

Waterloo Airport Runway Project

Runway 14-32 Extension Initial Project Description English Summary

Following the Requirements of the Impact Assessment Act



Region of Waterloo
INTERNATIONAL
AIRPORT
ONTARIO, CANADA 



March 9, 2021
MTE File No.: 44941-100

Waterloo Region International Airport

Part A: General Information

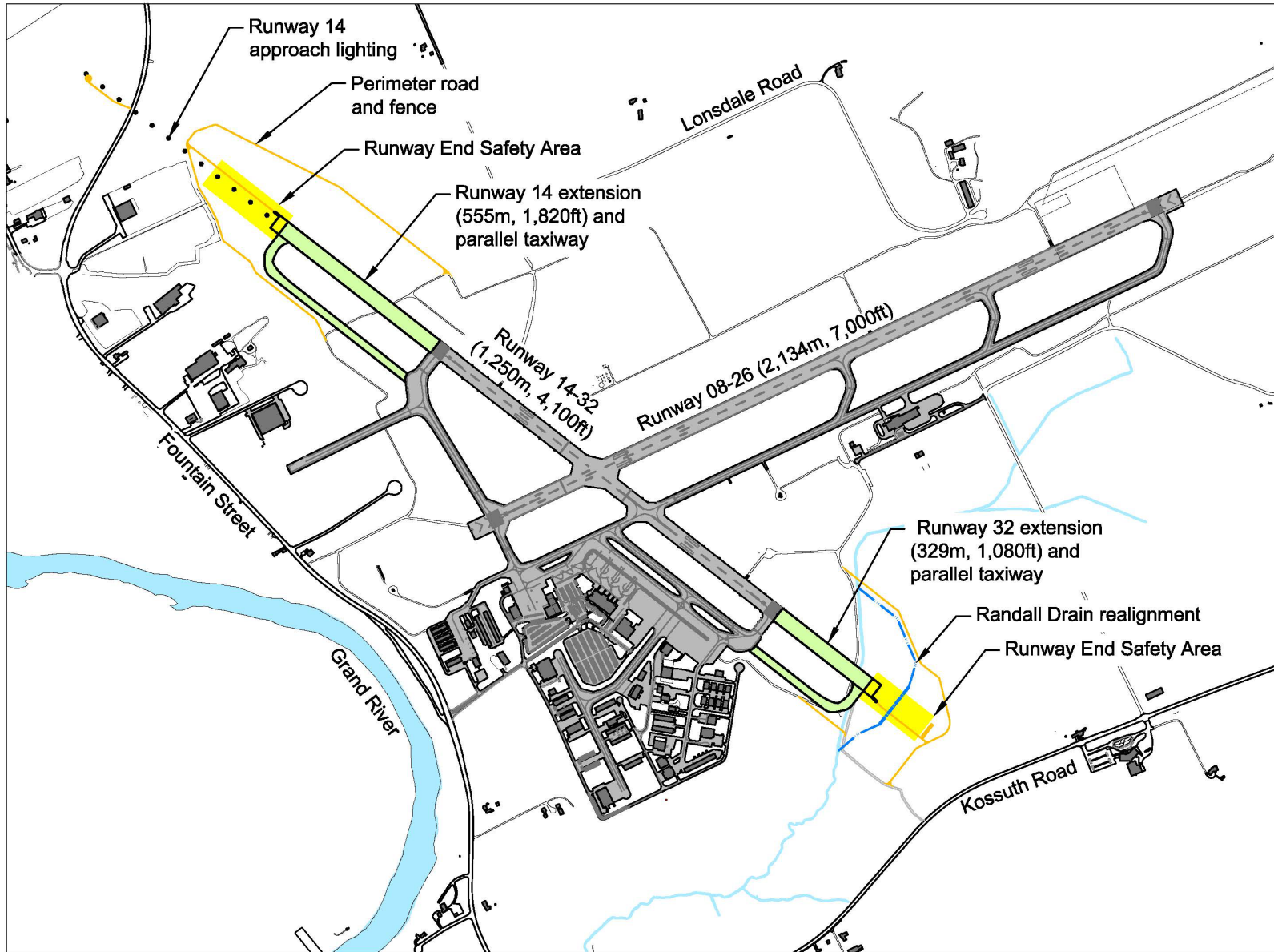
The Regional Municipality of Waterloo (Region) is planning the Runway 14-32 Extension Project (Project) at the Region of Waterloo International Airport (YKF). YKF is located in a mainly rural area of Woolwich Township, just north of Cambridge and east of Kitchener and the Grand River.

The Project generally includes runway extensions on the north and south ends, parallel taxiways, Runway End Safety Areas, visual aids, perimeter roads and fencing, stormwater management, realignment of a municipal drain and environmental controls. The following Figure illustrates the main components of the Project.

The Project will result in increased safety and level of service for passengers and airlines. Currently AGN IIIB aircraft, such as the Boeing 737 and Airbus 320 series, can only operate on Runway 08-26. Extending Runway 14-32 will provide these aircraft with an alternate runway to use during poor weather and high crosswind conditions. This will increase safety and reduce delays, cancellations and the need to divert aircraft to alternate airports during inclement weather. Diversions to other airports are costly, but also result in more fuel being used and additional aircraft emissions due to the increased flight time and alternate transportation required for passengers and freight. The Project will also allow YKF to close one of the runways for maintenance, snow clearing or emergencies while ensuring continuous service for passengers and airlines.

This Initial Project Description (IPD) documents the studies, findings and consultation undertaken as part of the planning process for the Project.

Figure: Runway 14-32 Extension Project



Community Engagement

Public engagement has been an important part of the Project. Engagement was initiated through the development of the Airport Master Plan, when two Public Consultations Centres (PCC) were held in 2016. The Airport Master Plan was officially approved by Regional Council in 2017.

YKF completed additional public consultation for the Project in 2019, as part of an Environmental Assessment process. Two PCC's were held, one at the Breslau Mennonite Church and second within the YKF Air Terminal Building. The Impact Assessment Agency of Canada (IAAC) also organized public engagement sessions in 2020.

Summary of Community Engagement

Type	Attendance	Date/Time
Master Plan PCC 1	458 people combined	May 25, 2016
Master Plan PCC 2		November 10, 2016
Class EA PCC 1	108 people	June 20, 2019
Class EA PCC 2	57 people	October 24, 2019
IAAC Session 1	12 people	September 8, 2020 at 3 p.m.
IAAC Session 2	10 people	September 8, 2020 at 6 p.m.

Indigenous Engagement

YKF is located within the Haldimand Tract of Six Nations of the Grand River (Six Nations). Blocks 1 and 2 (YKF Lands) and Block 3 of the Haldimand Tract were surrendered by Six Nations to the British Crown in the 1790s so the lands could be sold to settlers, with the proceeds to go to Six Nations. Blocks 1, 2 and 3 are all located within the Region.

In addition, the Mississaugas of the Credit First Nation (MCFN) agreed to share lands in south-central Ontario, including Waterloo Region, as part of Treaty 3, Between the Lakes Treaty, to help facilitate the Haldimand Tract.

YKF's proposed runway extensions were presented to Six Nations leaders as part of a review of the 2017 Airport Master Plan. Additional Indigenous engagement was completed as part of the Region's Class EA process and during the initial IAA process.

Summary of Indigenous Engagement

Indigenous Group	Attendance	Date	Initiated By
Six Nations	5 representatives	April 9, 2020	Region
MCFN	2 representatives	April 16, 2020	Region
Métis Nation of Ontario (MNO)	Copy of presentation provided by email	Response received from MNO on June 2, 2020	Region
Six Nations	Not recorded	July 22, 2020	IAAC
MNO	Not recorded	July 22, 2020	IAAC
MCFN	Not recorded	July 29, 2020	IAAC

Relevant Studies

Several projects were initiated in 2018 based on Stage 1 of the Airport Master Plan. At that time, the Runway 14-32 Extension fell under the jurisdiction of the 2012 Canadian Environmental Assessment Act (CEAA). Section S84(a) of the CEAA states that runway extensions of less than 1,500 m are not subject to the CEAA. Since the total length of the proposed Runway 14-32 Extension was only 884 m long, the Project was exempt from the CEAA planning process as per Section S84(a).

However, the Region choose to complete an environmental assessment following Municipal Class EA guidelines, to exercise due diligence and good stewardship, and identify the environmental legislative requirements to be met during construction.

Before this Class EA process was completed, it was determined that the Project was to be subject to the Impact Assessment Act, which came into force on August 28, 2019. Following consultation with the IAAC, this Initial Project Description has been prepared. The investigations completed as part of the Class EA process has been incorporated into this report.

Technical and environmental studies undertaken as part of the Class EA process include:

- Screening Level Environmental Site Assessment Phase 1
- Stage 1 Archaeological Investigation
- Built Heritage and Cultural Heritage Landscape Assessment
- Environmental Impact Study

Part B: Project Information

Waterloo Region and surrounding communities need convenient access to affordable aviation and airline services. As one of Canada's most innovative and successful urban regions, the Region depends on efficient connectivity to national and global economies. YKF's catchment area is an exporting region, driven by creative, capital intensive companies that sell into and pull talent and product from diverse markets. The Region's residents travel extensively, both for business and recreation.

Runway 14-32 can currently only accommodate light general aviation aircraft and flight training activity. Runway 08-26 can accommodate larger narrow-body aircraft (i.e. Boeing 737 aircraft with one aisle). Wide-body aircraft (i.e. Boeing 767 aircraft with two aisles) cannot use the airport at this time, and there is no secondary option for narrow-body aircraft.

Extending Runway 14-32 to a length of 2,134 m (7,000 ft) will improve the safety and reliability of YKF. When Runway 08-26 has strong cross-winds from the north or south combined with wet or icy conditions, larger narrow-body aircraft would be able to land on Runway 14-32. Additionally, scheduled air service could use Runway 14-32 when Runway 08-26 is closed for repairs.

In summary, the overall purpose and need for the Runway 14-32 Extension Project is as follows:

- Enhance safety and reliability for aircraft.
- Improve the level of service and overall customer experience.
- Improve overall use and flexibility for scheduled air service.

The Runway 14-32 Extension Project includes:

- Runway 14-32 extended 884 m to a total of 2,134 m, with 555 m to the "north" (towards Breslau) and 329 m to the "south" towards Cambridge.
- Taxiways parallel to the extended runway.
- Perimeter road and security/wildlife fencing.
- Runway End Safety Areas be established at each runway end.
- Drainage infrastructure.
- Enhanced runway visual aids including Runway 14 approach lighting.
- Instrument Landing System and low visibility departure equipment

During construction, there will be temporary facilities to accommodate construction including site trailers, and material and equipment storage yards. Temporary access roads to accommodate construction delivery of materials and worker access will also be constructed utilizing existing on-site roads as much as possible. All construction activities, locations of stockpiles, equipment and material yards must follow strict regulations regarding their distance and height from any airside facilities.

There are no incidental projects associated with the Project. Runway 14-32 is being extended solely for safety and reliability reasons to serve the same size of aircraft currently using YKF.

Anticipated Schedule

The current estimated construction schedule for the Project is as follows:

Phase	Schedule
Design	Late 2021
Tendering	As early as late 2021
Construction Start	As early as late 2021
Construction Completion and Commissioning	End of 2024

Alternatives Options

Runway 14-32 is limited in the size and type of aircraft it can accommodate. Runway 14-32 needs to be extended in order to accommodate AGN IIIB aircraft during all weather conditions.

The following runway alternatives to accommodate larger aircraft were considered while minimizing the impacts to existing road networks and adjacent landowners:

1. Do Nothing.
2. Do Not Extend Runway 14-32.
3. Extend Runway 14-32 to accommodate AGN IIIB.
4. Extend Runway 14-32 to a maximum length based on existing Land Holdings.
5. Relocate the airport to an area where the maximum length and number of runways can be accommodated.

Based on discussions and analysis of alternatives that was undertaken as part of the Class EA Study and this Initial Project Description, extending Runway 14-32 to 2,134 m (7,000 ft) is the preferred approach.

Part C: Location Information and Context

Proximity to Residences / Communities

The closest permanent residence is approximately 600 m from the south end of the Runway 14-32 Extension, located at 2515 Kossuth Rd. The closest farm (barn) used for agricultural purposes is approximately 170 m south of the Airport property off of Shantz Station Road.

The community of Breslau is approximately 1,600 m to the north of YKF, and the City of Kitchener is approximately 700 m to the west and is separated by the Grand River.

Proximity to Residences, Indigenous Lands, Federal Lands

Land	Response
Land used for traditional purposes by Indigenous peoples of Canada.	Consultation with Six Nations, MCFN and MNO did not identify any land used for traditional purposes that would be affected by this Project. An Archaeological Stage 2 Investigation (to proceed in spring 2021) may identify traditional purposes for these lands.
Land in a reserve as defined in subsection 2(1) of the Indian Act.	Closest reserve is Six Nations Reserve in Oshwekan Ontario – Approximately 50 km southeast of YKF. MCFN indicated that their reserve outside Brantford was the closest to YKF, located approximately 65 km southeast of YKF.
First Nation land as defined in subsection 2(1) of the First Nations Land Management Act.	No known land as defined under subsection 2(1) of the First Nations Land Management Act in proximity to YKF was identified as part of Indigenous consultation.
Land that is subject to a comprehensive land claim agreement or a self-government agreement.	Six Nations and MCFN did not identify any lands near YKF that is subject to a comprehensive land claim. Preliminary research has found that there are a number of claims related to the Haldimand Tract (6 miles either side of the Grand River), but no specific claims exist in Woolwich Township and/or the lands occupied by or near YKF. The Airport is located approximately 100 m east of the Grand River.
Any other land set aside for the use and benefit of Indigenous peoples of Canada.	Six Nations and MCFN did not identify any lands near the Airport set aside for the use and benefit of Indigenous peoples.

Physical and Biological Environment

A number of studies have been initiated for this Project, identifying and reviewing existing conditions and potential impacts on the physical and biological environment. The findings of these studies are summarized below. Areas noted as being impacted by the Project will be further refined and minimized as part of the detailed design process.

Ecological

YKF lands are within the Grand River Watershed. The landscape surrounding YKF is predominantly agricultural with some industrial or commercial lands to the northwest

and northeast, as well as individual rural residential properties. The Breslau and Kossuth Provincially Significant Wetland (PSW) Complexes, expansive areas of treed swamp and marsh, are also present to the north and south of YKF.

The Project will occur on YKF lands and will result in impacts to PSWs and the Randall Drain. There will also be impacts on private property immediately north and south of the runway (Flight Pathway Areas). A summary of the significant impacts and mitigation measures is as follows:

Removal of Wetlands in the Breslau and Kossuth PSW:

- Wetland restoration and offsetting/compensation activities will be identified in a Habitat Compensation Plan, in consultation with the Grand River Conservation Authority (GRCA) and Ministry of Environment, Conservation and Parks (MECP) applying the principals of “no net loss” of wetland function.
- Natural Heritage Management Plans will be developed for Breslau and Kossuth PSW habitats in the Flight Pathway Areas, including recommendations for approaches to tree removal techniques and strategies for limiting canopy height in the Flight Pathway Areas over the short and long term.

Breslau Drain and Randall Drain

- A new access road culvert will be installed in the Breslau Drain.
- A portion of the Randall Drain will be realigned and converted to a partially open drainage feature and partially closed (culvert), representing a potential Harmful Alteration, Disruption or Destruction (HADD).
- An aquatic effects assessment summary table will be prepared, and a comprehensive realignment and restoration plan will be developed for the Randall Drain.
- Any required fish salvage and relocation, and construction schedules will adhere to in-water work timing windows (i.e. no work between March 15-June 30).
- The water balance will be maintained during all construction activities and post-development scenario.
- A Sedimentation and Erosion Control Plan will be developed.

Wildlife

- The species at risk Bobolink, Eastern Meadowlark and Blanding’s Turtle have been documented to have habitat in the area.
- Candidate habitat for species at risk bats has been identified within the Breslau and Kossuth PSWs.
- Four species of conservation concern, the Eastern Wood-Pewee, Wood Thrush, Grasshopper Sparrow and Snapping Turtle have been documented in impacted areas.
- Impact Mitigation measures include:

- Timing windows for construction which result in the least amount of disturbance to wildlife and disruption of critical life stages such as breeding.
- Wildlife salvage and wildlife encounter plans.
- Best Management Practices (BMP) for Eastern Meadowlark, Bobolink, Grasshopper Sparrow and Blanding's Turtle and Snapping Turtle will be incorporated into the Airport's wildlife management plans to reduce impacts to these species from ongoing operations.
- Enhancements and additions to existing wildlife fencing around the airport to improve wildlife exclusion from these areas.
- Comprehensive Natural Heritage Management Plans for the Breslau and Kossuth PSW that will be impacted.
- Wetland habitat compensation plans will be implemented, providing at least a 1:1 area replacement of habitats.

Contaminated Soil/Groundwater

A Screening Level Environmental Site Assessment was completed to identify known or potential environmental or contamination concerns related to the Project. The conditions outlined in Part IX Sections 41 and 43.1 of Ontario Regulation 153/04 indicate that the Runway 14-32 Extension area is considered to be sensitive due to the presence of regulated wetlands.

The Assessment identified potential environmental concerns in connection with the Project. These are considered areas of low to moderate environmental risk and are summarized below:

- There are various industrial properties that border the Site to the west and include activities such as metal fabrication, vehicle and equipment maintenance, bulk paint storage and use and commercial trailer storage. An examination of pesticide on agricultural fields may also be warranted.
- Hangers and the Airport were identified as having fuel storage tanks, registered waste generators, and spills on the property.
- An examination of pesticide residual on agricultural fields may be warranted.
- Fill of unknown quality may be present in connection with Airport development.

Health, Social and Economic Context

A number of studies were completed for this Project, identifying and reviewing existing conditions and potential impacts on the health, social and economic conditions in the vicinity of the Project. The findings of these studies are summarized below.

Health and Social Analysis

The Health and Social Analysis provides a description of the existing social and economic environment and the analysis of health and social impacts of the Runway 14-32 Extension Project.

Overall, the results of this analysis indicate that the Project will result in a net beneficial effect on health and community well-being. The Project will have major beneficial implications to the human and economic assets of the area, and the numerous major and minor beneficial effects on economic assets more than offset the impacts of increased community noise.

The analysis concluded that no residual adverse impacts on health and community well-being are anticipated due to changes in:

- Population and demographics
- Income and social status
- Employment, labour force and working conditions
- Education and literacy
- Built environment
- Access to health and safety services
- Access to community and recreational facilities and services

Beneficial impacts on health and community well-being are anticipated due to:

- Increased total labour and tax income generated during the construction phase and enabled during the operations phase.
- Generation of new direct, indirect and induced employment opportunities during the construction phase and the enabling of additional employment opportunities during the operations phase. Increased employment will help maintain the skilled employment base of the Regional Study Area (RSA) in the short term and facilitate employment growth in the aviation and aerospace industry in the RSA over the long term.
- Increased aircraft safety and reduced risk to the built environment through the implementation of a runway end safety area, improved visual aids and better instrument landing systems, which allow commercial aircraft to land with reduced crosswind.

Noise

The potential noise increases resulting in the proposed runway extensions and other improvements at YKF were reviewed as part of the 2017 Airport Master Plan. The Master Plan projected the Noise Exposure Forecast (NEF) to 2035 which included the proposed runway extensions, and compared them to the current (2000) Noise Exposure Projection (NEP) which is currently in the Region of Waterloo Official Plan.

Several potential noise impact “receptors” around YKF were identified as part of the Health and Social Analysis Report. These noise receptors were identified based on whether they would experience changes in the aircraft noise environment because of the Runway 14-32 Extension Project. These receptors have been characterized as land uses that could be considered noise sensitive.

An analysis of these noise receptors was completed with the 2035 NEFs. It was concluded that while the aircraft related noise environment around YKF will change because of the Project, the change can be considered not significant when federal, provincial and local municipal planning guidelines and noise metrics are considered. All the sensitive land use receptors will remain below 30 NEF.

Economic Analysis

An Economic Assessment was completed for the Project. The report covers the economic benefits, potential impacts on users and providers of aviation services, and capacity impacts.

A roundtable meeting with local leaders in business, education and other community institutions was held on January 6, 2021 to gather further evidence on ongoing economic impacts of the Project. Key points raised by this group include:

- The Project was seen as a critical foundation of the overall Airport Master Plan.
- The expansion is important in supporting the knowledge economy and start-up community in Kitchener-Cambridge-Waterloo (KCW).
- There is an objective to create new bus routes and rail connections to YKF.
- Both the visitor economy in KCW, and inclusiveness of rural populations to the north of KCW, are hampered by limited air connectivity at present (long drive from Toronto Pearson).
- YKF reputation boosts enrolment in local aviation programs such as at University of Waterloo.
- Transportation and connectivity are seen as critical for attracting business investment.

Overall, the results of the assessment suggested that there may be significant benefits arising from the Project, including up to \$52.3 million in benefits from construction activity and up to \$67.4 million in time and cost savings through mitigation of diversions and cancellations alone. Other aspects of potential economic impacts that are not quantified and could further increase these benefits are:

- Time savings for businesses and individuals who currently use Toronto Pearson.
- Additional cost savings through reduced delays and increased aircraft safety.
- Catalytic impacts from increasing the size of the visitor economy and encouraging business investment and trade.
- Increased enrolment in aviation programs at educational institutions.
- Improvements to talent attraction to the Region.

Archaeological Environment

A Stage 1 Archaeological Assessment determined that the Project area is comprised of a mixture of areas of archaeological potential, areas of no archaeological potential and previously assessed lands of no further archaeological concern. It is recommended that all identified areas of archaeological potential that could be impacted by the Project be subject to a Stage 2 assessment.

The Stage 2 investigation is set to proceed in 2021 as soon as weather and soil conditions are suitable to undertake the investigation. Agreements have been established between the Region and MCFN as well as Six Nations to have monitors involved with the investigation. These Indigenous Groups are aware of the proposed timing and will be available to participate when the Stage 2 investigation is undertaken.

Cultural Environment

A Built Heritage and Cultural Heritage Landscape Assessment of the overall study area was completed for the Project. Only one cultural heritage resource within the study area (4800 Fountain St. N.) can be considered a cultural heritage resource as its cultural heritage value or interest is recognized through its designation under the Ontario Heritage Act.

Two additional properties were identified during the site visit as having potential Cultural Heritage Value or Interest (CHVI), 4600 Fountain St. N. and 1995 Lonsdale Rd. However, their deteriorated state, lack of history and no indication of their historical or associative value, results no contextual value being identified. YKF lands do not have any potential CHVI.

Construction of the runway extension and associated taxiway extensions and access roads will take place at ground level, therefore these improvements will not cast shadows near any of the identified cultural heritage resources. Approach lighting is located a distance away from all identified and candidate cultural heritage resources, therefore no shadows will be cast on their heritage attributes as a result of the approach lighting.

The following are some of the mitigation strategies that are suggested as conservation recommendations to address the identified potential adverse impacts:

- During the planning and design phases, cultural heritage resources should be avoided where possible and any construction staging areas should be located on lands located well away from any of the identified or candidate Built Heritage Resources and Cultural Heritage Landscapes.
- Consider the installation of vegetation buffers similar to existing windbreaks to be compatible with the local character and to screen the runway extensions, access roads and fencing from the Built Heritage Resources and Cultural Heritage Landscapes.

Agricultural

An Agricultural Impact Assessment was completed to assess impacts on agriculture, and ensure that farmland, farm operations and supporting infrastructure, services and assets are sustained to support a prosperous agri-food sector and a strong rural community.

The majority of the subject lands proposed for the Project are currently not in agricultural production, and there are no agricultural structures or improvements on the subject lands. Only the extension at the north end of Runway 14-32 will affect a small area of land that is currently cropped. However, this area of land is not large enough to sustain a viable farm operation.

The following Table provides a summary of recommended approaches to minimize or mitigate impacts on surrounding agricultural uses.

Table: Proposed Agricultural Mitigation Measures

Objective	Mitigation Measure	Description
Minimize the loss of agricultural land.	Select areas with less agricultural land and lower priority agricultural lands.	The runway extension lands are not utilized for agricultural production. YKF lands are located within a prime agricultural area. As a result, expansion of the airport in any direction would not be able to avoid prime agricultural lands or lower priority soils.
Minimize the fragmentation of agricultural land.	Maintain Farm parcels	Existing farm parcels are maintained and the runway extension will not further fragment the agricultural landscape.
Minimize impacts on farmland and agricultural operations.	Edge Planting	Edge planting and vegetative buffering should be considered in the proposed development of the runway extensions.
	Minimum Distance Separation (MDS)	MDS is not applicable.
	Design future development to support agriculture.	Runway extensions will positively impact ability to transport agricultural products efficiently
Minimize and mitigate changes in water quality.	Implement a groundwater monitoring program.	No groundwater taking for potable water is proposed and therefore, no impacts on surrounding wells are anticipated. A groundwater monitoring plan will be implemented during and after construction to

Objective	Mitigation Measure	Description
		monitor groundwater impacts on the groundwater table and surrounding wetlands.
Mitigate Impacts during construction or operations.	Adjust operation procedures to accommodate agriculture in the area.	Construction activities will not impact ongoing agricultural production
Mitigate ongoing impacts from new development.	Implement measures that can be in place post development to support compatibility	While salt is not permitted to be used on runways, if salt is permitted on other areas of YKF, best management practices will be adhered to
Maintain the functional and economic connections of the agri-food network	Plan and support the agri-food network.	YKF provides air transportation internationally. Expansion of the Airport provides additional opportunities to export local agricultural products .

In summary, the Project will have minimal negative impact on the long-term agricultural uses and operations on the subject lands and within the Primary and Secondary Study Areas. The local agri-food industry could have a net economic benefit as a result of an expanded transportation network, which may offer increased opportunities for exporting of local agricultural products and goods to a broader market, thus promoting and enhancing the overall agricultural system.

Part D: Federal, Provincial, Territorial, Indigenous and Municipal Involvement Effects

The Project will be constructed entirely on YKF lands. No federal lands are required for the Project.

There are currently no known federal programs that will provide funding for this Project. There may be potential for government funding to address the impact of the pandemic on the aviation industry, however, there are no federal funding programs announced to date that would apply to this Project. Applications will be made to any applicable federal or provincial infrastructure programs if they are enacted.

Assessment Jurisdictions

The agencies will be consulted and involved in the approvals process of the Project

- Township of Woolwich
- Region of Waterloo
- Grand River Conservation Authority
- Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI)
- Ministry of Environment, Conservation & Parks (MECP)
- NAV Canada
- Department of Fisheries and Oceans
- Transport Canada

Part E: Potential Effects of the Project

Impacts and/or Changes to the Environment

A number of changes are anticipated to fish, fish habitat, aquatic species and migratory birds as summarized below. In addition to issues related to federal requirements, a number of the listed issues may be covered under provincial and local legislation and requirements.

Summary of Changes and Effects

Feature	Mitigation Measures
Wetland	Wetland compensation with creation in new areas and enhancement of existing wetland. Wetland water balance to be maintained during and after construction
Stormwater	Implement a strategy to ensure that changes to surface water flow, groundwater and surface water quality are minimized. Grading and stormwater management will be designed to minimize the risk of flood damage to upstream or downstream properties.
Sedimentation and erosion	Erosion and sediment control plans to be implemented.
Vegetation	Disturbed areas outside the infrastructure footprint to be revegetated with an appropriate native seed mixture. Vegetation activities to occur outside the core bird breeding season (May 1 to July 31). Impacted plants identified as rare or significant, to be transplanted by a qualified individual as required.

Feature	Mitigation Measures
Municipal Drain	The realignment of Randall Drain will be designed using fluvial geomorphological principles to recreate the watercourse as a natural function system.
Watercourse	<p>Measures to address impacts and site alteration within watercourses, their associated fish habitat, and floodplains to be submitted to DFO as well as the GRCA.</p> <p>Dewatering in the Randall Drain will occur outside the overwintering period for identified turtles.</p>
Wildlife	<p>Work during the active season for significant wildlife species to be restricted to daylight hours only when possible.</p> <p>Necessary removals or alterations to habitats for Bobolink and Eastern Meadowlark to be done in compliance with the Endangers Species Act.</p> <p>Potential to provide maternal roosting habitat for bat SAR in treed areas.</p>

Impacts and/or Changes to Indigenous People, and Health, Social or Economic Conditions

Subject to the completion of the Stage 2 Archaeological Investigation and ongoing consultation with Indigenous Groups, no impacts to Indigenous heritage, traditional use of lands or items of historical, archaeological, paleontological or architectural significance have been identified.

No specific impacts to health, social or economic conditions have been identified through consultation with Indigenous Groups nor the Stage 1 Archaeological Investigation. However, as part of the Stage 2 Archaeological Investigation and ongoing Indigenous engagement, the health, social or economic impacts to the Indigenous people of Canada, will be monitored and reported as they become known. It is noted that MCFN currently have a claim on waters within all treaty lands.

Greenhouse Gas Emissions

A detailed greenhouse gas (GHG) and criteria air contaminants (CAC) emission inventory was developed for YKF as part of this Project. The criteria air contaminants assessed were:

- Air quality emissions of nitrous oxides (NOX) and particulate matter less than 2.5 microns in diameter (PM2.5);

- CO₂, N₂O and CH₄ for GHG emissions, which are reported as total CO₂ equivalent (CO₂e)

The sources included in the assessment are categorized as follows:

- Aircraft;
- Auxiliary Power Units (APUs);
- Ground Support Equipment (GSE);
- Construction (construction scenario only);
- Traffic; and,
- Stationary Sources (e.g., boilers, diesel generators).

Emissions were modelled for an existing scenario in 2019, a construction scenario in 2024 and a future scenario in 2029.

The 2024 construction scenario was selected based on the highest overall emissions emitted during construction. It results in the highest overall emissions of PM_{2.5} and GHGs due to the added equipment usage during construction of the Project.

The 2029 future scenario was modelled based on estimated passenger traffic data, assuming 500,000 annual passengers. This scenario has the highest NO_x, and higher PM_{2.5} and GHG emissions than 2019 conditions due to increased aircraft operations. However, some of the increased aircraft emissions in this scenario may potentially be offset by air passengers within the Region using YKF instead of other airports. Overall the future scenario has a small NO_x emission increase, but a decrease in PM_{2.5} and GHG emissions when compared to the existing scenario, due to the reduced number of passengers travelling to Toronto Pearson.

YKF's GHG emissions are under the Strategic Assessment for Climate Change (SACC). YKF also currently meets the threshold going forward to 2050.

Types of Waste and Emissions

Table: Summary of Waste Sources

Source	Uses
Excavated soil and topsoil	To be reused wherever possible on the Airport site for fill or landscaping to create a “cut/fill balance”.
Existing asphalt removal	Asphalt removal will be specified to be re-used on site as a compacted gravel base in current gravel areas to prevent erosion, and/or to be used as recycled asphalt pavement in asphalt design mixes on site or off site.
Contaminated soil	Any contaminated soil that is encountered and excavated will be tested and re-used or disposed of in accordance with Ontario Regulation 153/04 and 347.
Groundwater	Groundwater pumping required for excavations during construction will be outletted onto YKF lands in accordance with the requirements of a Permit to Take Water.

Table: Summary of Emissions Sources

Source	Details
Direct	
Ground Access Vehicles	Airport fleet vehicles, employee vehicles and general public vehicles travelling on Airport roads and within parking facilities.
Stationary Sources	Boilers, emergency generators etc.
Shuttles	Buses, taxis etc. travelling on Airport roads.
Equipment	Airport snow removal and maintenance equipment.
Refrigerants	
Indirect	
Electrical Usage	By Airport and tenant.
Indirect and Optional	
Aircraft	Taxiing landing/takeoff emissions up to 914 m (3,000 ft.).
Ground Access Vehicles	Onsite tenant vehicles, off-site vehicular activity associated with the Airport.
Public transit	Serving the Airport.

Conclusion

The Runway 14-32 Extension Project will provide significant benefits to the Airport, the aviation industry and the surrounding communities. The Project will increase safety and level of service for air passengers and the airlines, providing economic benefits for the broader community. While the Project will have some impacts on the local environment, these impacts have been identified through a number of studies and are being addressed through Project design and by implementing mitigation measures. Initial public and indigenous consultation has occurred, with all inputs being documented and considered in the development of mitigation plans.