

**1. STO Transit Study for Gatineau's West End: Integration with Ottawa - Recommendations**

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

**Committee Recommendations, as amended**

**That Council:**

- 1. Endorse the all-tram option for the proposed Société de transport de l'Outaouais (STO) tramway in Gatineau;**
- 2. Approve the Sparks Street tunnel option as the optimal corridor for the STO tramway in Ottawa, subject to STO securing the project funding for its implementation; and**
- 3. Approve the Wellington Street (with traffic) street-level option as an alternative corridor for the STO tramway in Ottawa, should funding for the Sparks Street tunnel not materialize, with the following conditions:**
  - a. That the STO complete a fulsome assessment of the required cross-sectional elements of the corridor and secure sufficient right-of-way from the federal government to ensure the safety of all users with adequate space for signage and traffic control infrastructure;**
  - b. That the STO complete a detailed plan which addresses other operational requirements in the corridor, such as accesses to the Parliamentary and Judicial Precincts, tour bus operations and snow removal;**
  - c. That the STO complete a fulsome network traffic analysis and develop a detailed mitigation plan to address the downstream impacts on Ottawa's downtown streets to the satisfaction of the City's Transportation Services Department;**

- d. That the STO develop a mitigation plan for its tramway service when Wellington Street is closed due to external factors such as demonstrations or special events;
  - e. That the STO develop an implementation plan that is coordinated with other projects in the downtown area to minimize traffic disruptions during construction; and,
4. Approve that should the tramway operate on Wellington Street, that the branding and livery of the tramway vehicles reflect the colours and symbolism of our country and that City staff work with the STO on this proposed branding and livery, and that it be presented to the City of Ottawa's Transportation Committee and federal partners for input prior to its procurement and implementation
5. Approve that Mayor Watson write to the Prime Minister, the Minister of Finance, and the Minister of Infrastructure and Communities to request that the federal government prioritize investments in transformative and sustainable transit projects like Stage 3 LRT to Kanata-Stittsville and Barrhaven and the STO Tramway over a sixth bridge; and,
6. Approve that STO be mandated to meaningfully consult, as part of the next phase of this project, with the Ceremonial Guard, the Department of National Defence and Veterans Affairs Canada on the location of the terminus station at Elgin and Queen streets, as well as the preservation and coordination of the Changing of the Guard and its use of the Ceremonial Guard's traditional route along Elgin and Wellington streets; and
7. Direct staff to include a study funded 100% by the Federal Government for the feasibility of a transit Loop and conversion of Wellington Street to a pedestrian mall in the update to the city of Ottawa TMP currently under review; and
- a) That the study confirm that if either project is determined to be feasible and approved by City of Ottawa Council, that the cost

of any further studies, including, design, construction operations and maintenance and potential upload of Wellington Street to the Federal Government be borne by the Federal Government; and

8. Reaffirm to STO the importance of STO investments including seamless connection to the City of Ottawa's LRT investments; and
9. Encourage STO and the Federal government to review and include a Loop option facilitating transit connections between the City of Ottawa and the City of Gatineau's respective downtowns; and
10. Approve that, should the federal government/NCC pursue a detailed study of the interprovincial transit loop vision, that the City of Ottawa (including OC Transpo) participate in that study, along with the City of Gatineau and the STO; and
11. Reiterate its current transit priorities to the Federal government and that any federal funding for the STO tramway does not limit or impact federal funding for the City of Ottawa's transit priorities such as Stage 3 LRT.

**Recommandations du comité, telles que modifiées**

**Que le Conseil :**

1. appuie le scénario tout tramway pour le projet de tramway de la Société de transport de l'Outaouais (STO) à Gatineau;
2. approuve l'option du tunnel de la rue Sparks comme solution optimale pour le couloir du tramway de la STO à Ottawa, sous réserve que celle-ci obtienne du financement pour la mise en œuvre du projet;
3. approuve l'option en surface sur la rue Wellington (avec circulation) comme solution de rechange pour le couloir du tramway de la STO à Ottawa si le tunnel de la rue Sparks ne peut

être financé, aux conditions suivantes :

- a) que la STO fasse une évaluation complète des éléments transversaux requis pour le couloir et obtienne du gouvernement fédéral une emprise assez grande pour y installer la signalisation et les infrastructures de gestion de la circulation nécessaires à la sécurité de tous les usagers de la route;
- b) que la STO dresse un plan détaillé qui permette de répondre aux autres exigences opérationnelles du couloir, comme l'accès aux Cités parlementaire et judiciaire, aux activités d'exploitation des autocars et aux opérations de déneigement;
- c) que la STO effectue une analyse complète de la circulation sur le réseau et élabore un plan détaillé d'atténuation des répercussions en aval du projet sur les rues du centre-ville d'Ottawa, à la satisfaction de la Direction générale des transports de la Ville;
- e) que la STO coordonne son plan de mise en œuvre avec les autres projets au centre-ville afin de réduire au minimum les perturbations de la circulation pendant les travaux.

4. approuve dans l'éventualité où le tramway circulerait sur la rue Wellington, l'image de marque et la livrée des véhicules reflètent les couleurs et les symboles du pays et que le personnel de la Ville travaille avec la STO sur l'image de marque et la livrée, et que celles-ci soient présentées au Comité des transports de la Ville d'Ottawa et aux partenaires fédéraux avant les étapes de l'approvisionnement et de la mise en œuvre.

5. approuve que le maire Jim Watson écrive au premier ministre, à la ministre des Finances et à la ministre de l'Infrastructure et des Collectivités pour demander que le gouvernement fédéral investisse en priorité dans des projets de transport en commun

transformateurs et durables, comme l'Étape 3 du projet de train léger à Kanata-Stittsville et Barrhaven et le tramway de la STO, plutôt que dans un sixième pont.

6. approuve qu'on demande à la STO de consulter de près, durant la prochaine phase du projet, la Garde de cérémonie, le ministère de la Défense nationale et Anciens Combattants Canada au sujet de l'emplacement du terminus à l'angle des rues Elgin et Queen, du maintien et de la coordination de la Relève de la garde ainsi que de l'utilisation du parcours traditionnel de la Garde de cérémonie, qui passe par les rues Elgin et Wellington.
7. demande au personnel d'ajouter une étude, financée en totalité par le gouvernement fédéral, sur la faisabilité d'une boucle de transport en commun et de la conversion de la rue Wellington en rue piétonne à la nouvelle version du Plan directeur des transports de la Ville d'Ottawa, en cours d'examen; et

  - a) si l'un ou l'autre des projets est jugé réalisable au terme de l'étude et est approuvé par le Conseil de la Ville d'Ottawa, le gouvernement fédéral assume le coût de toute autre étude, y compris sur la conception, les opérations de construction et l'entretien, ainsi que la cession potentielle de la rue Wellington au gouvernement fédéral; et
8. rappelle à la STO que les investissements de cette dernière sont importants, notamment leur adéquation aux investissements dans le train léger de la Ville d'Ottawa; et
9. encourage la STO et le gouvernement fédéral à étudier et à inclure une option de boucle pour faciliter les déplacements en transport en commun entre les centres-villes respectifs d'Ottawa et de Gatineau; et
10. approuve que si le gouvernement fédéral ou la Commission de la capitale nationale décident de mener une étude exhaustive sur la vision de boucle, la Ville d'Ottawa (et OC Transpo) y participe, de

même que la Ville de Gatineau et la STO; et

- 11. réitère au gouvernement fédéral ses priorités actuelles en matière de transport en commun, et que le financement fédéral octroyé pour le projet de tramway de la STO n'ait aucune incidence sur le financement fédéral de ces priorités, notamment l'Étape 3 du train léger.**

For the Information of Council:

The committee approved the following Direction to staff:

1. Direct staff to report back to Transportation Committee once STO has completed additional work identified as conditions for approval in the staff report. This would include the status and/or outcome of project funding discussions, property requests, and key components of future phases of the project such as detailed traffic analysis and design details.
2. Direct staff to ensure that the review of the STO's next stage of analyses and design for the tramway, allow for a potential future interprovincial transit loop and/or potential conversion of Wellington Street into a pedestrian mall.

Pour la gouverne du Conseil

Le comité a également approuvé la directive au personnel ce que suit:

1. Demander au personnel de présenter un rapport au Comité des transports une fois que la STO aura terminé le travail supplémentaire ayant été défini comme conditions d'approbation dans le rapport du personnel. Cela comprend l'état ou l'issue des discussions sur le financement du projet, les demandes concernant les propriétés et les principales composantes des prochaines phases du projet, comme l'analyse détaillée de la circulation et les détails conceptuels.

2. Demander au personnel de s'assurer que l'examen de la prochaine phase d'analyses et de conception relative au tramway de STO permettra l'aménagement éventuel d'un circuit de transport en commun interprovincial ou la conversion de la rue Wellington en rue piétonne.

**DOCUMENTATION**

1. Director's report, Transportation Services, dated November 6, 2020 (ACS2020-TSD-PLN-0007)  
  
Rapport du directeur, Services des transports, daté le 6 novembre 2020 (ACS2020-TSD-PLN-0007)
2. Extract of Draft Minutes, Transportation Committee, November 16, 2020.  
  
Extrait de l'ébauche du procès-verbal, Comité des transports, le 16 novembre 2020

**Transportation Committee  
Report 13  
November 25, 2020**

**8**

**Comité des transports  
Rapport 13  
Le 25 novembre 2020**

**Report to  
Rapport au:**

**Transportation Committee  
Comité des transports  
16 November 2020 / 16 novembre 2020**

**and Council  
et au Conseil  
25 November 2020 / 16 novembre 2020**

**Submitted on November 6, 2020  
Soumis le 6 novembre 2020**

**Submitted by  
Soumis par:  
John Manconi, General Manager / Directeur général, Transportation Services  
Department / Direction générale des transports**

**Contact Person  
Personne ressource:  
Vivi Chi, Director / Directeur, Transportation Planning / Planification des  
transports, Transportation Services Department / Direction générale des  
transports  
(613) 580-2424, 21877, Vivi.Chi@ottawa.ca**

**Ward: CITY WIDE / À L'ÉCHELLE DE LA VILLE      File Number: ACS2020-TSD-PLN-0007**

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

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



## **REPORT RECOMMENDATIONS**

**That Transportation Committee recommend that Council:**

- 1. Endorse the all-tram option for the proposed Société de transport de l'Outaouais (STO) tramway in Gatineau;**
- 2. Approve the Sparks Street tunnel option as the optimal corridor for the STO tramway in Ottawa, subject to STO securing the project funding for its implementation; and**
- 3. Approve the Wellington Street (with traffic) street-level option as an alternative corridor for the STO tramway in Ottawa, should funding for the Sparks Street tunnel not materialize, with the following conditions:**
  - a. That the STO complete a fulsome assessment of the required cross-sectional elements of the corridor and secure sufficient right-of-way from the federal government to ensure the safety of all users with adequate space for signage and traffic control infrastructure;**
  - b. That the STO complete a detailed plan which addresses other operational requirements in the corridor, such as accesses to the Parliamentary and Judicial Precincts, tour bus operations and snow removal;**
  - c. That the STO complete a fulsome network traffic analysis and develop a detailed mitigation plan to address the downstream impacts on Ottawa's downtown streets to the satisfaction of the City's Transportation Services Department;**
  - d. That the STO develop a mitigation plan for its tramway service when Wellington Street is closed due to external factors such as demonstrations or special events; and,**
  - e. That the STO develop an implementation plan that is coordinated with other projects in the downtown area to minimize traffic disruptions during construction.**

## **RECOMMANDATIONS DU RAPPORT**

**Que le Comité des transports recommande au Conseil :**

- 1. d'appuyer le scénario tout tramway pour le projet de tramway de la Société de transport de l'Outaouais (STO) à Gatineau;**
- 2. d'approuver l'option du tunnel de la rue Sparks comme solution optimale pour le couloir du tramway de la STO à Ottawa, sous réserve que celle-ci obtienne du financement pour la mise en œuvre du projet;**
- 3. d'approuver l'option en surface sur la rue Wellington (avec circulation) comme solution de rechange pour le couloir du tramway de la STO à Ottawa si le tunnel de la rue Sparks ne peut être financé, aux conditions suivantes :**
  - a) que la STO fasse une évaluation complète des éléments transversaux requis pour le couloir et obtienne du gouvernement fédéral une emprise assez grande pour y installer la signalisation et les infrastructures de gestion de la circulation nécessaires à la sécurité de tous les usagers de la route;**
  - b) que la STO dresse un plan détaillé qui permette de répondre aux autres exigences opérationnelles du couloir, comme l'accès aux Cités parlementaire et judiciaire, aux activités d'exploitation des autocars et aux opérations de déneigement;**
  - c) que la STO effectue une analyse complète de la circulation sur le réseau et élabore un plan détaillé d'atténuation des répercussions en aval du projet sur les rues du centre-ville d'Ottawa, à la satisfaction de la Direction générale des transports de la Ville;**
  - d) que la STO prépare un plan d'atténuation pour son service de tramway dans l'éventualité d'une fermeture de la rue Wellington en raison de facteurs externes, comme une manifestation ou un événement spécial; et**

- e) **que la STO coordonne son plan de mise en œuvre avec les autres projets au centre-ville afin de réduire au minimum les perturbations de la circulation pendant les travaux.**

## **EXECUTIVE SUMMARY**

This is a follow-up report to the interim report to Transportation Committee and Council in September 2020 ([ACS2020-TSD-PLN-0005](#)). The Société de transport de l'Outaouais (STO) study team requires a decision from Ottawa City Council on the integration corridor in Ottawa by November 2020 to adhere to the study schedule, which is tied to the study funding from the Province of Quebec and the federal government.

### **Assumptions and Analysis**

There are currently more than 200,000 interprovincial crossings daily between Ottawa and Gatineau; approximately 48,000 on public transit (pre-COVID-19 figures). At the Portage Bridge alone, there are about 3,500 transit customers crossing per hour during peak hours. This demand is expected to increase to between approximately 7,000 and 7,500 crossings per hour over the next 15 years. It is projected that by 2031, the current 115 STO buses per peak hour would increase to 170 buses per peak hour on our downtown streets. The road system is currently operating at capacity. The road capacity and the current configuration of transit services are not sufficient to meet the needs of the growing population, forecasted to increase by 33 per cent for Gatineau's west end and 26 per cent for all of Gatineau by 2051.

The STO is proposing an electric tramway solution to sustainably address the growing travel demand and improve the interprovincial transit service between the downtowns of the two cities. Without the tramway, the volume of STO buses operating on Ottawa streets will increase, increasing congestion and travel time for transit customers, making the overall interprovincial transit network less efficient, increasing the intrusion of bus operation on downtown streets, and negatively affecting the City's GHG emission reduction targets.

The STO study identified that the all-tram scenario in Gatineau would have the greatest impact in reducing the number of STO buses crossing into Ottawa – by 70 per cent of the existing bus volumes (from 115 buses per peak hour to 35 buses per peak hour).

This is the most beneficial option for the City of Ottawa and endorsement of this option is recommended.

The STO study also identified two feasible corridors for the tramway in Ottawa after it crosses the Ottawa River using the Portage Bridge:

- Wellington Street surface option (two sub-options: with traffic maintained; or, without traffic east of Bank Street to Elgin Street); and
- Sparks Street tunnel option.

The Wellington Street option has the tramway operating in its own lanes and includes three surface stations at Lyon, Bank and Elgin streets, which are a few minutes' walk to connect to the City's O-Train Line 1 and OC Transpo bus routes. A convenient and direct connection to Lyon Station is provided via a pedestrian tunnel from the Lyon tramway station. The cost of this option, assuming the all-tram corridors in Gatineau, is less expensive than the Sparks Street tunnel, at \$3.032 billion. However, this option has some unresolved issues that require the approval of two federal agencies (Public Services and Procurement Canada (PSPC) and the National Capital Commission (NCC)). These are: a request to consolidate the accesses onto the Parliamentary and Judicial Precincts; and a request for additional right-of-way on the north-side of Wellington Street. The federal agencies do not view these as "no-go" issues, although they are not yet resolved. The high-level traffic analysis shows that the tramway will reduce overall auto traffic volumes downtown, even though there are some intersections that will be affected by its introduction. A more fulsome traffic impact study is required at the next (more detailed) stage of the project. Recently, PSPC has commented that the Wellington Street option, without traffic between Bank and Elgin streets, could provide added security as compared to today's conditions with traffic in the Parliamentary Precinct.

The Sparks Street tunnel option includes two underground stations at Lyon and O'Connor streets. This option provides convenient connections to both tramway and the City's O-Train, with underground connections proposed to the OC Transpo Lyon and Parliament stations. The major advantage of the tunnel is that it has much less disruption or interference with surface street operations and could be a catalyst for the implementation of the Sparks Street Public Realm Plan. When compared to the Wellington Street option, the key disadvantage of the tunnel option is its cost, between

\$3.532 billion and \$3.899 billion (assuming the all-tram scenario in Gatineau). Underground construction also brings additional complexity and risks, which are reflected in the project estimate. These challenges may include avoiding or relocating utilities, working around the foundations of privately-owned and federal heritage properties, as well as geotechnical challenges that may be encountered when tunneling underneath a downtown core. PSPC noted that the Sparks Street tunnel option may have an element of security risk, depending on the exact location, design and access points of the underground station near O'Connor Street. The same proximity issues apply to surface station locations on Wellington Street.

While the Sparks Street tunnel option is optimal, the high cost of the project cannot be overlooked. To date, the STO does not have federal confirmation of funding for the project and discussions are continuing. The Wellington Street option has the potential to become a sound tramway project, but additional work and time are needed to resolve the technical issues with PSPC and the NCC. Therefore, it is recommended that both Wellington Street and Sparks Street tunnel options be approved by Ottawa City Council (with conditions) to provide the STO with flexibility to continue to the next stage of the project with more detailed analysis and funding discussions.

### **Financial Implications**

It is not expected that the City of Ottawa will provide any financial contribution to this tramway project. The STO is seeking funding from the federal government and the Quebec government for the implementation of the project.

The high-level capital cost estimates for the project are as follows:

- All-tram in Gatineau and Wellington Street (with traffic) in Ottawa: \$3.032 billion.
- All-tram in Gatineau and Sparks Street tunnel in Ottawa: \$3.532 billion to \$3.899 billion.

### **Public Consultation**

The June-July 2020 on-line consultation included a description of the project, the corridors that were examined and shortlisted, and a survey to solicit public feedback. Results were described in the interim report to Transportation Committee in September 2020 and the highlights are summarized in this report.

## **BACKGROUND**

The STO's electric tramway project aligns well with many of the City's policies in the Official Plan, Transportation Master Plan, the Climate Change Strategy and its Energy Evolution Strategy. As both cities grow, the increase in travel demand must be addressed through sustainable modes, such as transit and active transportation. Over the next 15 years, the number of transit customers travelling across the Portage Bridge to Ottawa, during the peak hour, is expected to increase to between approximately 7,000 and 7,500 (from the current 3,500 crossings per hour). The tramway project will help reduce the number of interprovincial trips by cars and STO buses on Ottawa streets. Specifically, the STO projects that the volume of their buses in Ottawa will be reduced by up to 70 per cent in the peak period, which would significantly improve the overall environment of Ottawa's downtown streets and public spaces.

The STO study has determined that two corridors on the Gatineau side would be required to serve the anticipated growth from the city's west end communities. These two corridors can be served by trams (streetcar type technology, operating in separate lanes from general traffic) or a combination of trams and rapid transit with buses (hybrid solution).

Crossing over to Ottawa from the Portage Bridge, the STO study identified that only one corridor is needed for integration with the City of Ottawa's transit network, and that there are two feasible corridors on which this project can be delivered: Wellington Street option (two sub-options, one with auto traffic maintained along the full length, and one with traffic prohibited east of Bank Street to Elgin Street) and the Sparks Street tunnel option. Both corridors have their pros and cons, including a variation in costs, but both are deemed to be feasible at this conceptual stage of the project.

This is a follow-up to the interim report to Transportation Committee on September 2, 2020 ([ACS2020-TSD-PLN-0005](#)), and Council on September 9, 2020. At that time, the study's technical analyses were continuing on the two Wellington Street surface sub-options and the Sparks Street tunnel option (with a portal in the vicinity east of the Garden of the Provinces) – see Figure 1.

The interim report compared these options and identified several major issues that needed to be addressed before a recommendation could be presented for Committee

and Council consideration. The interim report also included consultation feedback on the STO tramway study and the corridor options in Ottawa.

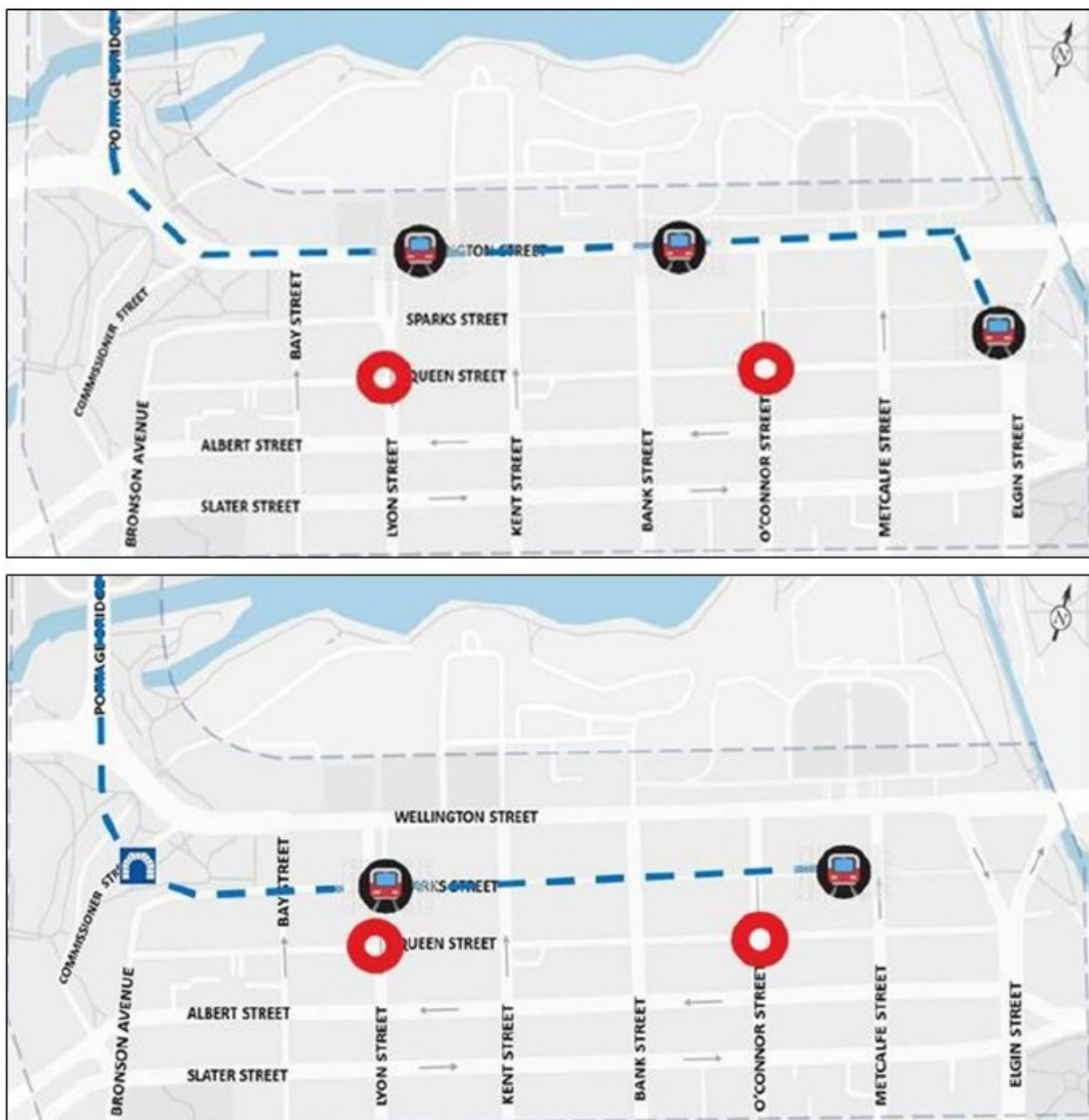


Figure 1: Top: Tramway corridor options on Wellington Street (surface) and Bottom: Sparks Street (tunnel)

At the Transportation Committee meeting, staff were asked to apply two principles to guide the assessment of the study options and the development of the final recommendations:

1. That the Tramway project must align with City of Ottawa objectives, resulting in fewer buses in the core and better transit service; and
2. The Tramway project must integrate with the City's investment in light rail transit.

The Transportation Committee also suggested to the STO that the study team engage with the Ottawa Board of Trade and major employers in Ottawa (or their representatives) to review the study's assumptions regarding forecasted travel demand. This suggestion was provided in context of the COVID-19 pandemic and the changing workplace, with employees now working remotely from home and the potential lasting effect on travel demand to the two downtowns. The STO is aware of this request and has met with Public Services and Procurement Canada (PSPC) on the federal government's plans for office locations.

## **DISCUSSION**

It is important to note that during these fiscally constrained times, cost could have a significant role in determining how and when the tramway project advances beyond this concept study. Without the tramway, the volume of STO buses on Wellington Street during peak periods will increase greatly, to 170 per peak hour in 2031. Regardless of which corridor is ultimately chosen, the tramway will reduce the current number of buses in Ottawa from 115 buses per peak hour to 35 to 70 buses per peak hour, depending on if the all-tram or the hybrid scenario is selected in Gatineau.

Both the Sparks Street tunnel and Wellington Street options improve the interprovincial transit connection for transit customers. The Sparks Street tunnel would bring the tramway corridor closer to the O-Train Line 1. However, the Wellington Street option will also serve transit customers well. With three stations (on the surface) at Lyon, Bank and Elgin, the service will be within a short walking distance of most major downtown destinations. Approximately 70 per cent of the customers that are expected to use the tramway are travelling to or from points that are within Ottawa (either to or from a downtown destination or transferring to or from the OC Transpo system). Approximately 70 per cent of these customers are travelling to or from destinations within walking



distance of the three stations. This very high level of convenience will encourage more customers to use transit instead of their private automobiles, supporting Council's direction to reduce the need for car travel into and through downtown Ottawa.

Approximately 30 per cent of tramway customers traveling to or from Ottawa are expected to transfer to or from the OC Transpo system, connecting either with O-Train Line 1 or with local bus routes downtown. These customers may be Ottawa residents who are travelling to work in Gatineau – approximately 5,000 to 6,000 Ottawa residents every day – or Gatineau residents who are travelling to work, school or other destinations in the parts of Ottawa that are beyond downtown. City staff will work with the STO as the project progresses to ensure that wayfinding between the tramway and Line 1 stations is simple and intuitive. The northwest entrance to Lyon Station is approximately a two-minute walk from the proposed tramway stop on Wellington at Lyon (on the surface or via the proposed pedestrian tunnel), and the east entrance to Parliament Station is approximately a three-minute walk to the proposed tramway stop on Wellington Street at Bank Street. This very high level of integration will support Council's direction to encourage transit use for Ottawa residents, workers, students and visitors.

The remainder of the report describes the status of the high-level issues identified in the September 2020 report to Transportation Committee and Council.

#### 1. Access to Parliamentary and Judicial Precincts

The feasibility of the Wellington Street option hinges on whether the eight accesses (plus one ceremonial access) to the federal properties on the north side of the street can be consolidated. Reducing the number of accesses would mitigate the conflict points with the tramway and help ensure efficient tramway operations. The STO study proposes that four accesses (nos. 2, 3, 4 and 5 in Figure 2) be eliminated and traffic be redistributed to two existing accesses at Bank Street (no. 6) and Kent Street (no. 7). PSPC has indicated that the proposed access restrictions to the Judicial Precinct create security risks that would have to be mitigated. Furthermore, the exact location and design of stations would have to be confirmed by PSPC due to the proximity to key Parliamentary and Judicial functions.



Figure 2: Existing accesses to the Judicial and Parliamentary Precincts on Wellington Street

## 2. Property Requirements on the north side of Wellington Street

The Wellington Street right-of-way (ROW) is restricted throughout the entire corridor and there are many competing needs for the space. Minimum standards are being applied to accommodate the tramway. However, the conceptual cross-sections prepared to date did not provide space in the median to accommodate signage or signal poles, and there is no room for snow storage. Given the high volumes of pedestrian traffic in this corridor, and expected draw with the introduction of the tramway, more than minimum widths should be provided for station platforms and sidewalks in this iconic corridor of Ottawa's downtown.

Even with minimum standards, for the section west of Lyon Street, the existing ROW is approximately 29.5 metres, and at least 34.3 metres are needed to accommodate the tramway. Between Lyon Street and Kent Street, the existing ROW is approximately 30 metres, and at least 32.3 metres or 33.3 metres are needed (depending on traffic restrictions east of Bank Street).

Similar to the access issues noted above, PSPC has stated that they must undertake a long-term plan to confirm if federal land could be made available for the STO project.

### Cycling

Bi-directional cycling lanes along the north side of Wellington Street continue to be protected, but there is a 50-metre segment that is compromised (east of Bank

Street, for the option that includes traffic). Through this constricted segment, only 6 metres are available for cyclists and pedestrians. A shared pedestrian and cycling facility is not recommended by City staff. Given that the City currently allows e-scooters on bike facilities, it would not be prudent to have them mix with pedestrians, especially in an area that has high pedestrian volumes, including visitors who may not be familiar with the surroundings. The bi-directional cycling lanes would need to be at least 3.5 metres wide, leaving only 2.5 metres for a sidewalk on Confederation Boulevard (not taking into account the need for some minimal form of delineator between the two facilities to comply with the *Accessibility for Ontarians with Disabilities Act* (AODA)). The NCC would also have to approve the narrow sidewalk, as the design guidelines for Confederation Boulevard call for a 6-metre-wide pedestrian promenade.

More space can be achieved for cyclists and pedestrians in the option without traffic on Wellington Street from Bank Street to Elgin Street. The removal of travel lanes would have greater ramifications for vehicular traffic on other downtown streets, including Elgin Street, and other surrounding streets and intersections outside the immediate downtown area.

### 3. Traffic Impacts on Ottawa Streets

In comparison to the Sparks Street tunnel option, the Wellington Street surface option (with traffic maintained) has a greater impact on Ottawa streets because, east of Lyon Street, only one lane per direction of traffic can fit within the narrow right-of-way. Dedicated turning lanes will be removed and turning movements will be prohibited, which will shift traffic to other streets. The option that proposes no traffic between Bank Street and Elgin Street will have the greatest impact.

Using industry standard traffic forecasting models, by 2031, a 15 per cent growth in vehicle demand is forecasted. However, Ottawa's downtown streets have already reached capacity during the peak periods. The same traffic forecasting models predict that this forecasted growth will be mitigated with the introduction of the tramway, with an estimated decrease of approximately 20 per cent in the overall peak hour vehicular demand in the downtown core (i.e. improved transit service would attract some motorists away from driving to their destinations on highly congested streets). There will still be an impact on Ottawa streets because of the

geometry changes needed on Wellington Street to accommodate the tramway, in addition to the future planned cycling facility.

While STO's traffic impact analysis does not show a catastrophic impact on vehicular traffic on Ottawa's downtown streets, the project will introduce some hot spots at several intersections. The analysis that was undertaken focused on impacts at each intersection and is appropriate for a feasibility-level review. A more detailed analysis is required at a network level, including analysis of how traffic at consecutive intersections along a corridor interact with each other, to confirm the degree of impact and to determine viable mitigation measures. This would occur at the next stage of work, should the Wellington Street surface option proceed.

High-level conceptual designs developed for the Wellington Street option struggle to provide the absolute minimum right-of-way for all modes of travel. As the cross-sections are developed further, there is significant potential for increased right-of-way requirements and roadway crossings to safely accommodate all modes. The impacts of this additional space will place more pressure on the intersection capacity and result in more congestion and delays.

On the other hand, the Sparks Street tunnel option interacts with Ottawa streets only at the Portage-Wellington intersection. This can be accommodated with a change in signal timing.

#### **Traffic Operational Analysis:**

Overall, the traffic impacts of the Wellington Street options are highly sensitive to the forecasted changes in modal share and redistribution of traffic volumes generated from the long-range traffic forecasting models.

The traffic analysis completed is limited to the assessment (using a micro simulation software named Synchro) of the following intersections in the core area:

- Booth Street / Albert Street;
- Booth Street / Wellington Street / Sir John A. Macdonald Parkway;
- Wellington Street / Portage Bridge;
- Wellington Street / Bay Street;

- Wellington Street / Lyon Street;
- Wellington Street / Kent Street;
- Wellington Street / Bank Street;
- Wellington Street / Elgin Street (west);
- Wellington Street / Elgin Street (east);
- Rideau Street / Mackenzie Avenue;
- Rideau Street / Sussex Drive;
- Mackenzie Avenue / Murray Street;
- Bank Street / Queen Street;
- Lyon Street / Sparks Street;
- Lyon Street / Queen Street;
- Lyon Street / Albert Street;
- Lyon Street / Slater Street; and
- Lyon Street / Laurier Avenue.

The analysis was completed based on long-range projected traffic volumes from the macro traffic models for the National Capital Region, with traffic volumes redistributed based on road network changes resulting from the implementation of the tramway on Wellington Street, in addition to the future planned cycling facility.

The high-level findings from this limited analysis found that the impact of scenarios that required a reduction of vehicle capacity on Wellington Street (reduction of vehicular lanes, or full removal of traffic east of Bank Street) would result in intersection movements operating beyond capacity, as they do today, but with increased congestion and delays. Out of the 18 intersections analyzed for the on-street tramway options, in the scenario where vehicular traffic is allowed to move along the length of Wellington, three of the major westerly intersections of the study experience near or at capacity issues (Portage Bridge and Wellington Street/Sir

John A. Macdonald Parkway (SJAM), Booth Street and SJAM, Booth Street and Albert Street). In comparison, for the scenario where traffic is not allowed east of Bank Street, six of the intersections in the westerly end of the study will experience overcapacity issues (Portage Bridge and Wellington Street/SJAM, Booth Street and SJAM, Booth Street and Albert Street, Lyon Street and Wellington Street, Lyon Street and Albert Street, Lyon Street and Laurier Avenue). This is true with or without mitigating measures, such as traffic redistribution and geometry changes at some intersections.

It is important to note that the analysis was limited to independent assessments of individual intersections, and as such, the relationship between intersections in the network and the resulting queuing has not been evaluated. More detailed analysis of the core area road network as an integrated system is required to determine the actual impacts on the operation of the roadways.

The analysis considered potential mitigation measures for the redistribution of traffic, which would need to be reviewed in much more detail to determine the viability of the proposed changes both from a traffic operations perspective and the land use perspective – in particular, the intersections within LeBreton Flats as they integrate with the developing community. The potential mitigation measures provided for this analysis included new east and west left turn movements of significant volumes at the intersection of Booth Street and the Sir John A. Macdonald Parkway, which is not currently permitted and would lead to higher traffic volumes in the community to the south.

The redistributed traffic volumes, as a result of the loss of lanes on Wellington Street, is sensitive to the ability of other roads to accommodate additional traffic volumes. A more detailed analysis is required (in particular, the crossings at Chaudière Bridge and the Alexandra Bridge) to understand in greater detail the resulting traffic impacts of the new tramway.

#### **4. All-tram versus Hybrid**

The rapid transit options in Gatineau affect the number of STO buses operating in Ottawa's downtown. The all-tram option would see a reduction of approximately 70 per cent of bus volumes when compared to the situation in downtown Ottawa today, versus a reduction of only 30 per cent to 45 per cent for the hybrid options. The all-

tram solution aligns best with the first principle set by the Transportation Committee of fewer buses in the downtown core. STO has confirmed that an all-tram solution can be supported.

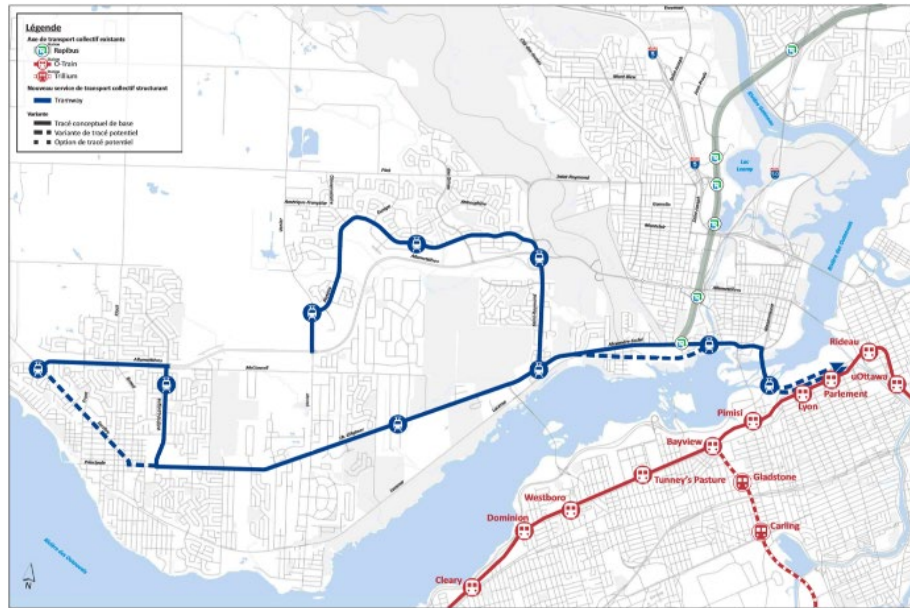


Figure 3: All-tram transit scenario in Gatineau



Figure 4: STO bus routes in Ottawa, with All-tram transit scenario

## **5. Costs**

The STO has determined that the cost for the entire tramway project (all-tram scenario) using Wellington Street (with traffic) is \$3.032 billion,

The Sparks Street tunnel option (all-tram scenario) has a range of between \$3.532 billion and \$3.899 billion. The cost estimate for the tunnel option was based on a comparative analysis using extrapolated information from Ottawa's Confederation Line downtown tunnel and other similar North American metro and LRT projects with at least one tunnel. As the tunnel assessment was only completed at a feasibility level of detail, this method resulted in an order of magnitude of potential costs only, with contingencies. The tunnel option is between 16.5 per cent and 28.6 per cent higher than the surface option (total project cost comparison).

### **Summary**

#### **Sparks Street Tunnel Option:**

The Sparks Street tunnel would have significantly less impact on traffic and can be a catalyst for the rejuvenation of Sparks Street. It would not be affected by the federal government's plans for the Parliamentary and Judicial Precincts and would not interfere with surface streets and how they may evolve in the future. The underground facility would provide a weather-protected environment for stations and transfers, and the tunnel has higher capacity reserves for future increase in service frequency since at-grade intersections and traffic signals are avoided. That said, there will be underground utilities to avoid or to relocate. All subsurface projects have inherent risks which must be fully addressed during detailed design and construction. These risks and their corresponding contingencies are included in the STO's project cost estimates. This option has very strong public support, based on the on-line survey conducted in June-July 2020. However, the greatest drawback of this proposal is its higher cost, which may jeopardize the entire project.

#### **Wellington Street Surface Option (with Traffic):**

The Wellington Street option (with traffic) is deemed feasible and it is comparatively less costly. However, this option still has issues that require federal approvals from PSPC and the NCC. Adding the tramway means that traffic will be restricted to one lane per direction and turning movements will be restricted. At Lyon Street, an additional 4.5-



metre-wide strip of land on the north side of Wellington Street is needed to insert the tramway. Further east along Wellington Street, additional right-of-way would allow for a better design without further compromise to street design standards.

### **Conclusions**

The all-tram option in Gatineau results in the greatest reduction in STO buses in Ottawa. This option aligns with Transportation Committee's first assessment principle to have fewer buses in the core.

The Sparks Street tunnel and the Wellington Street options both address the second assessment principle, which is to integrate with the City's O-Train system. Both options provide benefits for transit customers in terms of convenient transfers. The tunnel option would be physically closer to Lyon and Parliament stations on O-Train Line 1, but it only offers two stations (Lyon and O'Connor), whereas the Wellington Street option has three above-ground stations (Lyon, Bank and Elgin). The Wellington Street option also offers a direct link to the O-Train Line 1 via a pedestrian tunnel connecting to Lyon Station.

Because the STO is still in discussions with the Quebec and federal governments on project funding, and the required additional right-of-way has not yet been secured, at this time it would be prudent for the City to approve both corridors (with conditions) to allow for flexibility so that the project can advance to the next phase. The STO would need to resolve the project funding and property requirements with the federal government, as these are key issues to ultimately defining the tramway corridor in Ottawa.

Without the tramway, the status quo would continue in Ottawa with interprovincial transit congestion increasing in the downtown core, resulting in more buses on Ottawa streets, longer travel times for customers, and higher transit operating costs for both the STO and OC Transpo.

### **RURAL IMPLICATIONS**

This project is in the urban area only.

## **CONSULTATION**

Since the on-line consultation between June 22 and July 19, 2020, and the interim reporting to Transportation Committee on September 2, 2020, no additional public consultation was required. To recap the highlights, the on-line survey results of 1,503 respondents (570 from Ottawa, 896 from Gatineau, 37 from other municipalities) show:

- The responses from both cities 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) and connect to 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 as the second most important criterion, slightly higher than safe and comfortable environment for pedestrians.
- 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.
- Access for motor vehicles is deemed important for 64 per cent of Ottawa respondents, and 79 per cent of Gatineau respondents - responses varied from slightly important to very important.

## **COMMENTS BY THE WARD COUNCILLOR(S)**

Ward 14: The Councillor is aware of the report.

## **ADVISORY COMMITTEE(S) COMMENTS**

The Accessibility Advisory Committee (AAC) were informed of the study's online public engagement. To date, staff have not received feedback. The AAC were sent this report for information.

## **LEGAL IMPLICATIONS**

There are no legal impediments to approving the recommendations as outlined in this report.

## **RISK MANAGEMENT IMPLICATIONS**

The higher cost of the Sparks Street tunnel is a significant funding risk for the STO. They are continuing the funding discussions with the federal and Quebec governments.

Wellington Street design changes (and associated right-of-way requirements) would require the approval of PSPC and the NCC. The plan must also comply with City of Ottawa design standards and AODA requirements. A more comprehensive traffic analysis is required to address changes to traffic patterns on Ottawa streets due to the introduction of the tramway in this corridor. Mitigation plans and trade-offs are expected.

## **ASSET MANAGEMENT IMPLICATIONS**

There are several aspects to the Asset Management Implications for this report. Comprehensive Asset Management (CAM) is an integrated business approach involving the different disciplines of planning, finance, engineering, maintenance and operations to effectively manage existing and new infrastructure.

### **Asset Management and Lifecycle Renewal**

The capital costs for the corridor options are currently being developed by the Société de transport de l'Outaouais (STO). 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 will also need to be done to determine how the project impacts the lifecycle of the City's adjacent assets, such as surrounding streetscape (e.g., pavement, sidewalks, cycling infrastructure, decorative treatments, trees, etc.) and protection of buried infrastructure, such as sewers and watermains. A similar evaluation would be required by other utilities (e.g., gas and hydro) that have infrastructure along the

proposed corridors. For the proposed tunnel alignment and station location on Sparks Street, it will be critical to assess any impacts or conflicts. Depending on the alignment, there are very complex utility impacts (both for the City and for other utilities) that may require relocation.

#### Capital Coordination

There are a number of planned capital projects in the vicinity of the alignments proposed. These projects are led by various parties, including the City, Federal Government and private development. Report recommendations address capital coordination.

The City and external agencies meet regularly to plan, organize and assess all capital construction taking place to reduce the risk of unmanaged conflicts with respect to mobility, including vehicles, cyclists and pedestrians and City services. The volume and impact of existing projects is such that there are already ongoing discussions about how to coordinate all the work. 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.

If the tramway on Wellington Street becomes the preferred option, then implementation will need to be coordinated with the planned lifecycle renewal work in that same corridor. Planned City works include cathodic protection on Wellington Street between Commissioner Street and Bank Street, followed by resurfacing work on Wellington Street from Sir John A. McDonald Parkway to O'Connor Street. Planning ahead and collaborating with the STO are both critical to ensure the City's renewal work needs are addressed and will mitigate potential conflicts, including avoiding and/or minimizing any throw away costs.

#### Integration with other Plans

The report identifies the Wellington Street alignment has competing needs in a narrow right-of-way, requiring many significant compromises that have not been fully analyzed and resolved. The Wellington Street corridor is currently identified as a spine route and part of the crosstown bikeway (between Bank Street and the Portage Bridge) and is a high priority for protected or segregated cycling facilities. Such issues should be reconciled before selecting a preferred solution.

## Standards

The City has a variety of infrastructure design and construction guidelines and standards, which 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 as per the established processes for requests for deviation from existing guidelines and standards. Such requests are reviewed and require approval before the design can be completed.

Specifically, with respect to the Wellington Street corridor, the trade-offs between the scenarios are compromises to design standards and downstream traffic impacts on Ottawa downtown streets. The study is still assessing these issues. To the extent possible, the City's guidelines and standards should be followed.

## 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 alignment, the City will require access for regular infrastructure maintenance and repairs, as will other utilities.

## **FINANCIAL IMPLICATIONS**

There are no financial implications associated with the recommendations of this report.

## **ACCESSIBILITY IMPACTS**

It is expected that 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 all-tram proposal will reduce the number of buses by 70 per cent (from today's numbers), whereas the hybrid solutions would only reduce it by 30 per cent to 45 per cent. Currently these buses are diesel fueled, although STO has a long-term plan to procure electric buses only starting in 2025.

## 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.

## DISPOSITION

Transportation Services staff will take appropriate action based on the approvals/decisions made by Transportation Committee and Council.