



# The Eastern Bridge in the National Capital Region

*Summary of Technical Studies*

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# Introduction

In 2024, the Government of Canada reiterated its commitment to building an additional multimodal bridge in the eastern part of the National Capital Region. This initiated the next phase of planning, design and studies on the Montée Paiement-Aviation Parkway corridor. As the project moves forward, the information gathered in past studies will be used, along with new information, to refine design concepts and identify potential benefits and impacts.

The purpose of the current document is to provide an overview of past technical studies and to highlight relevant conclusions for the Eastern Bridge project. The detailed studies referenced in this report can be requested through Public Services and Procurement Canada (PSPC) or the National Capital Commission (NCC), which are both part of the Integrated Project Team.

Although Indigenous communities, stakeholders and the public have provided input on this project in the past, further engagement on the new bridge will take place as part of the impact assessment process and the design development process.

## Studies background (2006 to present)

### Studies: 2006 to 2009

In 2006, a funding partnership and steering committee was created by the NCC, Ontario's Ministry of Transportation and Quebec's Ministère des Transports (currently named Ministère des Transports et de la Mobilité durable). The partnership, in collaboration with the City of Ottawa and the Ville de Gatineau, began an environmental assessment in 2006 to study potential interprovincial crossing alternatives and their associated approach corridors.

The first phase, which was completed in 2009, identified project objectives to improve transportation, and societal and economic benefits, while minimizing natural, socio-economic and cultural impacts. The assessment also evaluated 10 potential crossing locations from the eastern to the western limits of the region. Three eastern sector corridors were identified as having the highest potential and were carried forward for more detailed assessments. These three alternatives are shown in Figure 1: Montée Paiement-Aviation Parkway (**Corridor 5**), Lorrain Boulevard-Ottawa Road 174 (Corridor 6) and Gatineau Airport-Ottawa Road 174 (Corridor 7).





Figure 1 – East Bridge corridor alternatives

## 2013 corridor evaluation

The second phase of the project, which was completed in 2013, focused on analyzing and evaluating the three locations shown in Figure 1. This work included detailed assessments and evaluations of the corridors from environmental, design, and transportation perspectives. Although the technical analysis and evaluation reports were completed, the environmental assessment report was not completed, as the steering committee elected to end the project after Ontario's Ministry of Transportation withdrew its support.

## 2019 studies refresh

In Budget 2019, [1] the federal government announced that it would address the need for an additional National Capital Region crossing by refreshing the previous technical and environmental studies, and developing a Long-Term Integrated Interprovincial Crossings Plan (LTIICP). [2] Building on studies undertaken between

2006 and 2013, refreshed technical and environmental studies were completed and a summary report was published online in June 2020. [3] These refreshed studies focused on the same three top-rated corridors.

In 2023–2024, the project team initiated another targeted refresh of existing studies on potential corridors for an additional crossing between Ottawa and Gatineau. This latest refresh focused on updating select information to align with requirements under the *Impact Assessment Act* and replacing outdated information, including personal and commercial travel data. While the final documentation for this study is expected in 2025, the key findings are still aligned with previous work and references to key findings are made throughout this summary report, where appropriate.

# Technical analysis

One of the primary drivers of previous studies was identifying a location for a crossing that best responds to the broad objectives of maximizing the benefits of the crossing and minimizing its impacts. These analyses generated technical reports that have been grouped into seven categories in this document: transportation, human health, biophysical factors and the natural environment, the social and cultural environment, land use and property, economic development, and climate change and vulnerability.

The sections below provide an overview of the information related to each category, followed by the most recent and relevant key findings on the Montée Paiement-Aviation Parkway corridor (5). Appendix A also provides a summary of how this corridor compares with the other two that were previously studied (6 and 7).

The information presented in this document primarily focuses on the 2019–2020 refresh studies and includes, where appropriate, additional information from historical reports (2007 to 2013) and more recent data (2022 to 2024). It should be noted that many of the aspects studied may evolve over time, either as part of the impact assessment or design development processes.

## Summary of transportation studies

This section considers the accessibility, connectivity and attractiveness of the corridor at the local level by reviewing the available facilities and intersection operations for each mode of transportation respectively, including active transportation, transit, commercial and personal vehicles. It also considers the impact on the broader regional transportation network, such as encouraging sustainable modes, and reducing mileage and delays across all interprovincial crossings.

Transportation criteria were summarized in a single transportation report completed in 2019. [4] It should be noted that the roadway design assessed in 2013 and 2019 included a six-lane roadway as well as pedestrian and cycling infrastructure. Furthermore, the study was based on volume projections that were developed prior to the completion of the NCC's LTIICP [2] and the travel disruptions associated with the COVID-19 pandemic. The planning and design principles (P&DP), which are to be developed in 2025, are expected to consider updated travel data and opportunities to reduce the cross-section from six lanes to four, in keeping with the direction set out in the LTIICP. Updated transportation analyses will be undertaken to support the P&DP. Nonetheless, many aspects of the previous analysis are still relevant, as they provide a scale of potential demand and the corridor's relative attractiveness within the region.

A 2024 refresh incorporated updated transportation modelling data and intersection operations. It also included an additional analysis of an alternative four-lane design along Montée Paiement to complement a similar assessment undertaken in 2019 for the Aviation Parkway. This analysis considered the relative attractiveness of a reduced roadway width rather than the six-lane concept from 2013 to 2020.



## Key findings

### Active transportation

The Montée Paiement-Aviation Parkway corridor is near populated urban areas that have good existing and planned active transportation facilities on both sides of the Ottawa River. The studies identified opportunities to connect the corridor to the Aviation Parkway and Ottawa River multi-use pathways, as well as the Route Verte and the Rapibus bicycle path. Various types of pedestrian and cycling facilities along the length of the corridor have been considered in previous analyses.

### Transit

Based on discussions with STO and OC Transpo that took place as part of the 2019–2020 refresh studies, a single STO transit route operating at 15-minute intervals was proposed for the new crossing. The proposed transit route would connect the Blair O-Train station via Ogilvie Road to the Rapibus's La Cité station near Maloney Boulevard. Further review of potential transit operations will be undertaken as part of the P&DP, in collaboration with local transit agencies.

### Trucks

The Montée Paiement-Aviation Parkway corridor will be designed to accommodate truck traffic. The transportation analysis carried out in 2019 [4] compared various truck routing scenarios to identify the proportion of trucks that may be attracted to this corridor and to alleviate pressure on the downtown truck routes. Offering a range of variations to the regional truck route network, it was estimated that the new corridor would attract between 14% to 28% of the interprovincial truck traffic, reducing trucks travelling through the core area accordingly.

In recent years, the NCC collected additional commercial vehicle data, [5] and the TRANS regional model was updated to include a commercial vehicle model (CVM) component. With this new information and new component, the project team will further develop and refine the truck routing scenario(s) for an eastern bridge as part of the 2025 P&DP project. Changes to regional truck routes must be identified in partnership with regional partners and stakeholders and will be considered within the regional context as the project design progresses.

### Personal vehicles

In general, the 2019 report estimated that the addition of a new bridge would increase traffic on Montée Paiement and the Aviation Parkway. [4] The increase was estimated to be between 700 and 1,960 vehicles in the morning peak hour. With signal timing adjustments and geometric modifications to the intersections, the corridor was expected to allow traffic to progress steadily through the corridor with slow operating speeds and delays during peak periods. Using the latest travel forecasts, the project team will update these projections as part of the traffic analysis supporting the P&DP project.

### Access

The vehicle network in the area will benefit from increased vehicular access with the addition of new ramps to Highway 417/Ottawa Road 174. It was proposed that access to the Canada Mortgage and Housing Corporation (CMHC) offices, La Cité Collégiale and the Montfort Hospital would be augmented along Montreal Road and reduced or removed along the Aviation Parkway. [6]

### Regional considerations

When reviewing future trips across all bridges, the Transportation Report [4], which forecast to the year 2031, prior to the implementation of the STO's tram project, identified a minor increase in car trips and a decrease in transit trips with a new bridge compared to the number of trips without one. It also considered a reduced cross-section to four lanes and found that this configuration would generate fewer car trips and more transit trips across the Ottawa River than a six-lane configuration. The project team will consider the most recent interprovincial transit plans for the region as well as a reduced cross-section on the Eastern Bridge as part of the P&DP project to ensure that the new bridge aligns with the vision outlined in the LTIICP.





## Summary of human health studies

The human health category considers air quality, noise and vibrations, access to green spaces and the public realm that may be associated with constructing and operating a new bridge. There are also considerations associated with the proposed corridor's proximity to the Gatineau water treatment plant.

Two of the studies in this category that were originally carried out in 2013 were updated in 2020: the Air Quality Report [7] and the Noise and Vibration Assessment Report. [8] A detailed human health risk assessment (HHRA) [9] was also conducted in 2013. Further detailed assessments will be undertaken as the project progresses through the impact assessment process.

### Key findings

#### *Air quality*

An HHRA is conducted for projects to characterize the anticipated human health effects that exposure to contaminants of potential concern (COPCs) may have. Humans can be exposed to these COPCs through various pathways, including soil, sediments, surface water, groundwater, air and country foods, which include any food that is trapped, fished, hunted, harvested or grown for subsistence or medicinal purposes, outside the commercial food chain. The 2013 HHRA [9] identified

the future increase in road traffic as the primary source of concern. The analysis focused on the main pathways associated with air emissions, which could be of concern through inhalation and potential deposit of particulate matter on properties in the study area. However, the assessment identified no unacceptable air quality impacts to human health resulting from operations of the proposed Montée Paiement-Aviation Parkway corridor.

The 2013 Air Quality Report [10] was revised in 2019 [7] to account for regulatory changes and modelling advancements. Both studies were undertaken using publicly available data and predicted impacts using dispersion modelling, traffic projections and sensitive receptors. Contaminants of potential concern were identified and compared to a baseline in order to evaluate increases. There were some variations between the 2013 and 2019 results where the estimated greenhouse gas (GHG) emissions were lower in the 2019 report, while the emissions of certain pollutants were higher due to changes in road traffic volumes along the corridor.

Overall, there were no unacceptable risks expected based on the maximum concentrations predicted at discrete receptor locations on each of the three corridors.

The 2019 air quality analysis was updated in 2024 with additional assessments and an expansion of the modelling area. The results of the 2024 Air Quality Report will be available in 2025, and its findings are consistent with those identified in the 2019 report. Air quality studies for the corridor will be further revised as part of the impact assessment process in order to align with the updated design concepts, which may include a reduced cross-section from those previously studied.

### Noise and vibration

The 2020 noise assessment [8] evaluated the corridor by generating expected noise levels based on new transportation data and comparing these to baseline acoustic measurements taken in 2019. The 2020 assessment method referenced noise standards produced by Ontario's Ministry of Transportation (2013), Quebec's Ministère des Transports (1998), the Ville de Gatineau (2003) and the City of Ottawa (2016) to create applicable thresholds for the analysis.

The 2020 noise assessment used two metrics to characterize significant impacts on the applicable noise-sensitive areas: those with a predicted sound level of 65 dBA or higher (regardless of the increase) and those with an increase equal to or above 5 dBA. Noise predictive modelling indicated all locations were below the 65dBA threshold in Ontario; however, increases in noise were identified, particularly north of Montreal Road where the Aviation Parkway is currently two lanes.

Similarly, in Gatineau, the overall change was most notable south of Maloney Boulevard. Noise predictive modelling indicated that locations along Montée Païement north of Maloney Boulevard, in both the baseline and bridge-related scenarios, exceed the 65 dBA threshold. Consequently, a total of 5 km of new and existing noise mitigation measures were identified for locations that exceeded the 65 DBA and/or 5 dBA change metrics.

Additional information, based on updated transportation data and using the Health Canada's Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise (2017), is being studied in 2025 to assess human health noise impacts at the same receptors identified in previous studies. This study also includes a preliminary review of noise generated during construction. The analysis identified less noise

mitigation compared to the previous recommendations. Recommended noise estimation and mitigation locations as well as methods will be updated and refined as the project progresses through the design and impact assessment processes.

Vibration from road traffic is not considered significant and has no evaluation threshold in Quebec or Ontario. As a best practice check, documentation from the United States Federal Transit Administration was referenced to identify whether significant vibration impacts were expected at the nearby vibration-sensitive receptors, and it was determined that mitigation was not required.

### Access to green spaces

The 2020 Land Use and Property Report [12] identified that active and passive recreational lands, consisting of green space, wetlands and waterways that facilitate active uses, waterfowl observation and sport fishing, would experience reduced or altered access due to the construction of this corridor. Mitigation strategies, mostly through design, will be explored to reduce this potential impact. Additionally, the increased connectivity provided throughout the corridor, as discussed in the transportation section of this document, offers some benefits to access.

### Water source protection

Although no specific studies have been conducted to date with regard to Gatineau's water intake, located on the north shore of Kettle Island, this data gap is acknowledged, and mitigation strategies will be explored as part of the design and impact assessment processes. Measures to address the potential impact of accidents and malfunctions will also be incorporated into project planning.





## Summary of studies on biophysical factors and the natural environment

Baseline information was collected on several biophysical factors related to the current or future conditions for flora, fauna and fish species. Studies were conducted on fish and fish habitat, the terrestrial environment (flora, fauna and species at risk), air quality, acoustics (noise) and geology.

The initial studies, conducted between 2010 and 2013, included a review of publicly available data as well as field validation. They evaluated significant ecological

constraints to help select a technically preferred corridor. These were refreshed in 2019–2020 to update the data in the previous studies. In 2024, additional analyses were undertaken to complete a preliminary assessment and mapping of the sensitivity of habitats within the zone of influence along the corridor. These latest reports are expected to be completed in 2025.

As the project progresses, extensive biophysical and Indigenous field studies will be conducted and will include a wider range of biophysical factors to confirm baseline data related to species and habitats within the corridor. These more detailed, site-specific studies will be essential in supporting the concept design and developing strategies to avoid or mitigate potential impacts.

### Key findings

#### *Fish and fish habitat*

The 2012 Fisheries and Aquatic Habitat Report [13] described the Montée Paiement-Aviation Parkway corridor as encompassing areas of medium and major environmental concerns in terms of fish habitat; this conclusion was maintained in the 2019 update. [14] In this corridor, the Ottawa River is divided into two channels by Kettle Island, each with different habitats for fish species. The north channel has a width of approximately 200 m and the south channel is about 800 m wide.

In the 2012 study, 32 fish species were documented in the three corridors; of these, 9 were species of special concern based on a review of publicly available data. During field fisheries surveys carried out in the corridor, 18 species were captured in this segment of the river. It should be noted that a juvenile lake sturgeon, a species at risk, was caught near the Ontario shore.





In 2019, the total number of fish species of conservation concern increased to 12 species, with the addition of 3 new species to the list: the yellow bullhead (*Ameiurus natalis*), the cutlip minnow (*Exoglossum maxillingua*) and the margined madtom (*Noturus insignis*). Future studies will focus on identifying potential project-specific impacts to species at risk or their habitats. Strategies to avoid negative impacts and mitigation options to reduce the significance of the impacts or offsetting measures will be developed.

#### *Terrestrial environment (flora, fauna, species at risk)*

A Natural Environment Assessment [15] conducted in 2012 identified possible ecological constraints to the project. Based on the assessment, most of the Montée Paiement-Aviation Parkway corridor in both Ontario and Quebec was considered to be of minimal ecological significance because of the extensive built urban landscape development. Ecologically sensitive areas are associated mainly with the river area and Kettle Island, which has retained a high degree of overall ecological integrity. The corridor was described as having an overall low sensitivity. In 2019, site visits to select areas and a review of publicly available data were undertaken to confirm the findings in the 2012 report, and to compile

updated sightings of species at risk. This study [16] concluded that the corridor had a moderate sensitivity because of Kettle Island's designation as a nature reserve and two critical western chorus frog habitats along Montée Paiement, although field studies were not conducted to verify the presence or extent of the latter.

#### *Air quality and acoustics (noise)*

Previous studies focused on the potential air quality and noise impacts to human health, as summarized in the human health section of this document. Further studies will be conducted as part of the impact assessment to identify how changes to air quality may affect sensitive ecological features or how noise may affect species that are more sensitive to acoustic disturbances.

### *Geology*

Geotechnical surveys of the Ottawa River in the vicinity of the Montée Paiement-Aviation Parkway corridor were completed in the fall of 2022 and summer of 2023. A report on the findings of these geotechnical investigations indicated that “the subsurface conditions present at the site generally consist of a deposit of sand and/or sensitive silty clay, underlain by silty sand till over bedrock” [17]. The report further indicated that a structure may be supported on deep foundations.

## Summary of studies on the social and cultural environment

The social and cultural environment category includes several criteria that reflect historical and potential community impacts. Heritage and archaeology criteria consider a combination of built heritage, cultural landscapes and locations of archaeological potential. Community cohesion, visual intrusion, recreation and social equity criteria consider the impacts on the surrounding communities and environment, both positive and negative, of constructing and operating the corridor.

The majority of the documentation for this category was developed in 2013 as part of the Phase 2B environmental assessment work. Consultation with stakeholders and the public was undertaken at the time and incorporated into many of these studies. Recently, visual intrusion impacts were updated and a preliminary social equity and gender-based analysis plus report was completed. Further updates to the information will be undertaken as part of the impact assessment and design development processes through engagement with Indigenous communities, stakeholders and the public.

### **Key findings**

#### *Archaeology*

The 2013 Phase 2B Archaeological Update: Ottawa and Gatineau memo [18] was written to build on work previously undertaken in 2007 and 2008, and includes additional background research undertaken in 2012 and 2013. Key findings include one archaeological site dated to the 19<sup>th</sup> century located on the west point of Kettle Island and the fact that the rest of the island also exhibits archaeological potential because it was used for agricultural purposes until the 19th century. The Ottawa River shoreline exhibits both pre-contact and historical archaeological potential. The areas of archaeological potential will require further assessment.

#### *Cultural and built heritage*

The 2013 Cultural Landscape and Built Heritage Update: Ottawa and Gatineau memo [20] summarized the cultural landscape and built heritage, and included additional background research that was not previously included in earlier documentation. This memo identified seven cultural heritage sites and three built heritage sites within the Montée Paiement-Aviation Parkway corridor. The cultural heritage sites included the following: Library and Archives Canada’s Preservation Facility; the Aviation Parkway; the former Canadian Forces Base Rockcliffe; the Sir George Étienne Cartier Parkway; the airfields surrounding the Canada Aviation and Space Museum; the RCMP Musical Ride Training Facility; and the Ottawa River. The built heritage sites included three residences. The memo recommended undertaking specific heritage impact analysis and seeking opportunities to avoid and mitigate impacts as the project progresses.





### *Community cohesion*

The 2013 Community Impacts Final Report [21] reviewed a range of community factors that were not addressed elsewhere in the technical reports. These included the impacts on communities due to extending and/or widening an existing roadway or due to restricted access to community amenities and features. The study considered comments received during the community consultation sessions at the time.

The assessment identified road extension or widening as having a moderate net impact on the community, given the extent of road works and population densities. It further identified those impacts as manageable through mitigation, although the specific measures were not identified in the report. Mitigation measures are expected to be developed and refined through the design and impact assessment processes. The report outlined that the concept design maintained all existing accesses to community facilities while highlighting a moderate net impact due to increased traffic and truck traffic on the corridor. The report further identified a high positive effect on community life in downtown Ottawa, as truck and vehicle traffic were expected to be diverted from that area.

### *Recreation*

A 2013 memo entitled Recreation: Water Use for Boating and Sailing – Phase 1 Update [22] was produced to outline the impacts to water navigation. The memo summarized community concerns, potential impacts and existing boat facilities in the vicinity of the corridors.

The bridge will be subject to approval under the Canadian Navigable Waters Act. Constraints on the project will include ensuring that clearance under the bridge and pier separation are appropriate to minimize impact to navigation along that segment of the river. The 2013 recreation report indicated that the river was

particularly wide in this area and therefore provided more opportunities for boating activities. Consequently, the bridge was anticipated to impact sailing regattas.

Going forward, additional information will be sought to assess potential impacts to non-motorized recreation activities, including those related to the harvest of country foods within the corridor, such as fishing. Impacts related to increased noise, water tranquility and visual intrusion are also anticipated, and will require mitigation strategies to be developed through the design process.

### *Visual intrusion*

A Visual Assessment Report [23] was completed in 2013 to assess current and future views and to identify the level of anticipated change, based on the roadway and bridge designs at that time.

Overall, the changes to views along the Montée Paiement-Aviation Parkway corridor were identified as low impact, with 19 possible opportunities for enhancements, such as gateway features, visual screens and the re-establishment of natural areas. The impacts on users of the Ottawa River and shorelines were identified as high, with no opportunities to mitigate views of the bridge from the river or shorelines. The report also identified 218 residences that could have a full or partial view of the new roadway; 199 of these residences viewed an existing four-lane roadway at the time of the assessment. Further updates to visual intrusion impacts are underway and are expected to be available in 2025. This 2025 update will include lands identified as National Interest Land Masses, views related to applicable federal policies and for other active users along the corridor's alignment.



### Social equity

A 2024 preliminary social equity and gender-based analysis plus report completed an analysis using the vulnerability index that the NCC used in previous social equity mapping exercises (2020), and gender-based analysis plus identity factors, to map the potential vulnerability of communities on or adjacent to NCC lands. The analysis sought to identify communities along the corridor that may be disproportionately impacted by the project. In particular, the report indicated that some areas of Overbrook and Manor Park in Ontario and Lac-Beauchamp and Pointe-Gatineau in Quebec were the most vulnerable communities along the corridor. This provided initial information on population characteristics that will be used to develop approaches for engagement and outreach activities as the project progresses. It also provided the basis for further potential human health-related impacts relative to the vulnerable communities.

## Summary of land use and property studies

The land use and property category considers relevant land-use planning and policy documents for the municipal, provincial and federal governments. It also looks at the corridor designs and identifies the project's anticipated direct property impacts.

The information to support this category is contained within the single Land Use and Property report that was produced in 2013 [24] and updated in 2020 [12]. A further update is underway and expected to be completed in 2025.

## Key findings

### Policy

On the Quebec side, from Highway 50, the corridor follows Montée Paiement, which is owned by the Ville de Gatineau and protected for a possible interprovincial crossing. [25] The corridor alignment crosses Kettle Island, which is a privately owned nature reserve recognized by Quebec's Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs.

On the Ontario side, the corridor passes over the Sir George-Étienne Cartier Parkway and connects to Highway 417 along the Aviation Parkway. The NCC owns the parkway corridors and identified the desire to "collaborate in the planning and delivery of future interprovincial crossings" in the Plan for Canada's Capital. [26] The Policy for Parkways and Driveways [25], which is currently being updated, will provide orientations for the entire parkway network and account for the potential new crossing.

The 2020 report [12] indicated that the City of Ottawa and Ontario's Ministry of Transportation supported the need for a new interprovincial crossing and the need to identify a long-term plan. With respect to the Montée Paiement-Aviation Parkway corridor, the report highlighted that the proposed interprovincial crossing would support City of Ottawa policies by directing growth to existing designated urban areas.

While the City of Ottawa and Ville de Gatineau have updated or amended their planning documents since 2019, the revised documentation [28] continues to support collaboration with regional governments on interprovincial crossings. An updated document summarizing these policy changes is expected to be completed in 2025. The 2025 update will also summarize the project's alignment with NCC policies and other applicable policies.

### Property impacts

Figure 2, which is reproduced from Table 3 in the Property and Land Use Report [12], shows the land uses potentially impacted by this project in hectares. This includes all lands within the wider corridor boundaries and does not necessarily reflect permanent property-acquisition requirements. It should also be noted that the early design

concept from 2013–2020 included a six-lane roadway cross-section in addition to pedestrian and cycling infrastructure. The project team will develop the P&DP in 2025, which are expected to revisit this early design concept, and opportunities will be explored to reduce the cross-section and further reduce property impacts.

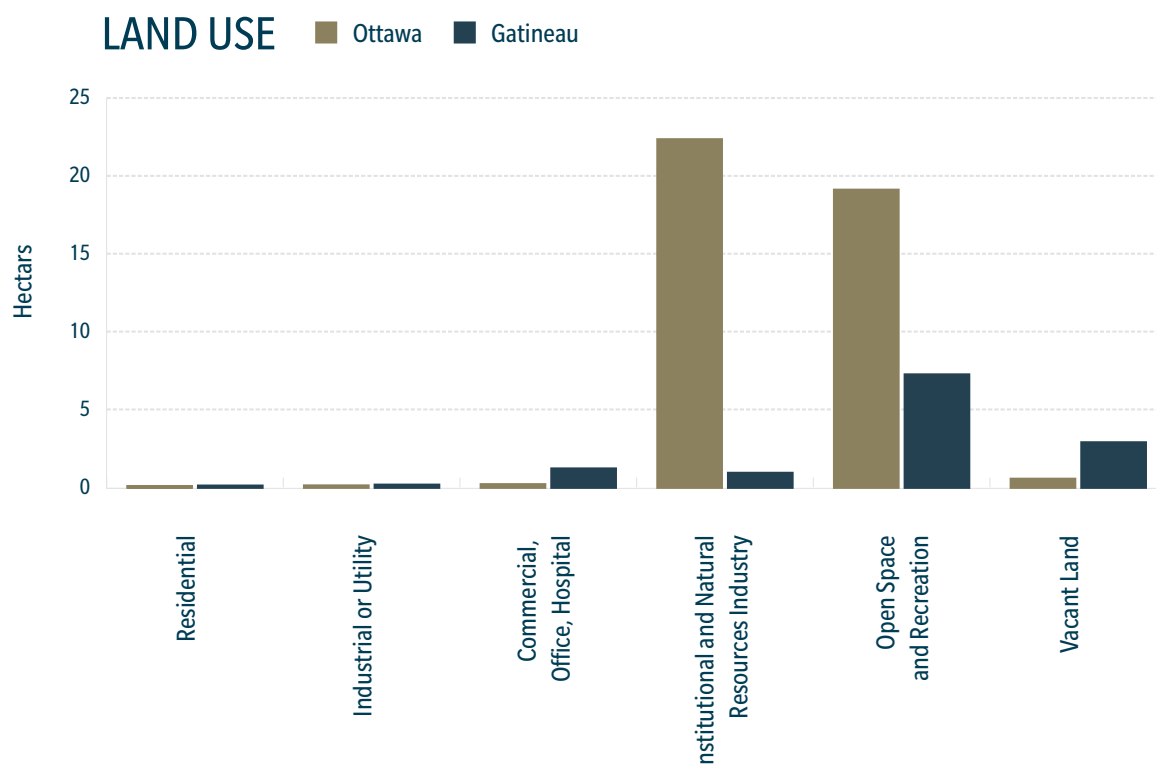


Figure 2 – Land uses within the Montée Paiement-Aviation Parkway corridor (grouped)

On the Gatineau side, the majority of the potentially impacted lands by area included those designated as vacant, which included Kettle Island and properties near Saint-Louis Street, as well as recreational lands. There were no major land-use constraints north of Maloney Boulevard, but the project team will work to mitigate impacts to landowners and residents as the project progresses.

On the Ottawa side, the majority of potentially impacted lands were identified along the Aviation Parkway corridor, the Highway 417 interchange and the Ottawa River, which were designated as “other institution, open space, active or passive recreation.” Constraints were identified as including potential impacts to the Rockcliffe Airport runway activities (considered to be mitigable), the Montfort Hospital and higher-density residential areas in the vicinity of the corridor. Natural areas such as the City of Ottawa’s official plan for open spaces and green space primary lands may also be impacted” [12]. There were also a few partial residential properties identified as impacted.

## Summary of economic development studies

This category considered economic development potential adjacent to the new corridor and information contained in the 2019 Economic Development Potential Study [29]. This study, an update to the original study conducted in 2012 [30], considered the lands surrounding the potential corridors (vacant, employment, zoning) to estimate the relative attractiveness in terms of development and job creation.

### Key findings

#### *Economic development potential*

The 2013 and 2019 economic development potential studies focused on existing and new jobs within a 300-metre buffer zone on either side of the corridor by considering the potential of existing vacant lands. The Montée Paiement-Aviation Parkway corridor has relatively limited vacant sites in close proximity, with 10 identified on the Gatineau side and none on the Ottawa side. These sites were estimated to generate approximately 424 new jobs on vacant lands, while the corridor provides access to nearly 16,000 existing jobs.

The assessment's focus was limited, as many sites in proximity to the Montée Paiement-Aviation Parkway corridor are not currently vacant and have potential for redevelopment. Furthermore, a 300-metre buffer may be too narrow to fully consider the economic benefits of a new interprovincial transportation corridor in the east, where there is currently none. For these reasons, the updates to the previous studies that are currently underway will evaluate a broader study area of 2 km and further describe the redevelopment potential along the corridor. Documentation from the 2024 analysis is expected to be available in 2025 and will include key findings that this corridor could generate over 8,000 new jobs, as well as additional revenue to municipalities as development charges and/or property taxes.

## Summary of climate change and vulnerability

This is a new category developed as part of the 2024 analysis, and it includes considerations related to climate mitigation, climate resilience and adaptation opportunities. The information is being summarized in a climate change and vulnerability report, to be completed in 2025, while a regional assessment is also underway with results to be updated in 2025.

### Key findings

GHG emissions produced during construction were estimated in part by evaluating the equipment expected to be used for the duration of the construction in two different scenarios. Next, the lands along the corridor were categorized by type (forested, wetlands, etc.) and assessed for the one-time loss of carbon when the vegetation is removed and the reduction or removal of its long-term ability to absorb carbon compared with existing conditions. Based on the 2020 conceptual design for a six-lane road, the length of the corridor and the potential removal of green space, particularly on the south side of the Ottawa River, the report identified a moderate impact due to GHG emissions during construction. As the design direction is being revisited through the P&DP in 2025, the project team will seek opportunities to avoid and minimize some of these impacts.

The region is expected to be warmer at the end of the century, with an increase in total overall annual precipitation (increases in the spring, winter and fall, but a neutral precipitation trend in summer). Extreme precipitation is also expected to increase. This increase in rainfall can lead to flooding risks, requiring more planning and operational maintenance efforts. The project will be designed with consideration to these potential risks, such as ensuring the roadway remains above potential flood elevation lines. Further analysis, including the potential contribution to regional emergency preparedness, is expected in 2025.



# Evaluation of alternatives

The evaluation of alternative crossing locations in the National Capital Region has been undertaken four times over the past 15 years, and the Montée Paiement-Aviation Parkway corridor has consistently ranked as the preferred technical alternative. More details on the previous evaluations are outlined below.

## *2009 evaluation*

The first assessment [31], completed in 2009, was led by a steering committee from both provinces, municipalities and the NCC. This phase evaluated 10 potential crossing locations from the eastern to western limits of the region. The criteria weightings were identified by an evaluation committee made up of technical specialists, including environmental, transportation and land-use planners. The Montée Paiement-Aviation Parkway corridor scored the highest overall and also ranked the highest in all 15 of the sensitivity analyses undertaken by varying the relative importance assigned to each category. Corridors 6 and 7, as shown in Figure 1, were ranked second and third, respectively, and all three of these eastern sector corridors were ultimately brought forward for more detailed assessment.

## *2013 corridor evaluation*

The second assessment of corridor locations, done in 2013 [32], focused on the three locations brought forward from Phase 1 and included a multi-criteria assessment and evaluation. During consultation sessions, the public was given the opportunity to provide input into the evaluation factors and their weightings. Additionally, an external fairness auditor reported on adherence to the evaluation process. Pairwise and reasoned argument approaches were followed to compare the corridors to one another. Both ranked the Montée Paiement-Aviation Parkway corridor the highest. For the pairwise approach, each corridor was compared and scored against the other two individually, whereas the reasoned argument approach included descriptive analyses of the advantages and disadvantages

in each category. Additionally, a sensitivity analysis was undertaken, varying the weightings applied to each category of factors, and the Montée Paiement-Aviation Parkway corridor consistently ranked the highest in all variations.


## *2020 corridor evaluation refresh*

In 2020, PSPC procured a refresh of the Assessment and Evaluation Report [33]. Using the latest technical information and measurement adjustments from the 2019 refresh studies, the evaluation approach from 2013 was generally followed again, carrying forward the factors, sub-factors, pairwise and reasoned argument approaches, as well as the category weightings. A change was made to the sensitivity analysis in 2020 with the introduction of further statistical analysis; this provided 10,000 variations on the factor and sub-factor weightings to better understand the potential variability in the results. The Monte Carlo assessment identified that the Montée Paiement-Aviation Parkway corridor would be preferable in 69% of the variations, whereas Corridor 7 would be preferable in the remaining variations. Corridor 6 was never identified as the preferable corridor in any of the 10,000 variations.

## *2024 evaluation*

Most recently, in 2024, the integrated project team focused on updating the evaluation report to align with the new impact assessment requirements and replace outdated information, including residential and commercial travel data. Corridor 6 was not included in the 2024 assessment based on the evaluations undertaken in 2013 and 2019, which consistently ranked Corridor 6 lowest overall and identified some high community impacts described as unmitigable.

Category weightings were adjusted to incorporate new information, such as the climate change and vulnerability category, while broadly remaining close to the previous weightings from technical and public stakeholders in 2013 and 2009, respectively. Criteria were directly ranked by subject matter experts as low, most likely and high to reflect uncertainty with some technical aspects at this early planning stage.

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- A Monte Carlo assessment was also undertaken, with 10,000 variations of the weightings attributed to each criterion and category. As with all previous assessments, the Montée Paiement-Aviation Parkway corridor again ranked the highest.

## Conclusion

In 2024, the Government of Canada authorized further studies for a new interprovincial bridge on the Montée Paiement-Aviation Parkway corridor. Many technical studies on this corridor have been undertaken over the past 20 years, and this information was considered in evaluating corridor options; this corridor was ranked as the preferred technical option in all four evaluations. Moving forward, the information from past studies will be used to refine the design concepts and identify potential impacts. The next steps in project development and opportunities for engagement are summarized on the NCC and PSPC project websites.





# Glossary


LTIIICP – Long-Term Integrated Interprovincial Crossings Plan

P&DP – Planning and design principles for the Eastern Bridge project

Country foods – Any food that is trapped, fished, hunted, harvested or grown for subsistence or medicinal purposes, outside the commercial food chain

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# Appendix A : Comparison with other evaluated corridors

The technical studies undertaken since 2012 considered up to three potential corridors: Montée Paiement-Aviation Parkway (Corridor 5), Lorrain Boulevard-Ottawa Road 174 (Corridor 6) and Gatineau Airport-Ottawa Road 174 (Corridor 7). The following provides a brief overview of how corridors 6 and 7 compared to the Montée Paiement-Aviation Parkway in each category described in the main document. For a description of the studies undertaken to date and their methodologies, please refer to the main document and the respective categories.

## Transportation

**Active transportation** – Corridors 6 and 7 were identified as providing fewer advantages for active transportation and a less populated service area.

**Transit** – Corridors 6 and 7 attracted fewer local transit trips compared to the Montée Paiement-Aviation Parkway corridor.

**Trucks** – Corridors 6 and 7 were found to attract less truck traffic and have higher truck-travel distances compared to the Montée Paiement-Aviation Parkway corridor.

**Personal vehicles** – Corridors 5 and 6 attracted more traffic than Corridor 7 while also steering more vehicles away from the Macdonald-Cartier Bridge.

**Regional considerations** – Corridors 6 and 7 encouraged more people across the region to travel by car instead of transit and therefore were less aligned with the sustainable transportation objectives set out in the LTIICP.

**Operations and access** – All three corridors were expected to operate acceptably with signal timing and geometric adjustments. However, Corridor 7 had the lowest number of intersections, no driveways and no service roads, creating an environment that is conducive to reduced conflicts between road users.

## Human health

**Air quality** – The preferred corridor in past studies was the Montée Paiement-Aviation Parkway corridor. Pollutant emissions, including GHG emissions, were found to be lower for the Montée Paiement-Aviation Parkway corridor than they were for the other corridors. The HHRA conducted in 2013 found that there were negligible risks to human health from airborne pollutants for all corridors.

**Noise** – Past studies concluded that it is feasible to operate all corridors in compliance with provincial/ municipal noise criteria with noise control and mitigation measures. The highest number of receptors requiring mitigation was predicted to be in Corridor 5, followed by Corridor 6 and then Corridor 7.

**Access to green spaces** – Corridors 6 and 7 were both found to require fewer or no mitigation measures to accommodate existing boating or active-use facilities, but the Montée Paiement-Aviation Parkway corridor was found to provide more benefits, as it would create additional connections to facilities along the corridor.

**Water intake** – Corridors 6 and 7 are downstream of Gatineau's water intake and were therefore considered to be less likely to impact this facility.



## Biophysical factors and the natural environment

**Fish and fish habitat** – Corridors 6 and 7 were identified as encompassing areas of unique or high-quality functional habitats for fish with sensitive habitat features. Significant uncertainty was noted in terms of the ability to mitigate project impacts on sensitive habitats. Past studies identified more high-value spawning habitats present near corridors 6 and 7, which was the primary discriminator between corridors for this criterion. The Montée Paiement-Aviation Parkway corridor had fewer fish species present and was therefore identified to have the lowest impact on fish and their habitat.

**Terrestrial environment** – All studies from 2010 to present identified lower environmental sensitivity for the Montée Paiement-Aviation Parkway Corridor. The relative environmental sensitivity of Corridor 6 varied in past assessments and was either equal to or more sensitive than the Montée Paiement-Aviation Parkway Corridor. For Corridor 6, the sensitive Green's Creek valley was a major ecological constraint on the Ontario shore. Corridor 7 was consistently identified with higher sensitivity because of the extensive Baie McLaurin wetlands on the Quebec shore, where the portion within the corridor is at the upstream end of a much larger wetland complex. For Corridor 7, the wetlands in and around Baie McLaurin were an area of considerable sensitivity and ecological significance for which physical impacts would be difficult to mitigate.

**Geology** – The 2024 Geotechnical Design Memorandum [17] [34] [35] for each of the three corridors identified varying depths and combinations of sand, silty sand, sensitive silty clay, clay and glacial till over bedrock. The reports recommended the use of deep foundations for all three corridors. On the north end of Corridor 6, the report identified the potential to consider shallow spread footing foundations.

## The social and cultural environment

**Archaeology and heritage** – The other two corridors previously assessed were generally found to have fewer sites of archaeological and cultural heritage relative to the Montée Paiement-Aviation Parkway corridor. Potential for pre-contact and historical archaeological resources was found to exist on all three corridors, as were cultural and built heritage sites.

**Community cohesion** – With respect to community impacts, Corridor 7 was generally considered to have a low net effect on communities due to road widening or extension, and no effect on existing access. Corridor 6 shared this assessment on the Ontario side, but the report identified a high net effect in Gatineau due to the proposed widening beyond the existing two-lane roadway.


**Recreation** – The impact on boating activities was determined to be the same for all three corridors; however, only the Montée Paiement-Aviation Parkway Corridor was identified as having an impact on sailing regattas.

**Visual intrusion** – Corridors 6 and 7 were identified as having moderate and high visual impacts, respectively, and were less preferable relative to the Montée Paiement-Aviation Parkway corridor. However, fewer residences on corridors 6 and 7 were expected to have a visual impact compared to the Montée Paiement-Aviation Parkway corridor.

**Social equity** – A social equity analysis has not been undertaken for Corridor 6, but one is underway for Corridor 7 and reporting is expected to be completed in 2025.

## Land use and property

**Policy** – With respect to land use policies, areas immediately north of the Ottawa River along both corridors 6 and 7 were identified as lands with protected or strict protected status for wildlife refuges and habitats. [36] Furthermore, in Ontario, corridors 6 and 7 were identified as contributing “a lesser degree towards sustainability when examined at a local level due to the anticipated impacts to the natural ecosystems of Green's Creek and the loss of agricultural resources of the Greenbelt, respectively.”



**Property impacts** – When considering potential properties impacted, the 2020 study found that the Montée Paiement-Aviation Parkway corridor impacted the greatest total land area. Corridor 6 was identified as impacting the greatest number of individual properties, followed by the Montée Paiement-Aviation Parkway corridor, then Corridor 7. It should also be noted that there were agricultural lands impacted for these two corridors, which is not a consideration for the Montée Paiement-Aviation Parkway corridor. Fragmentation of this farmland was explored in further detail in the 2024 land use and property refresh report.

## Economic development and project cost

**Economic development potential** – Corridor 6 had fewer vacant lands and potential jobs than the Montée Paiement-Aviation Parkway corridor, whereas Corridor 7 passes through largely undeveloped areas near the Gatineau Airport and was identified as having the greatest potential, generating 7,975 jobs on vacant lands. However, Corridor 7 provided access to fewer existing jobs than the Montée Paiement-Aviation Parkway corridor or Corridor 6.

**Project costs** – In the 2013, 2020 and 2024 estimates, corridors 6 and 7 were identified as more expensive to construct, with additional costs generally attributed to the longer length and environmental mitigation measures. As previously noted, Corridor 6 was not studied in 2024.

## Climate change and vulnerability

Despite a greater percentage of the corridor being previously undisturbed and a longer construction time frame of seven years, Corridor 7 was expected to produce just over half the total GHG emissions relative to the Montée Paiement-Aviation Parkway corridor. This number is based on the 2020 six-lane design concept and reflects the Montée Paiement-Aviation Parkway corridor's longer corridor length from highway to highway and anticipated adjustments to existing structures.

Corridors 6 and 7 have large wetland complexes within the floodplain that can act as natural buffers for flooding. Modification to these areas could create increased sensitivity to hydrological impacts such as flooding.

Without design-specific parameters, such as materiality and microclimate analyses, the vulnerability and risk profile of corridors 6 and 7 was considered equivalent.

Corridor 6 was not evaluated in the 2024 Climate Change and Vulnerability Report.







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