NATIONAL CAPITAL COMMISSION  
COMMISSION DE LA CAPITALE NATIONALE

<b>No.</b>	2019-P82
<b>To</b>	Board of Directors
<b>Date</b>	2019-11-21

**For** DECISION**Subject/Title**

Ottawa Light Rail Transit (OLRT) Stage 2 – Federal Approval for 30% Developed Design (Concept Design)

**Purpose of the Submission**

To seek approval for the 30% Developed Design for components of the Stage 2 extensions of the Confederation and Trillium Lines located on federal lands. The stations on federal lands are Lincoln Fields, Iris, Moodie, Uplands and Airport.

**Recommendations**

- That the 30% Developed Design for components of the OLRT Stage 2 extension of the Confederation and Trillium Lines located on federal lands, be approved, subject to the conditions of the Federal Approval letter to be prepared by NCC staff;
- That the signature of the Federal Approval letter for the 30% Developed Design be delegated to the Vice President, Capital Planning; and
- That approval of the subsequent design phases including 60% and 90% Developed Design (Detailed Design) be delegated to the Executive Committee of the Board of Directors as Level 2 approvals.

**Submitted by:**Pierre Vaillancourt, A/Vice President, Capital Planning Branch  
Name

Signature

## 1. Authority

*National Capital Act*, sections 10, 11 and 12.

## 2. Project Description

The City of Ottawa's Transportation Master Plan establishes a vision for the transit network in Ottawa to be developed by 2031 and includes a Light Rail Transit (LRT) construction program. The first stage of this program is now in operation, consisting of the initial Confederation Line project. It extends 12.5 km from Tunney's Pasture Station in the west to Blair Station in the east and includes a tunnel downtown with three underground stations.

The City of Ottawa's Stage 2 OLRT projects aim to extend the Confederation Line farther to the east (from Blair Station to Place d'Orléans Station) and to the west (from Tunney's Pasture to Baseline and Moodie Stations). Stage 2 will also extend the Trillium Line farther to the south from Greenboro Station to Limebank Station, and includes the addition of two new stations to the existing line. The extension of the Trillium Line includes a 4 km spur line to the Ottawa Macdonald-Cartier International Airport which includes two stations. Overall, the Stage 2 projects will involve the construction of 44 km of new rail with 24 new stations. A total of five stations are proposed on federal lands (Lincoln Fields, Iris, Moodie, Uplands and Airport Stations). The City awarded the Stage 2 LRT contracts in March 2019.

This submission follows the previous granting of Federal Approvals for the City of Ottawa's functional / preliminary design in January 2017 for Confederation Line and September 2017 for the Trillium Line. The two successful bidders who were awarded the Stage 2 contracts, East West Connectors for Confederation Line and TransitNext for Trillium Line, are now responsible for advancing the initial designs to produce the final construction drawings. The NCC plays an integral role in the review process for the advancement of design and will be reviewing designs at a 30%, 60% and 90% level of completion.

Other Federal Approvals previously granted for Stage 2 LRT-related components include:

- Baseline-Woodroffe Stormwater Management Pond – Federal Land Use and Design Approval (July 2018)
- Moodie Station – Federal Land Use, Concept Design and Transaction Approval (August 2018)
- Pedestrian Bridge between Carleton University and Vincent Massey Park – Federal Land Use and Design Approval (August 2018)
- Stillwater Creek Wetland Enhancement Project – Federal Land Use and Design Approval (August 2019)

The NCC has reviewed and provided feedback on the design of a number of OLRT Stage 2 project components affecting federal lands at 30% Developed Design. The 30% design submittals are referred to as Basis of Design Reports.

**Confederation Line:**

- Stations, Guideway, Structural Design, Underground Structures, Landscape Architecture and Guideway Connectivity, SJAM Parkway Roadway and Temporary Detour Design.

**Trillium Line:**

- Stations Architecture, Landscape, Electrical, Utilities and Structural, Civil works and Guideway.

### **3. NCC Staff Analysis**

#### **Confederation Line Update – Project Components on Federal Lands**

- The proposed design for all new Confederation Line Stations maintain a high degree of consistency with architectural design of existing Confederation Line stations. Three Confederation Line stations are located on federal land: Lincoln Fields Station, Iris Station, and Moodie Station.
- An updated curvilinear design for Sir John A. Macdonald Parkway (SJAM) realignment between Westboro Beach and Cleary Station is now proposed to reduce vehicle speed and enhance the scenic experience. The LRT project will facilitate the addition of new grade-separated and at-grade parkway crossings for pedestrians and cyclists, while improving existing underpasses at Westboro Beach and Carleton Avenue. This will support improved accessibility to the riverfront in a manner consistent with the NCC's plans. Detailed landscape improvement and reinstatement plans for the impacted SJAM Parkway lands were developed by the NCC and were incorporated into the City's Project Agreement with the successful bidder (East West Connectors). Improvements are being funded through the Parkland Improvement Funding Envelope.
- The LRT cut and cover tunnel alignment and portal location within the SJAM Parkway corridor is maintained. Design approach is consistent with two conditions adopted by the Board of Directors in 2013 and 2017, for approval in principle of the functional design:
  - Unimpeded continuous access to the SJAM corridor lands and the shorelines of the Ottawa River.
  - Minimal visual impact of the project on the SJAM corridor landscape quality and its experience by users.
- Cleary Station no longer requires the use of NCC parkland. The station has been relocated south of Richmond Road to municipal property in the 30% Developed Design.
- Other project components involving federal lands include a realignment of Pinecrest Creek and a new culvert to facilitate the construction of Iris Station.
- The eastward extension of the Confederation Line has limited impacts on federal lands as the alignment proceeds primarily within the median of Ottawa Road 174 on municipal property. NCC lands are required to facilitate the improvement of Green's Creek crossing and for the construction of a new pathway that will link to the existing NCC Greenbelt Pathway.

- A Federal Environmental Effects Evaluation was completed under the former Canadian Environmental Assessment Act for the extension of the Confederation Line and was signed by the NCC in April 2018.

### **Trillium Line Update – Project Components on Federal Lands**

- The proposed Trillium extension extends 11 km south from Greenboro Station southward toward Riverside South and includes a 4 km spur to the airport.
- The new Trillium Line Stations maintain a high degree of consistency with architectural design of existing Confederation Line stations employing the same design ‘kit of parts.’
- The airport spur includes two new stations, Uplands Station and Airport Station on Transport Canada property that is subject to a ground lease to the Ottawa Macdonald-Cartier International Airport Authority (OMCIAA).
- Other related works proposed on federal lands include the construction of a multi-use pathway along the length of the alignment and a grade separated crossing at Leitrim Road. The current grade-separation concept reduces the required area of NCC lands near Leitrim Road.
- A Federal Environmental Effect Evaluation was completed under the former Canadian Environmental Assessment Act for the extension of the Trillium Line and was signed by the NCC in April 2018.

### **Risks and Mitigation Measures**

- NCC staff worked closely with City staff and contributed to the development of the Project Agreement between the City and the selected bidders. This has resulted in design requirements that are consistent with the NCC’s objectives and has helped to facilitate the expedited review of design submittals, especially for components that have significant impacts on NCC lands.
- Delays in approvals related to the Stage 2 projects could affect the project’s delivery schedule and affect the timing of related components that support NCC objectives. NCC staff continue to work closely with City staff to prioritize the review of design submittals and maintain the related schedule.
- The construction of Moodie Station is contingent on the implementation of the Stillwater Creek Wetland Enhancement project in order to protect floodplain capacity. Under a Memorandum of Understanding with the City of Ottawa, the NCC will deliver the project with funding provided by the City of Ottawa. The project has been tendered and the bids from contractors received are higher than expected. NCC staff are currently exploring alternative options with the City of Ottawa for funding and delivery of the project within a timeframe that does not delay LRT construction and meets the NCC’s environmental objectives.
- The OLRT Stage 2 projects are of significant importance to the Capital. The project has and will continue to require a significant amount of staff time given the volume of material subject to NCC review. An internal Statement of Requirement for OLRT Stage 2 has been prepared to estimate and plan for the continued involvement of NCC staff resources, as required.

## 4. Strategic Links

- NCC corporate priorities:
  - Initiate, renew and communicate land use plans and provide timely and effective coordination of federal land use and design in the National Capital Region.
  - Provide exemplary leadership in achieving an environmentally sustainable and resilient National Capital Region, and continue to be recognized as the steward of federal lands and assets.
- Plan for Canada's Capital (2017 to 2067)
- Capital Urban Lands Plan (2015)
- Canada's Capital Greenbelt Master Plan (2013)
- Ottawa River South Shore Riverfront Park Plan (2018)

## 5. Consultations and Communications

- The City of Ottawa is responsible for public engagement in relation to the OLRT Stage 2 projects.
- The City has held several consultations and information sessions for residents, including those relating to the LRT extension along the Sir John A. Macdonald Parkway and the Pinecrest Corridor in 2015 and 2016.
- The City engaged local Indigenous groups during the provincial environmental assessment, including the Algonquins of Ontario Consultation Office, Algonquins of Pikwakanagan, Kitigan Zibi Anishinabeg First Nation, Quebec Métis, and Métis Nation of Ontario. The City will continue to engage Indigenous groups during the detailed design and construction phases regarding the scope and results of archaeological assessments, the public art program, and the identification of economic opportunities for capacity building.
- The NCC sent notification letters to the Algonquins of Ontario Consultation Office and Kitigan Zibi Anishinabeg First Nation as part of the land transfer process.
- Input from ACPDR to NCC staff, with particular emphasis on the riverfront corridor, was received in May 2015, May 2016 and December 2016.
- The draft excerpt of the ACPDR minutes from the presentation of the 30% developed station design that occurred in October 2019 is appended to this submission.

## 6. Next Steps

- 2019 - Continued review of design submissions from Stage 2 constructors.
- 2020-2021 – Federal Approvals for 60% and 90% developed design submissions. Proposed to be delegated to Executive Committee of the Board of Directors for decisions.
  - Delegation of future approvals to the Executive Committee of the Board of Directors is proposed to enable a staged approvals approach that can be responsive to the design submission and overall project schedules. Design submittals and approval reviews of specific project components often require a

rapid turnaround. These timelines do not permit sufficient time for formal presentation at meetings of the Board of Directors.

- If any significant changes in scope and/or design occur that vary from the 30% Developed Design or conditions of previous approvals, NCC staff will submit these components for ACPDR comments and to Board of Directors for decision(s).

The proposed approvals approach is consistent with the process adopted for the review of the section of Confederation Line in operation today.

## **7. List of Appendices**

Appendix 1 – Map of Alignment and NCC Lands

Appendix 2 – Location of Stations on Federal Land

Appendix 3 – NCC Capital Principles – Basis of NCC review of LRT Project

Appendix 4 – Draft excerpt of the minutes of the ACPDR meeting (October 2019)

## **8. Authors of the Submission**

Pierre Vaillancourt, Acting Vice President, Capital Planning Branch (CP)

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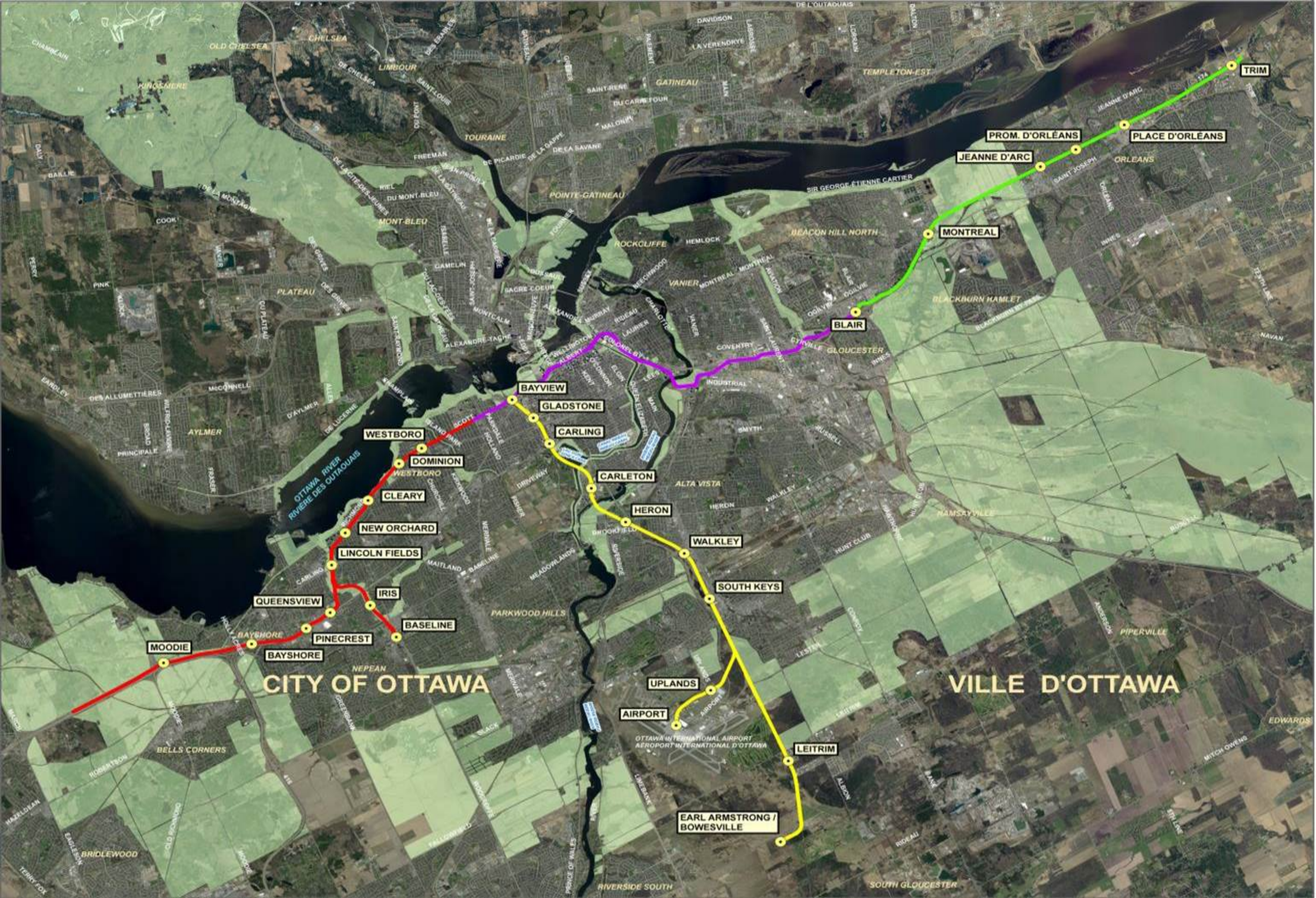
Susan Fisher, Project Manager, Landscape Architect, Design & Construction, CP

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CITY OF OTTAWA

VILLE D'OTTAWA

MOODIE

QUEENSVIEW

LINCOLN FIELDS

NEW ORCHARD

CLEARY

DOMINION

WESTBORO

BAYVIEW

GLADSTONE

CARLING

CARLETON

HERON

WALKLEY

SOUTH KEYS

UPLANDS

AIRPORT

OTTAWA INTERNATIONAL AIRPORT  
AÉROPORT INTERNATIONAL D'OTTAWA

EARL ARMSTRONG /  
BOWESVILLE

LEITRIM

BLAIR

MONTREAL

JEANNE D'ARC

PROM. D'ORLÉANS

PLACE D'ORLÉANS

TRIM



Ligne de la  
**Confédération** **WEST**  
Line **OUEST**

Ligne  
**Trillium** **SOUTH**  
Line **SUD**

Ligne de la  
**Confédération** **EAST**  
Line **EST**

**44km**




**KM of new rail**

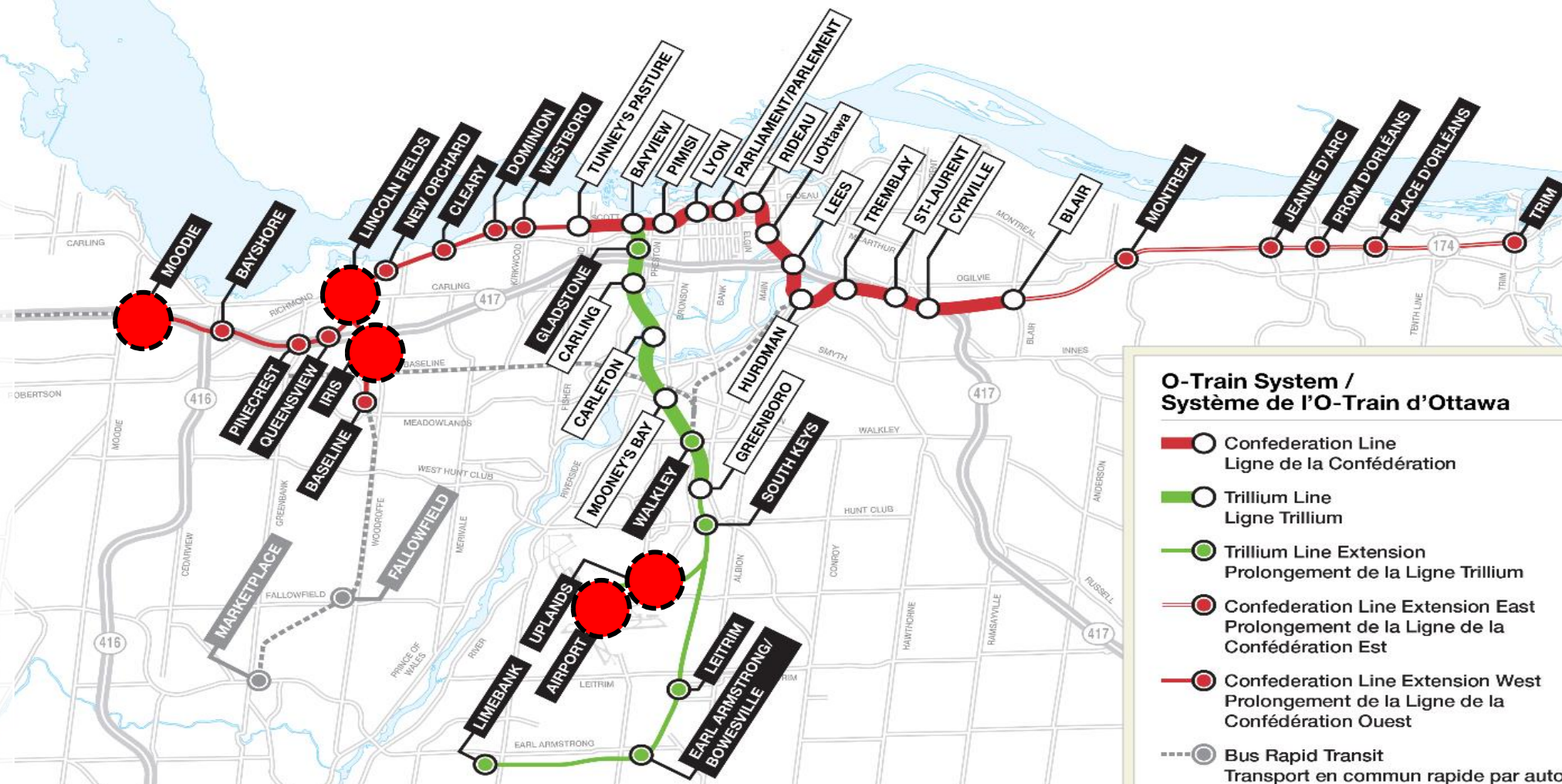


**New Stations**



**77%**



**Ottawa residents  
within 5km of  
new rail**



### O-Train System / Système de l'O-Train d'Ottawa

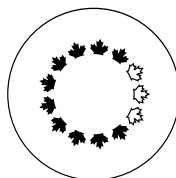
-  Confederation Line  
Ligne de la Confédération
-  Trillium Line  
Ligne Trillium
-  Trillium Line Extension  
Prolongement de la Ligne Trillium
-  Confederation Line Extension East  
Prolongement de la Ligne de la Confédération Est
-  Confederation Line Extension West  
Prolongement de la Ligne de la Confédération Ouest
-  Bus Rapid Transit  
Transport en commun rapide par autobus



### **Appendix 3 – NCC Capital Principles – Basis of NCC review of LRT Project**

The following Capital Principles constitute the basis for the NCC Review of the OLRT project. These Principles are of critical importance to the role of the Capital as they relate to Federal lands. They were presented to the City of Ottawa at a joint meeting in December 2010.

- Compliance with federal legislative and regulatory framework (i.e CEAA, *National Capital Act*)
- Compliance with NCC Plans and Policies
- Respect of the founding elements of the Capital, including natural and cultural landscapes, the Parkway network, the National and World Historic Sites, and the National Symbols by preserving their heritage value and character-defining elements and by contributing to the communication of their cultural significance.
- Quality of Planning, Design and Execution for all the components of the Proposal that is consistent with their significance and location and reflect best practices in the fields of urban planning, architecture, landscape architecture, urban design, sustainability, universal accessibility and heritage conservation.
- Seamless integration into the transportation and communication network within the National Capital Region and the links it provides the Capital to international networks. This includes the interprovincial and intermodal transit systems, the parkways and the pathways networks.
- Experiential Quality and efficiency of the system in terms of connectivity, linkages and Capital arrivals.
- Effective and efficient public transit service to Capital Settings and Capital Destinations including the Parliamentary Precinct, National Cultural Institutions, Capital Waterways as well as federal employment sites.
- Preservation or enhancement of Capital venues for programming, interpretations and commemorations.
- Adherence to Planning principles that secure the potential for Transit Oriented Developments (TOD) on NCC lands where applicable, including the design of stations' footprints and the provision for air and ground rights for integration into future developments.
- Efficient and sensible use of federal lands required for construction staging and temporary operations and application of necessary mitigation measures to reduce visual and functional impacts
- Minimization of the use of federal lands for municipal infrastructure, including bus to LRT transfer areas, transit vehicle storage areas, ancillary uses.



## NATIONAL CAPITAL COMMISSION COMMISSION DE LA CAPITALE NATIONALE

Excerpt of the Minutes of the

Advisory Committee  
on Planning, Design and Realty

Meeting of October 3 and 4, 2019

2019-P82 - Stage 2 – Confederation Line  
and Trillium Line Stations – 30% Developed  
Design (C)

These minutes have not been approved yet.

Members received a presentation on the 30% developed design for the Stage 2 OLRT's Confederation and Trillium lines stations on federal lands. They appreciated that the project integrated lessons learned from the first stage and other recent transit projects. They provided the following advice:

### Users' Experience

- Comfort should be emphasized. Heated floors should be explored.
- Some stations should be more sheltered than planned given Ottawa weather in the winter. There should be more and larger heated areas.
- Changes to station design should be considered if ridership increases over time (shelters, platforms, etc.).
- Automated solutions for coffee and water should be considered.
- Orientation must be legible whether users

Extrait du procès-verbal du

Comité consultatif  
de l'urbanisme, du design et de l'immobilier

Séance des 3 et 4 octobre 2019

2019-P82 - Étape 2 – Stations des lignes de  
la Confédération et Trillium – Design avancé à  
30 % (C)

Ce procès-verbal n'a pas encore été approuvé.

Les membres reçoivent une présentation sur le design avancé à 30 % des stations des lignes de la Confédération et Trillium de l'étape 2 du train léger d'Ottawa sur les terrains fédéraux. Ils apprécient le fait que le projet intègre les apprentissages tirés de la première phase et d'autres projets de transport en commun récents. Ils donnent les conseils suivants :

### Expérience des usagers

- Le confort devrait être valorisé. On devrait étudier la possibilité de planchers chauffants.
- Certaines stations devraient être plus protégées que prévu étant donné la météorologie hivernale à Ottawa. Il devrait y avoir plus de zones chauffées et elles devraient être plus grandes.
- On devrait envisager des changements au design des stations si l'achalandage augmente avec le temps (abris, plateformes, etc.).
- On devrait envisager des solutions automatisées pour le café et l'eau.
- L'orientation devrait être lisible, que les



2019-P82 - Stage 2 – Confederation Line  
and Trillium Line Stations – 30% Developed  
Design (C)

These minutes have not been approved yet.

are going East, West, South or North.

- Wayfinding should be integrated in the architecture, and be universal to the system, but specific to each station.
- Each station should be recognizable.
- Public art should be integrated with the architecture and the landscape but it should also be conceived to be appreciated from the train.
- The system's safety and efficiency would be increased by the addition of landing doors on the platform.

#### Architecture and Design

- The designs are generally well conceived. The modernity and simplicity of the architecture was appreciated, as well as the use of wood as a material.

#### Materials

- Transparency should be focused on where it is most needed, in order to serve the purpose of wayfinding. Glass requires maintenance overtime. Bird protection must be provided.
- Wood is used as a decorative material, but could also be used structurally, especially in stations surrounded by nature.

#### Airport Connection

- Wayfinding should be clear and intuitive from the arrivals level of the airport terminal.
- Connections to downtown should be more direct and obvious.
- Vertical circulation needs to be well conceived, as it is a factor in the utilization of the transit system. Vertical circulation is

2019-P82 - Étape 2 – Stations des lignes de  
la Confédération et Trillium – Design avancé  
à 30 % (C)

Ce procès-verbal n'a pas encore été approuvé.

usagers se dirigent vers l'est, l'ouest, le sud, ou le nord.

- L'orientation devrait être intégrée dans l'architecture, et universelle sur tout le réseau, tout en étant spécifique à chaque station.
- Chaque station devrait être reconnaissable.
- L'art public devrait être intégré dans l'architecture et l'aménagement paysager, mais il devrait être également conçu pour être apprécié à partir du train.
- L'ajout de portes palières sur la plateforme accroîtrait la sécurité et l'efficacité du réseau.

#### Architecture et design

- Les designs sont en général bien conçus. La modernité et la simplicité de l'architecture sont appréciées, ainsi que l'utilisation du bois comme matériau.

#### Matériaux

- La transparence pourrait se concentrer là où elle est la plus utile, afin de servir à l'orientation. Le verre a besoin d'entretien avec le temps. On doit prévoir la protection des oiseaux.
- Le bois est utilisé comme matériau décoratif mais pourrait aussi être utilisé à des fins structurales, en particulier dans les stations entourées de nature.

#### Lien avec l'aéroport

- L'orientation devrait être claire et intuitive à partir du niveau des arrivées du terminal de l'aéroport.
- Les liens au centre-ville devraient être plus directs et évidents.
- La circulation verticale doit être bien conçue, étant donné que c'est un facteur dans l'utilisation du réseau de transport en

2019-P82 - Stage 2 – Confederation Line  
and Trillium Line Stations – 30% Developed  
Design (C)

These minutes have not been approved yet.

difficult for people with mobility issues or families with strollers.

Approaches and Linkages

- Pedestrian and cycling links with neighbourhoods and landscaping around stations should be more detailed. The fact that pedestrians often take the shortest, most direct route should be considered.

Active Transportation

- Active transportation should be promoted, and bicycle parking should be better integrated into the stations' architecture.

2019-P82 - Étape 2 – Stations des lignes de  
la Confédération et Trillium – Design avancé  
à 30 % (C)

Ce procès-verbal n'a pas encore été approuvé.

commun. La circulation verticale est difficile pour les gens qui ont des difficultés de mobilité ou les familles avec poussettes.

Approches et liens

- Les liens piétonniers et cyclistes avec les quartiers et l'aménagement paysager autour des stations devraient être plus détaillés. Le fait que les piétons prennent souvent le plus court chemin devrait être pris en compte.

Transports actifs

- On devrait promouvoir le transport actif, et les stationnements pour bicyclettes devraient être mieux intégrés dans l'architecture des stations.

Committee Secretary Caroline Bied Secrétaire des comités