

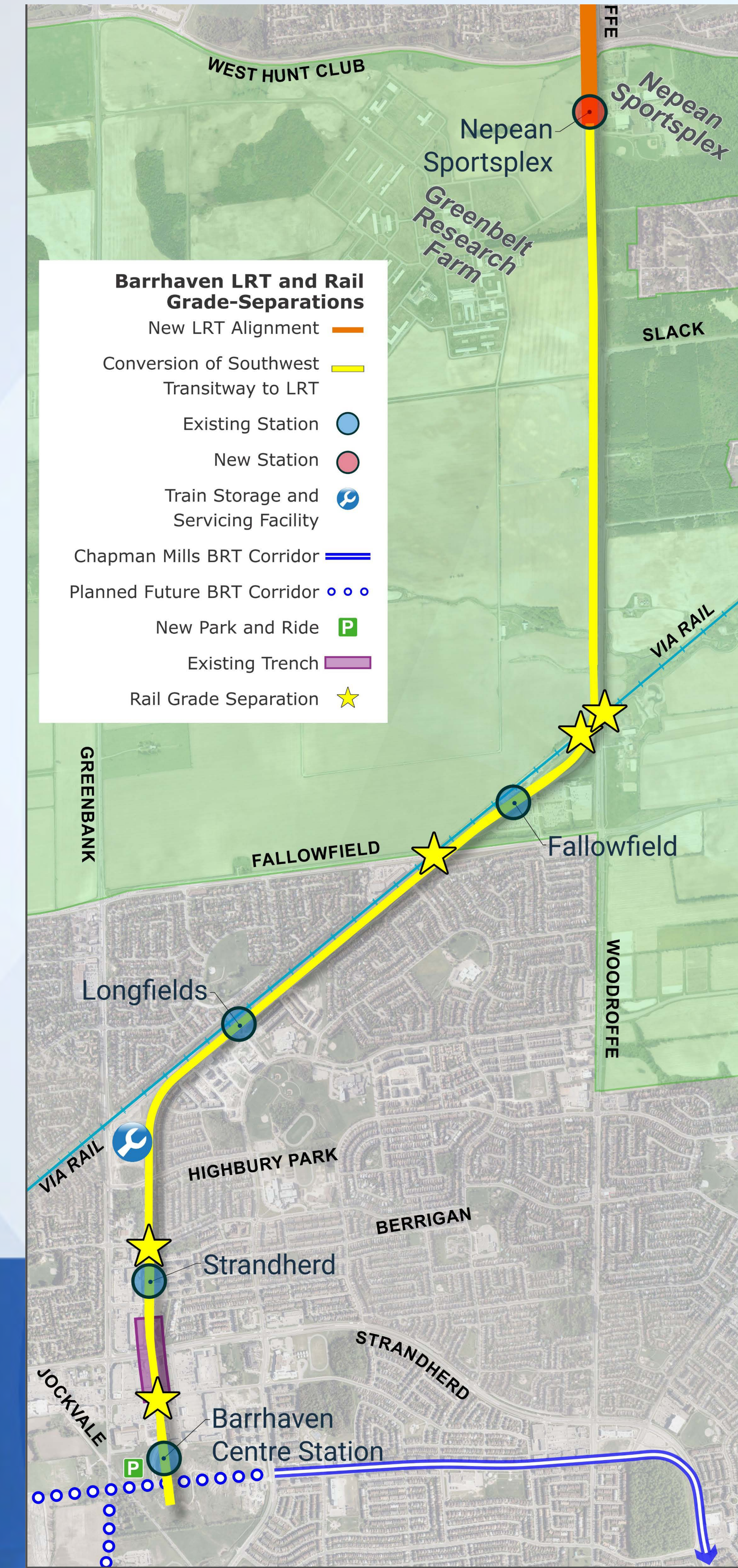
Barrhaven LRT and Rail Grade-Separations Planning and Environmental Assessment (EA) Study

Nepean Sportsplex to Barrhaven Town Centre: Preliminary Recommended Plan

The **Preliminary Recommended Plan** for this portion of the project involves converting the existing at-grade bus Transitway to twin-track fully segregated electric LRT technology, including modifying the existing Fallowfield, Longfields and Strandherd Stations. Existing Marketplace and Barrhaven Centre stations would be combined into one Station at the terminus.

In addition, the **Preliminary Recommended Plan** incorporates:

- Rail grade-separations at the Woodroffe Avenue, Southwest Transitway and Fallowfield Road crossings of the VIA Rail line;
- Additional LRT grade-separations at Berrigan Drive and Marketplace Avenue and future Chapman Mills Drive;
- Extending the existing trench north and south of Strandherd Drive to segregate at cross streets; and
- New multi-modal bus/rail terminal station at Barrhaven Town Centre.



Southwest Transitway and Woodroffe Avenue Rail Grade-Separations

Preliminary Recommended Plan

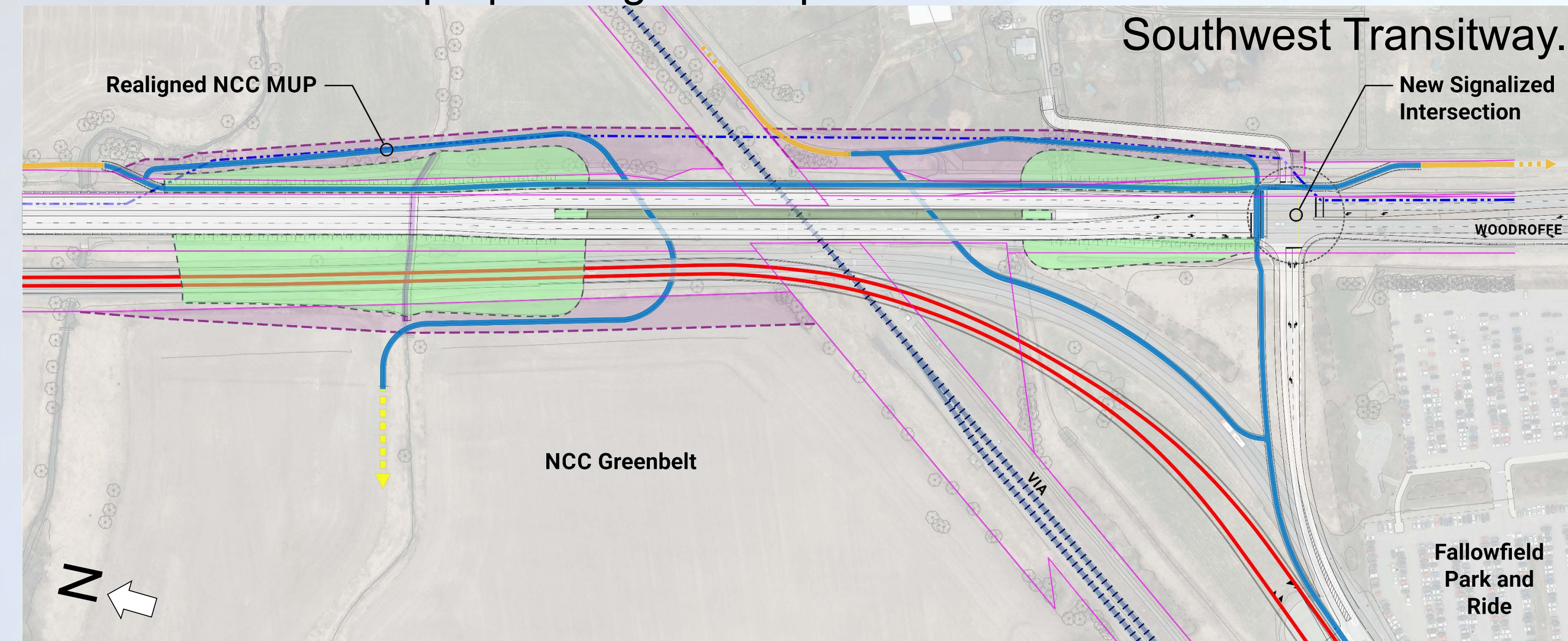
The Feasibility Study preferred alternative included the following design recommendations:

- Maintain Woodroffe Avenue and the Southwest Transitway on their existing alignments; and
- Consolidate both grade-separations on a single structure due to their proximity to each other.

Design refinements have been made based on feedback received during both the Feasibility Study and this Study resulting in a **Preliminary Recommended Plan** comprised of:

- Providing separate structures for Woodroffe Avenue and the Southwest Transitway which is compatible with both BRT and LRT technologies;
- Designing for a long, multi-span structure with lower approach embankment heights to reduce project footprint and property requirements from the NCC Greenbelt and allow spaces for recreational pathways and ecological connectivity underneath the structures;
- Providing an open median on the Woodroffe Avenue structure to allow light to penetrate below; and
- Providing a new signalized access to the Fallowfield Park and Ride facility to/from Woodroffe Avenue and to provide a new access to the existing Equestrian Centre.

Plan view of the proposed grade-separation for Woodroffe Avenue and the Southwest Transitway.



Legend			
Future LRT Corridor	Proposed Property Limit	Existing Multi-Use Pathway	Pathway to be Removed
VIA Rail Corridor	Required Property Area	Proposed New Multi-Use pathway	Realigned Watermain
Existing Property Limit	Required Embankment	Future NCC Multi-Use pathway	

Artistic rendering of the proposed grade-separation for Woodroffe Avenue and the Southwest Transitway looking southwest.



Barrhaven LRT and Rail Grade-Separations Planning and Environmental Assessment (EA) Study

Fallowfield Road Rail Grade-Separation Preliminary Recommended Plan

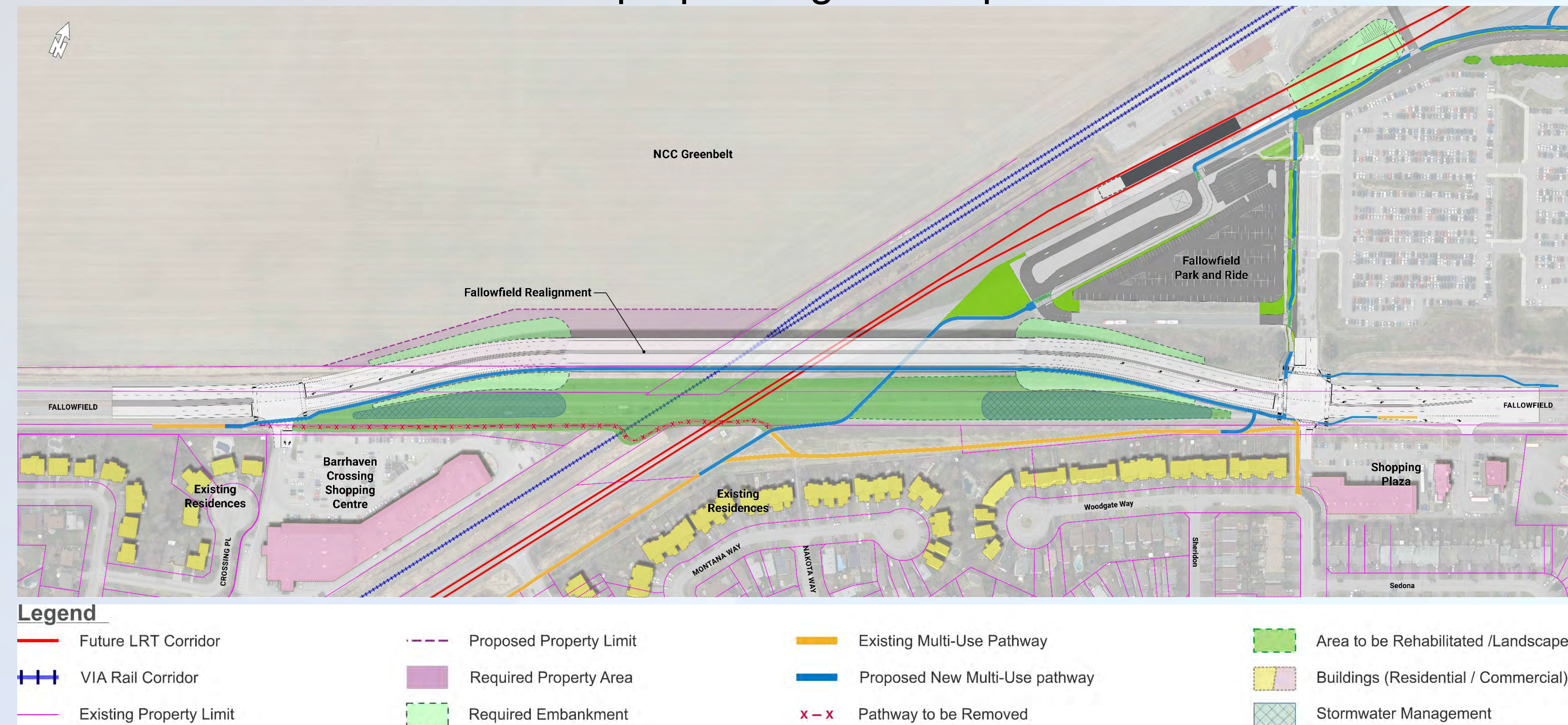
The Feasibility Study preferred alternative included the following design recommendations:

- Construct a new overpass approximately 40 metres north of the current crossing to create greater separation from the existing residential neighborhood and avoid a costly temporary detour; and
- The design would include a multi-span bridge carrying the road over the existing VIA Rail line and the Southwest Transitway.

Design refinements have been carried out based on feedback received during both the Feasibility Study and this Study resulting in a **Preliminary Recommended Plan** comprised of:

- Providing a long, multi-span structure that requires lower approach embankment heights and reduces the anticipated property requirements from the NCC Greenbelt;
- Low Impact Development Stormwater Management features to filter/contain stormwater from the structure in consideration of its location within the Ottawa International Airport's bird hazard zone;
- Modifications to the existing multi-use pathway connections; and
- Opportunities for new programming/landscaping of abandoned current alignment of Fallowfield Road.

Plan view of the proposed grade-separation for Fallowfield Road.



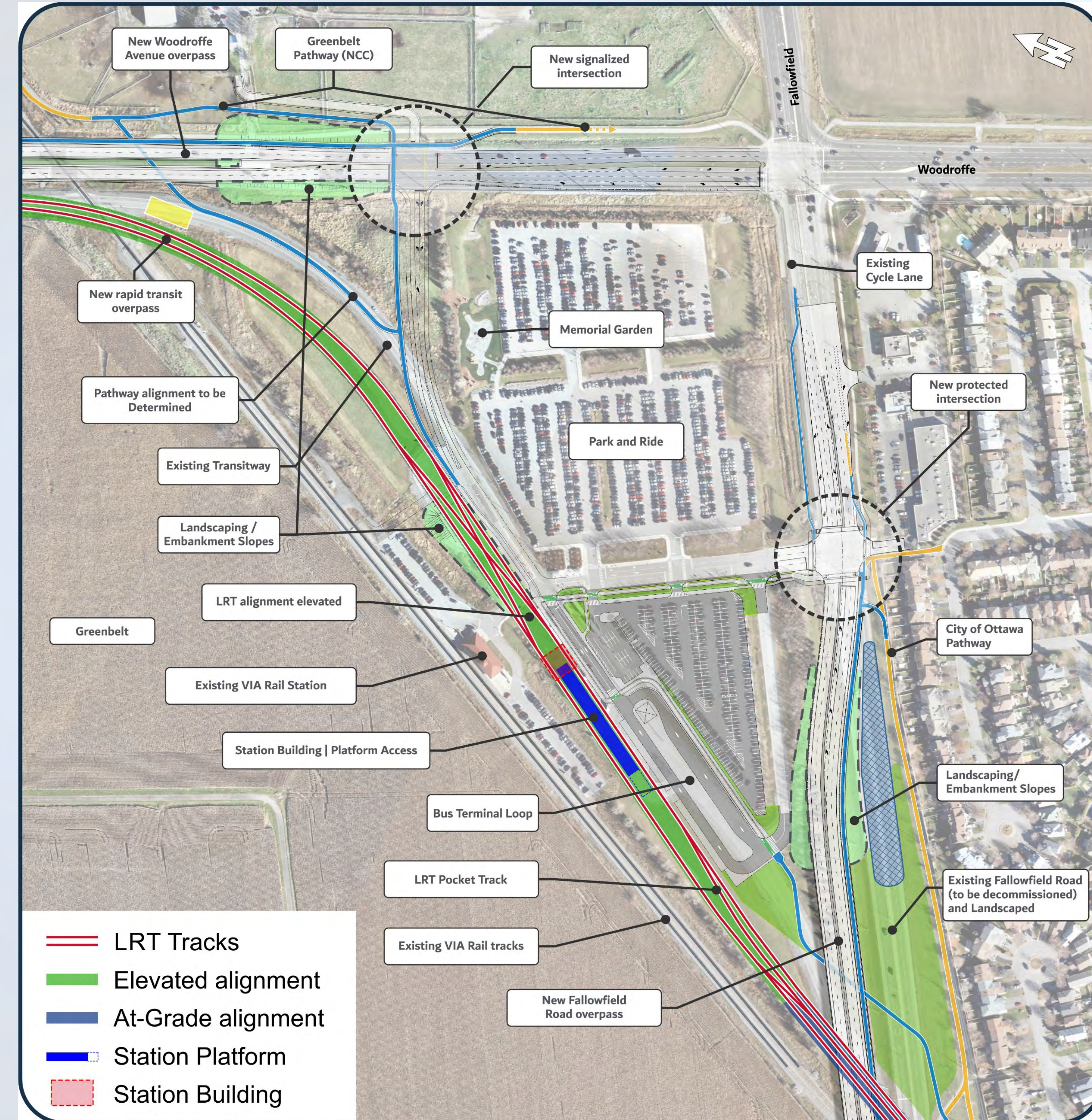
Artistic rendering of the proposed grade-separation for Fallowfield Road looking northeast.



Fallowfield Station

The **Preliminary Recommended Plan** for Fallowfield Station includes the following elements:

- Possible future integration of the LRT station and VIA Rail station;
- Access to the VIA Rail Station must be maintained during construction;
- Elevated LRT platform that permits access below to/from VIA Rail Station;
- Bus lay-up area and operator's facility;
- Bus platforms accommodating bus to rail passenger transfers;
- Proposed new connection from/to the Fallowfield Park and Ride lot to Woodroffe Avenue; and
- Inclusion of a pocket track south of the LRT station to store trains off-service.

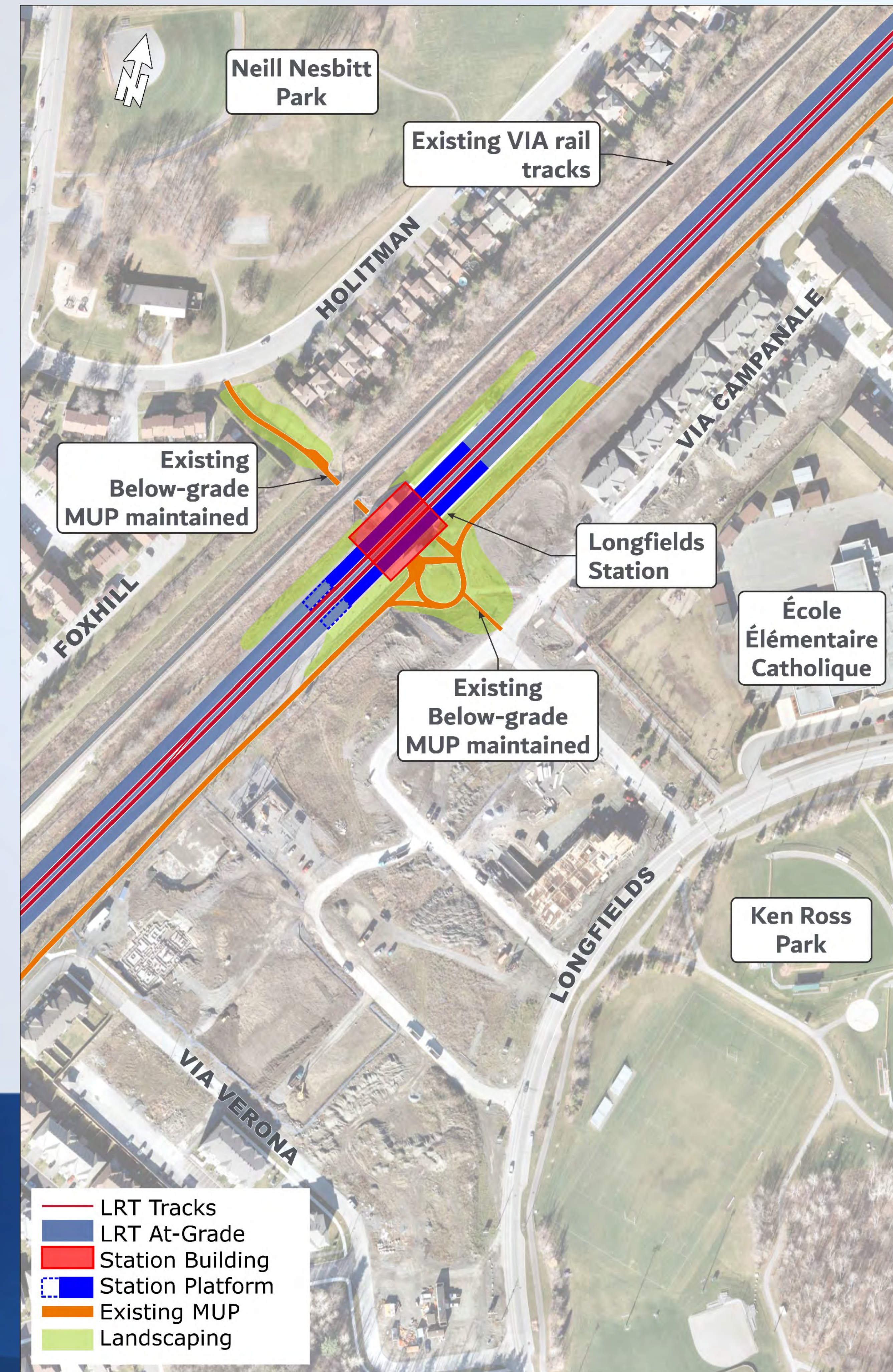


Longfields Station

The **Preliminary Recommended Plan** for Longfields Station includes the following elements:

- Converting the existing station from BRT to LRT; and
- Improvements to pedestrian and cycling facilities in the station vicinity.

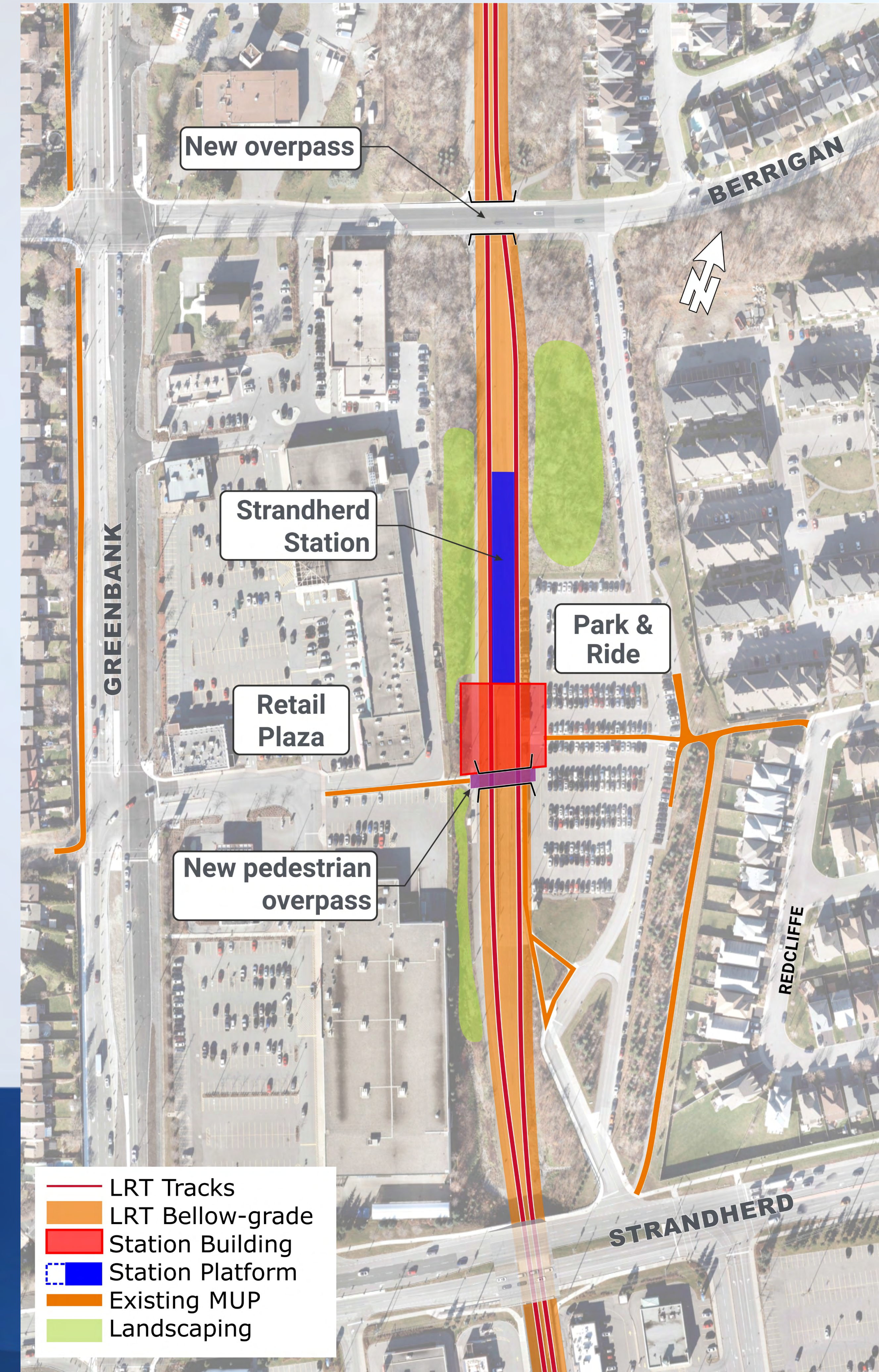
Further design work will consider details of station conversion of the existing station.



Strandherd Station

The **Preliminary Recommended Plan** for Strandherd Station includes the following elements:

- Construction of a below-grade (open trench) LRT station on the alignment of the existing Transitway;
- New pedestrian and cycling connections through the station area and to adjacent roads and communities; and
- Minor revisions to the existing Park and Ride lot to improve circulation and pedestrian/cycling access.

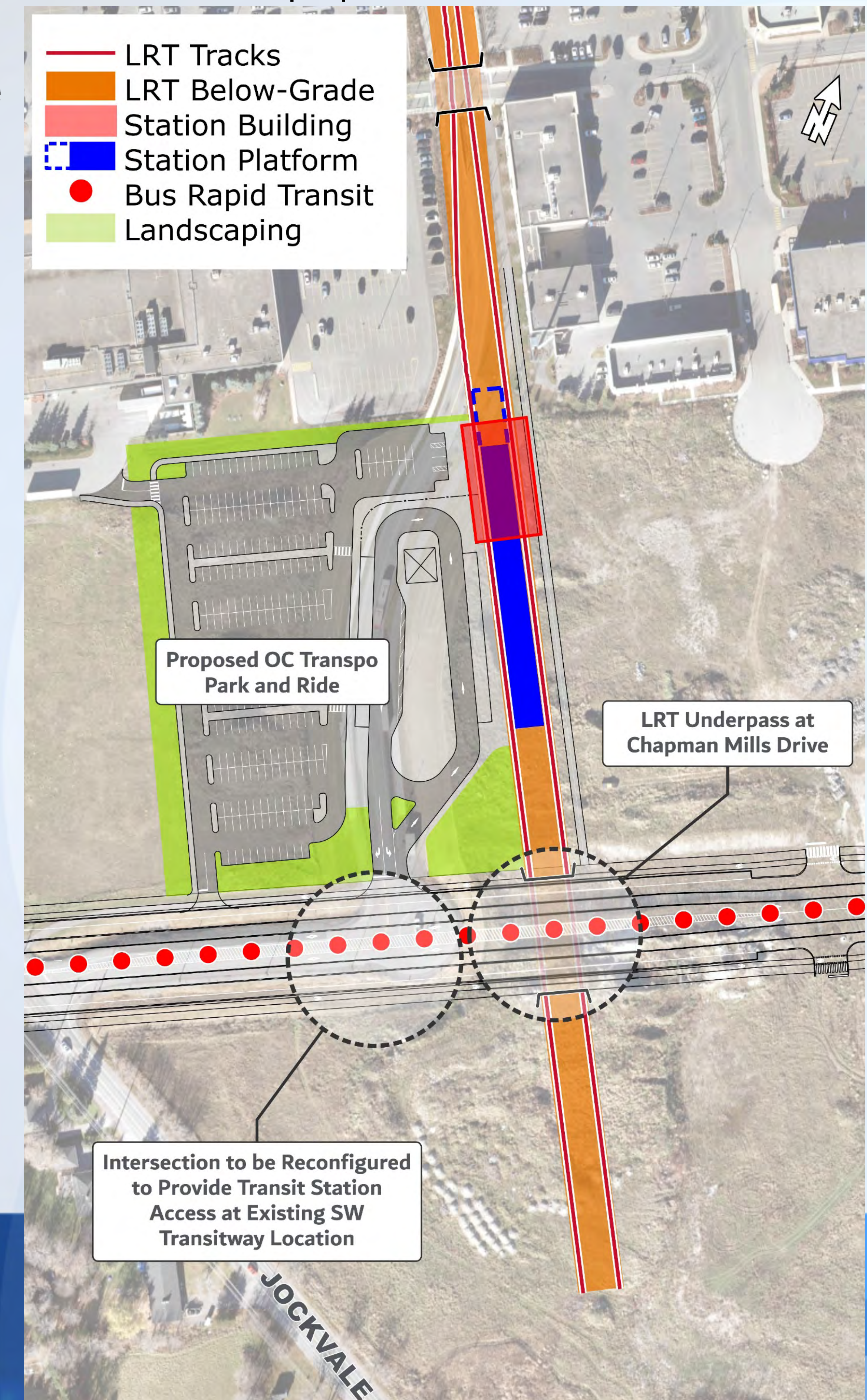


Barrhaven Centre Station

The **Preliminary Recommended Plan** for Barrhaven Town Centre Station to accommodate LRT includes the following elements:

- A multi-modal bus/rail passenger transfer terminal with below-grade LRT station with new at-grade bus loop;
- Connects to Chapman Mills and Greenbank Road BRT corridors;
- LRT platform that consolidates the current Marketplace and Barrhaven Centre stations;
- Compatible with future “civic complex” east of LRT Station;
- Bus platforms accommodating bus to rail transfers;
- Bus lay-up area and operator's facility;
- A new 250 space Park and Ride lot compatible with existing Transitway. Potential shared-use facility underground in future “civic complex”; and
- A tailtrack beyond the station platform to accommodate temporary train storage.

Plan view of the proposed Barrhaven Centre Station.



Barrhaven LRT and Rail Grade-Separations Planning and Environmental Assessment (EA) Study

Train Storage and Servicing Facility

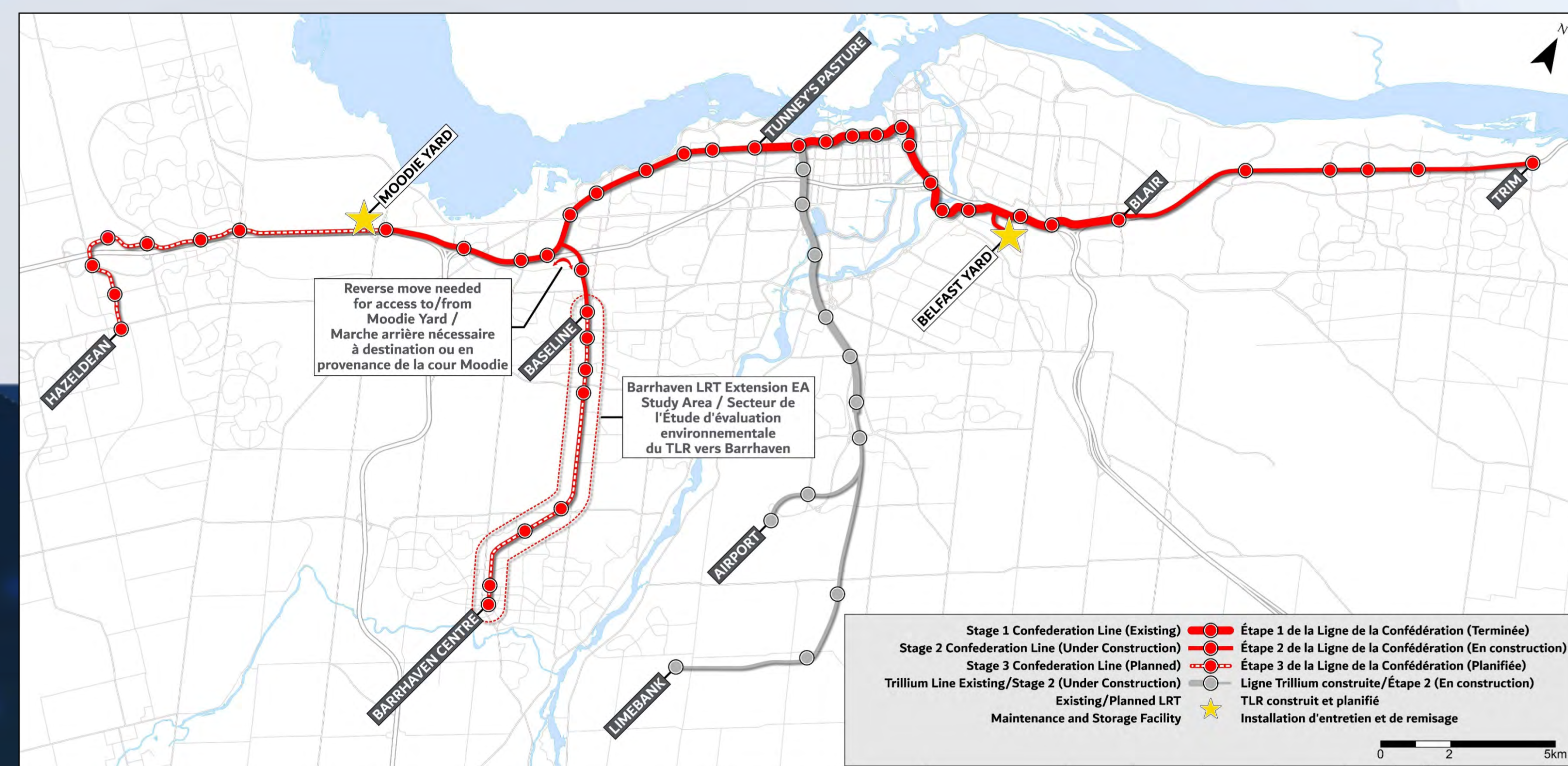
Stages 1 and 2 of the Confederation Line include heavy maintenance and storage facilities at Belfast Road and Moodie Drive accommodating the entire Confederation Line fleet including future extensions to Kanata and Barrhaven. The long distance between Barrhaven Centre and these sites requires a supporting train storage facility as part of this project. This facility will enable more efficient and cost-effective LRT operations by:

- Reducing non-revenue movement of trains;
- Allowing for a longer overnight window to perform daily inspection and track maintenance activities along the LRT corridor;
- Providing the ability to efficiently scale service up or down at the beginning or end of the peak times; and
- Servicing component for inspection, minor repairs.

Based on initial ridership and fleet requirements, the facility must consist of:

- Six (6) covered storage tracks and two (2) service tracks; and
- Administrative building for LRT staff, including parking.

Given the scale and role of the facility, a site located directly adjacent to the LRT corridor near the end of the line is preferred.



Stage 1 & 2 Confederation Line LRT Map.

Barrhaven LRT and Rail Grade-Separations Planning and Environmental Assessment (EA) Study

Alternative Sites Evaluation for a Training Storage and Service Facility

Six (6) alternative locations were evaluated as part of the Study.

1. Baseline Station

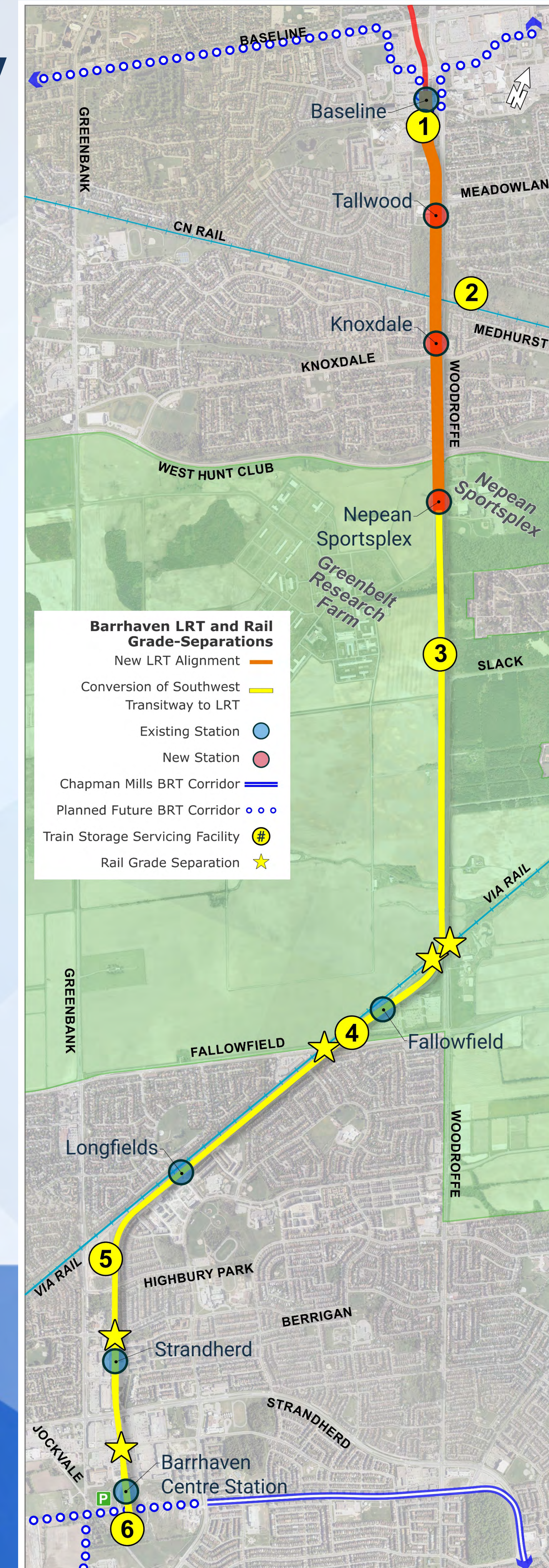
- Existing underground space exists adjacent to station; however, this would need to be expanded to accommodate additional trains.
- High cost based on unfavourable soil and groundwater conditions.
- Not near end of line.
- Compatibility with Barrhaven LRT alignment and operations may be challenging.

2. Woodroffe Open Space

- Cost is high due to requirement to cross Woodroffe Avenue from west side alignment.
- Not near end of line or directly adjacent to corridor.
- Adjacent to an established residential community.
- Displaces valued open space.
- Requires property acquisition.

3. Slack Road

- Constrained site – requires long/narrow facility to fit between LRT line and Woodroffe Avenue.
- Not near end of line.
- May require property acquisition from the NCC.
- Visual impact on the Greenbelt is difficult to mitigate.



Barrhaven LRT and Rail Grade-Separations Planning and Environmental Assessment (EA) Study

Alternative Sites Evaluation for a Training Storage and Service Facility

4. Fallowfield

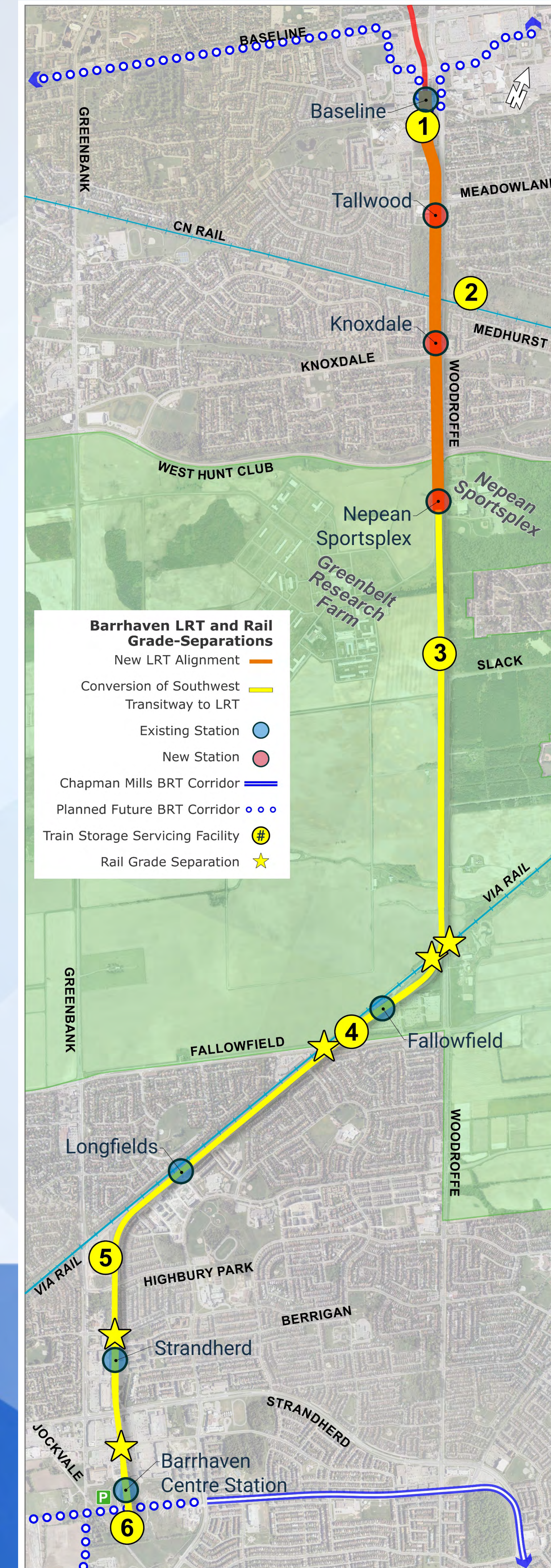
- Horizontal and vertical alignments within the property constrained by the rail grade-separations and VIA Station access.
- May impact the design for grade-separation of the transitway, pathways and roadways.
- Limited space may reduce park and ride spaces or require facility close to residential properties.

5. Greenbank

- Located on existing City-owned land.
- Requires roadway connection to access site from Highbury Park Drive.
- Screened from adjacent residential community by existing trees on landscaped berm.

6. Barrhaven Centre

- Higher construction costs due to ground conditions and need for below-grade facility based on existing topography and future land use compatibility.
- Requires additional property from adjacent development lands.
- Requires modification to the South Nepean Town Centre Community Design Plan to be accommodated.



Barrhaven LRT and Rail Grade-Separations Planning and Environmental Assessment (EA) Study

Evaluation Results - Train Storage and Servicing Facility

The six (6) alternative locations for the TSSF were evaluated using differentiating criteria.

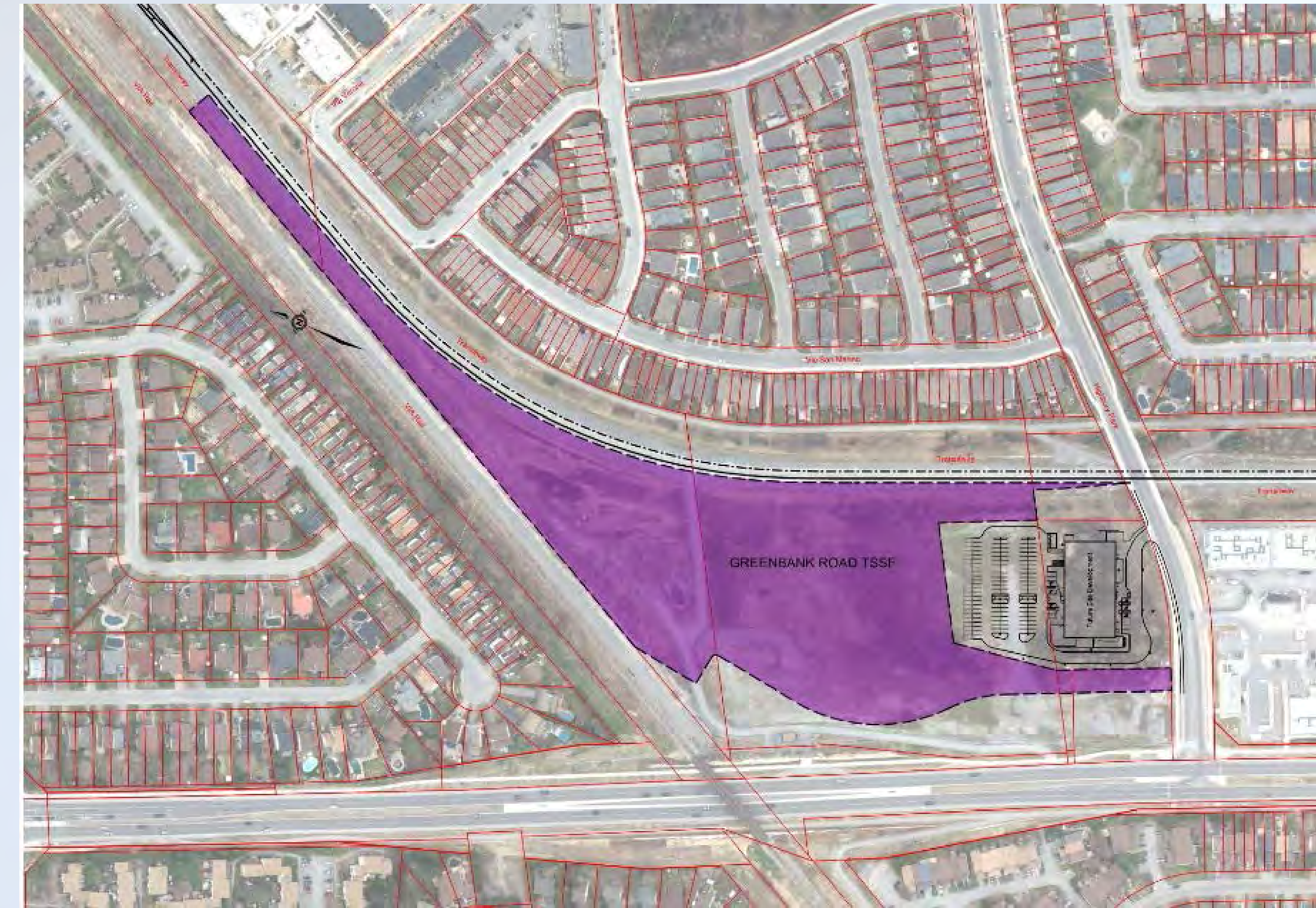
Following evaluation the preferred site is the Greenbank site. The benefits of this site location includes:

- Ability to accommodate all functional requirements;
- The property is entirely City-owned land, no property acquisition is required;
- Convenient, safe and controlled access from Highbury Park;
- The location is close to end of line which is the most optimal; and
- Buffered from adjacent residential community by VIA tracks, Greenbank Road and Southwest Transitway corridor.

Preliminary impact assessment indicates that the following mitigation measures may be required:

- Servicing activities to occur inside closed building;
- Lighting design to ensure no spill-over effects; and
- Security fencing and landscaping.

Proposed TSSF footprint.

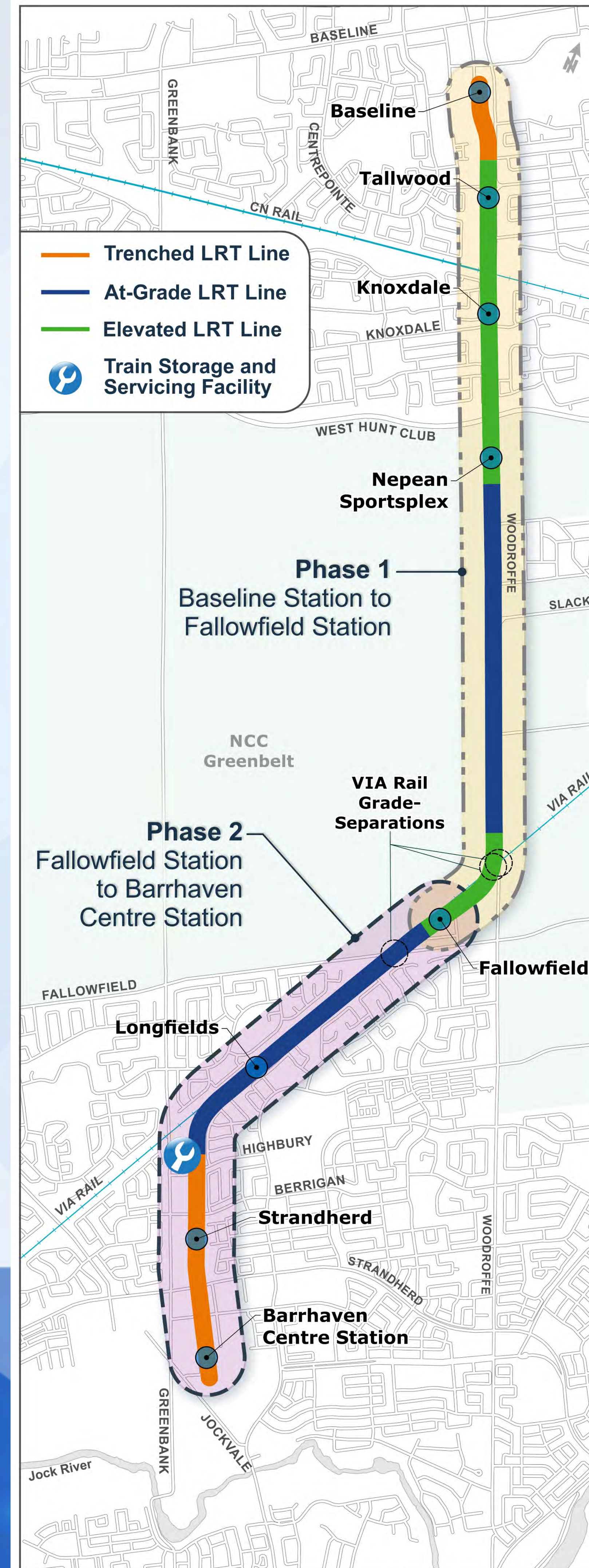


Birdseye view of the TSSF site plan.



Project Implementation – Phasing

- Dependent on funding availability.
- Potentially two major phases:
 - Phase 1: Baseline Station to Fallowfield Station (including rail grade-separations at VIA Rail corridor); and
 - Phase 2: Fallowfield Station to Barrhaven Centre Station.
- Completing Southwest Transitway as an exclusive Bus Rapid Transitway (BRT) is not recommended as an interim measure due to cost and complexity of future conversion to LRT, however interim transit priority measures at several locations in the Woodroffe corridor will be provided to reduce bus delays.
- Implementation of the rail grade-separations (overpasses) at Woodroffe Avenue, the Southwest Transitway and Fallowfield Road could be considered in advance of LRT.



Project Implementation – Construction Staging

Project Construction

- Full project construction estimated to take 5-6 years once funding and approvals are in place.
- Specific construction methods and schedules to be determined as part of detailed design.
- Construction activities will be subject to City and provincial guidelines for noise, dust, vibration and work hours.

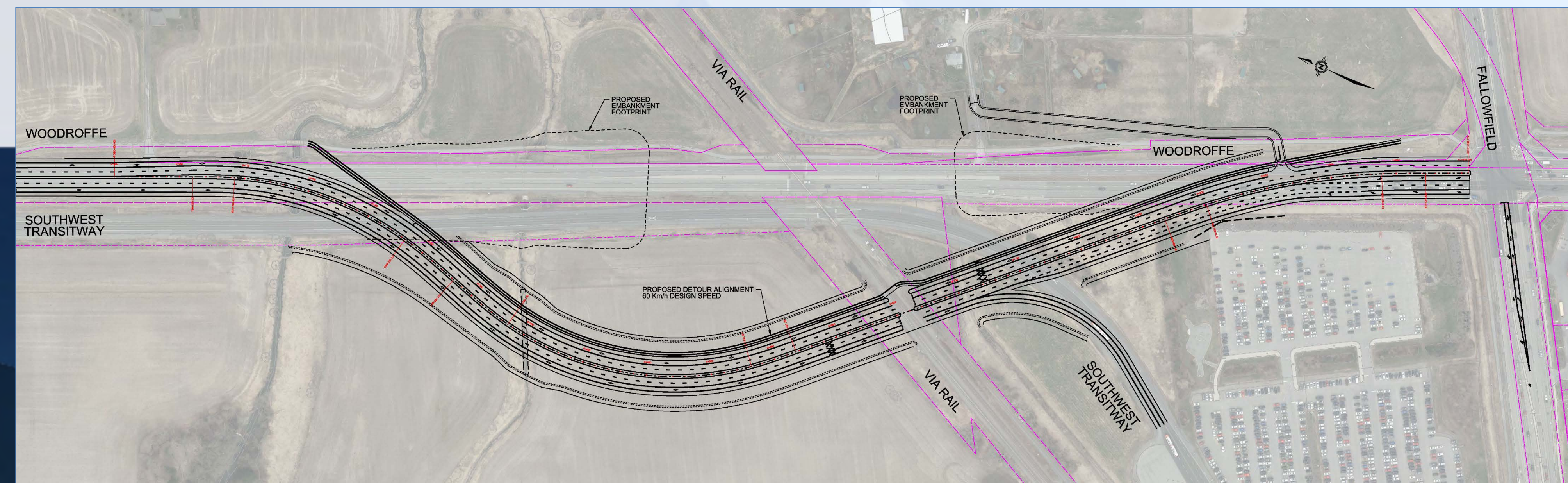
Detours During Construction

- Transit detours will be needed when the Southwest Transitway is closed for conversion to LRT south of Nepean Sportsplex; Transitway buses will be routed via adjacent arterial roads (e.g. Woodroffe, Strandherd), and adjustments made to buses on other routes to provide service to communities impacted by temporary station closures.
- Road and transit detours will be needed to construct the Southwest Transitway and Woodroffe Avenue rail grade-separations; a temporary detour will be built west of the future structures with a new signalized at-grade crossing of the VIA Rail line accommodating buses, general traffic and the NCC multi-use pathway.

Transit Priority Measures

- Northbound and southbound bus queue-jumps will be built at the Slack Road intersection, and between Vaan Drive and the Nepean Sportsplex where they will tie into the existing dedicated bus-only lanes to the north to minimize transit delays.

Woodroffe Avenue and Southwest Transitway detour during rail grade-separation construction



Barrhaven LRT and Rail Grade-Separations Planning and Environmental Assessment (EA) Study

Preliminary Impact Assessment and Required Mitigation Measures

Baseline Station to Nepean Sportsplex

- Property acquisition in accordance with the City's Real Property Acquisition policy; mitigation may provide redevelopment opportunities.
- Noise and vibration analysis indicates no source mitigation is required; however, best practices are included in the design.
- Views/privacy: alignment is not close to existing dwellings, however, opportunities for screening will be identified.
- Seasonal maintenance: snow management design guidelines have been considered such as a wider guideway. The location of the multi-use pathway also considered snow management and potential impacts.
- Corridor landscaping and space programming opportunities being developed.
- Tallwood woods impacts minimized, only the very eastern edge affected and the existing pathway has been maintained.
- Hydro lines will need to be raised and moved where necessary; ongoing consultation with Hydro Ottawa and Hydro One.
- Phase 2 Environmental Site Assessment throughout study area to identify extent of areas of potential environment concern and further work.



Barrhaven LRT and Rail Grade-Separations Planning and Environmental Assessment (EA) Study

Preliminary Impact Assessment and Required Mitigation Measures Continued

NCC Greenbelt

- Eco crossings to enhance wildlife movements.
- Sheltering of the multi-use pathway from the overpass in places.
- Temporary, reversible impacts from detour.
- Permanent impacts from Fallowfield realignment, however, rehabilitation of the existing Fallowfield Road alignment into stormwater management and parkland.
- Prime agricultural lands affected, Soil Management and Rehabilitation Plan specific to agricultural soils recommended to mitigate impacts to soil resources and restore soils to agricultural use and same level of agricultural productivity.
- Tile drainage management plan to minimize impacts to agricultural infrastructure.
- Communications plan to notify of disruptions and minimize impacts to agricultural operations.
- Archaeological assessment in consultation with NCC.
- Consultation with regulatory agencies regarding changes to the southern tributary of Black Rapids Creek.
- Need for monitoring during construction to ensure no change to groundwater quality or quantity will be considered during detailed design.

Locations of proposed eco-crossings



LRT Stations

- Stations designed with the Bird Friendly draft guidelines established by the City.
- Parking study to assess the need for parking restrictions on roads near LRT stations.

Artistic rendering of Woodroffe Avenue and LRT overpasses and NCC Black Rapids Creek multi-use pathway.



Proposed culvert retrofit to include a critter shelf eco-crossing.



Barrhaven LRT and Rail Grade-Separations Planning and Environmental Assessment (EA) Study

Next Steps

Following this opportunity for stakeholder input, your feedback will be reviewed along with input received from others in finalizing all elements of the design for the project.

Please identify any comments or concerns you would like to see addressed and provide those to the City using the tools provided on the City's corresponding project website. Additional information on the project can be found on the City's website at: [Ottawa.ca/BarrhavenLRT](https://ottawa.ca/BarrhavenLRT)

Please provide your comments and questions to:

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Transportation Planning

Transportation Services Department

City of Ottawa

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**Your views are important to the success of this study.
Thank you for your participation!**