

**Report to
Rapport au:**

**Transportation Committee
Comité des transports
2 September 2020 / 2 septembre 2020**

**and Council
et au Conseil
9 September 2020 / 9 septembre 2020**

**Submitted on August 25, 2020
Soumis le 25 août 2020**

**Submitted by
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Ward: CITY WIDE / À L'ÉCHELLE DE LA VILLE File Number: ACS2020-TSD-PLN-0005

SUBJECT: STO Transit Study for Gatineau's West End: Integration with Ottawa

**OBJET: Étude du transport collectif de la STO dans le quartier ouest de
Gatineau : intégration dans le réseau d'Ottawa**

REPORT RECOMMENDATIONS

**That Transportation Committee and Council receive this interim report for
information.**

RECOMMANDATIONS DU RAPPORT

Que le Comité des transports et le Conseil municipal prennent connaissance de ce rapport provisoire pour information.

EXECUTIVE SUMMARY

The Société de transport de l'Outaouais (STO), is proposing an electric tramway to serve Western Gatineau residents and connect commuters to the downtowns of Gatineau and Ottawa. This report is a summary of the work and consultation done to date, with a focus on the issues that would affect the City of Ottawa.

There are currently more than 200,000 interprovincial crossings daily, including around 25 per cent on public transit. Traffic studies also show that the road system in Gatineau is already operating at capacity. This demand is expected to grow over the next 15 years as Gatineau's population continues to increase. These numbers indicate that there is a need for increased public transit services.

The study undertaken to-date has included many stakeholders, including the National Capital Commission (NCC), the Public Services and Procurement Canada (PSCP), the Quebec Ministry of Transportation (MTQ), the City of Gatineau and the City of Ottawa.

Inserting a new transit facility into Ottawa's downtown core is complicated due to its historical context, being a capital city, competing needs and limited rights-of-way. The study is continuing with its technical analyses and this interim report identifies the issues that must be resolved before a recommendation is presented to Ottawa City Council and Gatineau City Council for a final decision on the tramway project. The STO study timeline currently anticipates an Ottawa City Council decision regarding the integration into Ottawa in November 2020.

Assumptions and Analysis

Two rapid transit corridors in Gatineau are identified as being required: along Boulevard des Allumettières/Plateau and along Chemin de Aylmer and Boulevard Alexandre Taché. The technology choices are either:

1. All-tram.
2. Hybrid - where one of the corridors would be tram and the other would be rapid bus (BRT).

The STO tramway would cross into Ottawa at the Portage Bridge. From there (on the Ottawa side), two corridor options are being assessed:

1. Wellington Street on the surface (with three stations). This corridor also includes two sub-options with traffic maintained along the entire length and without traffic between Bank Street and Elgin Street.
2. Sparks Street tunnel (with two stations).

Wellington Street Option

The corridor has a narrow right-of-way and lots of competing uses: vehicles, transit, planned bi-directional cycling, sidewalks, landscaping, and tour bus operations. Additionally, there is a planned security buffer on the southside for the Prime Minister's Office and other federal buildings, including the Parliament and Judicial Precincts. Its designation as the Confederation Boulevard dictates special design requirements, such as a wide esplanade (minimum 6.5m wide on the north side).

The STO study concludes that inserting a bi-directional tramway on the north side of Wellington Street is feasible but it would require significant compromises due to the limited right-of-way.

Sparks Street Option

The STO study concludes that a tunnel under Sparks Street is feasible, although underground construction is more complex and more costly than the surface option. The Sparks Street corridor is narrow so there will be constraints on the design of the tunnel and configuration of the tram stations. Underground utilities will need to be avoided or relocated. The tunnel portal will be in the vicinity east of the Garden of the Provinces and near the site of the Victims of Communism monument.

Continuation of STO Bus Routes on City Streets

Even with the tramway, there will be STO buses operating on Ottawa streets in the downtown. The buses would cross into Ottawa from the Portage Bridge, as well as the Macdonald-Cartier Bridge.

The "all-tram" transit scenario would reduce the number of STO buses in downtown Ottawa by approximately 70 per cent compared to the current situation. The "hybrid" transit scenarios (tram on one of two transit corridors and rapid bus on the other) would reduce the number of STO buses in downtown Ottawa by approximately 30 per cent to 45 per cent compared to the current conditions.

Traffic Assessment

Traffic models for roadway segments, and at several key intersections, have been developed to compare each corridor option. The assessment looks at the anticipated change in traffic flows and operations throughout downtown Ottawa.

It is anticipated that there will continue to be a high traffic demand in the future in the downtown core. Regardless of which corridor is selected, traffic modelling suggests that the addition of a more efficient public transit system (like the tram) connecting Gatineau to Ottawa would reduce the total vehicular demand during peak periods by approximately 15-20 per cent.

In terms of vehicular traffic in the downtown core, the tunnel option has the least amount of impacts, the at-grade Wellington Street options will have impacts with traffic redistributed to other streets with the 'no traffic east of Bank Street' option having the greatest impacts.

Major Issues To be Resolved

The following issues need to be resolved before City staff can formulate a recommendation about a preferred corridor option (Wellington vs. Sparks) and the STO transit scenario (all tram vs. hybrid) for Council's consideration and approval.

1. Parliament Hill and Judicial Precinct Access

- The feasibility of the Wellington option hinges on whether many of the accesses on the north side of Wellington can be closed and consolidated. PSPC needs to conduct an internal review of this proposal as part of their long-term planning.

2. Traffic Impact on Ottawa Streets

- Council would need to know the full traffic impact of the Wellington option before considering trade-offs. Mitigation options/strategies will need to be developed.

3. Cycling

- Cycling must be accommodated on Wellington and the STO proposal needs to be refined. For the option on Wellington with traffic, due to the narrow right-of-way, none of the proposed sub-options are ideal and/or supported for safety reasons.

4. Property Requirements

- The PSPC needs to confirm whether additional property on the north side of Wellington can be provided for this project. They are currently reviewing the request.

5. All-Tram vs Hybrid

- Regardless of the corridor choices in Ottawa, the decision on whether the transit facilities on the Gatineau side are all-tram or hybrid (tram and buses) will have an on-going impact with respect to the number of STO buses operating on City streets.

6. Costs

- The capital costs for the corridor options are currently being developed. Asset management costs have yet to be determined.

Financial Implications

The STO's Complementary Study is being funded by contributions from the federal government (50 per cent) and the MTQ (40 per cent) under the financial assistance program of the Public Transit Infrastructure Fund (PTIF). The remaining 10 per cent is funded by the STO. While the funding for the implementation of the project has not been fully secured, STO anticipates that the Federal government and the Quebec government will cost share the full amount. It is not expected that the City of Ottawa would provide any financial contribution.

Public Consultation

Building upon public consultation in Gatineau that began in June 2019, consultation in Ottawa began with a Technical Briefing to Council on May 15, 2020 – to introduce the project and outline the key findings to date which identified Portage Bridge as the crossing location, and the short-listed Wellington and Sparks Street corridors. Between June 22 and July 19, 2020, STO offered on-line consultation to the general public which included details of the work completed to date and a survey (www.sto.ca).

1,503 participants responded to the online survey, and additional e-mail correspondences was received. A full public consultation analyses can be found in Document 3 of this report.

Conclusion

The potential impacts of this project will depend on the corridor and transit scenarios that are still being analyzed. Whichever option is chosen, an improvement to Gatineau's public transit system will have positive impacts for both residents of Ottawa and Gatineau who want to reach destinations on either side of the River and will reduce the dependency on personal vehicles.

Improving public transit aligns well with the City's transportation goals of sustainable transportation. Improving public transit provides people living in the National Capital Region with more sustainable mobility choices, helps improve equity for those who can't or don't drive, helps improve air quality, and supports the principles of the City's Climate Change Master Plan.

BACKGROUND

STO initiated a number of studies beginning in 2010 to examine opportunities to bring rapid transit to serve residents in western Gatineau (Aylmer) and connect these commuters to the downtowns of Gatineau and Ottawa. In the previous works completed, STO concluded that a combination of rapid transit measures would be required along both the Allumettières and Aylmer/Taché corridors to serve their transit needs. In January 2020, STO confirmed the need for a tramway component. As a result, the three remaining transit scenarios that are still under review (Figure 1) include a tramway on both Gatineau corridors and two "hybrid" scenarios (with rapid bus service on one corridor and tram on the other). This information was presented to City Council at a Technical Briefing on May 15, 2020 (Document 5).

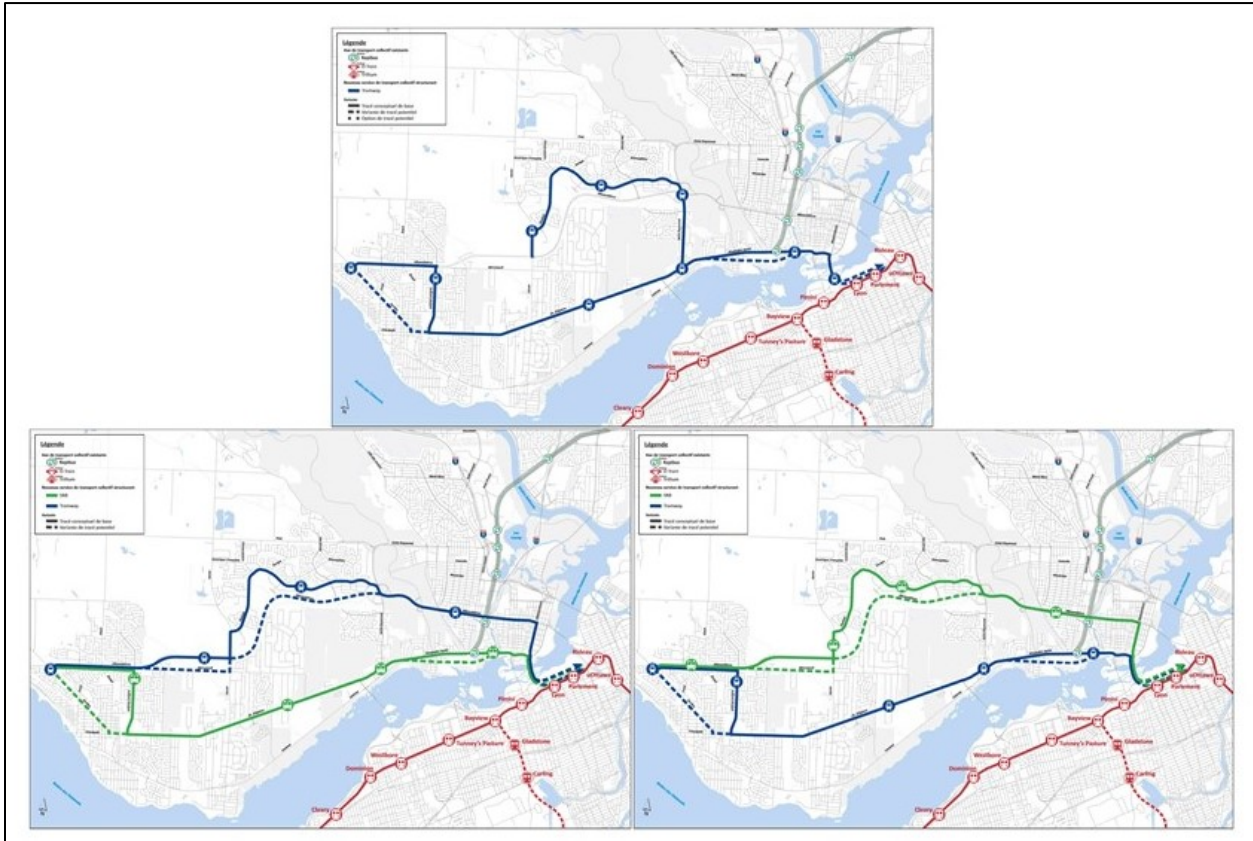


Figure 1: Three remaining transit scenarios in Gatineau

Each scenario would still require some STO bus routes to operate on Ottawa Streets. The number of buses will be reduced by 30 per cent (hybrid scenario) to 70 per cent (all tramway scenario) from today's numbers, depending on which transit scenario is ultimately selected. The crossing into Ottawa would be via the Portage Bridge. The STO study is still underway (under the title of "Complementary Study"), and there are many critical issues still to resolve. The STO plans to complete the Ottawa portion of the study by end of this year.

There are two distinct corridors proposed for transit integration on the Ottawa side: Wellington Street (surface), and Sparks Street (tunnel). The Wellington Street corridor has two options (with vehicular traffic; and, without vehicular traffic between Bank Street and Elgin Street). Conceptually, the corridors in Ottawa are shown in Figure 2.

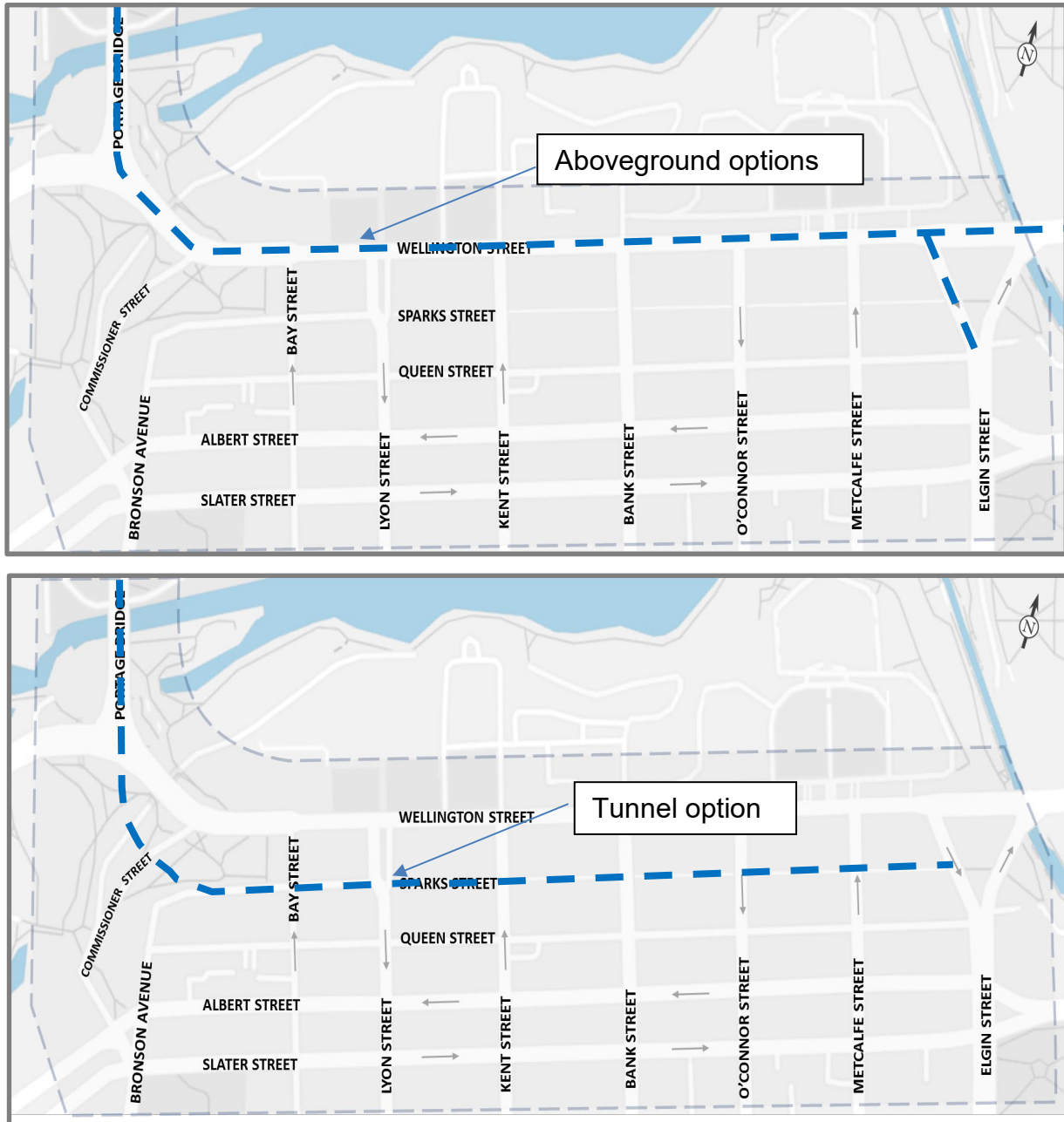


Figure 2: Planned aboveground and tunnel alignments for the tram mode

This report summarizes the key project issues and the implications of the Complementary Study's findings to date on the City of Ottawa. There will be a follow-up report to Transportation Committee and Council once a study recommendation is formulated. The STO study timeline currently anticipates an Ottawa City Council decision by November 2020 regarding the integration into Ottawa. It should be noted that the STO has been working closely with City staff, the National Capital Commission (NCC), Public Services and Procurement Canada (PSPC), the Ville de Gatineau, and the Ministère des Transports du Québec (MTQ).

DISCUSSION

Need

Gatineau's population has grown significantly, particularly in the west end. There are currently more than 200,000 interprovincial crossings daily, approximately 48,000 on public transit. Just at the Portage Bridge alone, there are about 3,500 public transit riders using this crossing during peak hours. This demand is expected to increase to approximately 7,000-7,500 transit riders per peak hour over the next 15 years. The road system is currently operating at capacity. This, along with the current public transit services are not sufficient to meet the needs of the growing population, forecasted to increase 33 per cent for Gatineau's west end and 26 per cent for Gatineau by 2051.

The objective of STO's Complementary Study is to find a rapid transit solution that meets the transportation needs of residents in Gatineau's rapidly growing west end, as well as to accommodate Ottawa transit commuters who need to travel interprovincially on a daily basis, including thousands of public servants who work at both Portage and Terrasses de la Chaudière. The Study is assessing the feasibility of the project by examining corridors, station locations, technologies such as tramway and bus, ridership potential, and costs.

It should be noted that the demand forecast of commutes to downtown did not take into consideration the current work-at-home situation caused by the COVID-19 pandemic. The timing of when workers return to their downtown offices is still unknown. However, the downtown remains an attractive destination in the long term and the need for more efficient transit connections remains not only for workers, but also students, tourists or people traveling for health or leisure reasons. This project is planned for the longer term and the pandemic's impact on the project would likely be limited to the timing of when the system would reach full capacity, rather than the identification a corridor which is the subject of this current study.

Crossing Location: Prince of Wales Bridge vs. Portage Bridge

The Study examined several potential crossing locations for the tramway. A summary can be found in Document 2. Of note are the options for the Prince of Wales Bridge (to connect to Bayview Station) and the Portage Bridge (to connect to the vicinity of Lyon Station).

Crossing at Prince of Wales Bridge is problematic to address the needs of this specific study for a number of reasons. The Bridge crossing is significantly west of Gatineau's

downtown office complex in order to be beneficial for commuters destined to that area. Passengers would have to transfer at the north end of the bridge (from the tram) to connect to another route to complete the rest of their trip to Gatineau's downtown. Similarly, Ottawa customers, from east and southeast Ottawa, destined to downtown Gatineau would be backtracking and all customers from Ottawa would face an additional transfer.

At the south end of the bridge, Gatineau customers destined to Ottawa's downtown would need to transfer from the tramway onto the Confederation Line for a short commute to their destination. Furthermore, eastbound Line 1 trains leaving Bayview Station are at capacity, as it is the peak load point for the Line. Any additional capacity would need to be provided by increasing the number of trains in service on the line, which has significant capital and operating costs, and reduces the horizon year at which the line will reach its ultimate capacity.

Future planned service increases, and new train purchases built into the affordability plans for the next phases of the O-Train System do not provide for capacity to accept additional customers who would be transferring from STO services at Bayview station. Introducing these customers from Gatineau at Bayview would reduce longer-term capacity to accommodate growth in west Ottawa, Nepean, Kanata and Stittsville and could bring forward the need for another major rapid transit line from the west into downtown Ottawa.

The Prince of Wales Bridge however remains a good option for a secondary connection with future expansions of the metropolitan region's public transportation networks. Future extensions of the Rapibus or the Trillium line for example, could facilitate connections such as:

- From Gatineau to a future event centre at LeBreton Flats, to Carleton University, to federal work centers at Confederation Heights, to the future hospital at Carling Station, to the Ottawa Airport;
- From Gatineau to Kanata North and Department of National Defence Headquarters, with a westbound connection on the Confederation line; and,
- From south Ottawa to the Hull sector of Gatineau.

During the morning commute, as Ottawa customers disembark along Line 1, space on the eastbound trains becomes available starting at Lyon Station. For effective use of rail

infrastructure, the most appropriate crossing for the tramway would be at Portage Bridge, with transfers to Line 1 occurring at Lyon Station or Parliament Station.

Ottawa Corridors for the Tramway

From the crossing at Portage, several east-west streets in the downtown were considered for dedicated STO transit lanes: Wellington Street, Sparks Street, Queen Street, Albert-Slater Streets, Laurier Avenue. Given that Queen Street has recently been reconstructed to become a “complete street” and similar plans are underway to repurpose the former bus lanes on Albert and Slater streets, these three streets do not lend themselves readily for conversion to tramway corridors. Laurier Avenue is also too far south from the Parliamentary precinct and federal government office buildings.

In the fall of 2019, City Council has approved the Sparks Street Public Realm Plan, which was developed with the NCC, PSPC, and the public. The Official Plan identifies Wellington Street as Scenic Entry Route and the Preliminary Directions report for the new Official Plan identifies this area as a proposed the Parliamentary Precinct Special District. These policies coupled with the Sparks Street Public Realm Plan identify this area as some of Ottawa’s most important, which include a high standard of urban design and public realm investment. Specifically, the Public Realm Plan did consider the role of transit on Sparks Street, but given the narrow corridor, there simply is no room for the addition of public transit. However, the Plan did not preclude public transit below grade.

STO buses currently operate on Wellington Street, and therefore this was a corridor worth examining in detail for conversion to a tramway-busway mixed use corridor.

A. Wellington Street – On the Surface

Under this option, the bi-directional dedicated transit lanes would be for the tramway and some STO bus routes, specifically the transit loops. This proposal would require a full reconstruction of Wellington Street. The transit lanes would be on the north-side of the street as this location allows for greater traffic flexibility, such as the management at all the intersections to the south. The north side was also selected through a review of options as it would require less space in a very constrained right-of-way. The City-NCC plans for a bi-directional cycling facility, also on the north side of the street, will need to be protected.

There are two sub-set options being considered for integrating the tram system along Wellington Street:

1. With vehicular traffic along the entire length of Wellington Street; and,
2. Without vehicular traffic between Bank Street and Elgin Street.

The trade-offs between the above scenarios are compromises to design standards and downstream traffic impacts on Ottawa downtown streets. The study is still assessing these issues.

From Portage Bridge, the tramway would not have overhead catenary wires and the trams would operate by battery to preserve the visual aesthetics of the Confederation Boulevard. A re-charging facility may need to be incorporated into a station design, at the end of the line. This scenario needs to be examined technically.

Three stations are proposed at/near Lyon Street, Bank Street, and Elgin Street (near Queen Street). See Figure 3. Depending on its ultimate design, the Elgin Station could affect the views and setting around the National Memorial.

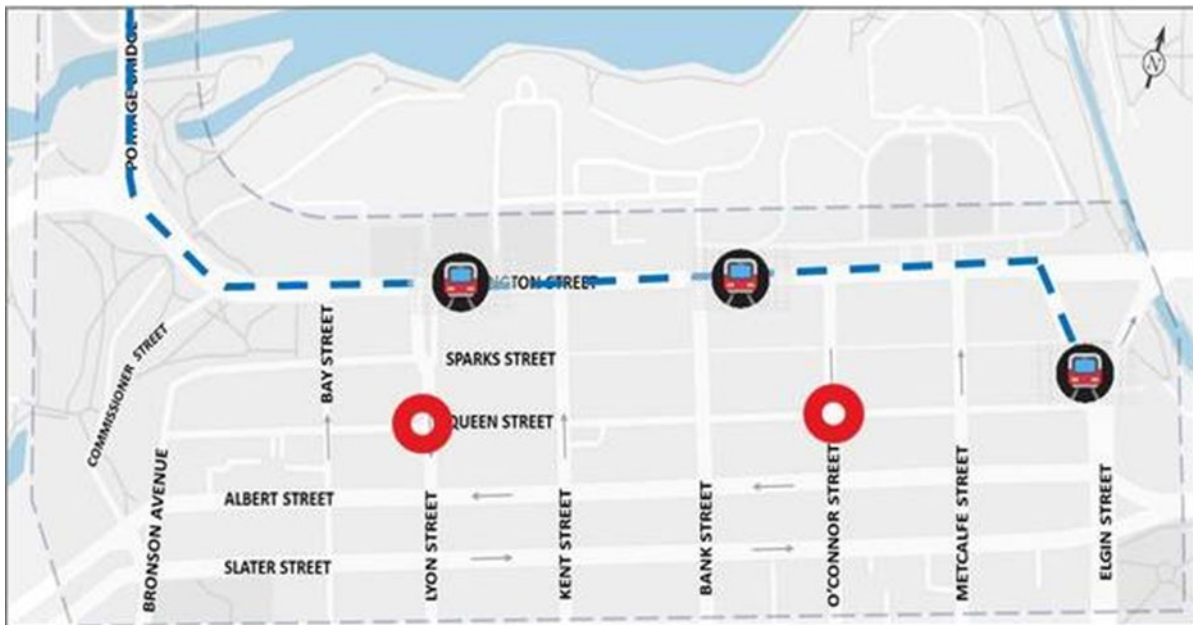


Figure 3: Proposed station locations for surface tramway option

More details about this corridor can be found in Document 1.

It is anticipated that there will be a large volume of passengers disembarking at the first tram station (at Lyon) and will need to cross Wellington to either transfer to the Confederation Line or continue walking to various downtown destinations. This station will most likely be the busiest, with projections between 2,300 to 4,000 people per hour disembarking from the tram during the morning peak period and between 400 to 800 people per hour boarding to go to Gatineau. Therefore, a pedestrian tunnel is proposed

to facilitate this movement, including a direct connection to the LRT station at Lyon. A pedestrian crossing of the very busy intersection of Wellington and Lyon will still be required for those who are not transferring to or from Queen Street or other streets further south. The construction of this pedestrian tunnel has many technical challenges that would still need to be resolved including but not limited to location access, utilities under Lyon Street, connection to the existing Lyon LRT station, impacts to existing adjacent buildings.

Due to the narrow right-of-way, and context, the Wellington option requires significant compromises:

- Vehicular traffic will be restricted to one lane per direction east of Lyon Street and most turning lanes will be eliminated, and at some intersections, the left turns would not be permitted. A subset of the Wellington option is the removal of traffic entirely between Bank Street and Elgin street to provide more separation from the federal buildings on the south side, thus creating wider sidewalk space. The impact on traffic on Ottawa streets and intersections is still being analyzed.

There are currently eight access points (plus one used for ceremonial purposes only) onto the Parliamentary and Judicial Precincts on the north side of Wellington. In order to integrate the tramway on Wellington Street while remaining as much as possible within the available right-of-way, these accesses will have to be further studied in order to confirm the layouts that will ensure efficient traffic circulation to and within both Precincts. It should be noted that integrating a tramway on Wellington Street will likely significantly impact many of these accesses in order for the tramway to operate efficiently and safely. This impact to the Parliamentary and Judicial accesses may be deemed too significant for the functions of Parliament Hill and the Supreme Court which could affect the feasibility of this option.

- There is a requirement for federal land on the north side, west of Kent Street, to accommodate all modes (in particular, the need to maintain two eastbound right turn lanes from Wellington Street to Lyon Street to accommodate both vehicular traffic and buses). PSPC are currently reviewing the request. This right-of-way requirement could affect the greenspace and/or width of the Esplanade (sidewalk) and some mature trees.
- Accommodating the proposed Parliament Station (near Bank Street) within the limited right-of-way would have impacts on the cycling and pedestrian facilities if

vehicular traffic were also maintained. All options considered require compromises, some of which include:

- Eliminating the cycling facility east of Bank Street;
 - Forcing pedestrians and cyclists to share the same space for a short distance (approximately 50m);
 - Re-routing the cycling facility to the Parliament internal roadway network; and,
 - Reducing the widths of the bi-directional cycling facility (to 2.5m) and adjacent sidewalk (to 3.0m) to substandard levels for approximately 50m.
- Widths for vehicular lanes, transit lanes, station platforms, and cycling are at the minimum standards. Each intersection will be complicated to accommodate multiple movements for multiple modes (trams, buses, other vehicles, cyclists and pedestrians) and may require additional space (traffic signal poles, signage etc.).
 - The proposed configurations do not provide any space for snow storage, which will complicate and increase costs for snow removal (as all snow would have to be removed for every snow event and would require specialized equipment).
 - Currently, tour buses park on Wellington Street during off-peak periods. The introduction of the tramway will prohibit this operation. An alternative for bus parking will need to be addressed as part of this study.

The advantages of the Wellington option are:

- Easier access to ground/surface level stations;
- Easier construction; and,
- Relatively less expensive than the tunnel option.

The disadvantages of this option are:

- Competing needs in a narrow right-of-way, requiring many significant compromises that have not been fully analyzed and resolved;
- Imposes on the visual aesthetics of the Confederation Boulevard;

- The third station at Elgin/Queen can impose a visual intrusion on the National War Memorial;
- Significant traffic implications during construction;
- Potential for disruptions to transit service due to external forces (demonstrations, special events, security around Parliament); and,
- Significant increase in the number of pedestrians crossing Wellington to reach the stations which will be difficult to accommodate effectively with respect to signal timing.

B. Sparks Street Tunnel

The STO consultants determined that a 1.2 km tunnel beneath Sparks Street is feasible, although there are some constraints that would need to be carefully examined in the next phases of the project (during detailed design).

Some of the constraints that would have to be analyzed further include:

- The narrow right-of-way of Sparks Street itself (about 17m to 18m) will limit the options in terms of the type and width of the tunnel and stations.
- Existing underground infrastructure and utilities will have to be avoided or relocated – in particular, major underground infrastructure at Kent Street (including a storm sewer, federal utilities and the Combined Sewer Storage Tunnel).
- Access to stations will have to be added at the surface level, possibly incorporated into existing buildings.

The portal would be along the Commissioner Street limestone escarpment south of the Garden of the Provinces. There would be impacts to the NCC greenspace between Commissioner Street and the Aqueduct/Tailrace that would need to be mitigated. The design and construction on the tunnel portal would require the redesign and relocation of pedestrian and cycling pathways, as well as other landscape elements. Modifications will also be required to Commissioner Street and there may be impacts on other infrastructure in the area (the wastewater pumping station, large sewers, large watermain, etc.).

Two underground stations are proposed at Lyon Street and between O'Connor and Metcalfe Streets. This option includes direct underground connections to the

Confederation Line stations. The tramway tracks would end at Metcalfe. Although the tunnel can extend closer to Elgin Street, for efficient transit operation, the STO study does not recommend a third station at Elgin due to its close proximity to the station in the vicinity of O'Connor/Metcalfe Streets. Extending past Elgin Street has significant constraints (including the proximity of the Confederation Line tunnel that joins Rideau Street from Queen Street). See Figure 4. More details about this corridor can be found in Document 1.

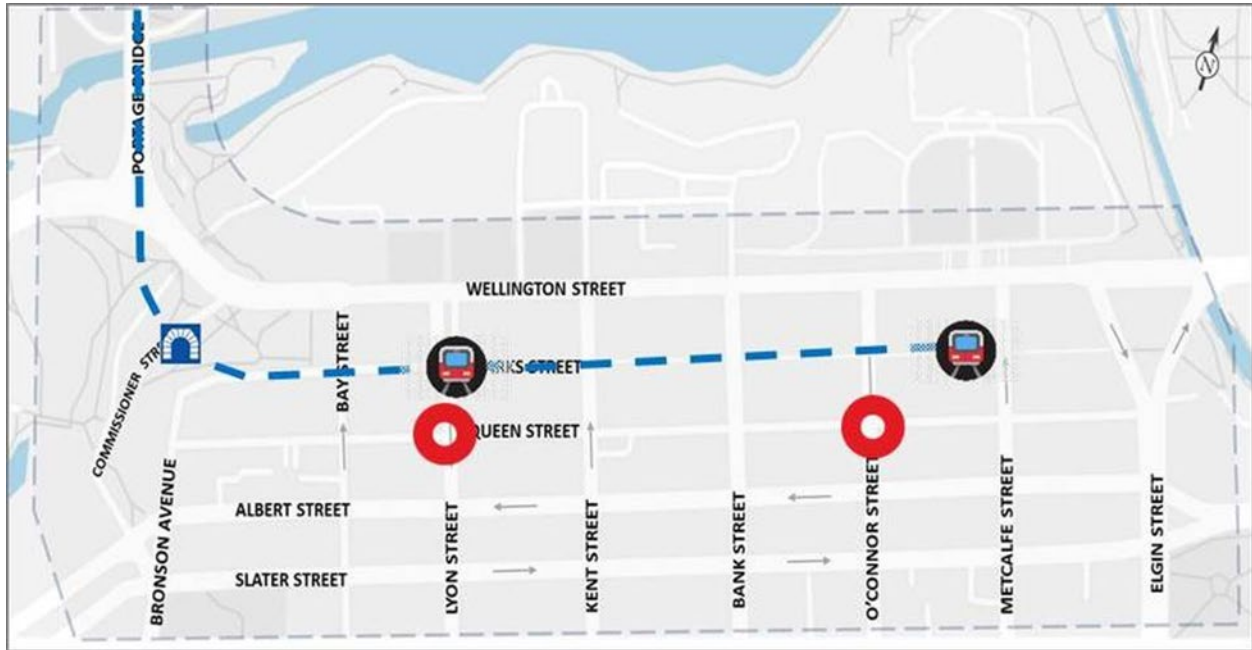


Figure 4: Proposed station locations for tunnel tramway option

The method of underground construction is still to be determined and will require further detailed analysis of geotechnical conditions, regulations, equipment availability, budgets and schedules. Regardless of the method chosen, a staging/work area will be required and would likely be located in the green space west of the Garden of the Provinces and Territories.

The Sparks Street tunnel option has the following advantages:

- Weather-protected environment for transit users;
- More direct underground connection to the Confederation Line;
- Construction would be less intrusive on surface traffic;
- Station entrances/exits can be integrated with buildings;

- Could be a catalyst for re-animating Sparks Street;
- Could be coordinated with the implementation of the Spark Street Public Realm Plan;
- Unaffected by street closures due to external forces; and,
- Does not interfere with the design evolution of surface streets.

The disadvantages of this option are:

- Subsurface construction will be more complex; and,
- Cost will be much higher in comparison to surface option.

Continuation of STO Bus Routes on City Streets

Even with the tramway, there will be some STO buses still operating on Ottawa streets in the downtown. The buses would cross into Ottawa from the Portage Bridge as well as the Macdonald-Cartier Bridge.

Regardless of which transit scenario is chosen for the western sector of Gatineau (all tram scenario or one of the hybrid scenarios of both tram and rapid bus corridors), other sectors such as Gatineau and Hull currently need a significant number of buses to get riders to downtown Ottawa. Study analysis has concluded that downtown Ottawa could not accommodate both the trams and all other bus routes. Conversely, forcing all Gatineau commuters to transfer to the tram in Gatineau is not feasible either (more transfers could result in a loss of ridership; large transfer station is needed, extra tram capacity is required etc.). The STO study proposes that the best compromise in terms of ensuring quality service and efficient operations is the continuation of a certain number of STO buses into Ottawa in addition to the tramway.

The “all-tram” transit scenario for Western Gatineau would reduce the number of STO buses in downtown Ottawa by approximately 70 per cent compared to the current situation. To limit transfers, the Rapidbus lines would continue to the Rideau Centre. A few STO bus routes from the Hull and Gatineau sectors would also be maintained. All other bus routes currently traveling to Ottawa would be required to transfer on the Gatineau side.



Figure 5: STO bus routes with “all-tram” transit scenario

The “hybrid” transit scenarios to serve western Gatineau (tram on one of the two transit corridors and rapid bus on the other) would reduce the number of STO buses in downtown Ottawa by approximately 30 per cent to 45 per cent compared to the current conditions. In addition to the buses identified in the all-tram scenario, some buses coming from Gatineau’s west end on the BRT corridor would cross into Ottawa. The number of STO buses operating in Ottawa would be higher than in the all-tram scenario, but still lower than the number of buses currently operating.

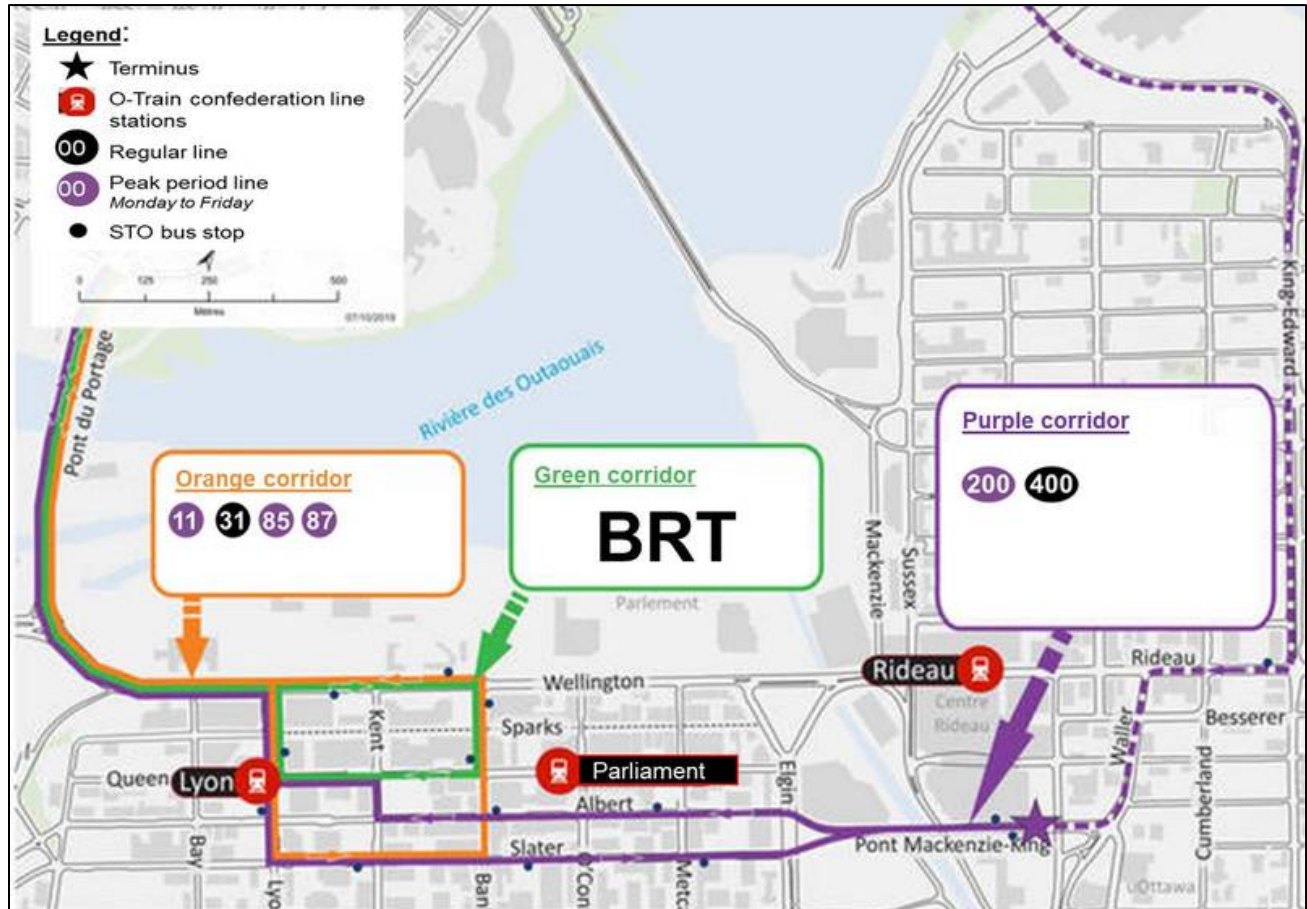


Figure 6: STO bus routes with the “hybrid” transit scenarios

Traffic Assessment

Traffic models for roadway segments and at several key intersections have been developed to compare each corridor option against the “do nothing” base future conditions. The assessment looks at the anticipated change in traffic flows and operations throughout downtown Ottawa. This modeling work is being undertaken both at a ‘macro level’ to identify the forecasted traffic volumes and how they would be redistributed across the network and at a ‘micro level’ at key intersections to assess the impacts from a traffic operations perspective.

It is anticipated that there will continue to be a high traffic demand in the future in the downtown core – particularly along Booth Street, the Sir John A. MacDonald Parkway, the Portage Bridge, and Wellington, Queen, Albert and Slater Streets. Regardless of which corridor is selected, traffic modelling suggests that the addition of a higher order public transit system (like the tram) connecting Gatineau to Ottawa would reduce the total vehicular demand during peak periods by approximately 15-20 per cent. This change is due mostly to a modal shift to transit.

The option that closes Wellington Street to vehicles east of Bank Street would have the greatest impact on the other streets in downtown Ottawa due to the traffic redistribution. The redistribution would most likely be primarily to Bank, Queen, Albert and Slater Streets, with a greater impact to Queen Street due to the capacity limitations of this street and the high transit vehicles usage especially during LRT service replacement periods. Traffic demand on Laurier Avenue would also increase.

The closure of Wellington Street (Bank Street to Elgin Street) would also see a regional redistribution of traffic with an increase in the use of the Albert/Slater corridor to access the downtown or cross the city instead of the Sir John A. MacDonald-Wellington route alone. The use of Albert Street west of Bronson for trips destined to downtown destinations would significantly impact the operations and capacity of the Albert/Booth intersection. In addition, for trips destined further east, a shift from the Portage Bridge to the Alexandra and MacDonald-Cartier bridges would be expected with significant impact to the Rideau/Sussex intersection.

The option to construct the tramway on Wellington Street (with through traffic maintained) would also have impacts on the traffic operations of downtown streets, but relatively less as compared to the Wellington without traffic option. The capacity on Wellington Street has been assumed to be reduced already for the construction of the proposed cycling facility on the north side of Wellington Street. There will be some additional local redistribution of traffic to Queen Street and some of the north/south corridors due to new turning restrictions that will be required as well as additional capacity deficiencies at key intersections along the tram corridor.

The tunnel option has the tramway below grade. This option would have a similar benefit of attracting more users to transit while reducing the overall vehicular demand and would not result in any new traffic impacts in the downtown core. In addition, there would be less disruption to traffic and transit operations during construction when compared to either of the Wellington options.

The traffic analysis is continuing for all scenarios to confirm the potential implications of the significant geometry changes required to accommodate the tramway as well as identifying required mitigation strategies at key locations. The intersections of Portage/Wellington (for all options) and Wellington/Lyon (for the two Wellington options), in particular will have capacity deficiencies and will be complicated to manage due to signal phasing sequences and dedicated signal phases required to accommodate each of the modes (tram, buses, other vehicles, cycling and high pedestrian volumes).

Major Issues to be Resolved

The following issues need to be fully addressed before City staff can formulate a recommendation about a preferred corridor option (Wellington vs. Sparks) and the STO transit scenario (all tram vs. hybrid) for Council's consideration and approval. The recommendations will be the subject of a subsequent report on this project. While the STO's study timeline targets November 2020 for an Ottawa City Council decision regarding the integration into Ottawa, the timing will ultimately depend on how soon and to what extent the issues below can be resolved.

1. Parliamentary and Judicial Precincts Access

- As noted above, the feasibility of the Wellington option hinges on whether many of the accesses can be closed and consolidated. PSPC is assessing this proposal as part of their long-term planning.

2. Traffic Impact on Ottawa Streets

- Council would need to know the full traffic impact of the Wellington option before considering trade-offs. Mitigation options/strategies will need to be developed.

3. Cycling

- Cycling must be accommodated on Wellington and the STO proposal needs to be refined. For the option on Wellington with traffic, due to the narrow right-of-way, none of the proposed sub-options are ideal and/or supported for safety reasons.

4. Property Requirements

- The PSPC needs to confirm whether additional property on the north side of Wellington can be provided for this project. They are currently reviewing the request.
- For the Wellington option, given the anticipated high volumes of transit passengers boarding and disembarking at stations and the need for them to cross two-way tram traffic and two-way general traffic, confirmation of adequate space for congregating while waiting for the crossing signal is required.

5. All-Tram vs Hybrid

- Regardless of the corridor choices in Ottawa, the decision on whether the transit facilities on the Gatineau side are all-tram or hybrid (tram and buses) will have an on-going impact with respect to the number of STO buses operating on City streets.

6. Costs

- The capital costs for the corridor options are currently being developed. It is not expected that the City of Ottawa will be contributing funding to this project, nor for the life-cycle management of the built asset. Full funding to implement this project has not been confirmed and STO expects that the federal and provincial governments will cover all capital costs. Asset management costs have yet to be determined.

RURAL IMPLICATIONS

There are no rural implications associated with this report.

CONSULTATION

While there have been several public consultation events in Gatineau over the years, the focus had primarily been on the corridors in Gatineau. As more analysis was undertaken on the connection to Ottawa, the STO provided a Technical Briefing to City of Ottawa councillors on May 15, 2020 to introduce the project and outline the key findings to date including the crossing at Portage Bridge and the short-listed Wellington and Sparks Street corridors. For a period of four weeks between June 22 and July 19, 2020, the STO offered on-line consultation to the general public which included details of the work completed to date and a survey (www.sto.ca).

A summary report detailing the results of the online survey as well as additional e-mail correspondences with the study team received outside of the survey can be found in Document 3. The key findings are summarized as follows:

- 1,503 people responded to the STO survey (570 from Ottawa, 896 from Gatineau, 37 from other municipalities).
- Responses from Ottawa and Gatineau are generally similar.
- A strong majority of respondents felt that the transit system must adequately serve both downtown Ottawa (87 per cent) and downtown Gatineau (86 per cent), as well it must connect with the O-Train system (84 per cent).

- A strong majority want an integrated transit solution that is reliable and resilient - this was expressed as the most important criterion (97 per cent).
- The second most important criterion for Ottawa/Ontario respondents is that the project provides a safe and comfortable environment for pedestrians; for Gatineau/Quebec respondents, quality of transit service ranked second most important criterion, slightly higher than safe and comfort environment for pedestrians.
- Access for motor vehicles is deemed very important or somewhat important by 36% of Ottawa/Ontario respondents, and by 42% of Gatineau/Quebec respondents
- When first, second and third choices were considered collectively, a very strong majority in Ottawa/Ontario identified the Sparks Street tunnel as the preferable option, Wellington without traffic is marginally higher in preference than Wellington with traffic; a similar preference pattern is reflected in the Gatineau/Quebec responses, although Wellington with and without traffic were ranked equally behind the Sparks Street tunnel option.
- Most Ottawa respondents want fewer STO buses in the downtown but also recognize that some buses are needed to mitigate the number of transfers
- Nearly half (48 per cent) of Ottawa/Ontario respondents do not agree that a tramway on Wellington is compatible with preserving the image and heritage value of the Nation's Capital and Parliament Hill.

The survey also had a section for respondents to provide additional feedback and are included in Document 3. Some of the main comments pertain to:

- Alternative river crossing options and combinations (Prince of Wales Bridge, Chaudiere Bridge, Alexandra Bridge, options further east).
- Alternative transfer station options (Tunney's Pasture, Bayview Station, Pimisi Station, Byward Market, Rideau Centre etc.).
- Alternative corridor options – surface and underground (Albert, Slater, Queen etc.), transit loop, other corridors and connections beyond study area.
- Need for integrated system, interline services, common payment system.
- Service connections to other federal buildings that are not downtown.

- Reiteration of pros and cons, and support for Sparks tunnel (strong support) or Wellington surface options.
- Vehicular traffic on Wellington, reducing vehicular access has economic consequences.
- Need to reduce the number of buses on street.
- Building for the long term, ensure that system capacity can expand in the future.
- Short term inconveniences and costs should not matter.
- Need for the project should be reviewed (pandemic affecting commuting patterns, impact of technology advances and changes to workplaces).
- Financial burden, and responsibilities.
- Trams need to be designed for Canadian climate.
- Design for safety of users of the system.
- Cycling infrastructure requirements, streetcar/tram tracks are hazardous for bikes.
- General growth planning issues: encouragement of sprawl, intensification of Gatineau downtown is needed, travel demand management, the Greber Plan for Ottawa.

COMMENTS BY THE WARD COUNCILLOR(S)

Councillor McKenney

I am pleased to have the Gatineau Tram extend to connect with the City of Ottawa's Light Rail. I do not support the option of running it along Wellington Street. Sparks Street is the better option of the two being considered, however, a transfer at Bayview Station would be optimal.

I have concerns with the public consultation process which consisted of an online questionnaire. It counted on residents seeing social media and news media about the consultation and taking the time, in late June and early July, to participate. A total of 1,503 people completed the online questionnaire, primarily from Gatineau (60%). In Ottawa only 571 people completed the questionnaire. A proper consultation is required.

Respondents from both provinces inquired about using Prince of Wales Bridge instead of building new facilities. That's an option that should be further considered. It would be much more efficient for both systems to increase O-Train capacity than to build a second set of infrastructure through the same area.

Councillor Fleury

The desire of Ottawa residents is for transit options to be improved, in addition to reducing the number of buses on Ottawa streets.

STO's rationale for these plans focussed on the needs of Gatineau residents that are currently commuting to work at downtown federal government offices. More specifically, Gatineau residents coming from the Aylmer area. The STO fails to consider full integration of their network with these proposed plans. Therefore, unless complimentary options are initiated, STO buses coming from the East of the city of Gatineau remain key concerns to the City of Ottawa as they impact livability in our Downtown core.

Additionally, this study does not address how OC Transpo operations will be impacted by these changes. It is difficult for myself, as a representative of Ottawa residents, to defend community and City interests without information about transit impacts to OC Transpo. How will OC Transpo buses operate in Gatineau in all of these scenarios?

The statistics presented in the STO report do not factor in COVID-19 impacts. Recent trends have shown that downtown employment nodes are changing, yet these statistics still account for increase in traffic to downtown employment nodes. Many departments, such as DND and RCMP, are moving a large number of their employees outside the downtown core. These statistics need to be revisited and revaluated to reflect current trends and circumstances.

Figure 3 on page 11 of the report, demonstrates the need to engage meaningfully before considering permanent use of STO space on City of Ottawa Right of Way directly in front of the Parliament buildings. Other options exist that can offer increased connections for all modes of transit.

We should be increasing multi-station integration between the STO and OC Transpo as interim options. This would mean creating STO or OC Transpo connections to Lees station via King Edward in order to increase access to East-End Gatineau riders to East-End employment areas (and for East-End residents in Ottawa to connect quickly from the LRT to the Rapibus transit connections).

For the various scenarios being contemplated, I believe that underground options are desirable as they are less visible and offer opportunities to improve surface beautification. The integration must be fully completed, including for riders of the STO coming from the Rapibus and not simply those coming from the Western section of Gatineau.

The current options may result in various implications with developments and City of Ottawa infrastructure. With this in mind, we should consider an integration of the Trillium LRT into Gatineau via Prince of Whales Bridge as a first and, yes, complimentary step (to increase multi-station integration). The obvious option is to consider northern connection via the Prince of Whales Bridge. The City of Ottawa already owns land on the Gatineau side of the Ottawa River which would accelerate this connection. This is identified as a possible secondary option on the study and in my mind should be connected as a priority ahead of the Tram efforts. Doing so would:

- Streamline integration of O-Train LRT phase 2 investments to Rapibus station (Bayview LRT connections, Future Airport Link).
- Increase connections to Federal employment nodes in Gatineau for Ottawa residents (Chaudière et Du Portage areas).
- Increase connections for Gatineau residents to Ottawa Airport.
- Removal of buses in Ottawa and Gatineau downtown streets, while improving the transit experience.

Concerning land ownership & land rights on the Ottawa side of the proposal, I am unclear with the STO Tram options. Would the City of Ottawa:

- Approve ROW changes in Ottawa segment?
- Retain ownership of STO station lands?
- Transfer ownership of land in Ottawa, to City of Gatineau?

In order to meaningfully engage in connecting transit needs in the region, we need to establish an elected official governance table, to address considerations (about the LRT, bus, and tram of both OC Transpo and STO). This would help accomplish the following:

- Resolve issues with using Portage Bridge (as the sole option).

- Advance issues relating to important bus service between Ottawa and Gatineau via Portage Bridge (today-connecting to Lyon LRT station).
- Advance challenges with use of Ottawa streets by STO (buses) and of OC Transpo buses (in Gatineau).
- Negotiate approach with proposed use of Ottawa Streets by proposed STO Tram (Wellington or Sparks).
- Coordinate efforts and approach around transit efforts for: growth, shifting employment nodes, and ridership.

Finally, in addition to the above considerations, a wider consultation needs to be undertaken. The consultation numbers presented in this study included only 1,503 participants – only 571 of which were residents of Ottawa. As a City, if we are to take this project seriously, we need to engage meaningfully with residents of Ottawa on these important transit considerations.

ADVISORY COMMITTEE(S) COMMENTS

The public consultation information was provided to the Accessibility Advisory Committee. Staff will consult with the Accessibility Advisory Committee prior to the staff recommendations going to TRC.

LEGAL IMPLICATIONS

There are no legal impediments to receiving this interim report for information.

RISK MANAGEMENT IMPLICATIONS

At the conclusion of the technical analysis, the STO will be seeking Council's endorsement of a preferred corridor in Ottawa – along with support from the NCC's Board of Directors, and Gatineau City Council. Therefore, it is imperative that all critical issues are resolved before that decision is made. The current study timelines indicate that an Ottawa City Council decision regarding the integration into Ottawa is needed by November 2020.

ASSET MANAGEMENT IMPLICATIONS

The STO tramway project has many asset management implications for the City.

Asset Management and Lifecycle Renewal

While the STO is still developing the project cost, it is not expected that the City of Ottawa will be contributing funding to this project, nor for the life-cycle management of the built asset.

An evaluation is required on how the project impacts the lifecycle of the City's adjacent assets, such as surrounding pavement and protection of buried infrastructure, such as sewers and watermains. Any impact on the City's assets or relocation of utilities must be identified and funded by this tramway project, regardless of option selected.

Capital Coordination

There are a number of planned capital projects in the vicinity of the proposed options – projects that are led by various parties, including the City, Federal Government and private development. The implementation of this additional project will need to be coordinated with all the other projects from a traffic management perspective, construction site access and order of implementation. Construction of the Wellington tramway option will need to be coordinated with the planned lifecycle renewal work in that corridor. Planning ahead and coordination are both critical to ensure the City's renewal work needs are addressed and potential conflicts are mitigated, including avoiding and/or minimizing any throw away costs.

Standards

The City's infrastructure design and construction guidelines and standards need to be followed to meet the quality and life cycle requirements of its assets. Inability to follow City guidelines and standards will need to be documented and reported to the City – and such requests are reviewed and require approval before the design can be completed.

Operations and Maintenance

The proposed configurations do not provide any space for snow storage, which will complicate and increase costs for snow removal (as all snow would have to be removed for every snow event and would require specialized equipment). Regardless of option selected, the City will need access to maintain operations and maintenance access to its infrastructure, both during and post-construction. The Proponent (STO) will also need access for regular infrastructure maintenance and repairs.

FINANCIAL IMPLICATIONS

There are no financial implications associated to receiving this report for information.

ACCESSIBILITY IMPACTS

The design phase of this project will meet all AODA and City standards with respect to accessibility.

ENVIRONMENTAL IMPLICATIONS

The tramway is proposed to be electric, which would align with the City's aggressive Energy Evolution Strategy to combat climate change. The STO's hybrid solution includes STO buses operating on City streets (resulting in a reduction of 30 per cent of the number of buses today). If an all-tram solution is proposed, the number of buses could be reduced by 70 per cent. Currently these buses are diesel fueled, although STO has a long-term plan to convert its bus fleet to electric by 2025, depending on funding availability.

TERM OF COUNCIL PRIORITIES

Having an enhanced transit system connecting Gatineau to Ottawa would align with the following 2018-2022 Term of Council Strategic Priorities:

Economic Growth & Diversification: Encourage economic growth and diversification by supporting business investment and expansion, talent attraction and retention, and branding Ottawa as a place to be.

Integrated Transportation: Enable effective mobility through a sustainable, accessible and connected city transportation system.

Environmental Stewardship: Grow and protect a healthy, beautiful and vibrant city that can adapt to change.

Sustainable Infrastructure: Ensure sustainable infrastructure investment to meet the future growth and service needs of the city.

SUPPORTING DOCUMENTATION

Document 1 – Corridor Descriptions

Document 2 – Summary of Potential Crossings

Document 3 – Consultation Summary Report

Document 4 – Consultation Email Correspondence

Document 5 – STO's Technical Briefing to the City of Ottawa, May 15, 2020

DISPOSITION

The affected departments - Planning, Infrastructure and Economic Development, and Transportation Services - will take appropriate action based on the recommendations made by Transportation Committee and Council.