

**Report to  
Rapport au:**

**Finance and Economic Development Committee  
Comité des finances et du développement économique  
24 February 2017 / 24 février 2017**

**and Council  
et au Conseil  
8 March 2017 / 8 mars 2017**

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**Submitted by  
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**Ward: CITY WIDE / À L'ÉCHELLE DE LA VILLE      File Number: ACS2017-TSD-OTP-0001**

**SUBJECT: STAGE 2 LIGHT RAIL TRANSIT IMPLEMENTATION – PROJECT  
DEFINITION AND PROCUREMENT PLAN**

**OBJET: MISE EN ŒUVRE DE L'ÉTAPE 2 DU TRAIN LÉGER SUR RAIL -  
DÉFINITION DU PROJET ET PLAN D'APPROVISIONNEMENT**

## **REPORT RECOMMENDATIONS**

**That the Finance and Economic Development Committee recommend Council approve the implementation of the Stage 2 Light Rail Transit Project and related projects as outlined in this report and as follows:**

- 1. Approve that the following be incorporated into the procurement process for the Stage 2 Light Rail Transit Project:**
  - a. The alignment changes and other refinements to the functional design for the Stage 2 Light Rail Transit Project, as described in this report, and as follows:**
    - i. The Confederation Line West Extension, as follows:**
      - 1. Alignment Improvement at Richmond Road;**
      - 2. Alignment Improvement and Station Shift at Lincoln Fields;**
      - 3. Pinecrest Creek Re-alignment at Iris Station;**
      - 4. Bayshore Station Shift;**
      - 5. Goldenrod Bridge Connection.**
    - ii. The Trillium Line South Extension, as follows:**
      - 1. Airport Station Shift;**
      - 2. Relocated Walkley Yard Maintenance and Storage Facility;**
      - 3. Leitrim Road Overpass Shift.**
  - b. The Trim Extension and the Airport Rail Link, as described in this report and conditional on full funding from the federal and provincial governments and achieving a Memorandum of Understanding with the Ottawa MacDonald-Cartier International Airport Authority;**
  - c. The Moodie Extension and Maintenance and Storage Facility, as described in this report;**
  - d. The recommended projects for 'bundling' into the Stage 2 Light Rail Transit Project procurement process, as described in this report, and as follows:**
    - i. The planned City works listed in Appendix 3;**
    - ii. The Ministry of Transportation of Ontario's Highway 417 (Maitland Ave. to Highway 416) Expansion Project, on the understanding the project will be fully funded by the provincial and federal governments and conditional on an Interface Agreement;**

- iii. **The Highway 174 (between Montreal Road and Jeanne d'Arc Blvd.) Project to explore advancing the ultimate Highway 174 configuration, as described in this report and subject to the identification of a funding source;**
- e. **The following actions related to the projects being included in the Stage 2 Light Rail Transit Project Procurement process:**
  - i. **Direct staff to initiate an Environmental Assessment (EA) addendum to the West Transitway Extension Environmental Assessment Study (Bayshore Station to Moodie Drive) to advance the conversion from bus rapid transit to light rail transit, as described in this report, and file the addendum with the Ministry of the Environment and Climate Change in accordance with Ontario EA Regulation 231/08 for transit projects;**
  - ii. **Direct staff to initiate an Environmental Assessment (EA) addendum to the Confederation Line West Extension Environmental Assessment Study (if required) to expand the Bayshore Station bus facility, as described in this report, and file the addendum with the Ministry of the Environment and Climate Change in accordance with Ontario EA Regulation 231/08 for transit projects;**
- 2. **Approve the updated *Stage 2, Ottawa LRT Business Case*, attached as Appendix 4;**
- 3. **Approve the procurement model and process for the Stage 2 Light Rail Transit Project, as described in this report, including as follows:**
  - a. **Delegate the authority to the City Manager to execute the Memorandum of Understanding (MOU) between the City of Ottawa and the Rideau Transit Group, as described in this report; and**
    - i. **Approve the \$492 million budget and funding sources for the Memorandum of Understanding (MOU) with the Rideau Transit Group, as outlined in this report and conditional on these costs being eligible for federal and provincial funding; and**
    - ii. **Delegate the authority to the General Manager, Transportation Services, to proceed with the MOU variations of the Rideau Transit Group's work, and to negotiate, finalize and execute an agreement with the long-term lenders, if required, as described in this report.**

- b. Direct staff to proceed with the Design, Build, Finance (DBf) procurement process for the Confederation Line East and West extensions and related projects, as described in this report;
  - c. Direct staff to proceed with the Design, Build, Finance, Maintain (DBFM) procurement process for the Trillium Line extension and related projects, as described in this report;
  - d. Receive the information on the Project Schedule, as outlined in this report.
  - e. Delegate authority to the City Manager to negotiate, finalize and execute an agreement with Infrastructure Ontario, if required, as outlined in this report.
4. Approve the following related issues and actions for the implementation of the Stage 2 Light Rail Transit Project and related projects, as outlined in this report:
- a. Receive the information on the cost estimates for the Stage 2 Light Rail Transit and related projects and the update on the federal and provincial partnership funding;
  - b. Receive the information on the short-listed options for addressing traffic and mobility during construction as described in this report; and
    - i. Approve the advanced purchase of 34 lifecycle replacement buses in 2017 and the associated \$28 million budget, to be funded as described in this report;
  - c. Approve the following actions with respect to land assembly and property acquisition for the Stage 2 Light Rail Transit Project and related projects, as described in this report and as follows:
    - i. Direct Corporate Real Estate Office staff to proceed with the acquisition of the property interests required to facilitate the construction, use and maintenance of the Stage 2 Light Rail Transit Project and related works, as described in this report;
    - ii. Delegate the authority to the General Manager, Corporate Services and City Treasurer to place any by-laws required pursuant to the *Expropriations Act* for the purposes of authorizing the making of applications for approval to expropriate property and authorizing the expropriation of property rights, on a Council Agenda, if necessary to

- facilitate the construction, use and maintenance of the Stage 2 Light Rail Transit Project and related works, with the concurrence of the Mayor and the Ward Councillor, and as described in this report;
- iii. In addition to the authority contained in Delegated Authority By-law No. 2016-369, delegate the authority to the General Manager, Corporate Services and City Treasurer to approve any real estate transaction involving the acquisition of any interest in, or right to use, real property for the purposes of the Stage 2 Light Rail Transit Project and related works, including any offer of compensation payable under the *Expropriations Act*, and execute documentation as required and any amendments thereto, regardless of the total value of the transaction, provided it is accordance with the requirements of the Real Property Acquisition Policy, is within the project budget for the Stage 2 Light Rail Transit Project and has the concurrence of the Mayor and the Councillor whose ward includes the relevant property;
  - iv. Direct staff to report the details of the real estate transactions related to the Stage 2 Light Rail Transit Project and approved under delegated authority, including expropriations, to the Finance and Economic Development Committee and City Council after all property interests required for the Stage 2 Light Rail Transit Project and required works have been acquired by the City and all claims for compensation have been settled; and
  - v. Delegate the authority to the Director, Corporate Real Estate Office to enter into agreements with the Ministry of Transportation of Ontario (MTO) providing for the use of City-owned property by the Ministry of Transportation for nominal consideration for the purposes of widening and other Highway 417 works between Preston Street and Maitland Avenue in exchange for the use of property owned by the Ministry of Transportation by the City for nominal consideration for the purposes of the Stage 2 Light Rail Transit Project and related projects, as described in this report.
- d. Delegate the authority to the Ottawa Light Rail Transit Executive Steering Committee to confirm and recommend to Council the preferred proponent(s) at the close of the Request for Proposals and to, at the



- f. **Receive the information with respect to the Indigenous Community Engagement Strategy for the Stage 2 Light Rail Transit Project, as outlined in this report;**
  - g. **Receive information on the provision and location of public washrooms for the Stage 2 LRT Project, as outlined in the report;**
  - h. **Receive the information with respect to the Public Art Program for the Stage 2 LRT Project, as outlined in the report.**
  - i. **Receive information on the incorporation of pedestrian and cycling connectivity in the Stage 2 LRT Project, as outlined in the report.**
- 6. Approve the inclusion of Station-Oriented Development Opportunities for Baseline Station, Cleary Station and Pinecrest Station in the Design, Build, Finance (DBf) procurement process for the Confederation Line East and West extensions, as described in this report;**
- 7. Delegate the authority to the City Manager to accept and approve changes to the Stage 2 Light Rail Transit Project design, in accordance with the principles outlined in this report, with the concurrence of the Ward Councillor and the Mayor;**
- 8. Delegate the authority to the City Manager to address any unforeseen matters with respect to proceeding with the procurement and next steps towards implementation of the Stage 2 Light Rail and related projects on the understanding that any actions will be consistent with Council direction on this matter, within the relevant project budgets, undertaken with the concurrence of the Mayor and any affected Ward Councillor, and reported back to Council either through the Finance and Economic Development or as part of the report recommending the contract award, as appropriate.**

## **RECOMMANDATIONS DU RAPPORT**

**Que le Comité des finances et du développement économique recommande au Conseil municipal d'approuver la mise en œuvre de l'Étape 2 du projet de train léger sur rail et des projets connexes, comme indiqué dans le présent rapport et comme suit :**

- 1. Autoriser que les éléments suivants soient intégrés dans le processus d'approvisionnement pour l'Étape 2 du projet de train léger sur rail :**
  - a. les modifications du tracé et autres améliorations apportées à la conception fonctionnelle de l'Étape 2 du projet de train léger sur rail, comme décrit dans le présent rapport, et comme suit :**
    - i. le prolongement vers l'ouest de la Ligne de la Confédération, comme suit :**
      - 1. l'amélioration du tracé au chemin Richmond;**
      - 2. l'amélioration du tracé et le déplacement de la station Lincoln Fields;**
      - 3. le nouveau tracé du ruisseau Pinecrest à la Station Iris;**
      - 4. le déplacement de la station Bayshore;**
      - 5. le lien avec le pont Goldenrod.**
    - ii. le prolongement vers le sud de la Ligne Trillium, comme suit :**
      - 1. le déplacement de la station de l'aéroport.**
      - 2. la nouvelle installation d'entretien et de remisage de la gare de triage Walkley;**
      - 3. le déplacement du passage supérieur du chemin Leitrim;**
  - b. Le prolongement jusqu'à Trim et la liaison ferroviaire vers l'aéroport, comme décrits dans le présent rapport et sous réserve de l'obtention du plein financement des gouvernements fédéral et provincial et d'un protocole d'entente avec l'Administration de l'aéroport international Macdonald-Cartier d'Ottawa;**
  - c. le prolongement jusqu'à la promenade Moodie et l'installation d'entretien et de remisage, comme décrits dans le présent rapport;**
  - d. les projets dont on recommande le « regroupement » dans le processus d'approvisionnement de l'Étape 2 du projet de train léger sur rail, comme décrits dans le présent rapport, et comme suit :**
    - i. les travaux municipaux prévus énumérés à l'Annexe 3;**



- ii. le projet de prolongement de l'autoroute 417 du ministère des Transports de l'Ontario (de l'avenue Maitland à l'autoroute 416), étant entendu que le projet sera entièrement financé par les gouvernements provincial et fédéral et conditionnel à une entente bilatérale;
  - iii. le projet de l'autoroute 174 (entre le chemin Montréal et le boul. Jeanne d'Arc), qui examine la possibilité de faire avancer la configuration définitive de l'autoroute 174, comme décrit dans le présent rapport et sous réserve de la détermination d'une source de financement, comme décrit dans le présent rapport;
- e. les mesures suivantes liées aux projets inclus dans le processus d'approvisionnement de l'Étape 2 du projet de train léger rapide :
- i. demander au personnel d'élaborer un addenda concernant l'évaluation environnementale (ÉE) à l'Étude de planification et d'évaluation environnementale du Transitway Ouest (de la station Bayshore à la promenade Moodie) afin de faire avancer la conversion du transport en commun rapide par autobus au transport en commun par train léger, comme décrit dans le présent rapport, et de déposer l'addenda auprès du ministère de l'Environnement et du Changement climatique, conformément au Règlement de l'Ontario 231/08 sur les ÉE des projets de transport en commun;
  - ii. demander au personnel d'élaborer un addenda concernant l'évaluation environnementale (ÉE) à l'Étude de planification et d'évaluation environnementale du prolongement vers l'ouest de la Ligne de la Confédération (au besoin) afin d'agrandir les installations d'autobus de la station Bayshore, comme décrit dans le présent rapport, et de déposer l'addenda auprès du ministère de l'Environnement et du Changement climatique, conformément au Règlement de l'Ontario 231/08 sur les ÉE des projets de transport en commun;
2. Approuver l'*Analyse de la rentabilité de l'Étape 2 du TLR d'Ottawa* mise à jour, jointe en tant qu'Annexe 4;
3. Approuver le modèle et le processus d'approvisionnement de l'Étape 2 du projet de train léger sur rail, comme décrit dans le présent rapport, et comme suit :

- a. **déléguer au directeur municipal le pouvoir de conclure le protocole d'entente (PE) entre la Ville d'Ottawa et le Rideau Transit Group, comme décrit dans le présent rapport et**
    - i. **approuver le budget de 492 millions de dollars et les sources de financement pour le protocole d'entente (PE) avec le Rideau Transit Group, comme indiqué dans le présent rapport et sous réserve de l'admissibilité de ces coûts à un financement fédéral et provincial et**
    - ii. **déléguer au directeur général, Direction générale des transports, le pouvoir de procéder aux modifications du PE concernant les travaux du Rideau Transit Group, et de négocier, finaliser et conclure un accord avec les prêteurs à long terme (au besoin), comme décrit dans le présent rapport.**
  - b. **demander au personnel d'aller de l'avant avec le processus d'approvisionnement de type conception, construction et financement (CCF) pour les prolongements vers l'est et vers l'ouest de la Ligne de la Confédération et les projets connexes, comme décrit dans le présent rapport;**
  - c. **demander au personnel d'aller de l'avant avec le processus d'approvisionnement de type conception-construction-financement-entretien (CCFE) pour le prolongement de la Ligne Trillium et les projets connexes, comme décrit dans le présent rapport;**
  - d. **recevoir les informations sur le calendrier du projet, comme décrit dans le présent rapport.**
  - e. **déléguer au directeur municipal le pouvoir de négocier, de finaliser et de conclure une entente avec Infrastructure Ontario, au besoin, comme indiqué dans le présent rapport.**
- 4. Approuver les mesures et enjeux connexes suivants de l'Étape 2 du projet de train léger et des projets connexes, comme indiqué dans le présent rapport :**
- a. **recevoir les informations sur les estimations de coûts pour l'Étape 2 du projet de train léger et les projets connexes et la mise à jour sur le financement de partenariat fédéral et provincial;**

- b. recevoir les informations sur les options choisies pour résoudre les problèmes de circulation et de mobilité durant la construction, comme décrites dans le présent rapport et
  - i. approuver l'achat anticipé de 34 autobus de remplacement en 2017 et le budget associé de 28 millions de dollars, qui seront financés comme décrit dans le présent rapport;
- c. approuver les mesures suivantes en ce qui a trait au regroupement des terrains et à l'acquisition de propriétés pour l'Étape 2 du projet de train léger sur rail et les projets connexes, comme décrites dans le présent rapport et comme suit :
  - i. demander au personnel du Bureau de l'immobilier de la Ville de procéder à l'acquisition des droits de propriété nécessaires pour faciliter la construction, l'utilisation et l'entretien de l'Étape 2 du projet de train léger sur rail et les travaux connexes, comme décrit dans le présent rapport;
  - ii. déléguer à la directrice générale, Direction générale des services organisationnels, et trésorière municipale le pouvoir de mettre à l'ordre du jour du Conseil tout règlement municipal nécessaire en vertu de la *Loi sur l'expropriation* afin d'autoriser la présentation de demandes d'approbation pour exproprier des propriétés et des droits de propriété, au besoin, pour faciliter la construction, l'utilisation et l'entretien de l'Étape 2 du projet de train léger sur rail et les travaux connexes, avec l'accord du maire et du conseiller du quartier, et comme décrit dans le présent rapport;
  - iii. en plus de l'autorité prévue par le *Règlement sur la délégation de pouvoirs* 2016-369, déléguer à la directrice générale, Direction générale des services organisationnels, et trésorière municipale, le pouvoir d'approuver toute transaction immobilière portant sur l'acquisition de tout intérêt ou droit d'utilisation de biens immobiliers aux fins de l'Étape 2 du projet de train léger sur rail et des travaux connexes, y compris toute offre d'indemnisation payable en vertu de la *Loi sur l'expropriation* et d'exécuter tout document au besoin et toute modification qui y est apportée, indépendamment de la valeur totale de la transaction, à condition qu'elle soit conforme aux exigences de la Politique sur l'acquisition de biens-fonds, respecte le budget de l'Étape 2 du projet de

- train léger sur rail et ait l'accord du maire et du conseiller dont le quartier comprend la propriété pertinente;**
- iv. demander au personnel de faire rapport au Comité des finances et du développement économique et au Conseil municipal sur les transactions immobilières liées à l'Étape 2 du projet de train léger sur rail et approuvées en vertu d'une délégation de pouvoirs, y compris les expropriations, une fois que tous les intérêts de propriété nécessaires pour l'Étape 2 du projet de train léger sur rail et les travaux requis ont été acquis par la Ville et que toutes les demandes d'indemnisation ont été réglées;**
  - v. déléguer au directeur du Bureau des services immobiliers municipaux le pouvoir de conclure des ententes avec le ministère des Transports de l'Ontario (MTO) concernant l'utilisation d'une propriété municipale par le ministère des Transports moyennant une contrepartie symbolique aux fins de l'élargissement de l'autoroute 417 et autres travaux sur cette autoroute entre la rue Preston et l'avenue Maitland en échange de l'utilisation par la Ville d'une propriété appartenant au ministère des Transports moyennant une contrepartie symbolique aux fins de l'Étape 2 du projet de train léger sur rail et projets connexes, comme décrit dans le présent rapport.**
- d. déléguer au Comité directeur du train léger sur rail d'Ottawa le pouvoir de confirmer et de recommander au Conseil le(s) promoteur(s) privilégié(s) à l'issue de la demande de propositions et, à la discrétion du directeur municipal, d'être l'autorité décisionnelle et l'autorité en matière de recours hiérarchique en ce qui concerne les questions contractuelles et relatives à la construction et**
- i. déléguer au directeur municipal le pouvoir d'ajouter ou de retirer des membres du Comité directeur du train léger sur rail d'Ottawa, au besoin;**
- e. recevoir les informations sur l'approche relative aux communications et aux relations avec les intervenants.**
- 5. Approuver les éléments suivants en ce qui a trait aux ententes conclues avec les partenaires pertinents pour l'Étape 2 du projet de train léger sur rail et les projets connexes :**

- a. **déléguer au directeur municipal le pouvoir de négocier et de conclure les ententes de contribution avec les gouvernements fédéral et provincial pour l'Étape 2 du projet de train léger sur rail et les projets connexes, comme décrit dans le présent rapport, et comprenant le plein financement des gouvernements fédéral et provincial pour le prolongement jusqu'à Trim et la liaison ferroviaire vers l'aéroport et déléguer au maire le pouvoir d'exécuter les ententes de contribution finales;**
- b. **déléguer au directeur municipal le pouvoir de négocier, de finaliser et de signer les documents requis pour mettre en œuvre les modalités de l'entente de principe entre la Ville et la Commission de la capitale nationale en date du 10 mai 2016, comme indiqué dans le présent rapport, y compris le Sommaire des conditions relatives à la propriété, ainsi que toute modification requise aux modalités de l'entente de principe qui sont raisonnablement nécessaires pour permettre l'achèvement des étapes décrites dans l'entente de principe;**
- c. **déléguer au directeur municipal le pouvoir de négocier, de conclure et d'exécuter le protocole d'entente avec l'Administration de l'Aéroport international Macdonald-Cartier d'Ottawa, en ce qui a trait à la liaison ferroviaire vers l'aéroport, sur la base des principes énoncés dans le présent rapport;**
- d. **déléguer au directeur municipal le pouvoir de négocier, de finaliser et de conclure l'entente bilatérale avec le ministère des Transports de l'Ontario, en ce qui concerne le regroupement du projet de prolongement de l'autoroute 417 (de l'avenue Maitland à l'autoroute 416), comme décrit dans le présent rapport;**
- e. **déléguer au directeur municipal le pouvoir de négocier, de finaliser et de conclure l'accord de principe avec Services publics et Approvisionnement Canada, en ce qui concerne la construction du pont Goldenrod, comme indiqué dans le présent rapport;**
- f. **recevoir les informations en ce qui a trait à la stratégie d'engagement de la communauté autochtone pour l'Étape 2 du projet de train léger sur rail, comme indiqué dans le présent rapport;**

- g. recevoir des informations sur la mise à disposition et l'emplacement des toilettes publiques pour l'Étape 2 du projet de TLR, comme indiqué dans le présent rapport;**
  - h. recevoir les informations en ce qui a trait au Programme d'art public pour l'Étape 2 du projet de TLR, comme indiqué dans le présent rapport;**
  - i. recevoir des informations sur l'incorporation de liens piétonniers et cyclables dans l'Étape 2 du projet de TLR, comme indiqué dans le rapport;**
- 6. Approuver l'inclusion des possibilités d'aménagement axé sur les stations pour la station Baseline, la station Cleary et la station Pinecrest dans le processus d'approvisionnement de type conception-construction-financement (CCF) pour les prolongements vers l'est et vers l'ouest de la Ligne de la Confédération, comme décrit dans le présent rapport;**
  - 7. déléguer au directeur municipal le pouvoir d'accepter et d'approuver les modifications apportées à la conception de l'Étape 2 du projet de train léger sur rail, conformément aux principes énoncés dans le présent rapport, avec l'accord du conseiller du quartier et du maire;**
  - 8. déléguer au directeur municipal le pouvoir de régler les imprévus en ce qui a trait à l'exécution du processus d'approvisionnement et des prochaines étapes vers la mise en œuvre de l'Étape 2 du projet de train léger sur rail et des projets connexes, étant entendu que toute mesure prise sera conforme aux directives du Conseil sur cette question, respectera les budgets du projet, sera entreprise avec l'accord du maire et du conseiller du quartier touché et fera l'objet d'un compte-rendu au Conseil, soit par l'entremise du Comité des finances et du développement économique, soit dans le cadre du rapport recommandant l'attribution du contrat, comme il convient.**

## **EXECUTIVE SUMMARY**

The Stage 2 Light Rail Transit (LRT) plan is the pillar of the City of Ottawa's 2013 Transportation Master Plan (TMP). With the first stage of the Confederation Line entering revenue service in 2018, a year of preparation to compete Stage 2 and a funding partnership with provincial and federal governments on the verge of being finalized, the City is ready to move forward with the Stage 2 LRT Project.

This report has three major parts. Part one describes the additional scope that Council is being asked to include in the Stage 2 LRT procurement process, including alignment adjustments based on public consultation and additions not included in the core Stage 2 plan. Part two lays out the proposed approach to holding a vigorous competition and the role the private sector partner for the first stage of Confederation Line, Rideau Transit Group (RTG), will play in setting the stage for good market participation. Part three of the report covers some of the specific activities the City will undertake to be ready to implement Stage 2, including approaches to maintain mobility and bus service through construction as well as the approach to assembling the required lands.

As a major capital project, the Stage 2 LRT Project should seek to maximize competitive tension in the procurement process to drive value and pricing. Pursuant to direction noted in the *Stage 2 Light Rail Transit (LRT) Environmental and Functional Design Report*, approved by City Council on July 8, 2015, revenue service for the full Stage 2 network is targeted to begin no later than 2023. This report targets an expanded system that could seek staged openings, with the Trillium Line extension entering service in 2021, the Confederation Line East extension in 2022, and the Confederation Line West extension commencing service by 2023.

This report provides recommendations that meet Council's direction and, if approved, would allow for a competitive procurement process for all three extensions to begin with the release of formal Request for Qualification (RFQ) documents in the coming weeks. It also lays out a strategy that incorporates bundled and supporting projects, while best ensuring these projects are built without creating undue risk or compromising the City's affordability. This is possible due to a number of factors, including the timely commitment from the federal and provincial governments to fund transit and other green initiatives, the expertise gained from the successful, innovative and award-winning procurement for the Confederation Line, and the opportunity for the Stage 2 LRT Project and related projects to leverage the experience and lessons gained through the construction of Confederation Line project. The recommendations in this report accomplish the following:

- Refine the work on the functional design for the Stage 2 LRT Project to allow the procurement documents to be finalized (on the understanding that, in order to achieve best value and a fixed-price contract, the selected proponent(s) will have carriage of the final design);
- Identify the related projects recommended to be bundled with the procurement;

- Propose a procurement model for the construction of the Confederation Line extensions and related projects, the Trillium Line extension and related projects and vehicle acquisition and vehicle maintenance to provide best value and predictable pricing, and ensure that operational risks are mitigated; and
- Identify the other steps that need to be undertaken to allow the City to be in the best position to receive the results of the procurement and provide Council with the ability to proceed to contract award and construction.

These recommendations are outlined briefly below, and in detail throughout the report.

### **Part 1: Defining the Stage 2 LRT and Related Projects for Procurement**

When City Council approved the functional design and alignment of the Stage 2 LRT Project in July 2015, it was specifically understood that these were “intentionally high level in order to give maximum flexibility to the preliminary engineering team and the winning design build Project Proponent.”

This report recommends alignment improvements for the Confederation Line West extension at Richmond Road (west of Cleary), at Lincoln Fields (including a station shift), a realignment of Pinecrest Creek at Iris Station, and a shift of the Bayshore Station and a new Goldenrod Bridge. For the Trillium Line South extension, changes being recommended include moving the location of the Airport Station to connect with the terminal, a new, relocated Walkley Yard maintenance and storage facility (MSF), and shifting the Leitrim Road Overpass.

The alignment changes have been brought forward following extensive public and stakeholder consultation, with pedestrian and cycling connections also being a key point of focus for these discussions and the resulting recommendations. To ensure Council was positioned to move forward on these projects within the aggressive timelines, staff submitted the recommended alignment changes to the Province, subject to Council approval, and the Environmental Assessments for all three extensions were approved as of December 1, 2016. As well, the National Capital Commission Board received, considered and approved the recommended alignment changes for Lincoln Fields and Pinecrest Creek at their meeting of January 19, 2017.

The July 2015 report directed staff to identify “City and senior government planned infrastructure works for potential bundling opportunities” as part of the Stage 2 LRT Project procurement and contract. As such, this report identifies approximately 20 City projects that would benefit from bundling as part of the procurement process, some of



which are considered essential to the project. The list of included projects to be bundled in the procurement will be finalized during the procurement process and will be recommended to Council for approval as part of the Contract Award report. As the City did with the Confederation Line, the report also recommends bundling a section of the Ministry of Transportation of Ontario's (MTO) Highway 417 Expansion Project (from Maitland Avenue to Highway 416) with Stage 2.

Staff believes this bundling approach is essential to the ultimate success of both projects. Constructing both projects with a single proponent on a common schedule transfers the risks of costly delays, transit and traffic impacts, as well as design and construction interfaces to the proponent. It will also create the opportunity for coordinating the shutdown of the existing Transitway from Bayshore Station to Lincoln Fields Station such that Highway 417 lanes can serve to facilitate detours. The Province supports the proposed bundling approach and has indicated its willingness to allocate the appropriate funding to the City, which will include financial and legal support for the integration of MTO design and construction standards in the Infrastructure Ontario Alternative Financing and Procurement (AFP) method, project financing, capital construction costs, detail design, and compliance oversight.

For similar reasons, staff is also recommending that, as part of the procurement process, the feasibility of implementing the ultimate Highway 174 configuration between Montreal Road and Jeanne d'Arc Boulevard be explored, subject to funding. Although the Highway 174 project between Jeanne d'Arc and Montreal was not originally contemplated within the City's current planning cycle, there may be cost efficiencies to both the LRT and this future Highway 174 widening project if they were done concurrently.

The July 2015 report also included the Trim extension and the Airport Rail Link in the Stage 2 LRT Project's Confederation Line East Extension and Trillium Line Extension Environmental Assessments (EA). Preliminary engineering designs for these extensions have been ongoing to ensure the option to proceed with potential implementation. With funding for the extensions committed by Ontario, and a federal commitment soon expected, the Airport Rail Link and Trim extension are proposed to be included in the planned procurement scope.

The report also recommends including an extension of the Stage 2 LRT Project farther west to Moodie, with grade separation at Holly Acres, and the construction of a Maintenance and Storage Facility (MSF) near Moodie, instead of the previously identified Woodroffe site (Nepean Corridor) or an additional vehicle storage being

accommodated at Baseline Station. Staff believe the extension to Moodie and an MSF near this location will be achievable within the available budget. Once Council gives direction, staff will need to take immediate action with respect to securing the environmental assessment approvals required and achieving designs of this section of LRT to ensure timely coordination with the Stage 2 procurement process timelines and to allow the City to take advantage of provincial and federal government funding available for this project.

## **Part 2: Procuring the Stage 2 LRT and Related Projects**

The Stage 2 LRT Project procurement model, if approved, is designed to:

1. Maximize value for money and competitive pricing;
2. Obtain full integration, functionality and reliable performance throughout the system, with a strong accountability regime;
3. Create the Stage 2 project scope within the available capital budget;
4. Maintain a single accountability framework for ensuring high system availability while minimizing maintenance and operating costs; and
5. Achieve strong risk transfer in creating the new system infrastructure and reliable operating programs and regimes.

Given the position of Rideau Transit Group (RTG) as the maintainer for Confederation Line's core assets until 2048, as well as carrying full risk and responsibility for system availability, any procurement strategy to add extensions to Confederation Line faced new complexities that have not been experienced previously in Ontario. As guiding principles to help navigate these complexities, staff set out to protect the risk transfer achieved in the Confederation Line competition, enable robust competition on as much of the new scope as possible, and enable the City to benefit from as much financial efficiency derived from increasing utilization and productivity of Confederation Line assets as possible.

A key means to achieve these principles includes securing a consistent set of light rail vehicles (LRVs), an integrated train control system, and a single, accountable maintainer; these are basic requirements for operating an efficient system. As well, the Belfast Yard Maintenance and Storage Facility (MSF), which is used to ensure the good repair and availability of the vehicle fleet, is part of the Confederation Line system infrastructure and will be operated by RTG until 2048. With these maintenance, vehicle

and integrated train control system considerations, staff entered into negotiations with RTG to provide those core elements of the new system that must be consistent and integrated with the Confederation Line system infrastructure, and which could not be successfully taken to market in a competitive environment.

For each element of extended scope, staff sought to achieve pricing that was at least as attractive as the competitive pricing successfully bid in Confederation Line. At the same time, the City sought to secure, as part of this potential agreement, a concession for RTG to forego the opportunity to bid on the additional capital works for the Confederation Line extensions, and instead participate as a partner with the City in holding a robust procurement for those expanded capital works. This measure would eliminate a fundamental barrier to achieving a robust competition that would have resulted from RTG's participation in the procurement.

The resulting Memorandum of Understanding (MOU) between the City and RTG, recommended for approval as part of this report, provides for a fixed-price for the project components and services that will be delivered by RTG. This scope includes 38 additional Alstom Citadis light rail vehicles (LRVs) for the Confederation Line extensions, the expansion of the Belfast Yard MSF, and the provision of on-board train control and communications equipment. In addition, once the Stage 2 Confederation Line extensions are complete, RTG will assume responsibility for maintenance and lifecycle of the fully constructed line. RTG will also maintain the expanded fleet of LRVs. In this way, the City will retain the single point of accountability with RTG retaining all maintenance and service availability risks. RTG will support the City in holding a successful Design Build short-term Finance (DBf) procurement with technical expertise, as well as providing design review and construction oversight services.

The City's Owner's Engineer team developed independent opinions of cost for the scope of work for each of the items in the MOU and was able to validate the value of the work being negotiated with RTG, not only based on original Confederation Line pricing, but also by extracting the values for the inherent efficiencies known to exist to RTG and comparing those values to independent estimates. Staff believes the prices negotiated provide positive value to the City, with the price for each vehicle being \$1.1 million less than the 2012 price resulting from the Confederation Line competitive procurement process, and a lower per kilometre vehicle maintenance price as well as a lower infrastructure maintenance price that will result in significant savings over the life of the contract. If approved by Council, the fixed-price negotiated for project components and services RTG would provide is \$492 million. To ensure that the timelines for this project are met, staff will need to proceed with ordering 38 new Confederation Line vehicles in

2017. Although only a portion of the \$492 million will be spent in 2017, Council is required to approve the full project authority for this piece of the work, as budget and contractual authority is required to order the trains and the MOU is a complete agreement that does not contemplate incremental approval. The City Treasurer has identified the funding sources for this authority within the Transit Affordability Plan, and the authority being sought is conditional on the City receiving the anticipated funding approval from the federal and provincial governments.

There would also be a provision for any additional works that might need to be undertaken by RTG in areas such as wayside train control, system integration and insurance. These works would be undertaken, at the City's discretion, in accordance with the terms of the existing Confederation Line project agreement (PA) that dictates an open book process with capped profit margins. The balance of the system expansion is recommended to be undertaken through two new procurements. The Confederation Line East and West extensions, and their related projects, are recommended to proceed by way of a Design Build Finance (DBf) procurement, with RTG assuming responsibility for maintaining the resulting works as a single integrated system to 2048. This will allow the City to maintain its current risk profile regime and seamless system integration across the expanded Confederation Line system. The remaining Stage 2 Confederation Line budget is \$2.5 billion, including the east and west extensions, Highway 417, and excluding related bundled projects. As noted above, in this MOU, RTG has agreed they will not participate in the DBf procurement for Confederation Line extensions.

The Trillium Line extension and related works will be tendered separately in a full Design Build Finance Maintain (DBFM) contract, with an end date of 2048. The Trillium Line's budget is \$535 million, including its extension and upgrades to the existing system. Because RTG has no current involvement in the Trillium Line, and therefore no inherent advantage that could challenge the creation of a fair and robust competition, they would be permitted to compete in the Trillium Line DBFM opportunity.

### **Part 3: Supporting the Implementation of the Stage 2 Light Rail Transit Project and Related Projects**

While the majority of the focus of this report and the related recommendations are specific to finalizing the project definition for the procurement process and selecting the procurement model itself, there are a number of related activities and actions that must be undertaken to prepare for the implementation of the Stage 2 LRT Project in preparation of and following the Contract Award. These are summarized below.

The budget for the core Stage 2 LRT Project remains at \$3 billion at the time of spend (including the funds for the MOU with RTG). This includes the costs for the construction of the Confederation Line East extension to Place d'Orléans, the Confederation Line West extension to Baseline and Bayshore, and the extension of Trillium Line south to Bowesville. The extension that would see the conversion bus rapid transit from Bayshore to Moodie to light rail transit is also expected to be achievable within this budget envelope. This is as a result of the cost compression that typically results from the Alternative Financing and Procurement (AFP) approach. The cost estimates for the additional extension of the Confederation Line from Place d'Orléans to Trim (the Trim Extension) and the LRT link from the Trillium Line South Keys Station to the Ottawa Macdonald-Cartier International Airport (the Airport Rail Link) also remain consistent with the overall Stage 2 2013 TMP estimates and are provided on the understanding that these projects will only proceed if they are fully funded by the federal and provincial governments and a memorandum of understanding is achieved with the Airport Authority. The functional design level estimate for the Trim Extension is \$160 million, and includes a station at Trim Road and the estimate for the Airport Rail Link is \$155 million, with a station at Uplands, adjacent to the Ernst and Young Centre, as well as a station connected to the Ottawa Macdonald-Cartier International Airport terminal.

As noted in the City Treasurer's *Long Range Financial Plan - Transit Report* (ACS-2017-CSD-FIN-0002), these works can be completed and implemented for revenue service by 2023 within the City's affordability envelope and debt policy, subject to federal and provincial funding being provided as anticipated.

With respect to the bundled projects, full funding for the provincial works related to the Highway 417 expansion and the Highway 174 widening between Montreal Road and Jeanne d'Arc would need to be provided by provincial and federal governments. The City works that will be bundled are all planned capital works, although some may be proceeding earlier than anticipated in the previous capital forecast.

Council governance over the Stage 2 LRT Project has already been determined, with the Finance and Economic Development Committee having primary carriage over the Project, with the Transportation Committee and the Transit Commission retaining specific mandates. With respect to staff oversight and governance over the Stage 2 LRT Project procurement and construction, this report recommends that the Ottawa Light Rail Transit (OLRT) Executive Steering Committee, put in place by Council to oversee the Confederation Line project, also be given the authority to confirm and recommend the preferred Proponent to Council at the close of the Request for Proposals. It is further recommended that the OLRT Executive Steering Committee be engaged at the City

Manager's discretion to provide approval, make adjustments to membership as necessary, and act as a mechanism for all decision-making and escalation purposes for the Stage 2 LRT Project.

The current membership of the OLRT Executive Steering Committee (following the recent alignment changes to the City's organizational structure) includes the following City representatives: City Manager, the City Clerk and Solicitor, the General Manager, Corporate Services and City Treasurer, the General Manager, Transportation Services, the Director, O-Train Construction. Given that there will be a shift from the Confederation Line project to the Stage 2 Project, it is recommended that the City Manager be delegated the authority to add or remove members of the OLRT Executive Steering Committee to reflect the shift from construction completion of Confederation Line to the procurement and construction of the Stage 2 Project.

One of the lessons learned from the Confederation Line project is the importance of anticipating and planning for the mobility impacts of construction as early as possible in the design stage of the project. This report provides a refined short-list of traffic and transit staging options, based on an analysis of traffic impacts, transit running times, capital costs, operating costs, property implications and community impacts which will be finalized at the time of contract award. Staff is also requesting authority to advance the purchase of 34 lifecycle replacement buses to address the increased operational capacity required to keep Ottawa moving during the construction for the Stage 2 LRT Project.

The land assembly process for the Confederation Line has provided staff with considerable experience in successfully managing the kind of property issues that will occur during Stage 2. In the case of the Confederation Line project, some processes were put in place after the project had begun. For Stage 2 LRT Project implementation, staff is able to recommend the strategies that were successful for the Confederation Line project, refined to reflect lessons learned, at the outset.

Given the number of property interests which must be acquired, the complexity of many of the transactions, and the Project timelines, staff is recommending that Council provide staff with the authority to start the land assembly and property acquisition process immediately following the approval of this report. The City's preferred method of obtaining real property rights, in order to protect construction timing and in a small number of instances, to provide property owners with sufficient time to look for and secure replacement property, it might be necessary to initiate and/or proceed with the expropriation of certain property interests required for the Stage 2 LRT Project. The report proposes to continue with the current process, which includes a focus on

negotiation and the concurrence of the Ward Councillor and the Mayor prior to any actions being taken under the *Expropriation Act*, but recommends that, after that process has been followed, related by-laws be placed directly on a Council agenda, with an accompanying memo to Council. Staff is also recommending that the delegation of authority for property transactions and expropriations, coupled with the recommended reporting protocol, that have been put in place for the Confederation Line be continued for the Stage 2 LRT Project, as they will provide staff with the ability to efficiently and effectively secure the property required for the project while protecting the interests and privacy of affected property owners.

The report also requests approval for staff to proceed with securing agreements with the Ministry of Transportation of Ontario (MTO) with respect to land use permissions for the Stage 2 LRT Project and the Highway 417 Expansion Project.

Proceeding with the implementation of the Stage 2 LRT Project will require the negotiation, finalization and execution of a number of agreements with a number of parties. The report recommends specific delegated authorities for securing agreements with the federal and provincial governments, the National Capital Commission, and the Ottawa Macdonald-Cartier International Airport Authority.

As well, the City's experience with Confederation Line indicates that staff may not have foreseen all actions that may be required with respect to proceeding with the formal procurement process and the other activities needed to prepare for the Contract Award and construction of the Stage 2 LRT Project. Staff is therefore also recommending that the City Manager be delegated the authority to address any unforeseen matters related to this stage of the implementation of the Stage 2 LRT Project, on the understanding that any actions will be consistent with Council direction on this matter, undertaken with the concurrence of the Mayor and reported back to Council either through the Finance and Economic Development Committee or as part of the report recommending the Contract Award, as appropriate.

Finally, as noted in the July 2015 report, staff has identified some potential station-oriented development (SOD) opportunities for the Stage 2 LRT Project. To allow the City to explore possible synergies for development around stations during the procurement process, staff reviewed the municipal and provincial sites with SOD potential. Three stations are recommended for station-oriented development opportunities at Baseline, Cleary, and Pinecrest.

Should Council approve the recommendations in this report, it is anticipated that a final report will be brought forward in Q2 2018 outlining the results of the procurement

process and related activities, leading to the final design and construction of the Stage 2 LRT Project in time for revenue service to begin no later than 2023.

## **BACKGROUND**

### **Achieving Readiness for Stage 2 Light Rail Transit – A Term of Council Priority**

On July 8, 2015, City Council adopted their 2015-2018 Term of Council Priorities (ACS2015-CMR-OCM-0016). Priority 1 for Transportation and Mobility for this term is to “build a world class environmentally sustainable light rail transit system.” The two strategic initiatives Council approved for this priority are the completion of the O-Train’s Confederation Line Light Rail Transit (LRT) Projects and Light Rail Stage 2 Readiness.

The core Stage 2 Light Rail Transit (LRT) Project encompasses three separate rail extensions: Confederation Line East to Place d’Orléans, Confederation Line West to Bayshore and Baseline, and Trillium Line south to Bowesville. Together these extensions would add 30 kilometres of track and 19 new stations to Ottawa’s O-Train transit system. When completed by 2023, approximately 70% of Ottawa’s population will live within 5 kilometres of a reliable clean, quiet, comfortable and convenient light rail transit system. With these extensions in place, the O-Train network will link Ottawa’s major post-secondary institutions, retail centres (including several major malls, such as Bayshore, the Rideau Centre, Place d’Orléans and St. Laurent), major employment nodes, city parks, Parliament Hill, the Rideau Canal, museums and other cultural institutions with a rapid, high quality rapid transit rail service. The rail network will be fully integrated with the communities it serves with cycling and pedestrian pathways to encourage sustainable transportation. More families will be able to manage without the expense of a second car and more people will have the transit options to choose not to purchase a car at all. Stage 2 LRT will reduce Ottawa’s greenhouse gas emissions (GHGs) by at least 110,000 tonnes and Criteria Air Contaminants by more than 3,000 tonnes annually by 2048.

The Stage 2 LRT plan is the marquee component of the City of Ottawa’s 2013 Transportation Master Plan (TMP). The TMP unanimously approved by Council on November 26, 2013, sets out the City’s priorities for transit and transportation infrastructure investments until 2031 in accordance with the City’s Affordable Network Plan. Stage 2 incorporates “a single project... that will bring LRT rail west, south and east, along with resulting operational savings well in advance of the previous schedule proposed in the 2008 TMP.” To achieve this, Stage 2 has been a priority in building capital budget forecasts with staff also receiving previous direction from the 2013 TMP



report to seek cost-sharing from the federal and provincial governments “for the Stage 2 city-wide transit package (LRT components) of the Transportation Master Plan.”

## **The Stage 2 LRT Project – Laying the foundation for success**

On July 8, 2015, Council reconfirmed its commitment to place Stage 2 LRT at the top of its 2015-2018 Term of Council Priorities. At that time Council also unanimously approved the *Stage 2 LRT Environmental Assessment and Functional Design Report* (ACS2015-CMR-OCM-0017) which laid out the Environmental Assessment (EA) process for Stage 2, including the systems functional design, and approved the Business Case for the Project. Council provided budget authority to begin the Preliminary Engineering effort. Council also provided delegated authority to the City Manager and the Mayor to engage with the federal and provincial governments to secure provincial and federal government and other potential funding partnerships for the Stage 2 LRT Project.

The Environmental Assessments (EAs) confirmed the functional designs of the Trillium Line extension alignment from Greenboro Station to Bowesville Station, including the potential addition of a future Airport Rail Link; the Confederation Line West extension from Tunney's Pasture to both Baseline and Bayshore Stations; and the Confederation Line East extension from Blair Station to Place d'Orléans Station, including a potential extension to Trim Station.

Although the Airport Rail Link and Trim extension are not included in the TMP's Stage 2 scope, the functional designs were completed as part of the EA process to ensure the City is ready to move forward with these additional projects should sufficient provincial and federal government funding become available.

Two additional Council recommendations were approved by Council. The first motion directed staff to "explore structuring the Stage 2 LRT Project procurement documents to incent achieving Trillium Line revenue service sooner than the estimated 2023 timeline." The second motion directed staff to "fully assess the feasibility and relative priority of rapid transit investment in the west, and develop an option to provide a rapid transit rail solution to Kanata at the earliest opportunity." Both of these additional directions were subject to funding availability and affordability.

Council also provided staff with two directions related to the Bus Rapid Transit (BRT) network as part of the consideration of this report. The first directed that Staff look for "coordinated design opportunities to improve bus service along the affected sections of the Southwest Transitway during the preliminary engineering phase for the link to the Woodroffe site" as well as "opportunities to provide alternative Park and Ride facilities at or near Baseline Station in a manner that can complement planned or future development of the CentrepoinTE mixed use area during the preliminary engineering

phase for the link to the Woodroffe site.” The second gave direction “to fully assess the feasibility and relative priority of a bus rapid transit (BRT) investment to connect Riverside South to Barrhaven Town Centre at the earliest opportunity.”

### **Interim Steps Completed - Preparing for the Procurement Process, Advancing Preliminary Engineering Design and Efforts to Secure Partnership Funding**

To meet Council’s direction to accelerate the implementation of the Stage 2 LRT Project, as well as position the City to take advantage of the expressed interest from the federal and provincial governments in increasing funding for transit infrastructure, staff undertook a number of steps to move the Stage 2 LRT Project forward immediately following Council approval.

It should be noted that the work that has been done for the first stage of the Confederation Line project has made it possible for Stage 2 to proceed under accelerated timelines. The Confederation Line project provides recent enough experience to permit Stage 2 to take advantage of the full procurement process undertaken for the Confederation Line (saving time and providing opportunities for Stage 2 to capture the value from contractors with direct, relevant experience where it makes sense to do so) while still being able to incorporate ‘lessons learned’ from Confederation Line as part of the Stage 2 implementation plan.

To this end, on September 1, 2015, the Finance and Economic Development Committee received a report on the procurement strategy for *Stage 2 LRT Preliminary Engineering and Project Management Services Contract (ACS2015-CMR-OCM-0023)*. The report identified that Capital Transit Phase 2 (CTP2), the private sector Owner’s Engineer team which had won the competitive procurement process to lead the preliminary design and other support for the Confederation Line, had been contracted to advance the Stage 2 design through preliminary engineering. Retaining CTP2 allowed staff to accelerate the Stage 2 schedule by approximately 4-6 months, ensured the City would be ready to take advantage of recently established federal and provincial infrastructure programs, retained competitive rates for their services by anchoring pricing to their previous competitively award contract, and provided the next phase of the Stage 2 project with their demonstrated and unique expertise with respect to Ottawa’s Light Rail Transit system.

In December, 2015, City Council was provided with a third-party assessment of the implementation plan for the Confederation Line project. Deloitte was selected from the City’s standing offer list to conduct the study due to their experience with the procurement option analysis for the Confederation Line. The “Ottawa Light Rail Transit

System: Lessons Learned from Confederation Line & Stage 2 Implementation Implications” report included early procurement options analysis work and provided a number of recommendations toward improving the implementation of the Stage 2 LRT Project. Most of the recommendations have been incorporated into subsequent staff actions and report recommendations, including those found in this report. These include advancing preliminary designs to an optimal point for an Alternative Financing Procurement model (P3), the inclusion of an affordability cap and ‘gating’ processes to ensure appropriate risk transfer, early identification of property acquisition needs and issues, effective project bundling, early involvement of OC Transpo in planning and development, and early stakeholder engagement and broad-based communications.

On May 11, 2016, City Council considered its first report resulting from the direction to begin preliminary engineering in preparation for procurement. The detailed review of the functional designs and environmental assessment (EA) concepts, from a value-engineering perspective, identified three opportunities for improvement, as well as the first project recommended to be bundled with the Stage 2 projects. Council approved an alignment adjustment for the Confederation Line West extension at Cleary Avenue, an alignment adjustment to the Confederation Line East extension in the vicinity of Blair Road and the alignment adjustment to the Confederation Line East extension in the vicinity of Montreal Road, as well as bundling the City’s planned Montreal Road Bridge Replacement with the Stage 2 LRT Project. The environmental assessments were updated in accordance with Council’s decisions, and the costs associated with the preliminary engineering work and other early activities related to the delivery of the Stage 2 project were included in the City’s application to the Public Transit Infrastructure Fund (PTIF).

In addition, although it is not anticipated that the initial funding of the Stage 2 project would include the Trim Road and Airport Rail Link extensions, preliminary engineering was undertaken by the project team for both of these future extension projects to ensure that these projects could be implemented concurrently with Stage 2 provided full funding from provincial and federal governments became available.

The Confederation Line project is being constructed and brought into revenue service through a Design Build Finance Maintain public-private partnership (P3) with a consortium, the Rideau Transit Group (RTG). This partnership was secured through a competitive process that included an Alternative Financing and Procurement arrangement, whereby the private sector partner privately finances a portion of the project’s capital cost. The innovative approach taken for the procurement and delivery of the Confederation Line project has been recognized as a best practice internationally,

winning the Canadian Council of P3's "Gold Award" for Innovation and Excellence in 2013, and the Partnership Bulletin's "Gold Award" for Best Rail Project, Project Finance Magazine's "North American Public-Private Partnership (P3) Deal of the Year and the P3 Bulletin's "Silver Award" for the Best Rail/Transit Project in the Americas in 2014.

The Confederation Line procurement structure has positioned the City to successfully implement the Confederation Line project within budget and with revenue service to begin in 2018. Staff has been able to build on its expertise and lessons learned working within a Public-Private Partnership (P3)/Alternative Financing and Procurement (AFP) structure for the Confederation Line in preparation for a similar and an improved process for the Stage 2 LRT Project. Since May, 2016, staff has continued to work with the City's Owner's Engineer team to advance preliminary engineering work and level of design, and to prepare output specifications for the procurement process along with a more refined project cost estimate.

This report makes recommendations to facilitate the finalization of the scope of the overall Stage 2 procurement, including the functional alignment, identifying the projects to be 'bundled' with the Stage 2 LRT Project, updating the cost estimates, ensuring the affordability of the proposal, recommending the procurement model to be used, initiating the procurement process and proceeding with the actions that will provide Council with the necessary information to proceed with the project when Council considers the results of the procurement process. These actions also include providing authority to formalize funding commitments from the federal and provincial partners, beginning the land assembly process, and proceeding with agreements with the Ministry of Transportation of Ontario (MTO), the Ottawa Macdonald-Cartier International Airport Authority, Public Service and Procurement Canada (PSPC), and the National Capital Commission (NCC).

## **DISCUSSION**

When City Council approved the functional design and alignment of the Stage 2 LRT Project in July 2015, it was specifically understood that these were "intentionally high level in order to give maximum flexibility to the preliminary engineering team and the winning design build Project Proponent." The preparatory work for the Stage 2 LRT Project, therefore, assumes the City will proceed with a Public-Private Partnership (P3)/Alternate Finance Procurement (AFP) model, as is common for this scale of transit project in Ontario, and as is being done for Confederation Line.

Staff began the preliminary engineering work to advance the project from a functional design level to a proven, constructible and procurement-ready design. As noted earlier,

on May 11, 2016, City Council considered its first report resulting from the direction to begin preliminary engineering in preparation for procurement, and approved alignment adjustments for the Confederation Line West extension at Cleary Avenue, the Confederation Line East extension in the vicinity of Blair Road and the Confederation Line East extension in the vicinity of Montreal Road, as well as bundling the City's planned Montreal Road Bridge Replacement with the Stage 2 LRT Project.

As was indicated in that report, the preliminary engineering work continued, with the goal of recommending the final design elements and alignments for each of the three lines and identifying project bundling opportunities in preparation for the procurement process. Extensive community and stakeholder consultation was undertaken for recommended alignment changes, as well as for pedestrian and cycling connectivity recommendations.

Below are the recommendations that will finalize the Stage 2 LRT Project elements to go to competitive tender. As well, recommendations are being provided with respect to the Trim extension and Airport Rail Link, so that these projects will be ready to proceed should funding be confirmed in the coming months. Following the completion of the tender process, the winning bidder(s) selected for Stage 2 LRT Project will be provided with the flexibility to develop final designs and manage the other aspects of the project to meet Council's expectations within the affordability cap.

## **PART 1: EXPANDED STAGE 2**

The following sections describe the additional recommended refinements, additions and scope to the Stage 2 LRT Project for the purposes of procurement. As noted and detailed below, these changes were incorporated into the Ministry of Environment and Climate Change (MOECC) approved Confederation Line West LRT Extension Environmental Assessment.

### **Confederation Line West Extension Improvements**

#### **Alignment Improvements at Richmond Road**

Further investigations of the functional design concept of the Confederation Line West alignment through 747 Richmond Road identified a number of challenges associated with the tunnel alignment under Richmond Road. These challenges included: significantly confined space within the limits of the Richmond Road right-of-way to construct the tunnel, construction staging and mobilization site impacts on the Byron Linear Park, extensive traffic decking and utility relocation requirements within

Richmond Road, as well as tight proximity to adjacent properties and the West Nepean Collector (WNC) sewer.

Given these challenges, staff analyzed a number of alternative alignment options and are recommending a refined alignment beginning west of Cleary Station that includes crossing over the WNC at Cleary Avenue and transitioning under the Byron Linear Park a few hundred metres farther east than indicated in the previous functional design, as shown below.

Figure 1: Alignment Improvement at Richmond Road



This shift under the park will eliminate the challenges outlined above while achieving capital savings of approximately \$15-20 million. This will also reduce the duration of construction, reducing impacts on the community and associated traffic diversions by approximately 5-6 months, as well as minimizing property and utility costs. It also creates an opportunity to enhance the landscaping and community enjoyment of the west end of the Byron Linear Park upon completion of LRT construction.

The recommended Byron Linear Park alignment includes the following additional benefits:

- Provides approximately 22 metres of width for tunnel construction, compared to the functional design alignment that at its narrowest point was only 12.1 metres wide;
- Reduces the risk of damaging the WNC as the separation between the tunnel wall and the WNC increases from less than 2 metres to approximately 4 metres;

- Reduces the risk of damage to two adjacent structures by increasing the proximity to the foundations of these developments from a minimum of 2.2 metres to approximately 4-6 metres;
- Reduces the overall traffic decking requirements by approximately 80%. This, in turn, significantly reduces the traffic impacts on Richmond Road and will minimize the risk of traffic infiltration into the local community during tunnel construction; and,
- Reduces the number of utility interruptions along the corridor as the majority of the utilities located in the Richmond Road right-of-way will not require relocations.

The capital cost savings associated with the improved alignment also allows the City to allocate approximately \$4 million to restore and enhance the park between Cleary Avenue and Woodroffe Avenue upon completion as well as add \$1 million in additional funding for public art along this corridor.

The City continues to consult with local community associations and affected property owners. A public meeting was held on September 14, 2016 where the community did express some concerns about the greater loss of trees associated with the alignment shift; however, in general, comments were positive with participants balancing the pros and cons of the alignment change given the park impacts in either scenario. More recently, a Public Open House was held on January 31, 2017 where the public provided feedback on the functional design for the entire Richmond/Byron corridor (from just east of Cleary Avenue to McEwen Avenue).

#### Alignment Improvement and Station Shift at Lincoln Fields

The location of Lincoln Fields station and supporting alignment is recommended to shift slightly east to improve service and eliminate potential flooding risks associated with a station location in the existing Transitway right-of-way.

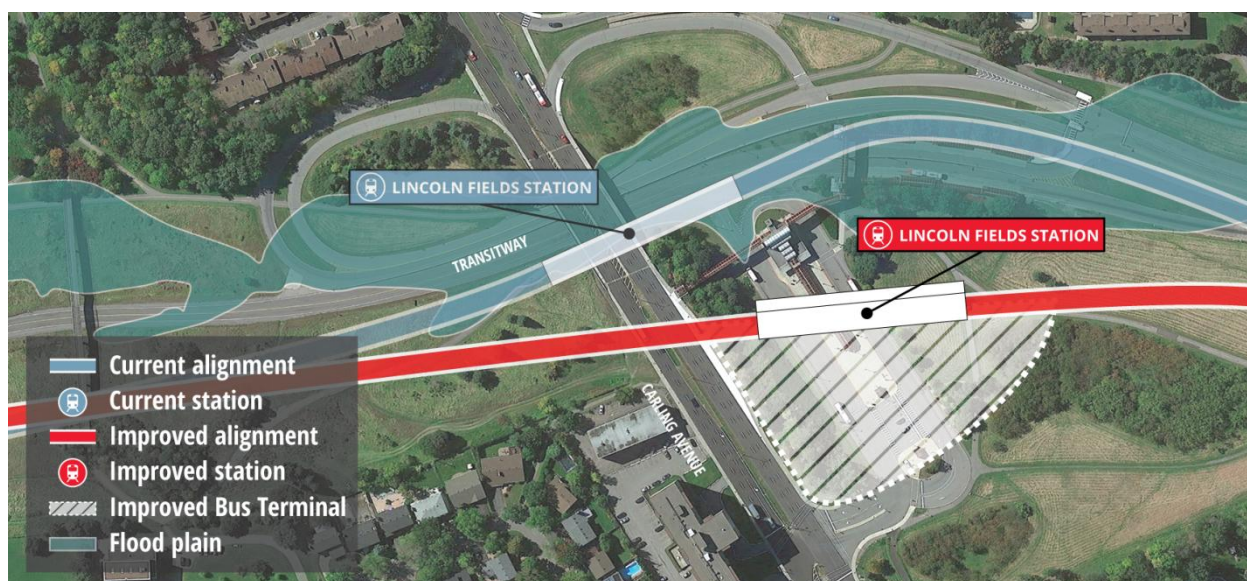
The original functional design concept of the Lincoln Fields Station followed the existing transit corridor and reused much of the existing infrastructure, including the bus terminal and pedestrian bridges. The vulnerability of this existing Transitway alignment is that it is located in the heart of the flood plain for Pinecrest Creek, which is undesirable for an electrified (or any) light rail system. To address the flood risk of the Transitway corridor, the functional design concept proposed extensive flood walls to isolate the LRT from flooding during storm events.



Preliminary engineering revealed that, even with extensive flood proofing of the station and alignment, there would still be a risk that LRT service would not be operational during an extreme storm event. Further, it was revealed that the original alignment, with flood walls, would exacerbate the flooding of the Sir John A. Macdonald Parkway, and this condition was not acceptable to the NCC (the land owner of the Pinecrest Creek corridor).

Following a detailed review of alternative alignment and design options, staff recommends shifting the LRT alignment east of the existing Transitway corridor, farther away from Pinecrest Creek, to eliminate the flood risk to LRT operations, as shown below. This shift provides an opportunity to reinstate the valley lands where the existing Transitway is located to a natural state, including the future potential day-lighting of Pinecrest Creek (i.e. converting the underground culvert to an open naturalized creek which would result in improved water quality and aquatic habitat and some degree of bio-retention of ground water).

Figure 2: Alignment Improvement and Station Shift at Lincoln Fields



The recommended alignment can be implemented at a comparable cost. In addition, the alignment change would include a new Lincoln Fields Station, a new LRT tunnel under Carling Avenue and a new fare-paid bus terminal, reoriented to provide improved station integration with the transit network. Staff undertook a noise and vibration analysis which indicated that with a standard noise wall on the east side of the new bus platform, noise levels associated with these changes will be compliant with the relevant noise standards for such facilities.

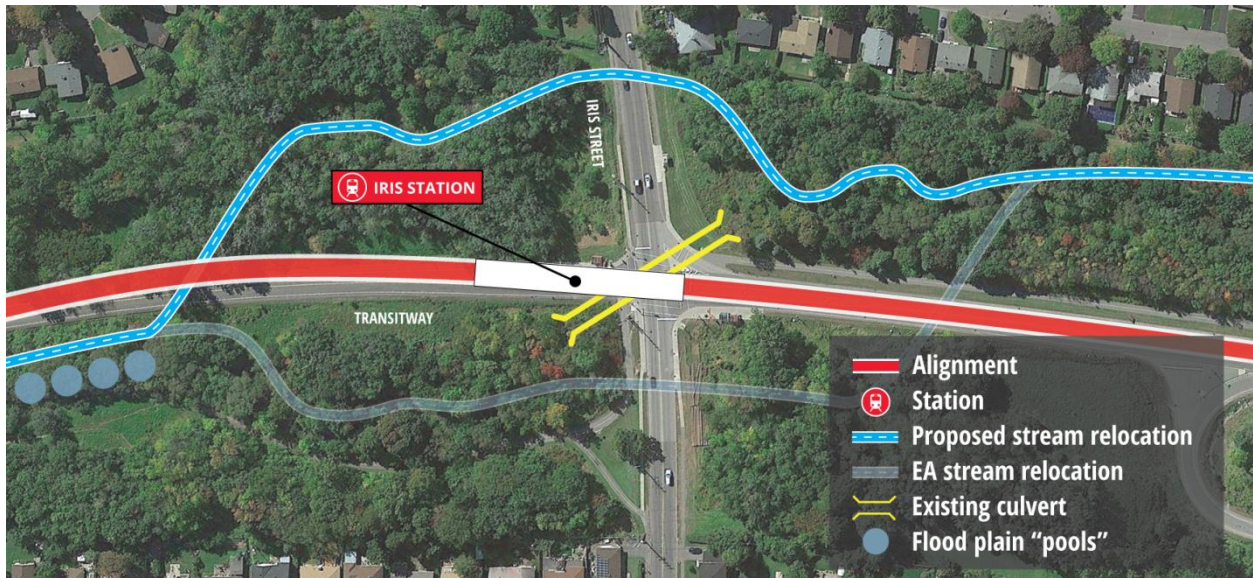
While the original functional station design included a centre platform station with tracks on either side of the platform, further operational analysis and modeling has demonstrated the need for a two platform, three track arrangement for opening day in 2023, which will allow for proper operation of the 15 minute service that is provided on the Confederation Line late in the evening and will also allow for the staging and dispatch of supplementary trains toward downtown in the peak periods or following major events. The ability to add a train heading east from Lincoln Fields Station into downtown will help to provide more capacity into downtown in the morning peak period, from downtown to the east in the afternoon peak period, or to the east after a major downtown event, such as Canada Day or Bluesfest. A similar third track or “pocket track” will also be built just east of Hurdman Station to also allow for the staging and dispatch of supplementary trains toward downtown to the west, also helping to assist with this provision of additional capacity in the system’s core when required.

South of Lincoln Fields Station the alignment splits west to Bayshore Station and south to Baseline Station with the tracks to and from Bayshore crossing over the tracks to and from Baseline via a grade separation structure/berm. The configuration of the grade separation structure provides operational benefits and permits the Transitway to continue to be used for bus service to Iris (and on to Baseline via Woodroffe) throughout the majority of the Confederation Line West construction duration. Maintaining bus service on the Transitway during construction significantly benefits current transit customers and reduces operating costs associated with detours. The NCC supports these changes as they assist in their goal of returning the Pinecrest Creek valley to a more natural condition.

#### Pinecrest Creek Re-Alignment at Iris Station

The July 2015 functional design concept at Iris Station included a new station integrated with a new Iris Street bridge configuration that provided grade separation between the LRT alignment and Iris Street. However, a more detailed analysis demonstrated that this LRT/Iris Street bridge configuration conflicted with the existing Pinecrest Creek culvert. To address this conflict, the functional design concept relocated the Pinecrest Creek culvert to cross under the LRT alignment farther south of Iris Street. Pinecrest Creek would then pass under Iris Street along the west side of the LRT alignment and continue along the west side where it re-joins the existing creek, as shown below.

Figure 3: Pinecrest Creek Re-Alignment at Iris Station



This alternative Pinecrest Creek relocation can be implemented at a comparable capital cost while reducing maintenance costs over the long term. The alignment of the creek will meander by 40 metres over the relocated length of the creek. This will mitigate the impacts of the new creek alignment and improve the health of Pinecrest Creek by minimizing erosion, reducing water velocities, and improving water quality.

The City has consulted the local community and the NCC as the owner of the Pinecrest Creek corridor. No major concerns have been expressed to date, and the NCC supports the new alignment.

#### Bayshore Station Shift and Expanded Bus Facility

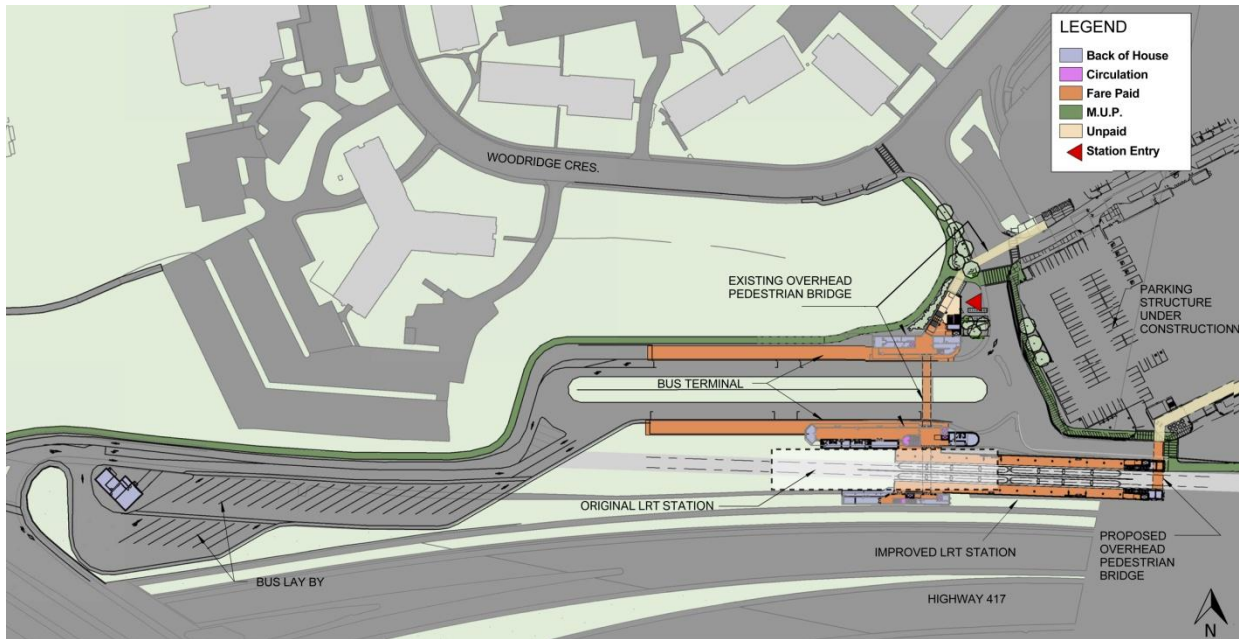
Adjustments to Bayshore Station will shift it approximately 75 metres to the east which improves the potential for a future direct connection for passengers transferring between the LRT station and Bayshore Shopping Centre.

The current design includes a connection from the bus station to the shopping centre via an elevated pedestrian bridge connected to the third level of the parking garage. This design requires transit customers accessing the shopping centre to walk through a parking structure and a pedestrian bridge that is not fully weather-protected.

The proposed station shift provides the opportunity for an improved, weather-protected, connection to be constructed now or in the future, directly from the LRT station platform to the second level of the shopping centre, as shown below.



Figure 4: Bayshore Station Shift and Potential New, Improved Connection



The recommended design improvement continues to maximize the reuse of the existing station infrastructure, including buildings, platforms and paved areas.

The costs associated with shifting Bayshore Station slightly to the east are negligible. The shift also enables significant cost savings associated with the potential construction of the improved connection directly from the LRT platform to the shopping centre. If this connection is pursued, the property owners of Bayshore Shopping Centre will be responsible for constructing and funding this improved connection. Discussions between the City and the property owner are ongoing.

While this shift improves public access and potential future connectivity, during staff's work to update and refine designs for Bayshore Station, it was determined that additional space is required to facilitate bus to train transfers at this location than had been accommodated for in the Confederation Line West EA. As a result, staff recommends finalizing the additional property requirements and, following Council approval, formally initiating the process to file an EA amendment to seek provincial approval for this adjustment. If however, a Moodie LRT extension is deemed to be feasible, as outlined later in this report, an EA change for Bayshore would no longer be required.

### Goldenrod Bridge Connection

In order for buses to access the Tunney's Pasture bus platform after Confederation Line West extension revenue service in 2023, a road bridge over the LRT alignment is required to connect Scott Street to Goldenrod Avenue. Although the first stage of the Confederation Line has built a temporary berm across the Transitway trench to facilitate bus access to Tunney's Pasture to and from Scott Street, this temporary condition will have to be removed before 2023 to facilitate LRT operations.

While the City has determined that Stage 2 only requires a two-lane bridge for bus operations, Public Service and Procurement Canada (PSPC), the owner of the Tunney's Pasture Federal Campus, requested that the Goldenrod Bridge also provide general access to federal lands. To this end, PSPC funded a joint City/federal traffic impact study for this area.

Based on the results of the traffic impact study, a three-lane cross-section is recommended to address short and long-term traffic needs. With sidewalks and bike lanes on either side of the bridge and three general purpose lanes in the middle, the Goldenrod Bridge access to Scott Street will represent a long-term improvement to the pedestrian, cycling and vehicle access to the Tunney's Pasture campus and is consistent with the objectives of the Tunney's Pasture Master Plan for the future development of these federal campus lands. Further, a three-lane mixed-traffic cross-section has been accepted by OC Transpo as the preferred bridge configuration.

The benefits of the Goldenrod bridge connection, as they relate to the Tunney's Pasture campus and its future development, include the following:

- Improved bike and pedestrian access to the existing office uses in the campus;
- The centre of the Tunney's Pasture Office precinct is linked directly to Scott Street;
- Diversion of traffic away from the Scott and Holland intersection;
- The construction of the Goldenrod Bridge avoids the need for some traffic measures at other locations (particularly the signalization of the Sir Frederick Banting Driveway and Scott Street intersection and the signalization of the Parkdale Avenue and Colombine Driveway intersection);

- The three-lane mixed traffic configuration is preferred for bus operations, and can be integrated with the proposed design of the post 2023 Tunney's Pasture Campus bus platform;
- Improved access to the existing office uses in the campus; and
- Constructing the ultimate bridge now avoids the need to construct over a live LRT operation in the future.

The City and PSPC have reached an agreement in principle that, if the City proceeds with the construction of the three-lane end-state Goldenrod Bridge as part of the Stage 2 LRT Project, PSPC will be responsible for 30 per cent of the estimated \$3.2 million capital cost of the bridge, including design, construction and contingencies. Given the benefits above and the cost-sharing opportunity, staff is recommending that this be included as part of the Stage 2 LRT Project. The City would be responsible for the maintenance of the bridge should it become designated as a public highway.

#### Baseline Station Park and Ride

As part of the July 2015 consideration of this report, staff was directed “to explore opportunities to provide alternative Park and Ride facilities at or near Baseline Station in a manner that can complement planned or future development of the Centrepointe mixed use area during the preliminary engineering phase for the link to the Woodroffe site.” The preliminary engineering review of this direction demonstrated that a Park and Ride facility can be maintained; however, a reduction in parking spaces is required due to the size and footprint of the bus terminal. In addition, the context for this direction has changed given that staff is no longer looking to facilitate a connection to an MSF facility at the Woodroffe site. With Woodroffe no longer being considered as an MSF option, the park and ride impacts at this location are reduced as there is no longer a need to construct an LRT connection south of Baseline Station to the Woodroffe site. Similarly, there are no longer any opportunities for staff, in coordination with the Stage 2 LRT Project, to coordinate the design of a potential connection to the Woodroffe site to seek opportunities “to improve bus service along the affected sections of the Southwest Transitway during the preliminary engineering phase” as previously directed.

The Baseline Station concept does still reduce the number of parking spaces at the Baseline Station Park and Ride facility from approximately 273 spaces that exist today to 200 spaces in 2023 due to the size and footprint of the bus terminal, and approximately 40 of those may be recommended to be reassigned as designated

employee parking resulting in a net supply of park and ride spaces in 2023 of 160 spaces.

## **Trillium Line South Extension Modifications**

### Airport Station Shift

The functional design concept approved by Council in July 2015 located Airport Station between the Airport terminal and parking garage structures, at the top level of the parking garage – as agreed to by the Airport Authority at that time.

City staff, in consultation with the Ottawa Macdonald-Cartier International Airport Authority, are exploring opportunities to improve the location of Airport Station by shifting it closer and potentially connecting it with the airport passenger terminal building. Shifting the station will improve customers' experience by providing a more direct connection.

### Relocated Walkley Yard Maintenance and Storage Facility

The initial functional design maintained the Trillium Line's Walkey Yard maintenance and storage facility (MSF) at its current location; however, after further assessment it was determined that the construction of a maintenance and storage facility on City land, west of Albion Road, would be preferred to renovating and expanding the current Trillium Line Walkley Yard MSF and is now recommended by staff. The property cost of leasing or purchasing the current site, in addition to other potential risks and costs, make it to the City's advantage to have a potential proponent build a new MSF on land it already holds without impacting adjacent residents or businesses. Further details are outlined in Appendix 7.

### Leitrim Road Overpass

Based on preliminary design work, the Leitrim Road overpass is recommended to be shifted north to allow a portion of the current Leitrim Road to maintain private property access and minimize property requirements on the south side of Leitrim Road.

### Lester Road Grade Separation

Preliminary design work has indicated that the Trillium Line service at Lester Road will be grade separated as indicated in the environmental assessment functional design. The infrequent freight service will remain as an at-grade crossing.

## **Stage 2 LRT Expansion Projects: Trim Extension, Airport Rail Link and Moodie Extension**

As identified in the Stage 2 Light Rail Transit Environmental Assessment and Functional Design Report (ACS2015-CMR-OCM-0017), the Trim extension and the Airport Rail Link were included in the project's Environmental Assessments (EA). Both received ministerial approval in spring 2016 as part of the Confederation Line East Extension EA and Trillium Line Extension EA, with provincial and federal funding required to undertake these extensions prior to 2031.

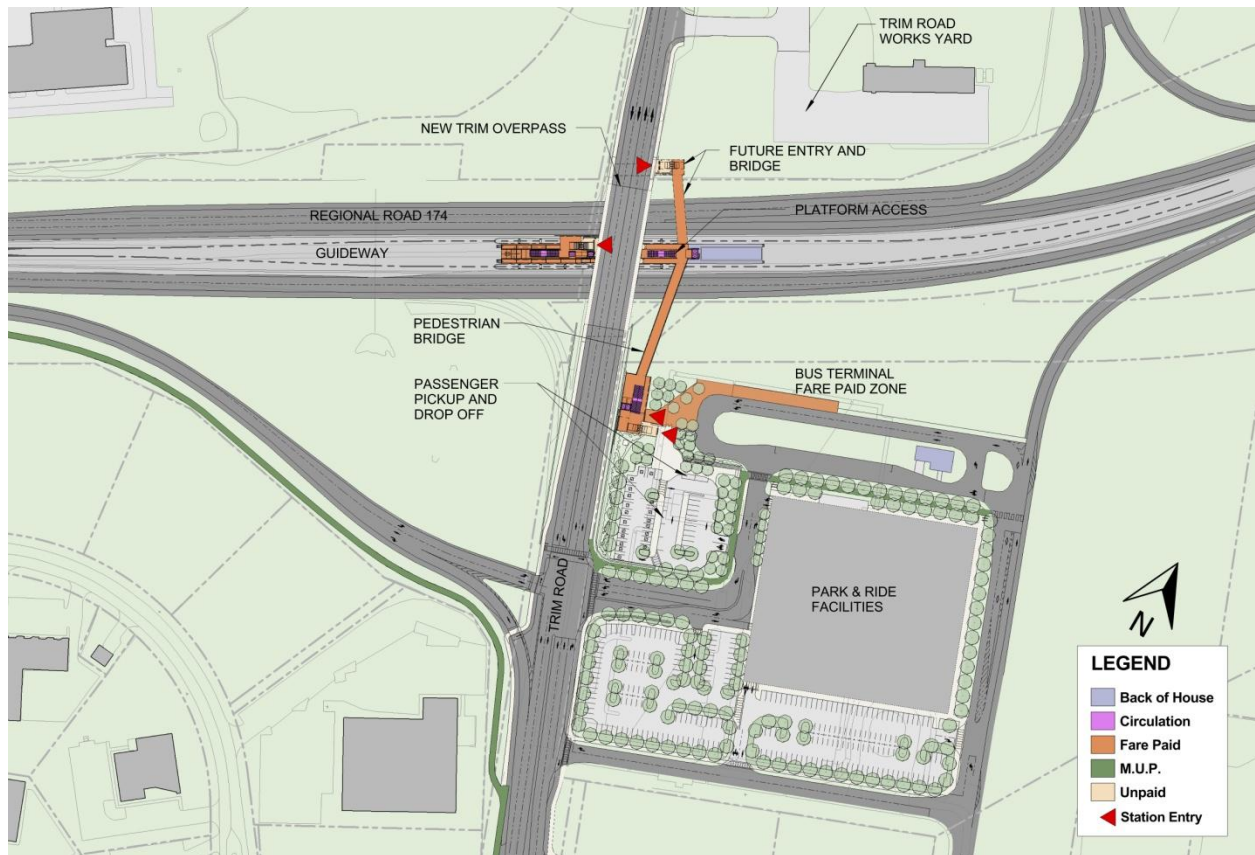
To ensure readiness, preliminary engineering designs for these extensions were undertaken. To date, the Province has committed to funding half of the costs for both of these projects. A federal funding commitment is anticipated following the release of phase 2 of the Public Transit Infrastructure Fund and Green Infrastructure Fund. Staff recommend including these additional extensions as part of the overall Stage 2 LRT Project procurement.

### **Trim Extension**

Subject to full funding from the provincial and federal governments, the Trim extension would extend Confederation Line East by 3.5 kilometres from Place d'Orléans Station to Trim Station, including a new station at Trim Road, connecting to an expanded Park and Ride lot at this location. Trim Station would include a centre platform with entrances on both sides of Trim Road for access to the station below, as shown in the figure below. A new Passenger Pick-Up and Drop-Off (PPUDO) and expanded park and ride capacity will be constructed adjacent to the new entrance servicing the bus terminal, along with modified traffic access for all commuters to and from Highway 174 and Trim Road. The station would also protect for potential integration with any future development of the existing Trim Road Works Yard.



Figure 5: Trim Station Design Concept



The extension also protects for three additional stations at Orléans Town Centre, Tenth Line and Gloucester High School, at a future date, as warranted by development and ridership volumes. The existing bus platform at Trim Station would be relocated directly adjacent to the train platform in order to minimize transfer times from bus to train. The Trim bus platform would be within a fare-paid zone and transferring passengers will access the train platform via a pedestrian bridge over the Highway 174 eastbound lanes.

The Trim extension would occur as part of the Confederation Line East extension construction, without impacting the recommended 2022 revenue service date. It should also be noted that while extending LRT to Trim is in the City Ultimate Transit Network and provides significant quality and service benefits to residents east of Place d'Orléans, further analysis has determined it does create modest operating pressures in contrast to the TMP analysis that estimated its implementation would be cost neutral.

It should also be noted that the Confederation Line East extension includes a plan to enhance the existing sound attenuation measures along Highway 174. Appendix 8

illustrates these enhancements comparing what exists today along the construction corridor with what will be implemented as part of the Stage 2 LRT Project.

### **Airport Rail Link**

As with the Trim extension, to ensure readiness to include the additional scope, preliminary engineering on the Airport Rail Link has been undertaken in parallel with efforts to secure full funding commitments from the federal and provincial governments. The Airport Rail Link is also subject to agreement with the Ottawa Macdonald-Cartier International Airport Authority (OMCIAA).

The Airport Rail Link is a 4 kilometre branch line connecting the Trillium Line to the Ottawa Macdonald-Cartier International Airport, including two new stations: Uplands Station and Airport Terminal Station. The Airport Rail Link will now run on its own track distinct from the Trillium Line mainline from South Keys Station, as opposed to joining the mainline just south of Hunt Club Road, as identified in the functional designs presented to Council in July 2015.

The existing South Keys Station on the Transitway will be expanded to include new train platform(s). South Keys Station will serve as the transfer station from buses and Trillium Line trains to and from the Airport Rail Link. It will be reached via elevators and a staircase from the existing pedestrian underpass. It will also incorporate sheltered platforms and a fare-paid zone delineated by fare gates.

City staff, in consultation with the Ottawa Macdonald-Cartier International Airport Authority, are exploring opportunities to improve the location of Airport Station by shifting it closer to the airport, with a new connection to the airport passenger terminal building. The functional design concept approved by Council in July 2015 has the Airport Station located between the Airport terminal and the parking garage structures, at the top level of the parking garage – as agreed to by the Airport Authority at that time. Shifting the station will improve customers' experience by providing a more direct connection.

Airport service is expected to operate at the same frequency as the Trillium Line and will operate as a shuttle between Airport Station and South Keys Station. While the design and implementation of the Airport Rail Link will protect for direct to Bayview service, it will not likely operate this way, and would only be possible at off-peak periods. This means connections from the airport to downtown locations will involve two transfers. The projected incremental ridership to the airport is expected to initially be low, and as such, if implemented as part of Stage 2 LRT project, will result in a net operational cost

pressure (estimated to be \$4M per year). Despite this, staff recommends the implementation of the Airport Rail Link, as it advances the City's ultimate transit vision and leverages an attractive City-building feature and asset which will be implemented through federal and provincial funding. It should also be noted that the Ottawa Macdonald-Cartier International Airport Authority (OMCIAA) will make a capital contribution to the Airport Station.

### **Moodie Extension**

The City's Transportation Master Plan (TMP) envisions an ultimate rapid transit plan that extends west of Bayshore Station to Kanata. As part of the July 2015 report, Council directed staff to fully assess the feasibility and relative priority of rapid transit investment on the west and develop an option to provide a rapid transit solution to Kanata at the earliest opportunity while respecting capital budgeting priorities for transit. The direction was added by motion during the June 29, 2015 Finance and Economic Development Committee consideration of the Stage 2 LRT report, and this section responds to that direction.

Currently, the City is constructing the bus rapid transit West Transitway Extension from Bayshore Station to Moodie Station, with expected revenue service in November 2017.

On June 8, 2016, the Mayor and west-end Councillors, along with the federal Member of Parliament for Kanata-Carleton, announced that "the City will begin the planning work that is needed to extend light rail transit (LRT) from Bayshore to Kanata." On September 7, 2016, Transportation Committee approved the Statement of Work for the proposed Kanata Light Rail Transit Planning and Environmental Assessment Study (Bayshore Station to Palladium Drive) (ACS2016-TSD-PLN-0001). As noted in that report, the City is undertaking the Kanata LRT EA study earlier than planned in anticipation of the next round of government funding for transit.

Given the above, staff's assessment of the feasibility of expanding the LRT farther west has determined that the procurement process for the Stage 2 LRT Project does present an opportunity to undertake the conversion of the West Transitway Extension (Bayshore Station to Moodie Station) from bus rapid transit to light rail transit at an estimated cost of approximately \$70 million (excluding vehicles). It is anticipated that this additional cost, along with the cost of a second MSF at Moodie, which is a better operational location and will be needed for future LRT extensions, can be accommodated through the procurement process and within the anticipated affordability cap as a result of anticipated cost compression on the overall Stage 2 LRT program within the project budget. This will not be confirmed until the City has concluded its procurement process.

The possible extension of the line to Moodie would also improve transit service for customers travelling from Kanata and Stittsville toward the central part of the City. Bus routes from Kanata and Stittsville would connect with the O-Train Confederation Line at Moodie Station. The bus platforms and train platforms would be closely integrated, to allow customers a simple and quick transfer, with no need for a fare transaction. By joining the train at Moodie Station rather than Bayshore Station, travel times to downtown and other central locations would be reduced, and the comfort and reliability of the train would be available for a greater part of these customers' trips. Moodie Station would also be the connection point for customers travelling from the central part of the City to employment locations nearby, such as Kanata North and Carling Place. Those customers would have improved service as their travel times would be reduced, as the comfort and reliability of the train would be available for most of their trip, and because connecting buses would be available from Moodie Station directly to the major work locations, making service and more reliable by avoiding congested areas and making use of the transit priority measures that exist today.

It is therefore recommended that the City bundle the 2.3 kilometre LRT extension to Moodie with the Stage 2 procurement. Once Council gives direction, staff will need to take immediate action with respect to environmental assessment approval and preliminary design of the LRT to ensure timely coordination with the Stage 2 procurement process timelines. The Kanata LRT Environmental Assessment was de-scoped in terms of its eastern end point from Bayshore to Moodie and a subsequent change will be made to the West Transitway Extension Planning and Environmental Assessment Study (Bayshore Station to Moodie Drive) to advance the conversion from bus rapid transit to light rail transit between Bayshore and Moodie in order to protect for the feasibility assessment of light maintenance and storage facility (LMSF) sites west of Bayshore, for the advancement of the Moodie LRT Extension, and to allow the City to take advantage of funding availability for this project in the Stage 2 procurement.

On June 8, 2016, the Mayor and west-end Councillors, along with the federal Member of Parliament for Kanata-Carleton, announced that "the City will begin the planning work that is needed to extend light rail transit (LRT) from Bayshore to Kanata." On September 7, 2016, Transportation Committee approved the Statement of Work for the proposed Kanata Light Rail Transit Planning and Environmental Assessment Study (Bayshore Station to Palladium Drive) (ACS2016-TSD-PLN-0001). As noted in that report, the City is undertaking the Kanata LRT EA study earlier than planned in anticipation of the next round of government funding for transit.

### **Moodie Maintenance and Storage Facility (MSF)**

During the preliminary engineering of the Stage 2 LRT Project it was determined that an additional maintenance and storage facility (MSF) will be required in the near term to meet operational needs to balance the line and to meet the projected vehicle fleet maintenance and storage needs. Given this, staff is in the process of identifying potential sites for this facility near Moodie Drive. The City has had some early discussions but has yet to formally engage NCC staff on the potential use of these Greenbelt lands and an initial Open House to kick-off the EA process to ensure robust public consultation is being planned to follow consideration of this report.

If a suitable MSF site in the vicinity of Moodie Drive can be identified, this will alleviate community concerns with the originally proposed MSF facility at the Woodroffe site (also known as the Nepean Corridor), and would better serve the new Department of National Defence Headquarters along with Bells Corners residents. A Moodie MSF site would also a better support future LRT expansion as it outperforms the Woodroffe MSF site identified through the Confederation Line West EA process both functionally and financially. For example, not only are the capital costs to construct and connect to an MSF anticipated to be less at a location near Moodie, there are additional bus operational improvements associated with advancing the implementation of this extension. Therefore, staff recommend including extending the proposed LRT alignment to Moodie with a connection to a second MSF at a suitable Moodie location in the Stage 2 procurement, subject to appropriate approvals and affordability.

### **Further Defining the Stage 2 Project for Procurement – Project Bundling and Expansion of Scope**

The Confederation Line LRT Project was bundled with the MTO's Hwy 417 Widening Project (Nicholas to the Split). This was done to address coordination and schedule risk with respect to ensuring the widened lanes were available for necessary bus detours during the east Transitway shutdown to allow for conversion to LRT.

There were also a number of City projects that were added as cash allowance projects with the Confederation Line construction after procurement. This allowed for better coordination of work and ensured schedule coordination with the main Confederation Line Project Agreement.

## **Bundling City Infrastructure Projects**

As was noted in the July 2015 report, and later confirmed in the December 2015 Lessons Learned report, “[A]dditional value could be achieved by bundling... ancillary projects during the procurement period so that they benefit from the full risk transfer and cost and schedule certainty of the main P3 contract.” As part of the May 2016 report, Council approved the bundling of the Montreal Road Bridge Replacement with Stage 2. Since that time, a number of additional projects have been added to the list of projects recommended to be included in the Stage 2 LRT Project procurement that are being recommended to be bundled with the Stage 2 LRT Project to benefit from the cost-compression and fixed-price structure of an AFP/P3 procurement model.

Approximately 20 existing City projects that would benefit from bundling have been identified to minimize cost or community disruption.

These recommended projects include selected rehabilitations of infrastructure and some road, bridge, sewer and culvert works, as well as enabling works to implement transit priority measures, and construction detours. Each project has an identified scope and schedule, and although they will be included for coordination and efficiency, the recommended projects are distinct and will be funded either separately from the Stage 2 LRT Project budget or included as additional scope within a proponent’s bid proposal. As plans progress, staff will determine that some of these projects may be more effectively delivered in coordination with other projects, and will recommend adjusting City plans accordingly.

As opportunities to include additional planned works evolve, a final list of projects recommended for bundling will be provided to Committee and Council with the report recommending the Contract Award. Once final budget approval is secure in the 2017 City Budget, bundled projects will be prepared for inclusion with the overall Stage 2 LRT construction program and divided between the Confederation Line and Trillium Line procurements as appropriate. Additional details concerning each of the bundled projects outlined below can be found in Appendix 3.

### Bundled City Projects that will remain City assets:

- Upgrades to Storm and Sanitary Sewers at Byron Avenue and Woodroffe Avenue (Confederation Line Extension);
- Woodroffe Storm Water Management Pond (SWP) (Confederation Line Extension);

- Rock Wall upgrades along the Transitway between Tunney's Pasture and the Sir John A. Macdonald Parkway (Confederation Line Extension);
- Richmond Road Complete Street (Confederation Line Extension);
- Greens Creek Culvert Replacement (Confederation Line Extension);
- Highway 174 Various Culvert Replacements (Confederation Line Extension);
- Highway 174 Concrete Base Removal (Confederation Line Extension);
- Upgrade to the Shefford Road Watermain Crossing of Highway 174 (Confederation Line Extension);
- Lawn Avenue Parkette Enhancement (Confederation Line Extension);
- Jeanne d'Arc Boulevard Bridge Rehabilitation (Confederation Line Extension);
- Leitrim Road and Albion Road Intersection Improvements. (Trillium Line Extension);

Bundled City projects that will form part of the O-Train system infrastructure:

- Rideau River Bridge Rehabilitation (Trillium Line Extension);
- Dow's Lake Tunnel Rehabilitation (Trillium Line Extension);
- Upgrades to existing Trillium Line Stations (Trillium Line Extension).

**Ontario's Highway 417 Expansion Project (Between Highway 416 and Maitland Avenue)**

In May 2016, the Provincial government announced funding for the expansion of Highway 417 from Maitland Avenue to Highway 416. Building on the success of bundling highway works with the Confederation Line Project, the City recommends the Province's Highway 417 Expansion plans, between Maitland Avenue and Highway 416, also be bundled with the Stage 2 LRT Project. This coordination will provide significant benefits to both projects.

The scope of the Ministry of Transportation of Ontario's (MTO) Highway 417 project includes upgrading and rehabilitating Highway 417 structures from Maitland Avenue west to Highway 416 such that the existing outside or auxiliary lanes can both continue to provide access to off-ramps as well as provide continuous traffic flow.

The City is also working to enhance the bridge designs to better accommodate pedestrians and cyclists and to maintain consistency with the design of the adjoining City bridges over the Transitway. The federal government has also committed funding to the Province's 417 widening project, as well as committing \$1 million through the Public Transit Infrastructure Fund (PTIF) to support the design improvements for cycling and pedestrian links at MTO overpasses. The City is currently working with the MTO to secure any incremental funding necessary to achieve the implementation of these enhanced bridge designs.

The close proximity of the two projects - the 417 widening alongside the section of the Confederation Line West Extension from Lincoln Fields to Bayshore - would present significant interface risks if they were undertaken separately. The three new LRT structures at the Pinecrest interchange, to support the Confederation Line West alignment, new stations at Pinecrest and Queensview, and required mobilization sites for both projects need to be coordinated as an integrated construction undertaking. Managing these interface risks with separate project teams would require extensive and likely unwieldy coordination and opens the door for claims from both parties as a result of construction delays or lack of access to property that would be mutually required to undertake both projects.

The Province supports the proposed bundling approach and has indicated its willingness to allocate the appropriate funding to the City, in partnership with the federal government's recent funding announcement with respect to cost sharing this work. This will include financial and legal support for the integration of MTO design and construction standards, project financing, capital construction costs, detail design, and compliance oversight through the hand back to the Ontario Ministry of Transportation (MTO).

In order to meet the Stage 2 LRT Project's needs and timelines, it is further recommended that delegated authority be provided to the General Manager, Transportation Services to negotiate and finalize an interface agreement between the City and the Ministry of Transportation (MTO) outlining their respective rights and responsibilities for the Highway 417 Expansion Project, as well as a reciprocal agreement that would permit the transfer of property between the parties at a nominal cost.



## **Bundling Hwy 174 Ultimate Configuration (Jeanne d'Arc Boulevard to Montreal Road)**

Staff is also recommending that, as part of the procurement process, the City explore the feasibility of implementing the ultimate Highway 174 configuration between Montreal Road and Jeanne d'Arc, subject to funding. Although the Highway 174 project between Jeanne d'Arc and Montreal was not originally contemplated within this planning cycle, there may be cost efficiencies to both the LRT and the future 174 widening project if they were done concurrently. In order to achieve implementation, staff would need to investigate the preliminary engineering design and traffic staging implications of an integrated procurement and confirm a funding source prior to issuing the Stage 2 Request for Proposal (RFP) in the coming months.

Part of the rationale for potentially advancing this work lies in the fact that the bridge decks and the on and off ramps at Montreal Road will be built to accommodate the ultimate Highway 174 design. In addition, this section of Highway 174 is not only receiving the most significant rebuild to accommodate LRT, it is also the section that has most unencumbered space on either side of the corridor. This enhancement would see the introduction of a High Occupancy Vehicle (HOV) lane on each side of Highway 174 through this section. It is estimated that this additional work would cost approximately \$25 million.

## **Environmental Assessment Update**

### Provincial

In July 2015, the *Stage 2 LRT Environmental Assessment and Functional Design Report* received unanimous Council approval, including direction to complete the Stage 2 LRT Environmental Assessment process and documentation based on the functional design and file the respective Environmental Study Reports (ACS2015-CMR-OCM-0017).

As of December 1, 2016, the EAs for each of the three Stage 2 LRT Project extensions have received confirmation, from the Ministry of Environment and Climate Change, of completion and approval to proceed, as outlined below:

- March 21, 2016 - [Trillium Line Extension Planning and EA](#)
- May 25, 2016 - [Confederation Line East LRT Extension](#)
- December 1, 2016 - [Confederation Line West LRT Extension](#)

It should be noted that the Confederation Line West Environmental Assessment (EA) study included the alignment improvements that are detailed above and recommended in this report:

- Alignment Improvements at Richmond Road, between Cleary Avenue and Woodroffe Avenue;
- Alignment and Station Improvements at Lincoln Fields;
- Pinecrest Creek Re-Alignment, at Iris Station; and
- Shift of Bayshore Station to the east.

As previously mentioned, these changes were submitted to the Province by staff, subject to Council approval, to allow staff to meet the aggressive timelines of the proposed procurement schedule.

Following the approval of this report, staff will proceed with the EA changes required to facilitate a potential Moodie Drive extension and maintenance and storage facility (MSF), the EA changes required to accommodate the requirement for an expanded bus facility at Bayshore Station, as well as any unforeseen changes brought forward as part of the consideration of this report. If the Moodie extension is determined to be feasible an EA change for an expanded bus facility at Bayshore Station would not be required. All future changes not reflected in the final EA report will be the subject of further environmental analysis, consistent with the Transit Project Assessment Process (TPAP) regulations.

### Federal

On December 6, 2016, the Canadian Environmental Assessment Agency (CEAA) advised that it was satisfied that the Stage 2 LRT Project is not a designated project as described in the *CEAA Regulations Designating Physical Projects*.

While there is no requirement for a federal environmental assessment, there are other requirements under *CEAA* that must also be addressed prior to project completion. Section 67 of the *CEAA Act* requires a determination by federal authorities issuing permits that the project is not likely to cause significant adverse environmental effects. Staff has met with the various federal authorities potentially involved in the project and are working towards satisfying this requirement. The NCC has agreed, on behalf of the other federal authorities, to coordinate the impact assessment information that will be required to enable the federal authorities to make their *CEAA* Section 67 determination.

It is currently envisioned that this determination will be completed no later than December 2017.

Staff has also updated the Stage 2 Light Rail Transit Business and Benefits Case for submission to the federal and provincial governments. It reflects the recommendations in this report, and is attached as Appendix 4.

## **PART 2: PROCURING STAGE 2**

The City has been successful during the Confederation Line procurement in applying procurement best practices for complex linear transit infrastructure through the use of a Public-Private Partnership (P3), known in the Province of Ontario as an Alternative Financing and Procurement (AFP), model. The scale and complexity of large linear transit projects, such as the Confederation Line project, benefit greatly from aligning diverse technology, design and construction providers into a single, accountable joint venture. As was noted when Council made the decision to procure the Confederation Line as an AFP project, traditional Design Bid Build approaches when applied to larger, more unique projects risk cost over runs and extensive delays as sponsoring agencies can often lack the control and expertise to properly manage the complexity and project specific integration of all civil and system elements.

This procurement model for the Confederation Line project resulted in transferring the schedule and budget risk as well as the responsibility of the system maintenance to the contractor over thirty years until 2048. The Rideau Transit Group (RTG), as a result of winning this procurement, accepted all of the execution and coordination risk, including the tunnelling and vehicle provision risk as part of the Confederation Line contract.

The procurement of the Stage 2 project marks the first time in Canada that a sponsoring agency has extended an existing Design Build Finance Maintain (DBFM) contract that has not yet been completed and commenced revenue service.

In preparing for Stage 2, staff was working with two imperatives for the City as it relates to any potential expansion:

1. Maintain the advantages, risk transfer accountability for performance achieved in the first procurement; and
2. Ensure a well participated, fair and demanding procurement to produce excellent pricing and value.

From a competitive procurement perspective, the existing Confederation Line contract with RTG also presents two important issues that require consideration.

First, as the incumbent, RTG possesses significant advantages stemming from their control of the existing Belfast Yard Maintenance and Storage Facility (MSF) and their role in maintaining the original 34 light rail vehicles (LRVs). This system infrastructure was procured by the City, and therefore, it is in the City's interest to ensure that any efficiencies derived through increasing the productivity of this system infrastructure would accrue to the City and not to RTG as a competitive advantage in a Stage 2 procurement.

Formal market soundings confirmed that it would be very difficult to hold a fair competition for expanded Confederation Line works without eliminating these inherent advantages. Potential proponents could not envision that the City could hold a robust competitive procurement for these extensions with RTG participating given the advantages they possess. While this set of conditions threatened to deprive the City of real competitive tension in procuring the Confederation Line extensions, the same did not apply to Trillium Line, as RTG has no role, and therefore, could not be said to have the same competitive advantage for the potential procurement of this line.

The second challenge is that, should a robust competition be made possible, the interface between two potential vehicle and maintenance providers would bring with it great complexity and the real possibility of accountability gaps and deterioration of the risk transfer achieved in the Confederation Line procurement. When put into revenue service, the expanded Confederation Line should operate as a single, uniform service and cannot be delineated by different maintainers creating the potential for an inconsistent ridership experience for the customer.

There are obvious efficiencies to be had from increasing the utilization of the existing assets on the Confederation Line, namely:

- Productivity of the vehicle and civil maintenance through maximizing the efficiency of existing maintenance equipment, mobilized workforce and a single administrative structure;
- One set of vehicles with a common set of spares and specialized equipment; and
- One reliable, integrated train control system which is critical to ensure system safety and must be vital, reliable and fully integrated throughout the entire O-Train network.

Extracting these efficiencies, and addressing the challenges above requires a procurement solution for the expansion of Confederation Line to extend the 30-year maintenance concession with RTG to cover 38 additional light rail vehicles (LRVs) and the corresponding increase to the maintenance kilometres on the vehicles and the maintenance of civil infrastructure.

### **Memorandum of Understanding (MOU) with Rideau Transit Group (RTG)**

With the above considerations in mind, the project team determined the best approach was to enter into discussions with RTG to negotiate a limited extension to the Confederation Line scope and existing project agreement to determine if it would be possible to obtain the above noted efficiencies in a manner favourable to the City. At the same time, the City sought to secure, as part of this agreement, a commitment from RTG and its affiliates, to forego the opportunity to bid on the additional capital works, allowing the City much greater potential to attract proponents for a robust procurement for the expanded capital works.

The City and RTG negotiated for more than eight months with the City's goal being to secure the benefit of the available efficiencies of greater productivity from the Confederation Line assets. This effort has resulted in a memorandum of understanding (MOU) that, if approved, will enable the City to competitively procure the vast majority of the additional capital works while extending the pricing and risk transfer profile of the original Confederation Line procurement over the expanded network. These service extensions were restricted to those core elements of the new system that must be consistent and integrated with the Confederation Line system infrastructure and where financial efficiency could be extracted to the City's benefit.

For each element of extended scope, staff sought to achieve pricing that was at least as attractive as the competitive pricing bid by RTG in the Confederation Line procurement for both maintenance services and any capital works. The negotiation centred on minimizing the directed scope to RTG, maximizing the scope being brought to the competitive market, and extending work to RTG only where the Confederation Line Project Agreement (PA) contemplated the work, and where competition was either impractical or financially inefficient. For more detail on the legal and procurement rationale see the Legal Implications Section of this report and the Norton Rose Fulbright legal opinion appendix to this report (Appendix 9).

The result is a successful negotiation by which all elements awarded to RTG were either: (i) demonstrated to be priced better than what was previously received through competitive tension; or (ii) in instances where there was no comparable service, was confirmed to represent good value for the City through a third party estimator. The total capital cost agreed with RTG in the MOU is \$492 million; the majority of this representing the purchase and delivery of 38 additional LRVs.

The balance will form the project budget for the extensions taken to the competitive market in two separate procurement competitions: one for the Confederation Line extensions, including extending to Moodie and Trim; the other for Trillium Line, including the Airport Rail Link.

Market soundings held during January 2017 confirmed that the issues of incumbent advantage and competitiveness were satisfactorily addressed by way of the MOU and that the City can expect a very strong set of competitions for both procurements. Because RTG has no involvement currently in the Trillium line, and hence no inherent advantage that could challenge the creation of a fair and robust competition, they will be permitted to compete in the Trillium Line procurement opportunity.

#### Scope of the RTG Fixed-Price MOU

As discussed, the fixed-price MOU covers those project components and services that, based on natural efficiencies, benefit the City from being delivered by RTG. These elements and services are outlined below and the costs were reviewed in detail by the City's owner's engineer team:

- *Stage 2 Vehicles:* RTG will deliver 38 Alstom Citadis LRVs for the Confederation Line extensions. RTG would be responsible for manufacturing, testing and commissioning the vehicles, as specified in the original Confederation Line Project Agreement and RTG would carry the cost and schedule delivery risk. The vehicles are to be equipped identically to the Confederation Line specifications and any variations to date, and include the onboard communications and train control components. Each vehicle would be provided for \$8.9 million, including all service involved in receiving, assembling, and commissioning the additional fleet into service. This compares favourably with the \$10 million price, in 2017 dollars, for the bid vehicles in the Confederation Line procurement.
- *Belfast Yard MSF Expansion:* The Belfast Maintenance and Storage Facility (MSF) is under RTG's control for the 30-year concession period. The first stage of Confederation Line project will start with a fleet of 34 Citadis LRVs with

capacity for the Belfast Yard MSF to store up to 44 vehicles. In order to accommodate the additional Stage 2 fleet, the Belfast Yard MSF requires an expansion to maintain and house 66 LRVs. The additional 38 LRVs would also be assembled at the Belfast Yard MSF. RTG would undertake the expansion of the facility and would be responsible for the design and execution of the expansion as well as holding all schedule and cost risk for construction.

- *Additional Vehicle Maintenance:* As RTG holds inherent efficiencies with respect to increasing the utilization of the existing Belfast Yard MSF, staff and stores, RTG would extend its responsibilities for maintaining Confederation Line's complement of 34 LRVs to cover the additional Stage 2 fleet. These additional 38 LRVs, and all subsequent vehicle orders to meet ridership demand over the concession period, would be maintained by RTG with rates that are extensions of the bid prices in the original Confederation Line competition with reductions corresponding to the efficiencies that result from increased scale and operation that apply across the entire fleet. The MOU also sets out that RTG is fully responsible and accountable for the performance of these vehicles, as they are for the Confederation Line project, including lifecycle rehabilitation and mid-life rebuilds.
- *Confederation Line Extension Civil Maintenance:* To benefit from the efficiency of RTG's mobilized maintenance workforce and equipment, the MOU would assign the maintenance of all the civil infrastructure constructed as part of the competitively tendered Stage 2 Confederation Line extensions to RTG. This would enable the line to be extended while preserving the single point of accountability for service availability and risk transfer achieved in the original procurement. The MOU outlines that RTG is responsible for all maintenance risks on all Stage 2 infrastructure, including lifecycle, in the same way as they are on the existing Confederation Line infrastructure. The annual per kilometre cost for this maintenance is 40 per cent below the price bid on the Confederation Line and now extends to the entire system.
- *Procurement and Construction Support:* As part of the ongoing partnership with the City, and included in these fixed costs of the MOU, RTG would undertake all necessary services to advise and assist the City in securing a robust competition for the expanded works on the Confederation Line east and west extensions, including Trim and Moodie. To secure the full transfer of the 25-year maintenance risk on the assets constructed by the Stage 2 contractor, RTG would also participate in the development of output specifications and

procurement documentation as well as participating in design review and construction oversight to ensure a quality build.

- *Communications Equipment:* The wayside communications components of the Transit Systems for the Confederation Line Extensions are proprietary and benefit from sourcing from RTG and its subcontractors. This includes the provision of some of the required communications and safety equipment. The provision of these systems was also negotiated as part of the overall fixed-price.

As mentioned, the fixed-price negotiated for the capital elements and services outlined in the section above, is \$492 million. After extensive review, staff believes that the price for these elements and services would provide excellent value for the City having successfully extracted the efficiencies from the procurement of the Confederation Line DBFM contract anchored to the original competitive prices.

The table below sets out the extension of maintenance pricing agreed in the MOU compared to the price received during the Confederation Line competitive tender. It is worth emphasizing that these savings accrue to the entire system resulting in an improved price for maintenance on the existing Confederation Line system as well as the extensions.

A critical element of the success of these negotiations was the ongoing good faith negotiations undertaken by RTG. Throughout this period RTG approached these negotiations in the spirit of partnership with both parties striving to achieve the best outcome for the City and the project.

Table 1: Confederation Line Maintenance Pricing

	<b>Confederation Line Bid Price</b>	<b>MOU Extension Price</b>
Per km vehicle maintenance	\$2.45	\$2.27
Annual per km infrastructure maintenance	\$1.40M	\$1.02M

#### Key Terms of the RTG MOU

- By agreeing to this MOU and providing the services included in it, RTG, and its constituent parts and affiliates, agrees not to participate in the Confederation Line



Extension competitive procurement, but instead, to operate as an advisor to the City in preparing for and holding a procurement for the system expansion.

- RTG will support the City during the development of the Project Specific Output Specification (PSOS) and procurement documentation. RTG will assist and support in design review for maintenance elements and construction oversight and enforcement with respect to elements of quality and maintainability of the assets.
- The elements included in the MOU will be executed via the first stage of Confederation Line variation procedure outlined in the Confederation Line Project Agreement.
- RTG takes all risk for the assets once substantial completion has been achieved by the successful proponent in the procurement for the balance of the expanded system.
- RTG will administer and enforce all warranties provided by the successful proponent in the system expansion procurement. Once the warranties expire, all risk for performance and lifecycle of the assets will rest with RTG. The City is only a party to the risk of new assets under a scenario where the successful proponent fails and becomes insolvent and defaults on their obligations, or in a case where RTG has exhausted all reasonable means of holding the successful proponent of the procurement to account.

The services and capital elements RTG will perform as outlined in the MOU will be undertaken by a variation to the Confederation Line Project Agreement. To ensure that the timelines for this project are met, staff will need to proceed with ordering 38 new Confederation Line vehicles in 2017, so that RTG can continue assembling and commissioning the vehicles at the Belfast MSF. The uninterrupted delivery of Stage 2 vehicles on the heels of Confederation Line has enabled the City to secure the noted favourable pricing for this work from RTG because it allows production to continue without risking any discontinuation of the existing supply chain. Although only a portion of the \$492 million will be spent in 2017 (as a down payment on the vehicle orders, the expansion of the Belfast MSF and other variations), Council is required to approve the full project authority for this piece of the work, as budget and contractual authority is required to order the trains and the MOU is a complete agreement that does not contemplate incremental approval.

The City Treasurer has identified the funding sources for this authority, as noted in the Financial Comment section of this report. The authority being sought is conditional on the City receiving the anticipated approval from the federal and provincial governments that these will be eligible costs under the Contribution Agreements. It should be noted that the City will need to proceed with a variation for some early design and construction work for the Belfast expansion in March 2017, prior to the finalization of the federal and provincial contributions, and this spending can be accommodated within the existing project budget.

### **Lender Consent**

The City and RTG are currently in discussions with the short and long-term lenders involved in the Stage 1 Confederation Line DBFM to ensure that the terms of their lending agreements are fully respected. Lenders have a right not to have the risk profile of the project change without their agreement. The additional scope of maintenance services that RTG would undertake, in terms of the performance of the expanded system and fleet, have the potential to alter the lenders risk profile. The City has undertaken to ensure lenders maintain a consistent risk position. Discussions are ongoing to find the best and most efficient way to structure arrangements with the lender to ensure the integrity of the original Stage 1 risk profile is maintained. Staff recommend that Council delegate authority to the General Manager, Transportation Services, to negotiate and execute an agreement with the long-term lenders to support the implementation of the MOU.

### **Confederation Line East and West Procurement**

As noted previously, the significant eastern and western extensions of the Confederation Line presents two general imperatives for the City to achieve:

1. Maintain the advantages, risk transfer accountability for performance achieved in the first procurement; and
2. Ensure a well participated, fair and demanding procurement designed to produce excellent pricing value.

With the MOU with RTG in place and recommended for approval through this report, the reference concept and requirement in final development, and contract documents in the final stages of drafting, the City is ready to commence market activities that will result in achieving these procurement outcomes.

The Confederation Line East and West extensions are recommended to be bundled into one procurement that will be undertaken under a Design Build Finance (DBf) approach. A DBf project is an AFP model whereby the private sector is responsible for the design, construction, short-term financing of the project. The same risk transfer advantages from the DBFM model exist in the DBf model in terms of schedule and budget, but in this case, the maintenance and lifecycle risk will be transferred to RTG such that they would assume full responsibility for maintaining and tending to the lifecycle of the resulting works in this fully integrated system to 2048. This will allow the City to maintain its current risk profile regime and seamless integration across the expanded Confederation Line system.

The procurement will make use of the most recent, market tested DBf templates. These documents incorporate the most recent drafting from the Eglinton LRT and Finch LRT projects in Toronto, as well as some advance work underpinning the GO Transit Regional Express Rail DBf procurements ongoing now. These documents are the product of continuous improvement to the core contractual document sets that make up the Confederation Line Project Agreement.

As noted previously, the Confederation Line Project Agreement was both award winning and the first of its kind. At the time, the core Infrastructure Ontario template was geared largely to hospitals and correctional facilities and not to linear public transit. After reviewing multiple projects and bids, the Stage 2 team and the City's Legal Advisor, Norton Rose Fulbright, have adopted the latest generation of documents, market tested through other subsequent large AFP procurements. This will allow for a more robust approach to non-compliance reporting in the field during the build and the ability to levy deductions from interim construction payments during construction.

The full scope of the Stage 2 Confederation Line works that will be tendered includes creation of the track, ballast, sub ballast, catenary, stations, platforms, pathway and cycling, pedestrian and station amenities, as well as drainage and storm water requirements. All works related to the parkway tunnel and related works as agreed with the NCC will be included in this tendered scope. Installation of all system-wide City specified electronics and train control will also be included; however, the actual commissioning and integration of these systems will be completed by RTG via a Schedule 22 Variation outside of the services included in the fixed-price. It will also include the delivery of the Province of Ontario's 417 widening works (Maitland Ave to HWY 416) as well as the City Bundled Projects identified in this report.

The full set of contractual documents and requirements will be shared with the potential proponent during the procurement. Bidders will provide a fixed-price, with full risk transfer to complete the works on budget and on the bid schedule.

Table 2: Design Build Finance Approach to the Confederation Line Extension

<b>Confederation Line Extensions: Design Build Finance (DBf)</b>	
<b>Confederation Line Extension Scope</b>	<b>RTG Scope</b>
Scope: 28 km of track and catenary, 16 stations, 3km tunnel, installation of train control systems, 417 Highway Widening and City bundled projects (adjacent to the Confederation Line extensions), additional bundled city works, short term financing costs, contingency, property, preliminary engineering, staff support etc.	Scope: 38 Citadis LRVs, Belfast Yard MSF expansion, communications equipment, procurement and construction oversight.  Civil, Vehicle maintenance and lifecycle.
\$2488M (Capital)	\$492M (Capital)

### **Trillium Line Extension Procurement**

Trillium Line is recommended to be undertaken as a full Design, Build, Finance, Maintain (DBFM) system procurement which will include maintenance responsibilities for the existing civil infrastructure and rolling stock. Currently, Trillium Line service is provided by a mix of traditional service providers undertaking a range of track, system and vehicle maintenance works. The City has been challenged to get real competitive bids for these scopes of work in the past, given the limited number of these service providers and the small scope of the contracts on offer. It is anticipated that a robust DBFM competition will drive better pricing for ongoing maintenance of this system. The additional capital works will be designed and built with an eye to minimizing maintenance cost as well. The budgeted capital cost for the DBFM works for Trillium expansion is estimated at \$535 million including the Airport Link, vehicles and all financing costs. The additional works will include all of the requirements to extend south from Greenboro Station to Bowesville Station, and will include the Airport Rail Link. The traditional approach to service availability and quality deductions will discipline performance and ensure high availability of clean functional and well maintained vehicles and guideway.

As noted in the list of bundled projects, the tunnel under Dow's Lake will be upgraded to deal with potential water infiltration and bring the asset to modern code standards. Additional rehabilitation of the Trillium Line bridge over the Rideau River will also be performed to this end. Platform extensions to accommodate two vehicle trains will be undertaken at existing stations along with the new stations at Gladstone, Walkley, South Keys, Leitrim and Bowesville. Due to expected ridership demand, the Airport Rail Link will operate with single-vehicle trains to Uplands Station (Ernst and Young) as well as the Airport Station that will now be connected with a modest terminal expansion.

The City will undertake a separate procurement process for the additional Diesel Multiple Units (DMU's) required for the Trillium Line expansion. The City will then negotiate a commercial agreement with the successful vehicle vendor and assign this contract to the Trillium Line DBFM Project Co. This approach is to avoid any one vehicle manufacturer, including the incumbent, from having undue impact on the DBFM competitive process but still assign the responsibility for the procurement, integration and commissioning to the Project Co.

Table 3: Design Build Finance Maintain Approach to the Trillium Line Extension

<b>Trillium Line Extension: Design Build Finance Maintain</b>
Trillium Line Scope
Existing 8km and 5 station upgrade, construction of additional 11km track and 7 new stations and nominated City bundled projects, diesel multiple units (DMU's), contingency, property, cost of short term financing and equity placement.
\$535M

### **Project Schedule**

The schedule for both the Confederation Line and Trillium Line extensions were developed to capitalize on the mobilized light rail workforce, to avoid Tunney's Pasture bus staging capacity issues with the planned redevelopment, and to minimize cost escalation.

### Confederation Line Extension Schedule

Below are the planned procurement timelines for the Confederation Line extensions. Beyond the release of the RFQ and the RFP, associated timelines may be impacted if Federal Treasury Board approval has not occurred.

Table 6: Confederation Line Extensions Procurement Schedule

<b>Procurement Milestone</b>	<b>Timeline</b>
Request for Qualification (RFQ) Release	March 2017
Request for Proposal (RFP) Release	June 2017
Contract Award	Q2 2018
Construction Commencement	Q3/Q4 2018

Given that the two extensions are distinct from each other, it is preferable to have the Confederation Line East extensions completed and in revenue service while construction is being completed on the Confederation Line West extension. This allows for a more efficient, incremental expansion of the system, as well as not delaying the Confederation Line East, which is a shorter and technically less complex extension than the western extension.

It is anticipated that with the procurement schedule above, the Confederation Line East extension would be complete and into revenue service in late 2022 and the Confederation Line West extension in late 2023.

### Trillium Line Extension Schedule

As the Trillium Line upgrade and extension is a less complex project, covering a smaller geographical area with no tunnelling, the anticipated construction duration is shorter. Separating the two procurements ensures that the Trillium Line extension is constructed as quickly and efficiently as possible, as a single contractor for all of the Stage 2 civil works would not split their resources to achieve completion.

The Trillium Line procurement will be staggered from the Confederation Line East and West procurement. The Trillium Line RFQ will begin at the end of the Confederation Line's short-listing process, so as to allow teams that were not short-listed on the Confederation Line extension to choose to join a bid for the Trillium Line extension. This

approach will ensure more robust competition for the Trillium Line Extension and allow the City to align its internal procurement management resources to efficiently manage both procurements.

It is anticipated that the staggered Trillium Line procurement schedule, coupled with a proposed 16 month system shutdown during construction, the Trillium Line extension would be complete and into revenue service in late 2021.

Table 7: Trillium Line Extension Procurement Schedule

<b>Procurement Milestone</b>	<b>Timeline</b>
Request for Qualification Release	March/April 2017
Request for Proposal Release	Q2/Q3 2017
Contract Award	Q2 2018
Construction Commencement	Q3/Q4 2018

### **Infrastructure Ontario**

Infrastructure Ontario has advised the City that it is in the midst of determining what services it will offer municipal projects going forward. Once IO has clarified and received a mandate from the Ministry of Infrastructure on a role they are willing to provide City, staff will review. It is recommended that the City Manager be given delegated authority to negotiate, finalize and execute an agreement if it is deemed to be an advantage for the project.

### **PART 3: IMPLEMENTING STAGE 2**

While the majority of the focus of this report and the related recommendations are specific to finalizing the project definition for the procurement process and selecting the procurement model itself, there are a number of related activities and actions that must be undertaken to prepare for the implementation of the Stage 2 LRT Project in preparation of and following the Contract Award. These are summarized below.

#### **Stage 2 LRT Project Cost Estimate**

The TMP estimate for the core Stage 2 LRT Project was \$2.5 billion in 2013 dollars or \$3 billion when escalated to time of spend. Consistent with the Lessons Learned report,

Stage 2 budgets have been established in dollars escalated to time of spend. The original full project budget for all costs associated with both Confederation Line and Trillium Line expansions will be maintained at \$3 billion. The Preliminary Engineering indicates this is feasible including the additional scope outlined to secure the Moodie extension and Maintenance and Storage Facility (MSF). This must be confirmed during the procurement and disciplined by an affordability cap. Costs have been estimated in accordance with the Council approved Project Delivery Review and Cost Estimating system. The estimate is based on a Class C Design Level Estimate and assumes modest AFP cost compression.

Below is a summary table of costs associated with building Stage 2 referenced in time of spend dollars compared to the original budget:

Table 4: Original Project Budget (July 2015)

Element	\$'s Escalated to Time of Spend
Stage 2 Extensions (Confederation Line East, West, Trillium South)	\$ 3 000 000 000
Airport Extension	\$ 155 000 000
Trim Extension	\$ 160 000 000
<b>Subtotal</b>	\$ 3 315 000 000
Additions:	
Highway 417	\$ 200 000 000
City Bundled Projects	\$100 000 000
<b>Revised Total</b>	3 615 000 000



Table 5: Updated Project Budget

Element	\$'s Escalated to Time of Spend
Confederation Line Extensions (with Moodie and Trim extensions, and bundled Highway 417)	2 488 000 000
RTG Capital Scope	492 000 000
Trillium Line Extension (with Airport Rail Link)	535 000 000
City Bundled Projects	\$100 000 000
<b>TOTAL</b>	3 615 000 000

### **Update on Partnership Funding for the Stage 2 LRT Project**

As requested by Council as part of the July 8, 2015 report, the Mayor made formal requests for Stage 2 LRT Project funding partnerships to the Premier of Ontario and the Prime Minister of Canada. On behalf of the City, the Mayor requested at least two-thirds funding for the Stage 2 LRT Project and 100 per cent funding for the Trim Extension and Airport Rail Link to come from the provincial and federal governments. Concurrently, staff submitted formal applications to both provincial and federal governments for funding.

### **Provincial Contribution**

Throughout late 2015 and early 2016 the City's O-Train Planning Office completed and submitted all necessary documentation to the Ministry of Transportation Ontario (MTO) to allow for a detailed due diligence review of the project and business case for funding the expansion program. At this time, the City was also in the process of updating ridership projections, so the City felt it prudent to update the 2015 Business and Benefits Case, accordingly, with this new ridership data. The full updated Business and Benefits Case can be found as an appendix to this report (Appendix 4).

In June 2016, Treasury Board granted the request for Stage 2 funding, and Premier Wynne announced the Province would partner with the City of Ottawa to provide funding for the core Stage 2 LRT Project costs of up to \$1 billion, representing a full one-third share of the budgeted cost. In addition, the Province made a commitment of 50 per cent toward the capital costs for the Airport Rail Link and Trim Extension. The

City is awaiting the formal “green light letter” before proceeding to finalize a subsequent Contribution Agreement which will establish and layout out the details and the effective date for cost-sharing eligibility.

### **Federal Contribution**

In May 2016, the City applied to the Public Transit Infrastructure Fund (PTIF) to use its funding allocation toward a number of Stage 2-related projects. In August 2016, the federal government announced that it would fund these initial, enabling works for the Stage 2 LRT project:

- \$45,000,000 for Stage 2 LRT early works and preliminary engineering;
- \$20,000,000 for the acquisition of two train sets (four light rail vehicles) to provide additional capacity on the O-Train Confederation Line;
- \$1,250,000 for the design of a bridge to grade separate the VIA Rail Canada line and the O-Train Trillium Line at the Elwood Diamond; and
- \$100,000 for consultation with indigenous communities.

While Treasury Board approval has been secured at the provincial level, the City is still awaiting a formal funding commitment as the details of the Government of Canada’s second phase of its Public Transit Infrastructure Fund (PTIF) and Green Infrastructure programs are being developed now with a target date for completion in the first half of 2017. With these new programs nearly in place, the City expects to soon receive clarity with respect to the federal government’s levels and means of support for the total Stage 2 LRT Project. In the meantime, staff recommend that the City move forward with the release of its request for qualifications (RFQ) for Stage 2 to ensure that proponents are qualified for the total scope of what the City plans to implement as well as to keep the overall project on schedule. The City will wait until it receives Treasury Board approval before launching its Request for Proposal (RFP) process.

### **Keep Ottawa Moving During Stage 2 LRT Construction**

The July 2015 Functional Design Report (ACS2015-CMR-OCM-0017) provided a general outline of expected mobility impacts for the major segments of Stage 2, including potential detour options. Further analysis of the operational impacts of each

construction segment has led to a refined short-list of recommended traffic and transit staging options. This assessment is based on an analysis of traffic impacts, transit running times, capital costs, operating costs, property implications and community impacts.

The development of traffic and transit detour options listed below is based on the following key performance principles, in addition to best practices and lessons learned:

- Maintain existing local and rapid transit services at the current capacity and as closely as possible to the current level of travel time;
- Maximize use of the existing Transitway;
- Minimize travel time variability and duration;
- Avoid additional transfers;
- Minimize additional resources required (buses and kilometres travelled);
- Minimize throw-away costs;
- Minimize disruption to other road users; and
- Minimize additional bus traffic in residential and congested areas.

Providing proponents with prescriptive transit and traffic staging options along certain segments would allow the City to provide advance certainty to communities and begin securing temporary access to property and to advance any required coordination and planning. This approach also allows OC Transpo to advance and focus their operational plans and fleet requirements based on prescribed detours for specific construction segments.

As a result, Stage 2 will prescribe a specific traffic and transit staging concepts for segments wherein a strongly preferred bus operating plan and mitigation strategy is identified.

A number of prescriptive traffic and transit detour options have been short-listed and are summarized below. Further analysis of the identified property and community impacts is underway and mitigation strategies are being developed; public consultation will be undertaken in accordance with the consultation and stakeholder approach identified in the report. Staff will work with ward Councillors to ensure that any required consultation

on these detours takes place over the next couple of months to ensure this input can be provided during the in-market period.

At the contract award phase, it is expected that the Proponent will retain the flexibility to innovate with respect to reducing costs or compressing the schedule for a specific segment where a transit detour is prescribed, provided that the level of service to transit customers is equal to or better than the specified traffic and transit detour options.

In order to maximize flexibility and innovation in those segments that are not prescriptive, it is expected the Proponent will determine the optimal detour routing and designs, governed by strong incentives and disincentives to keep mobility impacts to a minimum.

Staff has undertaken an assessment of the costs associated with the short-listed detour options. As noted above, at this stage in the procurement process, the capital costs for detours and temporary access to property are incorporated within the original project scope and budget; however additional fleet costs for additional detour buses and the costs associated with opening, operating and monitoring the detours themselves are considered outside the Stage 2 scope and will require separate funding in future budgets.

Based on the experience with the Confederation Line construction, staff has identified a need for 34 buses to address the increased operational capacity required to keep Ottawa moving during the construction for the Stage 2 LRT Project. Because of the typical two-year advance notice required for procuring and manufacturing new buses, staff needs to start the procurement process for these buses in 2017 to ensure they are received in time for the construction period. Because these buses will be integrated into the fleet as standard lifecycle replacements once construction is complete, the City Treasurer is recommending that the \$28 million purchase be funded by advancing the lifecycle replacement budget, as noted in the financial comment section of this report.

In total, staff estimates the operational costs associated with running the recommended detours at approximately \$36 million for the entire Stage 2 project, with the exception of the Bayshore to Moodie segment, and these have been included in the City Treasurer's Long Range Financial Plan - Transit report (ACS-CSD-FIN-0002). Costs associated with operating the Bayshore to Moodie detour will be determined as part of the work on the Environmental Assessment.

### **Short-listed Options to Address Confederation Line West Extension Mobility during Construction**

Traffic and transit staging from Tunney's Pasture Station to Dominion Station would involve the use of Scott Street as the transit detour route for revenue buses from Churchill to the Sir John A. Macdonald Parkway, along with Scott Street intersection improvements at Island Park and Lanark. Deadhead buses would operate on the Sir John A. Macdonald Parkway (SJAMP) and via Goldenrod at Tunney's Pasture.

An assessment of community impacts (air quality, noise and vibration) and a mitigation strategy for the portion of the bus-only Scott Street extension beyond Churchill Avenue is currently being developed and would be the subject of public consultation in spring 2017.

From Dominion Station to Richmond Road (just west of New Orchard Station) bus operation would be maintained along the Sir John A. Macdonald Parkway during LRT tunnel construction. The Transitway will also be maintained from Lincoln Fields Station to Pinecrest Station via the existing Highway 417 lanes.

From Pinecrest Station to Bayshore Station westbound transit would be detoured via Highway 417, Bayshore Drive, and Woodbridge Drive, while eastbound transit would be detoured via the Highway 417 ramp at Holly Acres, Highway 417, the Ashley Street off-ramp to Greenbank Road, and the on-ramp to continue eastbound.

From Lincoln Fields to Baseline Station, the existing Transitway will be maintained and when the closure of the Transitway is necessary for LRT testing and commissioning buses will access Baseline Station via Iris Street and onto Woodroffe Avenue to Navaho Drive.

From Bayshore Station to Moodie Station, if deemed achievable, it is anticipated that west and east bound transit would be detoured via the 417 between Holly Acres/Bayshore. This will be analyzed in greater detail as part of the Environmental Assessment (EA) process associated with this LRT extension.

For each of these detours, should proposals come forward from a potential proponent containing demonstrable improvements with respect to the key performance principles listed above, the City will consider these and include them at the time of contract award.

### **Short-listed Options to Address Confederation Line East Extension Mobility during Construction**

Traffic and transit staging at Blair Station will be phased. Initially, construction of LRT will be coordinated in select areas to allow buses to cross LRT construction zones to reach Blair Station using the existing Transitway for as long as possible. When crossing the LRT construction at this site is no longer feasible, the Transitway lanes will be extended to the Blair off-ramp for westbound movements and eastbound movement to Highway 174 will be directed to the Blair on-ramp to continue east.

From Blair Station to Trim Station, transit will be maintained along the existing bus-only lanes on Highway 174.

### **Short-listed Options to Address Trillium Line South Extension Mobility during Construction**

The extent of work now required on the existing Trillium Line and the proposed transfer of service availability risk to the Trillium Line Proponent for the entire Trillium Line (as opposed to just the extension) restricts the feasibility of limiting service shutdowns to weekends or consecutive summer seasons, as initially anticipated. Instead, one longer 16 month shutdown is proposed (taking advantage of two summer seasons) to allow all construction, rehabilitation, testing and commissioning to occur as well as an orderly transfer of responsibility from the City's current maintenance contractors to the Trillium Line Proponent.

Replacement bus service as well as a staging area in the vicinity of Bayview Station will be required to replace O-Train service during the shutdown period. This replacement bus service (Route 107) is familiar to existing Trillium Line passengers and has proven to operate successfully during past closures of the line and will be enhanced with additional transit priority measures. To give the City added flexibility in avoiding congestion on Preston Street, a Carling-Sherwood-Bayswater detour route will also be planned and protected for as an option for the City to use during the shutdown period. This detour will take advantage of the upcoming reconstruction of Carling Avenue (Bronson Avenue to Sherwood Avenue) which will also include transit priority measures.

The Stage 2 LRT Project will progress assuming all detour obligations rest with the City. However, should information become available or other direction that would suggest the Trillium Line Proponent be given certain obligations with respect to the detour, these obligations can be added to the Project Agreement via an addendum.

## **Land Assembly and Property Acquisition**

The City of Ottawa, as Canada's capital, has some unique challenges with respect to property acquisition matters. As noted in the "Lessons Learned from Confederation Line & Stage 2 Implementation Implications" ('Lessons Learned'), "Land ownership and usage in Ottawa is highly complex owing to the need to engage with multiple levels of government and multiple departments and agencies." It also observes that "the significant federal land interest that are required for these projects result in unique and disproportionate costs for property acquisition."

The Lessons Learned report recommends early engagement of property experts to assist with the land acquisition plans and budgets, and accordingly, Real Estate staff has been actively engaged in the Stage 2 LRT Project from the outset.

Land acquisition is not the only real estate transaction that occurs in large linear transit infrastructure projects like Stage 2. Staff must also negotiate rights of way, land usage, land transfer and similar agreements with a number of property owners. Staff is also mindful of the importance of understanding the challenges of property owners in this process, which may include allowing the property owner time to seek and secure replacement property, while protecting the City's construction needs and timelines.

The land assembly process for the Confederation Line project provided staff with considerable experience in successfully managing the kind of property issues associated with Stage 2. In recognition that securing property interests in a timely and cost-effective manner is critical to the Stage 2's success, staff has begun early engagement with the National Capital Commission (NCC), as well as Ministry of Transportation of Ontario (MTO) and other federal and provincial partners, on property matters to assess and explore innovative strategies with respect to property acquisition for the Stage 2 construction project.

The following sections outline the recommended approach to land assembly for the Stage 2 LRT Project and related projects.

### **Proceeding with Property Acquisition**

While the majority of the property required for the Stage 2 LRT Project is owned by the City, the City's Corporate Real Estate Office (CREO) has determined that interests in property owned by approximately 50 distinct owners will need to be secured to construct, operate and/or maintain the Stage 2 LRT Project and related works. Included among these are properties held by approximately seven government agencies and public institutions, while the balance of the property to be acquired is in private

ownership. It should be noted that in many cases, the City simply requires a partial taking, subsurface easements or temporary access to facilitate construction, and that as designs evolve and are refined the City will seek to minimize impacts where possible.

As noted earlier, staff has already begun to work with the NCC, with respect to property matters, and are in the process of exploring whether any innovative strategies might be employed with respect to property acquisition. This includes the development of the preliminary framework for NCC-oriented property transactions required for the segment of the Stage 2 LRT system extending west from Tunney's Pasture to both Bayshore and Baseline stations and contained in the Agreement in Principle discussed elsewhere in this report.

Staff has also initiated discussions with other property owners where there is certainty that they will be impacted for the purposes of the Stage 2 LRT Project.

Given the number of property interests which must be acquired for the purposes of the Stage 2 LRT Project, the complexity of many of the transactions which must be negotiated, and the project timelines outlined in this report, staff is recommending that Council authorize staff to proceed immediately with property acquisition for the Stage 2 LRT Project.

### **Understanding and Initiating the Expropriation Process for Stage 2 LRT Properties**

The City of Ottawa's Real Property Acquisition Policy states that negotiation is the preferred method of obtaining real property rights. The Corporate Real Estate Office remains committed to making efforts to negotiate and conclude agreements with property owners. However, in order to protect construction timing and, in a small number of instances, to provide property owners with sufficient time to look for and secure replacement property, it may be necessary to initiate and/or proceed with expropriation of certain property interests in parallel to these negotiations.

Pursuant to the *Expropriations Act*, Council approvals are required at two stages of the expropriation process:

- (1) Prior to Initiating Expropriation Proceedings: Council must authorize the making of an application for approval to expropriate specific parcels of land, following which staff will serve notice of the City's application for approval to expropriate lands in accordance with the *Expropriations Act*, including service by registered mail and by publication; and,
- (2) In Order to Authorize an Expropriation: After the relevant formal and procedural requirements of the *Expropriations Act* have been fulfilled, a further approval



from Council, acting as the approval authority, is required to authorize an expropriation.

As noted in this Report, the proposed schedule for the Stage 2 LRT Project and related projects is ambitious. Given the statutory timelines associated with the requirements of the *Expropriations Act*, as well as the total number of real estate acquisitions required, staff is recommending that the process for Council consideration of by-laws under the *Expropriations Act* for the Stage 2 LRT Project be as follows:

- Staff will identify property interests for which expropriation by-laws as described above are recommended;
- Staff will review the property interests which are recommended for inclusion in an expropriations by-law with the Mayor and the Ward Councillor and receive their concurrence; and,
- Staff will prepare the appropriate by-law and circulate the by-law with an explanatory Memo to Council with the draft Agenda that will include the relevant by-law, and that this Memo be listed as correspondence on the Council Agenda.

Staff believe that the recommended process will provide transparency for Members of Council, property owners and the public while, allowing project timelines to proceed with greater cost and schedule certainty.

As mentioned, it is important to note that initiating expropriation proceedings or even completing the expropriation of property does not mean the City will cease negotiations. Staff will remain actively committed to continuing efforts to achieve a negotiated resolution to all property acquisition matters.

### **Delegation of Authority and Reporting Protocol**

The recommended delegation of authority for property transactions and expropriations, coupled with the recommended reporting protocol, are designed to contribute to the success of the Stage 2 LRT Project by giving staff the tools required to efficiently and effectively secure property while protecting the interests and privacy of affected property owners.

A similar approach was first recommended by staff and adopted by Council on June 24, 2009 as part of the “Financing of the City Portion of Infrastructure Stimulus Projects” (ACS2009-CMR-FIN-0030) which sought “to ensure that the projects [could] be expedited and completed within the required timeframes.” The authority to do so, in this case, was delegated to the City Manager, and updates were disclosed semi-annually.

Pursuant to this approach on Stimulus Projects, on November 9, 2011, during consideration of the report entitled, “Expropriation of Lands, Ottawa Light Rail Transit Project – Maintenance and Storage Properties on Belfast Road and the Station Entrance on Lyon Street, City of Ottawa,” Council provided staff, by way of motion, with the delegated authority to settle an expropriation claim for property for the Ottawa Light Rail Transit Project with a dollar value over and above the dollar values listed in the *Delegation of Authority By-law*, with the concurrence of the Ward Councillor and the Mayor, where there would be a lost opportunity for settlement in terms of timelines and where there were sufficient funds in the OLRT capital account, with all settlements reported out to the Finance and Economic Development Committee meeting following the settlement.

On March 28, 2012, City Council approved a report entitled, “OLRT Design Improvements-Update.” This report included recommendations for the Confederation Line that are similar to what is presented to Council in this report for Stage 2, including processes to address property impacts related to refine alignments to prepare for procurement, project bundling, and specific property matters, such as the delegated authority for the expropriation process and for land negotiations with other government agencies.

On March 6, 2012, the Finance and Economic Development Committee recommended to Council that, in order to best protect the City’s negotiating position with respect to property acquisitions for the OLRT project and to allow the land assembly to proceed in a manner facilitates the achievement of the project’s accelerated times, and given that an overall budget had been established for property acquisition, staff be delegated additional authority over property matters as follows:

- That staff (specifically the Deputy City Manager with oversight over the project) be given broad authority to advance all real estate transactions or offers under the *Expropriations Act* for property required for the Ottawa Light Rail Transit (OLRT) Project, where they are in accordance with the requirements of the Real Property Acquisition Policy and with the concurrence of the Ward Councillor and the Mayor; and
- That staff report the details of real estate transactions and expropriations related to the OLRT project and approved by delegated authority to the Finance and Economic Development

Committee and City Council after all property required for the project has been secured by the City.

This recommendation was approved by City Council.

As was the case with the Confederation Line, securing property interests required for the Stage 2 LRT Project will require real estate transactions and/or offers of compensation under the *Expropriations Act* having a monetary value in excess of the limits contained in Delegation of Authority By-law No. 2016-369.

Staff is recommending that Council delegate authority to the General Manager, Corporate Services and City Treasurer to approve any property transaction, including offers of compensation made under the *Expropriations Act*, regardless of the total value of the transaction or offer, as long as it is within the Project budget, has the concurrence of the Ward Councillor as well as the Mayor and complies with the City's Acquisition of Real Estate Policy. Retaining this delegation of authority for the Stage 2 Light Rail Transit Project will ensure that the City is able to secure property required for the purposes of the Stage 2 LRT Project within accelerated timeframes, and will best allow the City to meet the prescribed timelines for statutory offers required under the *Expropriations Act*. This delegation would be in addition to the delegations of authority with respect to real estate transactions contained in Delegation of Authority By-law No. 2016-369.

It is also being recommended that, consistent with the March 2012 delegated authority reporting protocol Council approved for the Confederation Line, the details of property transactions made under delegated authority are made public only when all property required for the Stage 2 LRT Project is acquired, and all related claims for compensation have been settled.

Continuing this reporting protocol for the exercise of delegated authority for property transactions undertaken for the purposes of the Stage 2 LRT Project will protect the City's financial interests in ongoing negotiations with property owners and potential expropriation proceedings. In some cases, it will also protect owners of expropriated property whose interests could be compromised by the release of such details before these owners have successfully secured new premises.

### **Exchange of Temporary Property Interests with Ontario's Ministry of Transportation**

Among the property interests related to the Stage 2 LRT Project, the City requires the use of provincially-owned lands along the Highway 417 corridor.

Separate from the 417 widening project to be bundled with Stage 2, the MTO is also currently undertaking the widening of Highway 417, including bridge replacement and rehabilitation works between Preston Street and Maitland Avenue. These works require the use of City-owned lands adjacent or within close proximity to Highway 417.

The City and the MTO each recognize that both projects will occur over an extended period of time, with shifting schedules requiring flexibility from both authorities. In order to accomplish both projects in a timely and cost-effective manner, staff is recommending that Council authorize them to enter into agreements providing for the use of property on the following terms:

- The use of property will be granted by/to both the City and the MTO for nominal consideration;
- Each of the City and the MTO will rely on its respective standard form document to establish the terms and conditions of the use of lands required by each organization (namely the City's standard License of Occupation and the MTO's standard Temporary Limited Interest form (TLI));
- To the extent that either the City or the MTO requires the use of a parcel which fulfills an operational function for the other party, the party requiring the use of the parcel will reimburse the party required to temporarily relocate its operations for all reasonable costs associated with such temporary relocation during the relevant timeframe.

### **Project Governance**

With the first stage of the Confederation Line, a precedent for governance over the Stage 2 LRT Project was established by Council.

On February 9, 2011, City Council assigned governance for the Ottawa Light Rail Transit Project (now the Confederation Line) to the Finance and Economic Development Committee (FEDCO) on an interim basis because it was expected that many matters would carry cross-jurisdictional impacts and all Standing Committee Chairs and the Chair of the Transit Commission sit on FEDCO. Council confirmed this assignment on July 13, 2011, as part of the [Term of Council Priorities report](#) for last term in recognition that the project crosses a host of operational and departmental lines. While Transportation Committee retained governance for the Statements of Work for the Environmental Assessments, the Finance and Economic Development Committee was given oversight over the other matters related to the project. On June 12, 2013, Council assigned matters that were directly related to transit operations, such as wayfinding, branding, advertising standards etc., to the Transit

Commission in the [Confederation Line Governance](#) report, while leaving the oversight for the main project, for items such as contracts and procurement, property acquisition and real estate, budget, economic development and partnership arrangements with the Finance and Economic Development Committee.

This model has worked efficiently, and Council, during its consideration of the Term of Council priorities on July 8, 2015, has retained this model for Stage 2 by assigning primary governance over the Stage 2 LRT Readiness to the Finance and Economic Development Committee (FEDCO), with the support of the Transportation Committee. The Transit Commission will retain its role as well.

Similar to the Confederation Line, the Transit Commission will have oversight over the Stage 2 extensions once they have been built and become part of the City's O-Train transit network.

With respect to the other elements of the Stage 2 LRT Project Governance, staff is proposing the following:

#### **The City's Ottawa Light Rail Transit (OLRT) Executive Steering Committee**

On July 14, 2011, as part of the Implementation of the Ottawa Light Rail Transit (OLRT) Project report, Council approved that the procurement process and project implementation would be overseen by the City's OLRT Executive Steering Committee, which included the City Manager, the Deputy City Manager of Infrastructure and Community Sustainability, the City Clerk and Solicitor, the City Treasurer, the General Manager of Transit Services, the Director of the Rail Implementation Office and representatives from Infrastructure Ontario. This composition allowed the City to benefit from Infrastructure Ontario's expertise in procurement for these types of projects, while ensuring that the City retained final approval authority for all decision-making.

Following the City's recent reorganization, the City representatives on the OLRT Executive Steering Committee are:

- City Manager;
- City Clerk and Solicitor;
- City Treasurer;
- General Manager, Transportation Services; and
- Director, O-Train Construction.

It is recommended that the Stage 2 LRT Project report to the same OLRT Executive Steering Committee and this Committee be given the authority to confirm and recommend the preferred Proponent to Council at the close of the Request for Proposals. It is further recommended that the OLRT Executive Steering Committee be engaged at the City Manager's discretion to provide approval and act as a mechanism for all decision-making and escalation purposes for the Stage 2 LRT Project. Finally, it is recommended that the City Manager be delegated the authority to add or remove members of the OLRT Executive Steering Committee to reflect any new organizational changes or if a need to add specific expertise is identified.

### **Communication and Stakeholder Relations**

As much as building a modern, effective light rail transit system will be transformative for the City of Ottawa, constructing the light rail transit system will also lead to temporary but still significant disruptions for transit, traffic and local residents and businesses over the short-term. Acknowledging those stakeholders and the issues they experience, and involving them in developing solutions that will mitigate those disruptions are an important part of the next steps of the implementation of the Stage 2 LRT Project.

The Communications and Stakeholder Relations for the Stage 2 LRT Project is led by the Communications and Stakeholder Relations team within the Strategic Services Branch of the Transportation Service Department.

The team meets directly with stakeholders and provides them with regular updates on the project, with advance notice of any activities that may affect them and helps them address one-on-one with respect to any individual issues that arise. This direct relationship provides important context for the team's understanding of emerging issues, which, in turn, helps make communications about the Confederation Line be more relevant and helped the community be better and more effectively engaged with this transformative public transit project.

It is anticipated that using the same team to lead communications and outreach for Stage 2 will result in an improved public experience for the duration of the Stage 2 Project.

The Communications and Stakeholder Relations team also has established working relationships with ward councillors and with key stakeholder groups, such as community and business associations, cycling networks and environmental groups. Stakeholders have identified there is a benefit in having a consistent and direct point of contact to

address their concerns. The stakeholder relations team have the experience and lessons learned from Confederation Line to be able to examine issues through the lens of the stakeholder, in order to better anticipate and proactively identify and respond to concerns.

Residents are also able to actively subscribe to the City's communications vehicles through the website. Technical information is provided in a consistent and concise language that the average person can understand and have confidence in.

Using the same communications and stakeholder relations approaches and processes, with the same team, will ensure that effective public outreach remains a priority throughout the implementation of the Stage 2 LRT Project.

### **Partners and Agreements**

The Stage 2 LRT Project involves multiple agreements with multiple parties, and because of the complexity this creates, agreements among all parties need to be coordinated and consistent, as well as meeting the various requirements of the provincial and federation governments. To ensure there is consistency with respect to the Project as a whole, and that timelines and budgets, staff is seeking delegated authority to negotiate and finalize agreements with these partners.

### **Finalizing and Executing the Contribution Agreements**

As noted earlier in this report, staff is continuing to work with the federal and provincial governments on the partnership funding agreements for the Stage 2 LRT Project. As these agreements are expected to be finalized in the near future, and in keeping with past practice, it is recommended that Council delegate the authority to the City Manager to finalize the Contribution Agreements with the federal and provincial governments, and delegate the authority to the Mayor to execute those Agreements.

### **The National Capital Commission**

On May 10, 2016, the City and the National Capital Commission (NCC) finalized an Agreement in Principle (AIP) which establishes terms flowing from the 100 Day Memorandum of Understanding with the National Capital Commission Update Report (CS2015-CMR-OCM-0036), and which, together with the conditions of Federal Land Use Design Approvals to be issued by the NCC, will govern the design, construction, operation and maintenance of the Stage 2 LRT Project Western Extension. Key components of the AIP, as detailed in a memorandum to Council dated May 10, 2016, include parameters for the functional design of the Stage 2 LRT Project Western Extension where it travels through lands owned by the NCC west of Tunney's Pasture

to Bayshore and Baseline stations; provisions governing the City's \$30 Million contribution to parkland improvements including the Sir John A. Macdonald Parkway Riverfront Linear Park (the "Parkland Contribution"); and, a framework governing property transactions for the Stage 2 LRT Project Western Extension.

City and NCC Staff are now working through the process described in the AIP and have determined that certain amendments to the AIP are required to ensure that the objectives outlined in the AIP can be accomplished within timeframes compatible with the Stage 2 Light Rail Transit Project. These amendments include a request from the NCC for two additional advances on the Parkland Contribution to fund the cost of designing and implementing parkland improvements on NCC lands between Westboro Beach and Woodroffe Avenue as well as amendments to certain deadlines contained in the AIP to better align with timelines for development of the NCC's park concept.

Staff are recommending that the City Manager be delegated the authority to authorize and execute an amendment(s) to the AIP which will provide, among other things for:

- (1) An additional advance by the City from the Parkland Fund in the amount of \$500,000 which would be applied by the NCC to consultant fees incurred in connection with the design of the linear park and to the cost of retaining an environmental officer to assist in the development of the park concept. This advance would be made on execution of the amendment and would be in addition to the \$450,000 previously advanced to the NCC by the City on execution of the AIP; and,
- (2) Following confirmation of federal funding for the Stage 2 Light Rail Transit Project, a further advance of \$758,000 from the Parkland Contribution which would be used by the NCC to retain a Project Manager – Landscape Architect, a Project Manager – Engineer, a Landscape Architect, an Environmental Officer and to offset the cost of additional consultants fees incurred by the NCC in connection with the design of the Linear Park.

Staff are also recommending that the City Manager be delegated the authority to execute documentation required pursuant to the AIP, including the Property Term Sheet which has been negotiated by City and NCC staff in accordance with the AIP and which is intended assist in the negotiation of the Transfer Agreement between the City and the NCC by identifying baseline environmental conditions of the NCC property which will be required for the Stage 2 LRT Project as well as the fair market value of larger parcels of land owned by the NCC within which the Stage 2 LRT Project will be constructed.

As well, the National Capital Commission Board received, considered and approved the recommended alignment changes for Lincoln Fields and Pinecrest Creek/Iris Station at



their meeting of January 19, 2017 and provided conditions which must be satisfied by the City for the Confederation West Extension project in accordance with the AIP.

### **The Ottawa Macdonald-Cartier International Airport Authority (OMCIAA)**

In anticipation of full provincial and federal government funding being provided for the Airport Rail Link, the Stage 2 Project team is working closely with the Ottawa Macdonald-Cartier International Airport Authority (OMCIAA) on a Memorandum of Understanding (MOU) pertaining to the Airport Rail Link, subject to that funding being confirmed.

Staff is seeking delegated authority to the City Manager to negotiate, finalize and execute a Memorandum of Understanding (MOU) for the Airport Rail Link with the Airport Authority based on the following principles:

- The City will not be contributing capital dollars to the project; the Stage 2 LRT Project, inclusive of the Airport Rail Link, will be scoped such that the cost remains within the funding provided by the Federal and Provincial governments;
- The City will conduct Transit Oriented Development studies along the Trillium Line extension in 2018 that will be completed by 2019 such that they can serve to inform the City's next Official Plan with respect to updating the designation and zoning for the OMCIAA lands which are leased from Transport Canada; and,
- In order to implement the Airport Rail Link, the City will obtain access rights to the property required for the Trillium Line Extension and Airport Rail Link from OMCIAA, subject to applicable consents of Transport Canada and the City meeting its obligations associated with the TOD studies, via a payment of nominal rent that will be considered as an in-kind fair market contribution to the project.

### **Ontario Ministry of Transportation**

The Ontario Ministry of Transportation supports the proposed bundling approach for the Highway 417 Expansion project with Stage 2 LRT and has indicated its willingness to allocate the appropriate funding to the City, in partnership with the federal government's recent announcement with respect to cost sharing this work. This will include financial and legal support for the integration of MTO design and construction standards, project financing, capital construction costs, detail design, and compliance oversight through the hand back to the MTO.

In order to meet the project needs and timelines, it is recommended that delegated authority be provided to the General Manager, Transportation Services to negotiate and finalize an interface agreement between the City and the MTO outlining their respective rights and responsibilities for the Highway 417 Expansion Project, as well as a reciprocal agreement that would permit the transfer of property between the parties at a nominal cost.

### **Public Service and Procurement Canada**

The City and PSPC have reached an agreement in principle that if the City proceeds with the construction of the three-lane end-state Goldenrod Bridge as part of the Stage 2 LRT Project, PSPC is responsible for 30 per cent of the estimated \$3.2 million capital cost of the bridge, including design, construction and contingencies. Given the benefits above and the cost-sharing opportunity, staff is recommending that this be included as part of the Stage 2 LRT Project. The City will be responsible for the maintenance of the bridge should it become designated as a public highway.

### **Working with Local Indigenous Communities**

Consultation with potentially interested Indigenous communities, as directed by the federal and provincial ministries, were initially undertaken for the Stage 2 LRT Project as part of the Provincial Transit Project Assessment Process (TPAP) for all three Environmental Assessments. These groups included: Algonquins of Ontario (AOO), Algonquins of Pikwàkanagàn, Kitigan Zibi Anishinabeg First Nation, Métis Nation of Ontario, Quebec Métis Nation, Ottawa Region Métis Council.

Initial introductions to the Stage 2 LRT Project and O-Train Planning staff were undertaken in coordination with O-Train Construction staff, at the Algonquins of Ontario (AOO) Planning & Environment Working Group and Nation Building Day, in April and June 2016 respectively, to ensure seamless integration and a unified engagement process. The City remains committed to providing project updates and meetings with members from local Indigenous communities on a regular basis until such time that the Stage 2 LRT project is completed.

Building on the strong relationship developed between O-Train Construction staff and the AOO as part of the Confederation Line Project, O-Train Planning staff are developing an Indigenous Community Engagement Strategy for the Stage 2 LRT project that will outline an approach to ongoing and effective consultation with First Nations and Métis to address the obligations of the crown and the project Proponent.

The strategy will ensure that Indigenous communities are apprised of the Stage 2 LRT project's progress, environmental and archeological impacts, potential economic development, capacity building, public art opportunities, and any other opportunities that the project may have to incorporate Indigenous art, culture, heritage or other interests. Funding for Indigenous community consultations will be through a joint Federal and City fund as allocated by the Federal Infrastructure Project Fund (PTIF).

### **Public Washrooms**

In its consideration of the "*Stage 1 and Stage 2 of Light Rail Transit (LRT) – Provision of Public Washrooms*" report (ACS2015-CMR-OCM-0031), Council adopted design standards for public washrooms at rapid transit stations that included the following four design standards:

1. Public washrooms will be provided at terminal stations of electrified rail rapid transit lines as required by the Ontario Building Code;
2. Once public washrooms are built at terminal stations, they will normally be retained if the line is extended and the station no longer functions as a terminal and any recommendation to remove a such washroom would be brought to Council for approval;
3. Public washrooms will be provided at high-volume transfer stations between electrified rail rapid transit lines and other major rapid transit corridors, where the majority of passenger traffic in the station is transferring between the two lines; and
4. Public washrooms at rail rapid transit stations will follow the design principles established for the Confederation Line and will meet industry best practices for customer security and safety.

As a result of these design standards being approved by Council, public washrooms were to be provided at seven stations on the City's O-Train rapid transit network: Baseline, Bayshore, Bayview, Blair, Hurdman, Place d'Orléans, and Tunney's Pasture.

Should funding commitments and project affordability accommodate the implementation of the Moodie and Trim extensions, then both Trim Station and Moodie Station would be outfitted with public washrooms as required by the Ontario Building Code. These washrooms would be implemented in the place of washrooms at Bayshore Station and Place d'Orléans Station, as they would no longer be terminus stations.

Because Lincoln Fields Station, like Bayview and Hurdman, will be high a volume transfer station where Confederation Line customers will transfer between the Baseline and Bayshore branches, staff are recommending that public washrooms be provided at this station as well.

In addition, although Ontario Building Code standards would not require public washrooms at Bowesville Station (due to the fact that Trillium Line is a diesel system and not electric), staff is still recommending that Bowesville Station should be treated as any other terminus station and be fit up with public washrooms.

### **Public Art**

The Stage 2 LRT project will include art projects along the alignment and at various stations, and as part of the Richmond Road Complete Street and the Byron Linear Park enhanced restoration initiatives. The City's Public Art Program office will develop a public art plan to guide the integration and implementation of public art within the Stage 2 LRT Project.

The City's public art policy requires that an amount equal to one percent of the City's contribution to an infrastructure project's hard costs be dedicated to the provision of public art. The Stage 2 LRT Project will abide by this policy by allocating \$10M for public art along the alignment and at various stations plus an additional \$1M for an artwork component to be integrated with the Richmond Road Complete Street and the Byron Linear Park Enhanced Restoration initiatives.

### **Ensuring Stage 2 LRT Incorporates Pedestrian and Cycling Connectivity**

Integrating the Stage 2 LRT alignment and stations with local pedestrian and cyclist networks is one of the key principles of the Project. To ensure that community connections to and through all stations, and along the LRT alignment, are preserved or enhanced, City staff conducted connectivity studies designed to incorporate strong community multi-use pathway and sidewalk connections that are fully accessible to each Stage 2 LRT station.

The connectivity studies integrate the current City of Ottawa planning documents, including Community Design Plans, the Transportation Master Plan and Cycling and Pedestrian Plans, and provide a comprehensive overview of community connections to the Stage 2 LRT stations. To ensure community views were integrated into the study results and recommendations, staff consulted with internal staff responsible for transit, cycling and pedestrian facilities, and undertook comprehensive and interactive public

community consultations that began in May 2016 and continued through to September 2016. The review resulted in the identification of a series of mobility enhancement opportunities, including bicycle facilities (including expandable bike parking), multi-use pathways, drop-off or “kiss and ride” locations, and crosswalks based on local knowledge and input of existing desire lines and travel patterns from residents.

These enhancements supported the development of the Stage 2 reference concept designs and a number of new and improved community connections have been incorporated in the draft procurement documents to ensure they are implemented in the final station designs. Further details are included in the Stage 2 LRT Pedestrian and Cycling Connectivity Study, attached as Appendix 5.

### **Including Stage 2 LRT Station-Oriented Development (SOD) Opportunities in the Procurement Process**

In September 2007, City Council approved a set of guidelines for Transit-Oriented Development (TOD) intended to ensure that all development within a 600-metre walking distance of a rapid transit stop or station (and in conjunction with all related Official Plan and similar policies) is designed and built to encourage transit use and increase the modal split overall. Transit-Oriented Development Plans for various parts of the Confederation Line were considered by Planning Committee and approved by City Council on November 14, 2012 (for the Tremblay Station, St. Laurent and Cyrville areas (ACS2012-PAI-PGM-0183)) and on January 22, 2014 (for Lees, Hurdman and Blair Stations (ACS2013-PAI-PGM-0188)).

During the Confederation Line procurement process, proponents expressed an interest in including Station-Oriented Development (SOD) opportunities in their bid. Due to the structure of the Request for Proposal (RFP) documents, the City was not in a position to effectively respond to these requests.

Following the July 2015 Stage 2 LRT Project report (ACS2015-CMR-OCM-0017), staff were to continue to “explore real estate opportunities and develop opportunities for station integration” in coordination with the procurement. To this end, the Stage 2 project team has been reviewing options whereby the procurement process might positively influence key objectives associated with implementing station-oriented development (SOD) as part of the Stage 2 LRT Project. Staff has identified several objectives and principles to consider in their review, including the following success factors:

- The opportunity to include in the design and construction of certain stations specific structural and or space proofing requirements that would protect for future SOD opportunities;
- The potential to offset operating and maintenance costs by moving forward the prospects for SOD on selected station sites during Stage 2 construction and/or in the first 5-10 years of revenue service;
- The opportunity to develop currently underutilized City-owned land with SOD potential in parallel with the design, construction and maintenance of the LRT stations that would facilitate such development;
- The potential to encourage a high transit modal split by facilitating advanced construction of SOD in close proximity to stations; and
- The ability to advance the timeline for increasing property tax revenue and ridership from developed sites.

Staff's focus for reviewing SOD opportunities was municipal and provincial sites which, if they were not considered and/or protected for, may sit underutilized for some period of time following Stage 2 entering into revenue service.

In order to properly gauge the interest and feasibility of including SOD in the procurement of the Stage 2 Project, staff interviewed transit and development agencies in Vancouver, Toronto, Calgary, Minneapolis-St Paul and Washington DC, in addition to the lessons learned from the Confederation Line.

Based on the lessons learned from other jurisdictions and Ottawa's experience, staff identified the following strategies that would be needed to address in order to include SOD as part of the Stage 2 LRT Project procurement process:

- Proponents would need to be provided with clear direction on SOD potential/density and the protection of SOD opportunities that align with existing City policy;
- SOD opportunities would be focused on City and/or Provincial lands or lands that can be controlled or acquired by the City;
- Land ownership of integrated and/or adjacent SOD opportunities would need to be clear and verified; and

- SOD opportunities would need to ensure, to the extent possible, that they would not depend, interfere, or rely on the physical construction of the station. An exception to this would be where it was necessary to pre-construct certain station elements now to avoid sterilizing an SOD opportunity directly over top of station facility.

A large number of factors were utilized to screen the over 20 potential SOD sites that were evaluated. Based on the SOD success factors identified above, as well as the lessons learned considerations, three SOD opportunities have been short-listed and are recommended for inclusion in the RFQ/RFP process. The three short-listed opportunities, as well as some considerations are listed below, and further detailed in Appendix 6:

- Baseline Station – involves exploring the possibility of the development of adjacent land in accordance with the CentrepoinTE Town Centre concept plan;
- Cleary Station – involves development over top of the station lands, following the acquisition of 747 Richmond Road by the City; and
- Pinecrest Station – involves development of the provincial lands on the northwest corner of Pinecrest/Highway 417, currently occupied by the ramp to the Transitway (which will not be needed once the LRT is in place).

The approach to the development of the SOD potential of the above three properties in the upcoming Confederation Line West procurement process is proposed to be as follows:

- The Confederation Line extension RFQ will signal to potential proponents that the City is interested in advancing SOD at these three sites and that the pre-qualification process will require proponents to demonstrate their ability to integrate station facilities to facilitate the identified SOD opportunities;
- In parallel with the RFQ process, the City would issue a Request for Expressions of Interest from the development community (RFEOI) to outline the SOD opportunities, seek ideas and concepts for SOD, and gauge the level of development interest in the shortlisted SOD sites. The RFEOI process would result in a short list of Developers qualified to develop the short-listed sites; and
- In parallel with the RFEOI process, staff would identify the design and construction requirements to facilitate the SOD opportunity (and to protect for any

adjacent development) of that should be included in the RFP and engage with RTG on the maintenance implications of the identified requirements.

The City-building objectives for these three properties, if they are included in the procurement process in some fashion are as follows:

- Receiving market value payments for land or a revenue stream from the development of air right's on publicly-owned property;
- Stimulating assessment value and property tax revenue sooner than might otherwise be the case through ad-hoc development after rapid transit infrastructure is in place; and
- Accelerating the achievement of the broader transit-oriented development objectives of Council.

If the recommended approach for the station-oriented development is approved by Council for the three identified sites, staff will provide proponents with an understanding of design and construction requirements to be undertaken now to protect for the SOD opportunities and identify a process for the actual development of the SOD sites for the consideration of Council at the time of contract award.

### **Delegated Authority for Future Design Modifications and Unforeseen Matters**

On December 11, 2013, Council approved the adoption of a formal process to accept and approve changes to the Confederation Line project design previously presented and approved to Council (ACS2013-PAI-DCM-0003). The process is based on the City's existing protocol for Site Plan Control approval in the development review process.

Staff recommends applying such authority to approve future modifications to the Stage 2 LRT Project to the City Manager. Just as with the Confederation Line, if the City Manager "determines the proposed modification appropriate based upon sound construction project management; is a design modification that changes the design from what Council has approved to date; is within existing project and contingency budgets and is inclined to approve it, the Councillor whose ward contains the location where the modification is proposed and the Mayor will be briefed on the proposed modification and the rationale for approval. If the Ward Councillor and Mayor both agree with the proposed modification, the modification is approved and the change will be implemented."



This process ensures that the project and contingency budgets are adhered to, the project schedule is maintained, the process is consistent with an AFP/P3 model, and the City's legislative process is not over-burdened with every single modest and practical revision to the project. In addition, it allows for design innovation, as the constructor advances and finalizes the design, and allows for the transfer of risk on the design, which allows for a fixed-price contract.

Upon adoption of the recommendations in this report, staff will proceed immediately to their implementation. The City's experience with the Confederation Line indicates that staff may not have foreseen all actions that may be required with respect to proceeding with the formal procurement process and the other activities needed to prepare for the Contract Award and construction of the Stage 2 LRT Project. Staff is therefore also recommending that the City Manager be delegated the authority to address any unforeseen matters related to this stage of the implementation of the Stage 2 LRT Project, on the understanding that any actions will be consistent with Council direction on this matter, undertaken with the concurrence of the Mayor and reported back to Council either through the Finance and Economic Development Committee or as part of the report recommending the Contract Award, as appropriate.

## **RURAL IMPLICATIONS**

The Stage 2 LRT Project will have significant City-wide benefits as outlined in the updated Stage 2 Benefits and Business Case (attached as Appendix 4).

## **CONSULTATION**

The City conducted stakeholder and public consultations for each of the three Stage 2 LRT Environmental Assessments, including consultations for recommended design modifications. As well, consultations have been held with respect to Richmond Road Complete Street and the Stage 2 LRT Pedestrian and Cycling Connectivity Study.

A comprehensive consultation plan was carried out for each EA that included several rounds of public engagement at key milestones in the study process. Each round consisted of meetings with the Agency, Business and Public Consultation Groups prior to the Open House.

With respect to the Confederation Line West Extension Environmental Assessment Improvements outlined in this report, in order to properly consult the public on the proposed changes, three consultation events were held prior to the Notice of

Completion being issued, to allow for the general public to review and ask questions concerning the changes prior to the formal 30 day public review period.

Information on the proposed alignment and station designs were posted on the project website ([www.stage2lrt.ca](http://www.stage2lrt.ca)). The notices for the three community information sessions were also posted to the environmental assessment study web pages on the City of Ottawa website. The three community information sessions include the following:

- *September 14, 2016 - Richmond Road and Byron Linear Park Tunnel*
  - A total of 134 names were captured on the registration form and 95 people provided their email address for the Stage 2 email list. O-Train Planning staff was in attendance and provided a presentation and hosted a Q&A session. Councillors Taylor, Leiper and Egli were also in attendance. Comments/concerns that were discussed included: connectivity concerns, local traffic impacts and impacts on the linear park and how the trees could be saved.
- *September 15, 2016 - Lincoln Fields Alignment and Station Shift*
  - A total of 76 names were captured on the registration form and 62 people provided their email address to the Stage 2 email list. O-Train Planning staff was in attendance and provided a presentation and hosted a Q&A session. Ward Councillor Taylor was also in attendance. Comments/concerns that were discussed included: station accessibility, adjacent commercial development, use of pathways along the Pinecrest Creek Corridor to access stations, and improvements to station connectivity for pedestrians and cyclists.
- *September 21, 2016 – Queensview Station and Pinecrest Creek*
  - A total of 109 names were captured on the registration form and 68 people provided their email address for the Stage 2 email list. O-Train Planning staff was in attendance and provided a presentation and hosted a Q&A session. Ward Councillor Taylor was also in attendance. Comments/concerns that were discussed included: construction staging and duration, noise and vibration during construction and operation, connectivity of pathways, visual screening from the rail structure towards Connaught tunnel.

A mail drop (bucksliip format) was coordinated during the week of September 5, 2016 and bucksliips were dropped in the following neighbourhoods:

- Woodpark – delivered to 825 residences
- Whitehaven – delivered to 450 residences
- Queensway Terrace North – delivered to 1,000 residences

An email notification was sent to all adjacent stakeholders and local MPPs and MPs on September 8, 2016. The NCC was consulted where the potential modifications would have impact on federal lands in NCC ownership and under their environmental land management.

On September 13, 2015 the City also undertook a briefing with the Woodpark Community Association Executive to inform them of the improved Lincoln Fields Station Configuration and Alignment, and public information session.

O-Train Planning staff also work with the ward Councillor in coordinating ongoing ad hoc meetings with the Cleary Working Group and the Public Advisory Committee for the Richmond/Byron Corridor (including the Byron Linear Park).The City also undertook extensive consultation on the Stage 2 LRT Pedestrian and Connectivity Study, as outlined below:

- June 4, 2016 – Lincoln Fields to Dominion
- August 9, 2016 – Queensview, Pinecrest and Bayshore
- August 10, 2016 – Iris and Baseline
- August 17, 2016 – Walkley, Greenboro and South Keys
- August 29, 2016 – Montreal Road, Jeanne d’Arc, Orléans Blvd., Place d’Orléans and Trim
- August 30, 2016 – Leirtrim and Bowesville
- Ongoing – Active Mobility Advisory Group Workshop

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

This is a city wide report.

## **LEGAL IMPLICATIONS**

Staff from the Office of the City Clerk and Solicitor, as well as from the law firm of Norton Rose Fulbright Canada LLP have been consulted in the design of the proposed procurement model and the preparation of this Report. Subject to the further explanation set out below, there are no legal impediments to City Council approving the recommendations set out in this Report.

The approval of the recommendations contained in this Report will provide staff with the necessary direction and delegated authority to commence procurement for the various elements of the Stage 2 extension of the Confederation and Trillium Line Light Rail Services.

The proposed procurement structure has been designed to ensure the greatest value to the City. By extracting those portions of Stage 2 likely to impair the competitive procurement of the work necessary to complete Stage 2, namely the acquisition of additional rolling stock, expansion of the Maintenance and Storage Facility and system and train maintenance, the proposed procurement model offers a mechanism by which the City will be able to secure optimal pricing through competitive tension amongst multiple bidders. Such a model faces a limited risk of challenge by virtue of the fact that the additional work to be done by RTG was contemplated as part of the draft Project Agreement provided to proponents in the initial Request for Proposals (RFP) process used for Stage 1. As such, the original procurement process contemplated the possibility that further work might flow from the initial contract award. In light of this, and as the Project Agreement for Stage 1 was drafted to expressly provide for extensions at the discretion of the City, the proposed procurement model is considered to be fair and well insulated from legal challenge. The proposed model has been comprehensively reviewed by the City's external legal counsel retained to support the Stage 2 Project, whose detailed Summary of Legal Issues is found at Appendix 9.

The execution of the proposed Memorandum of Understanding with RTG for the extension of work is as contemplated by, and in keeping with, the provisions of the Stage 1 Project Agreement.

As a result, there are no legal impediments to the approval of the recommendations contained in this Report.

As noted above, the Office of the City Clerk and Solicitor has been supplemented by external legal counsel in order to provide the support necessary for the Stage 2 Project. Recognizing the significant volume and complexity of the legal work associated with

Stage 2, the City in January 2016 issued a Request for Proposals for Legal Advisory Services to secure an external law firm to supplement the City Clerk and Solicitor Office's in-house complement. Through that competitive process, which was led by the Office of the Chief Procurement Officer, Norton Rose Fulbright Canada LLP, an international law firm with offices in Ottawa and Toronto, as well as more than 50 cities across Canada and around the world, and with significant expertise in transportation law and the rail sector, was retained in accordance with the authority delegated to the City Clerk and Solicitor by the *Delegated Authority By-law (2013-71)* to support the Stage 2 LRT Project.

The one exception to the scope of the Norton Rose Fulbright retainer for Stage 2 is in the area of expropriations, which will continue to be handled by the firm of Borden Ladner Gervais LLP (BLG), which was originally retained through an earlier competitive procurement process for the Stage 1 legal work. In order to ensure consistency between the Stage 1 and Stage 2 projects in regards to the City of Ottawa's expropriation and acquisition process and given their extensive involvement with the Confederation Line Project, it was determined that extending BLG's mandate solely for this purpose was deemed in the best interest of the Project and City.

In this regard, the acquisitions and expropriation of lands for Stage 2 will take advantage of the lessons learned in Stage 1 to date. Furthermore, staff will continue to make use of the comprehensive consultation and communications strategy that was devised for undertaking the acquisition of the properties necessary for Stage 1, as more particularly set out in this Report.

## **RISK MANAGEMENT IMPLICATIONS**

High level project risks and mitigation strategies have been identified in the updated Business and Benefits Case (Appendix 4). Risks identified and explained in the report are being managed by the appropriate staff.

## **ASSET MANAGEMENT IMPLICATIONS**

There are no asset management implications with the recommendations in this report.

## **FINANCIAL IMPLICATIONS**

The Long Range Financial Plan (LRFP) – Transit V, prepared by Corporate Finance and submitted under separate cover, lays out a comprehensive affordability analysis covering all transit works from 2017 to 2048, including Stage 2 Light Rail. The LRFP covers the full contract period of Light Rail and the 2013 TMP Transit projects up to

2031, and estimated post 2031 projects. In addition, the cost of operating the new combined system has been built into the modeling to ensure affordability within the transit envelope.

The total costs associated with Stage 2 construction is \$3.5 billion. This target budget is funded in part by \$1.157 billion from the Government of Canada and the Province of Ontario. This includes the Airport and Trim extensions which will be 100 per cent funded by both senior levels of government, for \$315 million. Highway 417 is also fully funded by the Province for \$186 million bringing the total senior government contribution to \$2.5 billion. The City share of \$1.0 billion will be funded from savings from reduced bus service hours, existing transit capital contributions, increased gas tax revenue and development charge revenues.

The Long Range Financial Plan confirms that the City is able to provide its share of the final costs of Stage 2 LRT, as described in this report, along with the balance of the capital demands projected in the current long-range transit plans, as long as the following assumptions built into the affordability model are maintained going forward:

- Transit taxes and transit fares will increase at the same rate as transit's costs increase.
- Contributions of two-thirds funding from other levels of government for LRT and BRT projects.
- Interest rates remain below 6%

Any deviation from these assumptions will require a reassessment of the operating and capital cost plans going forward.

With respect to the recommended role for the Rideau Transit Group for the Stage 2 LRT project under the proposed Memorandum of Understanding, staff recommends the following funding sources for the \$492 million capital authority:

Development Charges	102,040,800
Federal and Provincial Gas Tax	40,000,000
Transit tax debt	25,239,200

Government Grant Revenue	<u>324,720,000</u>
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Total Contract	492,000,000
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This authority can be accommodated in the City's transit affordability model, subject to the specific expenditures being deemed to be eligible costs under the federal and provincial Contribution Agreements.

The 34 buses needed to provide the increased transit operational capacity to keep service during the construction period for the Stage 2 LRT project would be required for lifecycle replacement in the near-term following the completion of construction. The fifteen 40-foot buses and nineteen double deckers were originally planned to be purchased in the 2024-2027 horizon. As such, Finance staff is recommending the \$28 million planned spending for these vehicles be advanced to 2017, to be funded with transit tax-supported debt. This would reduce the funding requirement in the years for which the purchases were planned, and can be accommodated within the Transit Affordability Plan.

### **ACCESSIBILITY IMPACTS**

The Stage 2 LRT Project will be designed to meet the accessibility goals set by Council. The project team will continue to advance implementation of universal accessible design standards in both station design and vehicles.

The strategy includes a compliance review process for the detailed design development and the construction phase. The project team will continue to work with the accessibility community to incorporate accessibility features into the detailed design work that has occurred to date. This project will be designed to comply with the *Ontario Building Code* and to the greatest extent possible with the new *City of Ottawa Accessibility Design Standards*. The City of Ottawa's conventional and specialised transportation services are federally or independently regulated and therefore the AODA, a provincial statute, is not applicable. Nevertheless, the City's Stage 2 LRT Project will follow the standards developed under the AODA, as they represent the City and provincial best practices. In keeping with this commitment, the project team has included accessibility features into the planning and design of this project to date.

The specific accessibility features planned for the Stage 2 LRT Project are built on the performance standards set by the Confederation Line project and include, but are not limited to:

- Barrier-free path of travel to entrances of stations;
- Each vehicle includes four designated multipurpose areas for wheelchairs and other mobility devices;
- The vehicle interior is designed with a 100 per cent low-floor passenger area and seating arrangement;
- Vehicle is designed to meet low noise performance standards both inside and outside of the train;
- Signs will include the International Symbol of Accessibility, will consider colour contrast and large print and will be displayed on the exterior of each vehicle;
- The doors use auditory and visual warning signals to alert passengers when doors are closing. Each vehicle contains accessible signage that indicates which seats are priority seats for persons with disabilities;
- All passengers have access to push buttons to request assistance or to communicate with onboard staff in an emergency;
- The vehicle is equipped with seven dual leaf, 1450mm wide doors per side to optimize passenger accessibility and reduce the time it takes for customers to enter/exit the vehicle;
- All wayfinding and safety signage will be provided following the applicable accessibility standards (including type size, tactile signage, and appropriate colour contrast);
- Elevator dimensions that allow for the turning radius for a mobility device and buttons and emergency controls that are mounted at accessible height; and,
- Clear open sight lines and pedestrian design that make wayfinding simple and intuitive.

## **ENVIRONMENTAL IMPLICATIONS**

The Stage 2 LRT Project will result in significant environmental benefits including reducing GHG emissions by 110,000 tonnes and 3000 tonnes of tonnes of Criteria Air Contaminants a year by 2048 and reducing fuel consumption in the City by 78 million



litres annually by 2048. Further details on the environmental benefits of the project can be found in the updated Stage 2 Benefits and Business Case (attached as Appendix 4).

## **TERM OF COUNCIL PRIORITIES**

The work summarized in this report is supportive of the following Term of Council Priorities:

- TM1 - Ensure sustainable transit services;
- TM2 - Maximize density in and around transit stations;
- TM3 - Provide infrastructure to support mobility choices;
- TM4 - Promote alternative mobility choice;
- GP3 - Make sustainable choices;
- FS2 - Maintain and enhance the City's financial position; and,
- EP3 – Support growth of the local economy.

## **SUPPORTING DOCUMENTATION**

Appendix 1 – Ottawa LRT – Lessons Learned from Confederation Line & Stage 2

Implementation Options

Appendix 2 – Briefing Note - Moodie Drive Extension Analysis

Appendix 3 – Stage 2 LRT - City Infrastructure Bundled Projects Registry

Appendix 4 – Updated Stage 2, Ottawa LRT Business and Benefits Case

Appendix 5 – Stage 2 LRT Pedestrian and Cycling Connectivity Study

Appendix 6 – Stage 2 LRT – Station-Oriented Development Opportunities

Overview

Appendix 7 – Briefing Note - Walkley Yard Maintenance and Storage Facility Analysis

Appendix 8 – Confederation Line East Sound Attenuation Illustrations

Appendix 9 – Norton Rose Fulbright – Summary of Legal Issues

**DISPOSITION**

Upon Council approval, staff will implement the recommendations outlined in this report.