Bayshore Station to Moodie Drive LRT Extension Environmental Assessment Studies

Public Consultation Meeting
June 13, 2017

Overview

- Introductions
- Project Overview:
  - Background Refresher
  - Project Updates
- BRT to LRT conversion:
  - Station location (east or west of Moodie?)
  - Functional requirements for Moodie LRT station
  - Impacts and mitigation
- Light Maintenance and Storage Facility (LMSF)
  - Short listed sites evaluation (Options 2, 3 and 4)
  - Preliminary preferred site (Option 2)
- Potential Park and Ride
- Expanded Bayshore bus terminal (if required)
- Schedule
- Next steps/TPAP process and timing

BACKGROUND REFRESHER

Background

- BRT Transitway Extension from Bayshore Station to Moodie Drive currently under construction
- Expected revenue service is November 2017
- Conversion from BRT to LRT in the Ultimate Network but not in the Affordable Network
- Inclusion of Moodie LRT extension/LMSF within Stage 2 as base scope
- EA planning initiated with this in mind

Scope of Environmental Assessment

- Bayshore to Moodie LRT EA:
  - Conversion from BRT to LRT
  - Siting of LRT station
  - Siting of an LMSF beyond Bayshore
- Bayshore Expanded Bus Terminal EA:
  - Updated ridership – more space required
  - Not needed if LRT extended to Moodie as part of Stage 2
- Slightly different process for each EA

Study Process

- Modifications to approved EPR – Expanded Bayshore Bus Terminal

Modifications consistent with EPR	Insignificant modifications inconsistent with EPR	Significant modifications inconsistent with EPR
Proceed with modification	Prepare addendum	Prepare addendum
	Update local project file	Notice of Environmental Project Report Addendum
		Public Review
		Ministerial Approval

Study Process

- EPR – Bayshore to Moodie LRT Extension
- Follow TPAP process to address public interest

Pre-planning	Notice of Commencement	Notice of Completion	Ministers Review
• **Data collection** • **Alternatives** • **Impact assessment** • **Stakeholder consultation** • **Draft reports**	• Consultation with interested persons including regulatory agencies and Aboriginal Communities • Documentation (EPR)	• Public review of EPR by interested persons including regulatory agencies and Indigenous Communities • Opportunities for objections to be sent to Minister regarding areas of provincial interest	• Review EPR • Consider any objections
We are here	Up to 120 days	30 days	35 days

BRT TO LRT CONVERSION

BRT Impacts and Mitigation

Impacts	Mitigation
• Alignment/retaining walls/noise barriers	• No additional mitigation required. West and east noise wall by BRT project unchanged
• BRT Station • 417 ramp grade separation • Stillwater Creek improvements	• Minor design modifications • Design modifications required
• Holly Acres Bridge	• Maintain existing improvements
• Add Kiss and Ride	• Opportunities to reduce width. 417 Noise wall will NOT be relocated to north side of LRT bridge • Added to BRT station

Park and Ride

- Council motion asked us to consider park and ride at Moodie LRT station
- Staff report will respond to this motion later this summer/early fall
- New expansive Park and Ride lot (free) not recommended at this location:
  - Lack of space immediately adjacent to Moodie LRT station
  - A parking deck would likely be required given space constraints
  - May be underutilized once LRT is extended to Kanata/potential for throw away capital costs
  - Would encourage additional traffic across the Greenbelt and is contrary to City and NCC policy
- Potential to provide a limited/short term (paid) park and ride using the existing Abbott Industries surface lot if unused spaces are available

Moodie Station-Functional Requirements with Moodie LRT

Bus Facilities/Kiss and Ride:

- 9 bus platforms
- Fare paid bus terminal
- 14 lay by spaces
- Bus operators building
- 11 kiss and ride spaces (number of spaces to be confirmed)

LRT Station:

- Common Look and Feel as Stage 1
- LRT platform (initially 90 metres in length, protection for 100 metres)
- Likely a side platform station but City will leave this to contractor to decide
- Redundant elevators, escalators under consideration
- Entrance and emergency exit
- Public washrooms

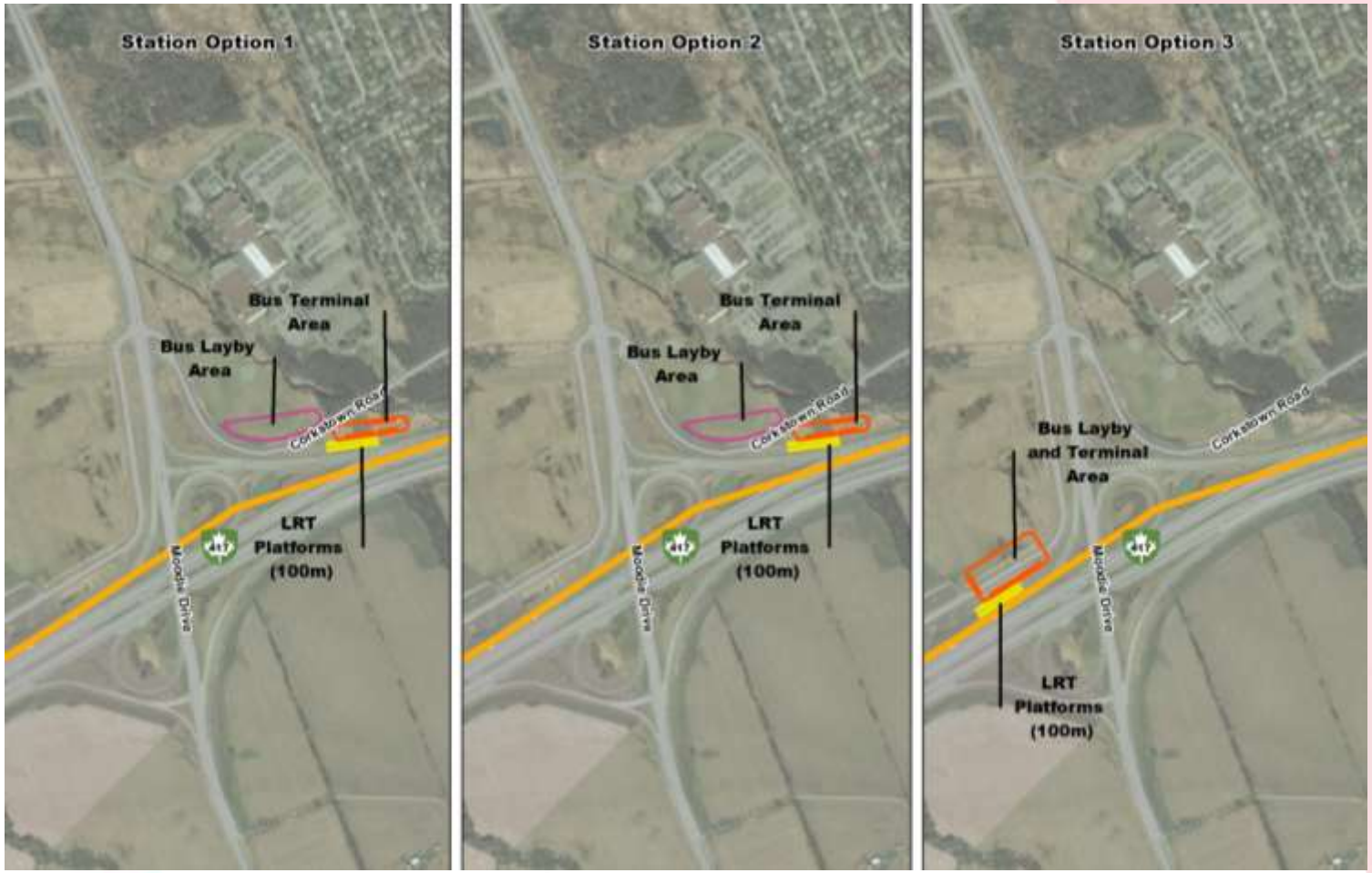
Other:

- Traction power sub station (TPSS) for station (and LMSF)

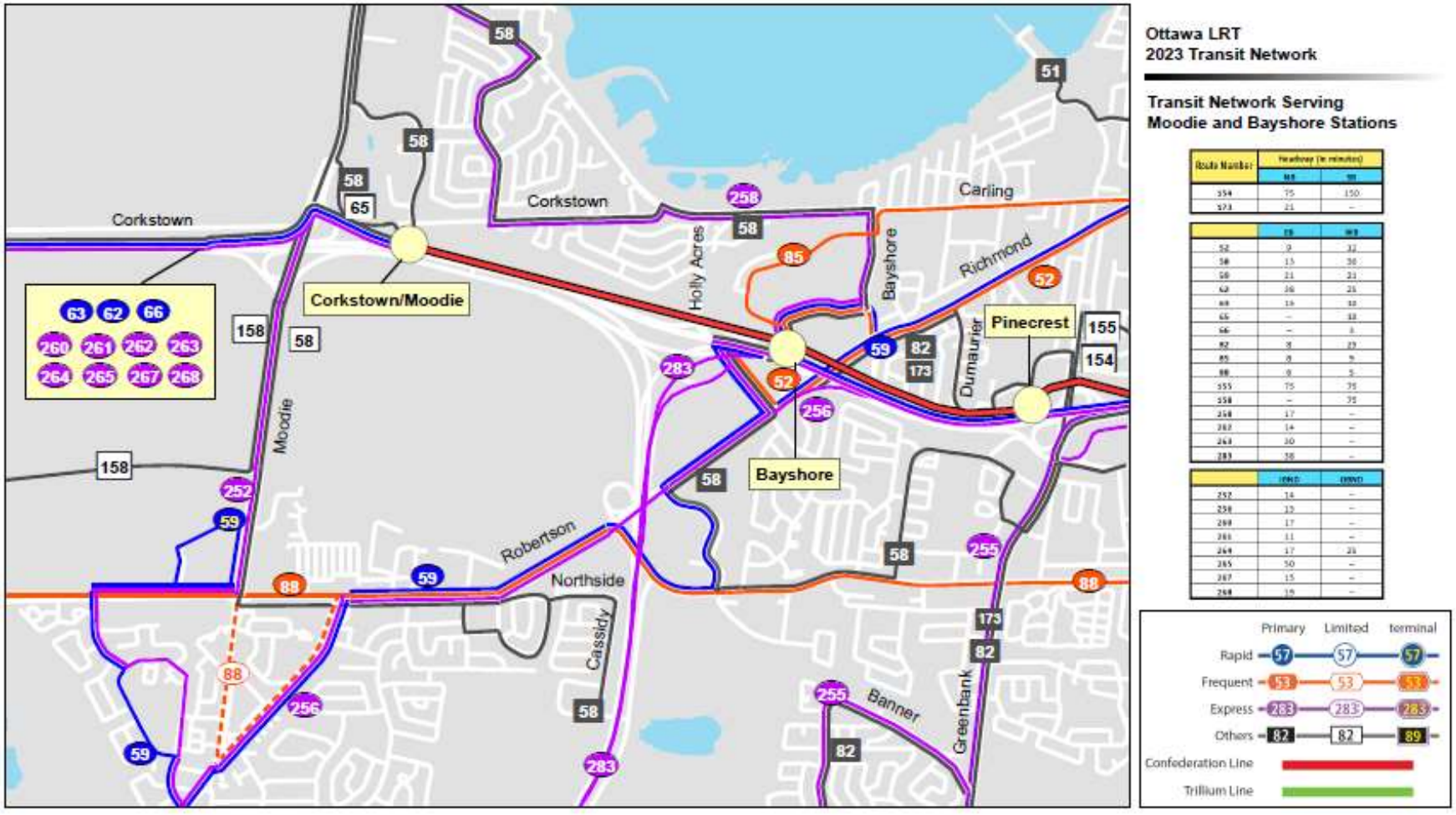
Moodie LRT Station

- Previous BRT studies strongly preferred an easterly station location
- Re-assessed to reflect bus access to LRT station rather than thru Transitway bus operations
- East and west station locations identified and evaluated (3 options)
- Evaluated based on connectivity, road network modifications, bus travel time/quality of bus service, land use, views and vistas, station catchment area for walk in traffic

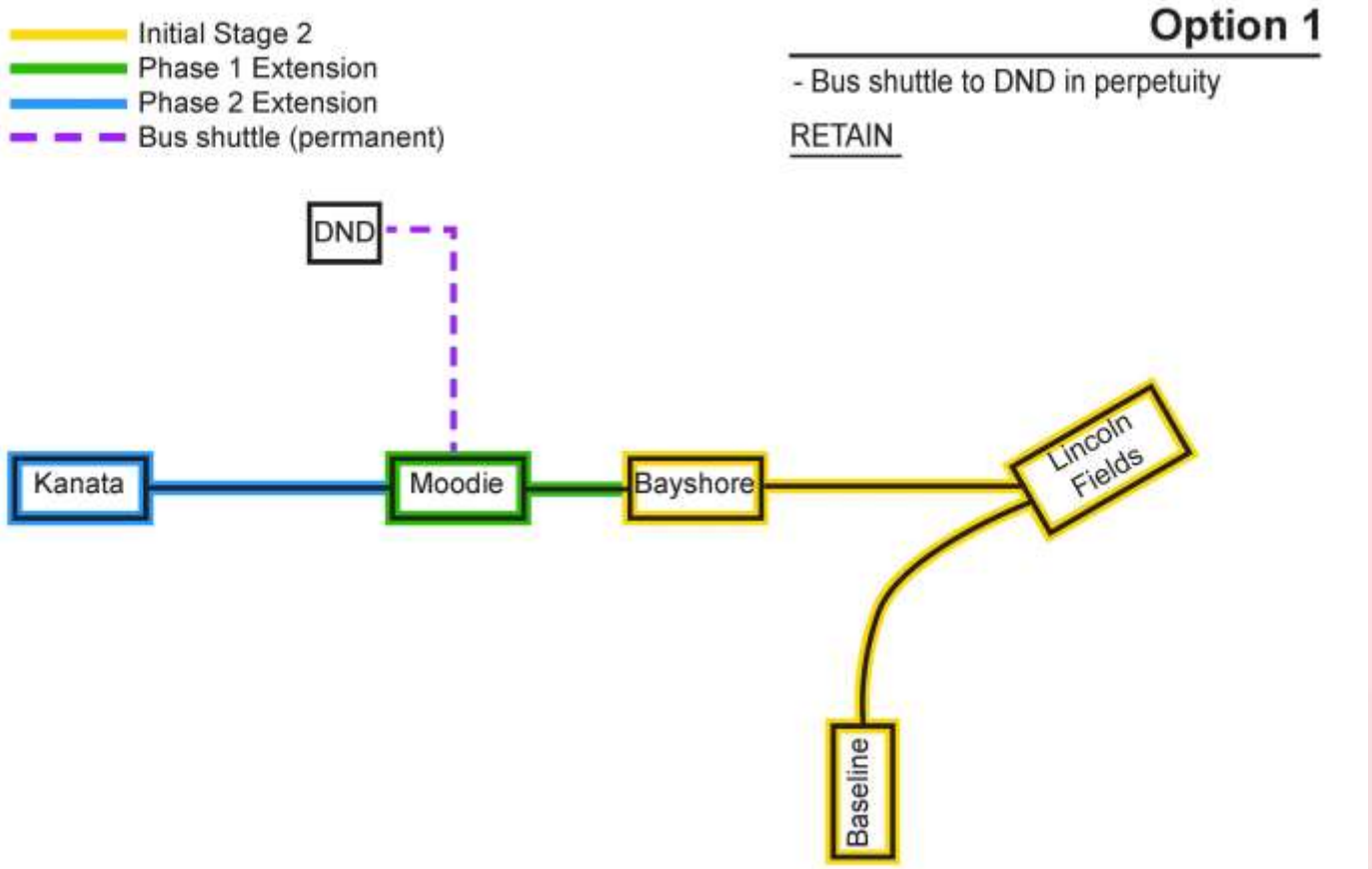
Station Options Considered



Transit Network Serving Moodie and Bayshore Stations



Feeder Bus Network to Moodie LRT station



Transit Community Commitments

- No scheduled bus service between Moodie LRT station and Crystal Beach Drive
- Route 152 will continue to operate on Corkstown as it does today (Crystal Beach to Bayshore)
- No deadhead (empty) buses will operate on Corkstown Rd east of the station i.e. all deadhead buses will use Moodie/417 route

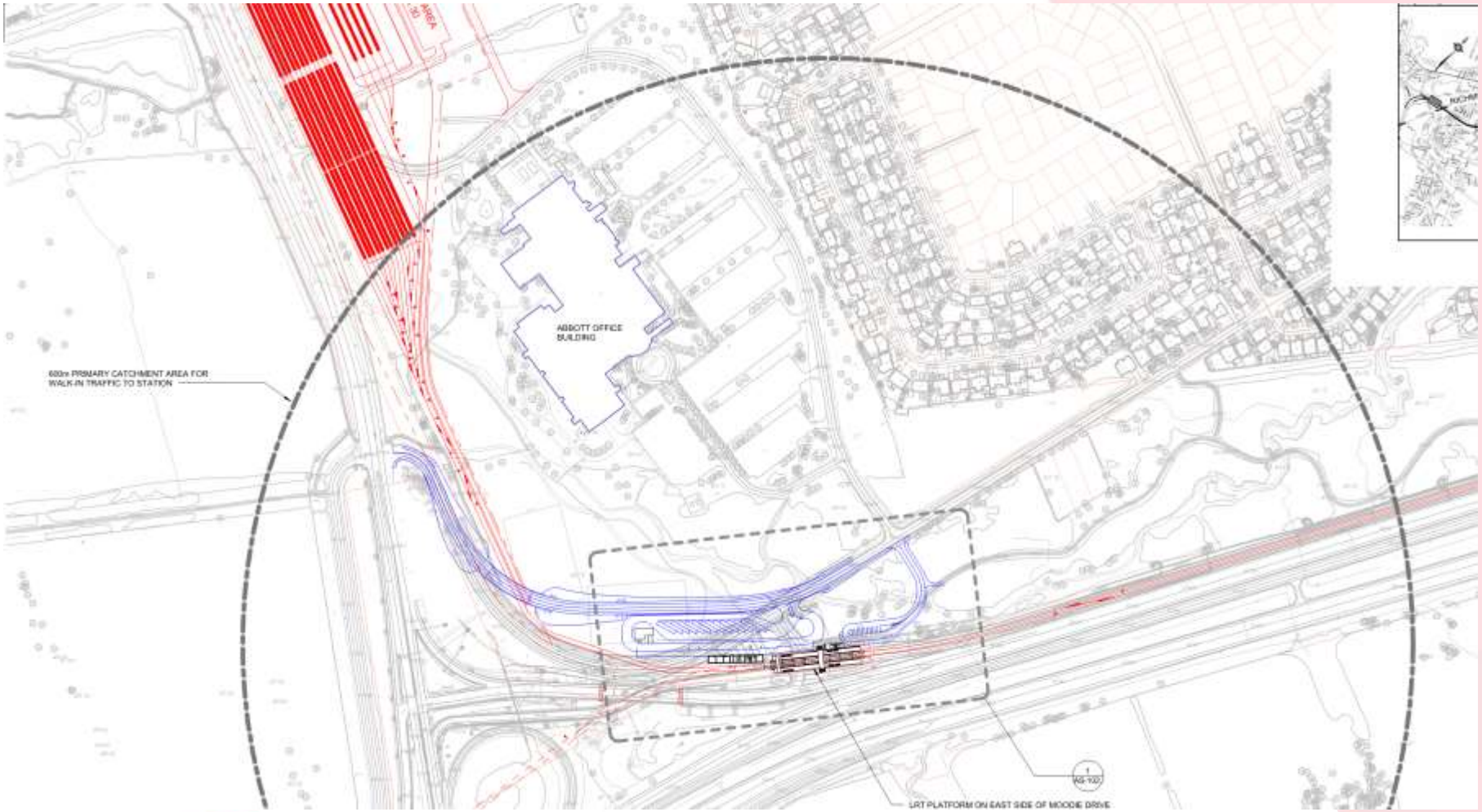
Station Location Options

- East side station location must facilitate yard leads to LMSF Option 2
- West side location must be compatible with LMSF Options 3 and 4
- Station selection undertaken independent of LMSF evaluation
- LMSF yard leads involve modifications to Corkstown Road alignment (varies by option) which affects bus access
- Connectivity, station catchment area and bus travel time/quality of service are key drivers of preferred station location

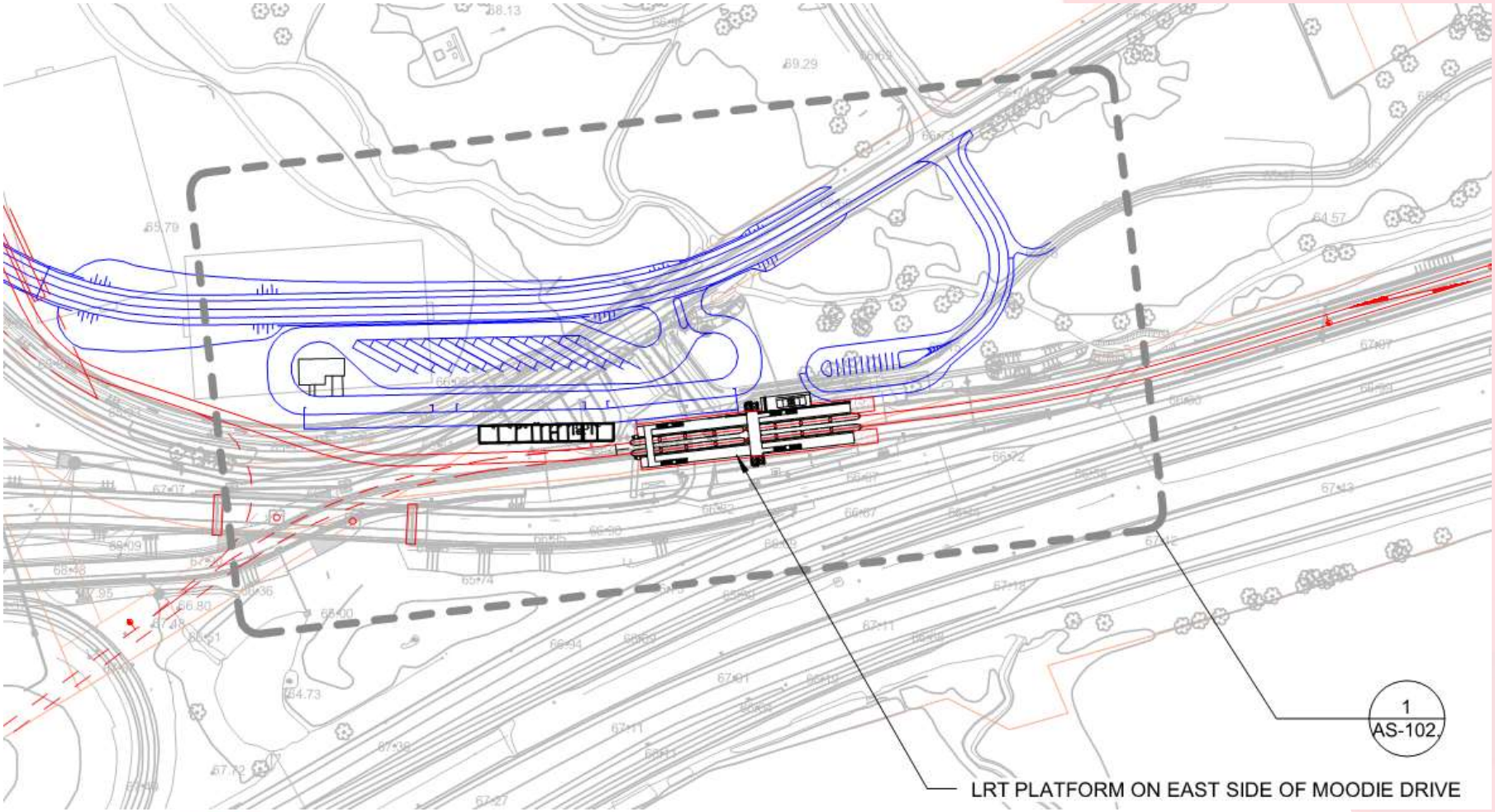
Evaluation of Preferred Station Location

- East station option :
  - Some re-use of existing BRT facilities
  - Provides better connection NCC trails
  - More accessible to residential community and Abbott lab based on 600 metre catchment area
  - Shorter distance for DND shuttle service
  - Less impact on views and vistas/lower visibility for “capital arrivals”
  - Lower impact on existing land uses and avoids impacts on Wesley Clover park in favour of impacting soccer field
- Extent of reconfiguration of Corkstown Road is similar in both options (not a decision factor)
- East side station is therefore the preferred location

East Side Station Concept



Moodie Station Draft Layout

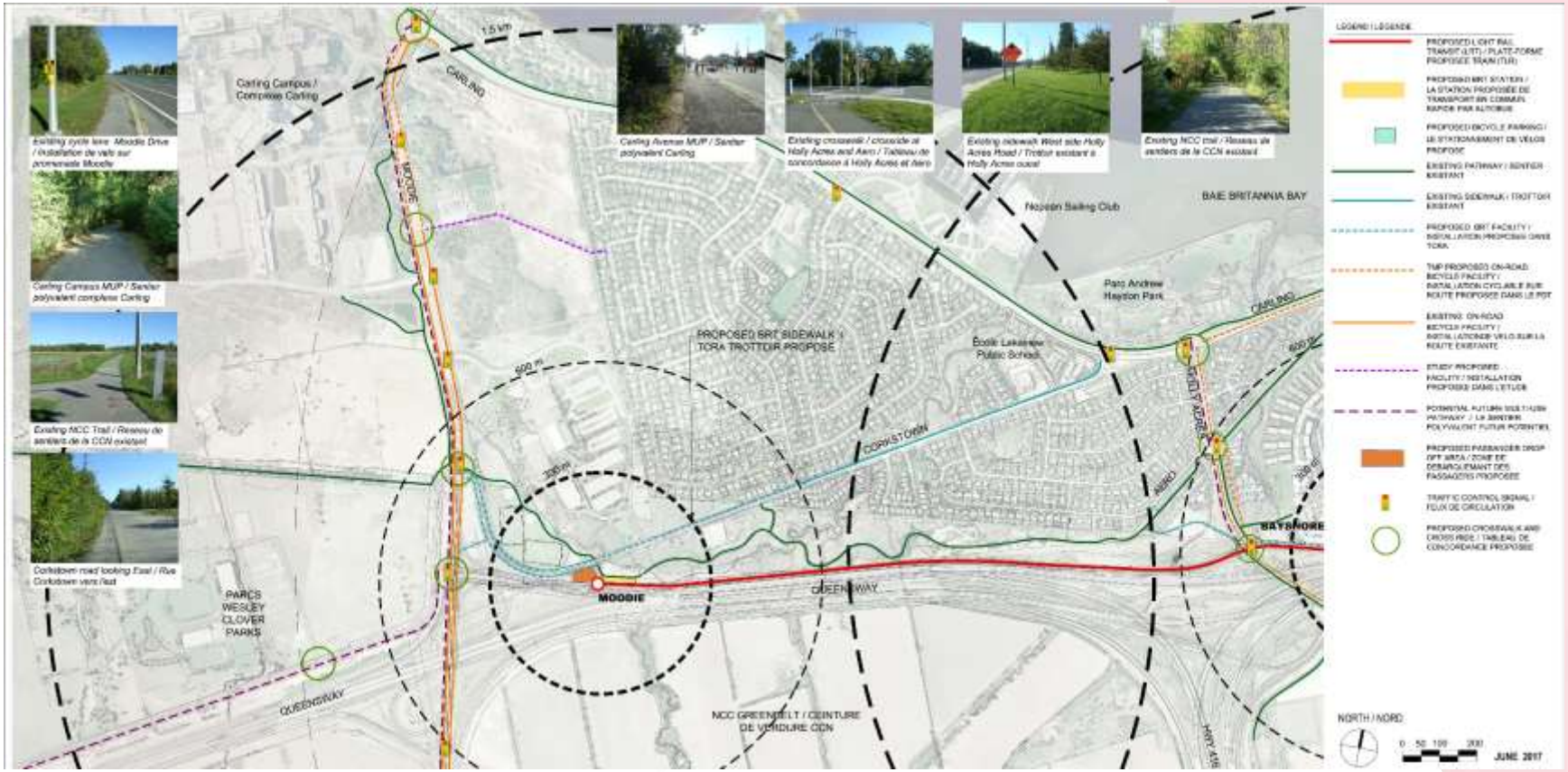


Moodie Station Bus Routes

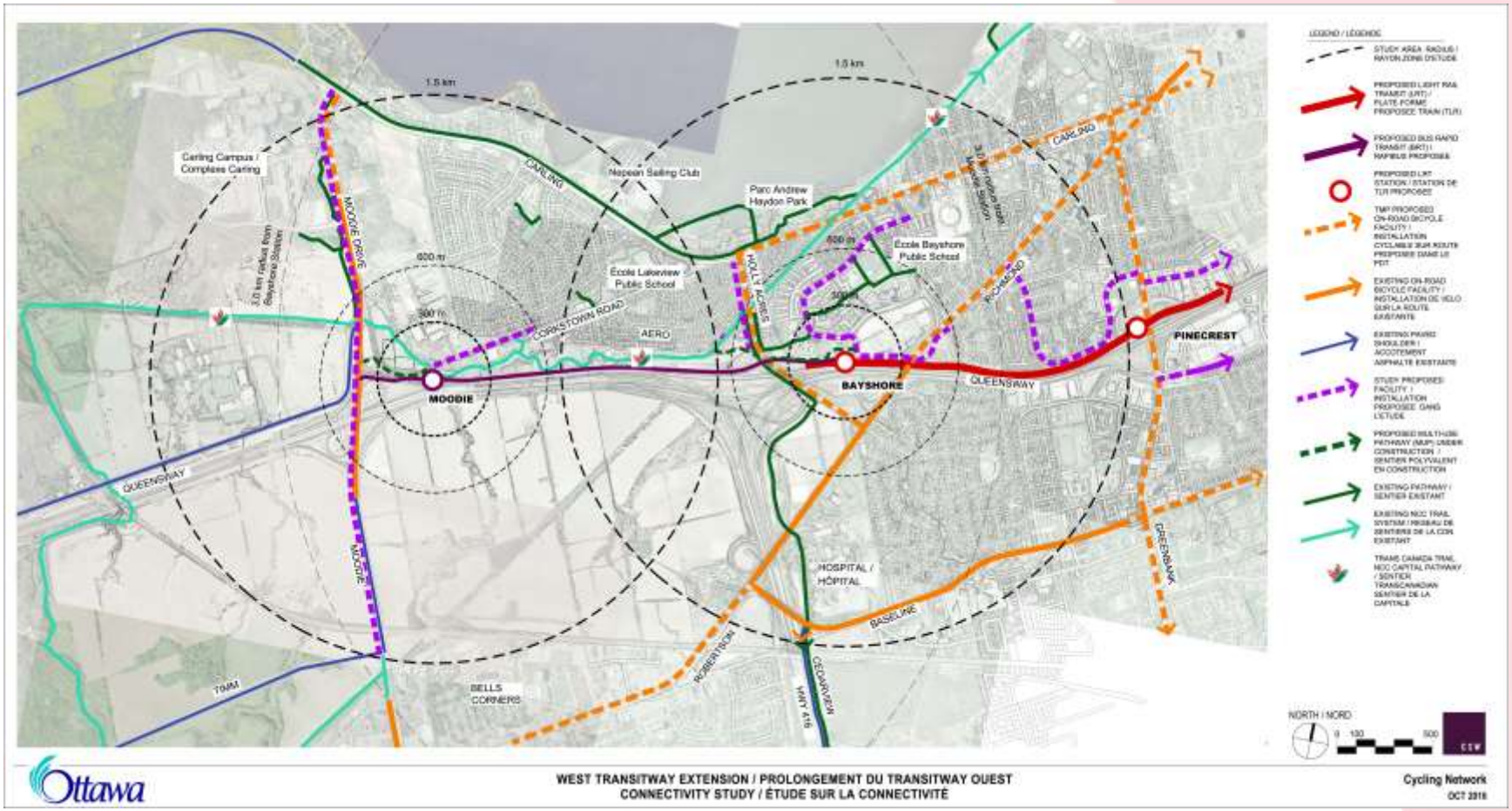
East Station Location- Connectivity Implications

- BRT project will construct some new cycling/pedestrian connections (e.g. sidewalk along Corkstown Road to Crystal Beach)
- Some connections will be left to LRT project to implement (e.g. Moodie/Corkstown crossings)
- LRT connectivity study will identify additional pedestrian/cycling connections

BRT vs LRT Pedestrian Improvements



Cycling Network



LIGHT MAINTENANCE & STORAGE FACILITY (LMSF)

Screening of Shortlisted LMSF sites

Evaluation Criteria

- Transportation and Connectivity
  - Connectivity (pedestrians and cyclists); Local traffic
- Social
  - Views and vistas; Noise/Air Quality/Vibration; Existing land use; Land Availability
- Biophysical
  - Groundwater; Water quality/Drainage; Fish habitat; Species at Risk; Significant Wildlife Habitat
- Operations
  - Operational flexibility; Station Options; Deadhead time
- Costs
  - Affordability (capital and operating)

Evaluation Results

	Criteria	Option 2	Option 3	Option 4
Transportation and Connectivity	Connectivity (pedestrians and cyclists)		✓	✓
	Local traffic			✓
Preferred				✓
Social	Views and vistas	✓	✓	
	Noise/Air Quality/Vibration		✓	
	Existing land use	✓		
	Land Availability	✓		
Preferred		✓		
Biophysical	Groundwater	✓	✓	✓
	Water quality/Drainage			✓
	Fish habitat	✓	✓	✓
	Species at Risk		✓	✓
	Significant Wildlife Habitat		✓	✓
Preferred				✓
Operations	Operational flexibility		✓	
	Station Options	✓	✓	
	Deadhead time	✓		
Preferred		✓		
Costs	Affordability (capital and operating)	✓		
Preferred		✓		
Overall Preferred		✓		

Rationale for Option 2 as Preferred

- An LMSF must be affordable and meet operational needs for the long term
- Option 3 is not preferred on any of the 5 major evaluation categories
- Option 2 is preferred in terms of land use, operations and costs
- Option 4 is preferred for transportation/connectivity and biophysical but mitigation strategies are available for other options
- Capital and operating cost premiums for Options 3 and 4 will affect City finances/affordability:
  - Options 3 and 4 are $15 M and $ 48 M more expensive, respectively than Option 2
  - Also have higher deadhead mileage costs and reduction on nightly maintenance window
- Overall, Option 2 preferred due operational and cost advantages
- Mitigation strategies to be developed and committed in EPR and reflected in preliminary engineering

Light vs. Heavy Vehicle Maintenance Facilities

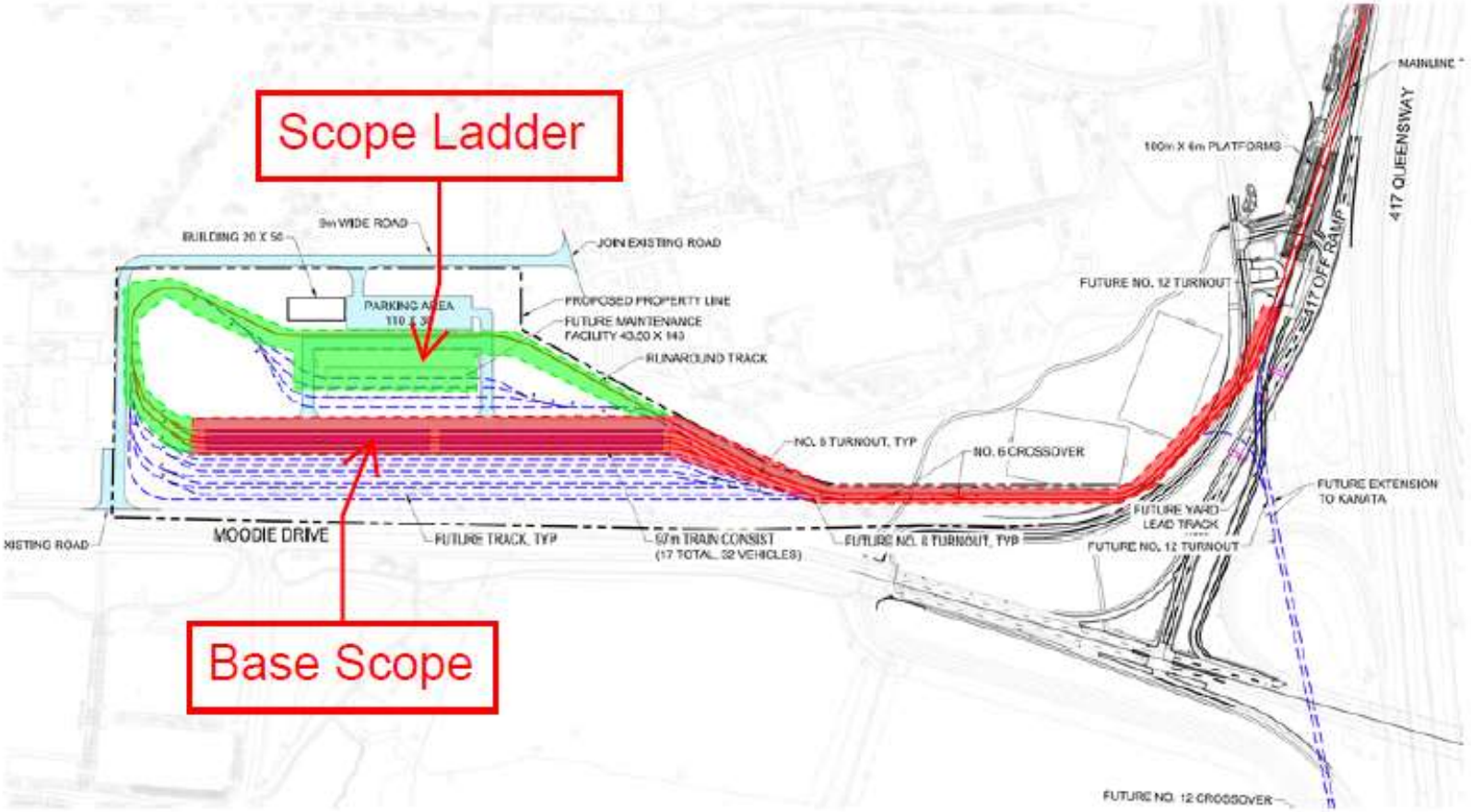
Light Maintenance at Moodie LMSF

- Operator reporting facility plus maintenance staff on selected shifts
- Overnight covered storage
- Interior vehicle cleaning
- Graffiti clean up
- Minor repairs(seats, doors, windows)
- Small parts inventory
- Filling sand boxes

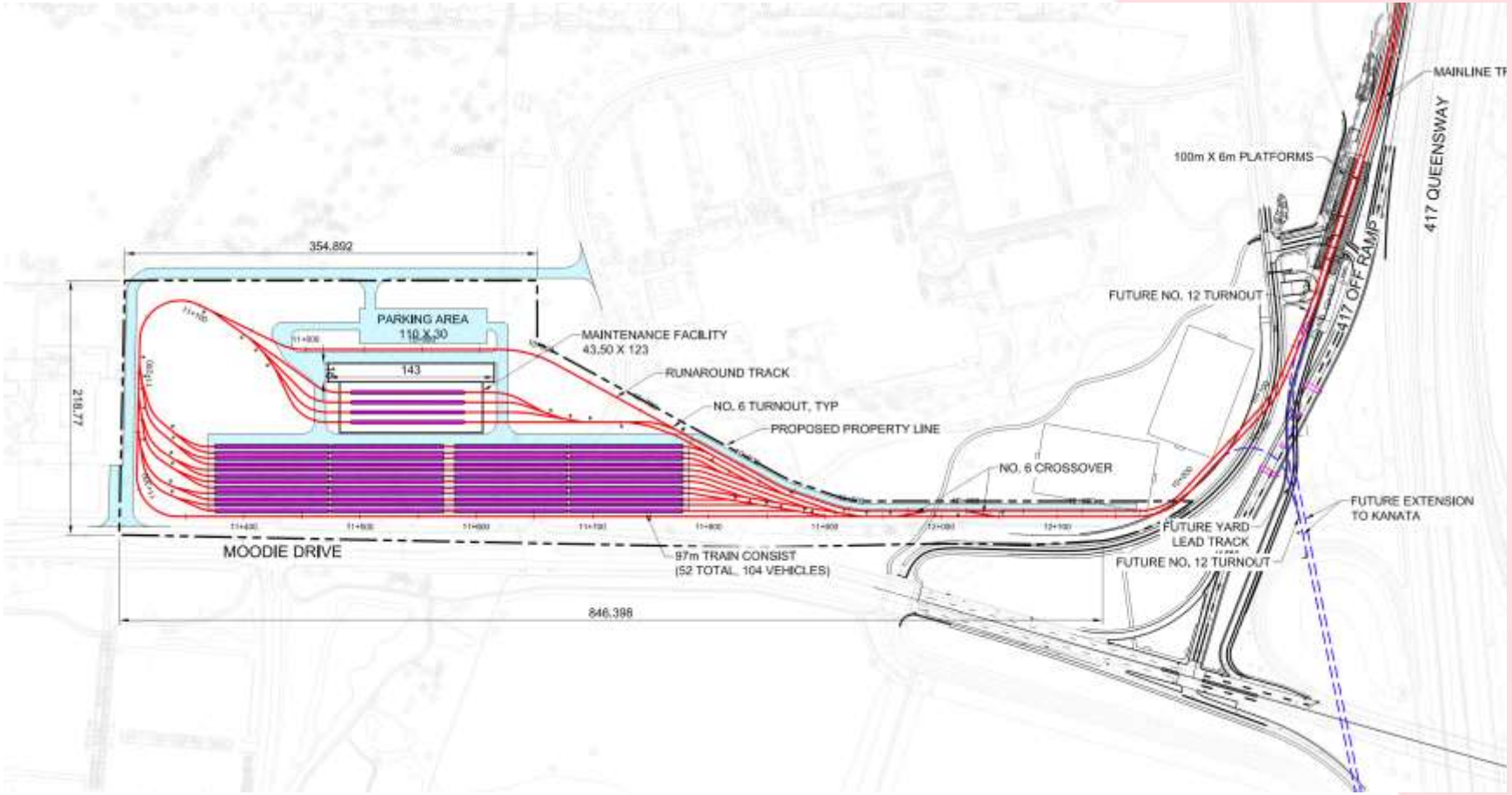
Heavy Maintenance at Belfast MSF

- 24/7 facility with main administration building for operators and vehicle maintenance staff on multiple shifts
- Overnight covered storage
- Wheel truing
- Inspections and overhauls
- Component replacement
- HVAC repairs
- Removal of bogies/trucks/axles
- Exterior car wash
- Full parts inventory for all vehicle components
- Underground pits/elevated gantry's for major repairs
- Vehicle hoists

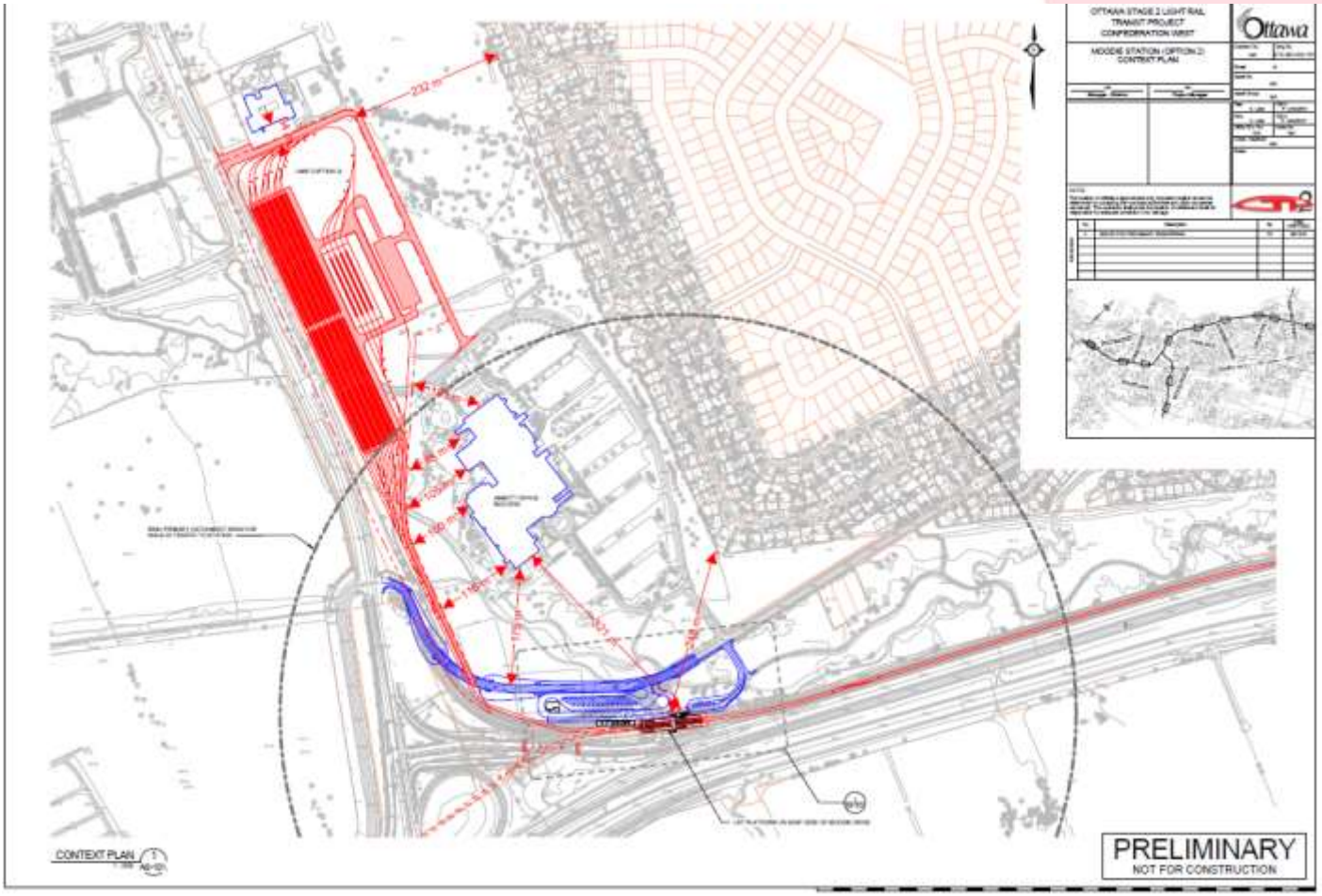
Option 2- 2023 LMSF Layout



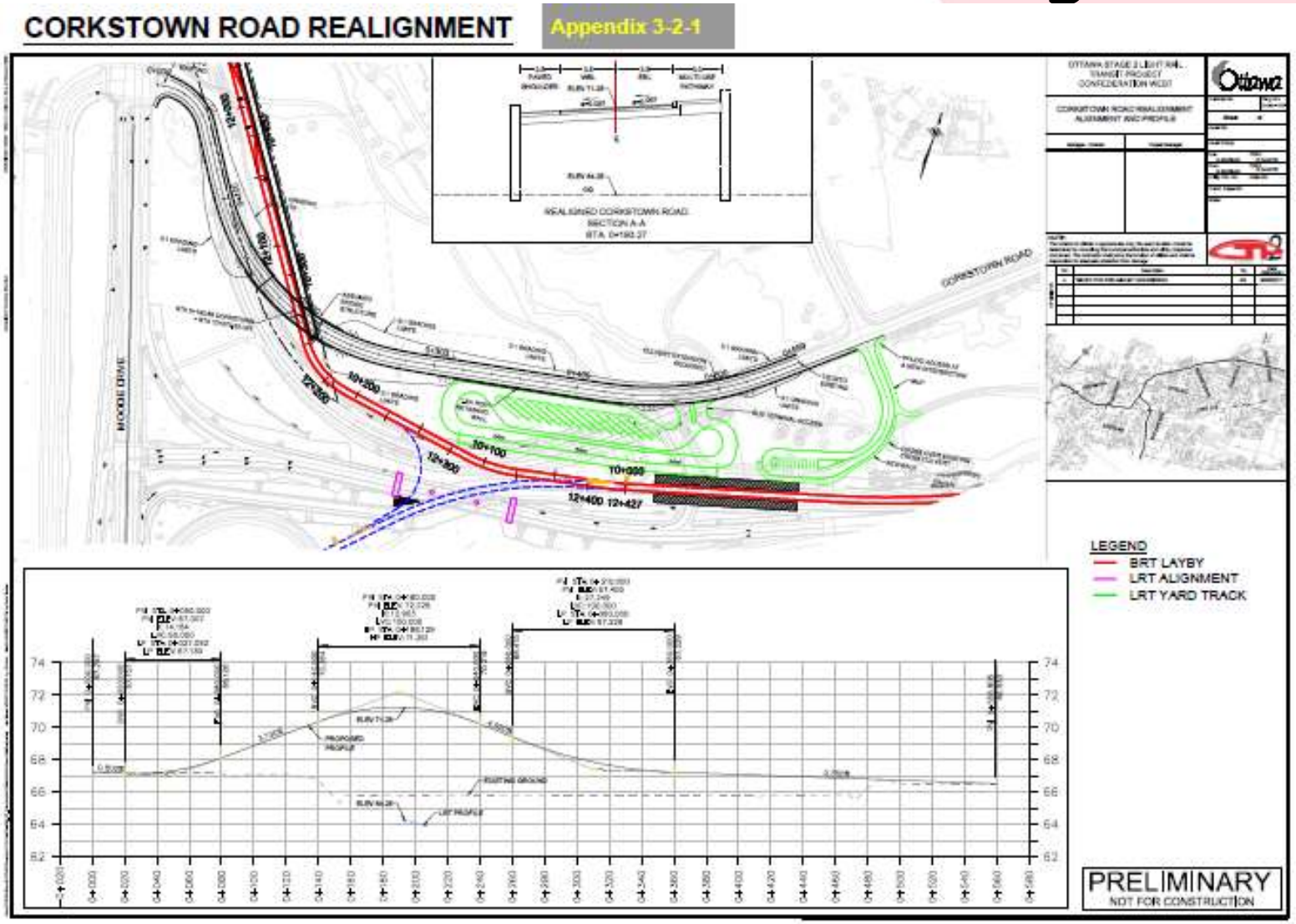
Option 2-Ultimate LMSF Layout



Proximity of Station/LMSF to Surrounding Community



Corkstown Road Realignment



Transportation and Connectivity Impacts and Mitigation

Impacts	Mitigation
• Connectivity	• Maintain existing pathways • Add MUP connecting community to Moodie Drive • Formalize desire lines (existing informal pathways)
• Local traffic	• Relocate Abbott road access to Moodie Drive

Social Impacts and Mitigation

Impacts

- Views and vistas
- Increase in noise
- Existing land use
- Land Availability

Mitigation

- Context sensitive design of buildings to match rural character
- 6 metre high noise wall on north side and 8 metre wall on east side
- Greenbelt Master Plan update and compensation plan to be developed in consultation with NCC/Community
- Negotiations with NCC/Abbott Industries are underway

Biophysical Impacts and Mitigation

Impacts

- Groundwater
- Water quality/Drainage
- Fish habitat
- Species at Risk
- Significant Wildlife Habitat

Mitigation

- Context sensitive design
- Maintain cut/fill balance
- Stillwater Creek mitigation
- Avoid Chorus Frog habitat
- Additional bat roosting surveys to determine impacts and inform mitigation strategy
- Compensation for loss of Natural linkage area

Operational Impacts and Mitigation

Impacts	Mitigation
• Operational flexibility	• Run around track for trains in yard • East side station is compatible with LMSF Option 2
• Station options	
• Deadhead costs and impact on nightly maintenance window	• None required

Cost Impacts and Mitigation

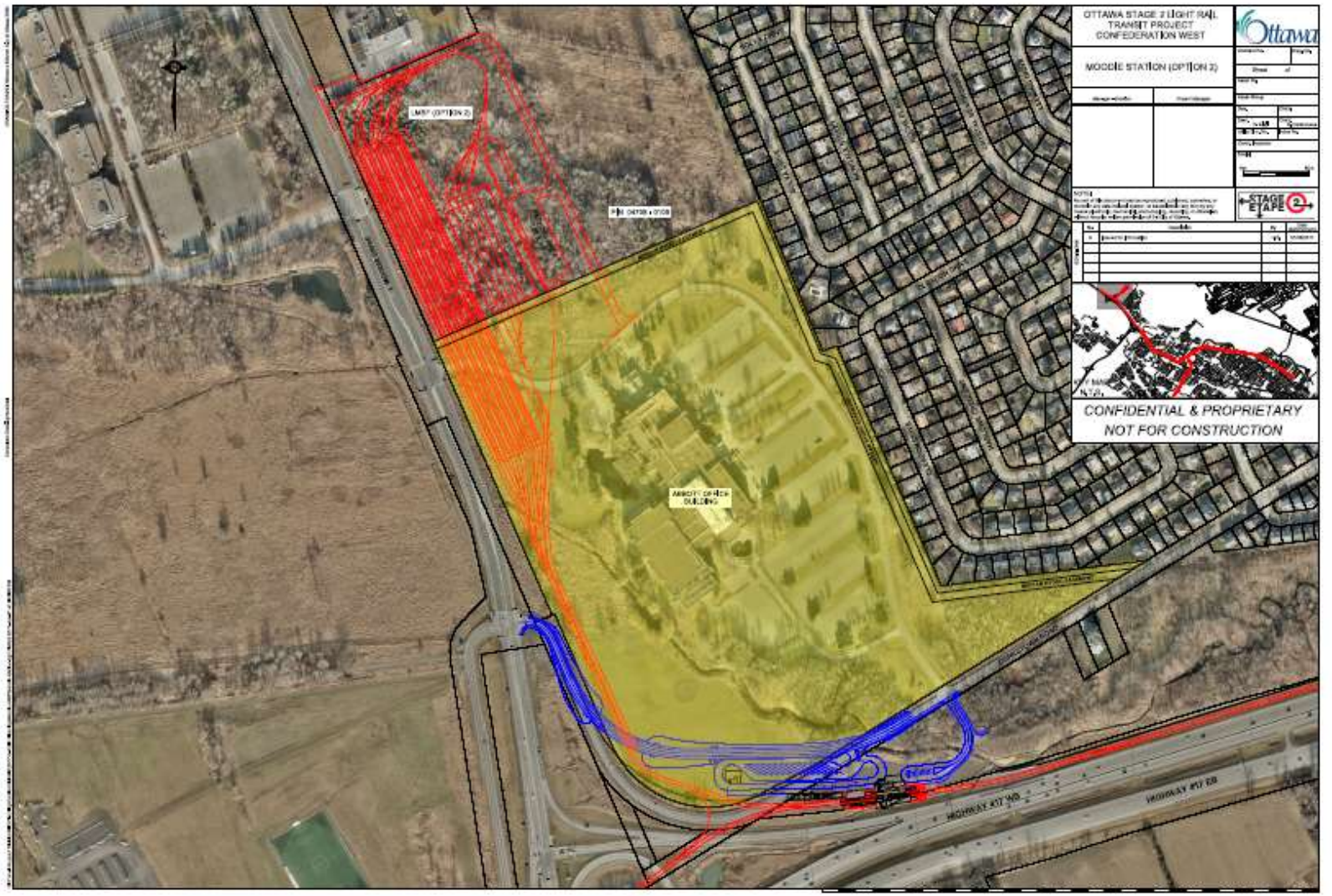
Impacts

- Affordability (capital and operating)

Mitigation

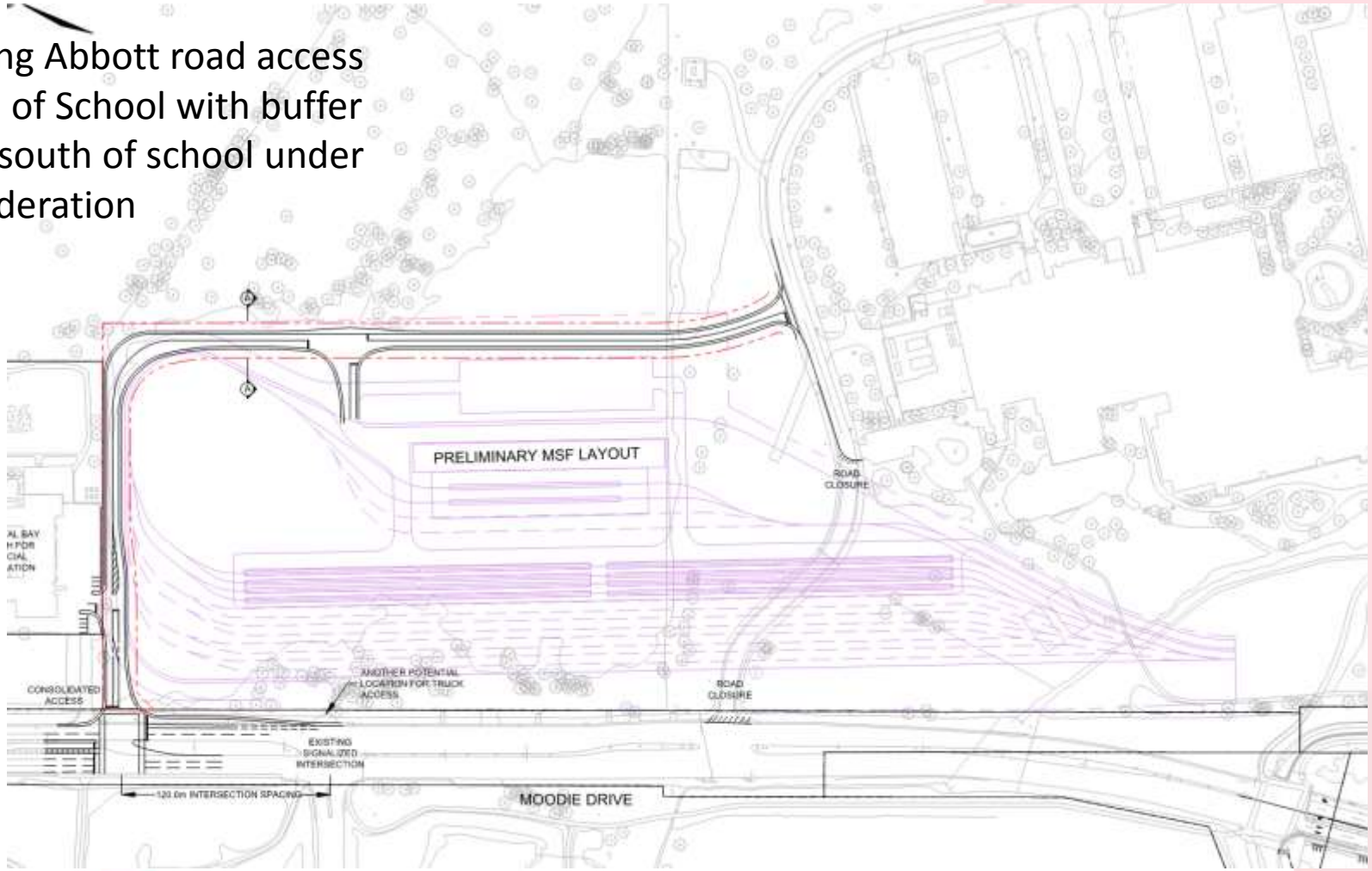
- None required
- LMSF Option 2 expected to be within affordability envelope

Moodie Property Context



Abbott Access to Moodie Drive to be Relocated

- Moving Abbott road access north of School with buffer zone south of school under consideration



Predicted Noise Levels for LMSF Option 2 with Mitigation

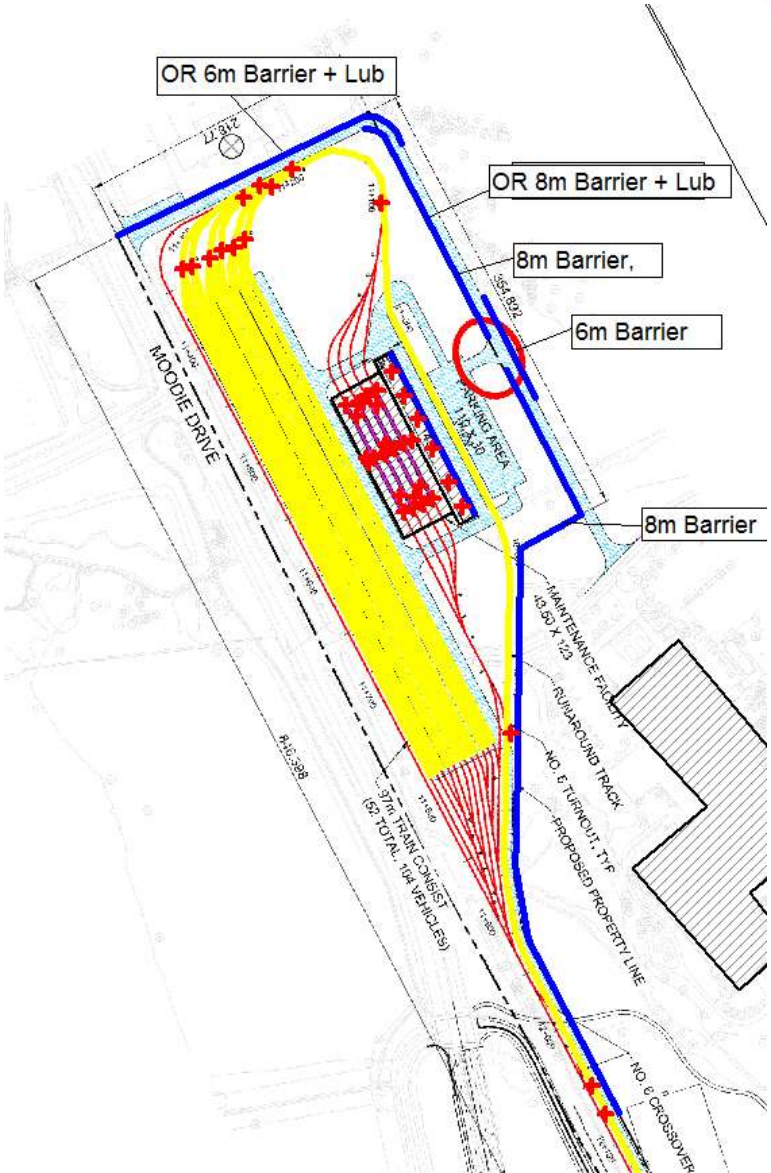
With Mitigation

Location	Overall Noise Level, 1hr Leq (dBA)		Facility Only Noise, 1hr Leq (dBA)	Projected Noise Impact	Noise Violation Exist – City of Ottawa	Exceedance of Noise Impact - MOECC	Additional Mitigation Investigation Required
	No Project (Ambient)	With Project (Nighttime)	Yard Noise	Change (dB)	Change > 5 dB	Yard Noise > Ambient	
R01	45	48	44.9	3	No	No	No
R02	45	48	45.4	3	No	No	No
R03	46	49	45.6	3	No	No	No
R04	42	43	34.9	1	No	No	No
R05	42	42	31.5	0	No	No	No
R06 (Daytime only)	56	57	48.1	1	No	No	No

Mitigation:

6m barrier(north side),8m barriers (east side) and rail lubrication system for runaround track

Mitigation of LMSF Ambient Noise with Noise Barriers



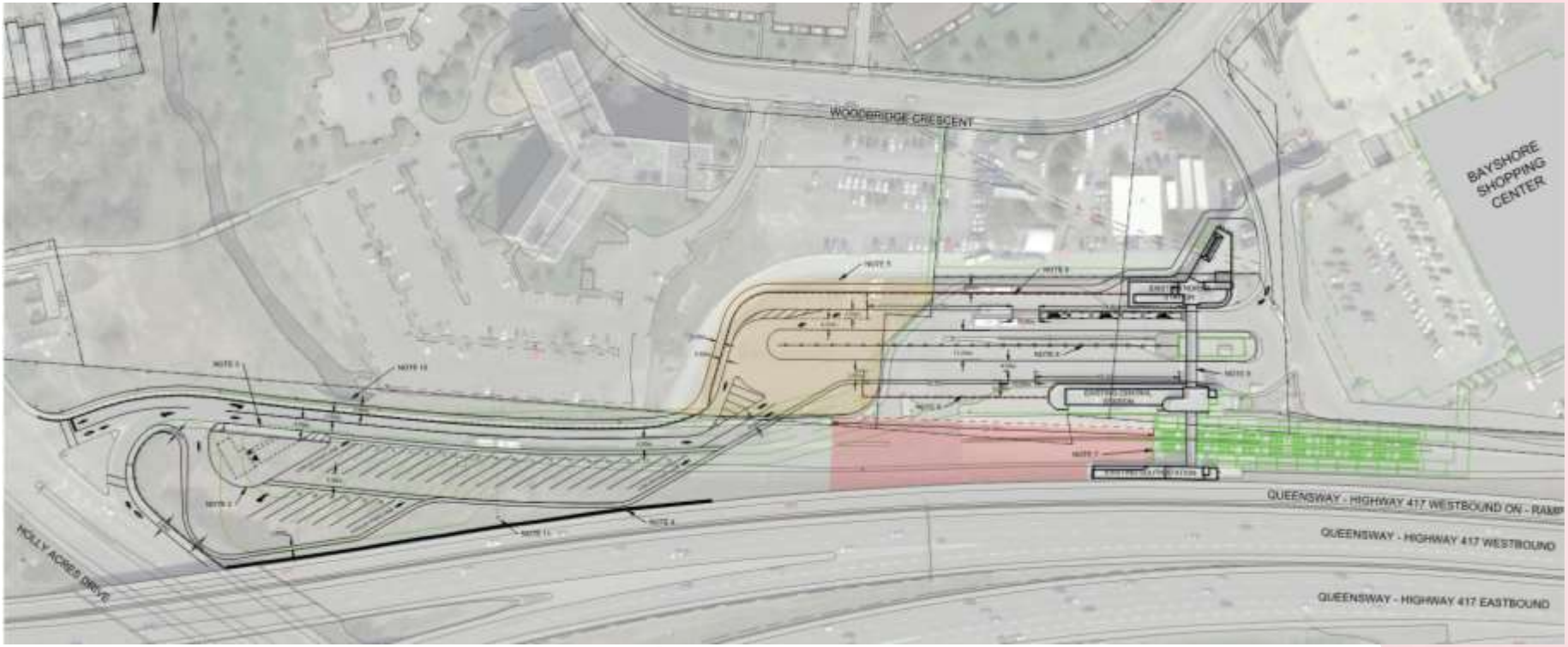
Holly Acres Noise Wall

- Currently proposed to be located on the north side of Highway 417
- Noise analysis demonstrates that is best place for noise wall
- Relocating wall to north side of Holly Acres LRT bridge would be less effective as predominant noise source/levels are from 417 NOT LRT
- Relocation of noise wall to LRT bridge increases height of noise wall from 5 m to 9 m to have same noise mitigation as current noise wall location
- 9 m noise wall on LRT bridge not practical
- Conclusion;
  - ❑ Leave Highway 417 noise wall on north side of 417 to best serve the community in terms of noise mitigation
  - ❑ Construct as part of Highway 417 widening (Maitland to 416) which is bundled with Stage 2 LRT

BAYSHORE EXPANDED BUS TERMINAL

Conceptual Layout of Expanded Bus Terminal

- Not required if Moodie LRT is part of Stage 2



Impacts and Mitigation

Impacts	Mitigation
• Noise	• No additional noise mitigation required • Negotiate long term acquisition of property for expanded terminal (lease is likely pending Kanata LRT extension)
• Land acquisition	
• Connectivity	• No additional mitigation

NEXT STEPS IN EA PROCESS

Moodie LRT/LMSF Implementation Scenarios

- With Moodie LRT/LMSF as part of Stage 2 scope:
  - Complete EA and preliminary engineering for LRT extension and LMSF
  - Include in Stage 2 RFP as recommended scope
  - EA for expanded Bayshore bus terminal to proceed to protect project if Bayshore is the terminus
- In the unlikely event Moodie LMSF site is not feasible:
  - Western LMSF location deferred to Kanata LRT EA
  - Interim storage and cleaning facility at Baseline and expanded Belfast MSF (east) in the interim

Future Public Consultation/EA Schedule

Second public meeting is June 13, 2017

- Moodie LRT/LMSF preferred site and mitigation measures

- Complete preliminary engineering of preferred LMSF site and LRT extension
- Report to City Council in September, 2017 re completion of EA
- EA approval in Fall 2017
- Stage 2 contract award in August 2018 including Moodie LRT/LMSF base scope and or scope ladder

Questions

Why not Woodroffe MSF site ?

- MSF site is 1.2 km beyond end of Baseline Station
- Due to grade separation over Tallwood, entire non revenue connection to yard must be elevated including crossing of Woodroffe Avenue
- Expensive to construct and maintain
- Yard site not ideal in terms of putting trains into service/ much higher deadhead mileage
- NOTE-Confederation West EA MSF site search did NOT include area served by Moodie LRT extension

Why not store trains at Baseline?

- Existing three cell box not designed for LRT/originally designed for BRT operations
- Not specifically design to be used for maintenance of trains
- Requires modifications to existing structures, rooms for staff, ventilation, parts storage, etc
- Storage of trains beside active terminal operations (station is in middle cell) is complex
- Train movements to and from maintenance tracks could affect mainline operations
- Sequence of trains pulling in and out of station and maintenance yard is very complex and not ideal