

NATIONAL CAPITAL COMMISSION  
COMMISSION DE LA CAPITALE NATIONALE

<b>No.</b>	2020-P218
<b>To</b>	Board of Directors
<b>Date</b>	2020-06-25

**For** INFORMATION

### Subject/Title

Société de transport de l'Outaouais (STO) public transit system linking Gatineau's West End to Ottawa – Scenarios under review

### Purpose of the Submission

Inform the members of the Board of Directors on the proposed alignment scenarios under study for the public transit system that will connect Gatineau's West End to the downtown areas of Gatineau and Ottawa.

### Recommendation

- N/A

#### Submitted by:

Pierre Vaillancourt, Acting Vice President, Capital Planning Branch  
Name

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Signature

## 1. Authority

*National Capital Act*, Section 12

## 2. Project Description

The Société de transport de l'Outaouais (STO) is conducting a study to support the implementation of a rapid transit system linking Gatineau's West End (Aylmer) to downtown Gatineau and downtown Ottawa in the next 8 to 10 years (2028 to 2030). The project also aims at looking to connect to the City of Ottawa Light Rail (O-Train) system and the existing Rapibus system which links Gatineau's East End to downtown Ottawa.

The proposed alignments and scenarios impact NCC properties and assets in certain areas of Gatineau Park and the Capital Core Area Lands, including Confederation Boulevard.

The STO Draft Planning Study will identify and confirm the preferred corridor(s) within City of Gatineau boundaries, along with the preferred bridge crossing(s) over the Ottawa River and the proposed transit system route in downtown Ottawa. This study will also determine the preferred mode of transportation, either bus rapid transit (following the Rapibus model), light rail/tram system or a combination of both.

According to STO estimates, over the next 15 years, the number of public transit users crossing the Portage Bridge into Ottawa during the morning peak period will increase from the current 3,500 passengers per hour to approximately 7,500 passengers per hour. Without a new rapid transit system, the number of buses needed to accommodate this projected increase would saturate the existing designated bus-only lanes, even if the STO were to use articulated or even bi-articulated buses. Furthermore, the STO has confirmed that the addition of more buses to meet the growth in ridership in the following years would congest the road network and make the situation worse.

Therefore, the STO concluded that any scenarios of using buses only are considered non-viable as they would not provide sufficient capacity to accommodate future demand, and that only a new light-rail system (in tramway mode) could accommodate the projected increased demand.

The Public Transit System in Gatineau's West End would encompass a 25 km to 30 km long infrastructure, including several stations to serve residential neighbourhoods, employment nodes, commercial areas and educational institutions. Results of the analysis work completed to date point to the development of two separate transit corridors in Aylmer, the first being located in the Des Allumettières Boulevard axis and the second generally following the Aylmer Road/Alexandre-Taché Boulevard axis. (see Appendix 1).

In both corridors, the transit infrastructure would essentially involve reserved lanes (without barriers) for either trams or buses, except for a section at the western extremity of the Des

Allumettières corridor, which would need to be segregated because of higher posted vehicle speeds (buses, trams and automobiles).

With regard to the preferred bridge crossing over the Ottawa River towards Ottawa, the reserve capacity of the Ottawa Light Rail System was a key factor in the analysis of available options. The Portage Bridge was deemed the preferred option. As to the proposed alignment in downtown Ottawa, two alternatives are currently under review. The first would follow Wellington Street, and the second would involve a tunnel under Sparks Street.

These scenarios through downtown Ottawa is a complex undertaking, given the implications for the land under the responsibility of the City of Ottawa, two separate Public Services and Procurement (PSPC) branches responsible for the Parliamentary Precinct and other federal buildings and the NCC, which is responsible for Confederation Boulevard.

The City of Gatineau strongly supports this project, as it will play a key role in achieving its sustainable development and environmental objectives and is in conformity with the major long-range plans that guide the region's future development. The Quebec Ministry of Transport (MTQ) is also involved in this study.

### **3. NCC Staff Analysis / Risks and Mitigation Measures**

In analyzing this transit project, the NCC must consider the extent to which the proposals align and comply with its plans, policies and guidelines, which are intended to define a development framework and guide not only development, but also preservation, environmental integrity, transportation, architectural quality and design on federal lands.

A detailed analysis of the project elements that have an impact on the components of Capital significance is presented in Appendix B. The main elements of the analysis are summarized in the following paragraphs:

#### **3.1 Proposed alignment scenarios on the Gatineau side**

Of the two alignments proposed in Gatineau with the three scenarios (tram only, and two hybrid scenarios), it will be necessary to ensure that the widening of the Boulevard des Allumettières right-of-way through Gatineau Park is as small as possible in order to limit increased fragmentation of the natural environment and encroachment into the valued natural habitat of ruisseau des Fées.

In an urban environment this route will have little impact. One station may require the relocation of the artwork "Papa" currently located at the corner of Maisonneuve and des Allumettières Boulevards, but this station could be relocated.

The scenarios using Aylmer Road and Alexandre-Taché Boulevard have fewer and less significant impacts than the route through Gatineau Park.

Both alignments remain acceptable to the NCC provided that the issues raised are resolved and appropriate mitigation measures are proposed as part of the impact analysis.

### **3.2 Crossing the Ottawa River**

The Portage Bridge is the only option chosen to cross the Ottawa River. The details of the analysis are explained in Appendix B. The tramway will have to be battery operated on the bridge to avoid any equipment that diminishes the aesthetic quality of this section of Confederation Boulevard. The integration of the Tramway on the bridge will require its reconstruction to accommodate additional loads including a widening to maintain the existing cycling and pedestrian infrastructure. The reconstruction of the bridge would require an investment of approximately \$300M, which the STO estimates would be included in the overall project costs. Widening the bridge will likely have an impact on Victoria Island, an island dedicated to projects by Indigenous groups.

### **3.3 Proposed Scenarios for Ottawa**

#### **3.3.1 Proposed connection to Wellington Street**

The Wellington Street scenario includes a reserved two-way tram corridor up to Elgin Street, with up to three stations located at the Lyon-Bank and Elgin-Queen intersections. In this section, the tram would operate on batteries only and no overhead wires or structures would be necessary, in keeping with the aesthetic requirements along Confederation Boulevard.

Given the narrowness of the Wellington Street road allowance between Bank and Elgin, this scenario would have impacts, some of them deemed major, on the symbolic and heritage qualities of Confederation Boulevard and Parliament Hill, on vehicular traffic and on the preservation of an existing row of mature trees along Wellington Street. Details can be found in Appendix B.

The NCC can support this scenario only to the extent that acceptable solutions are developed to maintain the design of Confederation Boulevard in its entirety, including a double row of trees to the north west of Bank, a wide pedestrian esplanade and bicycle lane, as well as a wide sidewalk and a row of trees on the south side. In addition, solutions for access to the Judicial and Parliamentary Precincts will have to meet the needs of the federal partners. The solution acceptable to the NCC for the section east of Bank Street involves the elimination of vehicular traffic, given the narrowness of the right-of-way. Traffic studies must be completed to validate the feasibility of such a solution.

The proposed location of the three stations is generally acceptable, as long as the proposed tunnel for the street crossing from Lyon Station to the south of the Boulevard is replaced by an at-grade crossing and the precise location of Bank and Elgin stations is

acceptable to the federal partners to take into account the safety of the occupants of adjacent federal buildings. The design of the stations on Confederation Boulevard should be of high quality and be integrated with Confederation Boulevard guidelines.

The STO is fully aware of the complex nature of any planning endeavour involving Wellington Street: Confederation Boulevard is a national symbol and Canada's Ceremonial Route, it delineates the southern edge of Parliament Hill and as such, is subject to heightened security requirements, and it is occasionally used for major events and subject to temporary closures. All of these factors must be taken into consideration in the scenario evaluation process.

### **3.3.2 Alternative scenario – a tunnel under Sparks Street**

This scenario proposes a tunnel for a two-way tramway under Sparks Street, parallel to the O-Train tunnel, with an opening in the rocky outcrop at Commissioner Street. This tunnel scenario would include only two stations, as the underground stops could be spaced and located in conjunction with the existing O-Train stations.

This scenario is not without its impact and presents a number of significant technical challenges. However, it has several advantages, especially given Ottawa's Nordic climate. It would be much easier to integrate with the O-Train system and would avoid all the issues associated with the use of Wellington Street.

The tunnel scenario would impact the green spaces and the recreational pathway west of Commissioner Street, along with the entrance to the Cliff Street Heating Plant. At this stage, it is impossible to assess the extent of these anticipated impacts.

The construction costs for the tunnel scenario would be three to five times higher than the Wellington Street scenario. The tunnel scenario scored higher in all other criteria except for the cost.

## **3.4 Evaluation process and criteria**

The STO is currently developing the process, guiding principles and criteria for the assessment of the scenarios under study. An interagency review committee with representatives from the NCC, City of Gatineau, City of Ottawa and MTQ has been assembled.

Four groups of criteria have been developed to ensure that the assessment reflects the study objectives: Mobility and Accessibility; Land Use Planning; Environmental and Health Impacts; Costs.

### **ACPDR Comments:**

The STO presented the scenarios to ACPDR in May and generally demonstrated support for the surface scenario. The committee's comments are in Appendix C.

## 4. Strategic Links

The Plan for Canada's Capital (2017-2067)  
Gatineau Park Master Plan (2005)  
Capital Core Area Sector Plan (2005)  
Capital Urban Lands Plan (2015)  
NCC Sustainable Development Strategy (2018-2023)  
Interprovincial Public Transit Strategy (2013)

## 5. Consultations and Communications

- The STO held public consultations in 2019 on the proposed alignments in Gatineau.
- A number of inter-agency committees at various hierarchical levels have been established.
- Public consultations are planned this summer for the entire project.
- No specific communications initiatives have been undertaken with Indigenous groups.

## 6. Next Steps

Finalize the assessment of proposed solutions and identify the preferred scenario –  
July / October 2020  
Present the chosen scenario to ACPDR – August / November 2020  
Submit the final alignment the NCC Board of Directors for Approval –  
October 2020 / January 2021

Final dates will be determined based on the municipal approval processes and schedules.  
In light of current circumstances, the schedule could be delayed.

## 7. List of Appendices

Appendix A – Alignment Scenarios Proposed by the STO  
Appendix B – Detailed Staff Analysis  
Appendix C – Draft excerpt of the minutes of May 21, 2020 ACPDR meeting

## 8. Authors of the Submission

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## SCÉNARIO H2b - Tracé et stations

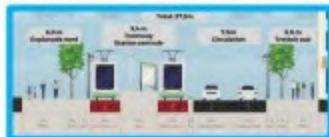


# Options à Ottawa



PARCOURS AUTOBUS

RABATTEMENT



OPTION D'INSERTION



NB DE STATIONS



CIRCULATION



Boucles

partiel

Wellington en surface



9



Boucles

partiel

Sparks en tunnel



## SCÉNARIO T1 - Tracé et stations



## Appendix B – Detailed Staff Analysis

In reviewing and analyzing this major public transit project, the NCC must consider the extent to which the proposed solutions align with and conform to its plans, policies and guidelines, which provide the framework and direction to guide the development and use of federal lands, in addition to ensuring the preservation, environmental integrity and architectural and design quality of transportation-related projects on federal lands. These plans, policies and guidelines are central to the NCC's approval process, and they also lend assistance to other federal departments and agencies by providing a clear framework to ensure that development proposals support and advance federal interests.

### 3.1 Insertion of the proposed alignment scenarios on the Gatineau side

A number of federal properties and NCC areas of interest would be affected by the STO-proposed alignment scenarios in both the Des Allumettières and Aylmer/Alexandre-Taché corridors.

The three options that remain under study are scenarios T1 (all-tram), H1 (hybrid with tram along Des Allumettières Blvd.) and H2 (hybrid with tram along Aylmer Rd. and Alexandre-Taché Blvd.). See Appendix 1.

Two of the three remaining scenarios (T1 and H1) would cross Gatineau Park. The rock outcrops located along Boulevard des Allumettières are very close to the developments planned by the scenarios and widening may become necessary if future more detailed analyzes confirm that more space is required. In addition, the existing multi-purpose recreational pathway which is presently located on the bridge spanning the Des Fées Creek floodplain would need to be moved to a new separate parallel structure to make room for the transit lanes on the bridge. Additional detailed studies would be required to determine the actual impacts within Gatineau Park boundaries, including those related to the construction of the pilings for the new structures, followed by the identification of the requisite mitigation measures.

Two of the three scenarios (H1 and H2) would require the widening of certain sections of the Des Allumettières road allowance to make room for the bus or tram facilities, which would directly impact a number of NCC land parcels in Sentier de l'Île Park, in addition to possibly requiring to move the "Papa" public art installation which is currently located at the Des Allumettières / Maisonneuve Blvd. intersection.

These same scenarios would have a similar impact along the Aylmer-/Alexandre Taché corridor, as the necessary road allowance widenings would encroach onto a number of NCC holdings, including a heritage property and building located at 1055 Aylmer Rd. In addition, a transit vehicle garage facility is proposed within the boundaries of the Champlain Golf Course property.

Scenario T1 does not cross Gatineau Park. It combines the two axes coming from Aylmer (Aylmer Road, Des Allumettières Boulevard) on a single alignment at St-Raymond Boulevard, west of Gatineau Park., at which point the Des Allumettières section would combine with the Aylmer Rd. section and flow into the Alexandre-Taché Blvd. axis.

There are pros and cons to each scenario, from both the transportation and environmental standpoints. It is still too early to commit to a preferred scenario. The Project Partners

Working Group has developed a detailed scenario assessment process, which is described in section 3.4 below.

### **3.2 Proposed scenarios to connect with downtown Ottawa**

The Ottawa River crossing by way of the Prince of Wales Bridge was not retained as a viable option as study results indicate insufficient reserve capacity at the Bayview O-Train station to accommodate the number of STO commuters needing to transfer onto the O-Train headed east into downtown Ottawa. The requisite reserve capacity is only available at the Lyon O-Train station.

The STO study has concluded that Portage Bridge is the most promising crossing solution into downtown Ottawa. However, using Portage Bridge would require the reconstruction of the bridge structure to accommodate the increased load requirements, along with a widening of the bridge to maintain the existing cycling and pedestrian features. According to the STO, these improvements would require a \$300M investment, which could be included in the overall project cost. In addition, the bridge widening would impact Victoria Island, which would certainly spark the interest of Indigenous stakeholders.

#### **3.2.1 Proposed connection to Wellington Street**

The Wellington Street scenario includes a reserved two-way tram corridor up to Elgin Street, with up to three stations located at the Lyon-Bank and Elgin-Queen intersections. In this section, the tram would operate on batteries only and no overhead wires or structures would be necessary, in keeping with the aesthetic requirements along Confederation Boulevard.

Given the narrowness of the Wellington Street road allowance between Bank and Elgin, this scenario would have impacts, some of them deemed major, on the symbolic and heritage qualities of Confederation Boulevard and Parliament Hill, on vehicular traffic and on the preservation of an existing row of mature trees along Wellington Street.

This scenario would involve the complete redevelopment of Wellington Street, including a 7-meter widening road allowance between Kent and Bay Streets, to be achieved by encroaching onto federally owned properties, as this would be the only possible solution to accommodate all transportation, active mobility and streetscape requirements. Studies have shown that this proposed widening of the roadway allowance would make room for the two-way bicycle path proposed by the NCC and the City of Ottawa and also meet the Confederation Boulevard minimum streetscape requirements. It would, however, require the removal of a number of mature trees and the elimination of existing vehicular access points into the Judicial and Parliamentary precincts.

Among all the options developed for the Wellington Street section between Bank and Elgin, the only option that would maintain all existing features and accommodate the new two-way bicycle path would require the removal of all motor vehicle traffic lanes. Only the Parliamentary Precinct Shuttle Service buses and emergency vehicles would be allowed access to this section of Wellington Street. In addition, as requested by the City of Ottawa, a traffic impact study analyzing the impact on 18 intersections in the downtown core is being conducted.

Removing the bulk of motor vehicle traffic on Wellington Street between Bank and Elgin would open up new urban design opportunities on Confederation Boulevard as a key emblematic space in front of Parliament Hill.

The first STO station on the Ottawa side would be located in the vicinity of Lyon Street. Given the number of pedestrians needing to cross Wellington Street, a new pedestrian tunnel would be required from the north side of Wellington to the Lyon O-Train Station.

NCC staff have indicated that rather than adding new underground structures at this location, it would be more appropriate to provide an at-grade pedestrian crossing, which would be more in keeping with the Confederation Boulevard design guidelines.

The second station would be located at the Bank Street intersection. Stations in front of Parliament Hill are not recommended for safety and urban design reasons.

The third station would be located on Elgin Street, next to the Queen Street intersection and the National War Memorial. This site would be somewhat challenging, as it is close to a number of buildings with enhanced security requirements. Moving the location of this station further east, along Rideau Street, would have a number of potential benefits, including a possible connection to the existing Rideau station and the possibility of extending the tram route all the way to Alexandra Bridge. Should the Elgin Street site proposed by the STO be retained, design quality will be of paramount importance and any terminal-type installations will be prohibited in order to avoid any negative impacts on the Confederation Boulevard visual landscape.

The STO is fully aware of the complex nature of any planning endeavour involving Wellington Street: Confederation Boulevard is a national symbol and Canada's Ceremonial Route, it delineates the southern edge of Parliament Hill and as such, is subject to heightened security requirements, and it is occasionally used for major events and subject to temporary closures. All of these factors must be taken into consideration in the scenario evaluation process.

### **3.2.2 Alternative scenario – a tunnel under Sparks Street**

This scenario proposes a tunnel under Sparks Street, parallel to the O-Train tunnel, with an opening in the rocky outcrop at Commissioner Street. This tunnel scenario would include only two stations, as the underground stops could be spaced and located in conjunction with the existing O-Train stations.

Just like the previous scenario, this option is not without its impact and presents a number of significant technical challenges. However, it has several advantages, especially given Ottawa's Nordic climate. It would be much easier to integrate with the O-Train system and would avoid all the issues associated with the use of Wellington Street.

The tunnel scenario would impact the green spaces and the recreational pathway west of Commissioner Street, along with the entrance to the Cliff Street Heating Plant. At this stage, it is impossible to assess the extent of these anticipated impacts.

The construction costs for the tunnel scenario would be three to five times higher than the Wellington Street scenario. The tunnel scenario scored higher in all other criteria except for the cost.

### **3.3 Environment**

The STO Draft Planning Study, currently in progress, will include an inventory and analysis of existing environmental features (natural areas, wetlands, forest areas, wildlife, contaminated soils, air quality, noise), as well as an inventory of heritage buildings in the vicinity of the proposed alignments. In most cases, the proposed route alignments follow

existing road allowances, although a number of road allowance widenings would be required.

Detailed environmental and archaeological studies will be conducted in compliance with the Impact Assessment Act requirements during the next phase of the project, once the current study has been completed and the final alignment has been chosen.

### **3.4 Evaluation process and criteria**

The STO is currently developing the process, guiding principles and criteria for the assessment of the scenarios under study. An interagency review committee with representatives from the NCC, City of Gatineau, City of Ottawa and MTQ has been assembled.

A comprehensive multivariate analysis model, including carefully weighted qualitative and quantitative criteria, will be developed to assess and rank each scenario.

The four groups of criteria below, listed in order of importance, have been developed to ensure that the assessment reflects the study objectives.

1. Mobility and Accessibility
2. Land Use Planning
3. Environmental and Health Impacts
4. Costs