-airport leakage.

Each of the factors noted above are interrelated and induce cause-and-effect relationships. Reliability and cost challenges with Air Canada's services incentivized travellers to choose alternative airports, decreasing ridership on the route. This in turn may have incentivized Air Canada to redeploy its assets to more profitable markets and reduce service on its Sarnia routes. The removal of sub-50 seat aircraft from Air Canada Express operations decreased the ability for the carrier to maintain the frequency needed to serve the local market while also introducing aircraft with higher Costs per Available Seat Mile, pressuring the Revenue per Available Seat Mile of the market.

Air Georgian Beechcraft 1900 (left) and Jazz Aviation Dash 8-300 (right)

5.1.2 Catchment Area Size

To assist in estimating the propensity of residents in the catchment area to use air travel, survey respondents were asked to provide the number of flights that residents in their household take In a typical year. As shown in Table 5.2, the majority (86%) of respondents indicated that their household takes between 1 and 10 flights annually in a typical year. The cumulative total of the number of flights stated to be taken by respondent households in a typical year was 4,434, or an average of 5.4 flights per household per year.

For the 25 respondents to the business survey, 16% stated that their operations require no air travel in a given year (Table 5.3). 28% of respondent businesses and organizations generate between 1 and 10 air travel trips annually, while 40% generate between 11 and 50 trips. A cumulative total of 726 annual air travel trips were generated by the survey respondents, or an average of 29 flights per business per year.

The resident and business survey datasets are not extrapolated to make estimates of the catchment area sizes of Sarnia and / or Lambton County. Given the limited response size of each dataset, the data shown may not be representative of the broader catchment area. Further, the surveys may be influenced by response bias where respondents that more actively make use of the Airport or have a vested interest in air travel are more inclined to provide their travel data. While noting the foregoing limitations, the datasets indicate that households and businesses in the catchment area are generators of trips by air travel.

Table 5.2 - Flights per Household, Resident Survey

Flights per Household per Year	Number of Respondents	Proportion of Respondents	Total Flights per Year, All Respondent Households
0	44	5%	
1 – 10	708	86%	
11 – 50	72	9%	
> 50	4	< 1%	
Total	**828**	**100%**	**4,434**

Table 5.3 - Flights per Organization, Business Survey

Flights per Organization per Year	Number of Respondents	Proportion of Respondents	Total Flights per Year, All Respondent Organizations
0	4	16%	
1 – 10	7	28%	
11 – 50	10	40%	
> 50	4	16%	
Total	**25**	**100%**	**726**

A quantitative estimate of the catchment area size was completed by ASM using 2019 data, noting the significant impacts that the COVID-19 pandemic continues to have on air travel since March 2020. ASM's catchment area estimation methodology utilizes data sourced from travel web searches, Amadeus Marketing Information Data Tapes, and Canadian and American census data. The values provided herein are estimates generated based on the methodology of ASM; while actual passenger activity may vary from the statistics shown, every effort was made to maximize the accuracy of the datasets.

Within the 60-mile area surrounding Sarnia, a cumulative total of approximately 5.9M resident and 2.9M visitor passenger trips were generated in 2019; however, the size of this market is distorted by the location of major urban centres such as Detroit, London, and Windsor beginning approximately 35 miles from Sarnia. Within the 30-mile radius of Sarnia (encompassing communities in both Ontario and Michigan), approximately 621,000 resident and 323,000 visitor trips were generated in 2019.

The size of the Sarnia-Lambton catchment area is approximated through the data available for six postal codes: N7X – Sarnia Northeast; N7S – Sarnia Central; N7T – Sarnia Southwest; N7W – Sarnia Southeast; N7V – Sarnia Northwest; and N0N – Lambton Forest. As shown in Table 5.4, an estimated total of approximately 221,000 resident and visitor trips originated from, or were destined to, the Sarnia-Lambton catchment area in 2019. While Sarnia Airport may attract travellers from further afield than the noted postal codes, the geographic proximity of the facility to these areas supports their definition as the Airport's primary catchment area.

In addition to the six Sarnia-Lambton postal codes, consideration can also be given to the proximity of the Airport to zip codes in Michigan. Three additional zip codes (48060 – Port Huron; 48040 – Marysville; and 48059 – Fort Gratiot) have been included to illustrate the size of the adjacent US market. While most of these trips would be expected to take place in the US domestic market and would be subject to significant leakage airports in Flint and Detroit, a cumulative total of 109,000 trips were generated from these zip codes in 2019.

Table 5.4 - Estimated Catchment Area Size

Postal / Zip Code	Location	Total
N7X	Sarnia Northeast	1,845
N7S	Sarnia Central	42,691
N7T	Sarnia Southwest	20,913
N7W	Sarnia Southeast	46,957
N7V	Sarnia Northwest	64,532
N0N	Lambton Forest	44,207
	Total – Sarnia-Lambton	**221,145**
48060	Port Huron	65,144
48040	Marysville	21,080
48059	Fort Gratiot	22,847
Total – Port Huron, Marysville, Fort Gratiot		**109,071**

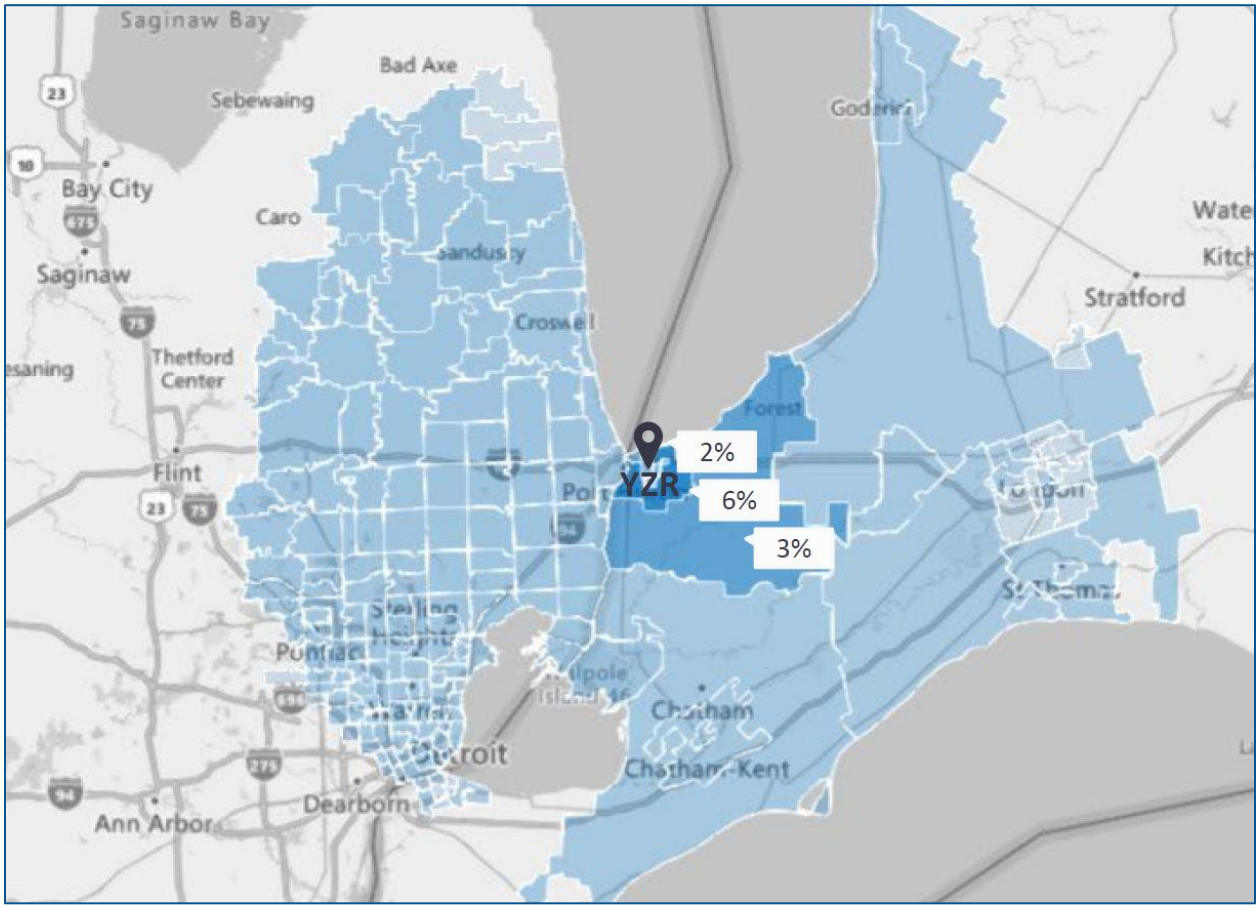
A significant and evolving consideration is the degree to which air travel demand and consumer behaviour will change following the COVID-19 pandemic. Air travel has experienced a considerable decline in Canada since the onset of the pandemic in 2020, with disruptive effects to both business and leisure market segments. The long-term impacts of COVID-19 on the Canadian air travel sector remain to be seen; however, it is possible that demand may not fully return to pre-pandemic levels on account of reduced consumer confidence, the increased adoption of digital workplace meeting solutions as opposed to in-person business travel, and air service cuts made during the pandemic. The potential implications of these factors, among others, remain to be seen.

5.1.3 Catchment Area Leakage

Despite the size of Sarnia Airport's catchment area, annual numbers of passengers that travelled on scheduled air carrier services (Section 4.3.2) were significantly lower than the 2019 estimated catchment area size (Section 5.1.2). This indicates that widespread passenger leakage was occurring within the local market. Leakage is defined as passengers that are originating from, or destined to, the Sarnia-Lambton catchment area that do not make use of Sarnia Airport, and instead book their travel through a competitor airport, including those shown in Figure 5.1. As shown in Figure 5.2, Sarnia Airport captured an estimated 2% and 6% of resident travellers in Sarnia and Lambton County postal codes, with traffic retention decreasing in postal codes further from the Airport.

Figure 5.1 - Competitor Airports Map

Figure 5.2 - Sarnia Airport Catchment Area Resident Passenger Retention (2019)



To understand the influence of the availability of other airports within driving distance, Master Plan resident and business survey respondents were asked to identify how often six airports, including Sarnia, were used for their air travel needs from 2017 until 2020 while Air Canada was serving the local market. The resident survey revealed that interfacility leakage primarily occurs to three airports within driving distance of Sarnia: Toronto Pearson, London, and Detroit. As shown in Table 5.5, 59% of respondents indicated that they used Toronto Pearson always or often for their air travel needs between 2017 and 2020, with an additional 27% of respondents indicating that they sometimes used this airport. 30% of respondents indicated that they used London always or often, while an additional 31% of respondents indicated that they sometimes used the facility.

Table 5.5 - Resident Usage of Competitor Airports (2017-2020)

	Sarnia (CYZR)	Toronto (CYYZ)	London (CYXU)	Detroit (KDTW)
Always	**8%**	20%	4%	5%
Often	**21%**	39%	26%	26%
Sometimes	**26%**	27%	31%	25%
Rarely	**16%**	7%	16%	13%
Never	**28%**	6%	24%	30%

The proportional utilization of Sarnia Airport by business travellers was similar to the levels for residents. Toronto Pearson continued to be the most used of the competitor airports (cited by 53% of respondents as being used always or often), versus the 30% of respondents that indicated that they used Sarnia Airport always or often.

Table 5.6 - Business Usage of Competitor Airports (2017-2020)

	Sarnia (CYZR)	Toronto (CYYZ)	London (CYXU)	Detroit (KDTW)
Always	**15%**	24%	6%	0%
Often	**15%**	29%	17%	32%
Sometimes	**30%**	38%	39%	21%
Rarely	**25%**	10%	33%	16%
Never	**15%**	0%	6%	32%

Figure 5.3 visually depicts the dominant point of origin for residents based on their postal / zip code from ASM's catchment area analysis. As anticipated, Toronto Pearson International Airport is the dominant point of origin for all Canadian and select American postal codes covered in the analysis area, with the market share for Toronto decreasing in areas further west from the airport. Detroit Airport is the dominant point of origin for assessed zip codes in its vicinity.

Figure 5.3 - Dominant Point of Origin Airport for Catchment Area Residents (2019)

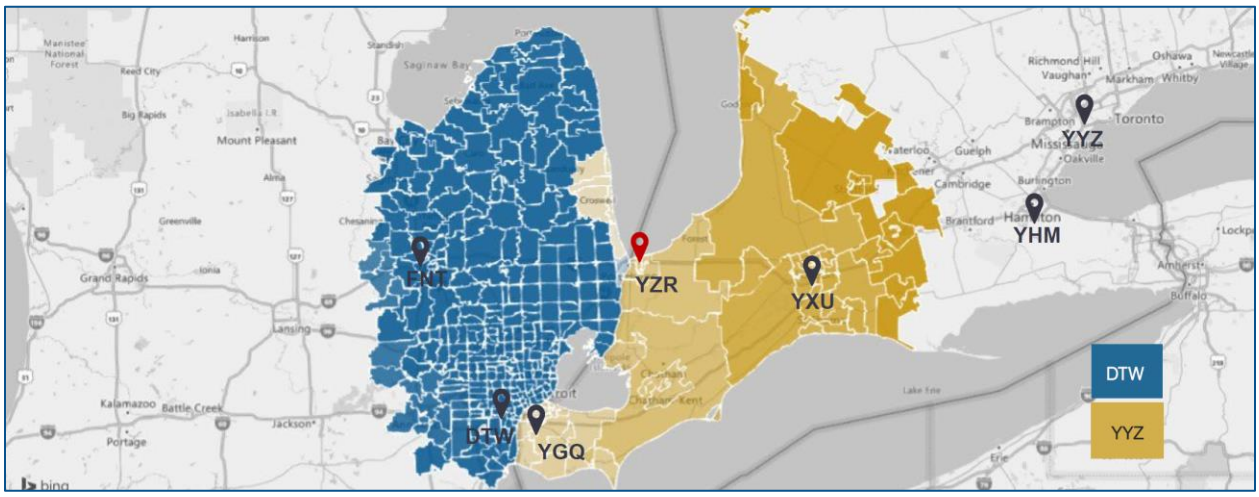
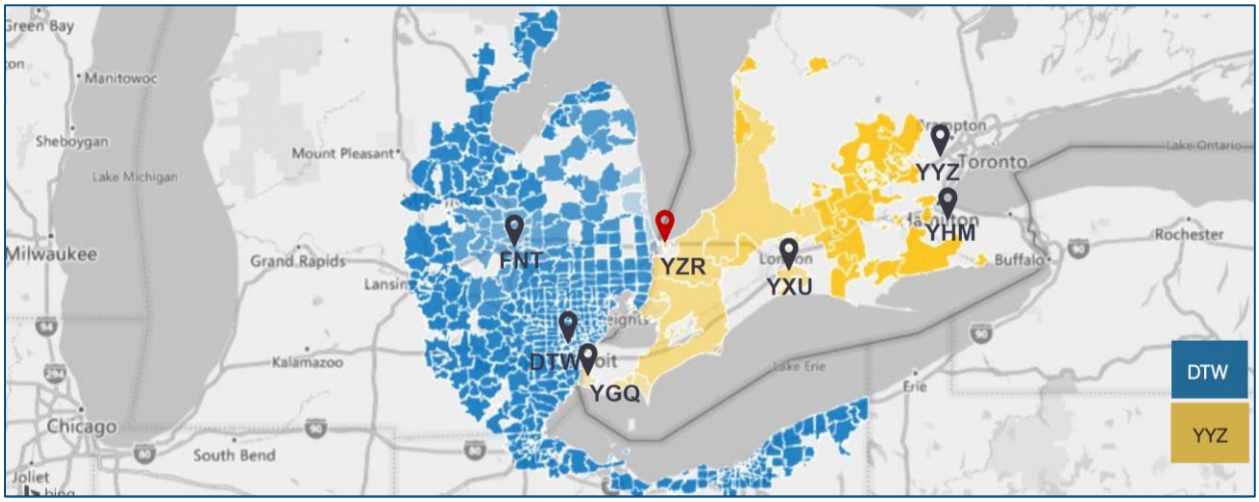


Figure 5.4 analyzes the market shares of Toronto Pearson and Detroit as the destination airports for visitors to the same postal codes. While Toronto Pearson remains the dominant point of arrival airport for visitors in numerous Canadian postal codes, visitors travelling to areas around regional airports such as Windsor, London, and Hamilton decrease this market share.

Figure 5.4 - Dominant Point of Arrival Airport for Catchment Area Visitors (2019)



The significant influence of Toronto Pearson International Airport reflects its noteworthy air carrier role. Toronto Pearson is the busiest passenger airport in Canada and is located 270 km east of Sarnia, with an estimated driving time of 2h30m. Toronto Pearson is a major base of operations for carriers such as Air Canada, WestJet, Flair Airlines, Air Transat, Sunwing Airlines, and Swoop, and is well-served by airlines from the United States and abroad. Prior to the COVID-19 pandemic, Toronto Pearson was connected to over 180 destinations globally. The catchment area of Toronto Pearson extends across significant portions of southern Ontario given the extensive choice of air carriers, service to destinations across Canada and internationally, and the frequency of service to these destinations.

London International Airport is located 120 km from Sarnia and can be reached within approximately 1h15m via Highway 402 during optimal driving conditions. London will support access to four domestic destinations in the 2022 summer season based on air carrier schedules available at the time of the Master Plan's preparation: Toronto (CYYZ), Montreal (CYUL), Calgary (CYYC), and Edmonton (CYEG). Notably, London enables travellers in the Sarnia-Lambton catchment area to enter the national and international route networks of Air Canada and WestJet through flights to their hubs in Toronto, Calgary, and Montreal. By travelling via London, a traveller originating in Sarnia will also benefit from an approximately 1h15m shorter drive (or longer, depending on traffic conditions) when compared to departing from Toronto Pearson. Domestic destinations and associated flight frequencies for London International Airport are presented in Table 5.7.

Table 5.7 - London International Airport Domestic Routes (June 2022)

Airline	Destination	Frequency (Week of June 12, 2022)
Air Canada	Toronto (CYYZ)	8x Daily
	Montreal (CYUL)	1x Daily
WestJet	Toronto (CYYZ)	3x Daily
	Calgary (CYYC)	1x Daily
Swoop	Edmonton (CYEG)	5x Weekly
* All route frequencies are subject to change and may be reduced based on schedule updates and the ongoing impacts of the COVID-19 pandemic		

Cross-border leakage by Canadian travellers to airports in the United States is a common trend that occurs because of numerous factors, including ease of access to their final destination and actual or perceived cost savings. Based on responses received through the stakeholder engagement program, two airports in Michigan are frequently used by Sarnia-Lambton travellers:

1. **Detroit Metropolitan Wayne County Airport:** Detroit Airport is located 130 km from Sarnia with an approximate driving time of 1h45m. Detroit Airport is the primary airport serving Michigan and in 2019, prior to the COVID-19 pandemic, handled approximately 37M annual passengers. Detroit Airport is a hub for Delta Airlines and has an extensive network of destinations throughout North America, Europe, the Middle East, and Asia.
2. **Flint / Bishop International Airport:** Flint Airport is located 120 km from Sarnia and can be reached by vehicle with an approximate driving time of 1h20m. Scheduled passenger services are provided to the hub airports of Chicago O'Hare and Charlotte by the regional affiliates of American Airlines and United Airlines, and Low-Cost Carrier Allegiant Airlines provides year-round and seasonal service to vacation destinations such as Arizona, Nevada, and Florida. Although Flint Airport was not included in the online outreach surveys, its use was noted through stakeholder interviews.

While limited numbers of respondents cited the Region of Waterloo International Airport as a preferred alternative airport to Sarnia historically, recent air service growth at this facility may shift this dynamic. The Region of Waterloo International Airport has experienced considerable growth through the service offerings of Flair Airlines, with the carrier expanding within an Ultra Low-Cost Carrier (ULCC) niche. As a ULCC carrier, Flair Airlines targets cost-conscious travellers that are primarily flying for discretionary or leisure purposes. Service is offered or is scheduled to be launched from Waterloo to destinations throughout Canada and internationally, including Halifax, Calgary, Vancouver, Edmonton, Winnipeg, Kelowna, Halifax, and Deer Lake. While Flair Airlines also serves Toronto Pearson, the Region of Waterloo International Airport has become a key focus city of operations for the carrier, and the Region is investing considerably in expanding its terminal infrastructure to support such services.

Taking the above factors together, inter-airport leakage from the Sarnia-Lambton catchment area is expected to be one of the most influential considerations on the future passenger air service prospects of the Airport. Airlines are first and foremost businesses – while the catchment area generates a significant number of resident and visitor passengers annually, new air services in Sarnia will not succeed unless they attract enough travellers at a high enough yield to warrant a defensible business case.

5.1.4 Regional Air Service Market Review

With an understanding of the air service needs of the Sarnia-Lambton catchment area, consideration must also be given to the network and fleet strategies of carriers that could serve this market, as well as broader trends being experienced at comparable airports.

Air Canada Regional Operations

Air Canada's route model is primarily structured around its hubs in Toronto Pearson, Montreal, Vancouver, and Calgary. Regional services are operated under its Air Canada Express brand through a CPA with Jazz Aviation. In recent years, Air Canada has amended its Air Canada Express CPAs to reduce operations of sub-50 seat regional aircraft, including:

- The 18-seat Beechcraft 1900, which was withdrawn from operations in Toronto in 2018;
- The 37-seat Dash 8-100, which was retired in April 2020; and
- The 50-seat Dash 8-300, which was withdrawn from service in January 2022.

Notably, the Beechcraft 1900 and Dash 8 were used in the Sarnia market prior to Air Canada's withdrawal in 2020. The Air Canada Express CPA with Jazz Aviation now includes the 50-seat CRJ-200, 76-seat CRJ-900 and Embraer E175, and 78-seat Dash 8-400. In former Dash 8-300 markets in Ontario (London, Timmins, North Bay, Sudbury, and Sault Ste. Marie), Air Canada now deploys the CRJ-200 and Dash 8-400.

Coincident with the removal of the Beechcraft 1900 and Dash 8-100/300 from the Air Canada Express CPA, Air Canada has terminated service from several regional markets in Canada in recent years. In addition to the withdrawal of Air Canada from Sarnia in March 2020, the carrier terminated services to Kingston from Toronto Pearson and services connecting Calgary with Lethbridge and Medicine Hat. In October / November 2018, Air Canada also terminated its Red Deer – Calgary route and services to Toronto Pearson from Harrisburg, Rochester, and Syracuse. The drawdown of the regional aircraft included in Air Canada's CPA together with its exit from the above-noted markets together may indicate a shift in the route strategy of the carrier, with a focus on serving larger markets with higher capacity turboprop and turbofan aircraft.

While noting the foregoing, Air Canada entered into an interline agreement with Pascan Aviation in 2021 which enables connectivity between the two carriers. This interline agreement applies, for example, to the upcoming service between Kingston and Montreal by Pascan Aviation set to commence in 2022.

WestJet Regional Operations

WestJet primarily operates using a hub-and-spoke route structure with the majority of its flights connecting through its hubs in Calgary, Toronto Pearson, and Vancouver, and focus cities in Edmonton, Halifax, and Winnipeg. Regional markets across Canada and the United States are served by WestJet through WestJet Encore, a wholly owned but distinct air carrier; and WestJet Link, which is the brand used for routes operated by Pacific Coastal Airlines through a CPA. WestJet Encore was founded in 2013 and operates a fleet of 78-seat De Havilland Dash 8-400s. WestJet Link commenced operations in 2018 and serves smaller destinations in western Canada from WestJet's hubs in Calgary and Vancouver, including markets such as Lethbridge and Cranbrook.

London is the sole regional market in southern Ontario that is currently connected with WestJet's hub in Toronto Pearson, with multiple daily flights operated by WestJet Encore. WestJet also provides service to regional markets in southern Ontario from its hub in Calgary, including Windsor, London, Hamilton, and Waterloo. These flights are operated by the carrier's larger Boeing 737 fleet, with capacities ranging from 134 passengers (Boeing 737-700) to 174 passengers (Boeing 737-800 / MAX 8). Regarding the prospect of WestJet commencing service to Sarnia, the following factors are noted:

- The regional aircraft currently operated by WestJet Encore and WestJet Link do not have sufficient range to connect Sarnia with WestJet's western hub in Calgary. The airline's Boeing 737 fleet, given their size and performance requirements, would require upgrades to the airfield infrastructure and terminal building, while also having a passenger capacity that likely exceeds the requirements of the regional market;
- Service between Sarnia and Toronto Pearson would offer considerable connection opportunities through WestJet's domestic and international route network. WestJet Encore, which serves WestJet's regional destinations from Toronto, only operates the 78-seat Dash 8-400 which have a substantially higher capacity than aircraft previously deployed by Air Canada in the local market; and
- While the 34-seat Saab 340 fleet operated by WestJet Link would be more aligned with the size and requirements of the Sarnia market, all Link operations are currently based in Vancouver and Calgary. The establishment of a new base of operations by Pacific Coastal Airlines, as the CPA partner, would represent a considerable expense and would need to be tied to WestJet identifying other regional market opportunities in Ontario, Quebec, and / or the northeastern United States that would justify the establishment of such operations in Toronto.

WestJet Link (Pacific Coastal Airlines) Saab 340

Porter Airlines

Porter Airlines maintains its hub at Billy Bishop Toronto City Airport and provides services to destinations throughout Ontario, Quebec, Atlantic Canada, and the northeastern United States using its fleet of 74-seat Dash 8-400s. Regional markets in Ontario served by Porter Airlines include Windsor, Timmins, Thunder Bay, Sudbury, Sault Ste. Marie, and seasonal service to Muskoka.

In July 2021, Porter Airlines announced a purchase agreement for 30 Embraer E195-E2 airliners, with capacities of 120 to 132 passengers depending on the carrier's configuration. The longer range E195 fleet will enable the carrier to launch service to destinations in western Canada, such as Calgary, Edmonton, and Vancouver, and throughout the United States from its future base at Toronto Pearson. Operations will continue in parallel at Toronto City Airport with the Dash 8-400 fleet, although it is unclear whether regional destinations will also be served from Toronto Pearson using the Dash 8.

Independent Regional Carriers

In addition to the operations of major network carriers such as Air Canada, WestJet, and Porter Airlines, a considerable period of growth and change has occurred with independent regional air carriers in Ontario and eastern Canada:

- **Pascan Aviation** is a regional airline based in Longueuil, QC which provides services primarily to destinations in Quebec and Labrador. In December 2021, Pascan announced that it would begin operating services between Kingston and Montreal using its fleet of 34-seat Saab 340s. The Kingston to Montreal service will be part of an interline agreement with Air Canada and Air Transat, providing connecting opportunities for passengers. Service is scheduled to commence in May 2022 at the time of this report's preparation.
- **FlyGTA Airlines** is based at Billy Bishop Toronto City Airport and, prior to the COVID-19 pandemic, operated scheduled services to destinations throughout southern Ontario, including Niagara and Waterloo. FlyGTA commenced service to Kingston in 2022 using its 8-seat Beechcraft King Air B100.
- **PAL Airlines** is based in St John's and historically has served an extensive network of regional destinations throughout Atlantic Canada. In 2021, the carrier announced a series of new routes in markets formerly served by Air Canada, including its first destination in Ontario: Ottawa. The PAL Airlines fleet includes the 37, 50, and 78-seat variants of the Dash 8.

- **Pivot Airlines** is an upstart regional carrier that intends to launch service between Waterloo and Ottawa and Montreal at a date to be announced in 2022. Flights are to be operated using 50-seat CRJ-100 airliners.

Seasonal Leisure Services

A recurring market request noted through the resident outreach survey was seasonal flights to leisure destinations in the United States, Caribbean, and Central America, commonly known as “sun flights.” Major carriers in Canada that provide such services from comparable regional airports include Sunwing Airlines, Air Transat, Swoop, and Flair Airlines. These flights are typically operated using aircraft in the 190-seat range, such as the Boeing 737-800 and Airbus A321.

Supporting service to seasonal international destinations would require considerable investments to the infrastructure of the Airport, including the lengthening and potentially widening of Runway 15-33 based on the performance requirements of larger Boeing 737-800 and Airbus A321 fleets, the expansion of the terminal building to support the higher passenger handling requirements, and the development of dedicated infrastructure to support Canada Border Services Agency facilities.

While local demand may exist for seasonal leisure services, the significant capital costs of pursuing such traffic and unclear market potential mean that this opportunity is not advanced for consideration through the Master Plan, given the numerous competing priorities for funding through other recommendations of this document.

Low-Cost / Ultra Low-Cost Carrier Services

In recent years, the Canadian air travel market has been disrupted through the proliferation of Low-Cost Carriers (LCCs) and Ultra Low-Cost Carriers (ULCCs). While a strict definition does not exist with which to categorize LCCs and ULCCs, these airlines are differentiated by their focus on reducing operating costs and offering lower ticket fares, with the accompanying de-bundling of options such as checked baggage and onboard amenities. Other common characteristics of LCCs and ULCCs include a focus on serving secondary airports with lower aeronautical fees, maintaining a single aircraft fleet type to decrease maintenance expenses, and offering a higher density onboard product.

In the past five years, a period of significant growth has occurred in the historically limited Canadian LCC and ULCC market:

- **Flair Airlines** acquired ticket reseller NewLeaf in 2017 and commenced operations using a fleet of Boeing 737-400s. Flair Airlines is in the midst of an ambitious fleet and network expansion program and has announced plans to grow to 50 aircraft by 2026, including the Boeing 737-800 and Boeing 737 MAX 8. In 2022, Flair Airlines intends to serve destinations in all ten provinces, the United States, and Mexico, and in southern Ontario has established a considerable presence at the Region of Waterloo International Airport, as well as Toronto Pearson International Airport and Hamilton International Airport.
- **Swoop** is a ULCC that was launched in 2018 and is owned by WestJet. Swoop provides domestic and international service using its fleet of 10 Boeing 737-800s, including operations as of 2022 from London, Hamilton, and its eastern Canada hub of Toronto Pearson.
- **Lynx Air**, previously branded as EnerJet, is an upstart ULCC that was announced in 2021. Lynx Air is scheduled to commence operations between Calgary, Kelowna, Vancouver, Winnipeg, and Toronto in the second quarter of 2022 using a fleet of Boeing 737 MAX 8s.
- **Canada Jetlines** is a planned ULCC that is scheduled to commence operations from Ontario in 2022 using a fleet of Airbus A320-200s.

While the ULCC market in past years has been dominated by Flair Airlines and Swoop, the planned launch of Lynx Air and Canada Jetlines in 2022 is expected to significantly increase competition in this segment of the market. Given the relative newness of ULCC services at this scale in the Canadian context, the long-term outcomes remain to be seen in terms of what the market can support.

Although considerable growth is underway in the ULCC sector in Canada, this market segment is not viewed as an opportunity for pursuit through the Master Plan. A significant infrastructure expansion program would be required to widen and extend Runway 15-33 to support the performance requirements of AGN IIIB airliners used in Canadian ULCC service, including the Boeing 737 and Airbus A320. Considerable investments would also need to be made to expand the size and passenger processing capabilities of the terminal building, given the high capacities (approximately 190 seats) of airliners configured for ULCC service. Sarnia would also compete with other airports serving larger catchment areas in southern Ontario for such service (e.g., London, Hamilton, Waterloo), and the long-term positioning of the ULCC market remains to be seen given its significant growth in recent years.

Transborder Air Services

In southwestern Ontario, Toronto Pearson International Airport and Billy Bishop Toronto City Airport are the only facilities that currently support scheduled passenger air services to the United States. London International Airport formerly was served by Delta Airlines to Detroit and United Airlines to Chicago. The Region of Waterloo International Airport also formerly supported service by Northwest Airlines and American Airlines. Northwest Airlines operated between Waterloo and Detroit from 2004 until 2009 using 34-seat Saab 340 aircraft operated under its Northwest Airlink regional brand. American Airlines commenced flights between Waterloo and Chicago O'Hare International Airport in 2012 through its American Eagle regional brand, with flights operated by 50-seat Embraer ERJ-145s. American Airlines terminated this route in 2016 citing opportunities to deploy their assets to more profitable markets, and no transborder scheduled services have been provided from Waterloo by a US-based carrier since that point.

The three major US network carriers (American Airlines, Delta Airlines, and United Airlines) have each retired their fleets of sub-50 seat aircraft, including the Saab 340, Embraer ER-135, and Dash 8-100/200/300. The fleet sizes of aircraft in the 50-seat category, including the CRJ-200 and Embraer ERJ-145, have also gradually been reduced amid a broader trend of upgauging the aircraft used by each carrier in their regional services.

Transborder regional air services operated by a US network carrier (i.e., American Airlines, Delta Airlines, or United Airlines) through their regional affiliates has not been identified as an opportunity for pursuit. Cross-border leakage to airports in Michigan, including Flint and Detroit, is aided by the ease of access to such facilities through the Blue Water Bridge, enabling travellers to enter the networks of numerous US carriers while bypassing Canadian airports. The major US network carriers have also gradually reduced or eliminated their fleets of regional aircraft that would be best suited to the size of the Sarnia market, and the withdrawal of transborder services from larger catchment areas (London and Waterloo) also signals that such an opportunity may not be realistic within the horizons of the Master Plan. It is also noted that significant capital works would be required to upgrade the terminal building to support international arrivals, including a dedicated arrivals hall, baggage handling facilities, and CBSA screening areas.

5.1.5 Opportunity Identification

Opportunity #1 – Restoration of Hub Airport Connection

The primary opportunity recommended for pursuit through the Master Plan is the restoration of passenger services to the hub of a Canadian network carrier. Based on the origin and destination pairs identified through the catchment area dataset and associated passenger volumes, while the total number of air travellers originating from and destined to the Sarnia catchment area is considerable, the numbers of Passengers Daily Each Way in most markets were prohibitively low to warrant direct service based on the fleet types currently being deployed by most Canadian carriers. The hub-and-spoke model used by the primary network carriers in Canada is built around this reality, with feeder flights with lower capacities from catchments such as Sarnia-Lambton directed to hub airports such as Toronto Pearson, where passengers can connect to their destination.

A key priority for service is onward connectivity at the hub airport to the passenger's destination. While a route between Sarnia and a hub airport (e.g., Toronto Pearson) would also serve the Origin & Destination passengers travelling between the two catchment areas, a successful carrier will need to be able to capture the significant number of passengers connecting to another flight to their intended destination. In the resident and business outreach surveys, 81% and 90% of respondents, respectively, identified the availability of onward connections as being the most important or very important consideration when making their travel plans. Onward connectivity may be facilitated through:

- Service by a fully integrated network carrier (e.g., Air Canada, WestJet, Porter Airlines) that, either in-house or through CPA contracted airlines, provides regional services that connect to their broader route structure through a single ticket; or
- Service by an independent regional carrier that maintains codeshare or interline agreements with airlines offering service to other destinations throughout the country and internationally. An example of this model is Pascan Aviation which maintains interline agreements with Air Canada and Air Transat to provide onward connectivity for routes such as Kingston to Montreal.

Opportunity #2 – Service to Billy Bishop Toronto City Airport

The secondary opportunity identified through the planning process is the commencement of service between Sarnia and Billy Bishop Toronto City Airport. The opportunity for this route was primarily identified through consultations with representatives of the business community and local industry associations, as well as the review of air services that currently or recently have been provided between comparable airports in southern Ontario. Unlike the provision of service between Sarnia and a network hub airport, this route would primarily focus on business and governmental Origin & Destination traffic between downtown Toronto and Sarnia. A secondary business case for this route may also be found through individuals travelling to Toronto for leisure purposes and supporting the growing tourism market of Sarnia by facilitating travel for residents of Toronto visiting the region.

5.2 Air Cargo Market Assessment

5.2.1 Historical Air Cargo Services

Air cargo service in the Sarnia market was historically provided by Air Canada. Through its Air Canada Cargo subsidiary, Air Canada provides cargo transportation services across its route network through hold capacity on its passenger airliners, and as of 2021 using dedicated Boeing 767 freighter aircraft. During its period of providing scheduled passenger air services between Sarnia and Toronto, Air Canada provided cargo services using the hold capacity of its contracted Beechcraft 1900 and Dash 8 regional aircraft. Cargo was then integrated into Air Canada's broader route structure for onward processing through its Toronto Pearson hub. In addition, stakeholder consultations identified that just-in-time freight is also moved through chartered and corporate aircraft.

5.2.2 Potential Air Cargo Market Size

Requirements for air cargo services at the Sarnia Airport were examined through the business outreach survey, which was completed by 25 respondents. Of this respondent group, 36% (9 of 25) identified that they rely on the movement of goods or cargo to support their operations. For respondents in this category, the types of goods or cargo that are required to be moved included:

- Aerospace components;
- Equipment and industrial components;
- Piping and fabrication materials;
- Toolboxes and specialized equipment;
- Technical instruments;
- Laboratory samples; and
- Live cargo.

Among the nine respondents that rely on the movement of goods or cargo, seven cited the unavailability of air cargo services at the Airport to be a deficiency that limits their operations to varying degrees. For respondents that provided an estimate of their annual air cargo throughput needs, estimates ranged between 100 kg and 5,000 kg annually. Respondents predominantly identified that their air cargo needs are ad hoc in nature (e.g., the shipment of replacement parts on an as-required basis) and could be fulfilled through the restoration of passenger air services by a carrier with an integrated cargo division (e.g., Air Canada Cargo, WestJet Cargo) that moves freight in surplus aircraft baggage hold capacity.

The survey findings were supplemented through consultations with a local freight forwarding company with a detailed understanding of the regional market. While select businesses require larger shipments (e.g., palletized cargo) that cannot be handled by regional aircraft that have historically been deployed in the Sarnia market and would require the use of dedicated freighter aircraft, the size of this market segment is not expected to be sufficient to justify service by a cargo air carrier. It is expected that larger air cargo needs will continue to be met by operators serving Toronto Pearson International Airport and Hamilton International Airport (e.g., CargoJet) with onward ground transportation to Sarnia.

5.2.3 Opportunity Identification

Similar to the historical provision of air cargo services in the Sarnia market by Air Canada, it is anticipated that the needs of local businesses for air cargo would be met through an airline offering cargo services through nondedicated hold capacity on their scheduled passenger services. A sufficiently large market opportunity has not been identified for dedicated air cargo services based on the findings of the stakeholder consultation and research program.

5.3 Flight Training

While the COVID-19 pandemic and resultant decreases in air travel demand across Canada has reduced the hiring requirements for numerous airlines, industry sources have identified that there will be a significant need for new professional pilots in the coming years as demand recovers and existing pilots exit the sector. From a flight training perspective, Sarnia Airport benefits from its less congested airfield and airspace environment, which is conducive to student training without interfering with frequent air carrier and commercial operations. The infrastructure of Sarnia Airport, including its primary and crosswind runways, lighting, and Instrument Approach Procedures, also is a strength for effective student training.

Flight training is viewed as an opportunity for several reasons. First, it positions the Airport as an integrated part of the national aviation system by supporting the training of professional pilots. Second, Flight Training Units (FTUs) provide a source of employment for Certified Flight Instructors, Aircraft Maintenance Engineers, and administrative / support staff, thereby improving the economic role of the Airport. Finally, the aviation activity generated by FTUs is year-round and positions such facilities as key users / anchor tenants, while also representing a source of potential aeronautical revenues.

Flight training services are currently provided by Huron Flight Services, a Transport Canada-approved FTU. At the time of the Master Plan's preparation, Huron Flight Services was providing training for pilots to complete their Recreational Pilot Permit and Private Pilot License, as well as the supplementary night, instrument, seaplane, and multi-engine ratings. Huron Flight Services is in the process of being approved as a Private Career College, at which point it will begin offering training for the Commercial Pilots License.

The presence of an existing FTU at the Airport broadens the facility's economic role and benefits, while also creating an anchor tenant that generates consistent annual activity. The continued use of Sarnia Airport for recreational and professional flight training is identified as an opportunity for advancement through the Master Plan. However, given the scale of Sarnia Airport, recommendations will focus on ensuring that factors within the control of the City, as the owner of the Airport, are consistent with the long-term success of the incumbent FTU. While the City may position the Airport as an option for an additional FTU through the availability of long-term leasehold development lots, proactive marketing for such a business is not viewed as a high-priority pursuit in the short or medium-term planning horizons.

Huron Flight Services

5.4 Aviation Commercial Development

Regional airports in Ontario similar to Sarnia support a wide variety of commercial aviation businesses, including Aircraft Maintenance Organizations (AMOs); Maintenance, Repair, and Overhaul (MRO) businesses; CAR 702 and 703 aerial work and air taxi operators; and CAR 704 and 705 air carriers. Other uses that develop at regional airports include Fixed-Base Operators and hangar providers. Huron Flight Services, through its FTU and AMO; Enbridge; Huron Aviation; and Sarnia Aircraft Service are the four incumbent aviation commercial service providers based at the Airport.

Based on the typical user needs of businesses described above, advantages of Sarnia Airport include its 5,106 ft. x 100 ft. primary runway, lighting, Instrument Flight Procedures, and pre-existing municipal servicing. For airports seeking to facilitate new aviation commercial development, the primary steps that can be taken on a proactive basis are the establishment of appropriately sized commercial leasehold lots, the development of airside (taxiway connection) and groundside (roadways and services) infrastructure, and the creation of a competitive financial environment.

With respect to the final point, Sarnia competes with numerous similarly or better equipped airports in southern Ontario serving larger catchment areas for new aviation commercial development, including Windsor, London, and Waterloo. Each of these facilities supports established clusters of aviation commercial development and offers a level of service that exceeds that of Sarnia, including wider and longer runways, air traffic control services, and Instrument Landing System approaches.

While Sarnia has ample developable airside lands and other competitive advantages, it is anticipated that the City will have to position the Airport as a highly financially competitive opportunity for prospective businesses to attract new aviation commercial tenants.

The benefits of attracting new aviation commercial tenants include increasing land lease and property tax revenues, additional aeronautical fees, and most importantly, the improvement of the Airport's economic impact through new on-site employment positions. The potential market for future aviation commercial development cannot be defensibly estimated, as longer-term trends are unavailable with which to predict future demand and noting the inter-airport competition that exists for such business. However, this opportunity is advanced for consideration through the Master Plan.

5.5 Private Hangar Development

A total of 11 hangars of varying sizes have been built to support aviation and non-aviation businesses (e.g., Huron Flight Services, Sarnia Aircraft Service, Enbridge, Badger Daylighting) and for the storage of private aircraft. These hangars are located on subleased lots through agreements between the subtenants and the Airport Operator, as the sublandlord.

Consultations with City Staff and aviation stakeholders found that there is unmet demand for new hangars at the Airport from private aircraft owners, with five inquiries having been received in the preceding year. Hangar development at the Airport was paused several years ago as subleases beyond the term of the Airport Operator's headlease agreement (to expire in 2027) would require that the City also be party to the agreement – such agreements were not entered into given longer term uncertainty regarding the City's involvement in the Airport and the terms of the headlease agreement.

The development of private and commercial aircraft hangars on leasehold lots represents a stable source of annual revenues for the Airport, without the variability associated with activity-based fees (e.g., Passenger Facility Fees, landing fees). Additional property tax revenues will also be realized by the City. As new aircraft are based at the Airport with the development of additional hangars, revenues will be realized by fuel service providers (Huron Aviation and Huron Flight Services) and by activity-based fees.

The construction and operation of rental hangars by the City is not recommended for consideration, given the capital costs and ongoing operating obligations imposed through such a model. Instead, the preferred model of growth is recommended to be the establishment of leasehold lots for the private construction of hangars.

Private General Aviation Hangar

5.6 Aerial Tourism

Aerial sightseeing tours for the public are currently provided by Huron Flight Services. Sightseeing tours are a unique opportunity for residents and visitors to experience the Sarnia-Lambton area, with tour routes including landmarks such as the Lake Huron shoreline and the St. Clair River. The availability of aerial sightseeing tours introduces a tourism element to the Airport's overall value to the regional economy and can serve as a driver for visitors to the Sarnia-Lambton area. As aerial sightseeing flights are currently being provided at the Airport, opportunities to better market the availability of such services will be explored through the Master Plan.

5.7 General Aviation

Within the context of the Master Plan, general aviation is defined to include the use of privately owned or rented smaller single and twin-engine aircraft for recreational and non-aviation business purposes. This excludes the use of general aviation aircraft for commercial purposes (e.g., flight training, aerial inspection) examined elsewhere in the Master Plan, and in this context is focused on smaller aircraft operators as opposed to larger aircraft chartered by major corporations or operated by corporate flight departments.

The revenue generating potential of general aviation is typically, but not exclusively, lower versus other activities such as air carrier services – accordingly, the value of this type of activity is at times discounted within planning documents. However, general aviation activity can have economic benefits and revenue-generating potential. For a regional facility of the size and role of Sarnia Airport, general aviation contributes to a diversified mix of on-site activity when noting that commercial operations, although higher in direct revenues and economic value, operate on a limited frequency. Although a key focus of the Master Plan is on attracting high economic value / revenue-generating opportunities, based and itinerant general aviation is expected to continue to have a role at Sarnia Airport.

General aviation aircraft parked near Huron Flight Services

The benefits of attracting additional general aviation users based at the Airport include: 1) increased operating revenues through long-term hangar land lease agreements (Section 5.5) or tie-down fees; and 2) growth in the number of potential customers of on-Airport businesses (e.g., AMOs and fuel providers), thereby creating an environment in which businesses with employment benefits can succeed. The attraction of additional based general aviation aircraft will be accommodated through owners renting space in the General Aviation Tie-Down Area and hangar developers entering into multi-year land lease agreements. Subsequent elements of the Master Plan will address the conditions for success under this category, including lease and tie-down rates and other recommendations.

With respect to itinerant general aviation aircraft coming to the region for business-related purposes, users in this category are travelling on a non-discretionary / purposive basis. Accordingly, while the underlying reasons for these trips cannot be stimulated under the scope of an Airport Master Plan, consideration can be given to whether barriers exist that would otherwise prevent these business-related general aviation visits from occurring. These users are primarily supported by the two Fixed-Base Operators that are located at the Airport, both of which provide the services required by general aviation operators, and local ground transportation providers. Later sections of the Master Plan will address the degree to which the aeronautical rates and fees environment of the Airport is conducive to business-related general aviation activity.

Regarding general aviation operators visiting the region for recreational purposes, Sarnia Airport can serve as the gateway that enables them to fulfill the core purpose of their trip (e.g., visiting friends and relatives or tourism). For this category of users, the Airport itself is not the cause for the trip – instead, pre-existing attractions bring these individuals to the region, such as the numerous tourism destinations in the Sarnia-Lambton area. Recommendation #15 of the SAAWG's 2021 report was to explore the potential for creating general aviation tourism packages to increase the utilization of the Airport while also spreading the economic impacts of visiting pilots and passengers throughout the region. The potential for creating direct linkages between general aviation and regional attractions will be explored in greater detail later in the Master Plan.

5.8 Non-Aeronautical Opportunities

Select non-aeronautical opportunities for the Airport may be considered to diversify the revenues of the facility and improve its interconnectedness with the regional economy. Opportunities identified for further consideration have been reviewed based on whether they are complementary with the core aviation functions of the Airport, are realistic given the regional economic context, and will offer direct revenue benefits without requiring a significant commitment of capital funding, noting the numerous other core capital recommendations of the Master Plan.

5.8.1 Highway Advertising

As part of their report in October 2021, the SAAWG conducted research on the opportunities for advertising revenues at the Airport. As noted by the SAAWG in their report, an average of 23,000 vehicles pass by the Airport on Highway 402 per day, with the southern property boundary of the site benefiting from clear sightlines from the westbound lanes of the highway. Preliminary research completed by the SAAWG indicated that potential revenues to the City could be approximately $350,000 over the course of a 15-year agreement with a private proponent. Through the terms of an agreement with a successful proponent, the opportunity may also exist for advertising space to be provided to the City to advertise the Airport and new air services.

In addition to Ontario Ministry of Transportation approval requirements, assessment and approvals would be required by NAV CANADA and Transport Canada to ensure that the future signage unit would not penetrate the Airport's Obstacle Limitation Surfaces, interfere with its Instrument Approach Procedures, or cause visual distraction to pilots.

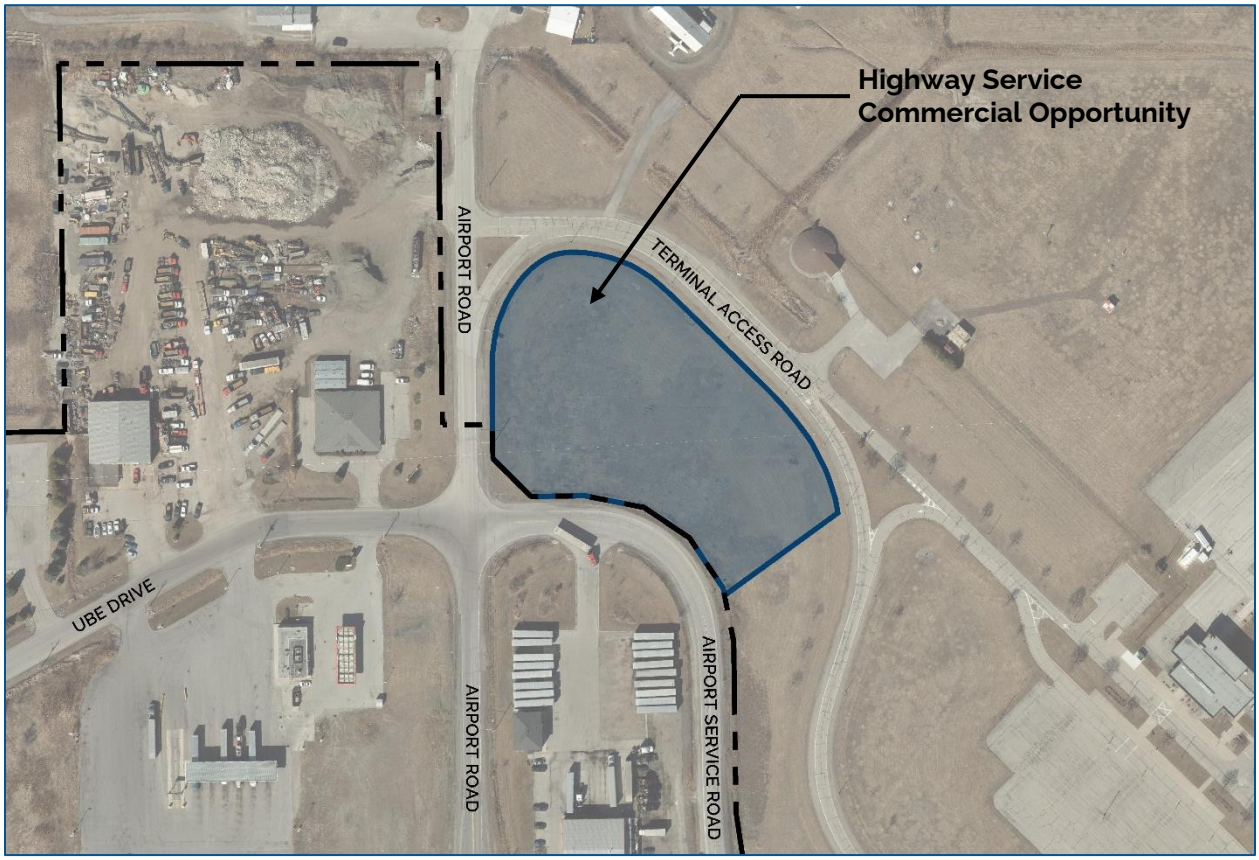
The installation of advertising signage oriented to Highway 402 on the Airport property has been identified as an opportunity for implementation through a competitive Request for Proposals (RFP) process in the short-term planning horizon.

5.8.2 Highway Service Commercial Uses

As noted in Section 5.8.1, a daily average of 23,000 vehicles pass by the Airport on Highway 402, including significant volumes of both personal and commercial vehicles. An existing service station is located at the intersection of Ube Drive and Airport Road, immediately south of the Airport. The proximity of the Airport to Highway 402 means that opportunities may be considered for commercial uses that serve the significant volumes of highway travellers. A two-acre vacant parcel is located at the northeast corner of the intersection of Airport Road and Airport Service Road at the entryway of the Airport, as shown in Figure 5.5. This parcel is separated from the airside area, is not needed for aeronautical purposes, and is well positioned for the development of one or more highway services, including gas stations, food services, and / or convenience stores. The development of one or more of the noted land uses could also benefit arriving and departing travellers, employees based at the Airport, and individuals working at the other non-aviation businesses in the vicinity.

The development of the two-acre gateway parcel for highway service commercial uses may be considered within the short-term planning horizon for implementation. Consideration may be given to issuing an Expression of Interest to prospective parties, with subsequent evaluation by City Staff to consider matters such as the relative financial benefits of each proposal, intended use, and the visual contribution of each proposal to the Airport's gateway. Consideration may be given to the sale or leasing of the land, and it is anticipated that the market will be further explored through the Expression of Interest process.

Figure 5.5 - Recommended Highway Service Commercial Parcel



5.8.3 Groundside Employment Lands Development

As part of the first phase of the municipal Growth Management Program, a Comprehensive Review was completed by consultancy urbanMetrics. The Comprehensive Review estimated that 100% of industrial employment growth, 30% of commercial growth, and 20% of institutional growth will occur on Employment Lands. Between 2021 and 2051, the Comprehensive Review found that 94 hectares of Employment Lands will be required. As of 2021, 403 net hectares of Employment Lands are vacant within the City of Sarnia, and the Comprehensive Review found that *"…the net supply of identified lands is far in excess of what will be required to support the demand for future employment land uses in the City to 2051."* Notably, the Sarnia 402 Business Park located across Highway 402 on London Line is a City-owned opportunity for development and the lands are fully serviced.

Notwithstanding the foregoing, the Comprehensive Review also considered the availability of Strategic Employment Lands, or parcels that would be well-suited to transportation and warehousing; professional, scientific and technical services; construction; and other business services. Strategic Employment Lands were identified on the basis of having strong access to transportation networks, the potential to accommodate land intensive industries, and access to municipal services. The Comprehensive Review identified a series of light industrial designated parcels in the vicinity of Ube Drive as Strategic Employment Lands, including the five-acre parcel of land located to the southwest of the general aviation hangar area, as shown in Figure 5.6.

Figure 5.6 - Recommended Strategic Employment Lands Parcel

The usability of this parcel for non-aeronautical land development is primarily hindered by the landlocked nature of the site, with no direct access provided to Ube Drive or Airport Road; and the lack of municipal servicing. The ability for the City to facilitate non-aeronautical land development on the parcel through either severance and sale or a long-term lease agreement would accordingly be limited unless the parcel was acquired or leased by a contiguous landowner.

As the Comprehensive Review has identified an excess supply of vacant Employment Lands within Sarnia, the use of Airport lands for non-aeronautical purposes is not advanced as an opportunity for most of the property. The sole parcel that may be considered for sale to support non-aeronautical growth is the five-acre parcel southwest of the general aviation hangar area. However, this parcel should not be severed and sold except as part of a broader development proposal including all or part of the Strategic Employment Lands designated in its vicinity, with the intent that this parcel would be used for one of the key opportunities identified in the Comprehensive Review.

5.8.4 Agricultural Cropping

Portions of the Airport property are currently used for agricultural cropping through a sublease agreement between the Airport Operator and a local farmer. The continued use of Airport lands for cropping is a mutually beneficial arrangement that generates non-aeronautical revenues for the facility while also positioning the facility as part of the agricultural sector. Opportunities for expanded areas for potential cropping will be explored through the Recommended Airport Development Plan.

5.8.5 Utility-Scale Photovoltaic Power Generation

At airports with significant vacant or underutilized parcels of land, an increasing trend has been for these surplus areas to be converted to support utility-scale photovoltaic power generation. Examples in Ontario include the 50-megawatt project completed at Windsor International Airport and the 8.5-megawatt solar project at Thunder Bay International Airport. On-site solar projects are a unique opportunity to generate increased lease revenues while also putting the lands in question into productive use as part of the regional power grid.

The cleantech industry is noted by the Sarnia Lambton Economic Partnership to be a key sector for the region, with approximately 120 megawatts of solar power generation projects having been completed. The cancellation of the provincial Feed-In Tariff Program, designed to encourage renewable energy projects, in 2016 has resulted in a decrease in the development of utility-scale photovoltaic power generation in Ontario. However, the large, cleared land assemblies available at the Airport may represent opportunities for photovoltaic power generation in the future and would align with the region's aspirations as a cleantech hub. While this opportunity is unlikely to be realized in the short-term planning horizon, potential changes in the incentives available for photovoltaic power generation in the future could increase the feasibility of such a concept being pursued.

5.9 Opportunities Not Advanced for Consideration

The following opportunities were identified through research completed by the project team, consultations with stakeholders, and through previous studies for consideration. However, these opportunities have not been advanced for further exploration within the short or medium-term planning horizons. Consideration may be given to revisiting these opportunities in the long-term planning horizon once tangible progress has been made on the core recommendations of the Master Plan, or when regional contextual factors change to the degree to which their realization may have a higher likelihood of success.

5.9.1 Post-Secondary Aviation Programming

Building on the preliminary recommendations of the SAAWG, outreach was completed with Lambton College on opportunities that may exist for aviation-oriented programming at the Airport, such as training for pilots, Aircraft Maintenance Engineers, and other skilled professionals. Historically, an aviation training program was operated by Huron Flight Services with Lambton College for a two-year period.

Through consultations with Lambton College, it was found that consideration has not been given to developing aviation-oriented programming. The College's representative noted that growth opportunities in this segment may be challenged by the number of institutions currently providing aviation curricula through well-established programs, including Fanshawe College (London), Conestoga College (Waterloo), Seneca College (Peterborough), Canadore College (North Bay), Sault College of Applied Arts and Technology (Sault Ste. Marie), and Algonquin College (Ottawa). An additional concern noted by Lambton College, in addition to competition from existing institutions, was the significant costs associated with developing a new aviation program amid the College's other competing priorities. The surplus lands available at the Airport were also noted not to be required for any purposes of Lambton College, which indicated that sufficient lands are allocated through their campus master plan.

While a partnership with Lambton College is not recommended for further consideration, it is noted that Huron Flight Services has reapplied the Ministry of Training, Colleges and Universities to be a Private Career College, and opportunities for flight training are as noted previously.

5.9.2 On-Airport Museum

Consideration was given in the October 2021 report by the SAAWG of the opportunity that may exist for the creation of a Chris Hadfield Air & Space Centre. This museum concept would celebrate the accomplishments of Chris Hadfield, a renowned figure in Canadian space exploration, as well as the contributions of the Hadfield family to the regional aviation sector. Numerous aviation museums are located throughout Ontario, and benefits can include the creation of a new tourism attraction, opportunities for youth education, and the stimulation of public interest in the Airport.

The Master Plan primarily focuses on initiatives under the purview of the City of Sarnia as the owner of Sarnia Airport. While certain municipalities in Ontario are engaged in maintaining museums that reflect their local histories, achievements, and / or futures, the project team is unaware of any municipalities that are both the operator of a publicly available airport and an aviation-oriented museum. Although the benefits of a potential on-site museum are recognized, the numerous recommendations being prepared through the Master Plan have significant capital cost implications and requirements for City Staff level of effort. Accordingly, it is recommended that this opportunity be left to a future independent not-for-profit organization comprised of motivated citizens and / or businesses to champion its implementation. If the creation of such a museum is identified as a viable venture by this independent organization, support by the City could be further explored (e.g., the provision of on-Airport land at minimal cost).

6 CORPORATE STRATEGY

Defining a corporate strategy for the airport is critical to understanding the facility's current importance to the City and region as well as being the basis for future decision making. The strategy consists of the role, mission, and vision statements.

6.1 Role Statement

A Role Statement defines current activities and identifies which of those activities can be leveraged to improve the economic position of the community and region that the Airport serves. A central and recurring theme identified during stakeholder consultations was the importance of framing the airport as a tool for improved business productivity in the region, as well as an economic asset in its own right. Within the context of the Master Plan, the role statement developed for Sarnia Chris Hadfield Airport based on feedback from stakeholders is that the facility will serve as an:

- **Economic enabler**, by facilitating air services that support the strength and functioning of the regional economy. This includes scheduled and charter passenger and cargo air services, corporate and business-related aircraft movements, and other commercial operations, such as pipeline inspection;
- **Social asset**, by supporting intercommunity travel for residents and visitors and enabling timely access for air ambulance, medical, law enforcement, search and rescue, and similar services; and
- **Aviation hub**, by providing opportunities for training the next generation of aviation professionals and supporting private general aviation usage in a matter that is complementary to the facility's economic and social roles.

6.2 Mission Statement

A Mission Statement is a short description of an organizations purpose for those in the organization as well as the public. The project team has prepared a candidate mission statement:

Sarnia Chris Hadfield Airport, by providing an environment for efficient and effective air transportation, contributes to and generates economic benefits while supporting community health and safety.

6.3 Vision Statement

A Vision Statement is forward-looking foundational position that defines an organization's ideals and aspirations. The candidate vision statement is consistent with the role Statement described above and is as follows:

Sarnia Chris Hadfield Airport will be operated in a safe, effective, and financially sustainable manner and benefit the Sarnia-Lambton catchment area by serving as an economic enabler, social asset, and hub for aviation services.

7 AIRPORT INFRASTRUCTURE ASSESSMENT

7.1 Design Aircraft Selection

The Design Aircraft for an airport is the aircraft identified as having the most demanding operational requirements with respect to the determination of movement area dimensions, and other aerodrome physical characteristics.

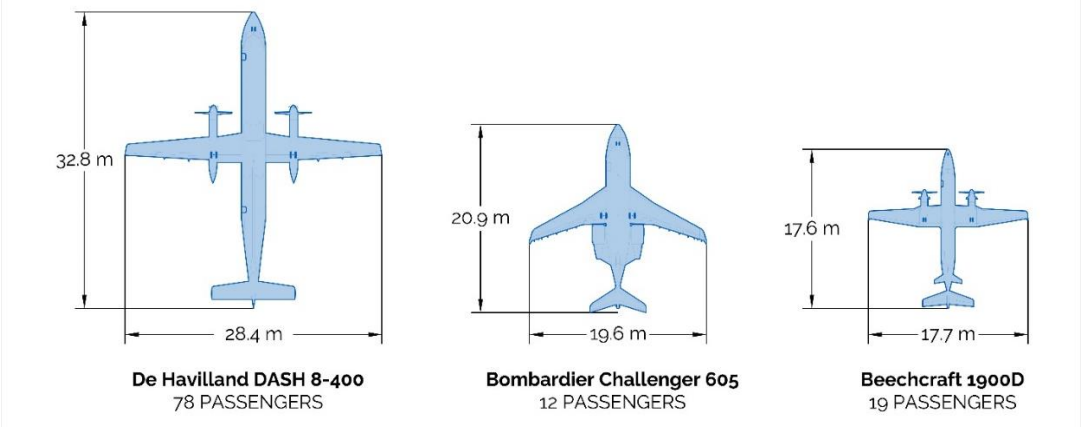
Through TP312 5th Edition, Transport Canada assigns aircraft an Aircraft Group Number (AGN) based on their technical specifications and performance requirements for the runway and taxiway environments. The AGN assigned for the runway environment is informed by an aircraft's wingspan and reference approach speed and in the taxiway environment, the AGN considers wingspan and tail height. The AGN of the selected Design Aircraft determines minimum separation distances, pavement slope requirements, safety areas, and obstacle limitations, among other design criteria. An airport's movement surfaces can be intended for use by differing aircraft and can therefore be assigned different AGNs. The minimum pavement width of runways and taxiways is independent of AGN and is defined by the Design Aircraft's Outer Main Gear Wheel Span (OMGWS) – the distance between the outside edges of the main gear.

The Design Aircraft for Sarnia Airport as identified in the Airport Operations Manual (AOM) is the De Havilland Canada Dash 8. The Dash 8 more broadly refers to a series of turboprop regional passenger aircraft ranging in passenger capacity from the Series 100/200 with 37-39 seats, the Series 300 with 50-56 seats, and the Series 400 (Dash 8-400) with 68-90 seats depending on configuration.

7.1.1 Primary Runway and Associated Facilities

Runway 15-33, Taxiway B, and Apron I are commonly used by regional passenger turboprop aircraft (e.g., Beechcraft 1900D, Dash 8-100), corporate turboprop and turbofan aircraft (e.g., Pilatus PC-12, Bombardier Challenger 605), and smaller single and twin-engine turboprop and piston aircraft (e.g., Beechcraft King Air). The Master Plan uses AGN IIIB standards for Runway 15-33 and associated facilities. This AGN accommodates the largest aircraft anticipated to provide scheduled passenger service to Sarnia within the 20-year planning horizon – the Dash 8-400 – as well as high-performance corporate aircraft currently using the Airport. For planning purposes, the following parameters are recommended for these facilities:

- Aircraft Group Number: IIIB
- Runway Level of Service: Non-Precision
- Runway Width: 30.0 m
- Taxiway Width: 23.0 m



7.1.2 Secondary Runway and Associated Facilities

Runway 06-24; Taxiways A and C; and the General Aviation Apron and Tie-Down Area are primarily used by single and twin-engine general aviation aircraft, such as the Cessna 152 / 172 / 182, Piper PA-28, Piper PA-34, and other comparable aircraft. For planning purposes, the following parameters are recommended:

- Aircraft Group Number: I/II
- Runway Level of Service: Non-Instrument
- Runway Width: 18.0 m
- Taxiway Width: 7.5 m / 10.5 m (as applicable)

Representative AGN I aircraft (Piper PA-28) parked at the General Aviation Apron

SARNIA CHRIS HADFIELD AIRPORT MASTER PLAN

FIGURE 7.1 - AIRPORT SITE PLAN

APRIL 2022

0 100 200 Meters

*FOR PLANNING PURPOSES ONLY

7.2 Airside System

7.2.1 Runway System

Two runways are available at Sarnia Airport: Runway 15-33 and Runway 06-24. The primary characteristics and reported condition of each runway are shown in Table 7.1.

Table 7.1 - Runway Specifications

	Runway 15-33	Runway 06-24
Length	5,106 ft. (1,556 m)	2,990 ft. (911 m)
Width	100 ft. (30 m)	75 ft. (23 m)
Surface Type	Asphalt	Asphalt
Pavement Load Rating	6.0	5.0, 6.0
Planning AGN / Level of Service	IIIB – Non-Precision	I – Non-Instrument
Condition (January 2022)	Poor / Fair	Very Poor

Airfield Availability Analysis

A windrose analysis was completed to calculate the availability of the Airport in its current two-runway configuration, and in a scenario where the secondary Runway 06-24 is decommissioned as a potential cost savings measure. Transport Canada in TP312 – Aerodrome Standards and Recommended Practices (4th Edition, 1993) makes the recommendation (not a binding standard) that:

> *"The number and orientation of runways at an aerodrome should be such that the usability factor of the aerodrome is not less than 95 per cent for the aeroplanes that the aerodrome is intended to serve."*

While this recommendation was subsequently removed in TP312 5th Edition consistent with Transport Canada moving away from issuing non-regulatory guidance in TP312, an availability level of 95% is commonly used in airport planning exercises as the target value.

Aircraft have unique maximum demonstrated crosswind limits that vary according to their size and performance, and it is recognized that the ability for pilots to operate in crosswind conditions also varies based on their training and proficiency. Two crosswind limits were assessed for the Airport:

1. **10 Knot Limit:** The 10-knot limit is intended to be representative of the skill levels for ab initio student pilots that train at the Airport; and
2. **15 Knot Limit:** Representative general aviation aircraft typical of those that operate at the Airport, such as the Cessna 172 and Piper PA-28, have maximum demonstrated crosswind limits of 15 knots.

Regional and corporate aircraft that commonly operate from the Airport typically have higher maximum demonstrated crosswind limits, and / or would be unable to operate from Runway 06-24 because of its length, width, lack of Instrument Flight Procedures, and / or lighting. Accordingly, such operators have not been included in the following analysis.

Hourly wind data was analyzed for the period of 2011 to 2021 from 6:00 AM to 6:00 PM Local Standard Time, as the runway is not available for use during hours of darkness. The Airport windrose is shown in Figure 7.2. The proximity of the Airport to Lake Huron approximately 2.5 km to the north influences its wind conditions, including direct exposure to northerly winds off the Lake during the winter and the lake breeze effect during the summer when winds shift to the northerly direction in the afternoon.

Figure 7.2 - Airport Windrose (Mean Winds, 2011-2021)

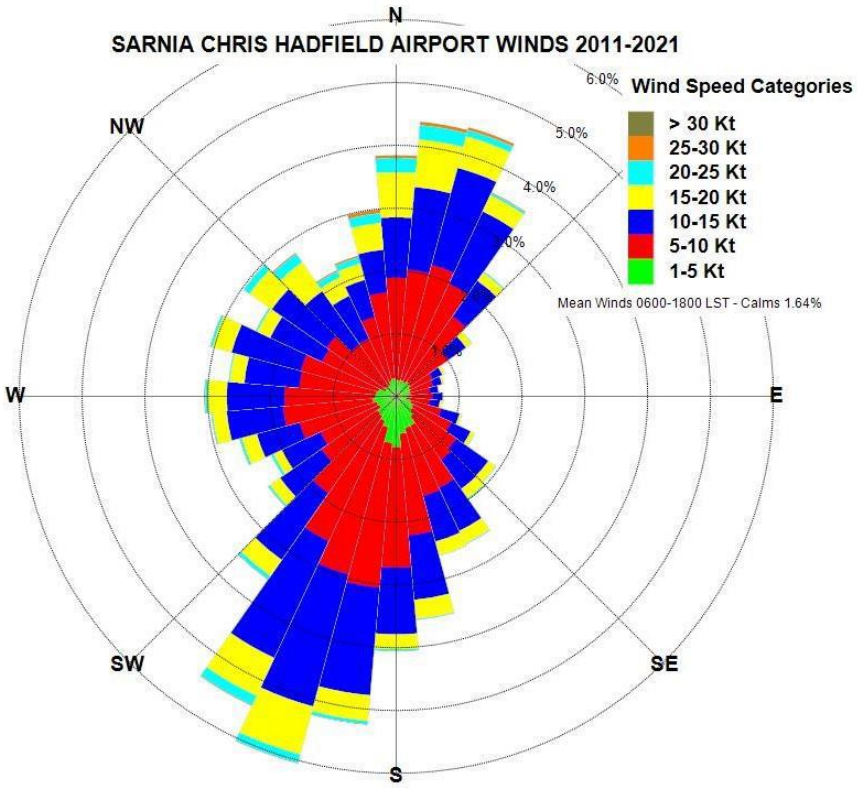


Table 7.2 presents the daytime windrose analysis results for the current airfield configuration with both Runway 15-33 and Runway 06-24 available to aircraft operators. Availability for aircraft operators with 15-knot crosswind limits consistently exceeds the Transport Canada-recommended level of 95% in all months of the year considering both mean and gusting wind conditions. Availability for operators with lower crosswind limits of 10 knots averages 97% throughout the year considering mean wind conditions, although average annual availability decreases to 89% when factoring in gusting wind conditions. Availability for operators in this category reaches a minimum of 83%-84% in March and April.

Table 7.3 provides the results of the daytime windrose analysis with only Runway 15-33 in use. For aircraft operators with 15-knot crosswind limits, annual availability averages 97% when accounting for mean wind conditions. However, annual average availability decreases to 85% when accounting for gusting conditions, and ranges between 81% and 92% on a monthly basis. Availability impacts for aircraft operators with 10-knot crosswind limits are more significant; using mean wind conditions, annual availability averages 83%, with this value decreasing to 73% when considering gusting conditions. When analyzing availability in gusting conditions on a monthly basis, availability decreases to between 66% and 83% for operators with 10-knot limits.

Table 7.2 - Windrose Analysis, Runway 15-33 and Runway 06-24

	10-Knot Crosswind Limit		15-Knot Crosswind Limit	
	Mean Winds	**Gusting Winds**	**Mean Winds**	**Gusting Winds**
January	97%	89%	100%	98%
February	96%	87%	100%	97%
March	94%	84%	100%	96%
April	93%	83%	100%	95%
May	96%	87%	100%	98%
June	98%	92%	100%	99%
July	98%	93%	100%	99%
August	99%	94%	100%	100%
September	98%	92%	100%	99%
October	97%	89%	99%	97%
November	97%	86%	100%	97%
December	98%	90%	100%	98%
Annual Average	**97%**	**89%**	**100%**	**98%**

Table 7.3 - Windrose Analysis, Runway 15-33

	10-Knot Crosswind Limit		15-Knot Crosswind Limit	
	Mean Winds	**Gusting Winds**	**Mean Winds**	**Gusting Winds**
January	82%	72%	98%	84%
February	80%	70%	96%	84%
March	78%	69%	95%	84%
April	76%	66%	95%	81%
May	81%	70%	96%	84%
June	85%	75%	98%	87%
July	88%	80%	99%	90%
August	91%	83%	99%	92%
September	87%	78%	98%	88%
October	83%	72%	96%	83%
November	82%	70%	96%	82%
December	86%	75%	98%	87%
Annual Average	**83%**	**73%**	**97%**	**85%**

The current two-runway airfield configuration provides near-perfect availability for aircraft operators with 15-knot crosswind limits, and very good availability for operators with 10-knot crosswind limits. With only Runway 15-33 available:

- Aircraft operators with 15 knot crosswind limits would experience a decrease of 3% and 13% in annual average availability for mean and gusting wind conditions, respectively; while
- Operators with 10 knot crosswind limits would experience a decrease of 14% and 16% in annual average availability for mean and gusting wind conditions.

The continued availability of Runway 06-24 is a significant benefit for flight training and general aviation aircraft operators, and consultations with both user groups have confirmed its importance to their operations. While the availability of Runway 06-24 does not contribute to the commercial and corporate roles of the Airport that are more significant sources of revenue, the flight training and general aviation activities of the Airport do contribute to its broader diversified role as described in Section 6.1. Accordingly, opportunities will be considered to ensure the continued availability of Runway 06-24 while reducing its capital and operating costs and implications.

Runway 15-33

Runway 15-33 is the Airport's primary runway and supports both daytime and nighttime operations, as well as arrivals and departures during Instrument Meteorological Conditions. Runway 15-33 was constructed in 1965 as the Airport's secondary runway and was extended to its current length of 5,106 ft. in 1971-1972. Runway 15-33 was observed to be in poor to fair condition in January 2022 with longitudinal and transverse cracking throughout its surface. The longitudinal cracking is uniformly spaced at 4 m, the typical width of asphalt paving equipment. Transverse cracking varies from 10 m to 50 m in separation. It is recommended that Runway 15-33 be rehabilitated in the short-term planning horizon, with routine crack sealing efforts to continue until the time of rehabilitation.

Runway 15-33 is of sufficient length to accommodate operations by most regional commuter aircraft and corporate turbofan aircraft anticipated to make use of the Airport based on the opportunities identified in Section 5. The Dash 8-400, the most demanding regional aircraft anticipated to regularly use the Airport within the 20-year planning horizon, has a demonstrated range of 500 nautical miles or more from runways 4,000 ft. in length. As detailed in Section 7.1, Runway 15-33 is 30 m wide – 15 m narrower than the level required by TP312 5th Edition to accommodate the Dash 8-400 OMGWS. However, consultations indicated that Jazz Aviation (Air Canada Express) and WestJet Encore have internal Standard Operating Procedures that permit Dash 8-400 operations on 30 m wide runways, and both carriers have either conducted these operations in the past or are currently doing so. Based on its existing dimensions and the growth opportunities and demand assessment, the requirement to extend or widen Runway 15-33 is not anticipated within the planning horizon of the Master Plan.

Runway 15-33, including typical longitudinal and transverse cracking

Runway 06-24

Runway 06-24 is the Airport's secondary runway and supports operations during daytime Visual Meteorological Conditions. Runway 06-24 is used by general aviation and flight training aircraft operators when wind conditions preclude the use of Runway 15-33. Runway 06-24 is directly accessible from the General Aviation Apron via Taxiway C, as well as from Runway 15-33.

Runway 06 threshold and typical pavement distresses

Runway 06-24 was originally constructed in 1957 and was rehabilitated in 1989-1990 with the application of a double surface treatment and slurry seal. While the runway has been maintained over the years with evidence of routine crack sealing, the surface was observed to be in very poor condition in January 2022. The predominant defects observed were:

- Block and map cracking, ranging from low to medium severity throughout the runway surface;
- Medium severity longitudinal and transverse cracking;
- High severity ravelling along the pavement edges; and
- Low severity depressions (bird baths) in several locations along the runway profile.

Runway 06-24 offers a significant benefit in annual availability for flight training and general aviation aircraft operators. In the interest of pursuing a balanced approach in ensuring the continued availability of Runway 06-24 while also reducing the capital and operating costs associated with maintaining the facility, it is recommended that Runway 06-24 be reconstructed with a reduced width of 60 ft. and length of approximately 2,500 ft. in the short-term. Reducing the width to 60 ft. aligns with the TP312 requirements for aircraft with an OMGWS of up to 4.5 m, which encompasses the typical range of aircraft that utilize Runway 06-24. Similarly, the proposed reduced length of 2,500 ft. is sufficient for the takeoff and landing requirements of representative general aviation and flight training aircraft, such as the Cessna 172 and Piper PA-28. With the reconstruction of Runway 06-24, it is recommended that the facility be designed as an AGN I – Non-Instrument facility per TP312 5th Edition.

Through the narrowing and shortening of Runway 06-24, the total surface area to be reconstructed will decrease from 224,250 ft^2 currently to 150,000 ft^2. This represents a decrease of 33% which will have direct capital and operating cost implications, while preserving the high level of airfield availability afforded by the asset. Coincident with the reconstruction of Runway 06-24, it is recommended that the abandoned paved areas be removed, and the land restored.

Airfield Capacity

Historical data is not available on the number of hourly aircraft movements at the Airport against which to analyze airfield capacity. However, the following capacity limiting factors are noted:

- Air carrier and corporate aircraft operating from the terminal building apron that are departing from Runway 15 or arriving on Runway 33 are required to backtrack. Similarly, aircraft accessing Runway 15-33 from Taxiway A or Runway 06-24 must backtrack prior to departure or following their arrival. Backtracking aircraft temporarily limit the use of Runway 15-33 for other aircraft operations; and
- General aviation and flight training aircraft operating on Runway 06-24 are required to backtrack if they arrive on Runway 06 or depart on Runway 24. However, the availability of two access points from Runway 06-24 (Taxiway C and Runway 15-33) improves aircraft flows.

Despite the foregoing, historical airfield capacity challenges were not noted through consultations with the Airport Operator or the various users of the facility. While aircraft backtracking on Runways 15-33 and 06-24 temporarily limit the use of these facilities for arrivals and departures and may result in occasional minor delays, the requirement for the development of parallel taxiway for either runway is not anticipated within the short or medium-term horizons of the Master Plan.

Recommendations	Year	ROM Cost Estimate
Reconstruction of Runway 06-24	2023	$1,040,000
Rehabilitation of Runway 15-33	2026	$7,660,000

7.2.2 Taxiway System

The movement of aircraft between the Airport's runways and aprons is facilitated through three taxiways: A, B, and C (Table 7.4).

Table 7.4 - Taxiway Specifications

	Taxiway A	Taxiway B	Taxiway C
Width	39 ft. (12 m)	75 ft. (23 m)	39 ft. (12 m)
Surface Type	Asphalt	Asphalt	Asphalt
Pavement Load Rating	5.0	6.0	5.0
Planning AGN	II	IIIB	I
Maximum OMGWS	20 ft. (6 m)	49 ft. (15 m)	20 ft. (6 m)
Condition (January 2022)	Very Poor	Good	Poor

Taxiway A

Taxiway A connects the General Aviation Apron and Tie-Down Area with Runway 15-33. Taxiway A was constructed in 1967 and it is unknown when the last full-scale rehabilitation project was completed. The taxiway was observed by the project team to be in very poor condition with evidence of medium to high severity map and block cracking throughout most of the surface. Minor depressions and potholes were also observed on the taxiway surface which presents a risk of Foreign Object Debris which is a hazard to safe aircraft operations. Taxiway A has reached the end of its service life and should be reconstructed in the short-term planning horizon.

While many users operating on the General Aviation Apron and Tie-Down Area are general aviation aircraft with OMGWS of up to 4.5 m, it is recognized that occasional operations by larger itinerant aircraft may occur. Noting the direction provided below to narrow Taxiway C, it is recommended that Taxiway A be redesigned as an AGN II facility with a width of 10.5 m during its reconstruction, to accommodate aircraft with OMGWS of up to 6.0 m (e.g., Beechcraft King Air).

Taxiway A pavement condition

Taxiway B

Taxiway B connects the terminal building apron with the Runway 33 threshold and is used by a variety of passenger, corporate, and other commercial aircraft. Taxiway B was rehabilitated in 2019 and was observed to be in good condition in January 2022. Taxiway B is sufficiently sized for the historical and anticipated future mix of aircraft types that are expected to require access to the terminal building apron across the Master Plan horizon. The rehabilitation of Taxiway B is expected to be required in the long-term planning-horizon, with ongoing maintenance and repair activities recommended in the interim years.

Taxiway C

Taxiway C was constructed in 1967 and provides access from the General Aviation Apron to Runway 06-24. While crack sealing efforts have extended the lifespan of the taxiway, there are signs of serious pavement distress, including:

- High severity block cracking along the outer 3-4 m of both sides of the taxiway;
- Frost heaving crossing the taxiway above an existing culvert; and
- Medium severity transverse cracking along the extent of the taxiway profile.

Taxiway C has reached the end of its useful service life and should be reconstructed in the short-term planning horizon. The continued availability of Taxiway C is recommended to provide direct access to the threshold of Runway 06-24 and to serve as an alternative access route to the General Aviation Apron, in addition to Taxiway A. As noted previously, Runway 06-24 is recommended to be designed to accommodate aircraft with OMGWS of up to 4.5 m. Consistent with this direction, it is recommended that Taxiway C be narrowed to 7.5 m during its reconstruction to accommodate aircraft with an OMGWS of up to 4.5 m. This approach will reduce the facility's capital and operating costs, while aircraft with larger OMGWS may continue to access the General Aviation Apron via Taxiway A.

Recommendations	Year	ROM Cost Estimate
Reconstruction and Lighting of Taxiway A	2022	$253,000
Reconstruction of Taxiway C	2024	$140,000
Rehabilitation of Taxiway B	2039	$980,000

7.2.3 Apron System

Aircraft parking, passenger loading and unloading, refuelling, servicing, and other similar activities are accommodated through the terminal building apron, General Aviation Apron, and General Aviation Tie-Down Area (Table 7.5).

Table 7.5 - Apron Specifications

	Terminal Building Apron	General Aviation Apron	General Aviation Tie-Down Area
Area	13,100 m^2	11,200 m^2	4,750 m^2
Surface Type	Asphalt	Asphalt	Asphalt
Pavement Load Rating	6.0	Not Rated	Not Rated
Condition (January 2022)	Poor to Good	Very Poor	Very Poor

Terminal Building Apron

The terminal building apron is accessed from Runway 15-33 via Taxiway B and is primarily used by air carriers, corporate, commercial, and air ambulance aircraft. The condition of the terminal building apron varies across three distinct areas:

1. The 1,600 m^2 air carrier parking position was rehabilitated in 2019 and was observed to be in good condition as of January 2022;
2. The 7,470 m^2 area surrounding the air carrier parking position was observed to be in fair condition with rehabilitation recommended in the medium-term planning horizon; and
3. The outer 4,030 m^2 area beyond the delineated apron edge was not included in past rehabilitation efforts by Transport Canada but is used on an as-required basis for aircraft parking. This area was observed to be in poor condition, and the Airport Operator noted that this area is periodically swept and cleared of vegetation.

The rehabilitation of the air carrier parking position, surrounding 7,470 m^2 area, and the northern portion of the outer area is recommended during the medium-term planning horizon, as shown in Sections 8.2 and 8.3. It is also recommended that the revised apron management plan described in Section 8.3 be implemented in the short-term planning horizon.

General Aviation Apron

The General Aviation Apron is accessed via Taxiways A and C and was originally constructed in 1967. The apron is used by general aviation aircraft taxiing from the various hangars in the area, itinerant parking, and refuelling. Aside from minor repair and patching projects, a full-scale rehabilitation of the General Aviation Apron has not occurred in the 55 years since its construction. The apron is showing signs of extensive block and map cracking throughout much of its surface. Potholes and localized depressions were also observed. The facility has reached the end of its service life and should be reconstructed in the short-term planning horizon, to coincide with the recommended Taxiway C and General Aviation Tie-Down Area reconstruction projects. The recommended dimensions and alignment of the General Aviation Apron are presented in the Recommended Airport Development Plan.

General Aviation Tie-Down Area

General Aviation Tie-Down Area

The Tie-Down Area is located to the east of the General Aviation Apron and is located adjacent to Taxiway A. Approximately 15 aircraft tie-down positions are provided, as well as two taxi lanes to facilitate aircraft circulation. The General Aviation Tie-Down Area is in very poor condition and requires reconstruction in the short-term planning horizon. During the reconstruction of the General Aviation Tie-Down Area, it is recommended that a revised aircraft parking plan be implemented. The recommended dimensions and alignment of the General Aviation Tie-Down Area are presented in the Recommended Airport Development Plan.

Recommendations	Year	ROM Cost Estimate
Implementation of Terminal Building Apron Management Plan	2023	$15,000
General Aviation Apron Reconstruction	2024	$400,000
General Aviation Tie-Down Area Reconstruction	2024	$270,000
Terminal Building Apron Rehabilitation	2030	$750,000

7.2.4 Lighting Systems

Visual navigation aids are provided to assist pilots operating at the Airport including airfield lighting, Precision Approach Path Indicators, and approach lighting systems.

Airfield Lighting System

Runway 15-33 is equipped with high-intensity threshold, runway end, and edge lights. Taxiway B is equipped with medium-intensity edge, taxiway-runway intersection, and taxiway-apron intersection lights. The terminal building apron is equipped with medium-intensity edge lights and flood lights. The airfield lighting system is activated through a Type K Aircraft Radio Control of Aerodrome Lighting System, the requirement for which is necessitated by the absence of NAV CANADA services at the Airport. The airfield lighting system was replaced in 2008 and new lamps were installed on all fixtures in 2019. No deficiencies were reported by the Airport Operator. It is assumed that the airfield lighting system will require replacement in the long-term planning horizon; at that time, consideration may be given to the installation of energy-efficient LED units or alternative technologies that may be available.

As noted previously, Runway 06-24 is a daytime-only facility and is not equipped with lighting. Given the availability of Runway 15-33 for nighttime aircraft operations and the limited use of Runway 06-24, which is confined to general aviation and flight training aircraft, the installation of lighting for Runway 06-24 is not recommended. Similarly, lighting is not recommended for Taxiway C.

As Taxiway A is a public taxiway that provides access to a lit runway (Runway 15-33), edge lighting is required per TP312 5th Edition. It is recommended that edge lighting and lighted signage be installed on Taxiway A in 2022 concurrent with its reconstruction. The continued nighttime availability of Taxiway A is important to preserve, as it is the only taxiway providing access to the General Aviation Apron and Tie-Down Area overnight.

Precision Approach Path Indicators

Type P1 Precision Approach Path Indicators provide visual guidance for pilots on the Runway 15 and Runway 33 approaches. No deficiencies were reported by the Airport Operator with the Precision Approach Path Indicator units, and it is anticipated that their replacement will be required concurrent with the airfield lighting replacement project in the long-term planning horizon.

Approach Lighting Systems

Runway 15 is equipped with Runway Threshold Identification Lights installed in 2008 concurrent with the airfield lighting project. The Runway 15 Runway Threshold Identification Lights provide additional threshold conspicuity, and their continued maintenance is recommended.

A Simplified Short Approach Lighting System with Runway Alignment Indicator Lights (SSALR) approach lighting system was installed to support Runway 33 in 2001-2002. SSALR systems are provided for precision runways supporting Category I Instrument Approach Procedures. The RNAV (GNSS) Runway 33 Instrument Approach Procedure is categorized as a non-precision approach. The SSALR lighting system was required to support the precision Category I Instrument Landing System approach that was available until 2018.

Factoring in the decision by NAV CANADA to decommission the Instrument Landing System in 2018 and the broader transition to GPS-based Instrument Approach Procedures at numerous comparable regional airports across the country, it is anticipated that the requirement for approach lighting systems to support precision approaches will not be realized within the short or medium-term horizons of the Master Plan. However, the existing SSALR system provides additional visual cues to pilots approaching the Airport, and significant deficiencies with the system were not reported by the Airport Operator. As the system approaches the end of its anticipated useful service life in the long-term planning horizon, it is recommended that a detailed needs analysis be undertaken accounting for changes in the Airport's operations that may have occurred in the preceding years.

Recommendations	Year	ROM Cost Estimate
Taxiway A Edge Lighting and Signage	2022	See Section 7.2.2
Approach Lighting System Needs Analysis Study	2030	$20,000
Airfield Lighting System Replacement	2038	$1,050,000

Runway 33 threshold lights

7.2.5 Electronic Navigation Aids and Instrument Flight Procedures

Instrument Approach Procedures are provided by NAV CANADA to support operations during Instrument Meteorological Conditions. Properly equipped aircraft and pilots can utilize non-precision GPS-based Instrument Approach Procedures to Runways 15 and 33:

- **RNAV (GNSS) RWY 15:** Includes LPV, LNAV/VNAV, and LNAV categories, with a Minimum Descent Altitude of 250 ft. Above Ground Level and Minimum Visibility of 1 Statute Mile for the LPV procedure; and
- **RNAV (GNSS) RWY 33:** Includes LPV, LNAV/VNAV, and LNAV categories, with a Minimum Descent Altitude of 250 ft. Above Ground Level and Minimum Visibility of 1 Statute Mile / Runway Visual Range 5,000 ft. for the LPV procedure.

NAV CANADA formerly maintained an Instrument Landing System to support Category I approaches for Runway 33. Following the results of an aeronautical needs assessment completed by NAV CANADA, the Instrument Landing System was permanently decommissioned in September 2018. The localizer and glidepath arrays are scheduled to be removed by NAV CANADA in 2022. As part of NAV CANADA's electronic navigation aid modernization program, the Sarnia (ZR) Non-Directional Beacon was decommissioned effective March 26, 2020. The Non-Directional Beacon was located north of the intersection of Mandaumin Road and Churchill Line.

Based on the availability in Instrument Meteorological Conditions provided through the Airport's LPV Instrument Approach Procedures and NAV CANADA's broader approach towards the decommissioning of ground-based navigation aids and increased adoption of GPS-based procedures, the reinstatement of precision Instrument Approach Procedures is not anticipated within the short or medium-term horizons of the Master Plan. For planning purposes, it is assumed that Runway 15-33 will continue to operate at a non-precision level of service and that new investments will not be required in ground-based electronic navigation aids.

7.2.6 Airfield Electrical Systems

Power distribution equipment is located within a standalone Field Electric Centre building situated approximately 150 m northwest of the terminal building. The Field Electric Centre is serviced via an externally mounted 800 Amp, 3 Pole breaker. The Constant Current Regulators and other equipment are legacy systems installed in 1983; however, the system was reported to be in good working condition in January 2022. A 2016 condition assessment of the Field Electric Centre facility indicated that a number of breakers within the facility are obsolete, and should they fail, a new panel would need to be installed – these projects are not included in the Master Plan but are to be completed on an as-required basis. The required timing for the replacement of the airfield electrical system has not been identified, and it is assumed that such works would be completed in coordination with the airfield lighting system replacement project in the long-term planning horizon.

7.2.7 Airfield Access Roads

Paved access roads are provided between Runway 15-33 and the maintenance building, and from the Runway 15 threshold to the decommissioned localizer array. Gravel access roads are provided to the Fire Department Training Area and the decommissioned glide slope antenna. The maintenance building access road and associated parking lot was observed to be fair condition in January 2022 with evidence of low to medium severity ravelling. The rehabilitation of the maintenance building access road and parking lot is recommended in in the short-term planning horizon.

The rehabilitation of the asphalt portion of the Fire Department Training Area access road is recommended to be included as part of the Runway 15-33 rehabilitation project. The localizer and glide slope access roads are no longer required with the decommissioning of the Instrument Landing System, and no improvements are recommended across the Master Plan horizon.

Recommendation	Year	ROM Cost Estimate
Rehabilitation of Maintenance Garage Access Road and Parking Area	2026	$160,000

7.3 Airport Support Services

7.3.1 Aircraft Fuel

Aircraft fuelling services at the Airport are provided by private companies. Huron Aviation is the sole provider of Jet A-1 (“jet fuel”) and maintains a 45,000 L above-ground storage tank adjacent to the terminal building apron. Fuelling is completed by Huron Aviation employees through a mobile tank truck. Consultations suggest that the current jet fuel arrangement is adequate. The provision of a card lock system to allow for self-serve jet fuelling, ongoing maintenance, and other system improvements are at the discretion of Huron Aviation.

Huron Flight Services sells 100 Low Lead fuel (“avgas”) through its above-ground storage tank located adjacent to the General Aviation Apron. Fuel is dispensed from a cabinet-based system, and mobile bowser is unavailable to support avgas fuelling elsewhere at the Airport. Improvements to the avgas system, such as the installation of a card lock system to facilitate self-serve fuelling, are at the discretion of Huron Flight Services.

Avgas (left) and jet fuel (right) systems

7.3.2 Ground Handling Services

Huron Aviation provides ground handling services to commercial passenger and corporate aircraft at the terminal building apron, including the sale and distribution of jet fuel, ground power, aircraft de-icing, baggage handling, and passenger processing. In addition to their current fleet of equipment, new Ground Support Equipment was procured by the City in 2022 to support the restoration of scheduled passenger services, including an aircraft de-icing truck, baggage belt loader, and passenger boarding ramp. Huron Flight Services provides ground support services to itinerant general aviation aircraft. In addition to avgas sales as described previously, Huron Flight Services provides a pilot's lounge, marshalling, hangarage, aircraft parking, and other similar services.

The ground handling services provided by Huron Aviation and Huron Flight Services are strengths of the Airport, and deficiencies have not been identified. Future improvements to the services offered by these service providers would be at their discretion.

7.3.3 NAV CANADA Services

NAV CANADA maintains a Peripheral Station that enables communication with Toronto Centre on 134.375 MHz and a Remote Communications Outlet that enables pre-flight and flight information services en-route through the London Flight Information Centre on 123.475 MHz. NAV CANADA does not maintain a staffed presence at the Airport through a Flight Service Station or Air Traffic Control Tower. Historical traffic volumes at the Airport have not reached the level that would initiate the provision of such services by NAV CANADA, and the level of aircraft movements anticipated in the short and medium-term Master Plan horizons are similarly not expected to trigger such a requirement.

7.3.4 Weather Observation and Forecasting

NAV CANADA maintains an Automated Weather Observation System located to the north of the terminal building broadcasting on the frequency of 119.125 MHz. The Automated Weather Observation System provides Aerodrome Routine and Special Meteorological Reports (METARs and SPECIs), with METARs issued on an hourly basis. Aerodrome Forecasts (TAFs) are issued three times per day. The Automated Weather Observation System provides a sufficient level of service for aircraft operations, and no deficiencies have been identified from a meteorological observation, reporting, and forecasting standpoint.

7.3.5 Canada Border Services Agency Operations

Sarnia Airport is designated by the Canada Border Services Agency (CBSA) as an Airport of Entry / 30. Accordingly, the facility is an authorized airport of entry for the clearance of all classes of scheduled and unscheduled aircraft, including both travellers and cargo. A maximum of 30 travellers can be cleared by the CBSA at the Airport. CBSA Officers are not permanently stationed at the Airport, and instead travel to the facility from the Sarnia (Blue Water Bridge) Office as required. CBSA services at the Airport were suspended in 2020 as a result of the COVID-19 pandemic and were restored on March 7, 2022.

The ability for arriving international aircraft to be cleared by CBSA at the Airport was repeatedly cited as a significant operational strength given the facility's proximity to the United States border and the frequency with which corporate travel between Sarnia and transborder points of origin occurs.

7.3.6 Airport Maintenance Equipment and Buildings

Maintenance Equipment Fleet

Airport Staff are responsible for daily airport operations and maintenance with call-out procedures established for services outside of normal working hours. Maintenance activities include, but are not limited to, snow removal, ice control, grass cutting, pavement sweeping, and line painting. The City-owned airport equipment fleet, including anticipated years of replacement and estimated costs, is presented in Table 7.6.

Table 7.6 - Maintenance Equipment Fleet and Replacement Requirements

Description	Model Year	Anticipated Year of Replacement	Estimated Replacement Cost
Sweepster Tow-Behind Runway Sweeper	1997	2022*	$ 50,000
John Deere 2305 Tractor	2007	2023	$ 20,000
International Truck with Sander	1985	2026	$ 185,000
Ford F-150 Pick-up Truck	2002	2027	$ 40,000
Bush Hog 2815 Mower Deck	2015	2029	$ 30,000
SMI Snowmaster 5250A Snow Blower	1987	2030	$ 180,000
Kubota M110X Tractor	2009	2030	$ 95,000
Chevrolet 2500 Pick-up Truck	2014	2034	$ 34,000
International Work Star Plow Truck	2010	2040	$ 185,000
Case 721F Loader	2011	2041	$ 300,000

*A new Tow-Behind Sweeper has been procured by the City and will be delivered in 2022

Historically, the City has replaced aging equipment using funding provided through the Airports Capital Assistance Program. As a result of the suspension of passenger air services in 2020, the Airport is not currently eligible for funding through this program. In 2021, the City was awarded funding for the procurement of a new tow-behind sweeper through the Airports Capital Assistance Program based on an application submitted during its period of eligibility in 2019. Regular fleet upkeep and renewal is required to ensure that maintenance can continue to be performed to current expectations and standards. Future fleet renewal projects by the City should be considered to support the realization of workflow efficiencies and equipment redundancies to maximize the operational flexibility and safety of Sarnia Airport.

Airport Maintenance Building

The airport maintenance building is a three bay, six door steel structure that is used for the storage and maintenance of the above-described equipment fleet. The building is in good condition and of sufficient size to store the current and anticipated future maintenance fleet. The 2016 Capital Plan recommended the installation of emergency exit lighting, and consultations with the Airport Operator identified the need to replace the overhead doors serving the vehicle bays. It is recommended that these improvements be undertaken in the short-term planning horizon.

Additionally, a sand shed is located adjacent the Field Electric Centre. The structure is used for the storge of abrasive gravel to aid in ice control. Significant improvements or replacement of the sand shed are not anticipated within the Master Plan horizon.

Recommendation	Year	ROM Cost Estimate
Maintenance Building Improvements	2024	$50,000

7.3.7 Emergency Response Services

Emergency response services are provided by the Sarnia Police Service, Sarnia Fire Rescue Service, and Lambton Emergency Medical Services according to their respective mandates. As a certified airport, the Airport Operator is responsible for maintaining an Emergency Response Plan and conducting training exercises pursuant to the requirements established by Transport Canada. Sarnia Airport does not require on-site aircraft rescue and firefighting services per Canadian Aviation Regulation 303.02(1), as its current and forecast activity levels are both less than the 180,000 passenger per year trigger.

7.4 Terminal Building

The terminal building was constructed in 1983 to replace the previous facility building that was located adjacent to the existing hangar occupied by Badger Daylighting. The terminal building is a two-storey structure that has historically accommodated operations by regional airliners with 50 seats or fewer, including the Beechcraft 1900, Dash 8-100, and Dash 8-300. Since 2001, the terminal building has been used by a single air carrier (Air Canada). The capabilities and future requirements of the terminal building are assessed considering Peak Departure Load (PDL) and Peak Arriving Passenger (PAP) volumes in two scenarios:

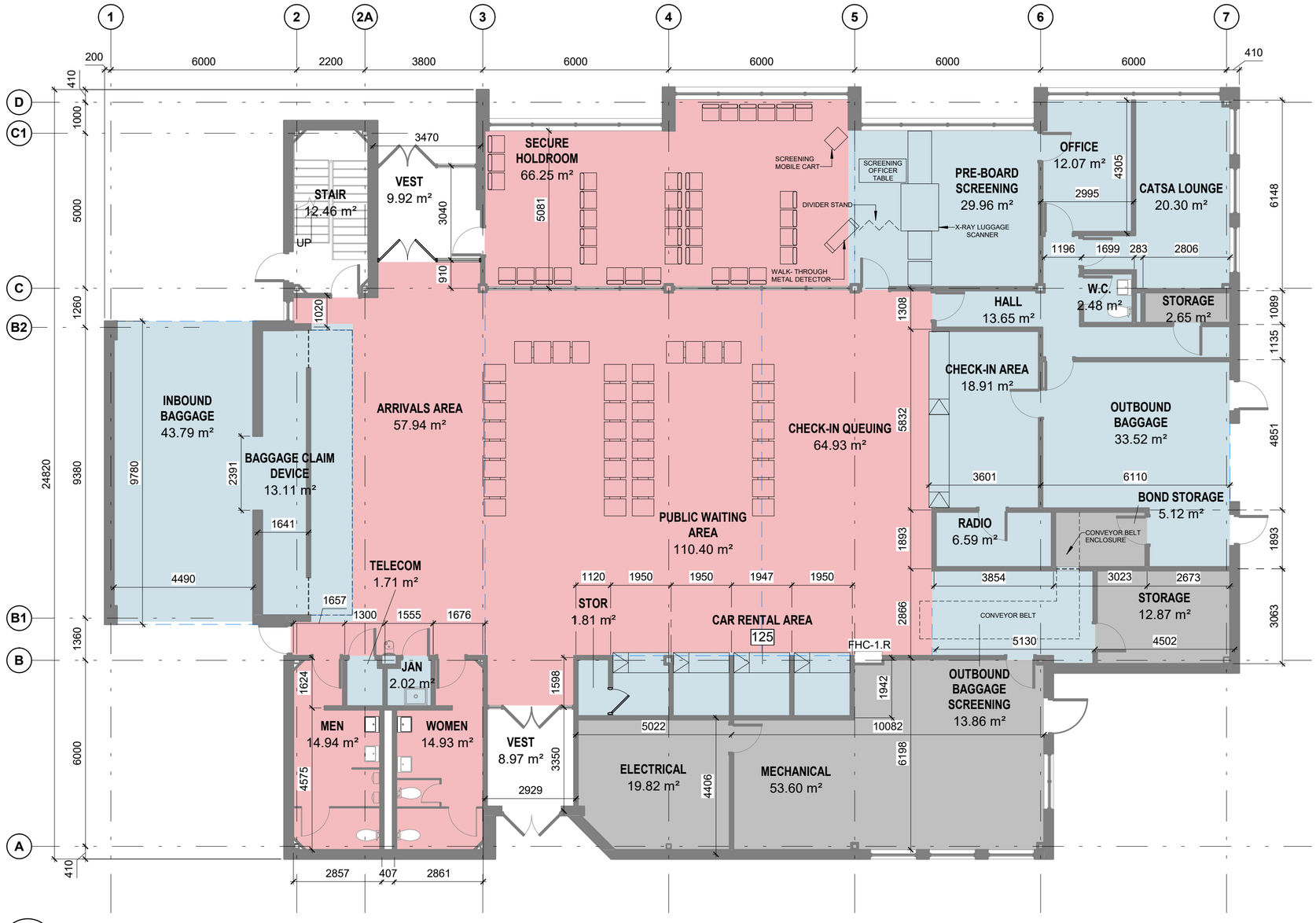
1. **Baseline Service:** The baseline assessment considers the resumption of scheduled passenger air services using regional airliners with up to 50 seats, like the capacities of aircraft that have historically served the Sarnia market. Examples of aircraft included in this category include the 34-seat Saab 340, 50-seat Dash 8-300, and 50-seat CRJ-200.
2. **Upgauged Service:** While Sarnia has historically been served by aircraft with capacities of 50 passengers or fewer, the regional fleets of network carriers in eastern Canada such as Air Canada Express, WestJet Encore, and Porter Airlines are dominated by the 78-seat Dash 8-400. For the Upgauged Service scenario, the Master Plan considers the minimum requirements to support a single arriving or departing Dash 8-400 at a 90% load factor.

As the Airport has historically supported 50-seat aircraft, the Baseline Service assessment has been prepared based on consultations with the Airport Operator and the observations of the project team. The Upgauged Service assessment has been prepared using Transport Canada's Systemized Terminal Expansion Program and the IATA Airport Development Reference Manual. With reference to the latter resource, IATA defines three levels of service: sub-optimum, optimum, and over-designed. The optimum level of service is used in the Upgauged Service assessment, as this considers both the passenger experience as well as capital and operational costs. The current terminal building ground floor and second floor plans are presented in Figure 7.3 and Figure 7.4.

Recommendation	Year	ROM Cost Estimate
Baseline Service Terminal Building Improvements	2023	$260,000
Upgauged Service Terminal Building Improvements and Expansion	2026*	$1,384,000

* For planning purposes, it is assumed that the upgauged service terminal improvements and expansions will occur in 2026. However, this project may need to be completed sooner than scheduled or later depending on ongoing air service development efforts.

PUBLIC AREAS
TERMINAL OPERATIONAL AREAS
SERVICE & STORAGE AREAS
CIRCULATION



1 / 7.3 TERMINAL BUILDING GROUND FLOOR PLAN
1 : 100

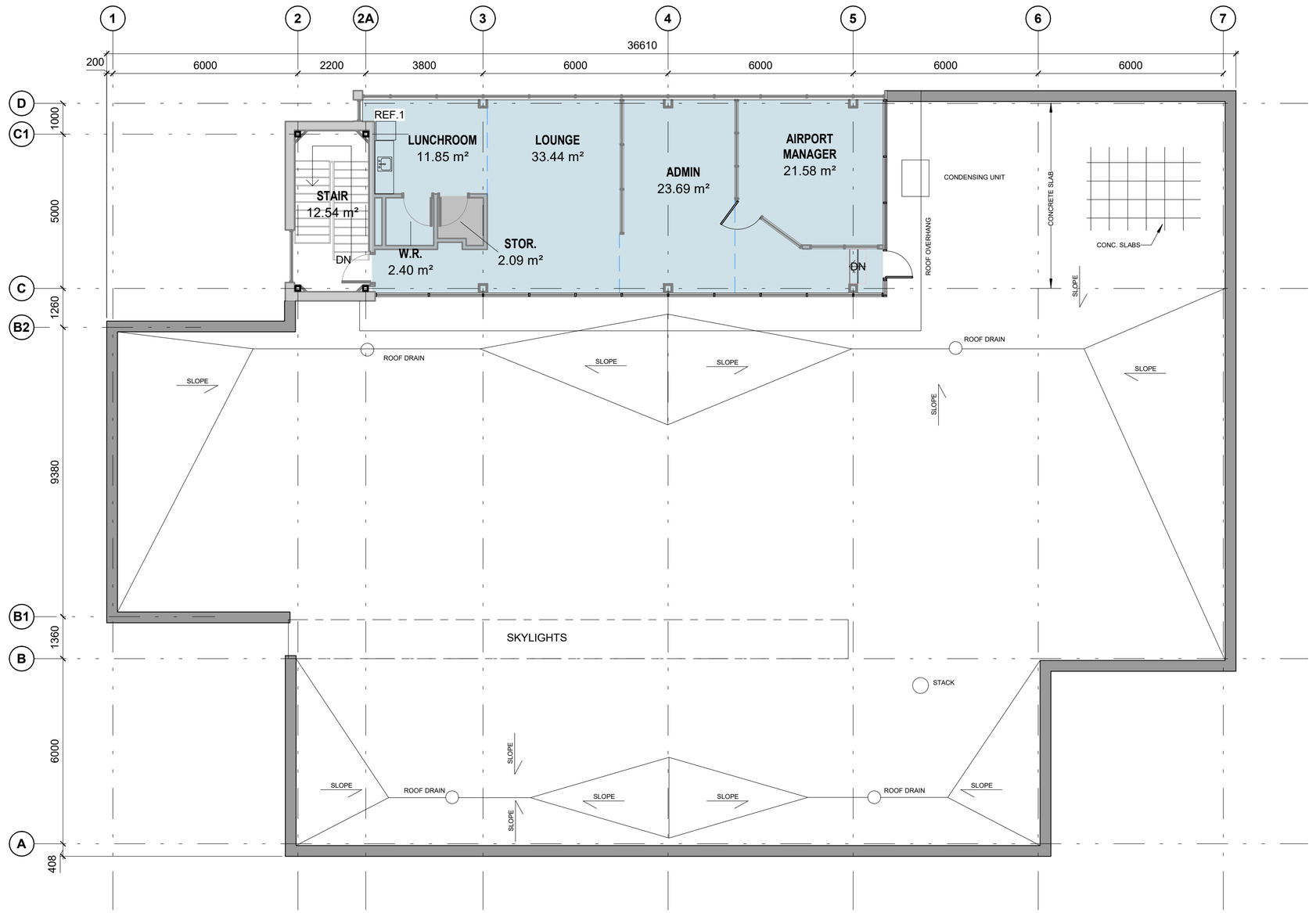
IDEA
INTEGRATED DESIGN
ENGINEERING + ARCHITECTURE

SARNIA
ONTARIO · CANADA

SARNIA CHRIS HADFIELD AIRPORT MASTER PLAN
FIGURE 7.3 - TERMINAL BUILDING GROUND FLOOR PLAN
February 2022

A2 (594x420)

PUBLIC AREAS
AIRPORT CREW AREAS
SERVICE & STORAGE AREAS
CIRCULATION



1
7.4
TERMINAL BUILDING SECOND FLOOR PLAN
1 : 100

IDEA
INTEGRATED DESIGN
ENGINEERING + ARCHITECTURE

SARNIA
ONTARIO · CANADA

SARNIA CHRIS HADFIELD AIRPORT MASTER PLAN
FIGURE 7.4 - TERMINAL BUILDING SECOND FLOOR PLAN
February 2022

A2 (594x420)

7.4.1 Groundside Interface

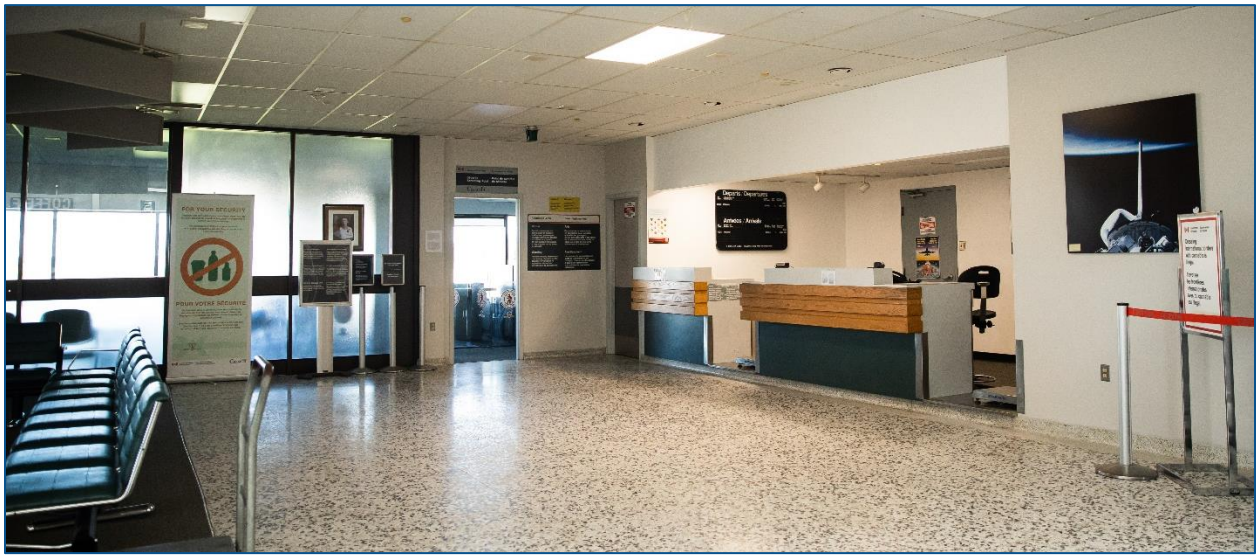
The terminal building is accessed from the curbside and public parking lot via a single entryway. The entryway doors are automatic, and the groundside interface is fully accessible. Based on historical passenger levels, congestion at the groundside interface has not been noted by the Airport Operator.

7.4.2 Check-In Area

The check-in area provides two desks and three passenger / cargo processing positions. During Air Canada's period of service, one desk was used for accepting cargo and one desk was used for processing passengers. Common use terminal equipment is not available, and the installation of computers and associated technology in the check-in area is the responsibility of air carriers. Passenger queuing is accommodated in the adjacent open area.

Consultations with the Airport Operator did not identify any concerns with respect to the check-in area's passenger processing capabilities or queuing during historical operations or in the Baseline Service scenario. Based on the optimum level of service requirements, the check-in and queuing areas are also anticipated to be sufficient for PDL levels. The check-in area is expected to be sufficient for the needs of a prospective future regional air carrier seeking to initiate a scheduled passenger service at the Airport.

In the event that a second air carrier expresses interest in providing service to Sarnia (i.e., with the attainment of both Opportunity #1 – Restoration of Hub Airport Connection and Opportunity #2 – Service to Billy Bishop Toronto City Airport), consideration may be given to allocating the second check-in desk for their use. Considering the market assessment in Section 5.1, it is assumed that only one air carrier will be providing scheduled services to a hub airport with higher capacity regional aircraft (e.g., Dash 8-300 or Dash 8-400) within the Master Plan's 20-year horizon. The passenger air service to Billy Bishop Toronto City Airport is likely to be operated by a lower capacity airliner, such as the 8-seat Beechcraft King Air. Accordingly, the check-in area and queuing requirements of a prospective second operator are not anticipated to be significant and can be accommodated in the terminal building.



Check-in area (right) and pre-board screening entrance (left)

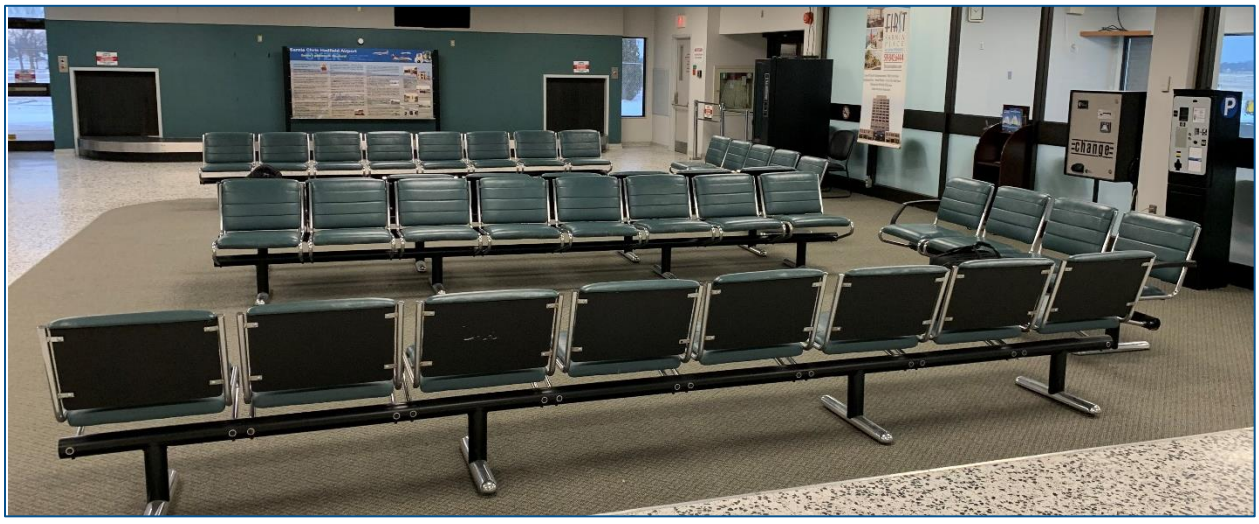
7.4.3 Outbound Baggage Handling

Outbound checked baggage is screened by Canadian Air Transportation Security Authority (CATSA) employees through a dedicated position adjacent to the check-in area. After screening, luggage is moved to the outbound baggage make-up room via a series of conveyors where it is held until loading onto baggage carts. Consultations with the Airport Operator indicated that the capacity of the outbound baggage screening position and baggage make-up room were sufficient for historical air carrier operations and the Baseline Service scenario. The need to expand either facility has not been identified in the Upgauged Service scenario.

Outbound baggage screening (left) and assembly area (right)

7.4.4 Public Waiting Area

The central portion of the terminal building includes 41 seats for passengers waiting to proceed through pre-board screening, individuals greeting arriving passengers, and other users. Minimum requirements are not defined for public waiting areas through the Transport Canada or IATA resources referenced as part of the Master Plan, although the availability of this space for the above-noted users is of value given the limited size and amenities of the secure holdroom, in addition to the need to spread the flow of departing passengers through the pre-board screening checkpoint. Opportunities for the reallocation of this space will be explored through the Terminal Building Development Plan.



Public Waiting Area

7.4.5 Pre-Board Screening Area

Individuals departing on secured passenger air carrier flights must undergo inspection by CATSA screening officers at the pre-board screening area. Passengers enter the pre-board screening area via a door to the left of the check-in area, at which point they deposit their carry-on baggage through an x-ray machine and then proceed through a walk-through metal detector. Immediately behind the carry-on baggage screening unit is a small administrative space for CATSA staff. No facilities are provided for private secondary inspections of passengers, with such activities occurring in the CATSA breakroom as required.

The Airport Operator noted that the configuration and space available in the pre-board screening area was a constraint that limited efficient passenger processing in the Baseline Service scenario. Specifically, the need for passengers to proceed behind the screening officer's desk to retrieve their carry-on baggage and retrace their path into the secure holdroom limited the efficiency of the screening process as well as passenger flows. Prior to the restoration of scheduled services in the Baseline Service scenario, it is recommended that a reconfiguration of the pre-board screening area be completed to improve passenger processing flows, increase queuing space, and more effectively utilize vacant administrative space in the adjoining office area.

To support the Upgauged Service scenario, the Recommended Terminal Building Development Plan includes allowances to increase the queuing space available to accommodate estimated PDL levels.

Pre-board screening area

7.4.6 Secure Passenger Holdroom

The secure holdroom provides seating for 38 passengers. Departing passengers are held in the secure holdroom prior to boarding, which is facilitated through a single door to the outbound vestibule and apron. No infrastructure is in place at the departure gate for air carrier staff or computer systems, and the single door prevents simultaneous aircraft boarding operations.

With respect to the Baseline Service scenario, sufficient seating is currently provided for a departing Beechcraft 1900, Saab 340, or Dash 8-100 at a 100% load factor; however, 24% of passengers would have to stand while waiting for a departure of a 50-seat aircraft such as the Dash 8-300. The historic use of the Dash 8-300 in Sarnia may have resulted in periodic instances where the passenger load exceeded the seating capacity of the secure holdroom. Accordingly, the addition of seating for 12 passengers is recommended to support the Baseline Service scenario. Additionally, the installation of a gate counter position to support passenger enplaning is recommended to accommodate the anticipated future needs of prospective air carriers, including their computer systems and boarding pass scanners.

In the Upgauged Service scenario, the secure holdroom is estimated to be undersized by approximately 32 m^2 and requires an additional 32 seats for the departure of a Dash 8-400 operating at a 90% load factor if all passengers are seated prior to boarding. The expansion of the secure holdroom is recommended through the Terminal Building Development Plan to handle departing PDL levels in the Upgauged Service scenario, as operations by a Dash 8-400 using the existing holdroom are likely to result in significant overcrowding and a sub-optimum level of service and passenger experience.

Secure passenger holdroom (foreground) and pre-board screening area (background)

7.4.7 Arrivals Area and Inbound Baggage Handling

Arriving passengers enter the terminal building through a single vestibule providing access from the apron. Upon entering the terminal building, the inbound baggage conveyor is located adjacent to the arrivals area. Baggage is conveyed via a continuous circulating claim device with approximately 7 m of frontage in the arrivals area. Baggage unloading is supported by a covered overhang of the terminal building that permits drive-through operations by ground support equipment.

Based on historical air carrier operations and consultations with the Airport Operator, the size of the arrivals area and baggage claim device are sufficient to meet the needs of the Baseline Service scenario. In the Upgauged Service scenario, the arrivals area and baggage claim device have been identified to be undersized to meet arriving PAP levels. The frontage of the baggage carousel is recommended to be increased to 13 m to permit improved access by the higher volume of arriving passengers. This expansion program is integrated in the Recommended Terminal Building Development Plan.

Arrivals Area and Inbound Baggage Handling

7.4.8 Washrooms, Building Amenities, and Passenger Experience

Two 14.9 m^2 barrier-free washrooms are accessed from the public waiting / arrivals area. Washrooms are not provided within the secure passenger holdroom. Passengers in the secure holdroom that require the use of a washroom prior to departure must exit the holdroom and be rescreened by CATSA.

Amenities in the terminal building include a television in the public waiting area and wireless internet is available free of charge. Limited facilities are available for charging mobile devices, laptops, or other electronics in the secure holdroom and public waiting area. Food and beverage options are limited to a single vending machine in the public waiting area and a self-serve coffee kiosk in an unused car rental booth.

From an aesthetics and passenger experience perspective, the terminal building generally appears as it was when constructed in 1983. The terminal finishes were observed to be in good condition, meaning the building can be updated and improved in a cost-effective manner with the replacement of select doors, ceiling tiles, plumbing fixtures, flooring, millwork, and repainting most of the front and back of house partitions. During the terminal building refresh, opportunities for improved wayfinding, brand touchpoints, and passenger amenities can also be considered.

7.4.9 Rental Car Facilities

Four rental car booths, each approximately 3.8 m^2, are located on the ground floor of the terminal building. Prior to the suspension of air carrier services in 2020, one of the four booths was occupied by Budget – the sole provider of vehicle rentals at the Airport. As identified previously, one booth was modified to serve as a coffee kiosk. Based on consultations with the Airport Operator, peak queuing and demand for the rental car facilities did not result in congestion, and reconfigurations to this area are not recommended. Consideration may be given to repurposing two of the booths for alternative uses (e.g., vending, food and beverage services), while preserving the capability for a second rental car provider to return in the future, if required.

Rental Car Area

7.4.10 Administrative Facilities

Air Carrier Administrative Facilities

As ground handling operations were historically offered by Huron Aviation on behalf of Air Canada Express, dedicated air carrier administrative facilities are not provided in the terminal building. Instead, Huron Aviation shares space with Scottsdale Aviation in the second-floor administrative areas. Based on the ground handling contracts commonly negotiated by regional airlines at comparable Canadian airports, the need to provide air carrier administrative facilities is not anticipated under the assumption that such services would be provided by Huron Aviation.

CATSA Administrative Facilities

CATSA staff are provided with a 20 m^2 breakroom on the ground floor of the terminal building. The CATSA breakroom is sufficient for the organization's needs, and the expansion of the space is not anticipated to be required within the planning horizons of the Master Plan.

Airport Administrative Facilities

A single office is located on the ground floor adjacent to the pre-board screening and check-in areas, designated for use by Huron Aviation's ramp agents and airline support staff. Consultations with the Airport Operator indicate that this office is underutilized and is not required in the future, with such functions to be consolidated to the second-floor administrative area.

The second floor of the terminal building is occupied by Scottsdale Aviation and includes a lunchroom, washroom, lounge, offices, storage facilities, and largely unrestricted views of the airfield. The second-floor administrative facilities are appropriately sized for the current and anticipated future requirements of the Airport, and no deficiencies or future requirements have been identified.

Storage and Janitorial Facilities

A total of 24 m^2 of storage space and janitorial facilities are provided on the ground floor of the terminal building across four rooms. Consultations with the Airport Operator did not identify the need for additional facilities, and the storage rooms adjacent to the check-in area and outbound baggage screening facility were both noted to be underutilized and available for alternative uses.

7.4.11 Functional Systems and Building Envelope

The terminal building's functional systems are housed in two adjoining mechanical and electrical rooms on the ground floor. Several maintenance-related upgrades have been completed in the years since the terminal building's construction in 1983, including the installation of a new hot water boiler plant and HVAC replacements to support the heating system. Improvements to the building envelope included the installation of a new roof. Several minor repairs to the building are recommended in the short-term planning horizon, including most of the porthole windows that have been observed to be leaking. Aside from routine maintenance and periodic replacements anticipated to be required over the lifespan of the building, no other requirements were identified by the Airport Operator or through the inspections of the project team.

7.5 Groundside System

7.5.1 Groundside Roadways

Airport Road

Airport Road is a two-lane asphalt surface that provides access to the Airport from Highway 402. Airport Road continues north of its intersection with Ube Drive and Airport Service Road where it connects with the Terminal Building Road and terminates at the vehicle gate accessing the General Aviation Apron. Deficiencies were not identified during consultations and inspections with respect to the capacity, design, or access provided by Airport Road. Airport Road is considered adequate to meet the long-term needs of the Airport, and no significant upgrades are anticipated within the planning horizons of the Master Plan.

As a municipal roadway, it is anticipated that future maintenance and repair projects to Airport Road will be completed as part of the City of Sarnia's broader infrastructure management program. However, it is noted that Airport Road is not currently part of the City's infrastructure capital plans. The inclusion of Airport Road in such plans is recommended.

Terminal Building Road

The Terminal Building Road provides unidirectional access to the terminal building, public parking lot, and the Enbridge hangar. The roadway consists of a single lane from Airport Road to the terminal building curb, where it becomes two lanes: one dedicated for the drop-off and pick-up of passengers and a second through lane. The road narrows to one lane west of the car rental parking lot until it terminates at Airport Road. The Terminal Building Road was observed to be in good condition with signs of typical asphalt pavement aging, such as low to medium severity transverse and longitudinal cracking along its profile.

The rehabilitation of the Terminal Building Road is recommended at the end of the short-term planning horizon. The City of Sarnia will be completing repairs to the terminal building curbside and sidewalks in 2022 which are anticipated to sufficient to meet the long-term requirements of the Airport.

Recommendation	Year	ROM Cost Estimate
Terminal Building Road Rehabilitation	2027	$370,000

Terminal Building Road and Public Parking Lot

7.5.2 Parking Lots

Two vehicle parking lots are located adjacent to the terminal building. The rental car parking lot is situated immediately to the north and has a capacity of 14 vehicles. Based on current and historical demand for vehicle rentals at the Airport, it is anticipated that the rental parking lot has sufficient capacity to meet demand. In the event that demand begins to exceed capacity, additional stalls may be designated in the public parking lot.

The public parking lot is located west of the terminal building and has a capacity of 160 vehicles. Parking lot occupancy data is not recorded by the Airport Operator; however, consultations indicated that the capacity of the parking lot was not exceeded during the Airport's peak period of air carrier operations in the late 1990s and early 2000s. Sufficient land continues to be available for the expansion of the parking lot, if required.

Both parking lots were observed to be in fair condition and exhibited medium severity block cracking and ravelling. These surfaces are recommended to be rehabilitated concurrent with the Terminal Building Road at the end of the short-term planning horizon.

Recommendation	Year	ROM Cost Estimate
Rehabilitation of Terminal Building and Rental Car Parking Lots	2027	$470,000

7.5.3 Airside Access Control

A discontinuous security fence is located along the perimeter of the Airport, partially limiting access to people, vehicles, and wildlife. The perimeter in the vicinity of the terminal building and general aviation area is controlled through a series of chain link fences that were observed to be in fair condition. Outside of the core area of the Airport, access is controlled through post and barbed wire fences that were observed to be in poor condition or are exhibiting failures. Consultations with the Airport Operator did not identify concerns with the unlawful entry of persons or vehicles to restricted areas; however, wildlife has been reported to enter the Airport on occasion.

Maintaining a continuous series of airside access controls is important from both an aviation security and wildlife management perspective, and existing fencing outside of the core area of the Airport is not acting as effective deterrent to either form of entry. Although instances of unauthorized airside access have not been noted and wildlife hazards have been controlled by the Airport Operator, the condition of the existing perimeter fencing has been identified as a deficiency. However, the number of short and medium-term capital projects competing for limited municipal funding are noted; accordingly, the installation of perimeter fencing along the Airport's boundary is deferred to the end of the medium-term planning horizon. This project may be advanced sooner pending the availability of funding.

Access to the airside area is provided by two motorized vehicle gates: one to the east of the terminal building, and a second accessing the maintenance building and General Aviation Apron and Tie-Down Area. A third unmotorized vehicle gate provides access to the general aviation hangar area. These access points were reported and observed to be in good condition and are expected to require only routine maintenance. Access to the General Aviation Apron and Tie-Down Area was noted to be an issue for itinerant pilots during overnight hours when access via Huron Flight Services is not possible. It is recommended that two code-secured person gates be installed to provide 24-hour access to the General Aviation Apron and Tie-Down Area in the short-term planning horizon.

Recommendation	Year	ROM Cost Estimate
General Aviation Area Access Gates	2023	$15,000
Airport Perimeter Fencing	2031	$700,000

7.6 Utilities and Servicing

7.6.1 Potable Water

Potable water for the Airport is provided by a 200 mm diameter underground ductile iron watermain which is assumed to have been installed in 1967. No deficiencies with the exiting potable water system were identified during consultations with the Airport Operator.

7.6.2 Sanitary Sewer

The sanitary sewage collection system consists of a network of 100 mm and 200 mm diameter underground Polyvinyl Chloride pipes. The service is gravity fed to a pumping station located east of Hangar 1. No deficiencies with the exiting sanitary sewer system were identified during consultations with the Airport Operator.

7.6.3 Stormwater Management and Drainage

Stormwater runoff is conveyed by a network of underground corrugated steel pipes and above ground overland flows to a series of ditches and swales, further conveyed to natural water courses in the vicinity of the Airport. Underground stormwater pipe diameters range from 200 mm to 450 mm based on information within existing infrastructure drawings. No deficiencies with stormwater management and drainage were identified during consultations with the Airport Operator.

7.6.4 Electrical Servicing

Historical servicing records were not available for review by the project team. However, it is understood that the electrical servicing was installed in 1984 and consists of:

- High voltage switchgear – 38 kV, 600 A, 3 Pole and 60 Hz; and
- A pad mounted transformer – 500 kVA, 347/600V, 3 Pole, 4 W

Consultations with the Airport Operator did not identify any issues or deficiencies with the existing switchgear or transformer.

7.6.5 Natural Gas

Enbridge (formerly Union Gas) provides natural gas servicing to eight buildings on the Airport, including the terminal building, maintenance garage, and private hangars. Natural gas servicing will need to be extended by Enbridge to service the Aviation Commercial Development Area.

7.6.6 Telecommunications and Internet

Telephone services are provided by Bell Canada to the terminal building and several of the leasehold lots.

Internet services have not been extended to the terminal building or Enbridge hangar; however, fibreoptic internet was extended to the Badger Daylighting hangar at the expense of the tenant. In turn, Scottsdale Aviation and Enbridge have separately entered into agreements with Badger Daylighting to secure wireless internet access at each company's own cost. While consultations with the Airport Operator and Enbridge did not identify the existing internet arrangement as a significant deficiency, the feasibility of extending fibreoptic services to the terminal building and future development areas may be examined in the future if the City chooses to prepare new development lots as part of the Aviation Commercial Development Area, per the strategies described in Sections 8.2.3 and 9.4.

8 AIRPORT DEVELOPMENT AND LAND USE PLAN

8.1 Constraints Analysis

8.1.1 Aeronautical Constraints

Obstacle Limitation Surfaces

Obstacle Limitation Surfaces are three-dimensional planes that protect the airspace surrounding the Airport's two runways to assist in ensuring safe aircraft operations. According to the most current Airport Operations Manual, Obstacle Limitation Surfaces are designated for Runway 15-33 (Code 3C – Non-Precision) and Runway 06-24 (Code 2B – Non-Instrument) as per TP312 4th Edition.

Figure 8.1 illustrates the TP312 5th Edition Obstacle Limitation Surfaces prepared for Runway 15-33 (Aircraft Group Number IIIB – Non-Precision) and the shortened Runway 06-24 (Aircraft Group Number I – Non-Instrument) based on the recommendations made previously in the Master Plan. The Airport Development Plan has been prepared to ensure that new on-site buildings and structures will not penetrate the more restrictive / protective TP312 5th Edition Obstacle Limitation Surfaces shown in Figure 8.1.

Off-Airport development will continue to be controlled by the federally enacted Sarnia Airport Zoning Regulations (SOR 87-602).

Obstacle Protection Surfaces

Obstacle Protection Surfaces are established for Runway 15 and Runway 33 to provide clear sightlines to the Precision Approach Path Indicators. The specifications of the Runway 15-33 Obstacle Protection Surfaces are shown in Table 8.1. Objects, including terrain, are not permitted to protrude into the Runway 15-33 Obstacle Protection Surfaces.

Table 8.1 - Runway 15-33 Obstacle Protection Surface Specifications (TP312 5th Edition)

Width (Each Side of Centreline)	Distance from Threshold	Divergence	Length	Slope
122 m	61 m	15%	7,500 m	1° 56'

Very High Frequency (VHF) Communication Systems

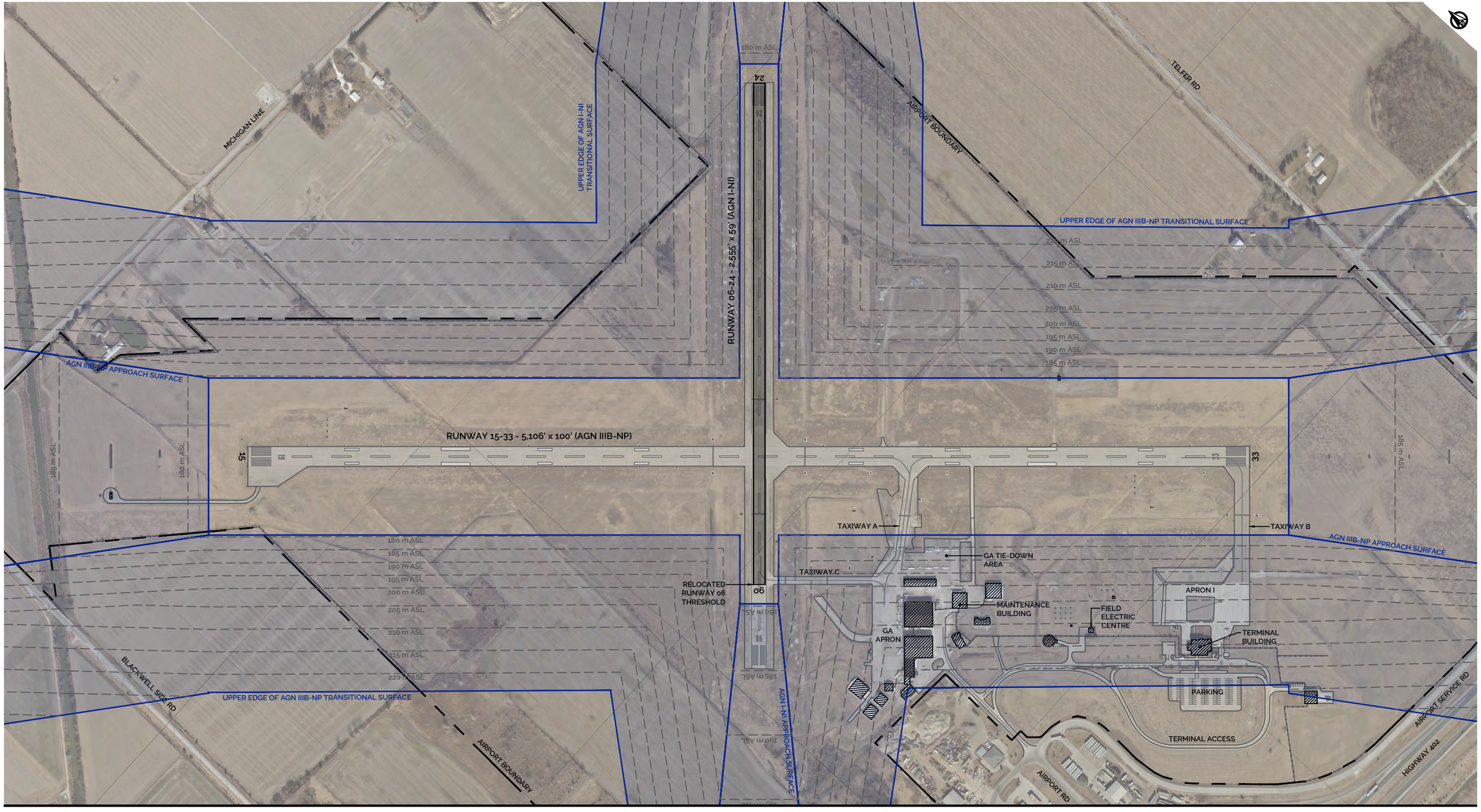
NAV CANADA maintains a VHF radio transmitter and receiver to the north of the Runway 24 threshold, approximately 600 m west of the intersection of Telfer Road and Michigan Line. Metallic structures proposed within 300 m of the communications station should be assessed by NAV CANADA through the Land Use Submission process prior to construction, to ensure that no interference will occur. New development is not allocated through the Master Plan in proximity to NAV CANADA's facility.

Meteorological Observation Facilities

Meteorological observation facilities are maintained by NAV CANADA and Environment and Climate Change Canada adjacent to the Field Electric Centre. To ensure that new structures do not interfere with the functioning of the various instruments systems, a 45 m clearance area is provided surrounding the compound, and the Airport Development Plan does not recommend new growth in proximity to these systems.

Fuel Facilities

Aviation fuelling infrastructure is located adjacent to the general aviation and terminal building aprons. New development is not planned within 15 m of fuelling infrastructure.



SARNIA CHRIS HADFIELD AIRPORT MASTER PLAN

FIGURE 8.1 - OBSTACLE LIMITATION SURFACES

APRIL 2022

0 100 200 Meters

*FOR PLANNING PURPOSES ONLY

8.1.2 Environmental and Land Use Constraints

The City of Sarnia Official Plan (2014, as amended) was reviewed to identify environmental constraints applicable to the Airport property:

- **Site Drainage:** The Airport is located within the Blackwell District Former Lake and Marsh, a low-lying geological depression that was drained and improved for agricultural purposes between 1859 and 1912. The Blackwell District is noted within the Official Plan to be constrained by perched water tables, and its lack of slope negatively impacts drainage. Consultations with the Airport Operator similarly noted challenges with drainage through the property. As a result of the presence of the Blackwell District, the western and northern portions of the Airport are designated as Natural Hazard areas.

  Noting the challenging properties of the site, the Airport Development Plan is structured to limit interference with existing drainage channels. New development will be directed to the southern and southwestern portions of the property, away from the Natural Hazard Area.

- **Floodplain Policy Area:** Portions of the Airport property are designated as a one-zone floodplain policy area within the Official Plan. In this area, no buildings or structures are permitted except for those necessary for flood and/or erosion control. Areas designated for new on-Airport development will avoid the one-zone floodplain policy area, consistent with the direction taken in the Official Plan.

- **Prime Agriculture Area:** The above-noted Blackwell District is characterized by high-quality agricultural soil, and the Airport property is designated as a Prime Agricultural Area. Although the Airport is not subject to the Agriculture designation of the Land Use Plan, the existing productive use of parts of the property for agricultural cropping is noted.

  Given the Natural Hazard designation applicable to the lands currently used for cropping, their lack of servicing and groundside access, and the agricultural priorities of the Official Plan, the Airport Development Plan will direct new growth to the southern and southwestern portions of the property and preserve existing agricultural areas.

In addition to the environmental constraints described above, other factors that influence the Airport Development Plan include:

- Privately owned properties located to the west, north, east, and south;
- Telfer Road, Airport Service Road, and Highway 402 which constraint development to the east and south; and
- Perch Creek / the Cull Drain, which limits development to the northwest and isolates a triangular parcel of City-owned land separate from the remainder of the Airport property.

SARNIA CHRIS HADFIELD AIRPORT MASTER PLAN

FIGURE 8.2 - LAND USE CONSTRAINTS

APRIL 2022

0 100 200 Meters

*FOR PLANNING PURPOSES ONLY

8.2 Airport Development Plan

The Airport Development Plan, shown in Figure 8.3, integrates the capital projects recommended for Sarnia Airport over the Master Plan horizon, including changes to existing airside or groundside infrastructure. The Airport Development Plan has been prepared to meet the current and future needs of Sarnia Airport throughout the 20-year planning horizon of the Master Plan and protects sufficient land to accommodate growth beyond the long-term planning horizon.

The Airport Development Plan contains three distinct development areas, as well as recommended reconfigurations to optimize airside infrastructure.

8.2.1 Airside Infrastructure Reconfiguration

The Airport Development Plan depicts infrastructure rehabilitation or reconstruction projects that result in a change to the dimensions and / or reconfiguration of each asset. Six projects have implications under this category, which are described as follows:

1. **Runway 06-24 Reconstruction:** As described in Section 7.2.1, a balanced approach is recommended with ensuring the continued availability of Runway 06-24 while reducing the capital costs associated with its reconstruction and ongoing maintenance. Runway 06-24 is recommended to be reconstructed to a length of 776 m (2,545 ft.) from its current length of 912 m (2,990 ft.) and to a width of 18 m (59 ft.) from its current width of 23 m (75 ft.). Surplus portions are recommended to be decommissioned and removed.
2. **Taxiway A Reconstruction:** As part of the recommended rehabilitation of Taxiway A in the short-term planning horizon, the taxiway width is proposed to be reduced to 10.5 m from its current width of 12 m. This will permit operations by aircraft with outer main gear wheel spans of up to 6.0 m. While most operators in the general aviation area have wheel spans of 4.5 m or less, preserving the capability to support occasional operations by larger multiengine aircraft is recommended (e.g., Pilatus PC-12, Beechcraft King Air).
3. **Taxiway C Reconstruction:** Like the reduced width proposed for Taxiway A, it is recommended that Taxiway C be reconstructed to a width of 7.5 m from its current width of 12 m. This is sufficient to accommodate aircraft with outer main gear wheel spans of 4.5 m or less, which are the typical users of the general aviation area.
4. **General Aviation Tie-Down Area Reconstruction:** With the recommended reconstruction of the General Aviation Tie-Down Area, it is recommended that this space be reconfigured to limit the paved area to be provided. The reconfigured Tie-Down Area includes space for 10 AGN I single or twin-engine general aviation aircraft. A dedicated apron taxilane is also provided to the leasehold tenant located southeast of the maintenance building to eliminate the need for aircraft taxiing on the mobile equipment service road to Runway 15-33, which is not designated or designed as a taxiway.
5. **General Aviation Apron Reconstruction:** As part of the reconstruction of the General Aviation Apron in the short-term planning horizon, it is recommended that 7 tie-down positions be established for itinerant aircraft parking, as well as locally based aircraft if all positions are not required for itinerant use.
6. **Terminal Building Apron Rehabilitation:** Per the recommendation provided in Section 7.2.3, the easternmost area of the Terminal Building Apron is to be excluded from future rehabilitation efforts.

As noted in Section 7.2.3, the extents of the terminal building apron recommended to be rehabilitated in the medium-term planning horizon will be determined during the preliminary engineering design phase based on observed demand in the preceding years.

RUNWAY 15-33 - 5,106' x 100' (AGN IIIB-NP)

33

RUNWAY 06-24
REDUCED IN LENGTH TO 2,545' (776 m)
REDUCED IN WIDTH TO 18 m (AGN I)
PAVEMENT REHABILITATED

TAXIWAY A
REDUCED IN WIDTH TO 10.5 m (AGN II)
PAVEMENT REHABILITATED
NEW EDGE LIGHTING AND SIGNAGE

TAXIWAY C
REDUCED IN WIDTH TO 7.5 m (AGN I)
PAVEMENT REHABILITATED

06

GA TIE-DOWN AREA
RECONFIGURED AND REHABILITATED
ACCOMMODATES 10 AGN I AIRCRAFT
AIRCRAFT ACCESS TO EAST HANGAR

TAXIWAY B

NEW AIRSIDE COMMERCIAL LOTS
1 x 1.3 ACRES
4 x 0.8 ACRES
GROUNDSIDE ACCESS
SERVICED

NEW AGN II TAXIWAY (10.5 m)

NEW GA APRON LOTS
2 x 0.3 ACRE LOTS

COMMERCIAL HANGAR RESERVE

TERMINAL BUILDING
LONG TERM EXPANSION

AIRPORT VIEWING AREA

AIRSIDE COMMERCIAL RESERVE
4.70 ACRES

AIRPORT SERVICE RD

HIGHWAY 402

GROUNDSIDE COMMERCIAL RESERVE
2.75 ACRES

PARKING

ITINERANT GA TIE-DOWN AREA
ACCOMMODATES 7 AGN I AIRCRAFT

PRIVATE TAXIWAY
PRIVATE TAXIWAY EXTENSION
4 GA LOTS (0.1 ACRES - 0.2 ACRES)

TERMINAL ACCESS

HIGHWAY ADVERTISING PLACEMENT AREA

AIRPORT RD

SARNIA CHRIS HADFIELD AIRPORT MASTER PLAN

FIGURE 8.3 - AIRPORT DEVELOPMENT PLAN

APRIL 2022

0 75 150 Meters

*FOR PLANNING PURPOSES ONLY

8.2.2 General Aviation Development Area

Future general aviation hangar growth is recommended to occur in the vicinity of the General Aviation Apron and existing private hangars. To accommodate anticipated demand for new private hangars, six new leasehold development lots are designated adjacent to the apron and stub taxiway. End users in the General Aviation Development Area are expected to be private aircraft owners that intend to erect storage hangars with limited requirements for servicing or groundside access. Given the limited servicing available as described below, new commercial operations are not anticipated in the General Aviation Development Area.

Table 8.2 - General Aviation Development Area Summary

	Number of Lots	Area per Lot	Total Area
General Aviation – Large	4	0.1 – 0.3 acres	1.0 acres
General Aviation – Small	2	0.1 acres	0.2 acres
Total	**6**	**-**	**1.2 acres**

The recommended general aviation development lots are provided with airside access from the adjacent apron and the private taxiway extending from the General Aviation Apron, with the two most westerly lots requiring a small taxiway extension. Concurrent with the development of the two 0.3-acre lots adjacent to the General Aviation Apron, the aircraft tie-down positions designated in front of each lot are recommended to be decommissioned to provide clear access. The need for the establishment of replacement tie-down positions at the General Aviation Tie-Down Area should be investigated at the time of development based on demand at that point.

Without the removal of the existing shed / building adjacent to the general aviation area vehicle parking lot, a full-sized groundside access corridor cannot be provided to the six proposed lots. It is recognized that vehicles access existing lots through a gate adjacent to the shed / building while travelling along an unpaved accessway. While the Land Use Plan protects for a full vehicle corridor if the obstructing leasehold is terminated in the future, vehicular access via the primary gate adjacent to the maintenance building is assumed to continue.

As with the existing general aviation hangars located to the west of the apron, no potable water, sanitary sewer, electrical, or natural gas servicing is proposed with the six recommended development lots. Extending servicing to these lots would significantly increase the upfront capital costs of making land available for general aviation development and may not result in a sufficient return on investment based on lease revenues for such facilities.

Given the limited infrastructure preparation required to support the development of the six proposed lots, these leasehold opportunities are recommended to be marketed as available for development in the short-term planning horizon, thereby responding to market demand for general aviation hangars identified during the stakeholder engagement process.

8.2.3 Aviation Commercial Development Area

The Aviation Commercial Development Area is a greenfield growth opportunity located to the south of the terminal building complex that can support up to 9.2 acres of leasable tenant space. This development area has been configured to meet the needs of potential aviation commercial tenants, including Aircraft Maintenance Organizations; Maintenance, Repair, and Overhaul companies; Fixed-Base Operators; Flight Training Units; and commercial air service providers.

Table 8.3 - Aviation Commercial Development Area Summary

	Number of Lots	Area per Lot	Total Area
Aviation Commercial – Large	1	1.3 acres	1.3 acres
Aviation Commercial – Medium	4	0.8 acres	3.2 acres
Commercial Reserve	1	4.7 acres	4.7 acres
Total	**6**	**-**	**9.2 acres**

The provision of airside access to support the Aviation Commercial Development Area will require the construction of a new taxiway, conceptually shown as a 10.5 m wide AGN II facility with a length of 420 m. An AGN II facility is recommended based on the type of aircraft operations anticipated in this area; however, this direction can be confirmed at the time of detailed design based on further exploration of end user requirements. The preliminary concept shown has the taxiway extension beginning at the intersection of Taxiway B and the terminal building apron, facilitating efficient access to Runway 15-33 and the jet fuel facilities.

Groundside access to the westerly two lots would be through driveways connecting to the terminal building access road. The easterly three lots would require a two-way roadway extension to the terminal building access road and the commercial reserve area would be accessed from the Airport Service Road.

Pending a detailed servicing analysis, it is assumed that the potable water and sanitary sewer lines can be extended to service the five development lots from the termination of the existing lines at the terminal building / Enbridge hangar. As part of the pre-servicing efforts for the Aviation Commercial Development Area, it is also recommended that fibreoptic internet services be extended from the general aviation area to the terminal building, Enbridge hangar, and proposed lots. Future electrical and natural gas extension costs would need to be determined with the respective service providers.

The servicing and infrastructure improvements required to ready the lots shown in the Aviation Commercial Development Area are not tied to a forecasted time horizon. Based on the activity at comparable airports in southern Ontario, it is anticipated that there is demand for fully serviced commercially sized lots with access to a maintained certified airport that are offered in a financially competitive manner. However, preparing the Aviation Commercial Development Area will entail financial risk by the City given the upfront capital costs to be incurred. The recommended strategy to mitigate this risk and approach this opportunity is described in Section 9.4.

8.2.4 Groundside Development Area

The Groundside Commercial Development Area is a 2.8-acre parcel with an advantageous location at the gateway to the Airport and in proximity to Highway 402. As noted previously, the Groundside Commercial Development Area is an opportunity to attract one or more non-aviation users that can introduce a diversified form of commercial activity to the Airport, with examples including restaurants and vehicle service stations. The potential highway-oriented uses suited for this land would also benefit travellers, Airport users, and employees.

Table 8.4 - Groundside Commercial Development Area Summary

	Number of Lots	Area per Lot	Total Area
Commercial Reserve	1	2.8 acres	2.8 acres
Total	**1**	**-**	**2.8 acres**

Groundside access is currently available via Airport Road and Airport Service Road, with the preferred access point to the development area to be confirmed through future intersection modelling. Potable water, sanitary sewer, electrical, and natural gas servicing are currently available and can be extended, pending the findings of a site servicing study. Given the limited infrastructure investments required to facilitate the development of the 2.8-acre groundside parcel for one or more non-aviation users, it is recommended that the City moves forward with marketing this parcel in the short-term planning horizon.

Groundside Commercial Development Area, viewed from the intersection of Airport Road and Airport Service Road (Google Earth)

8.2.5 Commercial Hangar Reserve

As part of the RATI grant awarded in 2021, the City of Sarnia has funding available for the construction of an aircraft hangar. Based on preliminary design and siting work completed by City Staff, the proposed location for the hangar is adjacent to the terminal building apron at its southern edge. The City is currently in the process of initiating design and construction efforts, with completion anticipated in late 2022 or early 2023. The Airport Development Plan and future apron management strategy must reserve sufficient space to allow for unobstructed access to the hangar for up to AGN IIIA aircraft, such as the Dash 8-300.

8.2.6 Airport Viewing Area

At the suggestion of the SAAWG, land is reserved to the northwest of the terminal building for an Airport viewing area. The capital costs for the development of a viewing area are not carried within the Master Plan. It is envisioned that the development of such a facility may be supported through corporate donations (potentially with associated naming rights), the initiative of Airport tenants and / or COPA Flight 7, or as part of the development of the groundside commercial area.

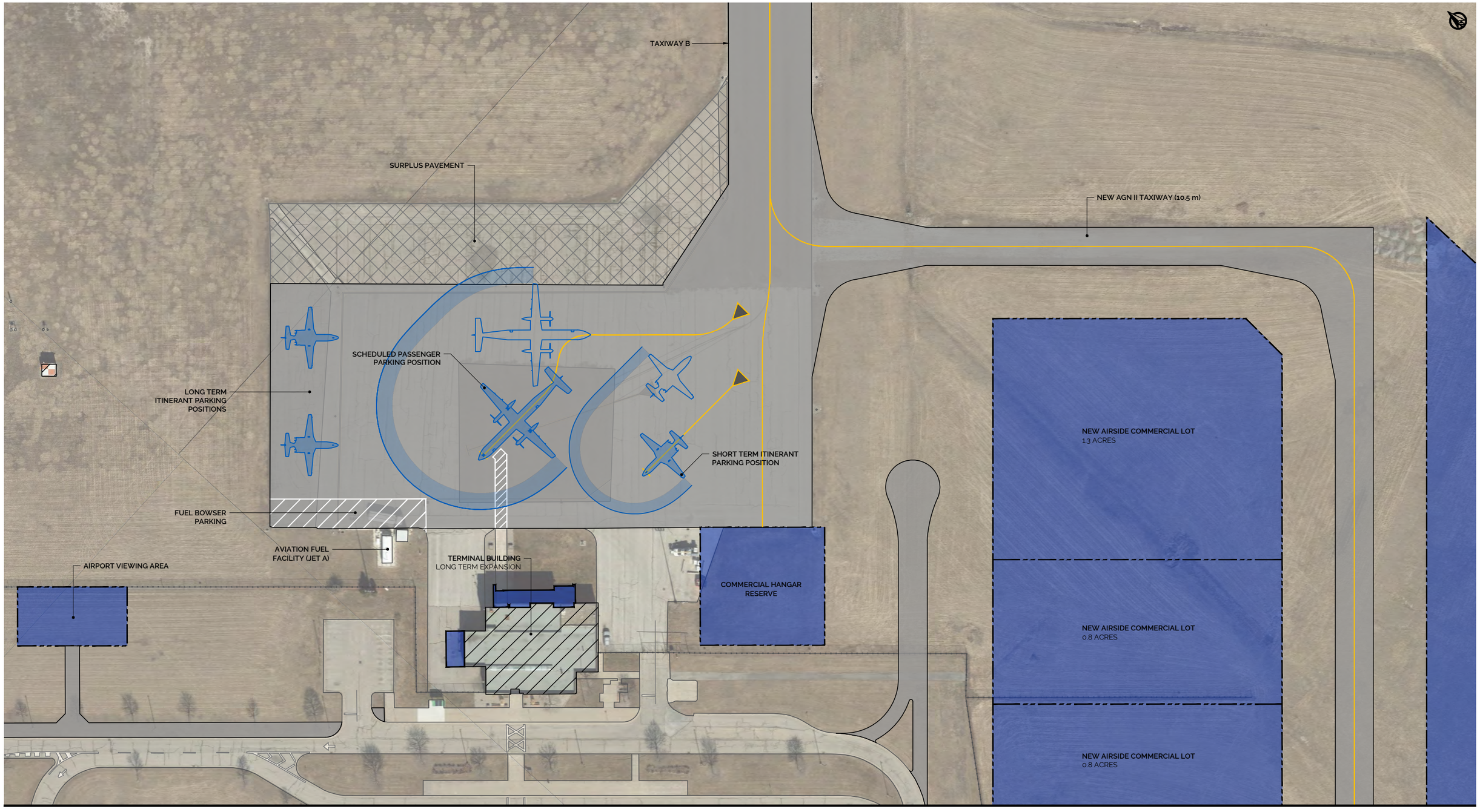
8.3 Terminal Building Apron Management Plan

With the changes contemplated in the vicinity of the terminal building area, an apron management plan has been prepared to ensure that sufficient space is allocated for current and anticipated future service levels. As shown in Figure 8.4, the Terminal Building Apron Management Plan has been prepared to accommodate:

- The arrival, parking, and departure of a full range of regional airliners, up to the Dash 8-400, based on the resumption of scheduled services;
- The arrival, parking, and departure of a mid-sized corporate aircraft, such as the Cessna Citation 560;
- Independent power-in, power-out operations by both above-noted aircraft; and
- Long-term parking at the northern edge of the apron with capacity for two corporate aircraft.

The apron management plan also provides for:

- Sufficient clearances for the terminal building expansion concept (Section 8.4.2);
- Unobstructed access to the hangar being development by the City at the southern edge of the apron;
- The offsets of the future taxiway servicing the Aviation Commercial Development Area; and
- The abandonment of unneeded paved areas at the eastern edge of the apron to decrease capital and operating costs.



SARNIA CHRIS HADFIELD AIRPORT MASTER PLAN

FIGURE 8.4 - TERMINAL BUILDING APRON MANAGEMENT PLAN

APRIL 2022

0 20 40 Meters

*FOR PLANNING PURPOSES ONLY

8.4 Terminal Building Development Plan

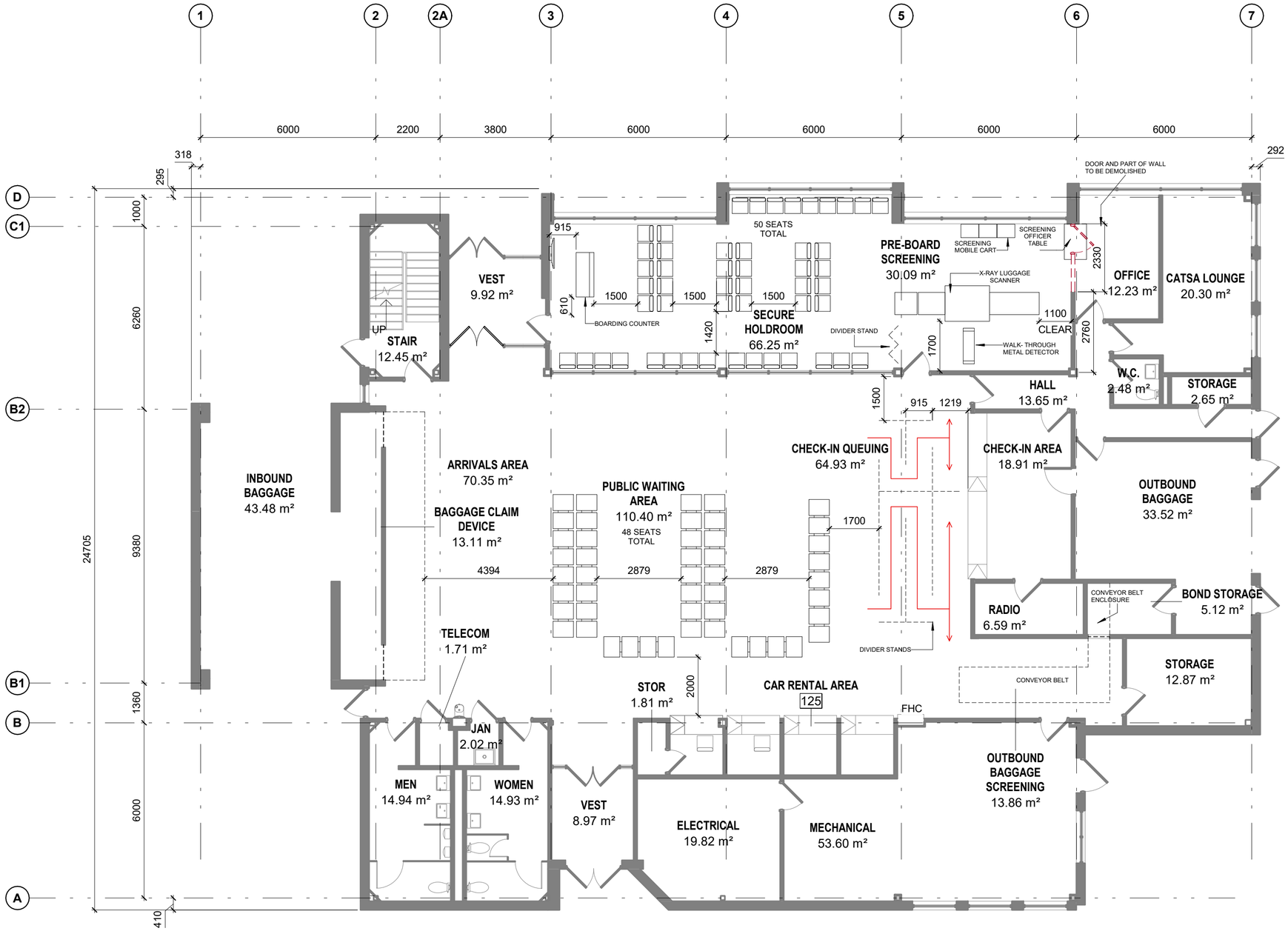
As described in Section 7.4, the capabilities of the terminal building were evaluated against two scenarios: 1) Baseline Service, supporting airlines operating regional aircraft with up to 50 seats (e.g., Saab 340, Dash 8-300); and 2) Upgauged Service, whereby next-generation regional aircraft with 70 to 80 seats are deployed in the Sarnia market (e.g., Dash 8-400).

8.4.1 Baseline Service Improvement Concept

The baseline concept (also referred to as the interim concept) focuses on improvements to the functionality and aesthetics of the terminal without a building expansion. Through the series of works described herein, the City can optimize the existing terminal building for operations by a regional airline using aircraft with up to 50 seats, such as the Dash 8-100 and Dash 8-300 that have historically served the Sarnia market. Recommended improvements to the terminal building in the baseline service improvement concept include:

- Repairs to the building, including most of the porthole windows that exhibit signs of significant leaking;
- Improvements to the building finishes, including the replacement of select doors, millwork, ceiling tiles, plumbing fixtures, second storey flooring, as well as repaint most of the front of house and back of house partitions. Further detail on the interior design of the terminal building is provided in Section 8.4.2;
- Shifting the public waiting area away from the secure holdroom to provide additional queuing space for the pre-board screening area;
- Improving queuing at the check-in area through the demarcation of lines with movable stanchions;
- Reconfiguring the pre-board screening area to improve passenger flows; and
- Modifying the layout of the secure holdroom and installing gate millwork to optimize its usability for air carrier departures.

The revised terminal building floor plan with the baseline service concept is shown in Figure 8.5.



IDEA
INTEGRATED DESIGN
ENGINEERING + ARCHITECTURE

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SARNIA CHRIS HADFIELD AIRPORT MASTER PLAN

FIGURE 8.5 - INTERIM TERMINAL BUILDING DEVELOPMENT PLAN

April 2022

SCALE : 1:100

0m 1m 2m 3m 4m 5m 6m 7m 8m 9m 10m

*FOR PLANNING PURPOSES ONLY

A2 (594x420)

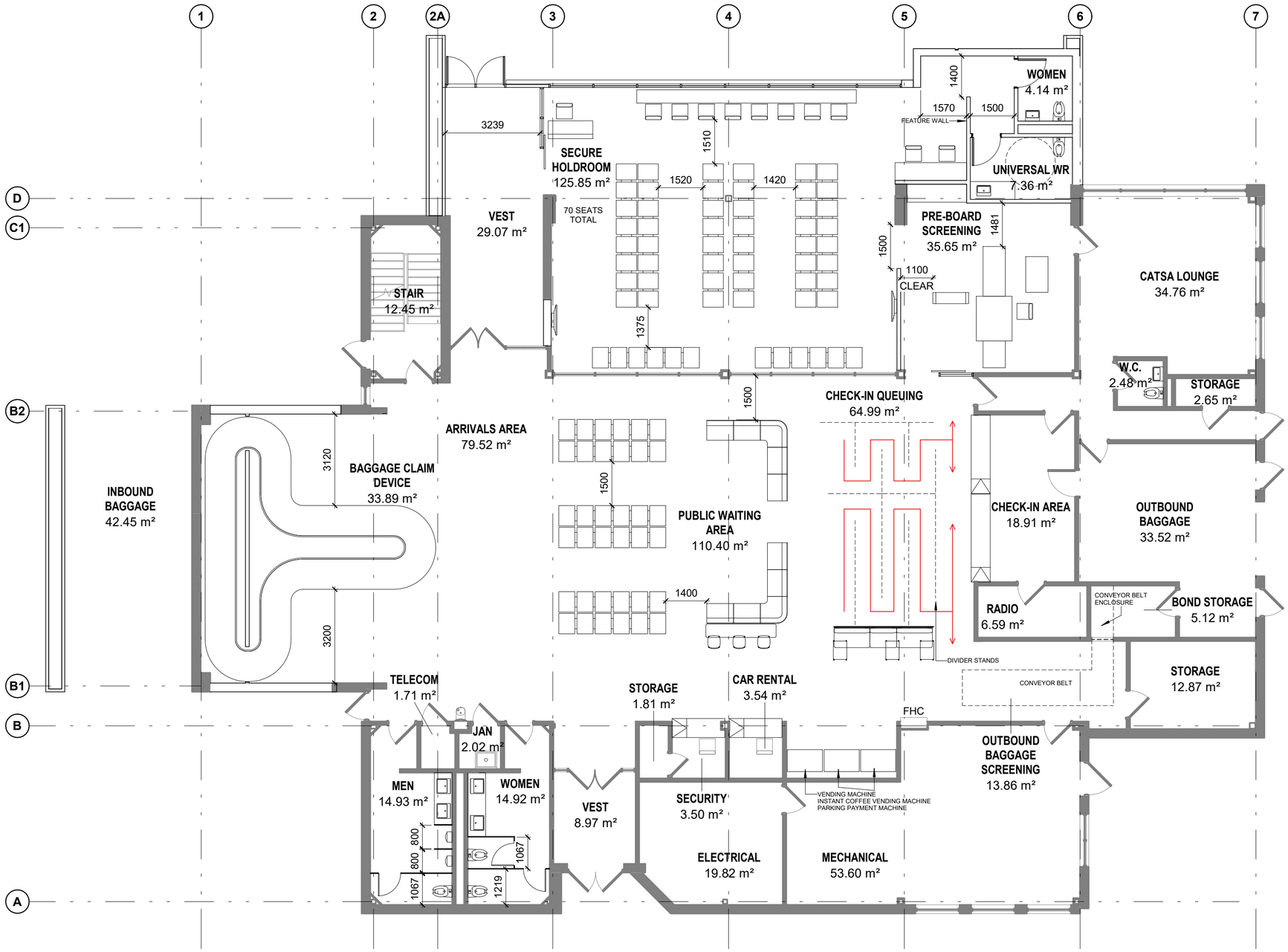
8.4.2 Upgauged Service Improvement and Expansion Concept

The implementation of the upgauged service improvement and expansion concept would be triggered by a firm expression of interest by an air carrier operating regional aircraft between 50 and 78 seats, such as the Dash 8-400, or if the City seeks to proactively ready the terminal for such operations to improve air service development marketing.

In this concept, two additions and further renovations are recommended to accommodate the level of service requirements of the increased arriving and departing passenger volumes. Recommended improvements related to the upgauged service improvement and expansion concept, shown in Figure 8.6, include the following:

- The completion of the demolitions shown in Figure 8.7;
- A building envelope expansion to the north to accommodate a larger arrivals / baggage claim area, as well as the addition of a covered shelter for baggage unloading operations. This expansion will increase the frontage of the baggage claim device to improve the efficiency of passengers collecting check baggage, as well as relieving congestion in the undersized arrivals hall;
- A building envelope expansion east towards the Terminal Building Apron to accommodate a larger secure holdroom and vestibule. The seated capacity of the holdroom would be increased to 70 passengers, and washroom facilities would be added to accommodate passengers waiting in the hold area without having to exit and be rescreened at the pre-board screening area;
- The reconfiguration of the Pre-Board Screening area to further improve flows for departing passengers and provide more functional space for CATSA employees;
- The reconfiguration of the public waiting area;
- The removal of two unneeded car rental booths and the relocation of existing vending and parking payment machines to this area; and
- The installation of new washroom facilities in the public waiting area.

As part of the implementation of the terminal building improvement and expansion concept, the opportunity exists to substantially modernize the interior of the building and improve its aesthetics and passenger experience. The concept images following Figure 8.6 and Figure 8.7 provide examples of how the interior finishes of the terminal building could be approached to improve its overall look and feel. Renderings of the terminal building are also provided to illustrate the exterior design following the implementation of the improvement and expansion project.



IDEA
INTEGRATED DESIGN
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SARNIA CHRIS HADFIELD AIRPORT MASTER PLAN

FIGURE 8.6 - LONG-TERM TERMINAL BUILDING DEVELOPMENT PLAN

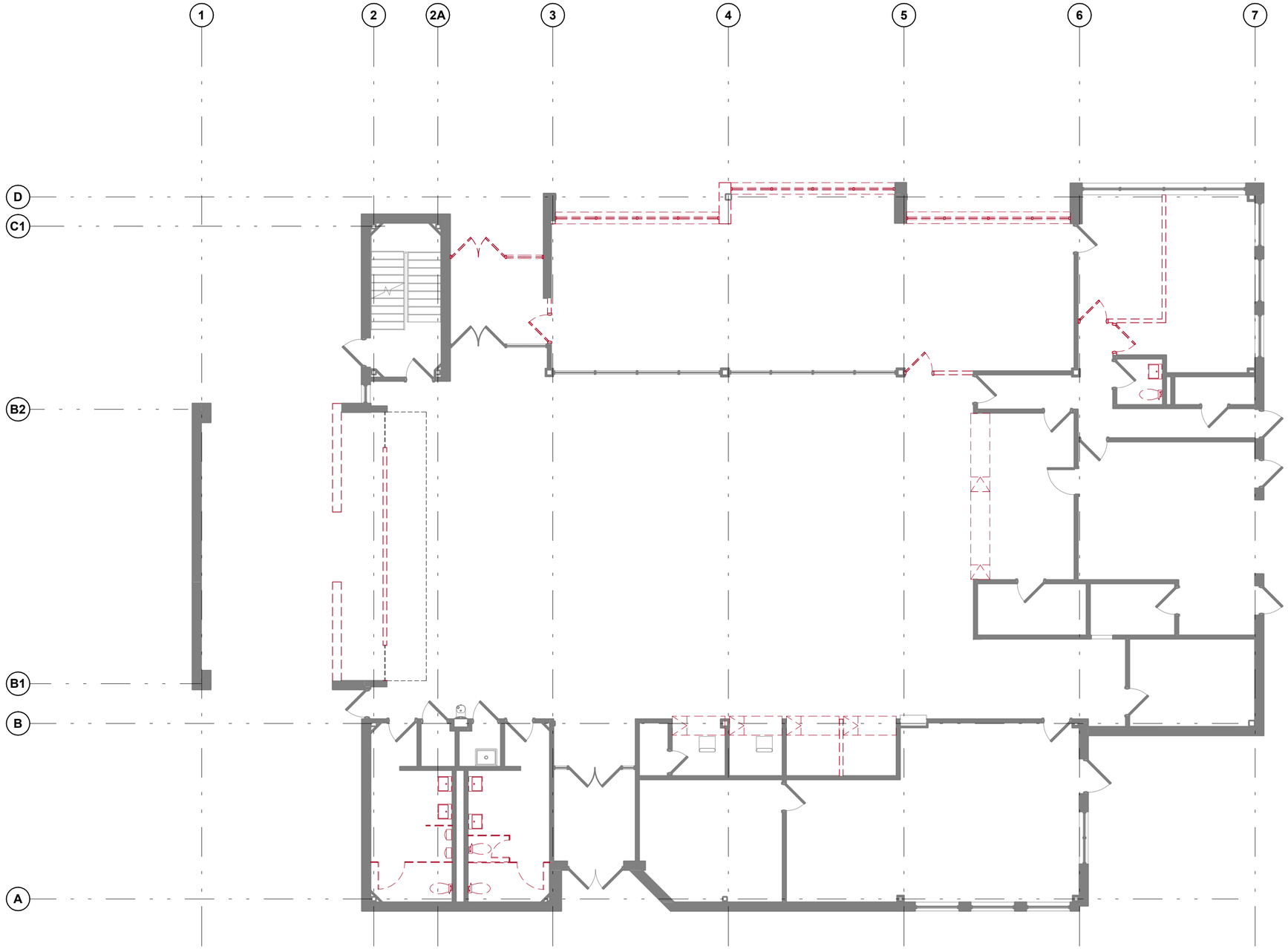
April 2022

SCALE : 1:100

0m 1m 2m 3m 4m 5m 6m 7m 8m 9m 10m

*FOR PLANNING PURPOSES ONLY

A2 (594x420)



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SARNIA CHRIS HADFIELD AIRPORT MASTER PLAN

FIGURE 8.7 - LONG TERM TERMINAL BUILDING DEVELOPMENT PLAN - DEMOLITION

April 2022

SCALE : 1:100

0m 1m 2m 3m 4m 5m 6m 7m 8m 9m 10m

*FOR PLANNING PURPOSES ONLY

A2 (594x420)

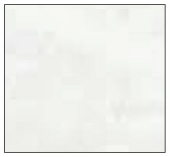
CONCEPT IMAGES ONLY - FINAL DESIGN AND FURNITURE PRODUCT WILL VARY

1. COLOUR PALETTE:

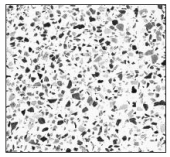
Main colours

Accent colours
Lighting
Furniture

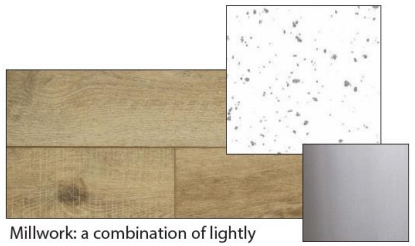
2. FINISHES:



New floor tile



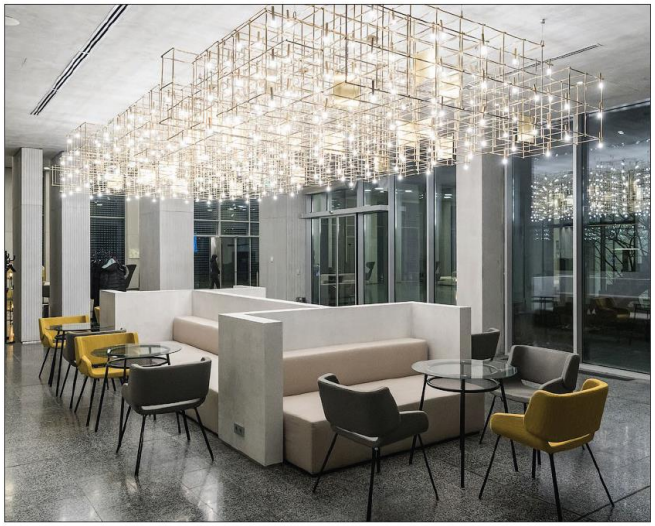
Existing terrazzo



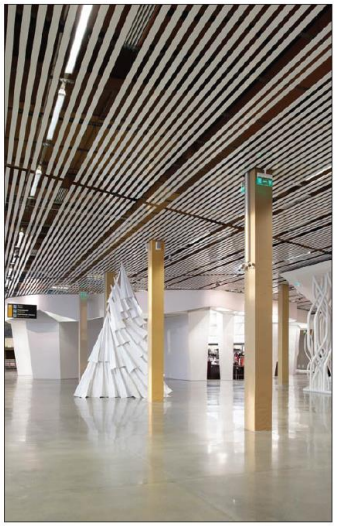
Millwork: a combination of lightly stained wood, white and stainless steel

Light fixture resembling airplanes

3. APPLICATION EXAMPLES - CONCEPT IDEAS ONLY

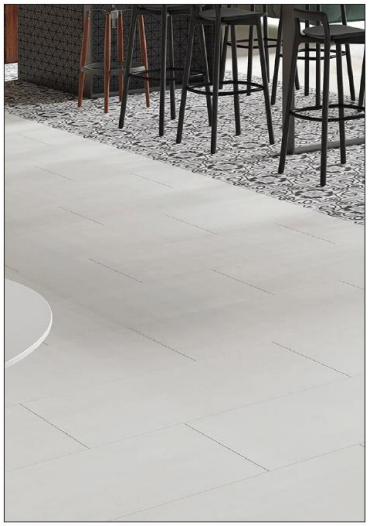


Accent light fixture | Waiting area
Furniture in accent colour



Ceiling idea | Secure holdroom

Backlit textured solid surface check in counters
Metallic gold accents against dark backdrop



Off white floor tile to replace carpet insert

Terminal Building Interior Design Concept Images

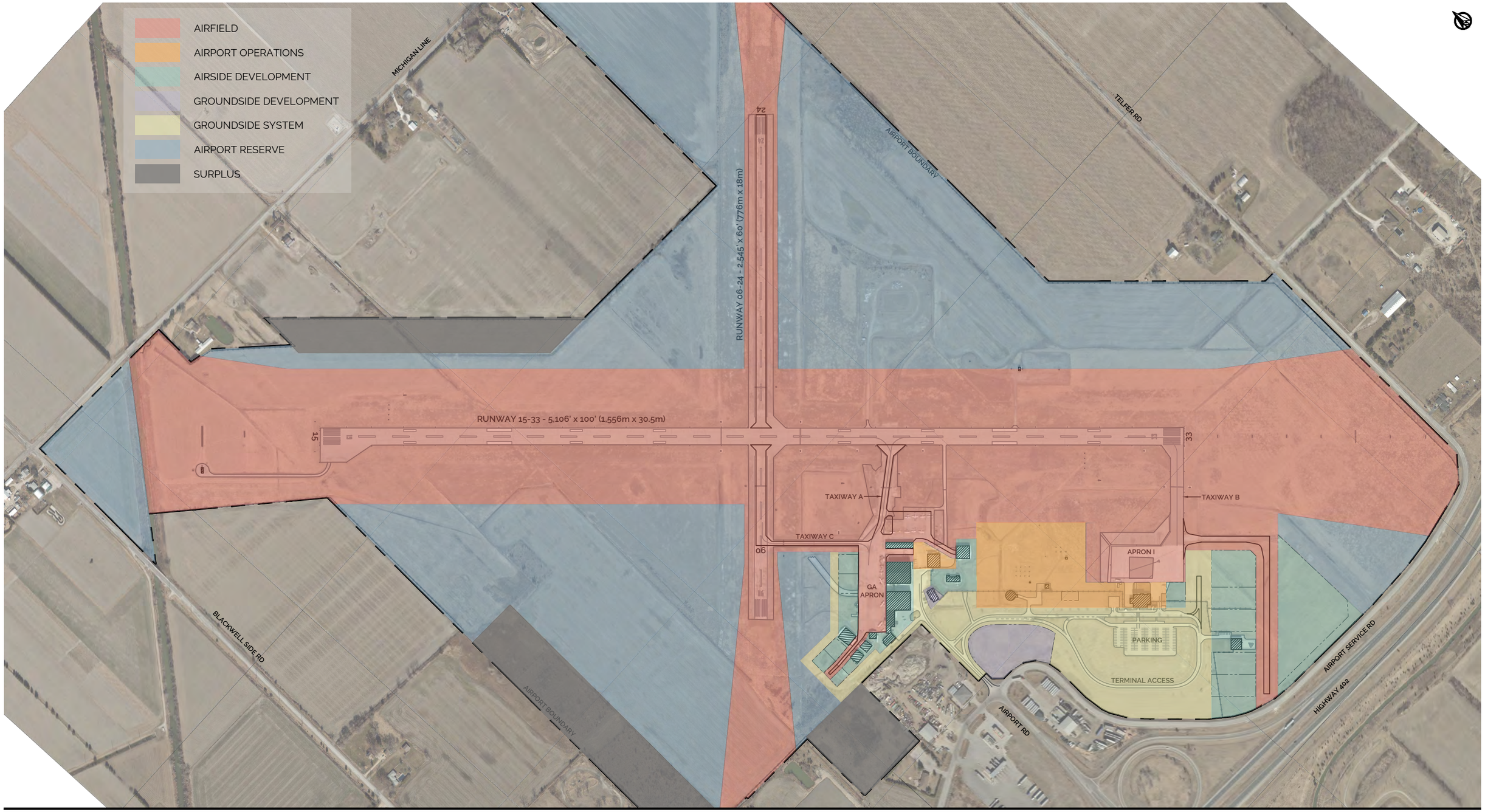
Terminal Building Improvement and Expansion Concept – Exterior Rendering

Current (top) and Conceptually Expanded (bottom) Terminal Building

8.5 Airport Land Use Plan

Seven land use designations have been prepared through the Airport Land Use Plan to protect for the full range of current and future activities that are expected at the Airport. The Airport Land Use Plan is consistent with the Airport Development Plan in its systematic distribution of uses throughout the property according to the applicable regulatory standards, environmental constraints, and planning best practices. The seven land use categories and associated recommendations are as follows, with the Airport Land Use Plan shown in Figure 8.8:

1. **Airfield:** The lands protected for the Airport's runways, taxiways, aprons, approach lighting system, and associated protected areas.
2. **Airport Operations:** Land reserved for the facilities that support Sarnia Airport's operation and maintenance. Lands designated as Airport Operations are used for the terminal building, maintenance building, sand storage shed, meteorological observation site, and field electric centre.
3. **Airside Development:** Areas protected for current and future leasehold development lots with access to the Airfield. The preferred uses for Airside Development lots include aircraft hangars, Fixed-Base Operators, aviation-related businesses, and other similar activities. While non-aeronautical business activity currently occurs within the Airside Development area, further conversion of these lands for such purposes is not recommended.
4. **Groundside Development:** The parcel at the intersection of Airport Road and Airport Service Road that is recommended for development for highway commercial or similar non-aeronautical purposes. During the City's future business development and proponent selection process, consideration should be given to the compatibility of the proposed land use(s) with Airport operations, as well as the degree to which the proposed use contributes to the image of the facility given its important location at the gateway of the Airport.
5. **Groundside System:** Lands that are used for groundside access roads, utilities, vehicle parking areas, and areas to protect for the potential future expansion of these facilities beyond the Master Plan horizon.
6. **Airport Reserve:** Lands that are not anticipated to be required for development or capital projects within the Master Plan horizon, but that should be held by the City in an undeveloped / reserved state to provide the land use flexibility required for potential future requirements. The Airport Reserve area is suitable for agricultural cropping provided that all applicable regulatory standards are satisfied.
7. **Surplus:** Lands that are not anticipated to be required within or beyond the Master Plan horizon that are recommended to be declared surplus, severed, and sold.



SARNIA CHRIS HADFIELD AIRPORT MASTER PLAN

FIGURE 8.8 - AIRPORT LAND USE PLAN

APRIL 2022

0 125 250 Meters

*FOR PLANNING PURPOSES ONLY

9 BUSINESS DEVELOPMENT AND GROWTH STRATEGIES

Based on the business development and growth opportunities identified for Sarnia Airport in Section 5, guidance is provided in Section 9 on the strategies to support the pursuit of these opportunities. Unique differences exist in how each of the opportunities identified herein are best pursued, and the potential time horizon for the attainment of each prospect is subject to numerous external factors beyond the City's control. For example, while new general aviation hangars could be developed at the Airport in the short-term based on recent expressions of demand, larger scale aviation commercial development may take several years to be realized.

The strategies presented herein are preliminary in nature and are intended to guide City Staff and aligned organizations – however, it is recognized that variations may exist in how implementation is pursued in the future. As with other recommendations articulated within the Master Plan, the success of the business development strategies is contingent on sufficient resources being allocated to such pursuits, both in terms of City Staff time, Advisory Committee activities, and financial resources (e.g., for marketing initiatives).

The phased approach and recommended actions described herein are summarized in Section 13.

9.1 Air Service Development

A strategy for the restoration of passenger air carrier services is one of the most important objectives of the Master Plan in the short-term planning horizon. The restoration of passenger air carrier services encompasses two interrelated yet unique factors:

1. The attraction of an air carrier willing to enter the Sarnia market, as described herein; and
2. Efforts recommended to be taken by the City and its partners to market the new air service(s) to potential passengers in the catchment area to support its commercial success.

At the outset of this discussion, it is understood that air carriers are private businesses. A prospective airline considering whether to serve the Sarnia-Lambton catchment area will only do so based on the identification of sufficient market potential and a viable business case. This encompasses the size and travel requirements of catchment area travellers and the proportion of this market that the air carrier can expect to serve based on their product offering, as well as the airfares that the market will support and whether sufficient Revenue per Available Seat Mile (RASM) can be attained relative to the Costs per Available Seat Mile (CASM). In short, carriers must be able to identify a sufficiently large market that generates high enough RASM that exceed the CASM of operating the service. Service decisions may be further affected by numerous factors, including fleet availability and alternative prospective markets with better potential performance.

The initial goals with respect to air carrier development in the Master Plan are twofold:

1. **Attract** a new carrier to commence scheduled passenger air services in the Sarnia-Lambton catchment area. As noted in Section 5.1.5, the main priority is service to a hub airport with onward connection opportunities, while the secondary goal is service to Billy Bishop Toronto City Airport; and
2. **Retain** the new service and foster and environment that ensures its long-term viability.

If the City is successful in attracting a new air carrier to serve the local market, additional air service goals may arise (e.g., improving reliability, decreasing airfares, increasing frequency). These goals may be premature to consider at this point, as their identification is contingent on the demonstrated performance / characteristics of a potential service.

9.1.1 Market Research and Data Collection

To support prospective airlines in their determination of whether a viable business case can be established by serving the Sarnia-Lambton catchment area, the City can take a proactive role in conducting market research and data collection. While major air carriers typically have extensive information on local demand and traveller behaviour based on their internal booking datasets, the City can provide less readily available information on matters that may positively influence local demand, such as:

- The composition of the regional economy, including the travel requirements of major employers;
- The potential future of the catchment area, including forecast population growth levels and economic sectors that the City and County are seeking to expand into;
- Data on historical air carrier services at the Airport and demonstrated regional demand;
- The composition of the catchment area and leakage patterns to other airports; and
- Supplementary cargo service revenue streams.

Through the Master Plan process, select data collection tasks have already been completed to support the pursuit of air services, including the resident and business outreach surveys and the commissioning of a catchment area leakage analysis. While each of these resources are summarized at a high-level to substantiate the opportunity identification provided in Section 5.1, detailed analysis will be conducted following the completion of the Master Plan to provide additional insights of interest to airlines that may serve the Sarnia-Lambton catchment area.

9.1.2 Air Carrier Incentives

The City, in collaboration with aligned partners in the region, can improve the value proposition of Sarnia Airport through a series of potential incentives. These are discussed below and include cost reduction incentives, route exclusivity and marketing and advertising support. Commentary is also provided on revenue incentives, which are not recommended to be advanced for further consideration. It is recommended that the incentives that will be offered to prospective air carriers be determined by the City and its partners pre-emptively so that they can be communicated consistently throughout the outreach and negotiation processes.

Revenue-Related Incentives

A practice implemented at select regional airports as part of air service development is for revenue-related incentives to be used, whereby a service that would otherwise not benefit from sufficient RASM is subsidized by the airport. Revenue-related incentives, such as minimum annual revenue guarantees, are paid to the air carrier based on predetermined thresholds – i.e., if annual market-supported revenues (Value Y) on a route do not exceed predetermined Value X, then the municipality will pay the difference between Values Y and X.

From an air carrier perspective, revenue incentives can be a competitive advantage by addressing potential market underperformance during the early months / years of a route. However, the Master Plan does not recommend revenue guarantees or similar options for the following reasons:

- Although typically based on the assumption that revenue guarantees will be used to bridge the gap as service matures in a new market, there is no guarantee that the service will be viable once the incentive package is dropped (e.g., after 12 or 24 months):
- In the case of Sarnia Airport, numerous other recommendations of the Master Plan will compete for limited municipal funding. While the importance of air service development is understood, this may not represent the best use of limited financial resources; and

- The minimum revenues requested by prospective carriers may create a public perception issue with the municipality directly subsidizing private business. This may represent a political challenge that is unpalatable to elected officials.

Cost-Related Incentives

While the City has less control over the number of travellers that may utilize a potential service and the RASM that would be generated, the municipality does have direct control over numerous cost elements associated with Sarnia Airport. The discussion provided herein does not diminish the reality that as a responsible municipal government, the City should endeavour to reduce the tax-supported deficit associated with the Airport – this includes generating revenue from new air carrier services. However, incentives may be used to reduce the costs borne by a carrier while taking the risk of launching a new service in the Sarnia-Lambton market while ensuring that a fair opportunity is given for the service to mature and grow, and over time generate revenues for the City.

- **Landing Fees:** Air carriers operating at Sarnia Airport incur landing fees with each arrival, which directly influence their route operating costs. For new air carriers entering the market, it is recommended that landing fees be reduced by 50% during their first year of operations and by 25% during their second year of operations, before the full landing fee is applied in the third year of operations. It is also recommended that City Staff be provided the delegated authority to negotiate landing fees with prospective airlines as part of the air service development process. This incentivized landing fee structure is addressed further in Section 12.2.
- **Terminal Building Usage Fees:** Usage fees are levied on a per flight basis for air carriers operating from the terminal building based on the capacity of the aircraft. As with the recommendations pertaining to landing fees, it is recommended that terminal building usage fees be discounted by 50% and 25% in the first and second years of an air carrier's operations in the Sarnia market, and that City Staff be empowered to negotiate alternative arrangements with prospective airlines.
- **Terminal Building Space Fees:** Air carriers establishing operations may require the exclusive use of select areas of the terminal building, such as offices, break rooms, and the check-in area. It is recommended that City Staff be provided the authority to negotiate lease rates for the terminal building, including the waiving of fees for such spaces for air carriers.
- **Aircraft Parking Fees:** Air carriers that operate on short-duration turnarounds (e.g., with 60 minutes in Sarnia between arrival and departure) typically do not incur parking fees. Generally, parking fees are levied on air carriers that spend extended periods of time at the Airport, such as during Remain Over Night (RON) turns. It is recommended that parking fees should not be levied on air carriers staying for extended periods during RON turns. Such flights permit late evening arrivals and early morning departures that are often favourable for traveller schedules and have ancillary benefits if crews remain in Sarnia overnight and spend money on local accommodation and services.

Under the terms of the Headlease Agreement, the Airport Operator is responsible for setting the fees noted above and has a direct interest in ensuring revenue maximization. Changes recommended to Airport-related fees assume that the funding model revisions described in Section 11.4 are implemented.

Route Exclusivity

While consideration has been given to the desirousness of attracting two or more airlines to serve the Sarnia-Lambton catchment area, air service trends at comparable regional airports are indicative of the difficulty of this goal. Given the limited size of regional markets such as Sarnia and the often cost-conscious nature of travellers, the market may not be sufficiently large and / or high yielding for two carriers to be able to have viable route business cases simultaneously.

Although competition between two or more carriers is beneficial for consumers resulting in improved choice and generally lower airfares, securing a single airline in Sarnia will be a significant accomplishment in and of itself. Exclusivity agreements are used by airports to incentivize prospective carriers to enter the market without concern of being outcompeted by an additional upstart carrier. For Sarnia, two models of exclusivity may be considered:

1. Route exclusivity, whereby only one airline may operate a given route (e.g., Airline X serves Sarnia – Toronto Pearson, whereas Airline Y serves Sarnia – Montreal); or
2. Carrier exclusivity, where only a single airline is permitted to operate at the Airport.

For prospective carriers interested in commencing scheduled passenger air services, it is recommended that City Staff be empowered to offer route exclusivity agreements with terms extending up to two or three years, depending on the value of the service being proposed. In unique circumstances whereby an airline offers a service proposal with significantly high value for the Sarnia-Lambton catchment area (e.g., a network carrier operating service to a hub airport), consideration may be given to carrier exclusivity – however, this should be approached with caution and be accompanied by a clearly defined duration so as not to limit other prospective operators servicing different routes.

Marketing and Advertising Support

As part of the air service development information to be provided to carriers, it is recommended that the appropriate marketing and advertising support provided by the City be identified. A full range of marketing modes can be considered and offered to air carriers at varying cost levels to the City, including:

- Online marketing campaigns and the inclusion of service information on the Airport and City websites;
- The offering of space on highway advertising signage (Sections 5.8.2 and 9.9);
- Press releases published upon the announcement and inauguration of service, as well as at future intervals (e.g., to celebrate one year of service); and
- A service inauguration ceremony, including speeches by elected officials and dignitaries, as well as media coverage.

Valuable support can also be offered by aligned economic organizations in the region, including the Sarnia Lambton Economic Partnership, Sarnia Lambton Chamber of Commerce, and Sarnia Lambton Industrial Alliance. It is recommended that the City initiate exploratory discussions with these organizations to determine their capacity and level of interest in providing marketing support for a new air service that will benefit their members. The form of the support could include press releases, email blasts, website spots, and social media outreach, for example.

9.1.3 Air Carrier Outreach

Upon the completion of the market research and incentive package preparation tasks, the City will be positioned to begin outreach with prospective air carriers. While several opportunities described in the following sections are accompanied by passive marketing techniques, it is anticipated that the securing of a new airline will require proactive outreach by City Staff. One of two processes may be implemented by the City:

1. A Request for Proposals may be released that invites interested airlines to submit proposals to serve Sarnia Airport. This strategy has been implemented at Kingston Airport and the Region of Waterloo International Airport in recent years, although information is not available to the project team on the outcome of these RFP processes. Although the release of an air service RFP could generate attention from potential airlines, there is no guarantee that one or more airlines will submit proposals in alignment with the route objectives established previously in the Master Plan.

2. Direct outreach with airlines that could realistically operate the type of service envisioned for Sarnia Airport could be initiated. Through multiple rounds of introductory and exploratory meetings, the opportunity could be created for a dialogue between the City and prospective airlines regarding the market opportunities that exist, potential conditions for success, or whether a given air carrier is not interested in the Sarnia market.

Building on conversations that have been occurring to-date between City Staff and prospective airlines, the direct outreach method is recommended for implementation in the short-term planning horizon. Through discussions with one or more air carriers, it is expected that the specific requirements of each airline will be articulated in greater detail – these discussions should therefore be tailored based on the evolving body of knowledge revealed by each prospective carrier over time.

Prior to the initiation of direct outreach with prospective airlines, it is recommended that an introductory Air Service Development Opportunity Package be prepared by the City that articulates the market research and opportunity analysis completed by the City, as well as the incentives that could be offered. The recommendation for the preparation of an opportunity package is further explored in Section 9.12.2.

9.1.4 Passenger Development and Air Service Retention

While the first major challenge to be overcome is attracting a new airline to serve Sarnia, the subsequent consideration of equal importance will be the measures that the City can take to retain the new air carrier. Steps that could be taken by the City to assist in retaining a new carrier could include:

- The establishment of a clear point of contact within the City that will serve as the airline's consistent communication conduit for all Airport-related matters, and the scheduling of proactive information updates on a not less than annual basis;
- Consulting the airline(s) serving Sarnia in Airport-related planning and decision-making;
- The availability of ongoing advertising space on the Highway 402 signage unit; and
- The establishment of an air service marketing fund to be replenished on an annual basis that can be directed to City-initiated advertising campaigns, as well as assistance in-kind from aligned organizations.

The City's air service retention and passenger development strategies should be identified in outreach and negotiations with prospective airlines to highlight the municipality's long-term commitment to supporting the viability of the route(s) served. It is expected that specific air service retention measures will be developed upon the restoration of air carrier operations based on the demonstrated conditions of the regional market and the priorities of the businesses providing service to Sarnia Airport.

De Havilland Canada Dash 8-400 on approach

9.2 Flight Training Strategy

As explored in Section 5.3, Sarnia Airport presents an environment that is well-suited for flight training, with such activities contributing to the facility's regional economic benefits and role within the broader Canadian aviation sector. With the expected accreditation of the based FTU, Huron Flight Services, as a Private Career College, it is expected that the local flight training sector may experience growth. From a business development perspective, it is recommended that the City's focus be on ensuring that the operational and business environment of the Airport is conducive to the long-term success of the incumbent FTU (i.e., retention and growth) while also protecting the municipality's strategic interests in terms of revenue generation and responsible management. This process can be advanced in several ways, including:

- Maintaining an open and ongoing dialogue between the City, Airport Operator, and Huron Flight Services;
- Limiting the encroachment of residential and other sensitive land uses in the vicinity of the Airport through proactive and orderly planning. Given the frequency of overflights associated with training movements, residential dwellings located near airports that support such operations commonly experience disturbance and may lodge complaints with the City;
- Providing and maintaining the infrastructure required to support the full curriculum of recreational and professional flight training. This includes the maintenance of the Airport's two runways, taxiways, General Aviation Apron, lighting, and other supporting infrastructure; and
- Carefully considering the impacts of future changes to aeronautical fees on flight training activities while balancing the requirement for revenue generation.

Noting the above, it is recognized that the establishment of an additional FTU at the Airport would further increase activity and the associated benefits described previously in Section 5.3. While an active outreach and marketing approach to attracting a new FTU is not recommended, a new flight training operation could be accommodated in the Aviation Commercial Development Area.

9.3 General Aviation Development Area Strategy

The leasehold lots proposed for private hangars in the General Aviation Development Area require minimal upfront investments in servicing and infrastructure expansion projects and are ready for marketing and absorption in the short-term planning horizon.

The target audience for the General Aviation Development Area is anticipated to be private aircraft owners located within a reasonable driving distance of Sarnia, approximated at 45-60 minutes given the number of alternative airports in southwest Ontario (e.g., London, Windsor, Chatham-Kent, and St. Thomas). Given this availability, key messaging should be prepared that articulates the unique selling points of Sarnia Airport for general aviation land lease customers, including:

- Year-round maintenance of the Airport through on-site employees;
- Airport lighting and Instrument Flight Procedures for operations at night and in Instrument Meteorological Conditions, respectively;
- The availability of 100 Low Lead fuel and aircraft maintenance services; and
- The competitive land lease rates and terms.

It is recommended that the availability of general aviation development lots be advertised on the Sarnia Airport website, including the key messaging provided above, a development lot diagram, and the point of contact at the City. It is also recommended that the availability of leasehold lots be communicated on an annual basis to flying organizations in the surrounding area (COPA Flights 7, 75, 177, and 203), general aviation-oriented businesses at the Airport (Huron Flight Services, Sarnia Aircraft Service), and the Airport Operator.

9.4 Aviation Commercial Development Area / Aviation SME Hub Strategy

The Aviation Commercial Development Area presents an opportunity to facilitate aeronautical growth at the Airport. However, the attraction of new commercial aviation tenants is expected to be a challenging process. The distance of Sarnia from the concentration of aerospace and commercial aviation facilities in the Greater Toronto and Hamilton Area and subclusters in Windsor, London, and Waterloo presents a locational challenge for potential tenants. Large-scale development projects by major aeronautical employers are typically infrequent in nature, highly competitive from a site selection standpoint, and require considerable resources in the pursuit process.

Noting the foregoing, the City may be able to position Sarnia Airport as a unique opportunity for Small and Medium Sized Enterprises (SMEs) in the aviation sector and build on the existing strengths of the facility through the concept described herein, referred to as the Aviation SME Hub Strategy. The Aviation SME Hub Strategy combines three separate elements:

1. The availability of the to-be-constructed hangar as a cost-effective space for upstart or nascent SMEs;
2. The transitioning of successful SMEs to the Aviation Commercial Development Area; and
3. The creation of a financial environment and availability of business development coaching services that are conducive to the success of SMEs.

SME Upstarts – Aviation Commercial Hangar Space

With the approval of funding for the construction of an aircraft hangar adjacent to the terminal building apron through the 2021 RATI program, the City will soon be positioned with a unique asset, the short-term use for which is intended to be supporting the restoration of scheduled passenger air services. If the future aircraft hangar is not required by a regional air carrier restoring service in the Sarnia market, consideration should be given to marketing the facility as an opportunity for aviation SMEs that require cost-effective space to open and / or grow their business. When completed, the hangar will be a shell space that can be flexibly adapted to the needs of various aeronautical SMEs, including independent AMEs, AMOs, air taxi and aerial service providers, and companies engaged in aeronautical manufacturing. A competitive advantage is that as a grant-funded project, this hangar will not result in significant capital costs to the City that add pressure to its revenue-generating obligations. Consideration should be given to positioning the hangar space as a rentable facility for aviation SMEs that are looking for a cost-effective base to begin or grow their operations. The use of this facility should be offered at reasonable / below-market rates to position the Airport as a financially competitive alternative to competitor airports with established commercial bases that is more aligned with the financial capabilities of SMEs.

Noting that a maximum of one or two SMEs can likely occupy the hangar simultaneously, it is recommended that tenants be permitted maximum occupancies of 3-5 years, or longer on a month-to-month basis if there is no queue. The intent is that the hangar will be used to provide a cost-effective base for upstart businesses, and that these companies will transition to permanent facilities in the Aviation Commercial Development Area upon growing and stabilizing.

To further improve the competitive advantage for upstart SMEs considering the aviation commercial rentable hangar space, it is recommended that opportunities for the participation of the Sarnia-Lambton Business Development Corporation be investigated. As the local organization focussed on working with private-sector entities, the Business Development Corporation could be well-positioned to offer guidance to SMEs from a business planning and optimization standpoint.

In instances where SMEs that are tenants of the City's rentable hangar space achieve success and seek to establish permanent facilities, these businesses can be transitioned to the Aviation Commercial Development Area with preferred lease terms and incentives. Examples of incentives for transitioning SMEs could include deferrals on land lease payments or waived / reduced development charges.

Cessna Citation 560

SME Growth Cases – Aviation Commercial Development Area

While the future hangar for upstart AMEs is funded and is scheduled to be constructed in 2022 / 2023, the Aviation Commercial Development Area is without municipal servicing and lacks airside and groundside access. Preparing these lots for development therefore entails a considerable capital investment by the City if grant funding cannot be secured from upper levels of government. However, it is anticipated that there may be demand for serviced commercial lots at financially competitive rates – this demand is designed to be supported through the Aviation SME Hub Strategy with growing businesses transitioning from the rentable hangar to permanent facilities in the Aviation Commercial Development Area.

Based on the foregoing, three approaches may be considered:

1. **Pre-Servicing:** From an investment readiness standpoint, the City may choose to pre-service the aviation commercial area to maximize the marketing potential of these lands by creating "shovel ready" development lands. While this approach introduces risk if the capital costs of servicing these lots is not met with uptake by new tenants, this is the preferred strategy to maximize the consideration of these lots by prospective businesses from a site suitability standpoint.

If grant funding can be secured to support the pre-servicing model, this is the recommended approach. However, understanding that numerous capital-intensive projects are recommended in the short-term planning horizon that require financial resources, alternative models may need to be considered as described below.

2. **Request for Expression of Interest:** If the City wishes to adopt an exploratory approach, a Request for Expressions of Interest (RFEI) could be released to identify market interest for serviced commercial developments lots. Through the RFEI process, objectives could include communicating the development potential of the airside commercial area to potential proponents, exploring the support for various models of development, understanding potential interest from the private sector, and identifying conditions that will facilitate successful deals. The RFEI would be marketed by the City, potentially in collaboration with the Sarnia Lambton Economic Partnership and aerospace / commercial aviation industry organizations.
3. **Demand-Driven Servicing:** Regardless of whether approach 1 or 2 identified above is taken, it is recommended that preliminary information about the growth opportunities of the Aviation Commercial Development Area be communicated in all Airport-related materials, such as the website and development brochures. Unsolicited interest may be received, and if deemed of sufficient value by the City through the exploration process with the proponent(s), could result in the commencement of site servicing. The demand-driven servicing model may also be supported by the growth of upstart SMEs in the hangar space that express interest in transitioning to permanent facilities at Sarnia Airport.

9.5 Groundside Development Area Strategy

The 2.8-acre land assembly designated as the Groundside Commercial Development Area is a unique opportunity for highway-oriented, Airport-compatible non-aeronautical development. With servicing and groundside access already available at the site, development of this property could proceed in the short-term planning horizon. Throughout the Master Plan, the types of land uses envisioned for this gateway site have included restaurants and highway commercial activities. Preference is given to uses in this category, as such businesses would benefit both Airport users and employees, as well as travellers on Highway 402. A secondary role could include transportation and logistics-oriented users that would benefit from the access to Highway 402 and the Airport.

To further understand the development potential of the groundside parcel, it is recommended that an RFEI be prepared by and distributed by City Staff in the short-term planning horizon. The entire of the RFEI process will be to:

- Communicate the development potential of the groundside area to potential proponents;
- Establish the City's preliminary objectives;
- Explore the support for various models of development, including the fee simple sale and leasehold arrangements;
- Understand potential interest from the private sector / the market-supported highest and best use; and
- Identify conditions that will facilitate the advancement of development.

It is anticipated that the RFEI can be distributed by aligned economic organizations among their memberships and platforms, including the Sarnia Lambton Economic Partnership and Sarnia Lambton Chamber of Commerce. The subsequent business development and implementation process will be guided by the findings received from the private sector through the RFEI process.

9.6 Surplus Lands Strategy

A total of 26 acres are no longer required for purposes foreseen across the Master Plan horizon, have limited revenue generating potential, are unserviced, and have been designated as surplus within the Airport Land Use Plan. It is recommended that these lands be declared surplus and disposed pursuant to the City of Sarnia Bylaw No. 1995-101 and in accordance with all applicable provisions of the Municipal Act. This process is anticipated to include:

1. The declaration of the designated parcels as surplus;
2. The completion of a property value appraisal;
3. The provision of notice to the public;
4. Severances for each parcel;
5. The entry into negotiations with interested purchasers; and
6. The approval of the purchase agreement by City Council.

It is anticipated that the characteristics of the parcels will influence both their valuation and number of interested purchasers. Specifically, none of the surplus lands are serviced, all are landlocked, and the parcels are subject to the one-zone floodplain policy area limitations described in the Constraints Analysis. It is anticipated that interest in the fragmented parcels would primarily be limited to adjacent landowners. It is recommended that the proceeds from future purchase and sale agreements be directed to Airport-specific reserve funds.

9.7 Aerial Tourism Strategy

Aerial sightseeing services, which are currently provided by Huron Flight Services, are a growth opportunity that can contribute to the regional tourism economy. Tourism Sarnia Lambton (Ontario's Blue Coast) is the Destination Marketing Organization for Lambton County, with the stated vision of fostering partnerships within Sarnia-Lambton to grow the tourism industry. Huron Flight Services is listed within the Tourism Sarnia Lambton website. While future collaboration between Tourism Sarnia Lambton, as an external organization from the City, and Huron Flight Services is not directly within the purview of the City, it is recommended that City Staff explore opportunities for improved marketing of the aerial tourism services available at the Airport with Tourism Sarnia Lambton and Huron Flight Services. This could include featuring aerial sightseeing tours on Tourism Sarnia Lambton's outdoor / beach experience pages on its website and social media.

Similar to the commentary provided with respect to the establishment of a new FTU at the Airport, the preparation of new leasehold lots in the Aviation Commercial Development Area may provide an opportunity for an additional aerial tourism provider to be based at the Airport. Such an opportunity, if raised by a prospective operator to the City through a leasehold inquiry, would be welcomed in the interest of revenue generation and broadening the Airport's economic role. However, proactive outreach to secure an additional aerial tourism service provider is not recommended as a strategy.

9.8 General Aviation Growth Strategy

The Role Statement articulated in Section 6.1 notes that private general aviation can serve a complimentary role to the Airport's role as an aviation hub and can contribute to a diversified mix of on-site activity. A balanced approach should be pursued that includes the City recognizing the value that general aviation can bring to Sarnia Airport when implemented appropriately, while understanding the pragmatic realities associated with the City's numerous mandates as a municipality and competing priorities for pursuing higher revenue and economic activity generating opportunities (e.g., aviation commercial growth, air carrier services).

Within the City's purview as the owner of Sarnia Airport, the continued accommodation (i.e., retention and growth) of general aviation activity can be accomplished by:

- Facilitating opportunities for based aircraft through leasehold hangar lots as part of the General Aviation Development Area (Sections 5.7 and 8.2.2), as well as long-term outdoor parking at the General Aviation Tie-Down Area;
- Providing a financial environment (i.e., rates and fees) that balances the generation of revenue with the price elasticity of general aviation stakeholders, including the consideration of land lease rates, landing fees / access fees, and parking fees;
- Supporting current and potential future general aviation-oriented commercial tenants, including Huron Flight Services, Sarnia Aircraft Service, AMOs, FBOs, etc.; and
- Where initiatives are proposed by general aviation groups that are aligned with the Airport's strategic priorities and consistent with safe operations (e.g., fly-in events), playing a supporting role that enables the success of these events.

With respect to the final point, groups such as Sarnia's COPA Flight 7 take an active role across Canada in championing events such as first flight programs for youth and underrepresented groups in aviation, fly-ins, fundraisers, and air shows. These events represent opportunities to increase the awareness of, and connection to, the surrounding community to the Airport. COPA Flight 7, as the local flying organization, is well-positioned to champion such events and recently has done so through the 2021 open house event. While such events are recommended to be championed by groups such as COPA Flight 7, it is recommended that the City and their contracted Airport Operator continue to provide an environment that is conducive to safe and responsibly managed general aviation programming.

Piper PA-28 based at Sarnia Airport

9.9 Highway Advertising Strategy

Consistent with the recommendation advanced by the SAAWG in their October 2021 Report, the City of Sarnia's Procurement of Goods and Services Policy will require that a competitive process be executed to select a qualified highway advertising vendor. It is recommended that City Staff complete the preparation, release, and administration of a Request for Proposals process in the short-term planning horizon to identify proponents and evaluate submissions on criteria such as:

- Financial benefits to be realized by the City;
- Opportunities for including Airport-related messaging;
- Upfront costs and obligations of the proponent and City; and
- Visual appeal of the proposed system.

9.10 Agricultural Cropping Strategy

The continued use of Airport Reserve designated lands within the Airport Land Use Plan for agricultural cropping is recommended throughout the planning horizons of the Master Plan. Agricultural activities represent a productive and suitable use of the subject lands. Historically, cropping agreements have been made between the Airport Operator and a neighbouring farmer. With the recommended transfer of revenue generation from Scottsdale Aviation to the City, it is assumed that future multiyear agreements will be formed directly between the City and interested proponents, likely through a competitive procurement process. Proposals may be evaluated by City Staff according to the price per acre proposed, opportunities to farm previously uncropped acres as described below, and the proponent's familiarity with operating safely in an airside environment.

Consistent with the Airport Land Use Plan and the analysis completed by SAAWG, the City may explore options for using previously uncropped areas of the Airport Reserve area through the procurement process.

9.11 Utility-Scale Photovoltaic Power Generation Strategy

Through the discussion provided in Section 5.8.5, while the Airport is potentially well-suited for a utility-scale photovoltaic power generation project, the cancellation of the provincial Feed-In Tariff Program has resulted in a decrease in such development in Ontario. It is recommended that City Staff monitor for changes in the photovoltaic funding environment throughout the Master Plan horizon in coordination with the Sarnia Lambton Economic Partnership. If conditions change in the future, a more detailed analysis and attainment strategy may be developed.

9.12 Business Development Supporting Initiatives

In addition to the opportunity-specific strategies described in the preceding sections, four supporting initiatives are described herein to improve the overall business development environment of the Airport:

1. Addressing the Airport's online presence;
2. Improving the information available on business development opportunities;
3. Clearly defining and streamlining the development approval process; and
4. Cross-promoting the Airport in other economic development materials.

Commentary is also provided on opportunities raised in October 2021 pertaining to the potential integration of the Airport with the Sarnia 402 Business Park.

A recurring comment made throughout the Master Plan is the need to position Sarnia Airport as a cost-effective alternative to competitor airports with higher levels of service and different value propositions. The revised rates and fee's structure recommended in Section 12.2 can also be viewed as a supporting initiative for business development, despite being discussed separately.

9.12.1 Airport Online Presence

In March 2022, the City and Airport Operator launched an Airport website: sarniaairport.com. This resource will be of considerable value in articulating the business development opportunities of the Airport. As part of the ongoing Sarnia Airport website updating process, it is recommended that the following information be included and refreshed on a regular basis:

- Available passenger air services;
- Airport business information;
- Development and growth opportunities;
- Marketing resources; and
- Contact information for the Airport Operator and Airport Administrator.

9.12.2 Airport Opportunity Packages

In addition to the active outreach strategies recommended previously, it is recommended that a series of three opportunity packages be prepared, posted on the Airport website, and distributed among aligned economic development stakeholders (i.e., Sarnia Lambton Economic Partnership and Sarnia Lambton Chamber of Commerce). The intent is that each package will clearly articulate the respective opportunity of interest for Sarnia Airport, the suitability of the facility and competitive advantages, the financial environment, next steps for prospective individuals or businesses, and contact information. In essence, the opportunity packages will serve as the first source of information pertaining to Airport-related business development prior to proponents contacting the City to discuss further. The three recommended opportunity packages are as follows:

1. Air Service Development;
2. General Aviation Development; and
3. Aviation SME Hub / Commercial Development Area.

As the non-aeronautical opportunities identified for the Airport (the Groundside Commercial Development Area, highway advertising, agricultural cropping, and photovoltaic power generation) are recommended to be advanced through RFEI and RFP processes, the development of an opportunity package is not recommended at this time. If the active outreach of the RFEI and RFP processes does not yield market interest, then consideration may be given to development such a package for review in subsequent years by prospective parties (i.e., passive marketing).

9.12.3 Establishment of Approval Processes

For proponents considering Sarnia Airport for their intended operation (e.g., air carriers, aviation SMEs, general aviation hangar tenants), a clear and consistent approvals process is recommended to ensure that prospective growth is not dissuaded because of unnecessary delays or false expectations. Individuals and businesses considering Sarnia Airport will be investing considerable amounts of time and financial resources in advancing their plans, yet a common source of frustration with municipally owned airports is that the path from interest to implementation can be circuitous, become stalled, or be prohibitively long.

Similar to the opportunity packages recommended for air service development, general aviation hangars, and the Aviation SME Hub, it is recommended that City Staff internally coordinate and establish approvals processes for each category of growth. Prior to these opportunities being marketed publicly, it is advisable that the City reviews:

- The manner in which each Department will be involved;
- Required permits and approvals, such as Site Plan Control and Building Permits;
- Applicable charges and fees;
- What approvals by Council are required, versus where City Staff have delegated authority; and
- The step-by-step process that proponents will follow from idea conception to implementation, including associated timelines and costs.

This information should be clearly communicated through the opportunity packages and Airport website and be fully supported by City Staff. It is recommended that the City's Director of Economic Development, and later the Airport Administrator when recruited, be established as the point of contact for Airport-related development inquiries and serve as the business development facilitator, guiding proponents through the applicable municipal approval process.

9.12.4 Marketing Resources Cross-Promotion

In addition to the marketing initiatives proposed for Airport-specific opportunities described throughout this Section, the facility continues to serve as an economic development asset that may be leveraged depending on the unique requirements of current and prospective businesses in the region, as discussed in Section 4.4.4. As with the other economic development resources in the Sarnia-Lambton catchment zone (e.g., the oversized vehicle load corridor, Highway 402, the Sarnia Harbour, etc.), the Airport should be featured in economic development resources and marketed as an advantage of locating in the area. The City, alongside aligned organizations such as the Sarnia Lambton Economic Partnership and Tourism Sarnia Lambton, should take the opportunity to update marketing materials and online resources with Airport-related content, highlighting the economic opportunities that exist and value that the facility provides.

9.12.5 Sarnia 402 Business Park Integration

The Sarnia 402 Business Park is located approximately 500 m to the south of the Airport, across Highway 402. The 402 Business Park offers approximately 85 acres of land, is serviced for new development, and is zoned for a range of industrial and commercial uses. Consideration was given by the SAAWG through their October 2021 Report on opportunities for integrating the Airport and the 402 Business Park more closely, including aspects such as common naming, shared management, marketing, and the pursuit of cost efficiencies.

The strategic positioning of the Sarnia 402 Business Park was reviewed at the direction of the City by subject matter experts in 2022 (Competitive Market Analysis: Sarnia Business and Research Park, 402 Business Park), following the completion of the Municipal Comprehensive Review in support of the new Official Plan. The consultants (The Planning Partnership, MDB Insight, and urbanMetrics) made several conclusions through their March 2022 report, including that:

- The 402 Business Park is not seen as providing the same value as the Sarnia Business and Research Park and its competitive advantages are not widely understood;
- Stakeholders perceive the site as lacking a clearly defined vision; and
- The lands were noted by stakeholders to be at a disadvantage with the lack of direct access to Highway 402, absence of transportation alternatives, and minimal existing amenities or land use synergies.

The March 2022 Competitive Market Analysis identifies the Sarnia 402 Business Park as a potential location for traditional employment lands, including value added agricultural processing, information and communications technology, and human capital-based employment – however, these potential directions are subject to a range of other recommendations that seek to increase the strategic value of the 402 Business Park.

Positioning Sarnia Airport and the Sarnia 402 Business Park as a combined or integrated facility is not recommended for consideration based on the information available at the time of the Master Plan's preparation. While the proximity of the 402 Business Park to the Airport may be a competitive advantage to select end users depending on their transportation needs and should be marketed as such in future resources (Section 9.12.4), a reciprocal linkage does not exist in aligning the Airport with the 402 Business Park. Opportunities for shared management or cost efficiencies have also not been identified through the planning process.

10 CONTINUED OWNERSHIP VS. DIVESTMENT

A recurrent theme that has been raised among members of the public and City Council is whether the facility should be divested and offered for sale to a private purchaser. Widespread attention has been given to this topic following the loss of scheduled passenger air services (March 2020), the Airport Operator's request for municipal funding due to a significant reduction in revenues (September 2020), and the release of the City of Sarnia Economic Development Strategy that recommended divestment of the facility (September 2020).

The question of whether the City should have a continued role in owning the Airport is presented separately from the discussions of governance, funding, administration, and operational models in Section 11, as the decision to declare the Airport as surplus to the municipality's needs and initiate the sale process would render such analyses and recommendations unapplicable. The decision of whether the City should continue to be involved in the ownership of the Airport is a fundamental matter that influences every other aspect of the implementation of the Master Plan. The Master Plan is therefore being prepared and presented for consideration and represents a turning point for the Airport – the choice that City Council makes will position the facility on one of two paths for the future.

The intent of the Master Plan and the following discussion is to equip City Council, stakeholders, and members of the public with the information required to make an informed decision on the divestment of the Airport, and to identify areas where further study will be required by the City to fully understand the implications of each action.

10.1 Comparator Airports Review

Sarnia Airport has been owned solely by the City since the divesture of the facility from Transport Canada on June 27, 1997. The transfer of the Airport to the City occurred amid the federal government's implementation of the National Airports Policy in the 1990s, which included the divesture of numerous regional and local airports similar to Sarnia to provincial and local governments, not-for-profit airport commissions, and private businesses. This approach was predicated on the assumption that regional airports would be best overseen by bodies or groups with in-depth understandings of local interests and contextual factors.

In Ontario, 16 "Regional / Local" airports, including Sarnia, were divested to local entities by Transport Canada. As shown in Table 10.1, 12 of these 16 facilities supported scheduled passenger air services in 2019, with 8 of 12 owned by municipalities and the balance owned by airport authorities, port authorities, and airport development corporations.

Table 10.1 also indicates the ownership statuses of four comparable airports in southern Ontario that supported scheduled passenger air services in 2019 and were not part of the Transport Canada divestiture program. Each of the four airports in this category are municipally owned. In Ontario, municipal ownership is the prevailing model among post-divestment National Airports Policy Regional / Local facilities that continue to support scheduled passenger air services, as well as other comparable regional airports in southern Ontario that support passenger services but were not officially designated within the NAP.

Table 10.1 - Comparator Airport Ownership Status, Facilities Supporting Scheduled Passenger Services

Airport	Ownership Category	Owner
National Airports Policy Regional / Local Airports		
Sarnia Chris Hadfield Airport	Municipal	City of Sarnia
Billy Bishop Toronto City Airport	Authority	PortsToronto (Toronto Port Authority)
Dryden Airport	Municipal	City of Dryden
Fort Frances Municipal Airport	Municipal	Town of Fort Frances
Hamilton International Airport	Municipal	City of Hamilton
Kenora Airport	Authority	Kenora Airport Authority
North Bay Airport	Municipal	Municipality of North Bay
Red Lake Airport	Municipal	Municipality of Red Lake
Sault Ste. Marie Airport	Authority	Sault Ste. Marie Airport Development Corporation
Greater Sudbury Airport	Authority	Sudbury Airport Community Development Corporation
Timmins Victor M. Power Airport	Municipal	City of Timmins
Windsor International Airport	Municipal	City of Windsor
Non-National Airports Policy Regional / Local Airports [1]		
Kingston International Airport	Municipal	City of Kingston
Muskoka Airport [2]	Municipal	District Municipality of Muskoka
Niagara District Airport [2]	Municipal	Town of Niagara-on-the-Lake
Region of Waterloo International Airport	Municipal	Region of Waterloo

Notes

[1] Comparable airports in southern Ontario that supported less than 500,000 passengers in 2019 were included.

[2] Muskoka and Niagara District were Transport Canada “Small” airports that were divested as part of the National Airports Policy.

Analysis of the ownership models of Ontario airports that do not support scheduled passenger air services proved to be less consistent as numerous airports are municipally or privately owned. In recent years, several municipally owned airports in southern Ontario have been declared surplus and acquired by private-sector purchasers, including:

- Owen Sound – Billy Bishop Airport (2021);
- Wiarton Keppel International Airport (2021);
- Wingham / Richard W. LeVan Aerodrome (2021);
- Collingwood Regional Airport (2019);
- Orillia Rama Regional Airport (2016); and
- Carp Airport (2011).

Conversely, numerous airports without scheduled passenger air services continue to be owned by one or more municipalities, with examples including:

- Oshawa Executive Airport – City of Oshawa;
- Peterborough Airport – City of Peterborough;
- Lake Simcoe Regional Airport – County of Simcoe, City of Barrie;
- Stratford Municipal Airport – City of Stratford;
- St. Thomas Municipal Airport – City of St. Thomas;
- Chatham-Kent Municipal Airport – Municipality of Chatham-Kent; and
- Tillsonburg Regional Airport – Town of Tillsonburg.

Ultimately, the comparator airports review demonstrates that among regional airports in Ontario, there are numerous examples of municipally owned facilities as well as a growing number of privately operated (divested) airports. The predominant model at regional airports supporting scheduled passenger services in Ontario is for these facilities to be municipally owned – while other privately owned Canadian airports (e.g., Mont-Tremblant International Airport) support passenger services, this is not the predominant model. As discussed further below, each municipality must determine whether there is a sufficient justification that warrants their involvement in airport ownership on a case-by-case basis.

10.2 Benefits, Weaknesses, and Implementation Considerations

The divestment of Sarnia Airport could result in positive outcomes for the municipality, as well as negative aspects that could prove to be detrimental from an economic development and social benefit perspective. Also identified are implementation considerations that, while they cannot definitively be labeled as benefits or weaknesses, may require further study or could influence the outcome of the divestment process.

10.2.1 Benefits

One-Time Revenues

The one-time revenues gained through the purchase and sale agreement could be redirected to other municipal projects and priorities. The 2020 Economic Development Strategy Report identified the Sarnia Waterfront and / or Sarnia Research & Business Park as areas where sale funds could be directed.

For comparative purposes, Owen Sound – Billy Bishop Airport was reportedly purchased for $1.5M, Wiarton Keppel International Airport was purchased for $2.6M, and Wingham / Richard Levan Airport was acquired for $200,000 (all purchases occurred in 2021). An estimate cannot be provided on the potential sale price of Sarnia Airport, and these values are provided for information purposes only as examples.

Operating and Capital Costs

As explored in Sections 11 and 12, the historical model whereby the City has had minimal financial involvement in funding the Airport's operating and capital costs is anticipated to no longer be applicable. The historical model heavily depended on revenues generated by scheduled passenger air services – a service that is not currently provided at Sarnia Airport. In addition, the historical model did not include provisions for capital rehabilitation, resulting in an infrastructure deficit that has accumulated since the time of divestiture.

It is expected that the City will be responsible for subsidizing the facility's operating deficit and for fully or partially contributing to capital rehabilitation and expansion projects, potentially with funding support from external sources. The divestiture of the Airport would absolve the City of these financial requirements and allow for these resources to be directed to other municipal priorities.

Council and Staff Level of Effort

While the involvement in the Airport by City Staff and City Council has historically been limited, the models of governance, administration, and operation recommended in Sections 11 will result in an increase in the level of effort required by Staff and Council.

Motivated Ownership

If acquired by a sufficiently motivated owner with expertise in the aviation sector, an increased business-like focus may be directed to the Airport. For a private owner with financial stake in the success of the Airport, increased prioritization may be given to pursuing and securing business development and growth opportunities, with such activities being the primary focus of the owner as opposed to the numerous competing priorities of the City as a municipal government. If the successful buyer identifies a business case for maintaining the Airport as a publicly available facility, then the economic and social benefits that currently and have historically been realized throughout the region may continue to occur.

The significant growth that has occurred at the Orillia-Rama Airport following its transition to private ownership is a commonly cited example in southern Ontario of the merits of private oversight of regional airports. Since the transition to private ownership, numerous new general aviation hangars have been developed, the Airport's infrastructure has been expanded, and a new restaurant has been opened.

10.2.2 Weaknesses

Loss or Reduction of Aviation Capabilities

While the acquisition of the Airport by a buyer motivated to operate the facility for aeronautical purposes would ensure its continued availability and associated economic and social benefits, this aviation asset may be lost if:

1. The buyer intends to redevelop the facility for non-aviation purposes; or
2. The new owner is unable to sustain the operating and capital / or financial burdens associated with maintaining the facility or enters into insolvency.

The closure of the Airport by its private owner would eliminate the ability for the economic and social benefits described elsewhere in the Master Plan to be realized throughout the region and would eliminate a transportation option for the Sarnia-Lambton catchment area. This would impact economic development pursuits for companies that require timely air access to support their operations.

Additionally, the future owner may choose to reduce the level of service available at the Airport with corresponding impacts on aircraft operations. If the future owner decertifies the facility to reduce their regulatory obligations and associated costs, scheduled passenger air carrier services would no longer be permitted at the Airport. Once airport certification is relinquished, the level of effort and cost associated with re-certifying is expected to be substantial.

Reduced Municipal Control

Aviation is largely within the federal domain of jurisdiction; while the City is able to exercise control over operations, development, and future planning at the Airport as the owner, transitioning the facility to private ownership would reduce this control.

Attempts by municipalities to exert control over private airports have been subject to numerous legal challenges in past decades. Provided below are three examples where the City's control over development, operations, and planning may decrease with its sale to a private owner:

1. **Airfield Expansion Projects:** Large-scale infrastructure expansion projects, such as the extension of Runway 15-33, are not subject to municipal approval. Extending the runway by more than 100 m or 10%, for example, would trigger the consultation requirements of Canadian Aviation Regulation 307 – the City would be circulated as part of this process, but Transport Canada would be the approval authority. The federal Impact Assessment Act is initiated for the expansion of an existing runway that increases its AGN – again, the municipality is not the approval authority for such Impact Assessments.
2. **Aircraft Noise / Disturbance:** The private owner would be responsible for implementing restrictions, if any, on the types of aircraft that can operate at the Airport and the hours during which they can operate. Municipal noise bylaws cannot be used to control aircraft noise, and mandatory noise abatement procedures are subject to the approval of Transport Canada.
3. **Land Use Controls:** In past court decisions, the ability for municipal Official Plans and Zoning Bylaws (or their equivalents in other provinces) to control airport development has been challenged, including the construction of hangars.

The City may also have a reduced ability to integrate the Airport in municipal and regional transportation and land use planning, given this reduced level of control over its future.

10.2.3 Implementation Considerations

1997 Headlease Agreement

The City's headlease agreement extends until June 30, 2027. Based on HM Aero's review of the 1997 Headlease Agreement, termination clauses do not appear to have been included in favour of the City. While the 2021 Headlease Amendment, set to expire on January 31, 2023, provides a termination clause in favour of the City with 60 days written notice, the upcoming expiration of this amendment will result in the City having limited mechanisms through which to terminate the 1997 Headlease Agreement. If the City elects to terminate the 1997 Headlease Agreement without the 60-day termination clause of the 2021 Headlease Amendment, Scottsdale Aviation may be entitled to pursue damages for early termination. This consideration will require analysis by the City Solicitor.

Outstanding Lease Obligations

Numerous multiyear land lease agreements have been entered into by Scottsdale Aviation to the end of their headlease agreement in 2027, or by Scottsdale Aviation with the approval of the City to years extending past 2027 (e.g., 2051, 2054, etc.). If the City decides to divest the Airport, subtenants may be entitled to damages depending on the terms of their sublease agreements and the manner in which these agreements are addressed by the future purchaser. As with the preceding consideration, this matter will require further analysis by the City Solicitor on a lease-by-lease basis.

Redevelopment Potential

It is understood that one viewpoint held among select proponents of divesting the Airport is that the site could be redeveloped for alternative non-aeronautical purposes, such as residential housing. A comprehensive review has not been undertaken regarding the suitability of the property for residential purposes; however, it is noted that the site is located outside of the Urban Boundary established through Sarnia's 2014 Official Plan and the Draft 2022 Official Plan. Growth is directed in the Official Plan to the urban area, which is designated to contain the full range of land needs required.

Prior to the consideration of an urban boundary expansion, a municipal comprehensive review must be undertaken to identify warranted land needs. Per the 2014 Official Plan, these land needs shall be accommodated according to the following priorities:

1. Intensification and redevelopment;
2. Greenfield areas;
3. Through an amendment of the land use structure within the existing urban boundary; and
4. Through the consideration of an urban boundary expansion.

A comprehensive review was undertaken in support of the Draft 2022 Official Plan which concluded that there is not a requirement to pursue a boundary adjustment within the terms of this upcoming planning document under the 45% Intensification Scenario. This finding was further supported through City Staff's report to Council on May 17, 2021, stating that *"…there is no rationale to pursue a boundary adjustment to accommodate this anticipated population growth at this time."* Further, lands subject to natural hazards are to be avoided – as noted in Section 8.1, select parts of the site are designated as natural hazard areas.

Noting the scope of this study as an Airport Master Plan, additional analysis is not provided on the suitability of the Airport property for non-aeronautical uses. However, it is noted that the redevelopment potential of the Airport site may be limited on account of existing and draft planning policies applicable to the municipality. This may influence the success of the purchase and sale process versus the expected outcomes of the City by constraining the range of uses that could be accommodated on-site.

Site Preparation and Environmental Remediation

The City may be required to undertake preparatory works prior to offering the Airport property for sale, including the identification of areas of suspected environmental contamination (e.g., in the vicinity of aircraft fuelling facilities, de-icing areas, and existing and former aircraft maintenance facilities) and the completion of environmental remediation activities. Environmental liability is a key area of focus in real estate transactions; prospective purchasers will require the materials needed to satisfy their due diligence process (e.g., a Phase 1 Environmental Site Assessment), the upfront costs for which may be borne by the City while readying the property for sale. If environmental contamination is identified, the costs of remediation will likely be borne by the City and could be substantial.

10.3 Discussion

The City of Sarnia provides a range of services to support its citizens, enable the municipality to function on a daily basis, and confer economic benefits or opportunities. The provision of a service by the municipality is based on the identification of sufficient benefits and / or opportunities that, in the event that the service is not financially self-sustaining, justify the cost of providing said service. This dynamic is challenged by the finite financial resources available to municipalities for which numerous capital and operating priorities compete, and the desire to reduce tax-supported deficits.

The City of Sarnia is not legislated to maintain an operational airport; accordingly, municipal decision-makers must consider whether the past, current, and potential future benefits of Sarnia Airport justify continued municipal investment in the facility in terms of operating and capital financial contributions, City Staff resources, and City Council attention. To support this decision, the Master Plan has sought to clearly and transparently:

- Enumerate the quantitative and qualitative economic and social benefits of the Airport (Section 4);
- Identify potential business development and growth opportunities (Section 5); and
- Outline the expected financial implications of maintaining the facility (Section 12).

It is the opinion of HM Aero that the Airport is an economic and social asset that confers significant benefits to the region and is expected to continue to do so in the future – a view shared by numerous stakeholders engaged during the planning process. Capital costs and an operating deficit are associated with the provision of these economic and social benefits. The decision on continuing to maintain ownership of the Airport versus divesting the asset rests with City Council as the governing body upon considering the findings of the Master Plan, perspectives shared by residents and stakeholders, and additional research that may be completed.

It is recommended that consideration be given to this fundamental question of continued ownership versus divestment in the immediate term – i.e., 2022 or 2023. If the will of City Council is for the Airport to continue to be a publicly owned asset with attention given to stimulating new growth and development opportunities, then this commitment should be clearly and publicly documented, and support given to the implementation of the recommendations of the Master Plan. Uncertainty regarding the Airport's future is detrimental to numerous fundamental elements that will influence its success, including:

- Operating agreement negotiations with Scottsdale Aviation and / or prospective service providers;
- Attention being given to reducing the Airport's infrastructure deficit through the City's capital budget process;
- The pursuit of potential grant programs;
- Potential air carriers interested in restoring scheduled passenger air services; and
- Prospective private and commercial land lease tenants and employers.

11 GOVERNANCE, FUNDING, ADMINISTRATION, AND OPERATIONS STRATEGY

The governance, funding, administration, and operations of Sarnia Airport are four interrelated concepts that influence all other aspects of the Master Plan. Without an effective governing body that is committed to funding the operations and capital projects of the Airport, the facility's long-term future cannot be assured. For regional airports that were formerly owned by Transport Canada and divested to lower-tier municipalities across the country, the questions of governance and funding are among the most challenging yet simultaneously important to be addressed.

11.1 Current Model (1997-2022)

11.1.1 1997 Headlease Agreement and Amendments

While the governance, funding, administration, and operations of the Airport will be discussed separately in the following subsections, each matter is contextualized and influenced by the 1997 Headlease Agreement established between the City of Sarnia and Scottsdale Aviation. On July 1, 1997, the City and Scottsdale Aviation entered into an agreement following the divesture of the Airport from Transport Canada that established a range of managerial, operational, and financial obligations between the two parties. Generally speaking, the effect of the 1997 Headlease Agreement was to largely transfer the City's managerial and operational responsibilities for the Airport post-divesture to Scottsdale Aviation, who leased the facility from the City for an annual payment of $1.00. This agreement is unique in nature in the Canadian context.

The headlease agreement between the City and Scottsdale Aviation has gone through several amendments, which are summarized as follows:

- **July 1, 1997** – Establishment of the 1997 Headlease Agreement. The 1997 Headlease Agreement was established with the initial term to June 30, 2017.
- **August 1, 2000** – Establishment of the 2000 Headlease Amendment. The 2000 Headlease Amendment granted a 10-year extension the agreement term to June 30, 2027 and included minor revisions regarding the use of reserve funding by Scottsdale Aviation and potential changes to Runway 05-23 (now Runway 06-24).
- **January 1, 2021** – Establishment of the 2021 Headlease Amendment, which introduced a clause whereby the City would pay Scottsdale Aviation up to $30,000.00 per month in recognition of the significant decrease in revenues experienced because of the termination of scheduled passenger air carrier services. The 2021 Headlease Amendment also introduced a mutual termination clause that may be exercised by either the City or Scottsdale Aviation.

  The 2021 Headlease Amendment was originally to expire on October 25, 2021 and was extended on two occasions at the direction of City Council to its current expiration date of January 31, 2023.

The specific implications of the 1997 Headlease Agreement and subsequent amendments on governance, funding, management, and operations are addressed in the following sections.

11.1.2 Governance and Advisory Support

Airport governance involves several important aspects, mainly how decisions are made regarding the airport's operation, future planning, marketing, and business development. The historical governance of the Airport can be divided into two primary periods following divestiture by Transport Canada:

1. 1997 to 2021, with Sarnia City Council being the governing body but with significant decision-making authority conferred to Scottsdale Aviation; and
2. 2021 to present, with the addition of the Sarnia Airport Action Working Group as an advisory body to Sarnia City Council.

Sarnia City Council

As a City owned asset, the nine elected representatives (one mayor, eight councillors) of Sarnia City Council are the Airport's governing body. Historically, decision making regarding the Airport has been limited on account of division of responsibilities established through the 1997 Headlease Agreement with Scottsdale Aviation. However, with the increase in involvement by the City from 2020 to present following fundamental changes to the Airport's financial position, City Council's governance role has similarly increased. Decisions pertaining to the Airport rise to Council through City Staff either on an as-required basis (e.g., interim decision-making throughout the year) or on a scheduled basis (e.g., with annual budget deliberations). The decision-making authority of City Council is supported by recommendations made by City Staff and the SAAWG.

Scottsdale Aviation

While Sarnia City Council is the Airport's governing body as the facility is a municipally owned asset, the 1997 Headlease Agreement delegates numerous decision-making responsibilities and authorities that would typically be held by a municipal council to Scottsdale Aviation. These include, but are not limited to:

- Permitting new development, with Scottsdale Aviation functioning as the sublandlord to its subtenants. Sublease agreements extending beyond the amended term of the 1997 Headlease Agreement (2027) also require approval of City Council;
- Making decisions as to the level of service maintained at the facility (e.g., hours of operation, number of staff, winter maintenance response times, etc.);
- Determining capital projects to be undertaken, subject to clauses that assign grant funding application responsibilities to the City; and
- Determining the rates and fee's structure.

Sarnia Airport Action Working Group

The Sarnia Airport Action Working Group was established in March 2021 following the release of the 2020 City of Sarnia Economic Development Strategy (Section 3.1.2) that had recommended the divestment of the Airport. SAAWG was formed with the mission of:

> *"…[informing] and [advising] staff and City Council on the opportunities and strategic direction of the Sarnia Chris Hadfield Airport that contribute to its future as a significant economic driver. This mission shall be accomplished through the provision of advice and recommendations on future development."*

SAAWG's membership includes one representative each from the Lambton Federation of Agriculture, Sarnia & District Labour Council, Sarnia Lambton Chamber of Commerce, Sarnia Lambton Industrial Alliance, Tourism Sarnia-Lambton, and the Airport business community, as well as two citizen appointees. Advisory and administrative support is provided by Scottsdale Aviation, in a non-voting role, and City Staff. SAAWG serves as an advisory committee of Council and has no independent or delegated decision-making or governance authority.

Recommendations of SAAWG are raised at City Council through City Staff for decisions where applicable, per City Council's role as the governing body.

The 2021 SAAWG report and 18 recommendations, as documented in Section 3.1.4 was the culmination of the group's efforts from March 2021 to October 2021 and contextualizes the Airport Master Plan. SAAWG will continue to provide ongoing advisory support until the expiration of its current term on December 31, 2022.

Existing Governance and Advisory Model Conclusions

From 1997 until 2020, City Council had minimal need to exercise its decision-making role regarding the Airport given the significant authority conferred to Scottsdale Aviation through the 1997 Headlease Agreement and the limited major developments requiring action during that period. With respect to the existing governance of the Airport, the following conclusions are made:

- As a municipally owned asset, governance by City Council is an appropriate model and is comparable to the manner in which other City services (e.g., Sarnia Transit, Sarnia Harbour) are governed. City Council has the full authority required to make all manner of decisions regarding the Airport and has the financial resources to operate the facility;
- While City Council has the ultimate decision-making authority over the Airport, the delegation of responsibilities to Scottsdale Aviation through the 1997 Headlease Agreement significantly reduced the level of effort borne by Council. Given the period of comparative stability from 1997 to 2020, this largely hands-off approach was adequate – however, the fundamental changes to the Airport's financial position between 2020 and 2022 have highlighted that this level of effort can increase when decisions with financial and / or strategic implications must be made;
- The partial detachment of City Council from the Airport afforded by the 1997 Headlease Agreement from 1997 until 2020 may have created expectations that in the future, Council's level of effort could revert to a primarily hands-off approach; and
- The SAAWG has served an important role in championing the Airport and providing recommendations to Council during a period of considerable change and uncertainty.

11.1.3 Funding

The methods of managing Sarnia Airport's capital and operating costs can be divided into two periods, similar to the discussion provided with respect to governance: 1) 1997 to 2020; and 2) 2021 to present.

Funding Model: 1997 to 2020

The funding context for the Airport was established in 1997 through the Headlease Agreement with Scottsdale Aviation. The funding model of the Headlease Agreement established that:

- Scottsdale Aviation pays an annual rent to the City of $1.00;
- Scottsdale Aviation is responsible for all operating costs associated with maintaining the Airport;
- Scottsdale Aviation is responsible for capital expenditures under $5,000[2] through its internal capital reserves;

[2] The 2000 Headlease Amendment introduced a provision that the $5,000.00 figure would change in subsequent years based on the Statistics Canada Quarterly Construction Price Statistics, or its equivalent.

- Noting that Scottsdale Aviation is responsible for all operating costs, the company also collects all revenues associated with the Airport. These include Passenger Facility Fees, aeronautical fees (e.g., landing fees, parking fees), vehicle parking fees, agricultural cropping revenues, and land lease revenues; and
- While the Headlease Agreement stipulated that the City shall pay all taxes that may be imposed, Scottsdale Aviation was billed for property taxes throughout its term and in turn distributed the tax bill among its subtenants.

Following the divestiture of the Airport from Transport Canada in 1997, approximately $900,000 was provided to the City and directed into the Airport Reserve Fund. The Headlease Agreement stipulated that the Airport Reserve Fund is to be used in instances where funding through the Airports Capital Assistance Program (ACAP) or other governmental grants is unavailable for a given capital project and the capital project exceeds $5,000[3], at which time the costs are to be covered through the Airport Reserve Fund. Additionally, the City is responsible for paying to Scottsdale Aviation annually the interest earned by the Airport Reserve Fund, but not less than 6.5% annually. Scottsdale Aviation, in turn, is to use the interest earned for allowable expenses associated with the operation of the Airport. Through the awarding of ACAP funding from the federal government for air carrier-related capital projects and the lack of investment in non-ACAP eligible infrastructure, the longevity of the Airport Reserve Fund was extended. However, the Airport Reserve Fund is nearly depleted as of 2022.

An additional dimension that must be explored is the financial relationship between Scottsdale Aviation and Huron Aviation, as both companies are owned by the same individual. Based on analysis completed as part of the City of Sarnia Economic Development Strategy, the authors found that from 2016 to 2019, Scottsdale Aviation had an average annual net loss of $163,000 and incurred losses of between $7,000 and $542,000 in three of the four years reviewed. During the same period, Huron Aviation posted an average annual net income of $328,000. Accordingly, the two companies realized a consolidated average annual net income of $166,000 between 2016 and 2019[4].

Funding Model: 2021 to Present

The loss of scheduled passenger air carrier services in March 2020 amid the outset of the COVID-19 pandemic resulted in a rapid and significant decline in revenues to Scottsdale Aviation, through the loss of Passenger Facility Fees and decreased landing fees. While scheduled passenger air carrier services were terminated, the costs associated with maintaining a Transport Canada-certified airport that is available 365 days per year are largely fixed; despite the decrease in activity, Scottsdale Aviation was still responsible for:

- Operating in compliance with its Transport Canada-approved Airport Operations Manual and associated plans and standards;
- Completing routine airfield maintenance, including airfield inspections, snow and ice control, wildlife management, and vegetation management; and
- Conducting maintenance of capital assets in accordance with its responsibilities per the Headlease Agreement.

On September 28, 2020, Scottsdale Aviation submitted a request to Sarnia City Council for financial assistance from the municipality. Through the 2021 Headlease Amendment, the City committed to providing up to $30,000 in funding on a monthly basis between January 1, 2021 and December 31, 2021 to Scottsdale Aviation, following the receipt of records of Scottsdale's revenues and expenses for each month. If the full $360,000 in 2021 was not allocated to Scottsdale Aviation, the unallocated funds are to be directed to the Airport Reserve Fund.

[3] See previous footnote.
[4] The analyses of the financial positions of Huron Aviation and Scottsdale Aviation was completed by MDB Insight as part of the 2020 City of Sarnia Economic Development Strategy. These values have not been independently verified by HM Aero.

Through 2022 budget deliberations, the City allocated up to $400,000 in liquidity support to Scottsdale Aviation to maintain operations at the Airport for the period of January 1, 2022 to December 31, 2022, subject to the extension of the 2021 Headlease Amendment. The City also approved a capital budget request of $420,000 for four Airport-related projects. This represented a departure from the historic non-involvement in capital projects not funded by the Airport Reserve Fund or ACAP from 1997 to 2020.

Existing Funding Model Conclusions

It is understood that public discourse often centres around the view that the Airport existed at no (or limited) cost to the City from 1997 to 2020. The funding model of the 1997 Headlease Agreement minimized the costs borne by the City while the region benefited from a certified airport that supported scheduled passenger air services and a range of other users; however:

- Based on the information available to HM Aero, Scottsdale Aviation largely complied with the requirements of the 1997 Headlease Agreement and 2000 Headlease Amendment, thereby absolving the City of participating in funding operating costs. However, Scottsdale Aviation's financial position is partially obscured through its relationship with Huron Aviation, with the net incomes of the latter offsetting the net losses of the former;
- Through ACAP funding awards for capital projects supporting infrastructure used by scheduled passenger air carriers (e.g., Runway 15-33, Taxiway B, the terminal building apron, etc.), minimal investments in non-air carrier infrastructure (e.g., Runway 06-24, Taxiways A and C, the General Aviation Apron, etc.), and the gradual drawdown of the Airport Reserve Fund, capital expenses borne by the municipality were similarly limited. However, contributions were not made by the City to refill the Airport Reserve Fund and a significant infrastructure deficit has accumulated for numerous capital projects that were not completed from 1997 to 2020; and
- As examined above, this model did not remain viable during a fundamental change to the Airport's operating revenues in 2020 as a result of the COVID-19 pandemic.

11.1.4 Administration

Administrative Model: 1997 to 2020

Historically, the City's administration of its Headlease Agreement with Scottsdale Aviation has been the responsibility of the Director of Economic Development and Planning (1997 to 2017) and City Solicitor (2017 to 2019). Given the minimal involvement by the City in Airport-related matters from 1997 until 2020, no significant deficiencies were identified with respect to City Staff's administrative oversight of the Airport. However, it is the impression of HM Aero that this minimized involvement also resulted in a lack of operational knowledge of the Airport being held within the City.

As described above, Scottsdale Aviation fulfilled most of the administrative duties associated with the Airport in this period. For the purposes of certification, the Accountable Executive and Airport Manager positions were, and continue to be, within Scottsdale Aviation. Given the ambiguous distribution of administrative responsibilities between the City and Airport Operator established through the 1997 Headlease Agreement and the lack of City oversight provided to Scottsdale Aviation, certain stakeholders identified concerns with the how administrative functions were being completed. Challenges identified by stakeholders included inconsistent development approval processes, a lack of clarity around the rates and fees environment, and concern that clear and measurable goals were not established with the Airport Operator to pursue proactive business development and outreach.

Administrative Model: 2021 to Present

In 2021, the administrative oversight of the Airport was transferred to the newly created Director of Economic Development position with support from the City's Economic Development Officer. This transition in oversight coincided with a significant increase in the number of Airport-related matters to be addressed by City Staff with the loss of scheduled passenger air services, requests for financial support by the Airport Operator, formation of the SAAWG, and fundamental questions regarding the facility's future. The oversight of the Airport by the Director complements that position's other responsibilities of overseeing the Sarnia Harbour and economic development pursuits.

Scottsdale Aviation continues to be responsible for most administrative duties associated with the Airport, including providing the Transport Canada-required positions of the Accountable Executive, Airport Manager, and other mandated roles. However, a significant increase has occurred in the involvement of the City's Director of Economic Development, with a more collaborative approach taken between the City and Airport Operator. It is understood that the Airport portfolio occupies a significant proportion of the available capacity of the Director of Economic Development, although the City is benefiting from increased knowledge and oversight of the Airport within its organization.

With the subsidization of the Airport in 2021 and 2022 by the City, the municipality now has a degree of financial control over the facility – per Canadian Aviation Regulation 106.02(2), the Accountable Executive position should therefore reside within the City.

Existing Administrative Model Conclusions

Based on the review of the existing administrative model, the following conclusions are made:

- The 1997 Headlease Agreement did not clearly delineate the differing administrative duties of the City and Scottsdale Aviation. In absence of prescriptive terms, Scottsdale Aviation assumed almost all administrative responsibilities from 1997 until 2020;
- From 1997 until 2020, the lack of administrative responsibilities for City Staff reduced the municipality's level of effort associated with important operational and regulatory responsibilities linked to supporting scheduled passenger air services. This hands-off approach resulted in the creation of silos of knowledge within Scottsdale Aviation and not within the City;
- The transfer of the Airport portfolio to the Director of Economic Development has increased the City's involvement in, and knowledge of, the Airport and represents a more collaborative approach to administrative functions with Scottsdale Aviation; and
- Opportunities exist for the clear delineation of administrative responsibilities and oversight mechanisms between the City and Airport Operator, given the ambiguity of the 1997 Headlease Agreement.

11.1.5 Operations

The operation of the Airport is the responsibility of Scottsdale Aviation who maintains the facility in accordance with its various Transport Canada-approved plans and procedures. Consultations with users and aircraft operators found that the routine maintenance and operations of the Airport by Scottsdale Aviation has historically been performed at an appropriate level of service, and the Airport Operator's staff are appropriately trained to oversee the full range of routine tasks required to ensure the facility's availability.

11.2 Guiding Principles

To support the evaluation of appropriate governance models for Sarnia Airport, a set of guiding principles has been developed through which to evaluate the suitability of alternative models and to identify a preferred governance recommendation for consideration by the City:

1. **Stability / Time Horizon**

   In the short-term planning horizon, numerous high-priority items must be addressed including: 1) the decision regarding whether the City will divest the Airport; 2) the resolution of operating agreement negotiations with Scottsdale Aviation; 3) the commencement of proactive outreach efforts to pursue the restoration of scheduled passenger services; 4) numerous capital rehabilitation projects; and 5) other business development initiatives. To successfully overcome each of these short-term high-priority items, an environment of stability must be created with respect to the foundation of the Airport. Governance and funding strategies that would fundamentally change the Airport's foundation are discouraged until the medium-term or long-term planning horizons, with the focus in the short-term being on incremental and realistic improvements while making progress on the above-noted key action items.

2. **Financial Support**

   While the Airport was historically operated at minimal cost to the City, the facility was not a truly financially self-sustaining asset. An appropriate model must include a mechanism for continued financial support from the City and, potentially, funding partners.

3. **Accountability and Awareness**

   With the anticipated continued requirement for municipal funding support and the involvement of City resources, an appropriate governing model should ensure that the Airport is accountable to its stakeholders and municipal decision-makers. An additional principle of accountability is that funding partners should have the opportunity to provide input in the direction taken by the Airport. Stakeholders, including City Council, County Council, and the public, should have the ability to be informed about their Airport, including its benefits, plans, and decisions being made.

4. **Effectiveness**

   An appropriate governance, administrative, and operating model should be an enabling tool for the success of the Airport, as opposed to a limitation. Matters regarding the Airport should be decided in a timely manner with input from subject matter experts. An appropriate model should also facilitate a safe and efficient Airport operation.

5. **City's Purview**

   The Master Plan has been prepared for the City of Sarnia as the Airport's owner and governing body. When analyzing options for outside financial support from other sources (e.g., Lambton County), it must be recognized that securing such funding represents a political challenge and is not a guarantee. While securing such support is possible, governance and funding recommendations should not create a scenario whereby the implementation of time-sensitive items of the Master Plan is stalled as negotiations unfold towards financial contributions.

6. **Continuity of Operations**

   At all times throughout the Master Plan's horizons and various recommended changes, the priority must be the preservation of the Airport Certificate and continued operations. The loss of the Airport's certification and / or significant disruptions to its operations will significantly hinder the degree to which the recommendations and opportunities of the Master Plan can be attained.

11.3 Comparator Airports

To identify best practices that are being implemented at other airports in southern Ontario, a series of case studies have been reviewed at comparable airports. The reviewed comparator airports have been selected on the following basis:

- Airports owned by Transport Canada and operated by independent airport authorities as part of the National Airports System are excluded – namely, Ottawa Macdonald-Cartier International Airport, Toronto Pearson International Airport, and London International Airport;
- Only certified airports are reviewed to ensure consistency in the applicable regulatory context;
- Ownership must be held by one or more municipalities;
- Reviewed airports should be comparable in their infrastructure network and level of service provided (i.e., permanently staffed / maintained airports);
- Broadly, the example airports should serve similar roles to Sarnia Airport; and
- Although a fundamental goal of the Master Plan is improving the financial sustainability of the Airport, comparators are selected that have governance and funding structures that permit subsidization by their municipal owner(s).

Based on the criteria described above, six airports have been sampled as part of the Master Plan: Peterborough, Oshawa, Kingston, Lake Simcoe, Waterloo, and Muskoka. This is not an exhaustive analysis of all comparable airports across Ontario or Canada; however, the project team is satisfied that the information provided is sufficient to support the subsequent recommendations provided herein.

A high-level overview of the key governance, funding, administrative, and operational elements of each comparator is provided in Table 11.1. Each airport is explained further through the following subsections.

Table 11.1 - Comparator Airport Governance, Funding, Administration, and Operations Overview

Model Element		Sarnia	Peterborough	Oshawa	Kingston	Lake Simcoe	Waterloo	Muskoka
Ownership		Municipality (Lower-Tier)	Municipality (Lower-Tier)	Municipality (Lower-Tier)	Municipality (Lower-Tier)	Municipalities (Upper-Tier and Lower-Tier)	Municipality (Upper-Tier)	Municipality (Upper-Tier)
Governance		Municipal Council	Municipal Council	Municipal Council	Municipal Council	Airport Board of Directors	Municipal Council	Airport Board of Directors
Advisory Committee		Yes	Yes	Yes	Yes (External)	Airport Board of Directors	No	Airport Board of Directors
Funding	Operating Deficits	Operator per Headlease Agreement	Municipality	Municipality	Municipality	Municipalities	Municipality	Municipality
	Capital Projects	Varies per Headlease Agreement	Municipality	Municipality	Municipality	Municipalities	Municipality	Municipality
Administration		Private Corporation through Headlease Agreement	Municipal Airport Administrator Contracted Airport Manager	Municipal Senior Management Contracted Airport Manager	Municipal Staff (Airport Manager)	Municipal Staff (Airport Manager)	Municipal Staff (Airport Manager)	Municipal Staff (Airport CEO)
Operations			Contracted Airport Operator	Contracted Airport Operator	Municipal Staff (Airport Dedicated)	Municipal Staff (Airport Dedicated)	Municipal Staff (Airport Dedicated)	Municipal Staff (Airport Dedicated)
Tax-Supported Operating Deficit (2021)		$259,000	$2,309,000	$419,000	$705,000	$110,000	$5,430,000	$806,000

11.3.1 Peterborough Airport

Peterborough Airport is owned by the City of Peterborough (lower-tier municipality) and serves a wide variety of aeronautical activities including flight training, aviation commercial businesses, corporate and charter flights, and general aviation. Peterborough Airport has grown significantly over the last 10-15 years, supported by more than $35M in infrastructure investments that have been made by the City, Province of Ontario, and Government of Canada.

- **Governance:** Peterborough City Council is the airport's governing body, with advisory support provided by an Airport Strategic Initiatives Committee that was formed in 2021. The mandate of the committee broadly includes providing input on strategic, business, and marketing plans; capital and operating budgets; level of service determinations; and business development efforts.
- **Funding:** The City of Peterborough is responsible for funding the Airport's operating deficit ($2.3 M in 2021) and capital projects. As noted above, the City of Peterborough has experienced considerable success with securing grant funding from the provincial and federal levels of government to advance airport infrastructure projects.
- **Administration:** A City of Peterborough employee fulfills the Airport Administrator position, whose responsibilities include overseeing the contracted airport service provider, site development projects, business development, and other strategic initiatives. The City's Chief Administrative Officer serves as the Accountable Executive.
- **Operations:** Airport operational services are provided by a third-party company (The Loomex Group) on a multiple year basis through a fee for service contract.

11.3.2 Oshawa Executive Airport

The City of Oshawa, a lower-tier municipality, is the owner of the Oshawa Executive Airport. The primary functions of this airport include significant flight training activity; corporate and charter movements; based and itinerant general aviation; and other commercial aerial service providers.

- **Governance:** Governance responsibility for the airport is held by Oshawa City Council. Airport-related matters are first raised at the City's Development Services Committee before arising to Council for final decision. Input from stakeholders and the community is also provided through the Airport Business Plan Working Group and Airport Community Liaison Committee, with both bodies being advisory in nature.
- **Funding:** The City of Oshawa funds the airport's operating deficit ($419,000 in 2021) and capital projects.
- **Administration:** The City's oversight of the airport is the responsibility of the Development Services Department. The City Manager serves as the Accountable Executive.
- **Operations:** Total Aviation & Airport Solutions, a third-party service provider, is contracted by the City to staff and operate the airport through a multiyear fee for service contract.

11.3.3 Kingston Airport

Kingston Airport is owned and operated by a lower-tier municipality (City of Kingston). Kingston Airport is primarily used for flight training; general aviation; corporate and charter activity; and other commercial movements. The facility formerly supported service by Air Canada until 2020, and FlyGTA currently provides connections to Billy Bishop Toronto City Airport. Kingston will receive scheduled passenger air services to Montreal by Pascan Aviation beginning in May 2022.

- **Governance:** Kingston City Council is the airport's governing body. The 16-member Kingston Airport Advisory Committee is run by the Kingston Economic Development Corporation with representation from City Council, Tourism Kingston, Kingston Economic Development, business members, and academia. The committee provides business advice for the airport.
- **Funding:** The operating deficit and capital costs associated with the maintenance of Kingston Airport are borne by the City of Kingston. The facility's operating deficit in 2021 was $705,000, while $850,000 in capital projects are also being advanced that year.
- **Administration / Operations:** Kingston Airport is administered and operated by municipal employees.

11.3.4 Lake Simcoe Regional Airport

Lake Simcoe Regional Airport is owned on a proportional share basis by Simcoe County (90%) and the City of Barrie (10%). Lake Simcoe Regional Airport is currently in the process of completing a comprehensive airfield upgrade program, including the pursuit of certification.

- **Governance:** The airport is structured as a Municipal Services Corporation and governed by a Board of Directors, including representation from both Simcoe County (6 appointees) and the City of Barrie (1 appointee).
- **Funding:** Simcoe County and the City of Barrie both contribute to the costs associated with the continued availability of Lake Simcoe Regional Airport. The City of Barrie's operating contribution in 2019 was $110,000.
- **Administration / Operations:** Lake Simcoe Regional Airport is operated by Simcoe County employees under the Engineering, Planning & Environment Department. The Airport Manager position is responsible for the administration of the facility.

11.3.5 Region of Waterloo International Airport

The Region of Waterloo International Airport is owned and operated by the upper-tier Regional Municipality of Waterloo. The facility serves a wide range of aeronautical roles, including scheduled passenger air carrier services, flight training, corporate and charter traffic, and general aviation. In recent years, the airport has had noteworthy success attracting ULCC Flair Airlines and is undertaking a significant terminal building expansion program to accommodate the associated growth in passenger activity.

- **Governance:** Decisions pertaining to the airport are addressed at council meetings; an airport-specific advisory body is not in place.
- **Funding:** The airport's operating deficit and capital costs are subsidized by the Region of Waterloo on a tax-supported basis. Based on the 2022 budget, the tax-supported operating deficit is anticipated to be approximately $1.8M, and in the previous year was $5.4M.
- **Administration / Operations:** The Region of Waterloo International Airport is part of the Planning, Development, and Legislative Services Department of the municipality. The facility is overseen by an Airport General Manager, and all administrative and operational staff are employees of the municipality.

11.3.6 Muskoka Airport

Muskoka Airport is owned by the District Municipality of Muskoka and serves as the aerial gateway to the region, including supporting seasonal scheduled passenger air services, general aviation, based aviation commercial businesses, and corporate and charter movements.

- **Governance:** An independent skills-based Board of Directors oversee the airport and are accountable to District Council. While Muskoka District Council has the overall governing authority of the airport, it has delegated select strategic and operational decision-making functions to the Board of Directors.
- **Funding:** The District of Muskoka bears the tax-supported operating deficit and capital costs associated with the airport. The 2022 budgeted operating deficit for the airport is approximately $1.2M, with $177,000 in capital spending also planned.
- **Administration / Operations:** Muskoka Airport is administered and operated by District employees, under the oversight of a Chief Executive Officer.

11.3.7 Conclusions

Based on the review of the six comparator airports, the following general conclusions can be made:

Multiple Municipalities: The prevailing model among the sampled airports is for a single municipality to be responsible for governance and funding, with the exception of Lake Simcoe Regional Airport. In single-municipality arrangements, governance was most commonly the responsibility of the municipal council. As Lake Simcoe Regional Airport benefits from funding from two municipalities, a Municipal Services Corporation serves as the governing authority and provides an appropriate mechanism for participation by both parties.

Governance: Except where an alternative structure is required to facilitate the involvement of multiple municipalities (i.e., Lake Simcoe Regional Airport), most reviewed airports are governed by their respective municipal councils. Only Muskoka Airport has established a Board of Directors with delegated authority in a single-municipality arrangement. For reviewed comparators that do not have an airport-specific governing body, three have established advisory committees while one does not.

Funding: Each of the reviewed comparator airports require the financial support of one or more municipalities to fund their operating deficit and / or capital projects.

Administration with Contracted Operations: Based on their operational model, Oshawa and Peterborough are the most comparable to Sarnia as all three airports are maintained by third-party service providers. Oshawa is similar to Sarnia in that the interface between the municipality and the operator is a non-dedicated senior manager with a broader portfolio; in the case of Oshawa, this being the Commissioner of Development Services. The City of Peterborough employees an Airport Administrator directly to oversee the contracted service provider.

11.4 Short-Term Model (2023-2027)

The priority for the short-term strategy is the renegotiation of the operating agreement with Scottsdale Aviation and the establishment of improved administrative and oversight procedures at the City Staff level – generally, taking the steps required to address the immediate-term challenges associated with the 1997 Headlease Agreement and subsequent amendments.

The key elements of the short-term model and their differences versus the existing model are summarized in Table 11.2 and described in detail herein.

Table 11.2 - Short-Term Governance Model Summary

Model Element		Existing Model	Short-Term Model
		1997-2022	2023-2027
Ownership		City of Sarnia	
Governing Body		City Council	
Advisory Support	Business Development	SAAWG (2021-2022) City Staff / Airport Operator	Sarnia Airport Advisory Committee City Staff / Airport Operator
	Airport Oversight	City Staff / Airport Operator	City Staff / Airport Operator Subject Matter Experts
Funding	Operating Revenues	Scottsdale Aviation	City of Sarnia
	Operating Expenses	Scottsdale Aviation	City of Sarnia (Fee-for-Service)
	Operating Deficits	City of Sarnia (2021-2022)	City of Sarnia
	Capital Projects	Post-Divestiture Airport Reserve Fund Federal Grants	Federal Grants City of Sarnia Lambton County (on an as-requested basis)
Administration	Accountable Executive	Scottsdale Aviation	Chief Administrative Officer
	Contract / Agreement Administrator	City Solicitor	Airport Administrator
	Interdepartmental Support	N/A (Limited)	Chief Administrative Officer Corporate Services Community Services Engineering and Operations Fire and Rescue Services
Operations	Mechanism	Headlease Agreement	Fee-for-Service Airport Operating Agreement
	Operator	Scottsdale Aviation	Scottsdale Aviation

11.4.1 Governance and Advisory Support

Governing Body

With the Airport remaining as a City-owned asset, City Council would continue to be the facility's governing body. City Council would have the ultimate decision-making authority on matters such as:

- The approval of annual operating and capital budgets;
- The entry into land lease and commercial service agreements;
- Contractual agreements with the Airport Operator; and
- The entry into grant funding agreements with upper levels of government.

City Council would be supported in their decision-making role through City Staff, with reports arising from the Airport Operator and Airport Administrator through the Director of Economic Development and Chief Administrative Officer to Council, as well as the recommended Sarnia Airport Advisory Committee described below.

Advisory Support – Business Development and Intermunicipal Cooperation

Consideration has been given to whether there is a continued need for an advisory committee to assist in business development matters. The mandate of SAAWG (the current advisory body) includes:

- Facilitating discussions resulting in an exchange of ideas and providing an opportunity for members and the public to explore various options regarding airport operations and long-term plans;
- Providing guidance and input on the implementation of the SAAWG report recommendations to Council to assist in achieving strategic long-term development at the Airport;
- Conducting on-going consultation with stakeholders and members of the public who would like to provide input into the potential future of the Airport operations;
- Being cognizant of the day-to-day operations and make recommendations that may be of assistance to the current tenant (Scottsdale Aviation); and
- Providing a source of expertise that can be called upon by Council or the Airport tenant when required.

SAAWG has served an important role in championing the Airport following fundamental questions regarding the facility's future between 2020 and 2022 – the committee has provided subject matter expertise during a critical period when it was most needed. It is the opinion of HM Aero that the Working Group has largely fulfilled its mandate with the completion of the 2021 SAAWG Report and 2022 Airport Master Plan; therefore, the question becomes whether there is a continuing need for a business development advisory body.

Acknowledging the considerable efforts that will be required to advance the Airport in the short-term planning horizon in terms of its business development goals, practical realities associated with the residual available capacity of City Staff, and the increased collaboration recommended with Lambton County and aligned regional organizations, a continuing need has been identified for an Airport-related advisory committee focused primarily on business development. It is recommended that the mandate of the Sarnia Airport Advisory Committee be refined from that of the SAAWG and be focused on the following primary areas:

1. Creating opportunities for feedback to City Staff and the Airport Operator on business development and growth strategies;
2. Providing a forum for integrating aligned economic organizations in Airport-related marketing and business development efforts, including the Sarnia Lambton Economic Partnership, Tourism Sarnia Lambton, and Sarnia Lambton Chamber of Commerce; and
3. Increasing regional collaboration and information-sharing between the City of Sarnia and Lambton County to serve as a foundation for potential governance and funding changes in the long-term model.

A revised six-member structure may be considered for the Sarnia Airport Advisory Committee, with a proposed appointee list presented for consideration:

- City of Sarnia – Council Representative (1);
- Lambton County – Council Representative (1);
- Sarnia Lambton Economic Partnership (1);
- Tourism Sarnia Lambton (1);
- Sarnia Lambton Chamber of Commerce (1); and
- Citizen appointee with commercial aviation expertise (1).

The Sarnia Airport Advisory Committee would be supported in its work by the City's Director of Economic Development (to be succeeded by the Airport Administrator, when recruited) and a representative from the Airport Operator. Information or recommendations arising from the Committee would be presented to City Council or County Council (as applicable) through their respective members. City Council would continue to have decision-making authority over the Airport with the implementation of the Advisory Committee.

If qualified Committee members can be retained, the Sarnia Airport Advisory Committee could support business development and growth initiatives that benefit the Airport and region. However, the mandate of the Committee is not recommended to include Airport operations, planning, administration, or regulatory matters.

Advisory Support – Airport Oversight

Advisory support regarding the oversight of the Airport (e.g., operations, planning, administration, regulatory matters, etc.) is recommended to be the responsibility of the City's Director of Economic Development (to be succeeded by the Airport Administrator, when recruited) with assistance from the Airport Operator, subject matter experts retained on an as required or ongoing advisory basis, and City Staff representing other departments. The considerable operational and regulatory experience of the Airport Operator and qualified subject matter experts can be leveraged to sufficiently equip the City with the advisory resources needed to make decisions regarding the future viability and improvement of the Airport.

Governance and Advisory Support Summary (Short-Term)

- City Council serves as the Airport's governing body.
- SAAWG's mandate and term ends in December 2022.
- Sarnia Airport Advisory Committee is established in 2023 with a clearly defined mandate (business development and intermunicipal collaboration) and revised appointee structure.
- Advisory support regarding budgets, operations, capital projects, and other similar matters is provided by the City's Director of Economic Development and Airport Administrator with the assistance of the Airport Operator and subject matter experts.

11.4.2 Funding

In the short-term model, it is recommended that the City remain the primary entity responsible for funding the Airport's anticipated operating deficit and capital projects. These contributions will be determined on an annual basis through the operating and capital budget processes with inputs received through the Airport Administrator and the Airport Operator. Ongoing efforts by City Staff and the Airport Operator are recommended to seek grant opportunities and leverage the Master Plan and other supporting materials to pursue available funding streams.

As described in Section 11.4.4, it is recommended that the engagement of Scottsdale Aviation be shifted from the terms of the 1997 Headlease Agreement to a fee-for-service Airport Operating Agreement, whereby the company is paid a fixed fee for the delivery of a specified set of services to a minimum required standard. This shift is similar to the subsidization arrangements made in 2021 and 2022 and would couple with the transitioning of revenue collection from Scottsdale Aviation to the City directly. The City would receive all:

- Aeronautical fees, including landing and parking fees;
- Passenger Facility Fees;
- Land lease payments;
- Agricultural cropping revenues; and
- Vehicle parking revenues.

Rates and fees for each of the above-noted categories of revenue generation, among others, would be set by the City in consultation with the Airport Operator and supported by market research, including the recommendations established in Section 12.2. The revenues received would in turn reduce the tax-supported deficit borne as a result of the fee-for-service Airport Operating Agreement.

Through preliminary consultations with Lambton County Staff [5], it is recognized that the short-term model whereby City Council is the sole entity with decision-making authority may make it challenging for the County to commit to a defined multiyear funding agreement, as the County cannot be conferred partial governing authority. It is anticipated that the County will require a degree of decision-making authority / accountability if it is to be engaged in a funding agreement. Therefore, it is recommended that the City approach the County for contributions to major capital projects (e.g., runway rehabilitations, terminal building renewal / expansion projects) to request funding on a case-by-case basis in the short-term model, as opposed to entering into a multiyear contribution agreement.

This recommendation is not intended to negate the underlying importance of securing financial support from the County; such contributions will be key to reducing the tax-supported deficit borne by the City and are appropriate given the regional nature of the facility's economic and social benefits. Instead, it is based on the anticipated challenges associated with securing support from another level of government and potential delays that may result to the implementation of other initiatives identified through the Master Plan if their financial basis is contingent on such support.

Funding Summary (Short-Term)

- City is responsible for the Airport's operating deficit and capital costs.
- Airport Operator is retained through a fee-for-service Airport Operating Agreement, with contract costs offset by the transitioning of operating revenues directly to the City.
- Lambton County is approached on a case-by-case basis to negotiate contributions to capital projects; contributions by the County are determined through their annual budget process.

[5] Consultations with Lambton County's Chief Administrative Officer and General Manager of Corporate Services were preliminary in nature and do not represent the position of Lambton County Council.

11.4.3 Administration

Airport Administration

With the increased involvement of the City in the governance and funding of the Airport and business development initiatives, it is recommended that additional administrative oversight of the facility be transitioned to City Staff. Numerous Airport priorities were successfully advanced under the oversight of the Director of Economic Development in 2021 and 2022, including securing $1.9M in federal grant funding, leading amendment negotiations with respect to the 1997 Headlease Agreement, and the preparation of the Master Plan. Given the business development focus of the Master Plan, the continued assignment of the Airport within the Economic Development portfolio is both advisable and recommended. However, it is recognized that the Director of Economic Development and Economic Development Officer are operating with minimal residual capacity given their numerous competing priorities, such as the oversight of the Sarnia Harbour, City-owned business parks, and economic development pursuits, among other matters. As shown in the Implementation Plan (Section 13), the short-term planning horizon is a high intensity period with numerous capital, operational, and business development recommendations to be advanced simultaneously to overcome the preceding years of minimal oversight. Based on HM Aero's understanding of the residual capacity of the Economic Development team, pursuing these initiatives without capacity increases will result in other elements of the department's portfolio being negatively affected.

Reporting to the Director of Economic Development, it is recommended that a 1.0 Full Time Equivalent Airport Administrator position be created in 2022 / 2023. The Airport Administrator would serve as the contract lead for the Airport Operating Agreement with Scottsdale Aviation and be the conduit for Airport-related matters between City Council, City Staff, and the Airport Operator, under the oversight of the Director of Economic Development. The primary duties of the Airport Administrator, with support from the Airport Operator and other resources within the Economic Development department and City, would be:

- Administering the Airport Operating Agreement, including the regular evaluation of the performance of the contractor versus the specified minimum service levels;
- Leading the implementation of the Business Development and Growth Strategy;
- Championing Airport capital projects, including the pursuit of grant funding;
- Supporting the Sarnia Airport Advisory Committee in their mandate;
- Receiving monthly, quarterly, and annual reporting from the Airport Operator;
- Reporting to City Council through the Director of Economic Development and Chief Administrative Officer, and receiving direction from City Council as the governing body;
- Assisting in regulatory matters, including assisting the Accountable Executive in their role and regularly reviewing compliance-related matters with the Airport Operator;
- Preparing annual action plans and budget requests for the Airport; and
- Managing tenant-related matters, including lease agreements.

Accountable Executive

With the recommended increase in the oversight and financial involvement in the Airport by the City, a key change that would need to occur pertains to the appointment of the Accountable Executive that is named on the Transport Canada-approved Airport Certificate. Per Canadian Aviation Regulation 106.02(2):

> *"No person shall be appointed [as the Accountable Executive] unless they have control of the financial and human resources that are necessary for the activities and operations authorized under the certificate."*

As described previously in Section 3.2, it is imperative that the certification of Sarnia Airport is protected to support the restoration of scheduled passenger air services and to ensure a minimum level of safety and operational care for its users. With an appropriate fee-for-service Airport Operating Agreement that stipulates operational responsibilities and minimum requirements to the Airport Operator and the City's future involvement in capital projects, the City has control over the financial and human resources necessary to fulfill the Airport's certified obligations. Accordingly, it is recommended that the Chief Administrative Officer be appointed as the Accountable Executive on the Airport Certificate. The Accountable Executive is a single, identifiable person who will discharge the certificate holder's responsibilities and lead cultural change, where necessary, to ensure regulatory compliance and safety. There is no personal liability associated with the position of an Accountable Executive as this individual represents the certificate holder (the City).

The Chief Administrative Officer would be assisted in their Accountable Executive role by the recommended Airport Administrator position. Third-party training will be required as this role is not currently performed within the City and organizational knowledge has not been developed surrounding the responsibilities of this position. Further analysis will be required to determine the insurance implications of the Accountable Executive role being transitioned into the City.

Interdepartmental City Support

Although significant interdepartmental support by City Staff for Airport-related initiatives has not historically been needed, it is recognized that such involvement will increasingly be required in the future to successfully implement the recommendations described throughout the Master Plan. A "whole of municipality" approach to the Airport is an opportunity to leverage the unique skillsets held throughout the City according to the requirements of each project. Examples of interdepartmental support that is expected to be required include:

- The Chief Administrative Officer serving as the Accountable Executive;
- Engineering and Operations Division
    - The Engineering Department supporting the design, tendering, and implementation of capital projects; and
    - The Public Works Department overseeing groundside roads and municipal utilities.
- Fire and Rescue Services implementing the relevant provisions of the Airport's Emergency Response Plan according to their mandate and abilities.

- Corporate Services Division
    - Purchasing Services contributing to RFPs, RFEIs, and tendering / acquisition projects;
    - Accounting & Budgeting assisting in billing and aeronautical fee collection;
    - Human Resources assisting with Airport-related employee matters;
    - Legal Services supporting the negotiation of the Airport Operating Agreement, land lease agreements, and providing guidance on matters of municipal liability;
    - Communications contributing to Airport outreach and marketing; and
    - Information Technology supporting web and technology-based requirements, including the Airport website and terminal building digital systems.
- Community Services Division
    - Planning Department overseeing the approval of development requests, ensuring the consistency of municipal plans and policies with the Airport's objectives, and evaluating off-Airport land use proposals for their aeronautical compatibility; and
    - Building & By-law Services evaluating and approving building requests.

The sharing of interdepartmental resources is commonplace at municipally owned airports across Canada, as doing so limits the duplication of such resources within the airport cost centre. As noted in Section 12.3.2, financial implications (i.e., interdepartmental transfers) associated with the shared resources approach are not modelled within the pro-forma outlook given the uncertainty regarding the specific contribution levels required of each division / department with respect to the Airport.

Administration Summary (Short-Term)

- Chief Administrative Officer is appointed as the Accountable Executive on the Airport Certificate.
- Newly created Airport Administrator position serves as the contract administrator for the Airport Operating Agreement.
- Airport Administrator assumes oversight of reporting, planning, budgeting, and business development activities.
- Interdepartmental support is leveraged through the Chief Administrative Officer; Engineering and Operations, Corporate Services, and Community Services Divisions; and Fire and Rescue Services in alignment with the Airport's objectives.

11.4.4 Operations

As noted in the Guiding Principles, ensuring the continuity of operations and the protection of the Airport Certificate is key to ensuring the long-term future of the facility. Given Scottsdale Aviation's multiple decades of experience with operating Sarnia Airport and the significant wealth of site-specific knowledge that has accumulated over time, it is recommended that the company continue to provide operating services in the short-term planning horizon. The loss of Scottsdale Aviation through unsuccessful contract renegotiations would leave the City without an appropriately qualified Airport Operator. City Staff are unfamiliar with the responsibilities for maintaining a certified airport, and it is expected that minimal residual capacity exists in the City given the numerous competing priorities of each department. While other third-party service providers could be retained, it is expected that the transition could be disruptive and sole sourcing a new provider on an expedited schedule may come with a significant financial premium when compared to executing a competitive procurement process.

It is recommended that Scottsdale Aviation, through the development of a contractual Airport Operating Agreement and the subsequent voluntary mutual termination of the 1997 Headlease Agreement, be retained as the contracted operator of Sarnia Airport.

Unlike the 1997 Headlease Agreement that has minimal / ambiguous requirements regarding the level of service to be provided at the Airport and the obligation to operate the facility as a certified airport, the Airport Operating Agreement would be a negotiated fee-for-service contract that establishes minimum specified service levels and contractual obligations. The Airport Operating Agreement would replace the 1997 Headlease Agreement and outlined a prescriptive series of requirements to be fulfilled by Scottsdale Aviation. These requirements would include, but not be limited to:

- The obligation to operate the Airport as a Transport Canada-certified facility, including requirements for sharing the results of Quality Assurance Audits, the Safety Management System, and correspondence from Transport Canada. This includes the preparation and execution of Corrective Action Plans following Quality Assurance Audits;
- Minimum service levels for Airport operations and maintenance;
- Administrative duties, including logging aircraft operations and collecting fees (to be remitted to the City);
- Increased reporting and transparency between the Airport Operator and the Airport Administrator, with predetermined reports on a monthly, quarterly, and annual basis; and
- Supporting the Airport Administrator in annual planning and budgeting activities, as well as in business development.

By shifting from a headlease to a fee-for-service model, annual direct costs to the municipality will increase relative to the period of 1997 to 2021 – however, these costs will be partially offset by the City collecting all Airport revenues unlike the historical model. This aligns with the models at comparable airports (Oshawa and Peterborough) where contractors provide third-party operating services, also like the 2021-2022 subsidization arrangements made between the City and Scottsdale Aviation. The need for this model is driven by the uncertain path towards operating revenues exceeding expenses in the coming years and the need for the Airport to continue to be operated in a safe and effective manner through a third-party operator. As operating revenues increase and are collected by the City, the net cost of the fee-for-service model will decrease. Financial implications are estimated in Section 12.3.

The initial term recommended for the replacement Airport Operating Agreement would be 5 years, to align with the remaining duration of the 1997 Headlease Agreement (as amended). An option for a 5-year or 10-year extension could also be integrated in the Agreement at the City's discretion, based on the demonstrated operational performance of Scottsdale in fulfilling the expectations of the municipality. A requirement would be for termination clauses in favour of both the City and Scottsdale Aviation to be drafted, including mechanisms for recourse if minimum service levels are not provided.

A unique element that must be considered is the relationship between Scottsdale Aviation and Huron Aviation, with both companies owned by the same individual. The Airport Operating Agreement will be between the City and Scottsdale Aviation for the provision of minimum service levels stipulated within the contractual document (e.g., staffed days and hours, response times, after-hours provisions, etc.). The manner in which these minimum services will be provided and resources required (i.e., staffing levels) will be proposed by Scottsdale Aviation through its draft Airport Operating Agreement position to the City, to be refined through subsequent negotiations. Through an open procurement process as recommended in the long-term model, proponents are incentivized by financial evaluation criteria to propose efficiencies in how these minimum service levels will be met. While the City will not benefit from competitive procurement for operator services in the short-term, Scottsdale Aviation's proposed staffing requirements and requested fee-for-service will be subject to negotiations with the City.

It is recognized that Scottsdale Aviation / Huron Aviation employees perform interchangeable duties according to the mandate of each company; historically, this has permitted the realization of staffing efficiencies for the companies. While further consideration should be given to this matter during the negotiation of the short-term Airport Operating Agreement, permitting Scottsdale Aviation employees to also perform functions associated with Huron Aviation may be advantageous to permit the continued staffing efficiencies. However, resource sharing should not compromise Scottsdale Aviation's ability to fulfil the service levels stipulated in the Airport Operating Agreement – if minimum winter maintenance service levels are compromised, for example, by a Scottsdale Aviation employee performing fuelling or FBO services under Huron Aviation, then recourse mechanisms included in the Agreement should be exercised.

In addition, it is recommended that Huron Aviation be required to enter into a land lease agreement with the City of Sarnia for its fuelling facility and hangar, in the same manner applicable to other tenants of the Airport. Through the Airport Operating Agreement, consideration may be given to permitting Scottsdale Aviation to occupy City-owned facilities rent-free that are associated with the duties described through the Agreement – namely, the maintenance building.

Additional analysis will be required to determine whether the City will bear any insurance implications with the shift to a fee-for-service Airport Operating Agreement.

Operations Summary (Short-Term)

- 1997 Headlease Agreement is voluntarily replaced by the City and Scottsdale Aviation with a new Airport Operating Agreement.
- Scottsdale Aviation is retained on a fixed fee basis to satisfactorily provide the services described through the Airport Operating Agreement.
- Initial 5-year term for the Agreement with options for extension at the discretion of the City.
- The requirements of the Airport Operating Agreement are drafted in a manner that enable the City to establish its minimum expectations, against which the performance of the contractor can be monitored and evaluated.
- Roles and responsibilities of City Staff and the Airport Operator are clearly identified and differentiated.
- Operating revenues are remitted to the City with the Airport Operator financially benefiting through the fees established in the contract terms.

11.5 Long-Term Model (2028-2042)

While the short-term model described in Section 11.4 was focused on addressing immediate challenges with respect to the administration and contracted operations of the Airport, attention on governance and funding was deferred to the long-term model. With the long-term model, the primary focus is on securing a permanent governance and financial agreement with Lambton County in accordance with Guiding Principle 2. It is recognized that if Lambton County is to become financially involved in supporting Sarnia Airport, an appropriate structure must be implemented that confers decision-making authority to both municipalities according to their respective financial contributions. The proportional basis for such contributions is not established – it is expected that this will be determined through future negotiations between the City and County.

The implementation of the governance and funding elements of the recommended long-term model are contingent on preliminary negotiations with Lambton County identifying clear potential for intermunicipal cooperation between the lower-tier and upper-tier municipality. While Lambton County was consulted as part of the Master Plan process, discussions were held at the staff level and were limited to the consideration of what steps may need to be taken towards these negotiations; the engagement session does not bind the County or represent the views of its elected officials. If the involvement of Lambton County in governance and funding cannot be secured, it is recommended that the affected elements of the short-term model continue to apply, those primary items being:

- Governance by Sarnia City Council;
- Funding by the City with capital funding support from Lambton County on an as-requested basis; and
- Administration of the facility by the Airport Administrator.

In either scenario, a competitive procurement process is envisioned to occur following the completion of Scottsdale Aviation's term described in the short-term Airport Operating Agreement, assumed to be in 2027-2028 unless an option for extension is included and exercised.

The key elements of the long-term model are summarized in Table 11.3 including the differences depending on whether Lambton County chooses to enter into a governance and funding agreement with the City. The following subsections describe the long-term model with the involvement of Lambton County; if such an agreement cannot be reached, then the short-term model described in Section 11.4 will continue to apply.

Table 11.3 - Long-Term Governance, Funding, Administration, and Operations Model Summary

Model Element		Short-Term Model	Long-Term Model	
			With Lambton County	Without Lambton County
		2023-2027	2028-2042	
Ownership		City of Sarnia	City of Sarnia Lambton County	City of Sarnia
Governing Body		City Council	Airport Municipal Services Corporation Board of Directors	City Council
Advisory Support	Business Development	Sarnia Airport Advisory Committee City Staff / Airport Operator	Airport Municipal Services Corporation Board of Directors	Sarnia Airport Advisory Committee City Staff / Airport Operator
	Airport Oversight	City Staff / Airport Operator Subject Matter Experts		City Staff / Airport Operator Subject Matter Experts
Funding	Operating Revenues	City of Sarnia	Airport Municipal Services Corporation	City of Sarnia
	Operating Expenses	City of Sarnia (Fee-for-Service)	Airport Municipal Services Corporation (Fee-for-Service)	City of Sarnia (Fee-for-Service)
	Operating Deficits	City of Sarnia	City of Sarnia Lambton County	City of Sarnia
	Capital Projects	Federal Grants City of Sarnia Lambton County (on an as-requested basis)	Federal Grants City of Sarnia Lambton County	Federal Grants City of Sarnia Lambton County (on an as-requested basis)
Administration	Accountable Executive	Chief Administrative Officer	Airport Municipal Services Corporation – CEO	Chief Administrative Officer
	Contract / Agreement Administrator	Airport Administrator		Airport Administrator
	Interdepartmental Support	Chief Administrative Officer Corporate Services Community Services Engineering and Operations Fire and Rescue Services	Secondment of City Resources As Required	Chief Administrative Officer Corporate Services Community Services Engineering and Operations Fire and Rescue Services
Operations	Mechanism	Fee-for-Service Airport Operating Agreement	Fee-for-Service Airport Operating Agreement	Fee-for-Service Airport Operating Agreement
	Operator	Scottsdale Aviation	To Be Determined Through Competitive Procurement	To Be Determined Through Competitive Procurement

11.5.1 Governance and Advisory Support

To permit governance and decision-making authority by both the City of Sarnia and Lambton County, the long-term model foresees the formation of a Sarnia Airport Municipal Services Corporation (MSC) pursuant to the authority established in Section 203 of the Municipal Act and Ontario Regulation 599/06. The ownership of Sarnia Airport would be modified to include both the City and County on a proportional share basis that is consistent with their financial contributions and representation on the Board of Directors.

The MSC would be formed with the sole purpose of overseeing the operation and growth of the Airport and would be accountable to its two contributory municipal partners (the City and the County). Both municipalities would have shares in the MSC that align with their financial contributions to the corporation and would be responsible for nominating individuals to the Board of Directors. The Board of Directors would play a key role in the oversight of the Airport, including matters such as:

- Providing guidance to, and oversight of, the Airport Operator;
- Preparing, with the assistance of the Airport Operator, annual business plans and periodic strategic plans / master plans;
- Entering into land lease and commercial service agreements;
- Preparing operating and capital budgets on an annual basis for submission to, and approval of, the partner municipalities;
- Leading grant pursuits and outreach with upper levels of government; and
- Maintaining accountability to the partner municipalities by reporting back to the respective councils.

The Sarnia Airport MSC and its Board of Directors would provide specific oversight and prioritization to the Airport and would also make available the unique skillsets of the Board Members depending on their areas of expertise. Specifically, it would be expected that a skills-based nomination process would be implemented for the Board, whereby appointees with skillsets that align with the strategic needs of the Airport are chosen.

Per the requirements established through Ontario Regulation 599/06, if the City and County choose to move forward with the establishment of the Sarnia Airport MSC, the municipalities will have to develop a business case study, consult with the public, and provide a structured series of provisions that address the transfer of assets from the City to the MSC.

Governance and Advisory Support Summary (Long-Term)

- Establishment of Sarnia Airport Municipal Services Corporation pursuant to Section 203 of the Municipal Act and Ontario Regulation 599/06.
- Participation of the City of Sarnia and Lambton County in Airport governance, with proportional representation to be aligned with financial contributions at a level to be determined.

11.5.2 Funding

As noted above, while incremental progress is to be made on minimizing the tax-supported deficit of the Airport by increasing revenues and responsibly managing expenses, the driving force behind the formation of the Sarnia Airport MSC would be to integrate Lambton County in the subsidization of the Airport, thereby reducing the financial burden borne solely by the City of Sarnia. With the MSC model, the Board of Directors, CEO, and Airport Operator would prepare operating and capital budget requests on an annual basis for submission to the City and County. Through their respective municipal processes, these requests would be considered and approved with contributions to be calculated based on a proportional share basis between the two partners that is consistent with their ownership levels and representation on the Board of Directors. A sample proportional split has not been recommended through the Master Plan, as it is anticipated that this will be determined through future negotiations between the two potential partners.

Funding Summary (Long-Term)

- Capital and operating funding requests to be raised on an annual basis through the budget processes of the City and County, based on the annual MSC budgets prepared by the Board, CEO, and Airport Operator.
- Predetermined financial proportional contribution levels are to be determined through subsequent analysis and negotiations between the City and County. Proportional contribution levels are consistent with the shared ownership levels and representation on the Board of Directors.

11.5.3 Administration

With the formation of the Sarnia Airport MSC, it is recommended that a Chief Executive Officer (CEO) position be created, replacing the City's Airport Administrator position. The CEO would report directly to the MSC Board of Directors and be responsible for the implementation of all strategic directions related to the Airport and fulfilling the role recommended for the Airport Administration in the short-term model. Further, the CEO would be responsible for the oversight of the contracted Airport Operator. As with the short-term model, the specific responsibilities of the CEO will need to be clearly defined relative to those of the contracted Airport Operator.

Similar to the short-term model, cost efficiencies would be realized through the use of City Staff resources in the Corporate Services, Community Services, Engineering and Operations, and Fire and Rescue Services divisions to provide supporting roles to the Airport according to their respective mandates. While interdepartmental transfers are not modelled in the short-term model, the arms-length and semi-independent nature of the MSC may necessitate that such payments to the City be made on a cost recovery basis to reflect the resources utilized.

Administration Summary (Long-Term)

- Creation of Airport CEO position that reports directly to the Sarnia Airport MSC Board of Directors.
- Targeted recruitment process to attract an individual with the requisite experience in aviation, business development, and other subject matter areas.
- CEO responsible for strategic initiatives and planning, business development, and oversight of the Airport Operator.

11.5.4 Operations

As described in Section 11.4.4, it is recommended that Scottsdale Aviation remain as the Airport Operator from 2022 until 2027-2028 through a newly formed Airport Operating Agreement. In the event that the City integrates extension clauses (e.g., a 5-year extension to 2032-2033) in the recommended Airport Operating Agreement, Scottsdale Aviation may continue to perform operational services for that extended period.

In alignment with the City's procurement policies and in the interest of securing an Airport Operating Agreement that provides the best value and quality of service to the municipality, it is recommended that a competitive RFP process be undertaken to award the next contract, whether that be to the incumbent provider or a new company. Through the RFP process, the City will be able to establish the minimum deliverables / service levels expected of potential future contractors. In turn, proponents will be required to propose solutions to the scope of service described in the RFP. In the evaluation process, consideration may be given to areas that include, but are not limited to, financial competitiveness, demonstrated experience, level of service provided, and innovative approaches.

A significant area of focus in the procurement process, if the City chooses to award the next Airport Operating Agreement to a contractor other than Scottsdale Aviation, will be the transition of service period to ensure that Airport operations can occur uninterrupted.

Operations Summary (Long-Term)

- Initiation of competitive procurement process to retain the services of a contracted third-party Airport Operator upon the expiration of the short-term Airport Operating Agreement for a 10-year period with option(s) for extension.
- Selection of a qualified service provider based on the evaluation criteria established in the RFP process.
- Administration of the Airport Operating Agreement throughout its duration by the City's Airport Administrator or Sarnia Airport MSC as applicable based on the governance, funding, and administrative model in effect at that time.

12 FINANCIAL OUTLOOK AND STRATEGY

12.1 20-Year Capital Plan

The 20-Year Capital Plan, summarized in Table 12.1 and provided in detail in Table 12.2, has been prepared to assist the City and its potential funding partners in its annual and long-term budgeting processes. The Capital Plan establishes five types of projects:

1. Rehabilitation and reconstruction of existing infrastructure;
2. Renewal and expansion of the terminal building;
3. Replacement of mobile maintenance equipment;
4. Enablement of new on-Airport land development; and
5. Completion of plans and studies to support effective administration.

Rough Order of Magnitude cost estimates have been prepared for each project using local construction unit rates, information from historical capital projects at the Airport, and the experience of the project team in delivering similar projects at other comparable airports. Given the 20-year horizon of the Capital Plan and the numerous factors that can influence project costs (e.g., construction costs, labour availability, inflation rates), cost estimates should be confirmed prior to capital budget requests being submitted to the City and its potential funding partner (i.e., Lambton County) Improved cost estimates will be informed through preliminary and detailed engineering design processes initiated for each project. The estimates prepared for each project are subject to the following assumptions:

- Projects are costed in 2022 Canadian Dollars, with inflation estimated at 2.5% annually;
- All cost estimates assume that competitive procurement processes will be initiated to maximize the value to the City;
- Project costs may vary as a result of the City of Sarnia's Fair Wage Policy; and
- Implementation years may shift depending on asset degradation over time and / or emerging higher priorities.

Table 12.1 - Capital Plan Summary Table

Category	Short-Term	Medium-Term	Long-Term
	2022-2027	2028-2032	2033-2042
Infrastructure Rehabilitation and Reconstruction	$11,196,000	$1,550,000	$2,230,000
Terminal Building Renewal and Expansion	$1,644,00	-	-
Mobile Equipment Replacement	$295,000	$305,000	$519,000
Airport Development	$78,000	$1,173,000	-
Airport Administration Plans and Studies	$70,000	$90,000	$80,000
Total – Per Planning Horizon	**$13,283,000**	**$3,118,000**	**$2,829,000**
Total – All Planning Horizons			**$19,230,000**

Notes
All costs in the summary table are in 2022 Canadian Dollars and have not been adjusted for inflation in the respective implementation years

Table 12.2 - 20-Year Capital Plan

Project	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Infrastructure - Rehabilitation and Reconstruction Projects																					
Reconstruction and Lighting of Taxiway A	$253,000																				
Rehabilitation of Terminal Building Sidewalks and Entrance	$160,000																				
Implementation of Terminal Building Apron Management Plan		$15,000																			
Reconstruction of Runway 06-24		$1,066,000																			
General Aviation Area Access Gates		$15,000																			
Reconstruction of Taxiway C			$147,000																		
General Aviation Apron Reconstruction			$420,000																		
General Aviation Tie Down Area Reconstruction			$284,000																		
Maintenance Building Improvements			$53,000																		
Rehabilitation of Runway 15-33					$8,455,000																
Rehabilitation of Maintenance Garage Access Road and Parking Area					$177,000																
Terminal Building Road Rehabilitation						$419,000															
Rehabilitation of Terminal Building and Rental Car Parking Lots						$532,000															
Terminal Building Apron Rehabilitation									$914,000												
Airport Perimeter Fence										$874,000											
Airfield Lighting System Replacement																	$1,559,000				
Rehabilitation of Taxiway B																		$1,491,000			
Pavement and Storm Drain Repairs	$10,000	$21,000	$21,000	$22,000	$22,000	$23,000	$23,000	$24,000	$24,000	$25,000	$26,000	$26,000	$27,000	$28,000	$28,000	$29,000	$30,000	$30,000	$31,000	$32,000	$33,000
Total - Infrastructure	**$423,000**	**$1,117,000**	**$925,000**	**$22,000**	**$8,654,000**	**$974,000**	**$23,000**	**$24,000**	**$938,000**	**$899,000**	**$26,000**	**$26,000**	**$27,000**	**$28,000**	**$28,000**	**$29,000**	**$1,589,000**	**$1,521,000**	**$31,000**	**$32,000**	**$33,000**
Terminal Building - Renewal and Expansion Projects																					
Baseline Service Terminal Improvements		$267,000																			
Upgauged Service Terminal Building Improvements and Expansion				$1,490,000																	
Total - Terminal Building	**$0**	**$267,000**	**$0**	**$1,490,000**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Mobile Equipment - Replacement Projects																					
Sweepster Tow-Behind Runway Sweeper	$50,000																				
John Deere 2305 Tractor		$21,000																			
International Truck with Sander					$204,000																
Ford F-150 Pick-up Truck						$45,000															
Bush Hog 2815 Mower Deck								$36,000													
SMI Snowmaster 5250A Snow Blower									$219,000												
Kubota M110X Tractor									$116,000												
Chevrolet 2500 Pick-up Truck													$46,000								
International Work Star Plow Truck																			$268,000		
Case 721F Loader																				$445,000	
Total – Mobile Equipment	**$50,000**	**$21,000**	**$0**	**$0**	**$204,000**	**$45,000**	**$0**	**$36,000**	**$335,000**	**$0**	**$0**	**$0**	**$46,000**	**$0**	**$0**	**$0**	**$0**	**$0**	**$268,000**	**$445,000**	**$0**

Project	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Airport Development - Growth-Enabling Projects																					
General Aviation Development Area - Lot Preparation		$8,000																			
Aviation Commercial Development Area - Servicing and Stormwater Study					$44,000																
Aviation Commercial Development Area - Business Case Study					$33,000																
Aviation Commercial Development Area - Lot Preparation							$31,000														
Aviation Commercial Development Area - Airside and Groundside Access							$1,329,000														
Aviation Commercial Development Area - Servicing							Further Study														
Total – Airport Development	**$0**	**$8,000**	**$0**	**$0**	**$77,000**	**$0**	**$1,360,000**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Airport Administration - Plans and Studies																					
Short-Term Governance Model Implementation Assistance		$21,000																			
Comprehensive Rates and Fees Review					$11,000					$12,000					$14,000					$16,000	
Long-Term Governance Model Business Case Study						$45,000															
Approach Lighting Systems Needs Analysis Study									$24,000												
Airport Master Plan										$75,000										$120,000	
Total – Airport Administration	**$0**	**$21,000**	**$0**	**$0**	**$11,000**	**$45,000**	**$0**	**$0**	**$24,000**	**$87,000**	**$0**	**$0**	**$0**	**$0**	**$14,000**	**$0**	**$0**	**$0**	**$0**	**$136,000**	**$0**
Total - All Projects	**$473,000**	**$1,434,000**	**$925,000**	**$1,512,000**	**$8,946,000**	**$1,064,000**	**$1,383,000**	**$60,000**	**$1,297,000**	**$986,000**	**$26,000**	**$26,000**	**$73,000**	**$28,000**	**$42,000**	**$29,000**	**$1,589,000**	**$1,521,000**	**$299,000**	**$613,000**	**$33,000**

12.2 Rates and Fees Review

A recurring theme through the business development discussions provided in the Master Plan is the need to better position Sarnia Airport as a financially competitive option for prospective users, tenants, and businesses. Through the changes recommended to the Airport's funding model described in Section 11.4, the City will have the ability to collect revenues, but also will be responsible for the Airport operating and capital costs. The tax-supported deficit of the Airport can and should be reduced through revenue optimization – however, the rates and fee structure should not be designed in a prohibitively onerous manner that would compromise fundamental goals, including the restoration of scheduled passenger air services and the growth of new on-site tenants and businesses. The relationship between revenue maximization and the price elasticity of potential users is addressed herein.

The rates and fees analysis is based on the assessment of Sarnia Airport's competitive positioning relative to other airports in the region, and Ontario more broadly. The comparator airports that are reviewed for each category of fees will vary based on:

- Airport facilities that provide similar service offerings for a given fee;
- The geographic proximity of each airport to Sarnia; and
- The availability of publicly released information.

Per the terms of the 1997 Headlease Agreement, Scottsdale Aviation has the authority to set aeronautical rates and fees, provided consultation with the City is completed. The changes recommended throughout the following subsections assume that the City and Airport Operator proceed with the funding model changes identified in Section 11.4.2, whereby revenues are remitted to the City. As part of the Airport Operating Agreement, a provision may be integrated requiring Scottsdale Aviation to record and remit the fees described herein to the City. In addition, a separate agreement may be required for Huron Flight Services to administer and remit aircraft parking fees for the General Aviation Apron (Section 12.2.3) to the City given their role as the FBO – a portion of the General Aviation Apron parking fees (not tie-down fees) could be held by Huron Flight Services as payment for their fee collection efforts.

It is recommended that a comprehensive rates and fees review be completed on a five-year cycle (or sooner, pending the availability of sufficient resources) to ensure that the Airport's financial structure continues to balance revenue maximization with market competitiveness, and that fees are aligned with the realization of the Airport's strategic goals while being fair and transparent.

12.2.1 Passenger Facility Fees

Passenger Facility Fees (PFFs) are levied on each passenger departing Sarnia Airport on scheduled air carrier flights, with the total to be charged based on data provided by the airline. As of March 2022, Sarnia Airport's PFF is set at $25.00 per departing passenger.

PFF data was retrieved for 12 regional airports in Ontario, as presented in Table 12.3. The sampled airports are classified based on their 2019 passenger throughput as large (serving more than 500,000 annual passengers), medium (serving between 100,000 and 499,999 annual passengers), and small (serving between 0 and 99,999 annual passengers). Although the sampled airports have variations in how their PFFs are levied, the information provided is suitable for a comparative analysis.

As shown in Table 12.3, Sarnia Airport's PFF is the highest among the five airports categorized as small in the sample, with the average in this category being $14.85. Sarnia's PFF also exceeds the average values for medium airports ($20.00) and large airports ($20.33), as well as the average of the entire sample of $18.09. Although four comparators (Sault Ste. Marie, Sudbury, Hamilton, and Toronto City) have PFFs that are equal to or greater than Sarnia's, each of these airports have considerable air carrier services and are deemed to have stable long-term demand from their respective catchment areas.

Table 12.3 - Passenger Facility Fee Review

Airport	2019 Passenger Throughput	Classification	Passenger Facility Fee (or equivalent charge)
Billy Bishop Toronto City Airport	2,774,175	Large	$29.00
Hamilton International Airport	940,105	Large	$25.00
London International Airport	670,899	Large	$7.00
Greater Sudbury Airport	244,405	Medium	$25.00
Sault Ste. Marie Airport	211,277	Medium	$25.00
Timmins Airport	223,722	Medium	$20.00
Region of Waterloo International Airport	171,828 [1]	Medium	$15.00
Windsor International Airport	318,098	Medium	$15.00
Sarnia Airport (Current)	9,618 [2]	Small	$25.00
Niagara District Airport	4,124	Small	$20.00
Kingston Airport	Unavailable	Small	$16.88
Peterborough Airport	Unavailable	Small	$7.35
Muskoka Airport	2,071	Small	$5.00

Notes:

[1] 2021 passenger throughput is reported to better represent the positioning of the Region of Waterloo International Airport given the significant growth that has occurred.

[2] Only departing passengers are reported.

[3] Inconsistencies may exist in how each airport levies their PFF or equivalent fee(s).

The comparatively high PFF charged at Sarnia Airport is contextualized by the historical reliance on such fees as a major source of Airport revenues for Scottsdale Aviation, coupled with the decreasing annual passenger throughput. PFF revenues are a key part of the financial sustainability of the Airport – however, a prohibitively high PFF may dissuade local demand for more cost-effective alternative airports, such as London International Airport. Through the resident outreach survey, 61% of respondents cited the ticket price as being most important or very important when selecting airfares, with an additional 33% stating that prices are moderately important. Respondents to the business survey had similar findings, with 43% identifying price as being the most important or a very important factor, and 48% citing price as being moderately important.

The PFF is a passenger demand influencing factor that is directly within the control of the City under the recommended changes to the governance and funding model. To assist in decreasing leakage to other airports, it is recommended that the PFF be decreased to $15.00 per departing passenger, in line with the average fee levied among comparator airports in the same category. With expected maturation of the local air travel market following the resumption of services in the future, opportunities will exist to revisit the PFF on a periodic basis (e.g., every three years) and evaluate potential increases that the market may support.

Table 12.4 - Recommended Passenger Facility Fee

Category	Fee	Application
Passenger Facility Fee	$15.00	Levied per passenger departing on a scheduled air carrier flight

12.2.2 Landing Fees

The approach taken with respect to landing fees can vary considerably depending on the core mix of activity that is handled at a given airport. While airports that derive a significant portion of their revenues from air carriers and commercial air services may choose to levy landing fees on smaller general aviation aircraft, airports that are reliant on general aviation users are less likely to do so to maintain their core customer base. Sarnia Airport is unique in this respect; while revenues historically have been driven by air carrier services, the Airport is now primarily used by general aviation operators.

The Airport's current landing fee structure is shown in Table 12.5. Fees are levied on twin-engine piston, turbofan, and turboprop aircraft on a per landing basis, with landing fees for turbofan and turboprop users charged in tiers based on the aircraft size and calculated using the Maximum Takeoff Weight (MTOW). Taking four aircraft as examples, landing fees at Sarnia Airport would be levied as follows:

1. Beechcraft Baron 58 (Twin-Engine Piston): $45.00
2. Beechcraft King Air 250 (Twin-Engine Turboprop): $51.03
3. De Havilland Canada Dash 8-300 (Twin-Engine Turboprop): $175.55
4. Gulfstream G-450 (Twin-Engine Turbofan): $338.38

Table 12.5 - Current Landing Fee Structure

Category		Rate	Application
Single-Engine Piston Aircraft		-	Exempt
Twin-Engine Piston Aircraft	0 kg to 5000 kg	$45.00	Per landing
Turbofan and Turboprop Aircraft	5,001 kg to 21,000 kg	$9.00	Per landing per 1,000 kg aircraft MTOW Minimum fee of $45.00
	21,001 kg to 45,000 kg	$10.00	

To understand Sarnia's positioning in its landing fees relative to other comparable airports, a scan of seven facilities was completed, with the results shown in Table 12.6. Sampled airports were identified as facilities that support a diversified mix of both general aviation and commercial activity, including air carriers, charters, and aerial work operators. To simplify the data collected for presentation purposes, the average landing fees (calculated per landing and per 1,000 kg of aircraft MTOW) for each airport are presented, excluding minimum charges. From the comparator data, several conclusions can be made:

- Six of the seven airports have size or type-based exemptions that typically capture smaller aircraft, whether this classification be made based on MTOW, registration type, or powerplant;
- Average landing fees for itinerant aircraft ranged between $6.50 and $9.00 per 1,000 kg. At an average blended rate of $9.50, Sarnia Airport had the highest average rate; and
- Two airports (Kingston and Billy Bishop) have adopted rates that vary based on aircraft powerplant, while one facility (Lake Simcoe) uses separate rates for based and itinerant aircraft.

Table 12.6 - Landing Fee Review

Comparator Airport	Average Landing Fee (per 1,000 kg MTOW)		Exemptions
Sarnia Airport (Current)	$9.50		
Muskoka Airport	$9.00		Based aircraft < 5,000 kg Itinerant aircraft < 3,000 kg
Kingston Airport	All Types	$8.38	All aircraft < 2,270 kg
	Piston, Turbine	$7.83	
	Jet	$8.94	
Billy Bishop Toronto City Airport	All Types	$8.24	
	Piston	$7.21	
	Turbine	$9.27	
London International Airport	$8.16		All piston-engine aircraft
Region of Waterloo International Airport	$7.75		All aircraft < 2,500 kg
Peterborough Airport	$7.09		Private aircraft < 3,000 kg
Lake Simcoe Regional Airport	All	$5.35	All aircraft < 3,000 kg
	Based	$4.20	
	Itinerant	$6.50	

The landing fee structure recommended in Table 12.7 has been developed for Sarnia Airport based on the review of the comparator airport data as well as identified opportunities for streamlining revenue collection. Specifically, the recommended landing fee structure has been created to:

- Better align Sarnia Airport's fees with those of other airports southern Ontario with similar or greater levels of service and / or value propositions;
- Provide a framework of incentives for carriers operating scheduled passenger air services, consistent with the discussion in Section 9.1.2;
- Reduce annual costs borne by aircraft operators based at the Airport, thereby incentivizing additional growth;
- Create targeted exemptions for the most price sensitive user group (itinerant private aircraft) that typically avoid airports with landing fee structures; and
- Minimize the level of effort borne in fee collection by the City and Airport Operator.

Table 12.7 - Recommended Landing Fee Structure

Category		Rate	Application [1]
Based Aircraft [2]			
MTOW < 3,000 kg		$250.00	Per based aircraft per year
MTOW ≥ 3,000 kg		$4.00	Per landing per 1,000 kg aircraft MTOW
Itinerant Aircraft			
MTOW < 3,000 kg	First Landing of Day	$0.00	Exempt
	Subsequent Landings	$10.00	Per landing
MTOW ≥ 3,000 kg		$8.00	Per landing per 1,000 kg aircraft MTOW
Scheduled Passenger Air Carriers [3]			
Year 1 of Scheduled Service		$4.00	Per landing per 1,000 kg aircraft MTOW
Year 2 of Scheduled Service		$6.00	
Subsequent Years of Scheduled Service		$8.00	

Notes:

[1] Fees are levied per landing, including touch-and-go's, except where noted

[2] Based aircraft must register with the City and Airport Operator on or before January 1 of each year to qualify for the based rates

[3] An air carrier providing scheduled service may only qualify for the discounted landing fee structure upon its initial entry into the market. New routes being operated by an incumbent air carrier do not qualify.

12.2.3 Aircraft Parking Fees

Daily parking fees are levied on aircraft parking at the terminal building apron and General Aviation Apron. Sarnia Airport's current parking fee structure is shown in Table 12.8, with variable fees charged based on aircraft Maximum Takeoff Weight. Weekly or monthly parking fees have not been established, although long-term rates are identified for the General Aviation Tie-Down Area (Section 12.2.4).

Table 12.8 - Current Aircraft Parking Fee Structure

Aircraft Category (MTOW)	Daily Rate
0 kg to 5,000 kg	$21.00
5,001 kg to 10,000 kg	$34.00
10,001 kg to 30,000 kg	$52.00
30,001 kg to 60,000 kg	$78.00

A review of daily parking rates at five comparator airports was completed, as shown in Table 12.10. Among the sampled airports, a mix of methods for the calculation of daily parking rates were identified, including fixed rates based on aircraft MTOW category and variable rates based on MTOW. Sarnia Airport's parking fees in the less than 10,000 kg category are modestly higher than those of Kingston, Muskoka, Waterloo, and Peterborough, but generally fall within a comparable range.

For parking fees levied on aircraft with MTOWs exceeding 10,000 kg, Sarnia Airport's fixed fees were comparable to those of Kingston and Waterloo, but below the levels charged at Muskoka. Peterborough and Lake Simcoe shift to using a variable rate structure for aircraft in this category, with the rates per 1,000 kg resulting in parking fees that exceed those of Sarnia, depending on aircraft size.

Table 12.9 - Aircraft Parking Fees Review

Aircraft Category (MTOW)	Sarnia (Current)	Kingston	Peterborough	Lake Simcoe	Muskoka	Waterloo
0 kg to 5,000 kg	$21.00	$12.72	$10.50 - $15.75	$10.00	$15.00	$11.00 - $16.50
5,001 kg to 10,000 kg	$34.00	$22.49	$15.75 - $26.25	$3.60 / 1,000 kg	$30.00	$22.00
10,001 kg to 30,000 kg	$52.00	$41.64	$3.70 - $4.20 / 1,000 kg	$3.90 - $4.20 / 1,000 kg	$60.00 - $120.00	$44.00
30,001 kg to 60,000 kg	$78.00	$64.55	$4.20 - $4.70 / 1,000 kg	$4.20 - $4.50 / 1,000 kg	$120.00 - $240.00	$55.00
Notes For airports that do not have the same MTOW categories as Sarnia, a range of fees levied is provided.						

Revisions are recommended to the parking fee structure of Sarnia Airport, as presented in Table 12.11. For small aircraft with MTOWs of less than 5,000 kg, the recommended parking fee is reduced modestly to better align with the reviewed comparator airports. For larger aircraft with MTOWs exceeding 5,000 kg, a variable rate approach is recommended – while this change results in a slight decrease in the parking fees charged for aircraft with MTOWs between 5,000 kg and 9,000 kg and between 10,000 kg and 14,000 kg, the revised structure is better positioned to capture increased revenue for aircraft exceeding 14,000 kg such as regional airliners and larger corporate aircraft.

It is also recommended that clear criteria be published on how parking fees are levied. As shown in Table 12.11, it is recommended that aircraft parking for short periods (less than six hours) be exempt. After six hours, fees will be calculated on a 24-hour basis depending on the duration of the aircraft's stay.

Table 12.10 - Recommended Aircraft Parking Fee Structure

Aircraft Category (MTOW)	Daily Rate
0 kg to 5,000 kg	$15.00
5,001 kg to 10,000 kg	$3.70 / 1,000 kg MTOW
10,001 kg to 30,000 kg	
30,001 kg to 60,000 kg	
Notes • Fees are levied on aircraft parked at the General Aviation Apron and terminal building apron • Aircraft parked for less than 6 hours are exempted • For aircraft that park for longer than 6 hours, parking fees are calculated per 24-hour period	

12.2.4 General Aviation Tie-Down Fees

Tie-down fees are levied on general aviation aircraft that park for extended periods (i.e., monthly or annually) within the General Aviation Tie-Down Area. An annual fee of $800.00 is charged for aircraft using the Tie-Down Area. As described in Section 8.2.1, ten long-term paved tie-down positions are recommended to be established following the reconstruction and reconfiguration of the Tie-Down Area. Tie-down fees were identified for seven airports in southern Ontario that serve general aviation users, as summarized in Table 12.11. The average daily, monthly, and annual charges for paved tie-down positions without electrical power are $11.54, $81.68, and $766.13, respectively.

Table 12.11 - General Aviation Tie-Down Fees Review

Airport	Daily	Monthly	Annually
Kincardine Municipal Airport	$15.00	$100.00	-
Niagara District Airport	$15.00	$90.00	-
Niagara Central Airport	$15.00	$84.75	$932.25
Goderich Regional Airport	$11.90	$83.65	-
Sarnia Airport (Current)	-	-	$800.00
Tillsonburg Airport	$10.00	$60.00	$600.00
Chatham-Kent Airport	$7.90	-	-
Brantford Airport	$5.97	$71.65	-

As the General Aviation Tie-Down Area is intended to facilitate long-term occupancy by aircraft based at Sarnia Airport, it is recommended that only monthly and annual rates be established for this area. Daily and weekly rates should be in accordance with the recommendations provided in Section 12.2.3. Considering the characteristics of the comparator airports identified above, Sarnia Airport represents a higher level of service facility for general aviation users with the availability of two runways, lighting and Instrument Approach Procedures, and year-round maintenance. Furthermore, the Tie-Down Area is recommended to be reconstructed in the short-term planning horizon, resulting in new facilities for aircraft owners. Accordingly, it is recommended that the tie-down fees for Sarnia Airport be increased modestly above the market values shown to $100.00 monthly and $1,100.00 annually (one month discounted). These revenues will assist the City in justifying the capital costs associated with the reconstruction of the General Aviation Tie-Down Area.

Table 12.12 - Recommended General Aviation Tie-Down Fees

Category	Fee	Application
Monthly Tie-Down Fee	$100.00	Levied for aircraft parked in the General Aviation Tie-Down Area All aircraft must preregister with the City and Airport Operator
Annual Tie-Down Fee	$1,100.00	

12.2.5 Terminal Building Usage Fees

Fees are currently levied at Sarnia Airport to capture revenue from aircraft operators that are utilizing the terminal building while arriving and departing. As shown in Table 12.13, terminal building fees are levied on a per use basis according to the capacity of the aircraft. When the rates per aircraft are converted to a per seat basis, terminal costs range between $3.02 per seat and $4.22 per seat.

Table 12.13 - Current Terminal Building Fee Structure

Aircraft Category	Fee	Average Fee per Seat [1]
0 to 9 seats	$38.00	$4.22
10 to 15 seats	$60.00	$4.00
16 to 25 seats	$92.00	$3.68
26 to 45 seats	$136.00	$3.02
46 to 60 seats	$189.00	$3.15
61 to 90 seats	$285.00	$3.16
Notes [1] Average costs per seat are calculated using the set rate divided by the maximum number of seats in the applicable category.		

Terminal building usage fee data was available for four comparator airports, as shown in Table 12.14. For airports that levy fees on a per aircraft basis as opposed to per seat, the values are converted in the same manner as shown in Table 12.13. Sarnia's terminal usage fee, on a per seat basis, is comparable to London and Kingston, and below the levels of Niagara District and Sudbury (for non-signatory air carriers).

Table 12.14 - Terminal Usage Fee Review

Airport	Fee per Seat	Notes
Greater Sudbury Airport	$7.25	Non-signatory air carriers, domestic
	$3.70	Signatory air carriers, domestic
Niagara District Airport	$5.00	
London International Airport	$4.87 [1]	Domestic flights
Sarnia Airport (Current)	$3.02 - $4.22	
Kingston Airport	$1.77 - $2.56	Domestic flights
Notes [1] Includes the general terminal fee, common use system fee, and security fee.		

As Sarnia Airport's current terminal building usage fee is within a comparable range with the airports studied, significant changes to the current price are not recommended. The recommended structure shown in Table 12.15 adopts a variable charge per seat to streamline the fee schedule, while also integrating recommended discounts for scheduled air carriers in their initial years of operation.

Table 12.15 - Recommended Terminal Usage Fee Structure

Operator Category		Fee per Seat
All Operators		$4.00
Scheduled Passenger Air Carriers [1]	Year 1 of Scheduled Service	$2.00
	Year 2 of Scheduled Service	$3.00
	Subsequent Years of Scheduled Service	$4.00
Notes [1] An air carrier providing scheduled service may only qualify for the discounted terminal fee structure upon its initial entry into the market. New routes being operated by an incumbent air carrier do not qualify.		

12.2.6 Land Lease Rates

Development at Sarnia Airport, as with most comparable Canadian airports, is accommodated through tenants leasing lots through multiyear agreements. The lease rate established for new development as of 2022 is $2.60 per m^2 or $0.24 per ft^2. Existing lease agreements also integrate a provision whereby rates are subject to change annually based on the Consumer Price Index.

Lease rate data was retrieved for nine publicly and privately-owned airports located throughout southern Ontario. As shown in Table 12.16, two approaches are typically taken at the reviewed airports: 1) a bare land lease rate is established; or 2) separate lease rates are levied for the lot area and developed floor area. Sarnia Airport's lease rate is competitively positioned relative to the reviewed competitor airports and is among the lowest identified, with seven of the nine comparators having published lease rates higher than Sarnia's. Sarnia Airport's bare land lease rate of $0.24 per ft^2 compares favourably to the average rate of $0.31 per ft^2 among reviewed airports that operate on a single-rate structure (i.e., St. Thomas, Waterloo, and Kingston are excluded).

Table 12.16 - Lease Rate Review

Airport	Rate Type	Lease Rate	
		Per ft^2	Per m^2
St. Thomas Municipal Airport	Developed Area	$0.20	$2.15
	Land Area	$0.10	$1.08
Sarnia Airport (Current)	Land Area	$0.24	$2.60
Stratford Airport	Land Area	$0.27	$2.91
Tillsonburg Airport	Land Area	$0.29	$3.12
Region of Waterloo International Airport	Developed Area	$0.32	$3.44
	Land Area	$0.08	$0.81
Peterborough Airport	Land Area	$0.33	$3.52
Edenvale Airport	Land Area	$0.34	$3.66
Kincardine Airport	Land Area	$0.34	$3.66
Saugeen Municipal Airport	Land Area	$0.35	$3.77
Kingston Airport	Land Area	As negotiated	

Recommendations for the Airport's future land lease structure are divided into four categories, pertaining to the:

1. General Aviation Development Area;
2. Aviation Commercial Development Area;
3. Groundside Commercial Development Area; and
4. Areas leased for agricultural cropping.

The current Airport lease rate for the General Aviation Development Area is competitive versus other similar airports in southern Ontario and is generally appropriate given the lack of groundside access and servicing to these lots. No changes are recommended to the lease rates within the General Aviation Development Area.

Table 12.17 - Recommended Lease Rate Structure

Development Area	Category	Lease Rate	
		Per ft^2	Per m^2
General Aviation Development Area	All Tenants	$0.24	$2.60
Aviation Commercial Development Area	Aviation SME Hub Hangar Tenants	As negotiated with the City	
	All Other Tenants	$0.29	$3.12
Groundside Development Area	All Tenants	As negotiated with the City	
Agricultural Cropping Areas	All Tenants	As negotiated with the City	

Preparing and servicing the Aviation Commercial Development Area will require a capital investment by the City. However, these lots will be advantageous for a range of commercial and private end users given the availability (post-construction) of groundside and airside access, full municipal services, and fibreoptic internet. Although positioning the Airport as a cost-competitive option for new commercial development is recommended as a priority, an increased lease rate will be recommended to assist the City in addressing the costs associated with improvements to service and prepare the lots for development. A preliminary lease rate of $0.29 per ft^2 ($3.12 per m^2) is recommended, pending further analysis on the costs of servicing and market-supported interest. Consistent with the flow-through concept of the Aviation SME Hub Strategy (Section 9.4), it is recommended that the City be authorized to propose reduced lease rates and / or term-limited reductions for former tenants of the hangar space.

Predetermined lease rates have not been recommended for the Groundside Commercial Development Area. It is anticipated that a defined strategy on selling versus leasing this parcel to one or more end users will be identified through the RFEI process described in Section 9.5. It is recommended that City Staff be authorized to enter negotiations for subsequent approval by City Council with interested proponents to identify appropriate financial requirements of developing the groundside commercial area. Similarly, it is expected that lease rates for agricultural cropping will be determined through competitive procurement in the future.

12.2.7 Aviation Fuel Surcharges

Aviation fuel is currently sold by Huron Aviation (Jet A) and Huron Flight Services (100 Low Lead). A fuel surcharge is not levied at Sarnia Airport. Fuel surcharges are commonly imposed by airport operators, generally on a per litre basis – examples include Kingston Airport ($0.05 per litre) and the Region of Waterloo International Airport ($0.045 - $0.05 per litre). The public availability of both forms of aviation fuel is a key strategic requirement of the Airport.

Although fuel surcharges are a common practice for revenue generation, their implementation is not recommended at Sarnia Airport in the short-term planning horizon for the following reasons:

- The focus in the short-term planning horizon is on stimulating aviation activity at the Airport. While fuel prices are beyond the City's control, imposing a surcharge would further increase prices relative to other airports in the region and potentially deter new activity;
- The rising costs of Jet Fuel are causing negative financial impacts on a CASM basis to air carriers and commercial operators. The attraction of such users is a key priority of the Master Plan; and
- The revenue generating potential of such surcharges on 100 Low Lead fuel may be limited, with Huron Flight Services indicating that approximately 10,000 litres are sold annually.

The imposition of fuel surcharges may be revisited during the next comprehensive rates and fees review at the end of the short-term planning horizon.

12.2.8 Other Rates and Fees

In addition to the primary categories of rates and fees described in the preceding subsections, other revenue-generating sources are currently in place at Sarnia Airport that are expected to continue to be levied in the future:

- **Vehicle Parking Rates:** Vehicles in the terminal building parking lot are charged $7.00 per day or $45.00 per month. The current vehicle parking rates offers significant savings versus London International Airport, Windsor International Airport, Region of Waterloo International Airport, Hamilton International Airport, and Toronto Pearson International Airport. Cost-effective parking options are a competitive advantage of Sarnia Airport and should be preserved, if parking lot capacity continues to be sufficient at current prices. Consideration may be given to offering free vehicle parking in the initial months of a new air carrier service.

- **Staff Call-Out Charges:** Services performed by Scottsdale Aviation after normal staffed hours are currently charged directly to the requesting party. With the recommended establishment of a revised Airport Operating Agreement in the short-term planning horizon, it is advisable to integrate a provision for call-out charges for services provided by Scottsdale Aviation (or future third-party operators) after the staffed hours established through the Agreement (e.g., for snow removal). Staff call-out charges should be set based on an hourly rate established through the Airport Operating Agreement.
- **Terminal Building Space Rentals:** Air carriers, rental car providers, and other businesses may request to lease portions of the terminal buildings to support their operations. It is recommended that lease rates be determined on an as-negotiated basis by City Staff, with consideration given to the alignment of each potential user with the strategic goals established for the Airport (e.g., incentivizing air carrier and car rental services through nominal lease rates).

12.3 Pro-Forma Financial Model

A pro-forma model has been prepared to illustrate the potential future financial position of the Airport, based on the assumptions described herein. The pro-forma shown in Table 12.18 is a tool to provide guidance to decision-makers on potential future financial supported required to sustain the Airport. The accuracy of the pro-forma is influenced by several significant factors, including:

- The limited historical financial information that is available for the Airport;
- Uncertainty regarding when one of the primary sources of operating revenues (scheduled passenger air services) will return, and the form that future air services will take in terms of flight frequencies and passenger volumes;
- The shift contemplated to a fee-for-service Airport Operating Agreement, the initial costs for which will be determined through negotiations with the incumbent Airport Operator;
- Decisions to be made regarding the growth-supportive initiatives that the City may choose to pursue (e.g., entering into new leasehold development agreements);
- The potential availability of grant funding to reduce capital project costs borne by the municipality; and
- The potential for funding cooperation between the City of Sarnia and Lambton County.

Actual financial performance over the 20-year horizon of the Master Plan will vary, and updated operating and budget requests will need to be prepared on an annual basis based on the most up-to-date information available.

Table 12.18 - Pro-Forma Financial Model

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Operating Revenues																					
Passenger Facility Fees	$0	$98,865	$212,940	$219,024	$225,108	$261,573	$268,456	$275,340	$282,223	$289,106	$397,190	$397,190	$397,190	$397,190	$397,190	$449,384	$449,384	$449,384	$449,384	$449,384	$508,436
Landing Fees	$15,751	$31,934	$48,117	$64,301	$80,487	$91,443	$91,824	$92,206	$92,589	$92,973	$121,858	$122,294	$122,732	$123,171	$123,611	$140,354	$140,855	$141,357	$141,861	$142,366	$161,647
Aircraft Parking Fees	$2,263	$2,286	$2,309	$2,332	$2,355	$2,691	$2,718	$2,745	$2,773	$2,801	$3,200	$3,232	$3,265	$3,297	$3,330	$3,805	$3,844	$3,882	$3,921	$3,960	$4,525
General Aviation Tie-Down Fees	$13,200	$13,200	$15,400	$15,400	$15,400	$14,935	$12,445	$12,445	$12,445	$12,445	$14,081	$14,081	$14,081	$14,081	$14,081	$15,931	$15,931	$15,931	$15,931	$15,931	$18,025
Terminal Building Usage Fees	$3,870	$24,189	$44,508	$64,827	$85,147	$96,382	$96,428	$96,474	$96,521	$96,569	$130,081	$130,135	$130,191	$130,247	$130,303	$147,490	$147,555	$147,621	$147,687	$147,754	$167,247
City Hangar Revenues	$0	$0	$5,000	$5,100	$5,202	$5,306	$5,412	$5,520	$5,631	$5,743	$5,858	$5,975	$6,095	$6,217	$6,341	$6,468	$6,597	$6,729	$6,864	$7,001	$7,141
Land Leases	$25,514	$27,205	$28,912	$32,212	$35,529	$40,176	$43,873	$55,236	$55,994	$67,394	$72,859	$85,694	$86,531	$99,407	$100,286	$131,725	$132,649	$133,595	$134,566	$135,561	$149,034
Vehicle Parking	$0	$9,972	$21,477	$36,819	$39,273	$47,211	$59,014	$59,014	$59,014	$64,915	$73,446	$73,446	$73,446	$80,122	$80,122	$90,651	$90,651	$90,651	$90,651	$90,651	$102,563
Highway Advertising	$0	$0	$0	$0	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000
Agricultural Cropping	$21,140	$21,140	$21,140	$21,140	$21,140	$23,918	$23,918	$23,918	$23,918	$23,918	$27,061	$27,061	$27,061	$27,061	$27,061	$30,617	$30,617	$30,617	$30,617	$30,617	$34,640
Total Operating Revenues	**$81,739**	**$228,790**	**$399,803**	**$461,155**	**$534,641**	**$608,635**	**$629,089**	**$647,899**	**$656,108**	**$680,864**	**$870,633**	**$884,109**	**$890,590**	**$910,793**	**$912,326**	**$1,046,426**	**$1,048,083**	**$1,049,768**	**$1,051,482**	**$1,053,226**	**$1,183,260**
Operating Expenses																					
Contracted Airport Operator	$400,000	$450,000	$461,250	$472,781	$484,601	$496,716	$500,000	$512,500	$525,313	$538,445	$551,906	$565,704	$579,847	$594,343	$609,201	$624,431	$640,042	$656,043	$672,444	$689,256	$706,487
City Staff Resources	$0	$0	$0	$0	$0	$0	$0	$40,000	$41,000	$42,025	$43,076	$44,153	$45,256	$46,388	$47,547	$48,736	$49,955	$51,203	$52,483	$53,796	$55,140
Sarnia Airport Advisory Committee Costs	$10,000	$10,200	$10,404	$10,612	$10,824	$11,041	$11,262	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Sarnia Airport MSC Costs	$0	$0	$0	$0	$0	$0	$0	$20,000	$20,800	$21,632	$22,497	$23,397	$24,333	$25,306	$26,319	$27,371	$28,466	$29,605	$30,789	$32,021	$33,301
Airport Administrator (2023-2028) / CEO (2029-2042) Position	$0	$80,000	$83,200	$86,528	$89,989	$93,589	$97,332	$97,332	$101,226	$105,275	$109,486	$113,865	$118,420	$123,156	$128,083	$133,206	$138,534	$144,075	$149,838	$155,832	$162,065
Terminal Operations	$10,000	$10,400	$10,816	$11,249	$11,699	$12,167	$12,653	$13,159	$13,686	$14,233	$14,802	$15,395	$16,010	$16,651	$17,317	$18,009	$18,730	$19,479	$20,258	$21,068	$21,911
Airport Maintenance	$20,000	$20,800	$21,632	$22,497	$23,397	$24,333	$25,306	$26,319	$27,371	$28,466	$29,605	$30,789	$32,021	$33,301	$34,634	$36,019	$37,460	$38,958	$40,516	$42,137	$43,822
Utilities	$40,000	$41,600	$43,264	$44,995	$46,794	$48,666	$50,613	$52,637	$54,743	$56,932	$59,210	$61,578	$64,041	$66,603	$69,267	$72,038	$74,919	$77,916	$81,033	$84,274	$87,645
Fleet Expenses	$25,000	$26,000	$27,040	$28,122	$29,246	$30,416	$31,633	$32,898	$34,214	$35,583	$37,006	$38,486	$40,026	$41,627	$43,292	$45,024	$46,825	$48,698	$50,645	$52,671	$54,778
Insurance	$25,000	$25,625	$26,266	$26,922	$27,595	$28,285	$28,992	$29,717	$30,460	$31,222	$32,002	$32,802	$33,622	$34,463	$35,324	$36,207	$37,113	$38,040	$38,991	$39,966	$40,965
Business Development Initiatives	$25,000	$25,625	$26,266	$26,922	$27,595	$28,285	$28,992	$29,717	$30,460	$31,222	$32,002	$32,802	$33,622	$34,463	$35,324	$36,207	$37,113	$38,040	$38,991	$39,966	$40,965
Contracted Advisory Support	$10,000	$10,250	$10,506	$10,769	$11,038	$11,314	$11,597	$11,887	$12,184	$12,489	$12,801	$13,121	$13,449	$13,785	$14,130	$14,483	$14,845	$15,216	$15,597	$15,987	$16,386
Total Operating Expenses	**$565,000**	**$700,500**	**$720,644**	**$741,397**	**$762,780**	**$784,812**	**$798,381**	**$866,167**	**$891,456**	**$917,523**	**$944,393**	**$972,092**	**$1,000,647**	**$1,030,086**	**$1,060,438**	**$1,091,732**	**$1,124,001**	**$1,157,275**	**$1,191,588**	**$1,226,973**	**$1,263,468**
Total Operating Deficit	**$483,261**	**$471,710**	**$320,840**	**$280,242**	**$228,139**	**$176,177**	**$169,292**	**$218,268**	**$235,348**	**$236,659**	**$73,760**	**$87,984**	**$110,057**	**$119,293**	**$148,112**	**$45,306**	**$75,917**	**$107,506**	**$140,105**	**$173,748**	**$80,208**
Capital Expenses																					
Infrastructure - Rehabilitation and Reconstruction	$423,000	$1,117,000	$925,000	$22,000	$8,654,000	$974,000	$23,000	$24,000	$938,000	$899,000	$26,000	$26,000	$27,000	$28,000	$28,000	$29,000	$1,589,000	$1,521,000	$31,000	$32,000	$33,000
Terminal Building - Renewal and Expansion	$0	$267,000	$0	$1,490,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Mobile Equipment - Replacement	$50,000	$21,000	$0	$0	$204,000	$45,000	$0	$36,000	$335,000	$0	$0	$0	$46,000	$0	$0	$0	$0	$0	$268,000	$445,000	$0
Airport Development - Growth Enabling Projects	$0	$8,000	$0	$0	$77,000	$0	$1,360,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Airport Administration - Plans and Studies	$0	$21,000	$0	$0	$11,000	$45,000	$0	$0	$24,000	$87,000	$0	$0	$0	$0	$14,000	$0	$0	$0	$0	$136,000	$0
Total Capital Expenses	**$473,000**	**$1,434,000**	**$925,000**	**$1,512,000**	**$8,946,000**	**$1,064,000**	**$1,383,000**	**$60,000**	**$1,297,000**	**$986,000**	**$26,000**	**$26,000**	**$73,000**	**$28,000**	**$42,000**	**$29,000**	**$1,589,000**	**$1,521,000**	**$299,000**	**$613,000**	**$33,000**
Potential Funding - Airports Capital Assistance Program (ACAP)	$0	$0	$0	$0	$8,659,000	$0	$0	$0	$1,133,000	$0	$0	$0	$0	$0	$0	$0	$1,559,000	$1,491,000	$268,000	$445,000	$0
Capital Expenses, Less Potential ACAP Funding	**$473,000**	**$1,434,000**	**$925,000**	**$1,512,000**	**$287,000**	**$1,064,000**	**$1,383,000**	**$60,000**	**$164,000**	**$986,000**	**$26,000**	**$26,000**	**$73,000**	**$28,000**	**$42,000**	**$29,000**	**$30,000**	**$30,000**	**$31,000**	**$168,000**	**$33,000**
Municipally Supported Deficit																					
Municipally Supported Deficit, Excluding Potential ACAP Funding	**$956,261**	**$1,905,710**	**$1,245,840**	**$1,792,242**	**$9,174,139**	**$1,240,177**	**$1,552,292**	**$278,268**	**$1,532,348**	**$1,222,659**	**$99,760**	**$113,984**	**$183,057**	**$147,293**	**$190,112**	**$74,306**	**$1,664,917**	**$1,628,506**	**$439,105**	**$786,748**	**$113,208**
Municipally Supported Deficit, City of Sarnia	$956,261	$1,905,710	$1,245,840	$1,792,242	$9,174,139	$1,240,177	$1,164,219	$208,701	$1,149,261	$916,994	$74,820	$85,488	$137,292	$110,470	$142,584	$55,730	$1,248,688	$1,221,380	$329,329	$590,061	$84,906
Municipally Supported Deficit, Lambton County	$0	$0	$0	$0	$0	$0	$388,073	$69,567	$383,087	$305,665	$24,940	$28,496	$45,764	$36,823	$47,528	$18,577	$416,229	$407,127	$109,776	$196,687	$28,302
Municipally Supported Deficit, Including Potential ACAP Funding	**$956,261**	**$1,905,710**	**$1,245,840**	**$1,792,242**	**$515,139**	**$1,240,177**	**$1,552,292**	**$278,268**	**$399,348**	**$1,222,659**	**$99,760**	**$113,984**	**$183,057**	**$147,293**	**$190,112**	**$74,306**	**$105,917**	**$137,506**	**$171,105**	**$341,748**	**$113,208**
Municipally Supported Deficit, City of Sarnia	$956,261	$1,905,710	$1,245,840	$1,792,242	$515,139	$1,240,177	$1,164,219	$208,701	$299,511	$916,994	$74,820	$85,488	$137,292	$110,470	$142,584	$55,730	$79,438	$103,130	$128,329	$256,311	$84,906
Municipally Supported Deficit, Lambton County	$0	$0	$0	$0	$0	$0	$388,073	$69,567	$99,837	$305,665	$24,940	$28,496	$45,764	$36,823	$47,528	$18,577	$26,479	$34,377	$42,776	$85,437	$28,302

12.3.1 Operating Revenues

The pro-forma statement models a gradual increase in revenues over time from approximately $82,000 in 2022 to $609,000 at the end of the short-term planning horizon (2027) and $871,000 at the end of the medium-term horizon (2032). The primary assumptions that affect the revenue projections are as follows:

- Rates and fees are consistent with the recommendations of Section 12.2. Fees are increased every five years based on an assumed increase of 2.5% per year;
- For modelling purposes, it is assumed that air carrier services resume in the third quarter of 2023;
- Land lease revenues for existing tenants increase with inflation, assumed at 2.5% per year;
- New lease agreements are entered into with the City beginning in 2023 (General Aviation Development Area) and 2029 (Aviation Commercial Development Area);
- Rental revenues for the future City-owned hangar begin in 2024 and increase by 2% annually;
- A highway advertising agreement is entered in 2024, with revenues from this agreement beginning in 2026; and
- Agricultural cropping agreements are negotiated on a five-year basis through competitive procurement and are assumed to increase every five years based on 2.5% inflation per year.

The revenue implications modelled with the assumed restoration of scheduled passenger air services have a significant impact on the overall financial position of the Airport. Using 2026 as an example, revenues associated with air carrier operations comprise 69% of estimated revenues in that year. While the proportional share of total revenues associated with air carrier operations can be reduced through the pursuit of the other business opportunities described throughout the Master Plan, the importance of such services from a revenue generation perspective must be noted and understood.

12.3.2 Operating and Capital Expenses

Operating expenses are modelled at $701,000 in 2023, increasing to approximately $785,000 in 2027 and $944,000 in 2032. Future operating expenses associated with the Airport are an area of considerable uncertainty, given the departure from the terms of the 1997 Headlease Agreement and the shift to the recommended fee-for-service Airport Operating Agreement model. The main assumptions with respect to operating revenues are as follows:

- Contracted Airport Operator services are assumed to be $450,000 in 2023, increasing by 2.5% in subsequent years;
- Interdepartmental transfers to reflect the support provided by City Staff in Airport-related initiatives (e.g., legal, human resources, information technology, engineering, planning, etc.) are not included prior to the formation of the Sarnia Airport MSC in 2028. Interdepartmental transfers are estimated in subsequent years to reflect the potential costs associated with City Staff being seconded on a non-dedicated basis to Airport-related tasks;
- Costs associated with terminal operations, maintenance, fleet vehicles, and utilities are based on 2021 financial information, increasing by 4% annually;
- Insurance costs are based on 2021 values and are modelled to increase by 2.5% per year;
- Budgets are allocated for Airport-related business development and third-party advisory services, increasing by 2.5% per year;
- Costs associated with the Airport Committee and Airport MSC are assumed to increase by 4% annually; and

- Costs with the Airport Administrator and later the Airport CEO position are assumed to increase by 4% per year.

Capital expenses are as identified in Section 12.2. The potential financial implications of the City securing grant funding from the federal government through the ACAP program are modelled, assuming that all eligible projects are funded in their scheduled implementation year at a 100% contribution level. This assumption is contingent on the modelled resumption of scheduled passenger air services in 2023, or prior to each project's scheduled implementation. While the potential financial impacts of ACAP awards are modelled, such funding is not guaranteed. However, other grant programs may be released in the future that the City may also be able to leverage to reduce the municipally supported costs of the recommended capital projects. Examples of grant programs that have been leveraged in recent years at other airports, or that could be used, to support capital projects include the Regional Air Transportation Initiative, Investing in Canada Infrastructure Program, Southwestern Ontario Development Fund, Canada Community Building Fund, and FedDev Ontario Community Economic Development and Diversification Stream.

Consideration was also raised among select stakeholders on the operating and capital cost implications if scheduled passenger air services do not resume, and / or if the City chooses to decertify the Airport and operate the facility as a registered aerodrome. Operating expenses can be reduced by lowering the level of service provided at the Airport (e.g., limited winter maintenance, reduced on-site presence by the Airport Operator) and by surrendering the Airport Certificate. As a core focus of the Master Plan is on maintaining the Airport's certification and positioning the facility to support the return of scheduled passenger air services, the magnitude of potential cost reductions has not been estimated and will require further study. The financial benefits of decertifying and / or reducing the level of service must be weighed against the associated negative implications, including:

- The revenue impacts of not being able to support scheduled passenger air services;
- The operational and business implications of providing a lower level of service (e.g., limited availability for corporate, air ambulance, and flight training movements in the winter); and
- The continued need, regardless of whether the facility is a registered aerodrome or certified airport, to provide a safe and well-maintained operating environment.

12.3.3 Financial Position

Based on the foregoing assumptions, the operating deficit of the Airport in 2023 is assumed to be approximately $472,000, gradually improving in subsequent years to $176,000 in 2027 (Figure 12.1). An operating deficit is modelled in all years of the Master Plan, consistent with the trends exhibited at comparable regional airports in Canada. These deficits range between $176,000 and $483,000 in the short-term planning horizon, $74,000 and $237,000 in the medium-term planning horizon, and $45,000 and $174,000 in the long-term planning horizon.

Considering the recommended capital project costs, the total level of municipal support increases accordingly but exhibits significant variability over time, depending on the implementation year of each project (Figure 12.2). Accounting for capital project costs and assuming that no grant support can be secured, annual municipal funding support ranges between $956,000 and $9,174,000 in the short-term planning horizon, $100,000 and $1,532,000 in the medium-term, and $74,000 and $1,665,000 in the long-term. The capital costs associated with the Airport emphasize the need for the City to proactively identify grant funding opportunities, including the restoration of scheduled services to become ACAP eligible again, and for capital funding support to be secured from the County.

The distribution of the municipally supported Airport costs will depend on if and when the City is able to enter into an operating and / or capital funding cooperation model with Lambton County. For illustrative purposes only, the pro-forma identifies the implications of the City and County contributing to, respectively, 75% and 25% of the Airport's costs beginning in 2028 with the formation of the Sarnia Airport MSC.

Figure 12.1 - Pro-Forma Operating Financial Position

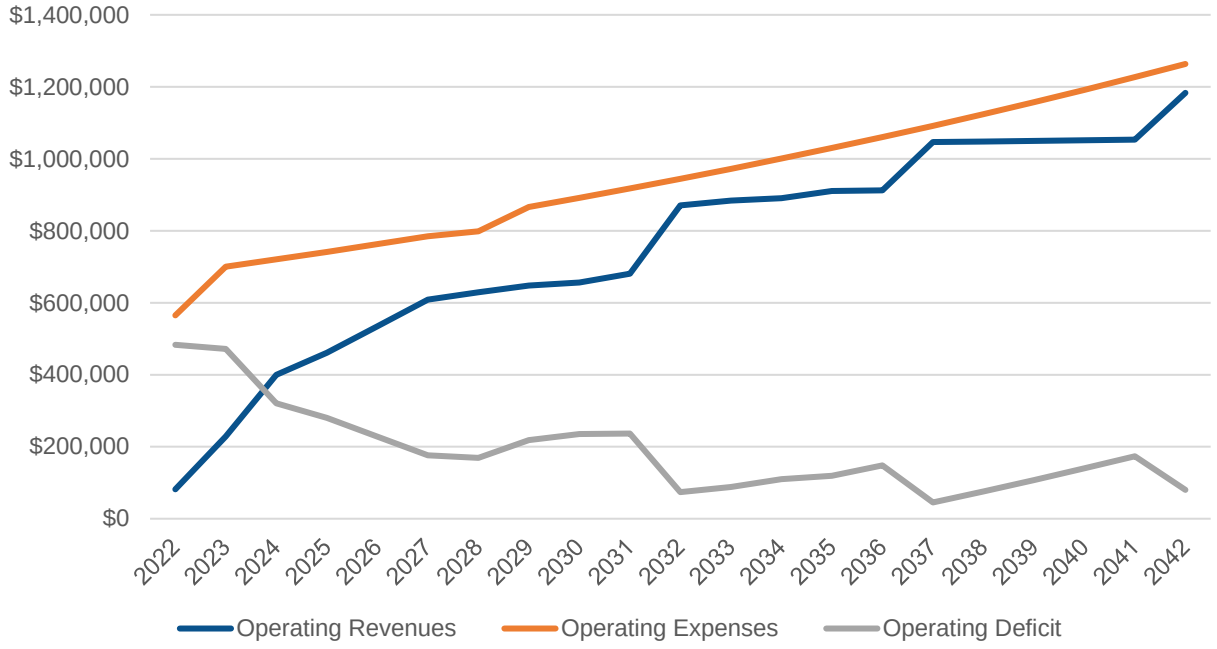
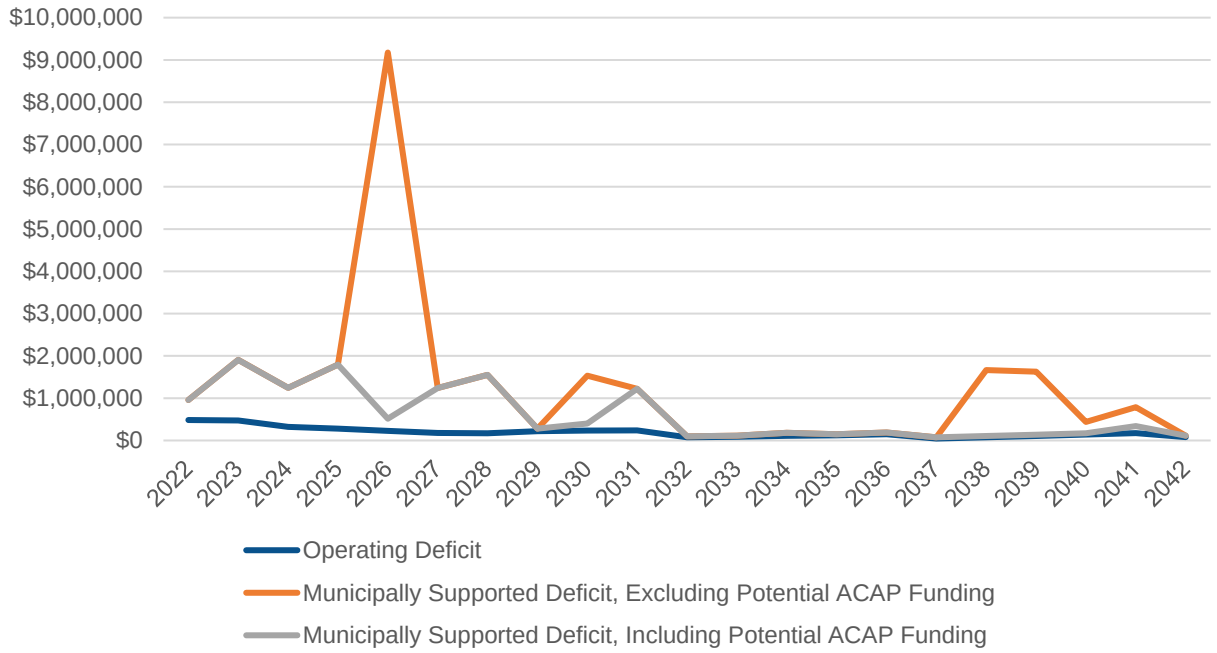


Figure 12.2 - Pro-Forma Operating and Capital Financial Positions



13 MASTER PLAN IMPLEMENTATION

The preparation of the Master Plan is one of the first key steps required to establish a sustainable future for Sarnia Chris Hadfield Airport. It is recognized that this Plan is being prepared at a unique time in the facility's history. As examined in Section 10, fundamental questions are being asked as to whether the City of Sarnia has a continued / future role in advancing the Airport, especially with the understanding that the resources associated with doing so will be increased versus those that have been allocated in the past. Under the purview of responsible municipal oversight, the question of whether the current and potential future economic and social benefits of the Airport justify the municipality's involvement in its governance, funding, administration, and operation should be decided. This decision is the responsibility of City Council as the governing body, considering the findings of the Master Plan, input from City Staff, and viewpoints shared by the public.

The recommendations advanced through the Master Plan are based on the information available as of March 2022, including materials identified through background research and the numerous findings of the stakeholder engagement program. Although all efforts have been taken to maximize the accuracy and validity of the recommendations proposed herein, factors both within and external to the City's control will influence the Airport throughout the short, medium, and long-term planning horizons. The Master Plan therefore should be reviewed regularly and updated on a 10-year cycle or sooner, if required.

As with all municipal plans and strategies, implementation now becomes the priority upon completion. The Master Plan is available for use by City Staff, City Council, the recommended Sarnia Airport Advisory Committee, and the potential long-term governance body to guide decision-making pertaining to the facility and advance its priorities in a systematic manner. It is recommended that the Master Plan be reviewed on an annual basis to establish action plans and budget requests, which can then be implemented in the following 12-month period.

The Implementation Strategy presented in the following tables outlines the key initiatives and recommendations of the Master Plan to assist decision-makers in establishing annual and longer-term priorities. For the scheduled timing of each project or initiative, consideration should be given to preparatory actions that may be required in advance of the implementation year, including preliminary and detailed engineering design, grant pursuits, and / or competitive procurement. Fewer recommendations are provided in the medium and long-term planning horizons, given the short-term focus on addressing the capital infrastructure deficit that has accumulated post-divestiture; however, it is expected that new priorities will be identified over time that will be captured in subsequent Master Plan updates.

Table 13.1 - Short-Term Implementation Plan (2022-2027)

Project	2022	2023	2024	2025	2026	2027
Infrastructure - Rehabilitation and Reconstruction Projects						
Reconstruction and Lighting of Taxiway A	■					
Rehabilitation of Terminal Building Sidewalks and Entrance	■					
Implementation of Terminal Building Apron Management Plan		■				
Reconstruction of Runway 06-24		■				
General Aviation Area Access Gates		■				
Reconstruction of Taxiway C			■			
General Aviation Apron Reconstruction			■			
General Aviation Tie Down Area Reconstruction			■			
Maintenance Building Improvements			■			
Rehabilitation of Runway 15-33					■	
Rehabilitation of Maintenance Garage Access Road and Parking Area					■	
Terminal Building Road Rehabilitation						■
Rehabilitation of Terminal Building and Rental Car Parking Lots						■
Pavement and Storm Drain Repairs	■	■	■	■	■	■
Terminal Building - Renewal and Expansion Projects						
Baseline Service Terminal Improvements		■				
Upgauged Service Terminal Building Improvements and Expansion				■		
Mobile Equipment - Replacement Projects						
Procure Replacement Sweepster Tow-Behind Runway Sweeper	■					
Procure Replacement John Deere 2305 Tractor		■				
Procure Replacement International Truck with Sander					■	
Procure Replacement Ford F-150 Pick-up Truck						■
Airport Development - Growth-Enabling Projects						
General Aviation Development Area - Lot Preparation		■				
Aviation Commercial Development Area - Servicing Study					■	
Aviation Commercial Development Area - Business Case Study					■	
Airport Administration - Governance and Oversight						
Formation of Sarnia Airport Advisory Committee		■				
Implementation of Short-Term Model Administration Changes		■				
Establishment of Fee-for-Service Airport Operating Agreement		■				
Implementation of Revised Rates and Fees		■				
Comprehensive Rates and Fees Review					■	
Long-Term Governance Model Business Case Study						■
Airport Administration - Business Development						
Release Airport Website	■					
Prepare Airport Opportunity Packages	■					
Air Carrier Outreach / Air Service Development	■	■	■			
Establish Airport Approvals Process		■				
Marketing of General Aviation Development Area		■				
Highway Advertising Competitive Procurement		■				
Marketing of Airport Hangar / Initiation of Aviation SME Hub Strategy		■	■			
Groundside Development Area RFEI				■		
Declaration and Sale of Surplus Lands				■		

Table 13.2 - Medium-Term Implementation Plan (2028-2032)

Project	2028	2029	2030	2031	2032
Infrastructure - Rehabilitation and Reconstruction Projects					
Terminal Building Apron Rehabilitation			■		
Airport Perimeter Fence				■	
Pavement and Storm Drain Repairs	■	■	■	■	■
Mobile Equipment - Replacement Projects					
Procure Replacement Bush Hog 2815 Mower Deck		■			
Procure Replacement SMI Snowmaster 5250A Snow Blower			■		
Procure Replacement Kubota M110X Tractor			■		
Airport Development - Growth-Enabling Projects					
Aviation Commercial Development Area - Lot Preparation	■				
Aviation Commercial Development Area - Airside and Groundside Access	■				
Aviation Commercial Development Area - Servicing	■				
Airport Administration - Governance and Oversight					
Creation of Sarnia Airport MSC	■				
Airport Operator Contract Competitive Procurement	■	■			
Recruitment of Airport CEO Position		■			
Approach Lighting Systems Needs Analysis Study			■		
Preparation of Comprehensive Rates and Fees Review				■	
Preparation of Airport Master Plan				■	
Airport Administration - Business Development					
Marketing of Aviation Commercial Development Area	■	■			

Table 13.3 - Long-Term Implementation Plan (2033-2037)

Project	2033	2034	2035	2036	2037
Infrastructure - Rehabilitation and Reconstruction Projects					
Pavement and Storm Drain Repairs	■	■	■	■	■
Mobile Equipment - Replacement Projects					
Procure Replacement Chevrolet 2500 Pick-Up Truck		■			
Airport Administration - Governance and Oversight					
Preparation of Comprehensive Rates and Fees Review				■	

Table 13.4 - Long-Term Implementation Plan (2038-2042)

Project	2038	2039	2040	2041	2042
Infrastructure - Rehabilitation and Reconstruction Projects					
Airfield Lighting System Replacement	■				
Rehabilitation of Taxiway B		■			
Pavement and Storm Drain Repairs	■	■	■	■	■
Mobile Equipment - Replacement Projects					
Procure Replacement International Work Star Plow Truck			■		
Procure Replacement Case 721F Loader				■	
Airport Administration - Governance and Oversight					
Preparation of Comprehensive Rates and Fees Review				■	
Preparation of Airport Master Plan				■	

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