Langstaff Road
Weston Road to Highway 7
Class Environmental Assessment Study

WELCOME
TO OPEN HOUSE TWO
November 28, 2018

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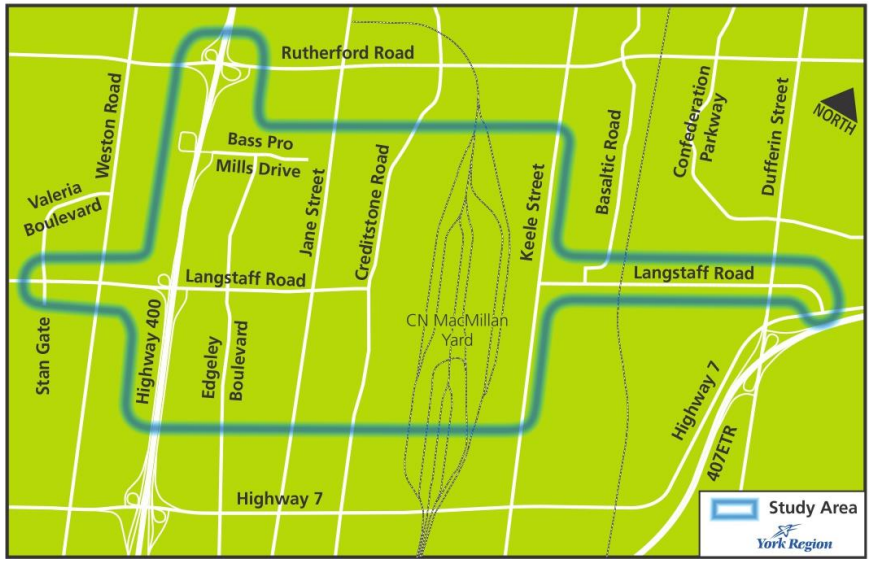
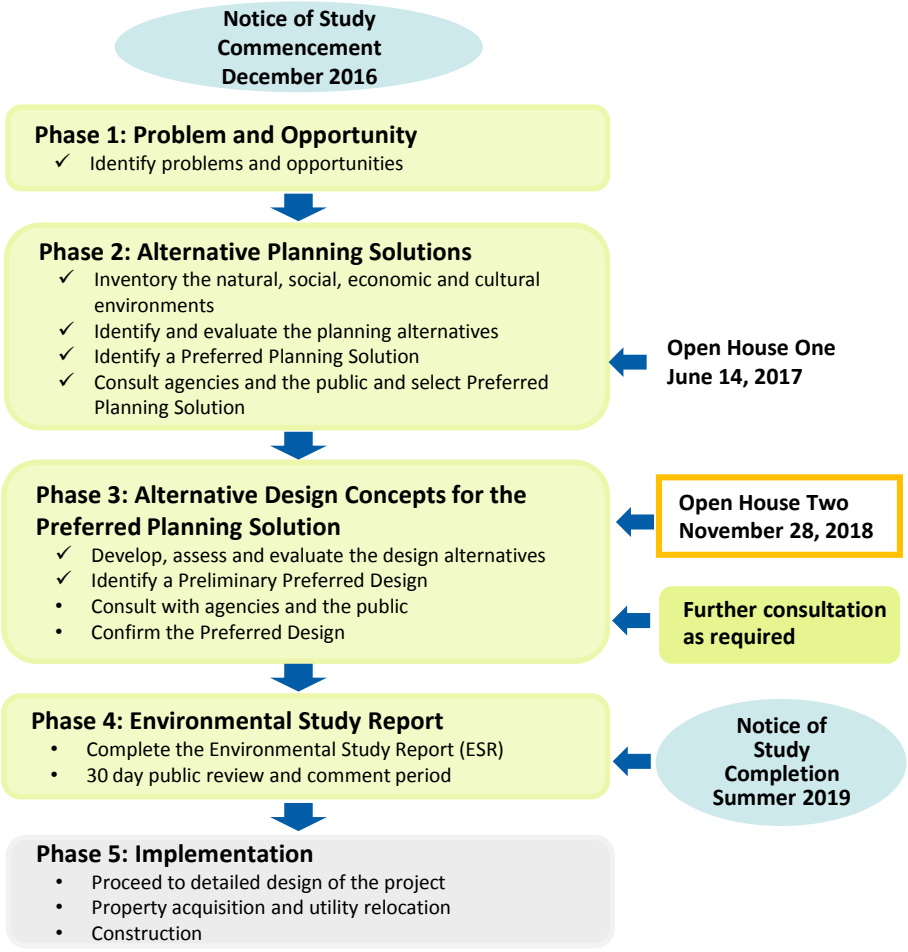
Study Overview

- York Region is conducting a Class Environmental Assessment (EA) study for Langstaff Road from Weston Road to Highway 7, within the City of Vaughan.
- **Study Purpose:** Examine the need for a new Langstaff Road connection across the CN MacMillan Rail Yard; Highway 400 interchange improvements to facilitate full access / movement at the interchange; constructing an overpass or underpass at the GO Transit Barrie Line; and widening certain sections of Langstaff Road.
- **Why:** To manage existing and future traffic congestion on other east-west arterial roads; support growth in the Vaughan Metropolitan Centre and other primary growth centres nearby; improve access to employment areas; and support an efficient goods movement system.
- **Strategic Location:** Given its proximity to the CN MacMillan Rail Yard and Highways 400 and 407, this area is an important centre of economic activity associated with a range of industrial, manufacturing and warehousing uses, and goods movement.



Study Process and Purpose of Open House



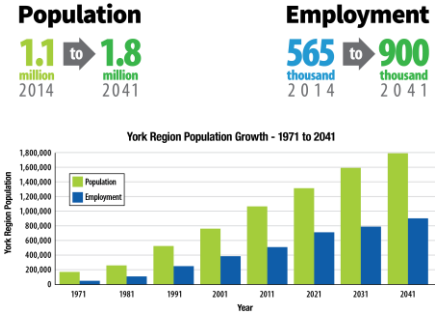
Purpose of Open House Two

- Share a summary of the public feedback we received to date
- Present an evaluation of the various design alternatives
- Present the Preliminary Preferred Design
- Present information from supporting technical studies
- Identify next steps in the study
- Speak one-on-one with the project team and discuss potential improvements

Study Background and Open House One Summary

Study Background
Planned Population and Employment Growth

- York Region's growth is mandated by the **Province's Growth Plan: *Places to Grow*, and anticipates population growth to 1.8 million and employment growth to 0.9 million by 2041.**
- Key Regional Growth Centres are located around the Langstaff Road study area:

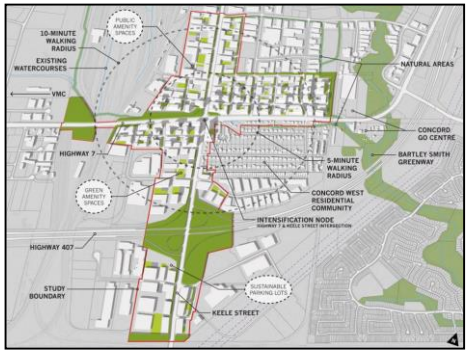


Vaughan Mills Centre

- 146 hectares
- Multi-modal, walkable and mixed-use community
- 10,907 jobs
- 8,778 residents

Concord GO Centre

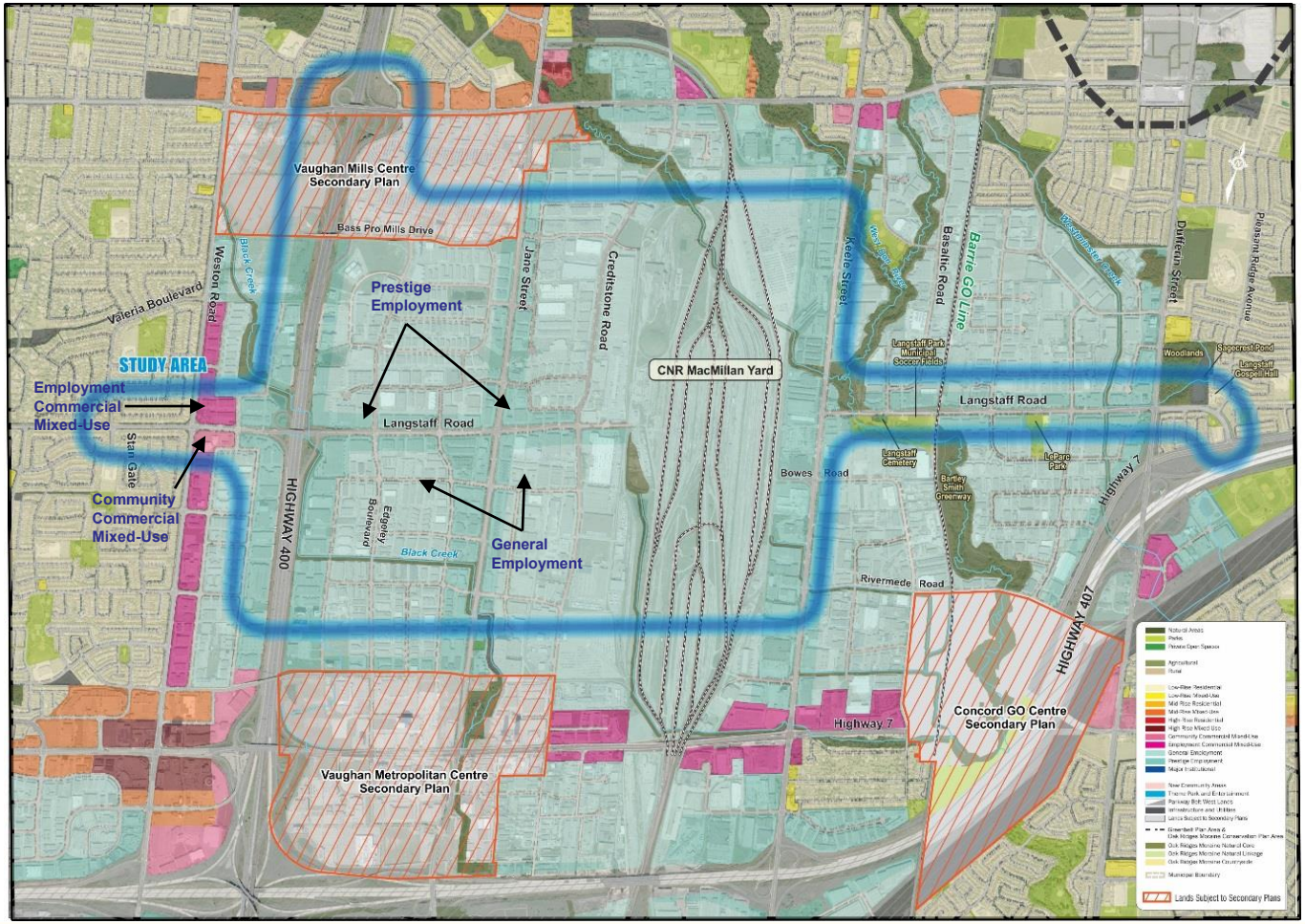
- 162 hectares
- Mixed-use, high-density
- Transit-supportive development
- 8,000 to 10,000 jobs
- 4,000 to 8000 residents



Vaughan Metropolitan Centre

- 179 hectares
- 1.5 million ft^2 of new retail space
- 12,000 residences and 11,500 jobs by 2031
- Transit-supportive development / mobility Hub

Study Background
Existing and Future Land Use



Study Background
York Region Transportation Master Plan

- Langstaff Road is recommended for **widening to six lanes between Weston Road and Dufferin Street**, including a crossing across the CN yard:
  - Increase road capacity in strategic areas;
  - Develop the Finer Grid Road Network; and
  - Complete the Langstaff Road connection across CN lands, which also contributes to the Transportation Master Plan objective of Maximizing Potential of Employment Areas.

- Langstaff Road is identified as part of the **Frequent Transit Network** to enhance service levels and support Regional Rapid transit and Regional Express Rail.

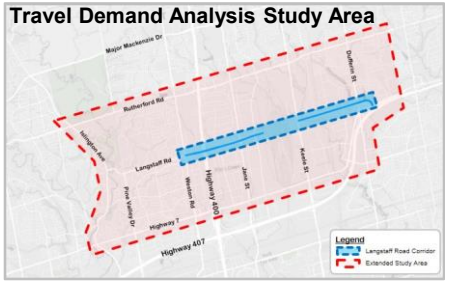
- Langstaff Road is recommended to have **separated facilities for cycling** (i.e. multi-use trail or bike lanes)

Study Background
York Region Goods Movement Strategy

- York Region Transportation Master Plan key objective: **Maximize the Potential Employment Areas**.
- The City of Vaughan has a significant number of manufacturing and industrial establishments, many are located within the study area, along and around Langstaff Road.
- Langstaff Road is identified as a **Primary Arterial Goods Movement Corridor** between Highway 400 and Dufferin Street.
- In order to accommodate trucks on Primary Arterial Goods Movement Corridors, freight-supportive road design standards are applied and planning policies ensure appropriate surrounding land uses (employment / industrial).

Open House 1 Summary
Travel Demand Analysis

- A **Travel Demand Analysis** was conducted to establish road network improvement needs using the Region's Travel Demand Forecasting Model.
- The analysis included:
  - A screenline analysis to examine existing and future east-west and north-south traffic movement patterns across the study area; and
  - An existing and future 'level of service' analysis to determine traffic flow and operations within the study area.



The Travel Demand Analysis resulted in the following recommendations:

Widen Langstaff Road to six general purpose lanes and construct Langstaff Road link

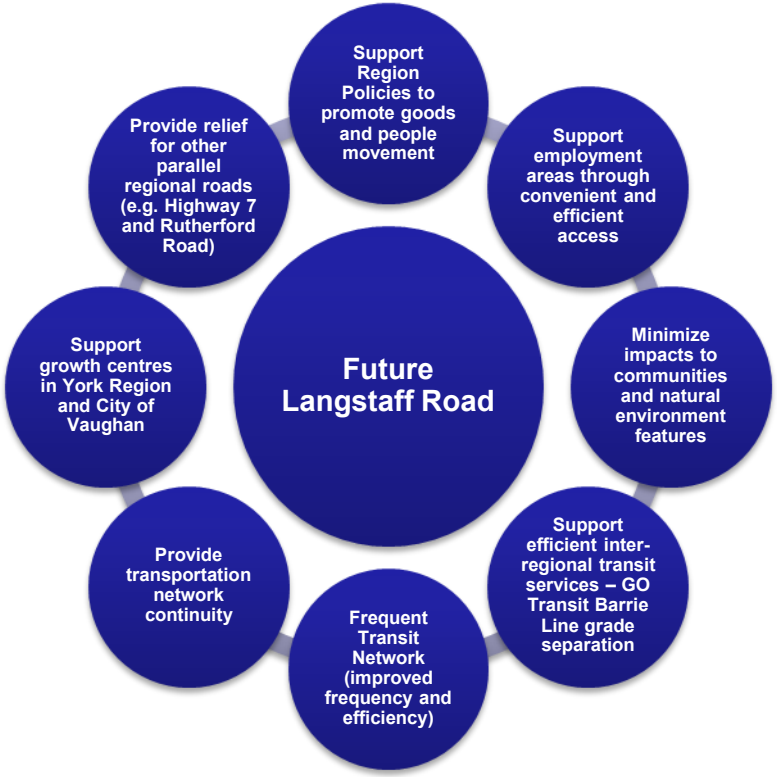
- Provides additional east-west road capacity in the overall transportation network
- Reduces traffic congestion on adjacent east-west corridors (Rutherford Road and Highway 7)
- Provides direct access to nearby highways and reduces truck traffic on all surrounding arterial roads

Convert existing partial interchange at Highway 400 to full interchange

- Yields some benefits in addressing traffic congestion within the overall transportation network
- Supports Langstaff Road as a Primary Arterial Goods Movement Corridor
- May improve traffic volumes at the Highway 400 interchanges with Highway 7 and Rutherford Road

Open House 1 Summary
Needs and Justification

The problems and opportunities for Langstaff Road were presented at Open House One:



The Recommended Planning Solution includes:

- **Add New Lanes:** Widen Langstaff Road to provide increased traffic capacity and optimize traffic flow.
- **Langstaff Road Connection:** Construct Langstaff Road link across the CN MacMillan Yard.
- **Highway 400 Interchange Improvements:** Convert the existing partial Highway 400/Langstaff Road Interchange to a full interchange, access to-and-from Highway 400 / Langstaff Road in all directions, to provide better connection and to optimize traffic flow.
- **Grade Separation with GO Transit Barrie Line:** Construct an overpass or underpass at Langstaff Road and the GO Transit Barrie Line
- **Intersection Improvements:** Consideration of turning lanes, traffic signal timing etc.
- **Alternative Modes of Transportation**: Provision of or improvements to pedestrian and cycling facilities, and improved transit amenities

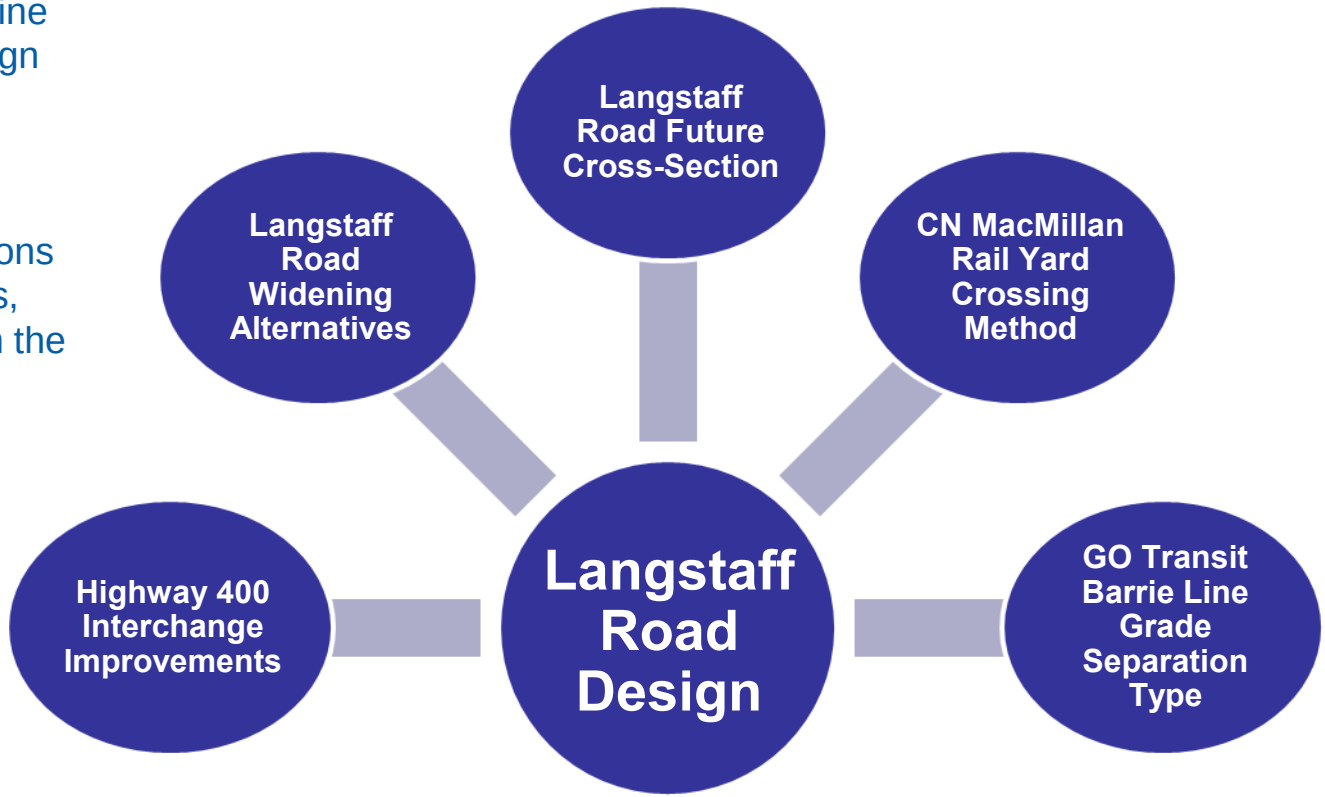
Open House 1 Summary
What We Heard From You

- **Open House One** was held on June 14, 2017 to present: the study background, planning and policy context, traffic analysis, study area needs and opportunities, evaluation and selection of the Preferred Planning Solution.
- 28 people signed-in at the Open House; four comment sheets were received; and four emails were received following the Open House.
- Feedback included:
  - Overall support for the Preferred Planning Solution to widen Langstaff Road to six lanes, provide a new road connection across CN MacMillan Yard, new grade separation at the GO Transit Barrie Line, and improve the Highway 400 interchange.
  - Road crossing of CN Yard is critically important to the success of the project. This is the only way to solve traffic congestion on Highway 7.
  - Highway 400 improvements and new road across CN Yard are long overdue.
  - Minimize signalized intersections on Langstaff Road to improve traffic flow.
  - Active transportation needs to be a priority – walking and cycling facilities are the most critical need.
  - Consider High Occupancy Vehicle (HOV) Lanes.
  - Is the cost worthwhile?

Design Alternatives

Design Alternatives
The Design Process

- There are many components that combine to form the overall design for the future Langstaff Road.
- The Project Team has considered design options for several components, which are described on the next few displays.



Design Alternatives
Factors Considered in Decision Making

Evaluation Criteria	Socio-Economic	Land Use Context	Cultural Environment	Natural Environment	Transportation and Technical
					
Description	– Residential and business property/access – Supports future growth and employment and economic sustainability – Supports Regional Goods Movement Strategy – Community mobility/ connectivity – Noise	– Municipal plans and policies – Redevelopment potential – Context-sensitive design – Park and open space – Boulevard treatments	– Impacts to existing cultural heritage and archaeological resources – Indigenous interests and rights	– Impacts to trees – Potential impacts to natural features (West Don River) – Potential impacts to terrestrial and aquatic species and habitats, including species at risk	– Addresses existing and future capacity – Improves multi-modal function – Engineering and design needs at CN Rail Yard and GO Transit crossings – Rail operational Constraints – Stormwater and groundwater management – Constructability and cost

Design Alternatives
Design Considerations

In developing the **Design Alternatives**, a number of key constraints and design elements were considered:

- Minimizing impacts to business and residential properties
- Design that Supports multi-modal uses (i.e. transit, cycling, etc.)
- Intersection improvements that include provision of turning lanes etc. Existing and future land uses
- Highway 400 / Langstaff Road Interchange design requirements
- CN MacMillan Yard crossing options
- GO Transit Barrie Line railway crossing options
- West Don River valley crossing
- Stormwater management and potential for low impact development
- Major utilities within the study area
- Streetscape design that integrates with surrounding community
- Design for safe active transportation network considering rail and highway crossings
- Cost-conscious design that reflects Regional budget realities

Design Alternatives
GO Transit Barrie Line Grade Separation

Typical Overpass Road Profile
(Road Over Rail)

Typical Underpass Road Profile
(Road Under Rail)

	Alternative 1: Overpass (Road Over Rail)	Alternative 2: Underpass (Road Under Rail)
	 Near Highway 7 and Yonge Street, Richmond Hill	
Benefits	• Substantially lower cost than underpass. • Construction is typically less complex than an underpass. • Minimal impacts to rail line during construction, • May be opportunity to maintain traffic on Langstaff Road through staged construction. • Pumping station is not required. • Access to Planchet Road, Spinnaker Way, Connie Crescent will be maintained for local business access.	• Generally has smaller footprint than an overpass and therefore impacts fewer properties. • Generally more attractive to pedestrians and cyclists since grades can be reduced with the use of elevated sidewalks / multi-use paths.
Challenges	• Impacts a greater number of properties. • Highly visible to surrounding areas. • Will impact four direct accesses to businesses within the overpass area. Access via collector road system will be maintained. • Visibility to adjacent businesses may be reduced. • May be challenging for pedestrians and cyclists to navigate the grades.	• Substantially higher cost than overpass • Stormwater and / or groundwater may need to be actively pumped from underpass via pumping station, adding significantly to construction and operations costs. • Construction method, duration and staging is more complex when rail disruptions must be minimized. • Likely a higher level of disruption to rail services since there is no opportunity / space for rail detour.
Construction Cost (estimated for comparison purposes only)	$16 M	$25 M

Preliminary Preferred Alternative

Design Alternatives

CN MacMillan Yard Crossing Evaluation Table

	Alternative 1A Steel Box Girder Bridge – Series of Short Spans South Alignment	Alternative 1B Steel Box Girder Bridge – Longer Spans South Alignment	Alternative 2 Extradosed* Bridge South Alignment	Alternative 3 Post-tensioned Segmental Concrete Bridge South Alignment	Alternative 4 Tunnel Central Alignment
Alignment					
Representative Images					

Design Alternatives

CN MacMillan Yard Crossing Evaluation Table

	Alternative 1A Steel Box Girder Bridge – Long Spans South Alignment	Alternative 1B Steel Box Girder Bridge – Short Spans South Alignment	Alternative 2 Extradosed Bridge South Alignment	Alternative 3 Post-tensioned Segmental Concrete Bridge South Alignment	Alternative 4 Tunnel Central Alignment
Benefits	• Relatively small footprint width for pier foundation. Minimum six piers within core area of the yard. • Construction is relatively simple; special launching technique will be required for longer spans. • Only minor impacts to adjacent intersections. • Active Transportation can be accommodated.	• Smallest pier foundation footprint; however, requires, minimum 11 piers within core area of the yard. • Construction method is simple with each span being built in sequence. • Only minor impacts to adjacent intersections. • Active transportation can be accommodated.	• Least disruption to CN tracks during construction. • Highest flexibility of future track relocation. • Relative low potential of utility impacts. • Only minor impacts to adjacent intersections. • Active transportation can be accommodated.	• Relatively low disruption to CN tracks during construction. • Relatively high flexibility of future track relocation. • Low potential of utility impacts. • Only minor impacts to adjacent intersections. • Active transportation can be accommodated.	• No permanent displacement of tracks expected within core area of the yard. • Impacts to daily operation of the core area of the yard is not expected
Challenges	• Relatively short-term disruption of CN operation during construction. • Slightly more flexibility of future track relocations. • Relatively high potential of utility impacts.	• Greatest impact to CN operation due to the number of piers and associated tracks impact. • Disruption of CN operation during construction. • Limited flexibility of future track relocations. • Highest potential of utility impacts.	• Largest footprint width for pier foundation. Minimum four piers within core area of the yard. • Longest construction duration. • Uncommon bridge type requiring specialized knowledge / labour to construct.	• Relatively large footprint width for pier foundation. Minimum five piers are within core area of the yard. • Relatively long construction duration.	• A total of three tunnels would be required – high level of construction complexity, long construction duration. • Precludes active transportation facilities. • Potential safety concerns • Keel Street intersection would require reconfiguration
Estimated Construction Cost **(for comparison purposes only)**	$180 M Preliminary Preferred Alternative	$145 M	$210 M	$200 M	$950 M

Please note this table has been updated subsequent to Open House 2 (November 28, 2018) due to typo – Alternative 1A, <u>Long Spans</u> South Alignment is the Preliminary Preferred Alternative

Design Alternatives
CN MacMillan Yard Crossing – CN Feedback

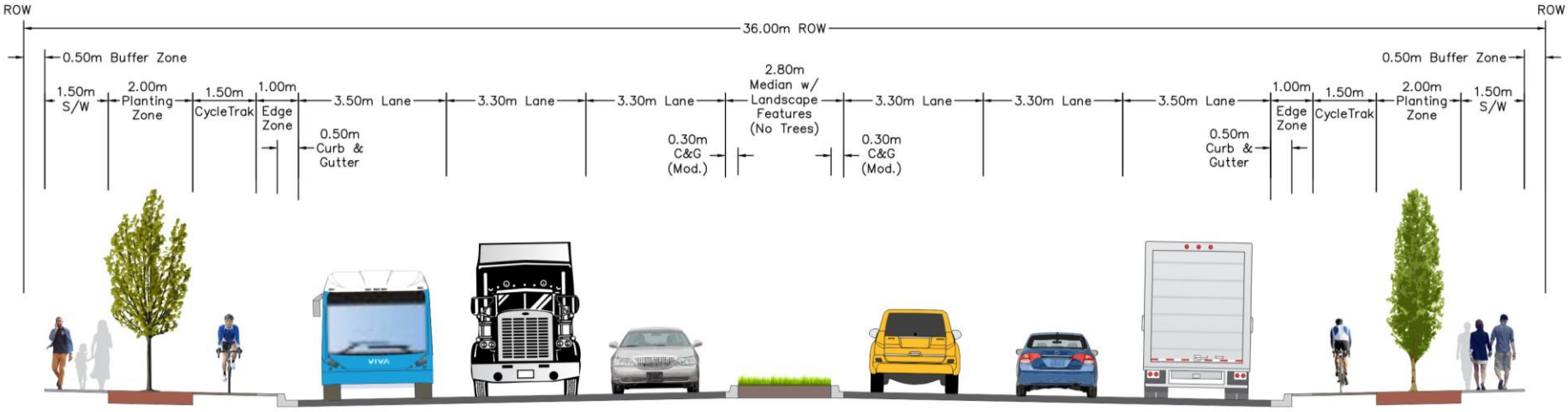
York Region has held meetings with CN Rail to review the project need, the crossing design alternatives and to seek input to the evaluation process.

CN feedback and York Region's responses are summarized here:

CN Comments	Langstaff Road EA Response
The need to construct over CN yard needs to be confirmed. May be other alternative solutions.	• Need and justification was identified based on traffic analysis and also through policies in York Region and City of Vaughan's Official Plans and Transportation Master Plans. • Other planning alternatives have been considered and evaluated. • The improvements on Langstaff Road (including extension over the CN yard) was identified as the preferred alternative. • The need for new infrastructure is required to support planned growth and development.
Conceptual overpass alternatives that cross northerly and middle portion of the CN yard not acceptable due to operation priorities in the yard.	• Overpass alternatives that cross the northerly portion and middle portion of the CN yard were not carried forward.
Concern about flexibility to the track realignment in the future.	• An analysis and evaluation was carried out for crossing design alternatives. • The alternative selected has best balance in terms of limiting number of piers while allowing feasible construction methodology. • Proposed pier locations generally spaced 100 m to 120 m to allow flexibility for track realignment.
Concerns about pedestrians overlooking into the yard operation.	• Observation screen treatment may be provided on the structure to prevent nuisance activities. • The type and dimensions subject to further consultation with CN during detailed design.
Concerns regarding temporary impacts during construction and long term impacts following implementation.	• A high level CN yard operation assessment was carried out based on the preliminary preferred crossing alternative over the CN yard. • Assessment reviewed construction access, impacts to CN operations (permanent and temporary), proposed mitigation measures. • Findings indicate preliminary preferred crossing is technically feasible. • The evaluation of the crossing alternatives, as well as the yard operation assessment are being reviewed by CN. • Preliminary preferred crossing and operation assessment may be updated subject to CN input.

Design Alternatives
Langstaff Road Cross-Section

- The cross-section for future Langstaff Road was developed collaboratively with staff from the York Region Transportation Planning / Design, Streetscape / Urban Design, Active Transportation and Operations / Maintenance departments.
- The proposed roadway supports the movement of commercial goods, motor vehicles, transit, pedestrians and cyclists, and protects opportunities for streetscape enhancements.



Design Alternatives
Langstaff Road Widening

Three road widening alternatives were considered:

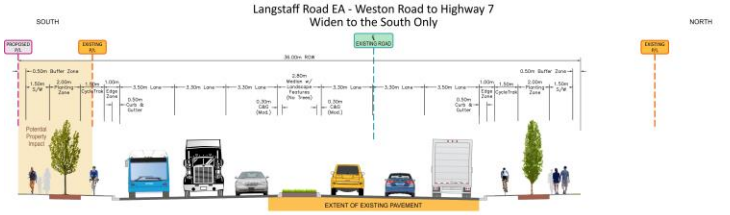
Alternative 1: Widen to the south only

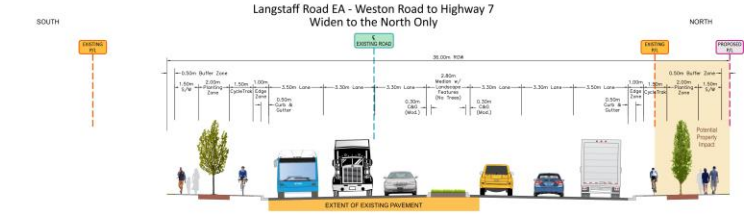
Alternative 2: Widen to the north only

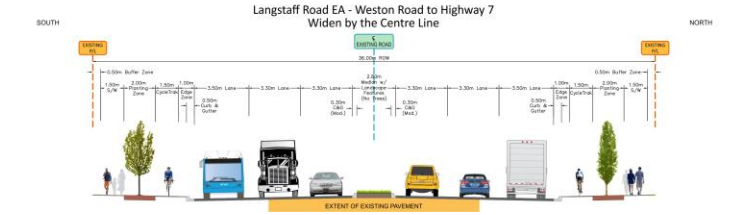
Alternative 3: Widen by the existing centreline

Based on a qualitative assessment of these alternatives, **a "Best Fit" alignment** that combines centreline, north and south widening provides the greatest opportunity to minimize property impacts.

Widening Langstaff Road is proposed between Weston Road and Dufferin Street.





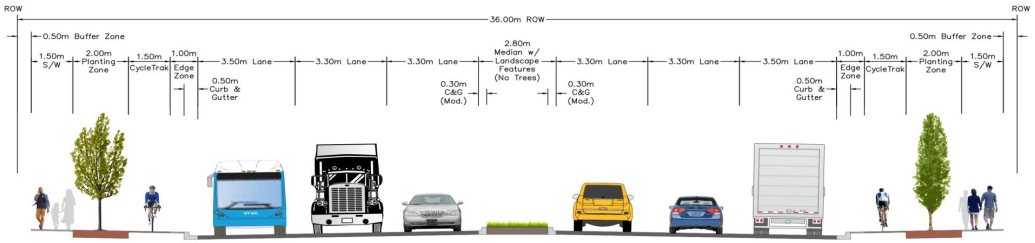


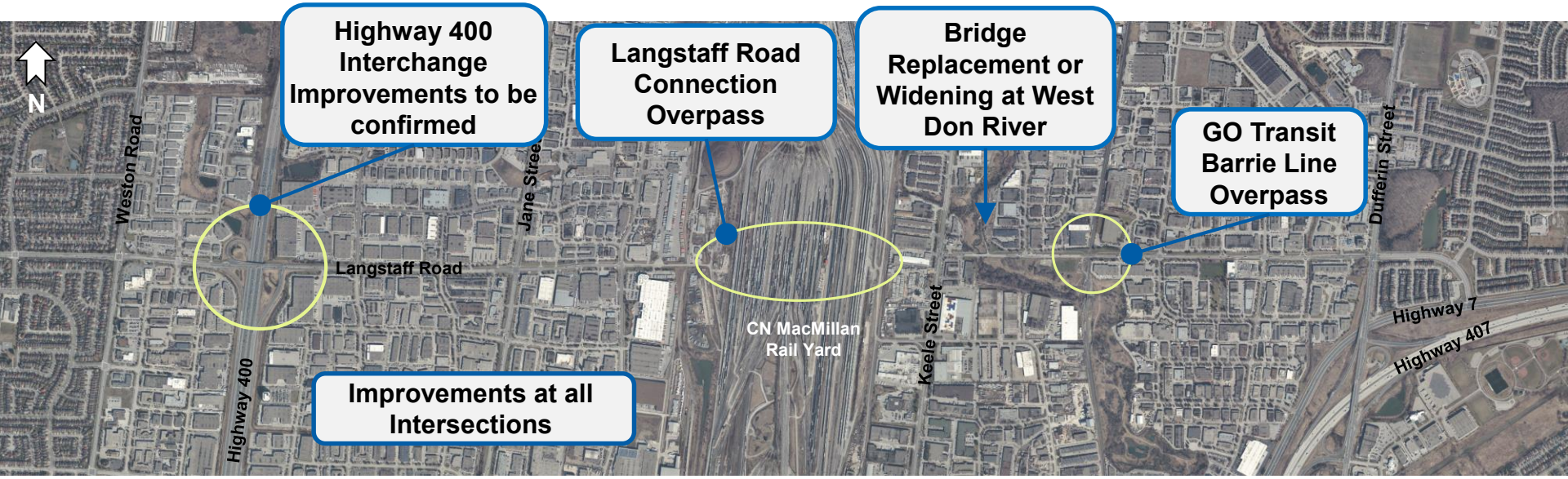
Design Alternatives
Highway 400 Interchange

- Proposed improvements for the Highway 400 / Langstaff Road interchange are subject to ongoing discussions with MTO and consultations with the City of Vaughan.
- Design criteria such as highway and ramp geometric requirements, traffic operations and performance, and compatibility with adjacent land uses are being considered.
- Elements of the proposed improvements at the Highway 400 / Langstaff Road interchange will be confirmed following Open House two.

Preliminary Preferred Plan

Preliminary Preferred Plan
Design Overview





Highway 400 Interchange Improvements to be confirmed

Langstaff Road Connection Overpass

Bridge Replacement or Widening at West Don River

GO Transit Barrie Line Overpass

Improvements at all Intersections

Langstaff Road Widened to 6 Lanes with 1.5 m Cycle Track and 1 m buffer on each side of road Weston Road to Dufferin Street

Preliminary Preferred Plan
Design Plan

Placeholder for the Design Plan 1 of 3
(See separate PDF)

Preliminary Preferred Plan
Design Plan

Placeholder for the Design Plan 2 of 3
(See separate PDF)

Preliminary Preferred Plan
Design Plan

Placeholder for the Design Plan 3 of 3
(See separate PDF)

Preliminary Preferred Plan
Streetscape Concept

The project presents an opportunity to enhance the character and function of the street through landscaping.

The intent is to create a functional, active and vibrant street that enhances pedestrian, cycling and transit facilities and encourages multi-modal use.

Design principles applied to the Streetscape Design include:

- Prioritize accessibility and focus on comfort and safety to encourage walking and cycling;
- Integrate architectural features, street furniture, enhanced paving, and planting design, where feasible and appropriate;
- Provide good way of finding signage that is clear, easily readable and simple; and
- Work with adjacent property owners to expand/enhance the streetscape.

Preliminary Preferred Plan

View of CN MacMillan Yard Crossing

Preliminary Preferred Plan
View of GO Transit Barrie Line Overpass

Preliminary Preferred Plan
Supporting Technical Studies

Drainage and Stormwater Management

- Langstaff Road currently has a mix of ditch drainage and catch basins / storm sewers. In future, all road runoff will be directed to the storm sewer system.
- A drainage assessment and stormwater management design is being developed for Langstaff Road that includes:
  - Consultation with Toronto and Region Conservation Authority regarding design criteria, water quality and quantity control objectives;
  - Confirming that the size of culverts and bridges meet design requirements and making recommendations regarding replacement, as appropriate; and
  - Recommending water quality treatment measures.

Heritage

- A Stage 1 Archaeological Assessment consisting of background research and visual assessment was conducted to evaluate archaeological potential within the study area. Further assessment may be recommended in areas of the proposed right-of-way that have not been previously disturbed.
- A cultural heritage review was conducted involving background research of heritage properties and landscapes within the study area. The study did not identify features of heritage value or interest in the proposed right-of-way. Old St. Stephen's Cemetery will not be impacted.

Natural Environment

- The key natural feature in the study area is the West Don River valley.
- The natural environmental assessment included a review of background information and field investigations:
  - Vegetation community classification and botanical survey;
  - Review of fish habitat conditions at West Don River and other area watercourses; and
  - Review of wildlife habitat type and quality, including potential for Species at Risk.

Ministry of Natural Resources and Forestry and Toronto and Region Conservation Authority are being consulted with respect to natural environmental conditions.

Permit requirements will be confirmed and recommendations made to protect wildlife, habitat and Species at Risk.

Preliminary Preferred Plan
Typical Langstaff Road Street View

Next Steps and How to Stay In Touch

Following this Open House the Project Team will:

- Review all public and agency comments received and respond where appropriate
- Continue to coordinate with technical agencies
- Further consultation as required
- Incorporate refinements into the design, based on public and agency feedback
- Finalize the Preliminary Design
- Prepare the Environmental Study Report (ESR) which documents the decision making process of the EA Study
- File the ESR for a 30-day public review period

1. Complete a comment sheet and return it to the Project Team by December 14, 2018.
2. Email the Project Team: **roads.ea@york.ca**
3. Contact the Project Team:
   Communications and Community Engagement Specialist
   1-877-464-9675 ext. 75886
4. Review online materials and check in for updates at: york.ca/langstaffstudy