LANGSTAFF ROAD MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT (EA)
WESTON ROAD TO HIGHWAY 7

YORK REGION

APPENDIX C: CONSULTATION RECORD

PART 8: MTO Meeting Minutes

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LANGSTAFF ROAD MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT (EA)
WESTON ROAD TO HIGHWAY 7

YORK REGION

ONTARIO MINISTRY OF TRANSPORTATION (MTO) MEETING MINUTES

WSP | MMM GROUP

MEETING MINUTES

Date:	December 2, 2016 10:00 a.m. to 11:00 a.m.	**Project Number:**	3216079
Location:	MTO 159 Sir William Hearst Avenue, Toronto 1st Floor (Executive) Boardroom	**Project:**	Langstaff Road EA – Weston Road to Highway 7
Purpose:	Meeting #1 with Ministry of Transportation (MTO)		

Attendees:	**Agency**
Margaret Mikolajczak	MTO – Corridor Management
Heather Glass	MTO – Highway Engineering
Mariusz Kobiela	MTO – Structural Engineering
Keith Cherneski	MTO – Environmental Planning
Brian Wolf	York Region
Tim Kwan	York Region
Neil Ahmed	MMM
Katherine Jim	MMM
Brent Gotts	MMM
Jian Guan	MMM

Item	Details	Action By
ITEM 1 –	**INTRODUCTIONS**	
1.1	Those at the meeting were introduced. N. Ahmed, MMM, provided a brief study overview and background information, noting that the purpose of the meeting is to provide an introduction of the project and review key issues and constraints associated with the Highway 400 corridor and interchange at Langstaff Road, MTO general requirements re: geometric design and traffic modelling. .	
1.2	The Project Team acknowledged that MTO has expressed a number of concerns regarding the previously proposed Langstaff Road/Highway400 full interchange concept as part of the Vaughan Metropolitan Centre Study (by others) in letters to York Region, dated December 4, 2012 and January 11, 2013.	
1.3	As part of the current EA Study, the Region will take MTO's previous comments into consideration. The project team will consult with MTO throughout the EA Study and explore opportunities to best address MTO's concerns.	
ITEM 2 –	**PROJECT OVERVIEW AND BACKGROUND**	
	Key components of EA:	

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Item	Details	Action By
2.1	Travel Demand Forecasting and Traffic Modelling:	
	• Traffic modelling is part of the study to assess the traffic demands and operations on Highway 400 and through the study area. • The traffic modelling will be carried out in the early stage of the study so that the modelling results can feed into the need and justification. • The traffic modelling will include operational analysis of Highway 400 from Highway 407 to Major Mackenzie Drive, Langstaff Road from Weston Road to Highway 7 and adjacent parallel roads. Upstream and downstream interchanges will be included. • A traffic data request list was sent to MTO on November 21, 2016 via email. [*Post meeting notes: MTO provided the traffic data via email dated December 9, 2016*.]	
2.2	Langstaff Road Interchange at Highway 400	
	• Langstaff Road currently has a partial interchange with Highway 400. The ability to implement a full interchange may be challenging given the proximity to adjacent commercial buildings, Black Creek, as well as the proximity to the Highway 400 interchange immediately to the north at Bass Pro Mills Drive. • The Highway 400 core-collector system also terminates just south of Langstaff Road which presents additional constraints for interchange modification/improvements. • The previously proposed E/W-N ramp in the Vaughan Metropolitan Centre Study may impact the existing Langstaff Road underpass, which was constructed recently. MTO is concerned about the potential throwaway cost. [*Post Meeting Note: MTO confirmed that the Langstaff Underpass was constructed in 1991 via email dated December 2, 2016.*] • MTO noted that the potential interchange improvements at Langstaff Road and Highway 400 cannot adversely impact the Highway 400 geometric standards and its safety and operations. • MTO noted that funding was received to implement HOV Lanes on Highway 400 from Major Mackenzie Drive to King	

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Item	Details	Action By
	Road with construction to start in 2017. Extension of the HOV lanes to the south of Langstaff Road is also anticipated. • MTO to provide Highway 400 cross-section at Langstaff Road [*Post Meeting Note: The Langstaff Road Underpass GA drawing was received on December 2, 2016 via email.*] • MTO to confirm if they can share the agreement for the Bass Pro Mill Drive interchange. • MMM to confirm if the Langstaff Road Underpass can accommodate a full interchange during the alternative evaluation stage of the study. • York Region noted that the need and justification of the full interchange was identified in the *VMC and Surrounding Area Transportation Study and* the Region's Transportation Master Plan. Traffic analysis will be carried out as part of the EA Study and will address the need for the interchange improvements. • York Region noted that the implementation of a full Interchange at Langstaff Road is key to the connection across the CN MacMillan Yard and the overall transportation network in York Region. • York Region stressed that with the planned growth in population and employment as part of the Provincial Growth Plan, infrastructure improvements identified in the Region's TMP is required. The missing link of Langstaff Road over the CN yard and implementing a full interchange at Langstaff Road / Highway 400 are major projects being studied by the Region through the current EA Study.	MTO MMM
2.3	Langstaff Road grade separation with GO Transit Barrie Line:	
	• The warrant for a grade separation at the GO Transit crossing / Langstaff Road, east of Keele Street will be determined as part of the EA Study.	
2.4	Langstaff Road extension at CN MacMillan Yard:	
	• Various Langstaff Road crossing alternatives at the CN Rail MacMillan Yard were developed as part of the *Vaughan Metropolitan Centre (VMC) and Surrounding Areas Transportation Study*. The current study will take into consideration the previously developed conceptual	

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Item	Details	Action By
	alternatives and develop alignment alternatives for analysis and evaluation. A preferred crossing alignment will be identified through the EA Study. • The crossing structure across MacMillan Yard may be up to approximately 800 m in length.	
ITEM 3 –	**LANGSTAFF ROAD INTERCHANGE AT HIGHWAY 400**	
3.1	Geometric Requirements	
	• N. Ahmed noted that MMM is familiar with MTO design standards through previous and ongoing work with MTO and will endeavour to configure the preferred alternative to the satisfaction of MTO. • MTO noted that the interchange design should limit the impact to the surrounding businesses.	
3.2	Operation Analysis re: Proposed Interchange Modifications	
	• MTO noted that the modelling scenarios should be reviewed before starting the operational analysis. • N. Ahmed noted that the operational analysis will be done using the Region's model and the forecast horizon year will be 2041.	MMM
3.3	MTO Review	
	• MTO Senior Management (SM) approval is required for the Langstaff Road/Highway 400 interchange improvements. A SM presentation is required. • The materials associated with the Langstaff Road / Highway 400 interchange improvements to be presented at the Open Houses are to be reviewed by MTO before sharing with the public. • It was suggested that a meeting should be arranged with MTO Traffic staff to discuss the modeling details prior to beginning the work.	
ITEM 4 –	**DATA COLLECTION**	
4.1	MMM requested the previous Highway 400 PDRs for the study area and the Bass Pro Mill Drive GA drawing. [*Post Meeting Note: Bass Pro Mill Drive Underpass GA was received on December 2,*	MTO

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Item	Details	Action By
	2016 via email]	
4.2	MMM requested the Title Records for the study area.	MTO
4.3	MMM to obtain the need and justification for Bass Pro Mills Drive interchange from the City of Vaughan.	MMM
ITEM 5 –	**CONSULTATION**	
5.1	K. Jim noted that the study follows the Municipal Class EA schedule 'C' and does not fall within the criteria for CEAA. *http://laws-lois.justice.gc.ca/eng/regulations/SOR-2012-147/page-3.html#h-1*	
5.2	MTO should be consulted before each milestone of the project. The Project Team noted that there will be ongoing consultation with MTO throughout the EA Study.	
5.3	MTO prefers to have direct contact (one-on-one meeting) with York Region and MMM instead of being part of the Technical Advisory Meeting and does not typically attend Open Houses.	
ITEM 6 –	**PROJECT SCHEDULE**	
6.1	K. Jim noted that Open House #1 is tentatively scheduled for spring 2017 and Open House #2 is scheduled for Spring, 2018. The study is anticipated to be completed by the end of 2018.	
6.2	York Region to provide the timing of the construction of the project to MTO.	York Region
ITEM 7 –	**NEXT STEPS / OTHER BUSINESS**	
7.1	MTO noted that the Black Creek channel may have been realigned and the crossing at Black Creek will require approval from environmental agencies.	
7.2	MMM to document any additional data requests from the meeting in an email to MTO. [*Post Meeting Note: A data request email was sent to MTO on December 13, 2016.]*	
7.3	MMM to arrange a meeting with MTO Traffic to discuss the Highway 400 operational analysis.	MMM

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MEETING MINUTES

Date:	May 10, 2017 2:00 p.m. to 4:00 p.m.	**Project Number:**	3216079
Location:	MTO 159 Sir William Hearst Avenue, Toronto 7st Floor Boardroom	**Project:**	Langstaff Road EA – Weston Road to Highway 7
Purpose:	Meeting #2 with Ministry of Transportation (MTO)		

Attendees:	**Agency**
Margaret Mikolajczak	MTO – Corridor Management
Shawn Aurini	MTO – Corridor Management
Heather Glass	MTO – Highway Engineering
Mariusz Kobiela	MTO – Structural Engineering
Nina Vallvé	MTO – Traffic
Brian Wolf	York Region
Tim Kwan	York Region
Neil Ahmed	WSP
Katherine Jim	WSP
Keyur Shah	WSP
Brent Gotts	WSP
Jian Guan	WSP

Item	Details	Action By
ITEM 1 –	**INTRODUCTIONS**	
1.1	Those at the meeting were introduced. A presentation package was distributed. N. Ahmed, WSP, provided a brief study overview and background information, noting that the purpose of the meeting is to discuss the preliminary Langstaff Road/Highway400 interchange improvement concepts and the traffic assessment approach.	
1.2	N. Ahmed noted the following key components of the EA study:	
	• Langstaff Road extension at CN MacMillan Yard; • Langstaff Road grade separation with GO Transit Barrie Line; • Langstaff Road Interchange improvements at Highway 400; and • Langstaff Road widening to 6 lanes.	
ITEM 2 –	**PREVIOUS MEETING WITH MTO DECEMBER 2, 2016**	
2.1	WSP noted that the Project Team met with MTO on December 2, 2016 to introduce the study.	

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Item	Details	Action By
	Following the meeting, MTO provided WSP with the Highway 400 Basemapping and Title Records from Highway 407 to Major Mackenzie Drive, and the existing Langstaff Road Underpass GA drawing.	
2.2	York Region noted that construction of the Langstaff Road improvements, including the Langstaff Road/Highway400 interchange improvements, is currently not scheduled in the Region's 10 year plan. However, these improvements are key to supporting growth in the Region.	
ITEM 3 –	**RECENT STUDY PROGRESS**	
3.1	WSP noted that a screenline analysis was carried out utilizing York Region Travel Demand Forecasting (YRTDF) model and the findings of the analysis will be presented at this meeting, along with the preliminary Highway400/Langstaff Road interchange improvement concepts.	
ITEM 4 –	**NEED AND JUSTIFICATIONS**	
4.1	In meeting the growth projection in the Provincial Growth Plan, it is anticipated there will be significant population and employment growth in York Region. The population is projected to increase from 1.1 million to 1.8 million between 2014 and 2041. The urban area growth in City of Vaughan will increase 50% by 2031.	
4.2	The study area is located in close proximity to one of the main growth areas in the City of Vaughan, Vaughan Metropolitan Centre (VMC). It is anticipated that the VMC will impact the Highway 7 traffic throughput to/from Highway 400. Furthermore, Bass Pro Mills Drive primarily serves the traffic to/from the Vaughan Mills Centre and does not offer a good route alternative to Rutherford Road Interchange. Therefore, the Langstaff Road connection is key to supporting the future growth and transportation needs of the general area.	
4.3	The following road improvements in the vicinity of the Study Area were identified as part of the Regional Municipality of York's *Transportation Master Plan* (TMP) 2016:	
	• Weston Road: Transit/HOV lanes from Steeles Avenue to Major Mackenzie Drive; • Jane Street: Rapid Transit Corridor from Highway 7 to Major Mackenzie Drive; • Keele Street: Transit/HOV lanes from Highway 7 to Rutherford	

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Item	Details	Action By

	Road;
	• Dufferin Street: Transit/HOV lanes from Langstaff Road to Rutherford Road; and
	• Rutherford Road-Carville Road-16th Avenue:
	  ○ Transit/HOV lanes from Jane Street to McCowan Road.
	  ○ Barrie GO Rail Grade Separation east Keele Street.	

4.4	In York Region's TMP (2016), Langstaff Road is identified as a Primary Arterial Goods Movement Corridor between Highway 400 and Dufferin Street and is surrounded by employment and industrial areas. Langstaff Road is also identified to have separated facilities for cycling (i.e. multi-use trail or bike lanes).	
4.5	Travel Demand Analysis Methodology and Approach	
	• The Need and Justification was established by using the York Region Travel Demand Forecasting (YRTDF) model; • The analysis was conducted for the future 2041 Planning Horizon Year, AM Auto Peak Hour; • The total auto trip demand was split into Single Occupancy Vehicle (SOV), High Occupancy Vehicle (HOV) 2, HOV3+ using carpool data derived from the 2011 Transportation Tomorrow Survey (TTS).	
4.6	Langstaff Road improvement scenarios	
	There were 5 road and interchange improvement scenarios presented: • Scenario 1 (Base Case): Do Nothing; • Scenario 2: Widen Langstaff Road to 4 General Purpose Lanes (GPLs) between Keele Street and Dufferin Street; • Scenario 3: Widen Langstaff Road to 4GPLs+2 HOVLs including the constructing the missing link across the CN MacMillan Yard; • Scenario 4: Scenario 3, along with converting the existing Highway 400 interchange at Langstaff Road to a full-move interchange; and • Scenario 5: Widen Langstaff Road to 6 GPLs, constructing the missing link across CN MacMillan Yard, along with converting the existing Highway 400 interchange at Langstaff Road to a	

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	full-move interchange.	
4.7	High level screenline analysis was carried out and the results will be re-confirmed later using micro-simulation. Volume/capacity ratio was calculated across each screenline. A total of six Screenlines were identified for the purpose of the EA Study, including four north-south Screenlines which extend from Rutherford Road to Highway 7, and two east-west Screenlines which extend from Highway 400 to Dufferin Street: • Line 1 - North-south screenline just east of Weston Road; • Line 2 - North-south screenline just east of Highway 400; • Line 3 - North-south screenline bisect the CN MacMillan Yard; • Line 4 - North-south screenline west of Dufferin Street; • Line 5 - East-west screenline north of Langstaff Road; and • Line 6 - East-west screenline south of Langstaff Road. The Screenline analysis results indicate that Scenario 5 (i.e. widening Langstaff Road to 6 GPLs, construct Langstaff Road link, and improvements to Highway 400 as a full interchange) shows the most improvement in terms of volume/capacity ratio. Scenarios 3 and 4 show improvement but slightly less compared to Scenario 5.	
4.8	Discussion of Need and Justification Analysis Findings	

	Some of the key rationale for improvements were highlighted:
	• Widening Langstaff Road to 6 Lanes and Provision of Missing Link
	  ○ Provides additional east-west capacity in the overall transportation network;
	  ○ Adjacent east-west corridors (Rutherford Road and Highway 7) will likely experience a significant reduction in traffic congestion; and
	  ○ Provides direct access to nearby highways and reduces truck traffic on all surrounding arterial roads.
	• Conversion of existing partial interchange to full-move interchange
	  ○ Supports Langstaff Road as a Primary Arterial Goods Movement Corridor; and
	  ○ May improve traffic operations at the Highway 400 interchanges with Highway 7 and Rutherford, will be confirmed based on detailed traffic operational analysis.	

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Item	Details	Action By
ITEM 5 –	**LANGSTAFF ROAD INTERCHANGE AT HIGHWAY 400**	
5.1	WSP presented three Langstaff Road Interchange Improvement concepts and noted the following:	
	• Option 1 - Parclo A3 Configuration (based on original concept developed as part of the *Vaughan Metropolitan Centre and Surrounding Areas Transportation Study – 2013*): ○ The weaving distance between the proposed Langstaff Road W-N ramp and Bass Pro Mills Drive S-E/W ramp is 888 m which is greater than the 600 m minimum weaving distance specified in the Geometric Design Standards for Ontario Highways (GDSOH). MTO would typically require greater spacing (~ 1000 m); ○ The weaving distance between the Langstaff Road N-E/W ramp and the Bass Pro Mills E-S ramp is 618 m which just exceeds the 600 m minimum weaving distance specified in the GDSOH. ○ MTO had previously expressed concerns regarding this option as the introduction of ramps “to and from the north” at Langstaff Road could cause weaving and safety issues. • Option 2 – Ramp-off-a-Ramp at Rutherford Road N-E/W Ramp: ○ Under this Option, the Rutherford Road N-E/W ramp bullnose would be relocated slightly to the north (approximately 50 m). This is to allow the ramp split to be located along the tangent portion of the ramp while maintaining reasonable grade for the ramp off-a-ramp to descend below the existing Rutherford Road. Weaving distance between the Major Mackenzie Drive W-S Ramp and the Rutherford Road N-E/W is reduced to 910 m. ○ This option has minimum direct impact to the Highway 400 mainline operation. • Option 3 - Realigning the Bass Pro Mills Drive E-S ramp: ○ Under this option, the existing Bass Pro Mills Drive E-S ramp would be pulled back to the north to join the existing Rutherford Road W-S ramp. ○ This option provides 1 km weaving distance between the Rutherford Road W-S ramp and Langstaff Road N-E/W ramp. ○ Lane rearrangement on Highway 400 is required so that the Rutherford Road W-S ramp speed change lane	

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Item	Details	Action By
	becomes the first away lane to the collector and the Rutherford Road E-S ramp speed change lane becomes the second away lane. ○ Traffic operation analysis is required to confirm that there is no weaving issue between Bass Pro Mills Drive and Langstaff Road.	
5.2	MTO reiterated that Option 1 is not a viable concept and should not be carried forward as part of the operations analysis.	
5.3	MTO noted that the Langstaff Road interchange improvement concepts should not preclude the Highway 400 HOV Lane plan. WSP requested the HOV Lane plan in AutoCAD format from MTO. [*Post Meeting Note: MTO provided the CAD drawing from the HOV Opportunity Study on May 11, 2017*.]	
5.4	WSP to forward the Langstaff Road interchange improvement concepts to MTO. [*Post Meeting Note: WSP provided the Langstaff Road Interchange improvements concepts to MTO on May 11, 2017*.]	
5.5	Once the Langstaff Road interchange improvement concepts are updated with the HOV Lane plan, the Project Team is required to present the concepts to MTO Senior Management. It will take MTO two to three weeks for MTO to provide comments on the design.	
5.6	Microsimulation will be carried out to identify the effect on the overall network due to improvements on Langstaff Road and to the Highway 400 interchange. A tech memo that summarizes the model calibration will be submitted to MTO for review.	WSP
5.7	WSP noted that the bike lanes will be designed in accordance with Ontario Traffic Manual Book 18 – Cycling Facilities and Bike Design Manual at ramp crossings.	
ITEM 6 –	**PROJECT SCHEDULE**	
6.1	WSP noted that Open House #1 is scheduled for June 14th, 2017 and Open House #2 is scheduled for Spring, 2018. The study is anticipated to be completed by the end of 2018.	

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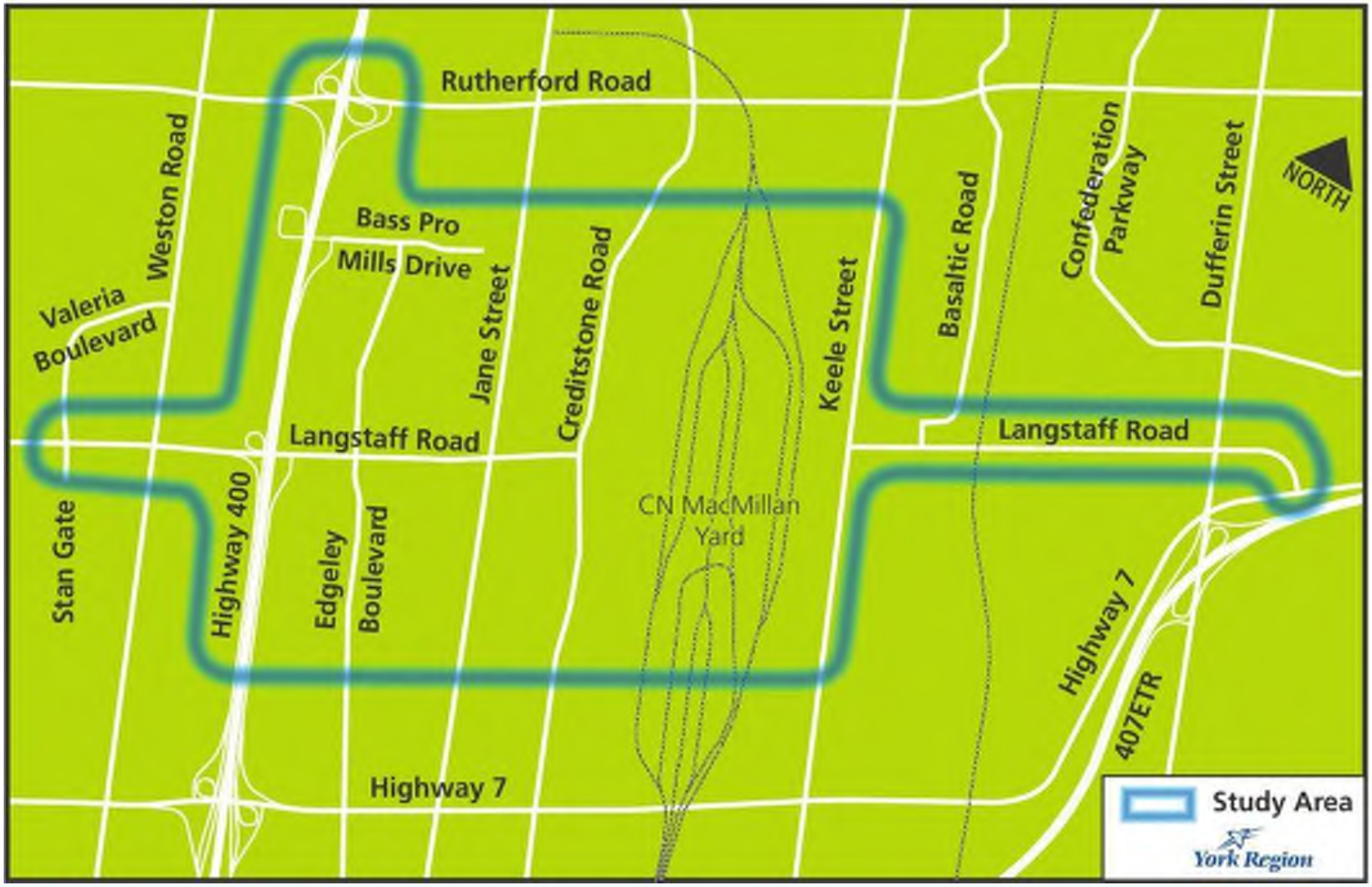
Langstaff Road
Class Environmental Assessment Study
Weston Road to Highway 7

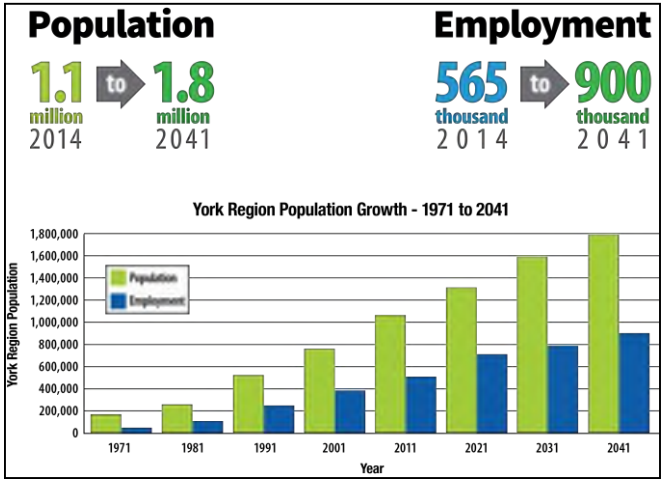
MTO Meeting 2
May 10, 2017

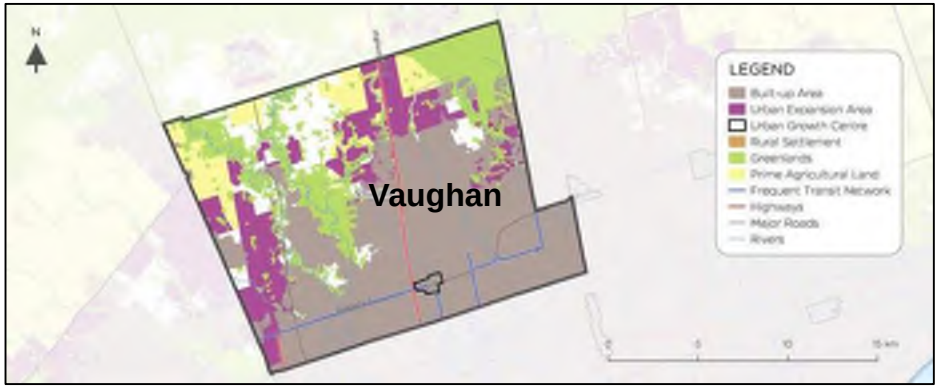
Study area


Rutherford Road
Weston Road
Bass Pro
Mills Drive
Valeria Boulevard
Jane Street
Creditstone Road
Keele Street
Basaltic Road
Confederation Parkway
Dufferin Street
NORTH
Langstaff Road
Langstaff Road
Stan Gate
Highway 400
Edgeley Boulevard
CN MacMillan Yard
Highway 7
407ETR
Highway 7
Study Area
York Region

Road Network Need and Justification

- Growth in York Region and City of Vaughan
- Key growth area - Vaughan Metropolitan Centre
- Urban area growth in Vaughan will increase by 50% by 2031



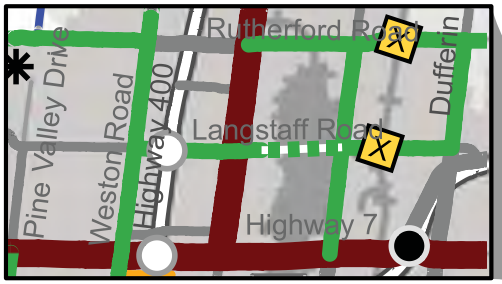


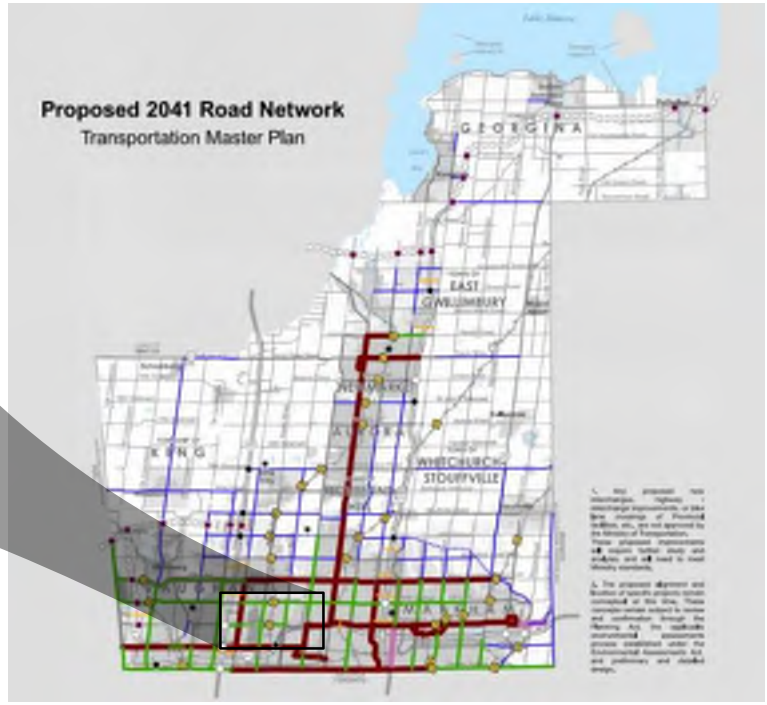
Future Growth and Transportation Needs at Hwy 400

- Most area is built up; VMC will be the main growth in the area
- VMC will limit throughput to and from Hwy 400 along Hwy 7
- Bass Pro Mills does not offer good alternative to Rutherford Road interchange

Supporting the Future Road Network

- Region's strategy for development the future road network:
  - Maximize person carrying capacity
  - Increase capacity to serve development





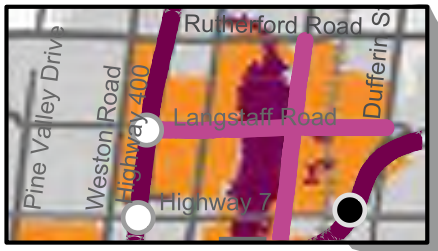
Langstaff Road is proposed to be widened to 6 lanes between Weston Road and Dufferin Street, including a connection over the CN MacMillan Yard

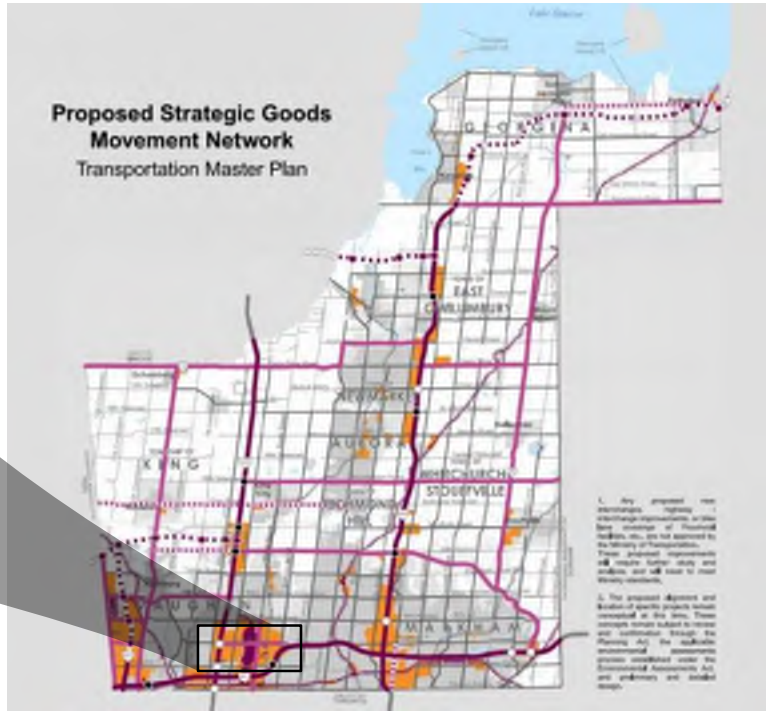
2016 York TMP Study Area Context

- Road improvements the vicinity of the Study Area:
  - *Weston Road:* Transit/HOV lanes from Steeles Avenue to Major Mackenzie Drive
  - *Jane Street:* Rapid Transit Corridor from Highway 7 to Major Mackenzie Drive
  - *Keele Street:* Transit/HOV lanes from Highway 7 to Rutherford Rd
  - *Dufferin Street:* Transit/HOV lanes from Langstaff Road to Rutherford Rd
  - *Rutherford Road-Carville Road-16th Avenue:*
    - Transit/HOV lanes from Jane Street to McCowan Road
    - Barrie GO Rail Grade Separation east of Keele St

Supporting Goods Movement

- There are three levels or Regional goods movement corridor:
  - Highway goods movement
  - Primary arterial goods movement
  - Secondary goods movement

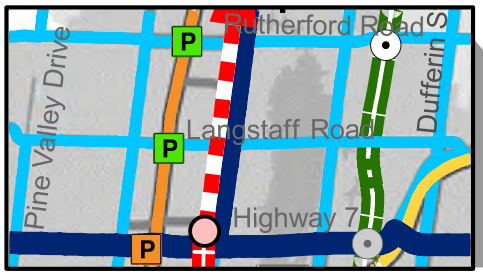


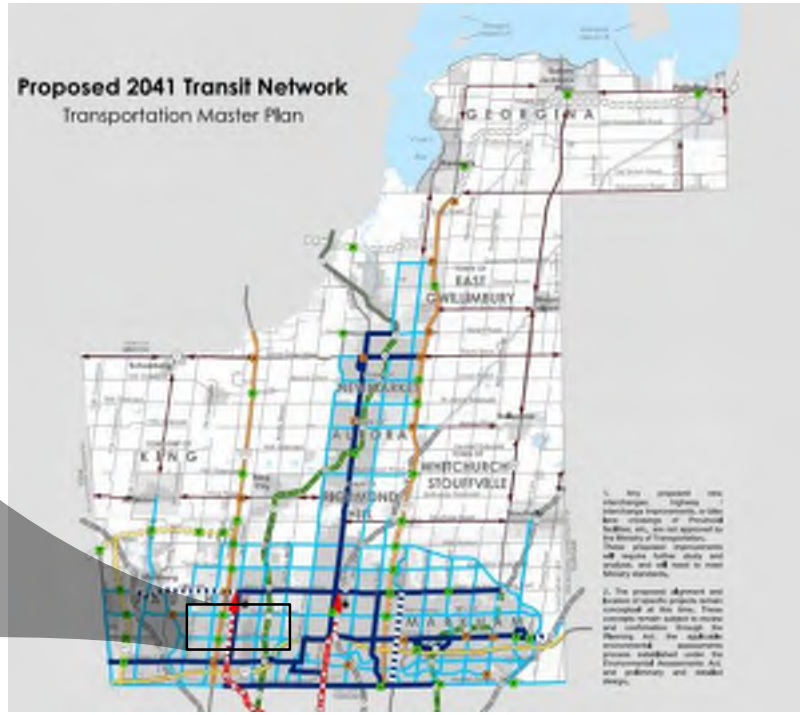


Langstaff Road is identified as a Primary Arterial Goods Movement Corridor between Hwy 400 and Dufferin Street and is surrounded by employment areas

Connecting the Transit Network

- Region's transit network includes the following key components:
  - Rapid Transit
  - Regional Express Rail (RER)
  - Frequent Transit Network

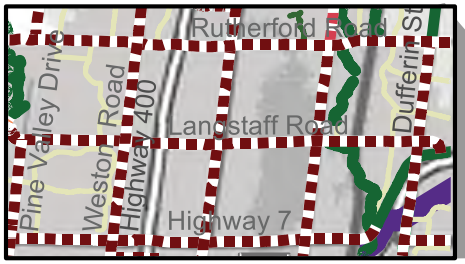


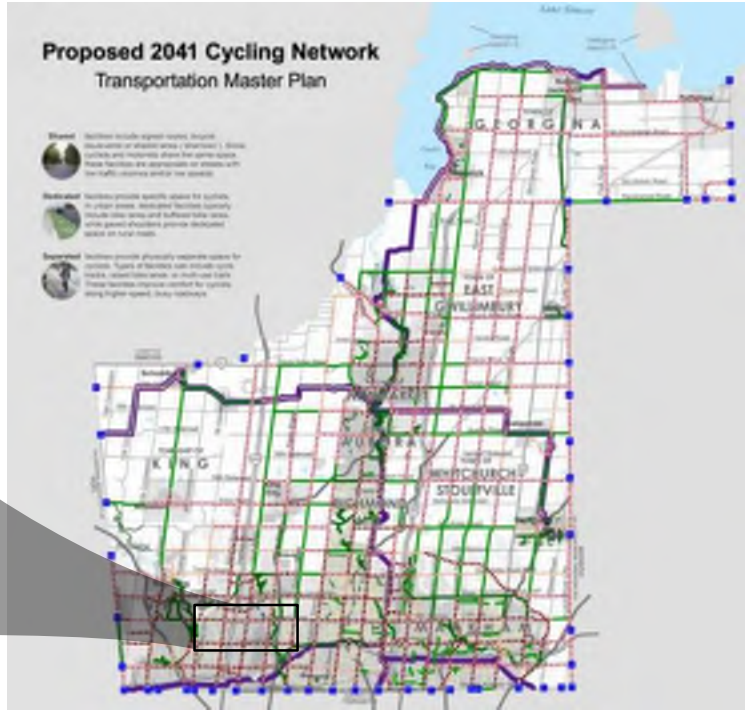


Langstaff Road is identified as part of the Frequent Transit Network

Growing Cycling Network

- Region will grow the cycling network by integrating active transportation in urban areas:
  - Strategic Cycling Network
  - Opportunities for connections to existing and future facilities
  - New design approach





Langstaff Road is identified for a separated facilities for cycling (i.e. multi-use trail or bike lanes)

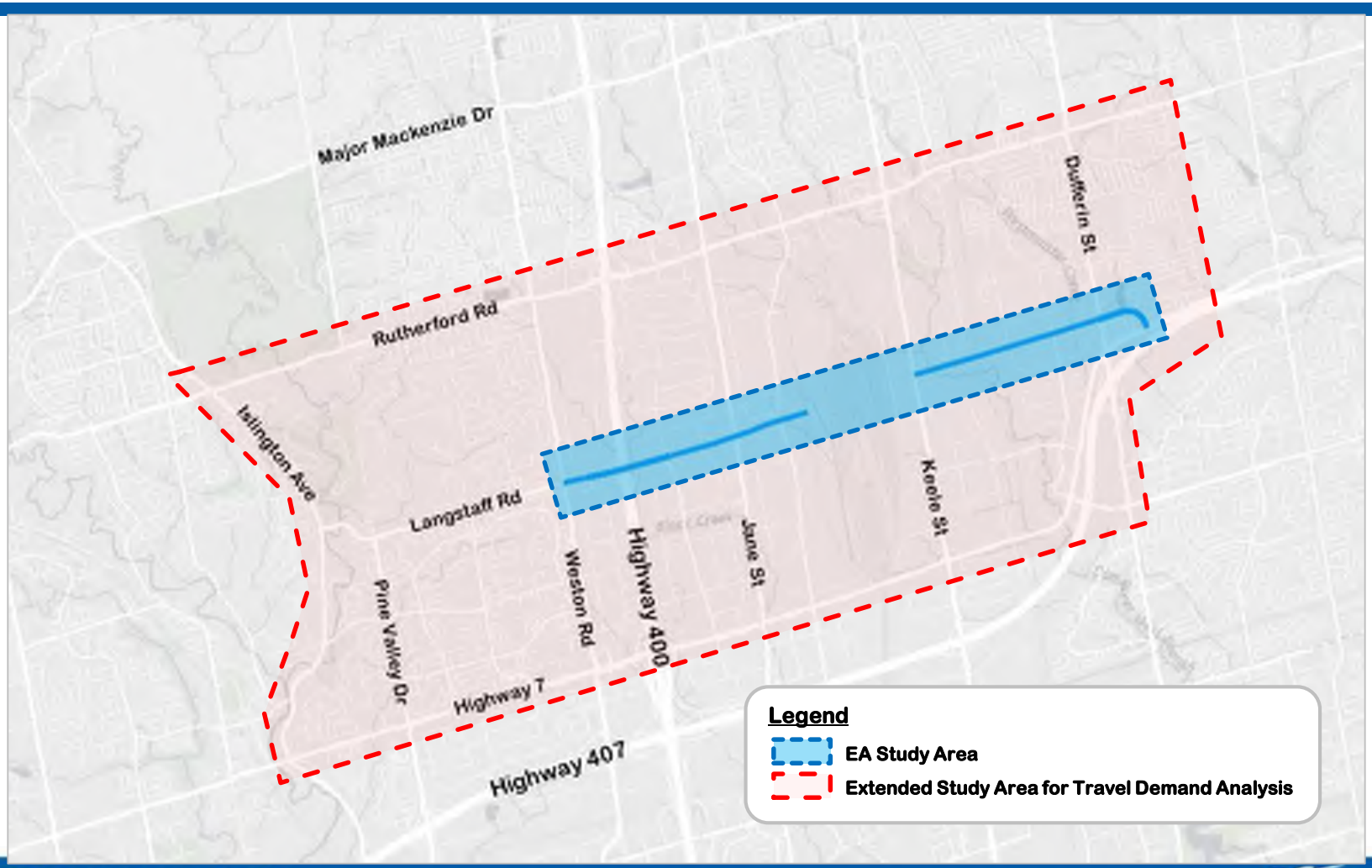
Supporting Growth – Vaughan Metropolitan Centre

Improvements to Langstaff Road is to support growth and development in York Region and most relevantly, in the City of Vaughan:

Vaughan Metropolitan Centre

- 179 hectare site
- Adjacent to Hwy 400 and Hwy 407
- 1.5 million square feet of new retail space
- 200,000 employment
- 12,000 residences
- VMC mobility hub

Travel Demand Analysis Study Area



Land Use Projections

- Provisional population and employment growth Projections within the Extended study area

	2016		2031		2041	
	Population	Employment	Population	Employment	Population	Employment
Total	135,698	132,969	163,771	147,317	183,388	154,521
Increase from 2016	-	-	28,074	14,348	47,691	21,552
Average Annual Growth Rate (from 2016)	-	-	1.4%	0.7%	1.4%	0.6%

Note: Based on the staff preferred growth scenario presents 45% intensification, presented in November 2015 as part of the Region's municipal comprehensive review process.

Traffic Analysis for EA Study

- Utilized York Region Travel Demand Forecasting (YRTDF) model
- Analyzed for the Future 2041 Planning Horizon Year, AM Auto Peak Hour
- Total auto trip demand split into SOV, HOV2, HOV3+ using carpool data derived from the 2011 Transportation Tomorrow Survey (TTS)
- Scenarios assessed for the EA Study:

Scenario	Existing Langstaff Road	Langstaff Link over CN Yard	Highway 400 Interchange
1: Base Case (Do Nothing)	No Change	No Link	No Change
2: Langstaff East Improvements	4GPL (between Keele & Dufferin)	No Link	No Change
3: Build Langstaff Link	4GPL+2HOV	4GPL+2HOV	No Change
4: Build Langstaff Link and Interchange Improvement	4GPL+2HOV	4GPL+2HOV	Convert to Full IC
5. Build Langstaff Link and Interchange Improvement	6 GPL	6 GPL	Convert to Full IC

Screenline Locations

Capacity Analysis Results

	Existing (2016) Conditions	Future (2041) Conditions				
		Scenario 1 (Base Case)	**Scenario 2** (Widen East Segment of 4GPL)	**Scenario 3** (Widen to 4GPL+2HOV)	**Scenario 4** (Scenario 3 + Hwy 400 IC Improvements)	**Scenario 5** (Widen to 6GPL + Hwy 400 IC Improvements)
N-S Screenline V/C						
1.East of Weston Rd	0.93	1.03	1.03	1.01	1.03	1.01
2. East of Hwy 400	0.85	0.96	0.96	0.96	0.96	0.94
3. At CN Rail Yard	1.06	**1.15**	**1.16**	1.01	1.01	0.98
4. West of Dufferin St	0.95	1.02	0.96	0.99	0.99	0.97
Link V/C @ CN Yard						
Rutherford Rd	**1.25**	**1.22**	**1.22**	1.07	1.07	1.06
Langstaff Rd	-	-	-	1.00	1.00	0.95
Highway 7	0.94	1.09	1.08	0.97	0.97	0.95

Needs and Justification

- Langstaff Road Improvements
  - Widening Langstaff Road to 6 Lanes and Provision of Langstaff Link
    - Provides additional east-west capacity in the overall transportation network
    - Adjacent east-west corridors (Rutherford Road and Highway 7) will likely experience a significant reduction in traffic congestion
    - Provides improved access to nearby highways and reduces truck traffic on all surrounding arterial roads
- Highway 400 Interchange at Langstaff Road
  - Conversion of existing partial interchange to full
    - Similar to previous studies, interchange improvements yield some benefits in addressing traffic congestion within the overall transportation network
    - Supports Langstaff Road as a Primary Arterial Goods Movement Corridor
    - May improve traffic operations at the Highway 400 interchanges with Highway 7 and Rutherford, will be confirmed based on detailed traffic operational analysis.

MEETING MINUTES

Date: July 26, 2017
2:00 p.m. to 4:00 p.m.

Location: MTO
159 Sir William Hearst Avenue, Toronto
1st Floor Boardroom

Project Number: 16M-01457-01

Project: Langstaff Road EA – Weston Road to Highway 7

Purpose: Meeting #3 with Ministry of Transportation (MTO)

Attendees:	**Agency**
Margaret Mikolajczak	MTO – Corridor Management
Loan Le	MTO – Highway Engineering
Goran Nikolic	MTO – Traffic
Aaron Janke	MTO – Traffic
Nina Vallvé	MTO – Traffic
Mariusz Kobiela	MTO – Structural Engineering
Brian Wolf	York Region
Tim Kwan	York Region
Neil Ahmed	WSP
Brent Gotts	WSP
Jian Guan	WSP

Item	Details	Action By
ITEM 1 –	**INTRODUCTIONS**	
1.1	Those at the meeting were introduced. N. Ahmed provided a brief study overview and background information, noting that WSP updated the preliminary Highway 400/Langstaff Road interchange improvement concepts based on MTO's future HOV lane plan. The purpose of the meeting is to present the updated concepts for MTO comment.	
ITEM 2 –	**Highway 400 Model Calibration Memo**	
2.1	WSP noted that a Highway 400 Model Calibration Memo was sent to MTO for review on July 14, 2017.	
2.2	G. Nikolic requested WSP to provide the memo to SAFO and Johnson Lau from MTO. [*Post Meeting Note: The memo was provided to SAFO on July 17, 2017 and to Johnson Lau on July 27, 2017*]	
2.3	G. Nikolic noted both HOV lane plan and Managed Lane (ML) plan should be included in the model.	

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Item	Details	Action By
2.4	G. Nikolic questioned which model WSP is planning to use for the operational analysis. The GGHM model may not be ideal for the purpose of analysing localized traffic operations. The York Region model is better suited for this project. [*Post Meeting Note: WSP confirmed York Region model will be used for the operational analysis*].	
ITEM 3 –	**LANGSTAFF ROAD INTERCHANGE AT HIGHWAY 400**	
3.1	B. Gotts noted that two Highway 400/Langstaff Road improvement concepts were presented at the previous meeting with MTO on May 10th, 2017. WSP has incorporated MTO's future HOV lane plan with these two concepts as per the meeting discussion. The currently proposed starting point of the northbound HOV lane from the MTO plan has undesirable weaving distances for the entering and existing HOV users. WSP recommended shifting the starting point of the HOV lane further north, between the Rutherford Road S-E/W ramp and W-N ramp bullnoses. This location is consistent with the current MTO policy of the access/egress location design. When MTO is implementing HOV lanes south of Langstaff Road in the future, this access/egress will no longer be required to be relocated.	
3.2	L. Le noted that there is only room for one additional HOV lane under the existing Langstaff Road structure. If a northbound loop ramp were to be added under the structure by York Region, there will be a cost implication associated with the bridge replacement. MTO noted that the Langstaff Road structure was constructed fairly recently and questioned the timing of the proposed construction.	
3.3	B. Wolf noted that Langstaff Road Improvement is currently not within the Region's 10-year capital program. The interchange improvements would benefit the community's overall goods movement and support the goods movement strategy by the province. G. Nikolic suggested to contact Rob Tardif from MTO to discuss the benefits to the goods movement.	WSP
3.4	WSP suggested to use the space under the Langstaff Road structure for the potential northbound loop ramp first and document the need for the structure replacement in the EA document as MTO currently does not have a plan to extend the Highway 400 HOV lane south of Langstaff Road.	
3.5	G. Nikolic noted that it is unlikely to have dual Managed Lane in each direction for this section of Highway 400.	
3.6	MTO provided some preliminary comments on the two concepts and the following were noted:	

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Item	Details	Action By

	• Realigning the Bass Pro Mills Drive E-S ramp option:
	  ○ Concerns with the long distance the drivers have to travel before the on-ramp curve on the realigned Bass Pro Mills Drive ramp.
	  ○ Concerns with the realigned on-ramp becoming a local road with multiple intersections. No access will be allowed on MTO controlled access ramp.
	  ○ Concerns with high volume of trucks turning left onto the new W-N loop ramp.
	  ○ Concerns with southbound traffic unable to merge into the express lanes.
	• Ramp-off-a-ramp at Rutherford Road N-E/W ramp option:
	  ○ Concerns with the ramp-off-a-ramp serving significant local traffic within MTO jurisdiction.
	  ○ Concerns if the long off-ramp serves the purpose as a direct off-ramp for Langstaff Road.
	[*Post Meeting Note: MTO provided comments on both options via email on August 8, 2017*]	

3.7	N. Ahmed noted that the Highway 400/Langstaff Road interchange improvement will provide traffic relief for Rutherford Road and Highway 7. The current provincial policy is to support goods movement and the introduction of a full-move interchange will allow trucks to access Highway 400 quicker and better serve the current provincial policy.	
ITEM 4 –	**NEXT STEPS**	
4.1	MTO to review the options and provide a complete list of comments. [*Post Meeting Note: MTO provided comments on August 8th, 2017*]	
4.2	MTO Traffic to provide comments on the model calibration report. This will take approximately one month.	MTO
4.3	Once MTO's comments on the design options and model calibration report are addressed. WSP will initiate the micro-simulation and present again to MTO before presenting it to MTO Senior Management.	

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MEETING MINUTES

Date:	November 30, 2017 9:30 p.m. to 12:00 noon	**Project Number:**	16M-01457-01
Location:	MTO 159 Sir William Hearst Avenue, Toronto 3rd Floor Boardroom	**Project:**	Langstaff Road EA – Weston Road to Highway 7

Purpose: Meeting #4 with Ministry of Transportation (MTO)

Attendees:	**Agency**
Margaret Mikolajczak	MTO – Corridor Management
Loan Le	MTO – Highway Engineering
Johnson Lau	MTO – Traffic
Nina Vallvé	MTO – Traffic
Brian Wolf	York Region
Tim Kwan	York Region
Neil Ahmed	WSP
Katherine Jim	WSP
Keyur Shah	WSP
Brian Cheung	WSP
Jian Guan	WSP

Item	Details	Action By
ITEM 1 –	**INTRODUCTIONS**	
1.1	Those at the meeting were introduced. N. Ahmed noted that the Project Team presented the preliminary Highway 400/Langstaff Road interchange improvement concepts at the last meeting with MTO on July 26, 2017. Based on the comments provided by MTO after the meeting (via email dated August 8, 2017), WSP updated the interchange improvement concepts and carried out the traffic operational analysis of these concepts. The purpose of this meeting is to present the preliminary findings from the traffic operational analysis.	
1.2	N. Ahmed circulated the presentation slide deck and provided a brief study overview and background information. The key points are summarized as follows: • Significant employment and population growth is expected in York Region and City of Vaughan by 2041. • Langstaff Road is identified as a primary arterial goods movement corridor in the York Region Transportation Master Plan (TMP).	

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Item	Details	Action By
	• Langstaff Road is a unique corridor compared to adjacent parallel arterials. It primarily services an employment area; whereas, Highway 7 operates as a rapid transit corridor through the growing Vaughan Metropolitan Centre and Rutherford Road generally services commuters from growing residential areas through a wide area to the north. • A number of provincial policies support the improvements of municipal transportation corridors/facilities to establish priority routes for goods movement and to provide better access to the provincial network. • A travel demand analysis (screenline analysis) was carried out to select the preferred Langstaff Road widening alternative. Based on the travel demand analysis results, widening Langstaff Road to 6 GPLs yields the most overall benefits in improving traffic operations for all road users. This was presented at the first Open House in June 2017.	
ITEM 2 –	**Previous Meeting with MTO July 26, 2017**	
2.1	Following the meeting on July 26th, 2017, MTO provided comments on the preliminary Highway 400/Langstaff Road interchange improvement concepts via email on August 8th, 2017, summarized as follows: • Concerns over the high volume of commercial vehicles using the proposed W/E-N loop ramp (i.e. heavy westbound left turn move); • Concerns over the potential need of Langstaff Road Overpass replacement due to the proposed W/E-N ramp; • Rutherford Road southbound ramp-off-a-ramp ramp terminal cannot be within the Ministry's R.O.W / ramp footing; • Double on-ramp from the Bass Pro Mills Drive E-S ramp is not permitted; and • Suggest to consider the option of extending core-collector on Highway 400 southbound further north.	
2.2	The above comments were reviewed by the Project Team and updates have been made to the interchange options accordingly. See discussion under Item 4.	
ITEM 3 –	**RECENT STUDY PROGRESS**	
3.1	K. Shah noted that WSP submitted the Model Calibration memo to MTO Traffic on July 14th, 2017 and to SAFO on July 17th, 2017.	

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Item	Details	Action By
	Subsequently, the memo was updated based on the comments provided and was re-submitted via email on September 8th, 2017.	
3.2	Aimsun based micro-simulation model was used for the traffic operational analysis, assessing the future AM and PM (2041) conditions for each Highway 400/Langstaff Road interchange improvement concept. The model includes the section of Highway 400 from Highway 407 to Major Mackenzie Drive.	
3.3	MTO requested future peak hour volumes to be submitted to SAFO and MTO Traffic. [*Post Meeting Note: MTO requested simulation files, existing peak hour counts, future peak hour volumes, delay and queues at ramp terminals and lane-by-lane speed plots via email on December 5, 2017.The simulation files were provided to MTO via email on December 8, 2017.The future peak hour volumes and delay and queues at ramp terminals were provided to MTO on December 20, 2017. The lane-by-lane speed plots will be provided once the preferred alternative is confirmed.*]	WSP
ITEM 4 –	**LANGSTAFF ROAD INTERCHANGE AT HIGHWAY 400**	
4.1	WSP incorporated MTO's comments provided in the August 8th, 2017 email and refined the preliminary Highway 400/Langstaff Road interchange improvement concepts. The following three options were considered for the traffic operational analysis: • **Option 1 – "Ramp-Off-A-Ramp" Configuration**: Under this Option, a ramp-off-a-ramp is developed along the tangent section of the Rutherford Road N-E/W ramp to provide the southbound exit movement to Langstaff Road. The ramp-off-a-ramp goes under Rutherford Road and Rutherford Road W-S ramp and continues southerly along Highway 400. Instead of connecting to Creditview Road under the original option, it crosses over Bass Pro Mills Drive, and terminates at Langstaff Road. An E/W-N loop ramp is proposed to provide access to Highway 400 northbound from Langstaff Road. • **Option 2 – Re-route of Bass Pro Mills Drive E-S Ramp:** Under this Option, the existing Bass Pro Mills Drive E-S ramp is re-routed to connect to Rutherford Road. Vehicles from Bass Pro Mills Drive will use the Rutherford Road W-S ramp to access Highway 400 southbound. In addition to the E-N loop on-ramp under the original option, a W-N direct ramp is proposed to provide access to Highway 400 northbound from Langstaff Road westbound direction. Due to the introduction of the E-N ramp, the Bass Pro Mills Drive S-E/W ramp is required to be reconfigured to avoid the potential weaving issues between these two ramps. As a result, a Langstaff Road S-E/W ramp extension is proposed to maintain the	

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Item	Details	Action By
	access to Vaughan Mills from Highway 400 in the northbound direction. The ramp extension will connect to the existing Four Valley Drive and eventually connect to the existing Bass Pro Mills Drive S-E/W ramp terminal. • **Option 3 – Hybrid Option:** This option has the same E/W-N ramp configuration under Option 1 and the same E-S ramp configuration under Option 2.	
4.2	K. Shah summarized the assumptions used in the traffic operational analysis and presented the preliminary findings as follows for the options being considered: • During the 2041 AM peak hour, there are some minor travel time savings, between 1 to 2.5 minutes, in the southbound direction and negligible travel time difference in the northbound direction. • During the 2041 PM peak hour, there is minor travel time increase, between 1 to 1.5 minutes, in the northbound direction and negligible travel time difference in the southbound direction. • At the proposed Langstaff Road E/W-N ramp terminal, the intersection operates at the Level-of-Service (LOS) 'B' during the AM Peak hour and at LOS 'C' to 'D' during the PM peak hour in 2041. The left-turn demand is approximately 631 vehicles and the right-turn demand is approximately 1,059 vehicles during the PM peak hour. • There are some minor improvements in traffic operations at the adjacent Highway 400 interchanges.	WSP
4.3	There was some discussion about the operating conditions on Highway 400 and the output shown from the Aimsun speed plots.	
4.4	York Region stressed that the proposed improvements on Langstaff Road and Highway 400 is to benefit the overall transportation network in York Region.	
4.5	MTO provided some preliminary comments on the Highway 400/Langstaff Road interchange improvement concepts and noted the following: • MTO expressed concerns with the potential adjustment to the green time at the proposed Langstaff Road E/W-N ramp terminal in real life situation due to the queuing on Langstaff Road. Traffic backup to mainline Highway 400 from the Langstaff Road S-E/W ramp as a result of insufficient green time is not acceptable. • MTO asked who will be the owner of the proposed ramp-off-a-ramp at Rutherford Road and requested to shift the ramp-off-a-ramp	

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Item	Details	Action By
	outside of MTO R.O.W. with a 14 m setback to the property line as the current alignment limits possible future widening of Highway 400. • MTO noted that any proposed improvements to the Highway 400/Langstaff Road interchange should not adversely impact the Highway 400 operations (not making the operations on Highway 400 worse comparing to without the proposed improvements). • MTO noted that while they do not oppose re-routing of the Bass Pro Mills E-S ramp to Highway 400, this may not be well received by the City of Vaughan. The Project Team will be meeting with the City of Vaughan in the near future.	
ITEM 5 –	**PROJECT SCHEDULE**	
5.1	B. Wolf noted that Open House #2 will likely be held at the end of May, 2018 to present the preferred design alternative.	
ITEM 6 –	**NEXT STEPS**	
6.1	MTO to schedule a Senior Management (SM) meeting to discuss the preliminary Highway 400/Langstaff Road interchange improvement concepts and the traffic results internally. The meeting will likely take place by the end of January, 2018. Comments on the design and traffic results will be provided to the Project Team after the SM meeting.	MTO
6.2	MTO has no concerns with the Region contacting City of Vaughan to discuss the preliminary Highway 400/Langstaff Road interchange improvement concepts presented at the meeting today and would be interested to receive the City's perspective.	WSP

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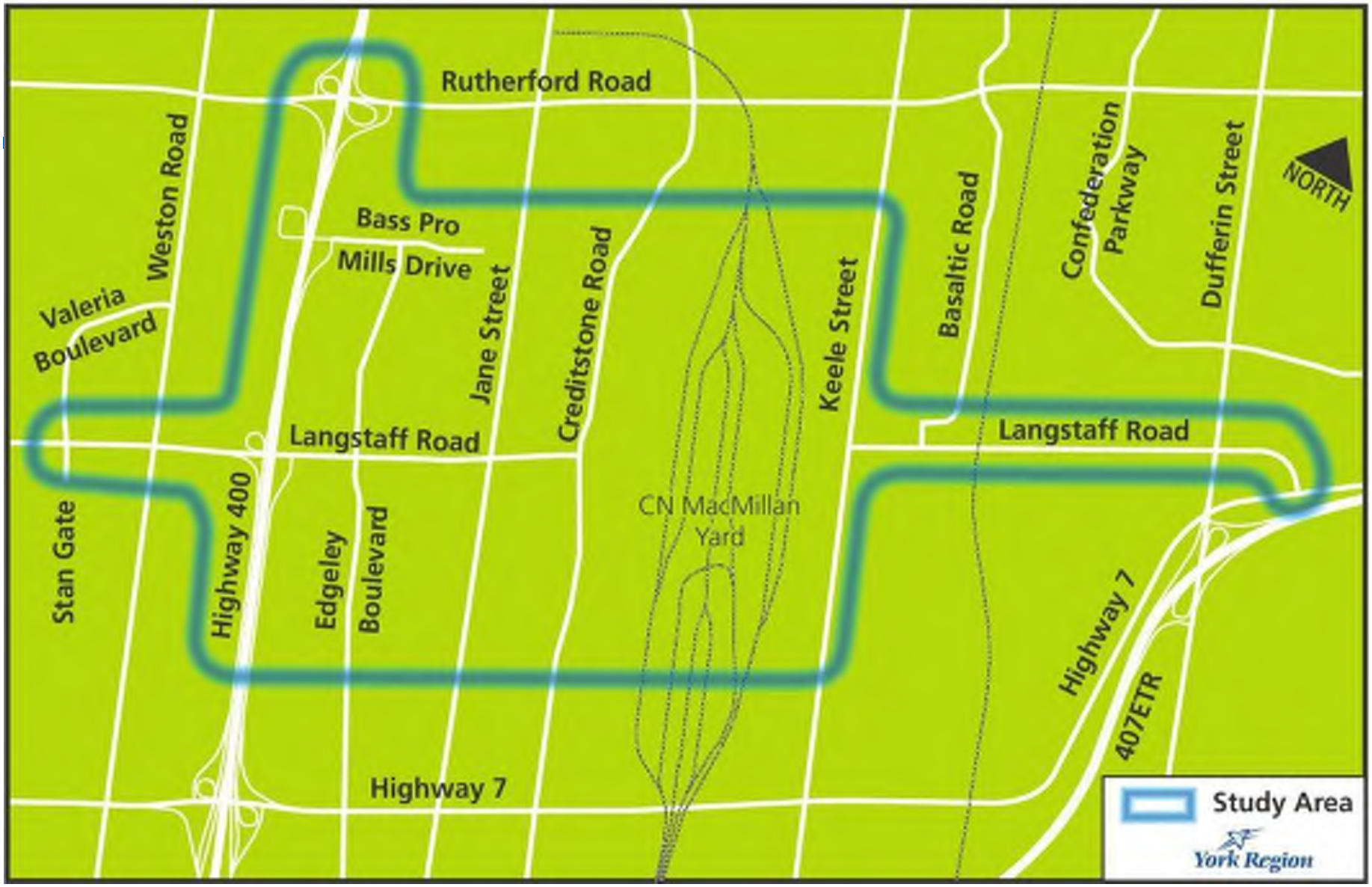
Langstaff Road
Class Environmental Assessment Study
Weston Road to Highway 7

MTO Meeting 4
November 30, 2017

Traffic Operational Analysis Preliminary Findings


GREAT | STREETS
Building Roads that Build Community

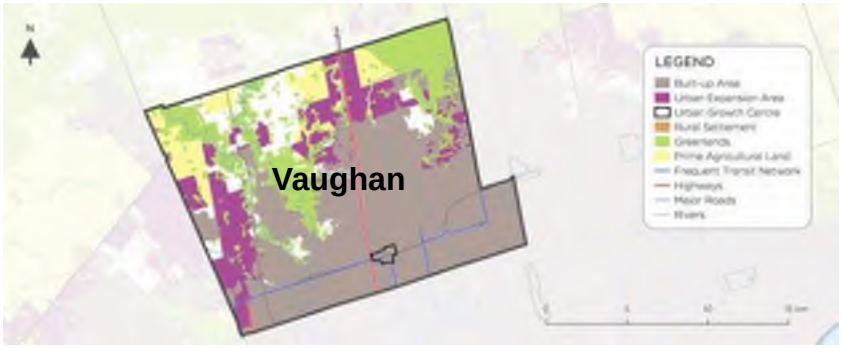
York Region


Rutherford Road
Weston Road
Bass Pro
Mills Drive
Valeria
Boulevard
Jane Street
Creditstone Road
Keele Street
Basaltic Road
Confederation
Parkway
Dufferin Street
NORTH
Langstaff Road
Langstaff Road
Stan Gate
Highway 400
Edgeley
Boulevard
CN MacMillan
Yard
Highway 7
407ETR
Highway 7
Study Area
York Region

Road Network Needs and Justification

Growth in York Region and City of Vaughan:

- Vaughan Metropolitan Centre (VMC) is a key growth area
- Urban area growth in Vaughan will increase by 50% by 2031

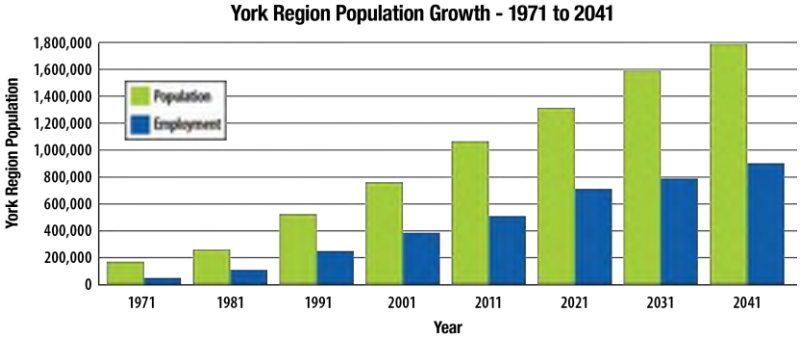


Population

1.1 million 2014 to 1.8 million 2041

Employment

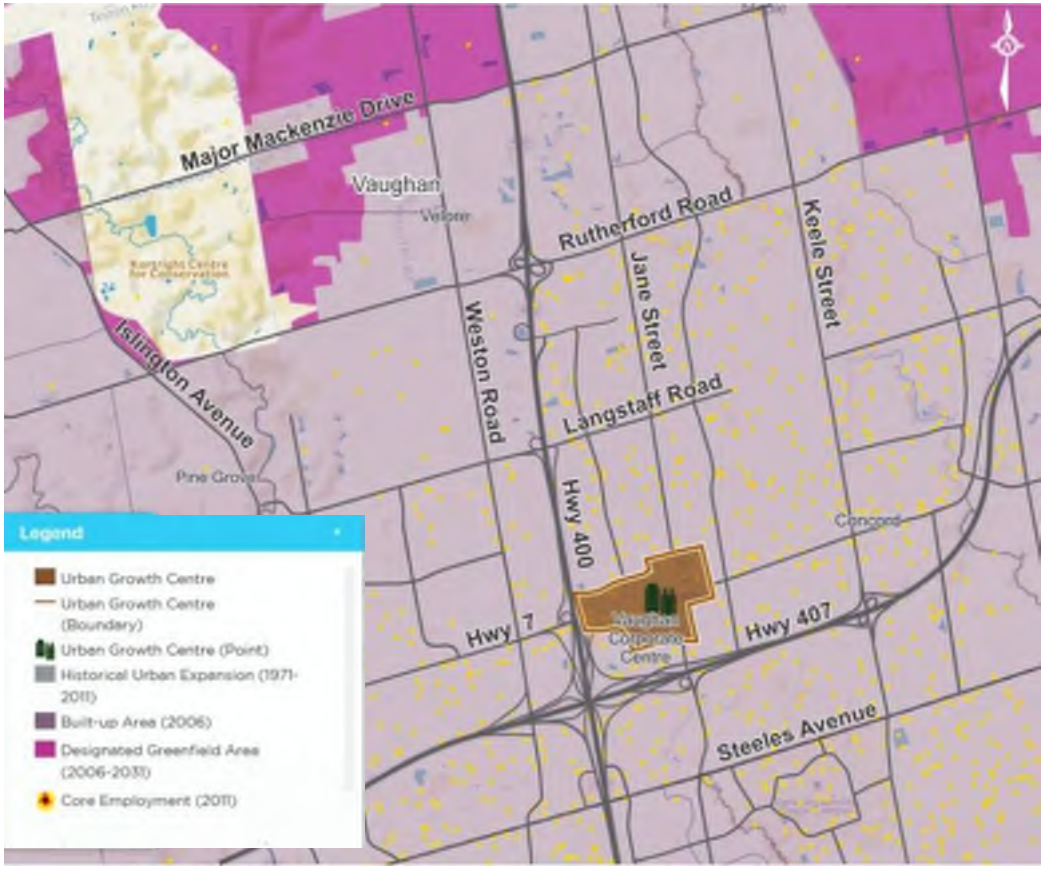
565 thousand 2014 to 900 thousand 2041



Road Network Needs and Justification

Growth in Vaughan Metropolitan Centre:

- Built up surroundings
- Limited access to and from Hwy 400 along Hwy 7
- Bass Pro Mills Drive and Langstaff Road only provide partial connection to Hwy 400



2016 Regional Transportation Master Plan

Proposed improvements around Study Area:

- Weston Road:
  - Transit/HOV lanes from Steeles Ave to Major Mackenzie Dr
- Jane Street:
  - Rapid Transit Corridor from Highway 7 to Major Mackenzie Dr
- Keele Street:
  - Transit/HOV lanes from Highway 7 to Rutherford Rd
- Dufferin Street:
  - Transit/HOV lanes from Langstaff Road to Rutherford Rd
- Rutherford Road-Carville Road-16th Avenue:
  - Transit/HOV lanes from Jane Street to McCowan Road
  - Barrie GO Rail Grade Separation east of Keele St

Supporting Goods Movement

- Provincial Policy Statement, 2014
  - Part V Policies, Section 1.6.7
    - *"Transportation systems should be provided which are safe, energy efficient, facilitate the movement of people and goods, and are appropriate to address projected needs."*
- Provincial Growth Plan, 2017
  - Section 3.2.2 – General Transportation System
    - *"To provide connectivity among transportation modes for moving people and for moving goods"*
    - *"To offer multimodal access to jobs, housing, schools, cultural and recreational opportunities, and goods and services"*

Supporting Goods Movement

- Provincial Growth Plan, 2017
  - Section 3.2.4 – Moving Goods
    1. *"Linking major goods movement facilities and corridors … and employment areas to facilitate efficient goods movement will be the first priority of highway investment."*
    2. *"The Province and municipalities will work with agencies and transportation service providers to:*
       - *co-ordinate, optimize and ensure the long-term viability of major goods movement facilities and corridors;*
       - *improve corridors for moving goods across the GGH;*
       - *promote and better integrate multimodal goods movement and freight-supportive land use and transportation system planning."*

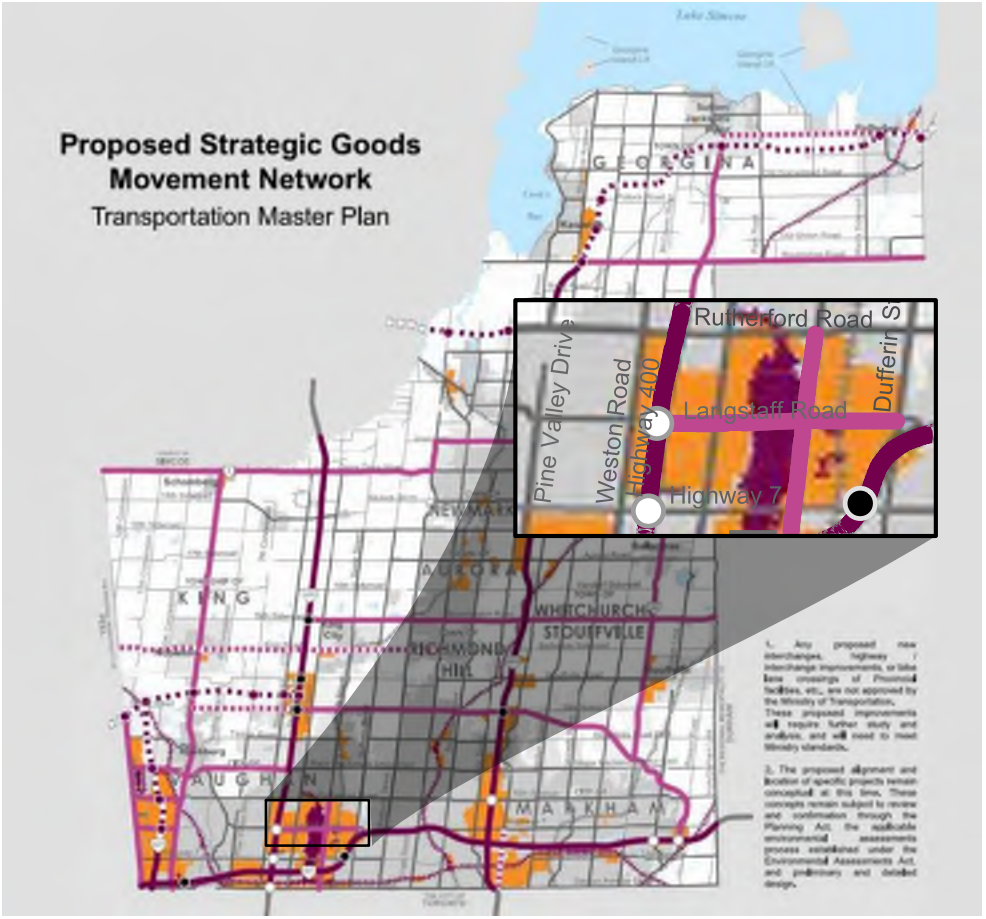
Supporting Goods Movement

- Provincial Growth Plan, 2017
  - Section 3.2.4 – Moving Goods (Continued)
    3. *"Municipalities will provide for the establishment of priority routes for goods movement, where feasible, to facilitate the movement of goods into and out of employment areas, including prime employment areas, and other areas of significant commercial activity and to provide alternate routes connecting to the provincial network."*

Supporting Goods Movement

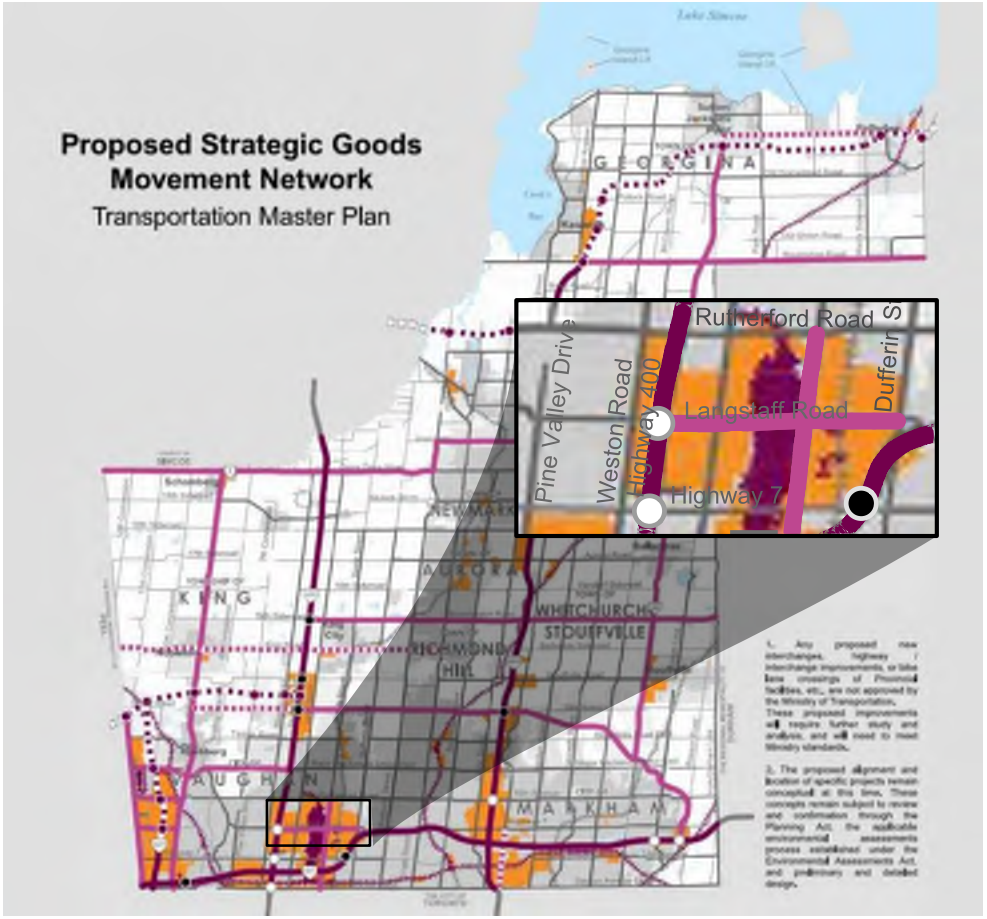
Regional Strategic Goods Movement Network tiers:

1. Highway goods movement corridor
2. Primary arterial goods movement corridor
3. Secondary goods movement corridor

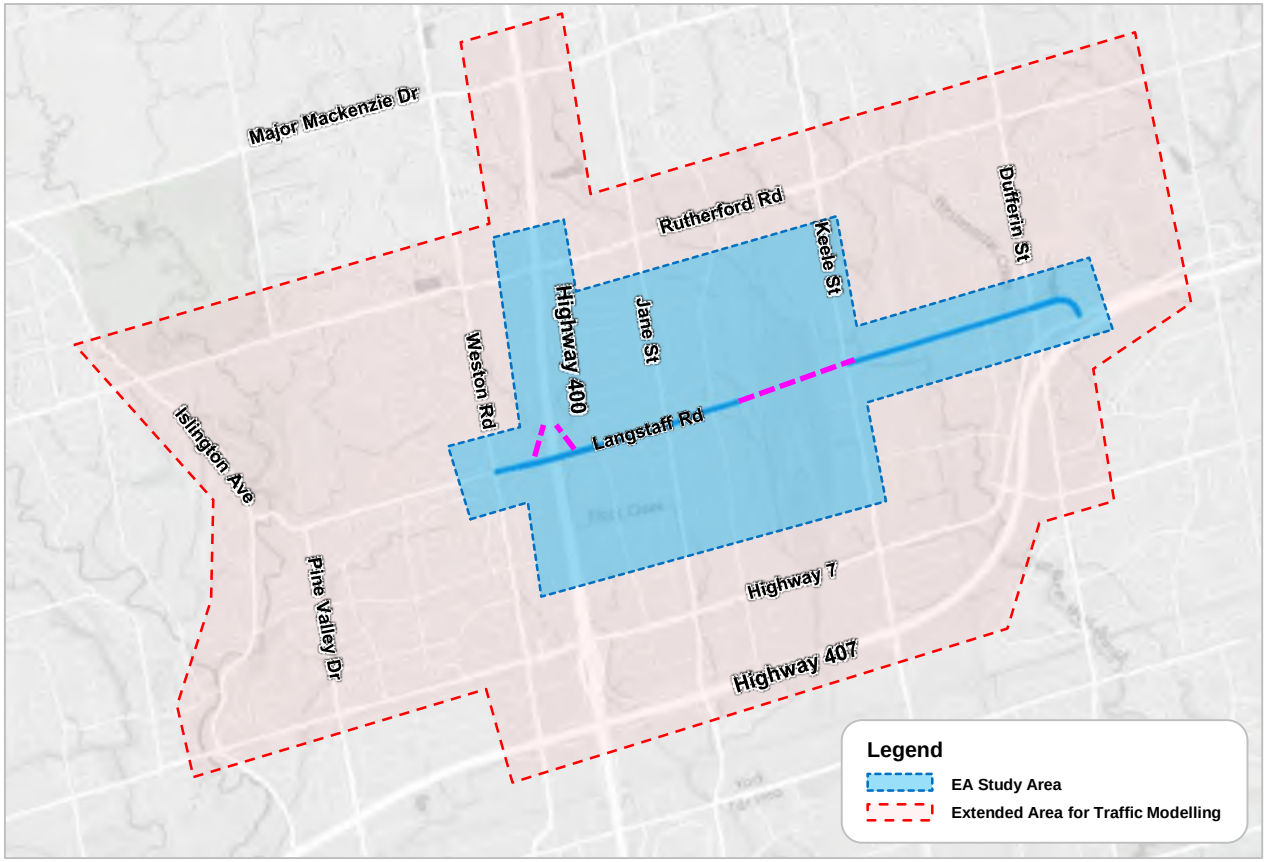


Supporting Goods Movement

Langstaff Road is identified as a **Primary Arterial Goods Movement Corridor** between Highway 400 and Dufferin Street and is surrounded by employment areas



Travel Demand Analysis Study Area



Land Use Projections

	2016		2031		2041	
	Population	Employment	Population	Employment	Population	Employment
Total within Extended Study Area	135,698	132,969	163,771	147,317	183,388	154,521
Increase from 2016	-	-	28,074	14,348	47,691	21,552
Average Annual Growth Rate (from 2016)	**-**	**-**	**1.4%**	**0.7%**	**1.4%**	**0.6%**

Note: Based on the staff preferred growth scenario presents 45% intensification, presented in November 2015 as part of the Region's municipal

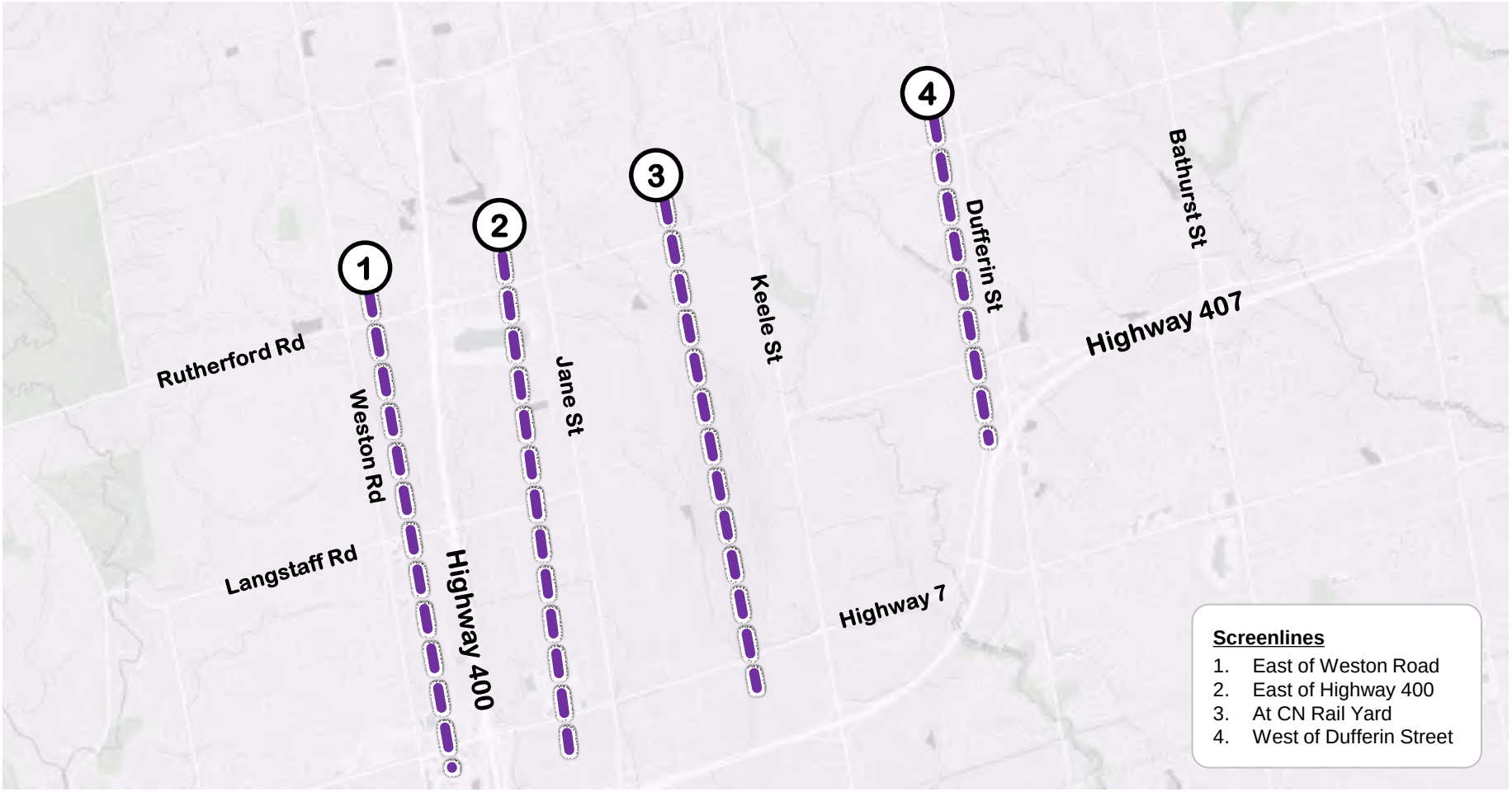
Travel Demand Analysis

- Based on York Region's Travel Demand Forecasting (YRTDF) model
- Assessed the Future (2041) Planning Horizon Year, AM Auto Peak Hour
- Total auto trip demand split into SOV, HOV2, HOV2+ using carpool data derived from the 2011 Transportation Tomorrow Survey (TTS)

Travel Demand Analysis Scenarios

Scenario	Existing Langstaff Road	Langstaff Connection over CN Yard	Highway 400 Interchange
1: Base Case (No-Build)	No Change	No Link	No Change
2: Langstaff East Improvements	4GPL (between Keele & Dufferin)	No Link	No Change
3: Build Langstaff Connection	4GPL+2HOV	4GPL+2HOV	No Change
4: Build Langstaff Connection and Interchange Improvement	4GPL+2HOV	4GPL+2HOV	Convert to Full IC
5. Build Langstaff Connection and Interchange Improvement	6 GPL	6 GPL	Convert to Full IC

Screenline Locations



Screenline Capacity Analysis Results

	Existing (2016)	Future (2041) Conditions				
		Scenario 1 (Base Case)	**Scenario 2** (Widen East Segment of 4GPL)	**Scenario 3** (Widen to 4GPL+2HOV)	**Scenario 4** (Scenario 3 + Hwy 400 IC Improvements)	**Scenario 5** (Widen to 6GPL + Hwy 400 IC Improvements)
N-S Screenline V/C						
1.East of Weston Rd	0.98	1.08	1.08	1.05	1.07	1.05
2. East of Hwy 400	1.03	1.10	1.10	1.10	1.10	1.08
3. At CN Rail Yard	1.06	**1.15**	**1.16**	1.01	1.01	0.98
4. West of Dufferin St	0.95	1.04	0.98	1.01	1.01	0.99
Link V/C @ CN Yard						
Rutherford Rd	**1.25**	**1.22**	**1.27**	1.07	1.07	1.06
Langstaff Rd	-	-	-	1.00	1.00	0.95
Highway 7	0.94	1.09	1.08	0.97	0.97	0.95

MTO Comments

MTO provided comments on the preliminary Langstaff Road interchange improvement concepts, presented at the meeting on July 25, 2017:

- Concerns over the high volume of commercial vehicles using the proposed W/E-N loop ramp
- Concerns over the potential need of Langstaff Road Overpass replacement due to the proposed W/E-N ramp
- Rutherford Road southbound ramp-off-a-ramp ramp terminal cannot be located within the ministry's R.O.W / ramp footing
- Double on-ramp from the Bass Pro Mills Drive E-S ramp is not permitted
- Suggest to consider the option of extending core-collector on Highway 400 southbound further north

Traffic Analysis Progress Update

Since previous meetings with MTO:

- Future (2041) conditions for both AM & PM Conditions were assessed using *Aimsun* based micro-simulation model
- Submitted memos documenting Model Calibration and summary of proposed modelling approach
- Three Langstaff Road Interchange improvement options considered (inclusive of the 6-GPL connection and planned HOV lanes on Highway 400):
  - Option 1 - “Ramp-Off-Ramp” Configuration
  - Option 2 - Re-route of Bass Pro Mills Ramps
  - Option 3 - Hybrid Interchange Configuration

Option 1: “Ramp-Off-Ramp” Configuration

Option 2: Re-Route of Bass Pro Mills Ramps

Option 3: Hybrid Interchange Configuration

Micro-simulation Assumptions

- Incorporated demand from the YRTDF model
  - Provides traffic demand for AM peak hour only
  - Does not differentiate traffic demands for HOVs
- For the analysis of Langstaff Road EA Study:
  - PM peak hour traffic demand was estimated using traffic counts and matrix adjustments
  - HOV demand estimated using Transportation Tomorrow Survey (TTS) data
  - Commercial vehicle demand added and was assumed as 7% (AM) and 5% (PM) of total auto demand

Preliminary Traffic Analysis Findings

Future 2041 AM Travel Times

Scenario	AM Peak Hour (mm:ss)		Remarks
	Northbound	Southbound	
No-Build	8:47	16:15	
Option 1: Ramp-Off-Ramp	8:56	13:50 (▼ 2:25 vs No Build)	**NB:** negligible increase in travel time **SB:** reduce travel time, mainline demand reduced (vs No Build) due to ramp extension off the Rutherford Road exit
Option 2: Re-Route of Bass Pro Mills Ramps	8:48	14:46 (▼ 1:29 vs No Build)	**NB:** negligible increase in travel time **SB:** reduce travel time, mainline demand reduced (vs No Build) due to proposed east service road
Option 3: Hybrid	8:50	15:24 (▼ 0:50 vs No Build)	**NB:** negligible increase in travel time **SB:** negligible decrease in travel time. Mainline operation slightly improves (vs No Build) due to traffic redistribution

Note: Future 2041 simulated travel times measured for Highway 400 from south of Steeles Ave to north of Major Mackenzie Dr

Preliminary Traffic Analysis Findings

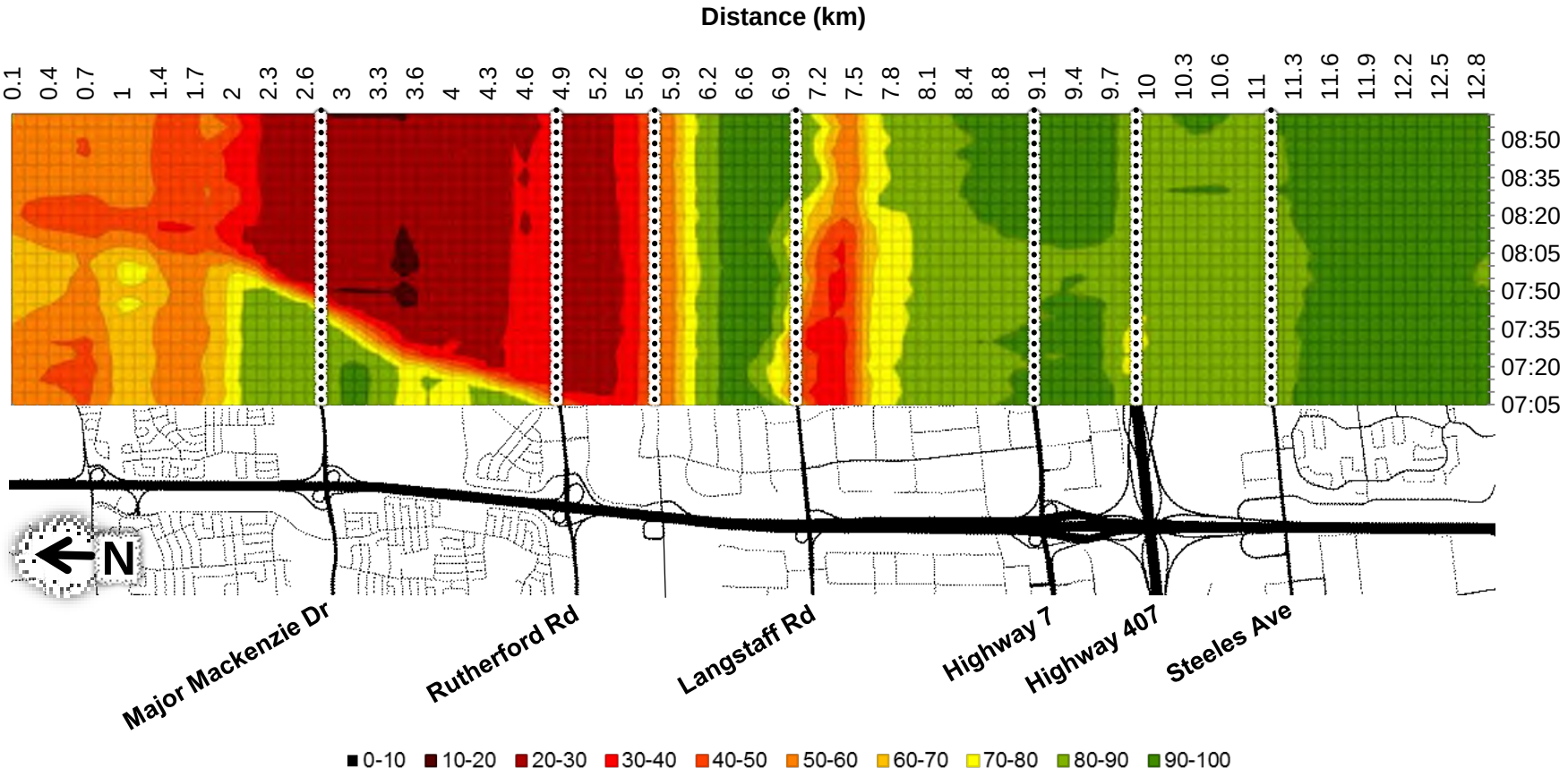
Future 2041 AM Average Speeds

Scenario	AM Peak Hour (km/h)		Remarks
	Northbound	Southbound	
No-Build	86.5	48.3	
Option 1: Ramp-Off-Ramp	85.2	56.7 (▲ 8.5 km/h vs No Build)	**NB:** negligible change in speed **SB:** Increase in speed. Mainline demand reduced (vs No Build) due to ramp extension off the Rutherford Road exit
Option 2: Re-Route of Bass Pro Mills Ramps	86.6	53.1 (▲ 4.8 km/h vs No Build)	**NB:** negligible increase in speed **SB:** Increase in speed. Mainline demand reduced (vs No Build) due to proposed east service road
Option 3: Hybrid	86.1	50.8 (▲ 2.6 km/h vs No-Build)	**NB:** negligible decrease in speed **SB:** negligible increase in speed. Mainline operation slightly improves (vs No Build) due to traffic redistribution

Note: Future 2041 simulated travel times measured for Highway 400 from south of Steeles Ave to north of Major Mackenzie Dr

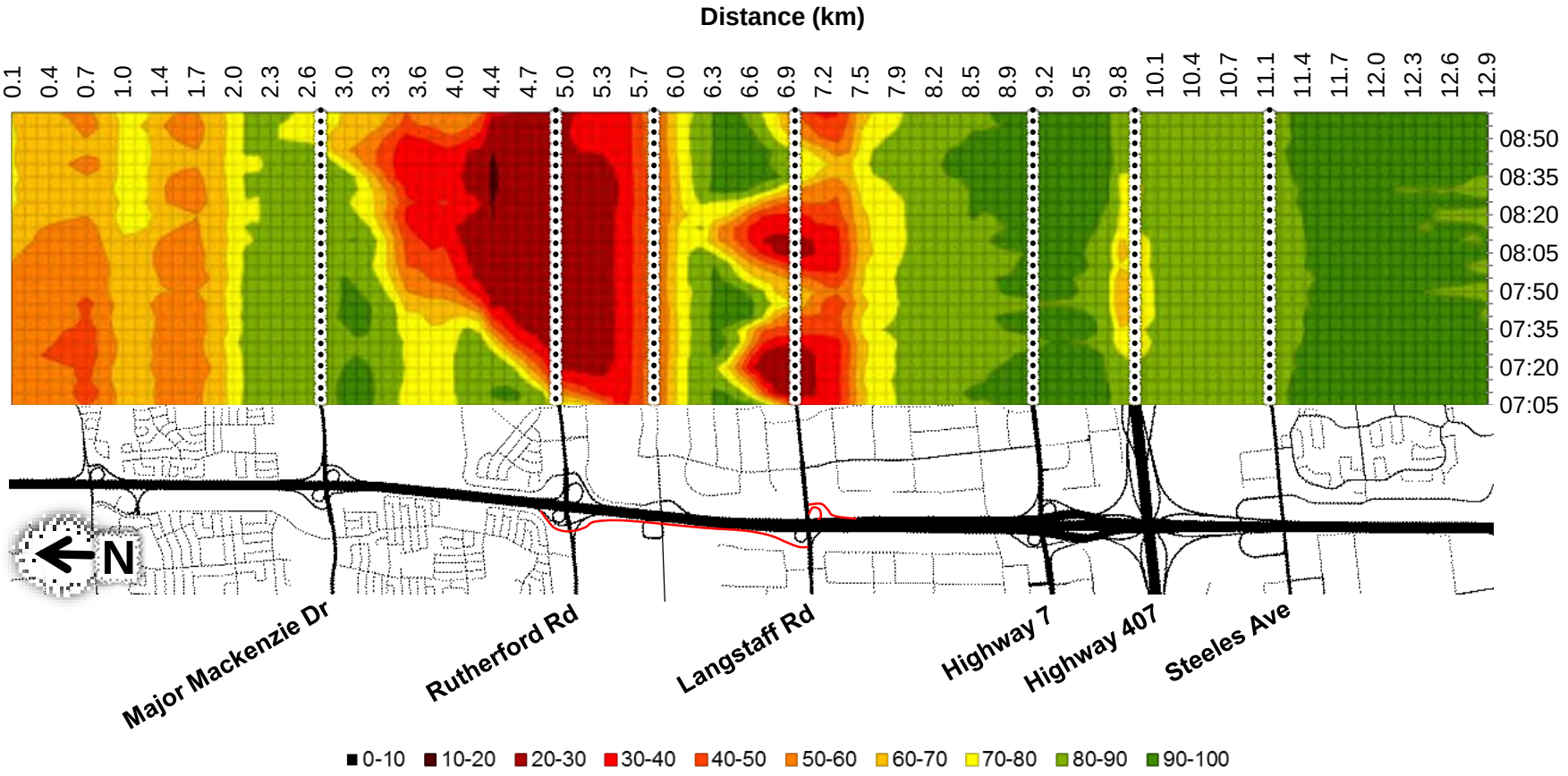
Future 2041 Speed Contour Plots

No-Build AM – SB Direction



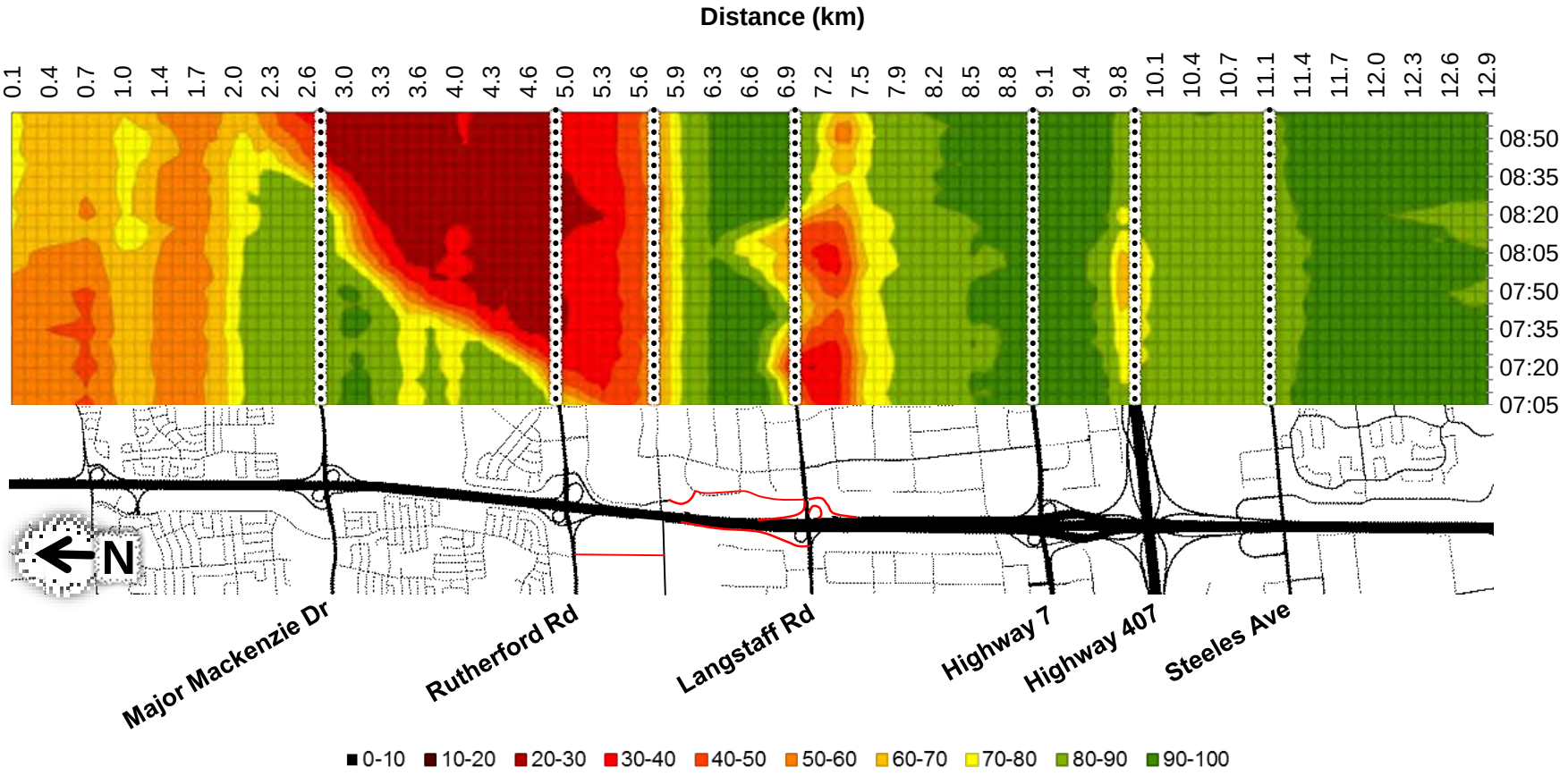
Future 2041 Speed Contour Plots

Interchange Option 1 (Ramp-off-Ramp) AM – SB Direction



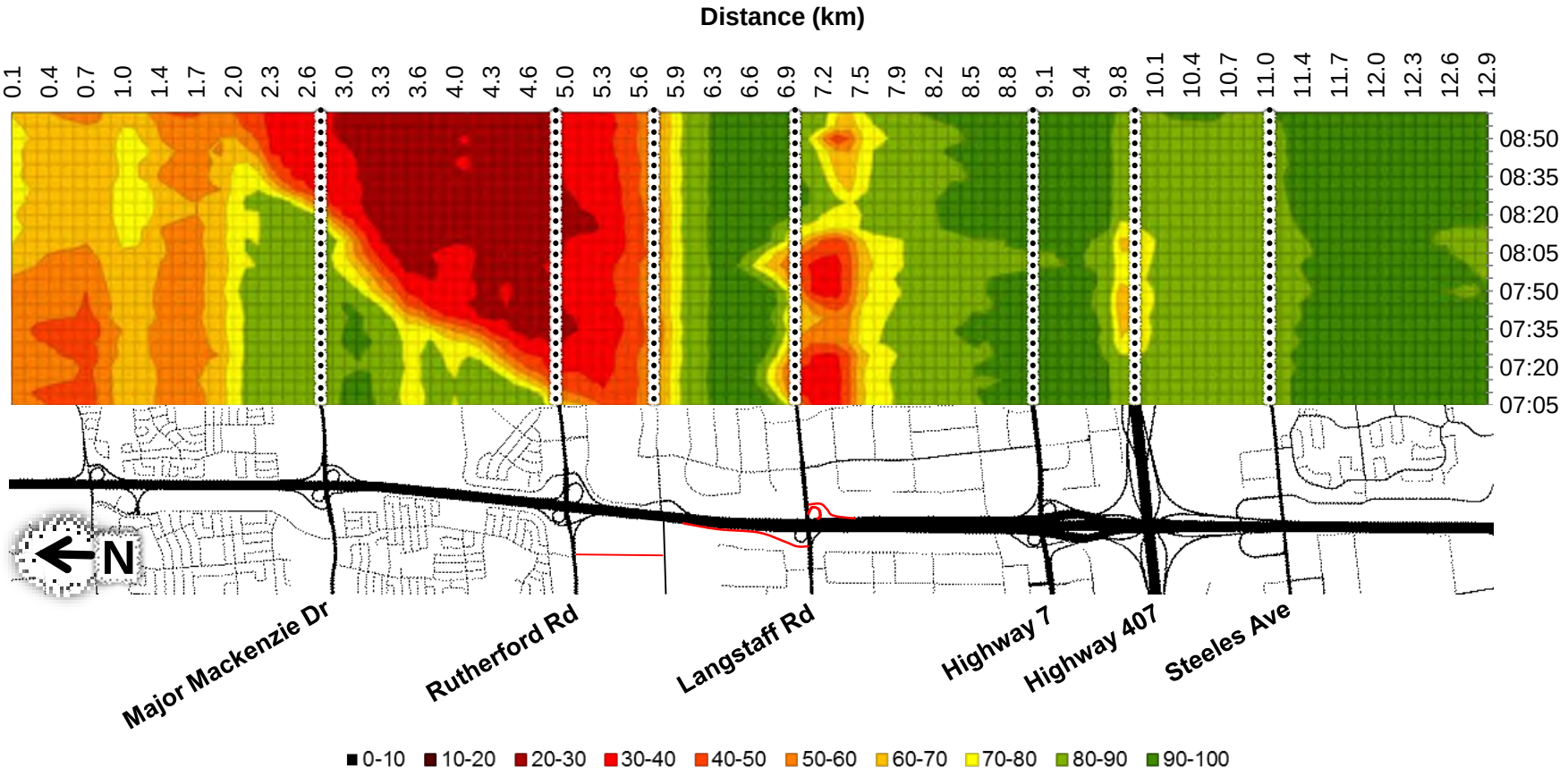
Future 2041 Speed Contour Plots

Interchange Option 2 (Re-route Bass Pro Mills) AM – SB Direction



Future 2041 Speed Contour Plots

Interchange Option 3 (Hybrid) AM – SB Direction



Preliminary Traffic Analysis Findings

Future 2041 PM Travel Times

Scenario	PM Peak Hour (mm:ss)		Remarks
	Northbound	Southbound	
No-Build	12:00	9:13	
Option 1: Ramp-Off-Ramp	13:11 (▲ 1:10 vs No-Build)	9:07	**NB:** minor increase in travel time. Additional mainline demand from proposed Langstaff Road loop on-ramp **SB:** negligible decrease in travel time
Option 2: Re-Route of Bass Pro Mills Ramps	13:25 (▲ 1:24 vs No-Build)	8:58	**NB:** increase in travel time. Additional mainline demand from proposed Langstaff Road direct & loop on-ramps **SB:** negligible decrease in travel time
Option 3: Hybrid	13:06 (▲ 1:05 vs No-Build)	9:01	**NB:** minor increase in travel time. Additional mainline demand from proposed Langstaff Road loop on-ramp **SB:** negligible decrease in travel time

Note: Future 2041 simulated travel times measured for Highway 400 from south of Steeles Ave to north of Major Mackenzie Dr

Preliminary Traffic Analysis Findings

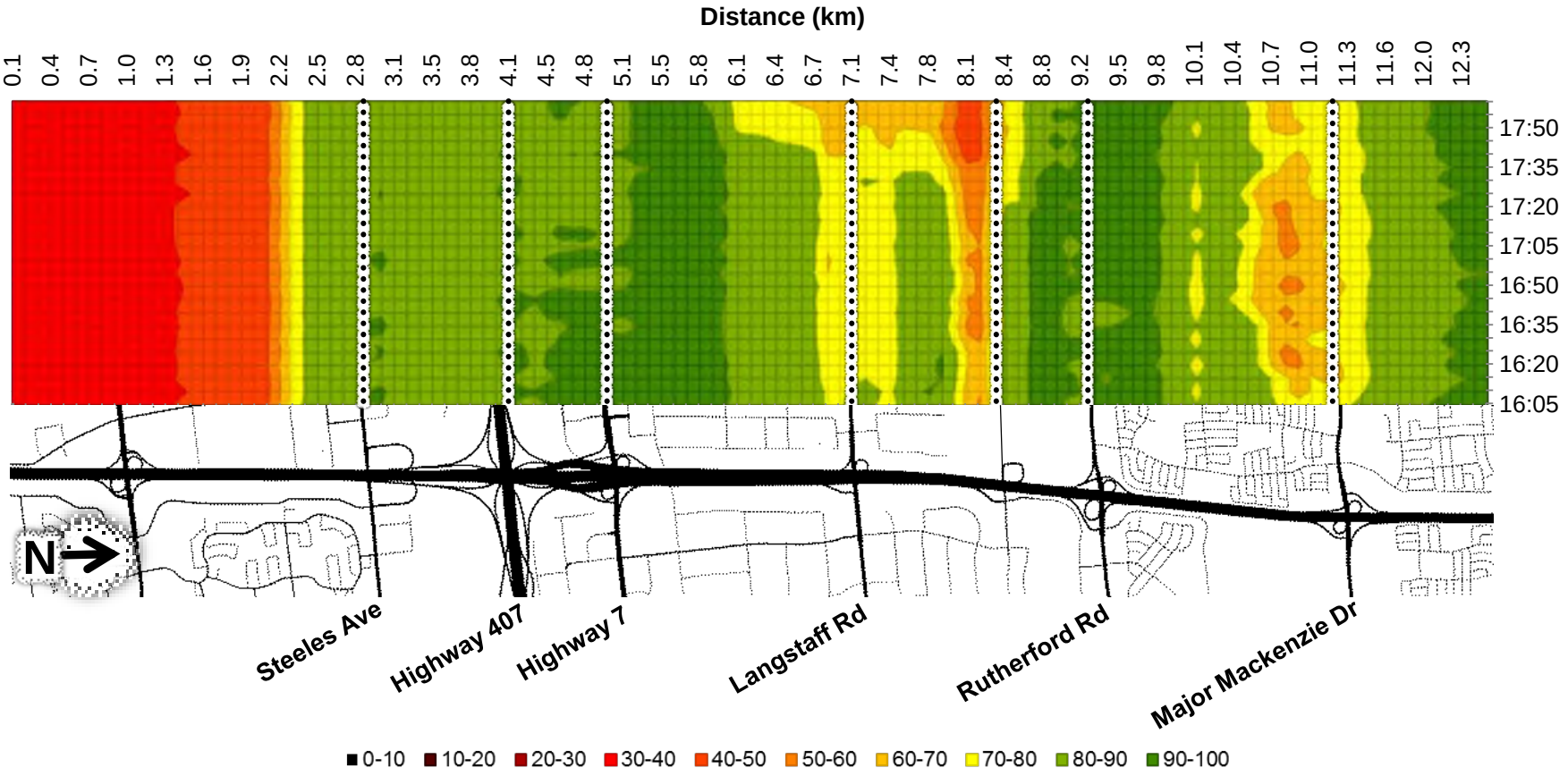
Future 2041 PM Average Speeds

Scenario	PM Peak Hour (km/h)		Remarks
	Northbound	Southbound	
No-Build	63.4	85.1	
Option 1: Ramp-Off-Ramp	57.7 (▼ 5.7 km/h vs No-Build)	86.0	**NB:** decrease in speed. Additional mainline demand from proposed Langstaff Road loop on-ramp **SB:** negligible increase in speed
Option 2: Re-Route of Bass Pro Mills Ramps	56.8 (▼ 6.6 km/h vs No-Build)	87.3	**NB:** decrease in speed. Additional mainline demand from proposed Langstaff Road direct & loop on-ramps **SB:** negligible increase in speed
Option 3: Hybrid	58.1 (▼ 5.3 km/h vs No-Build)	86.9	**NB:** minor speed decrease. Additional mainline demand from proposed Langstaff Road loop on-ramp **SB:** negligible increase in speed

Note: Future 2041 simulated travel times measured for Highway 400 from south of Steeles Ave to north of Major Mackenzie Dr

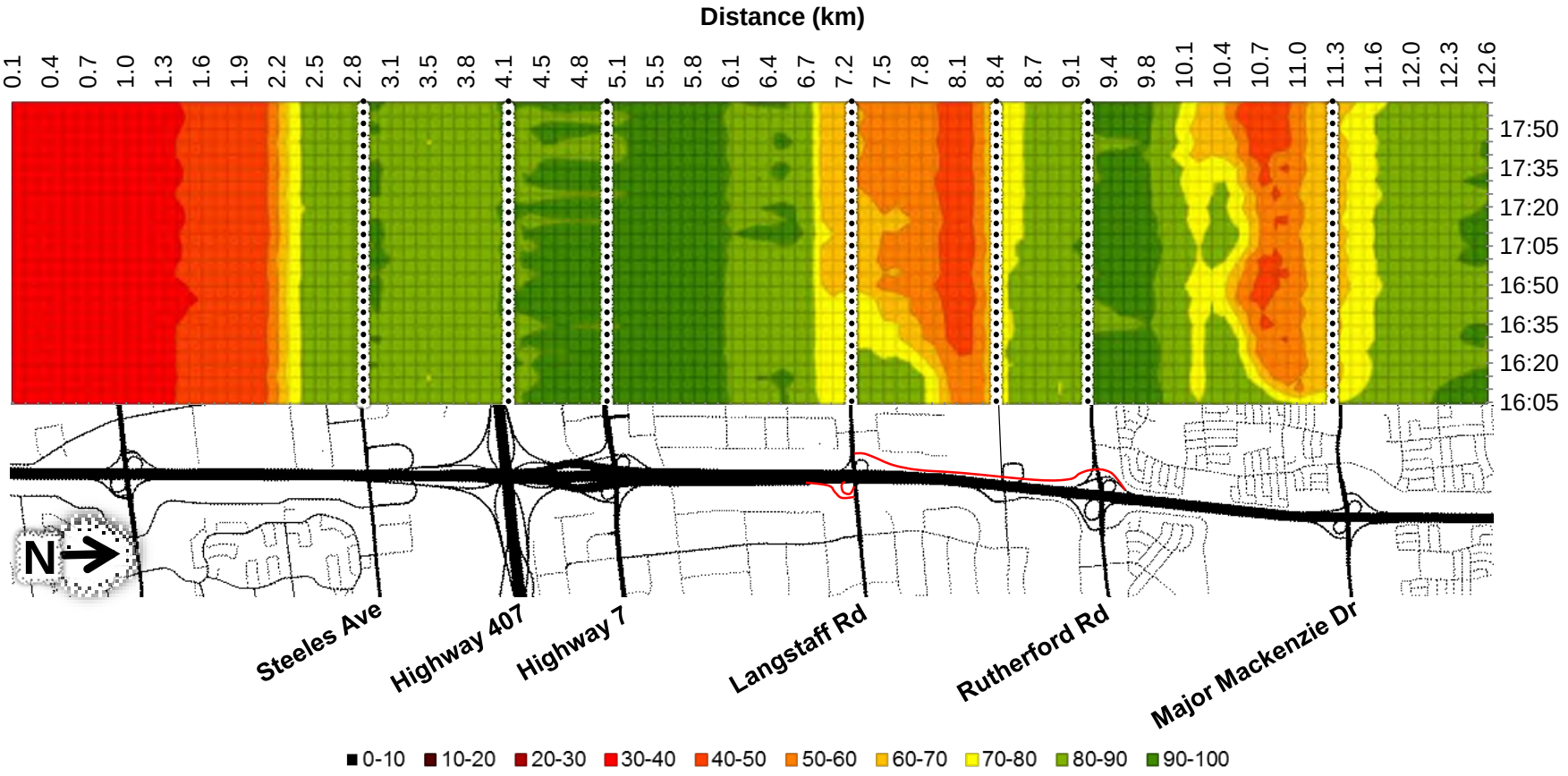
Future 2041 Speed Contour Plots

No-Build PM – NB Direction



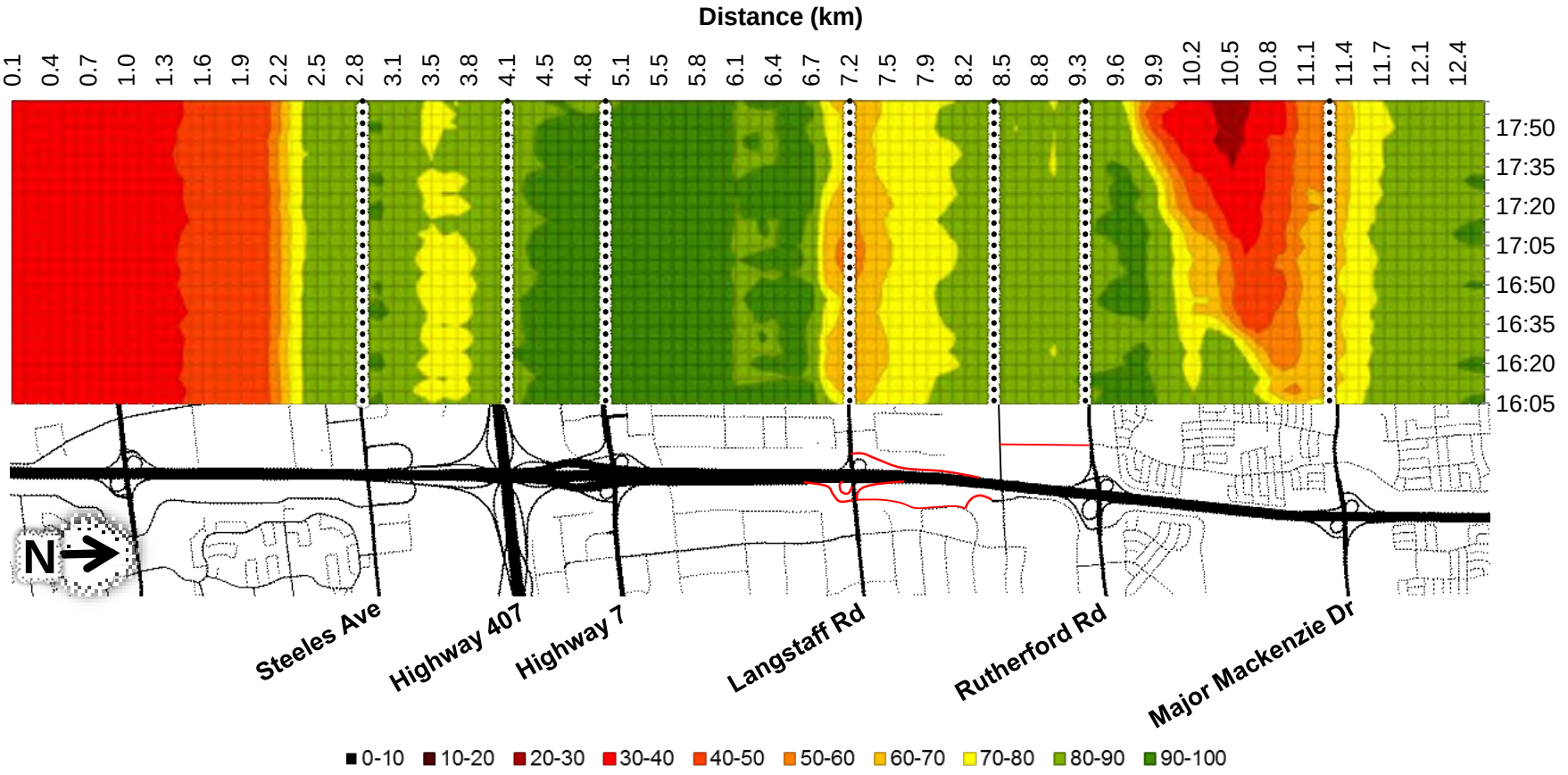
Future 2041 Speed Contour Plots

Interchange Option 1 (Ramp-off-Ramp) PM – NB Direction



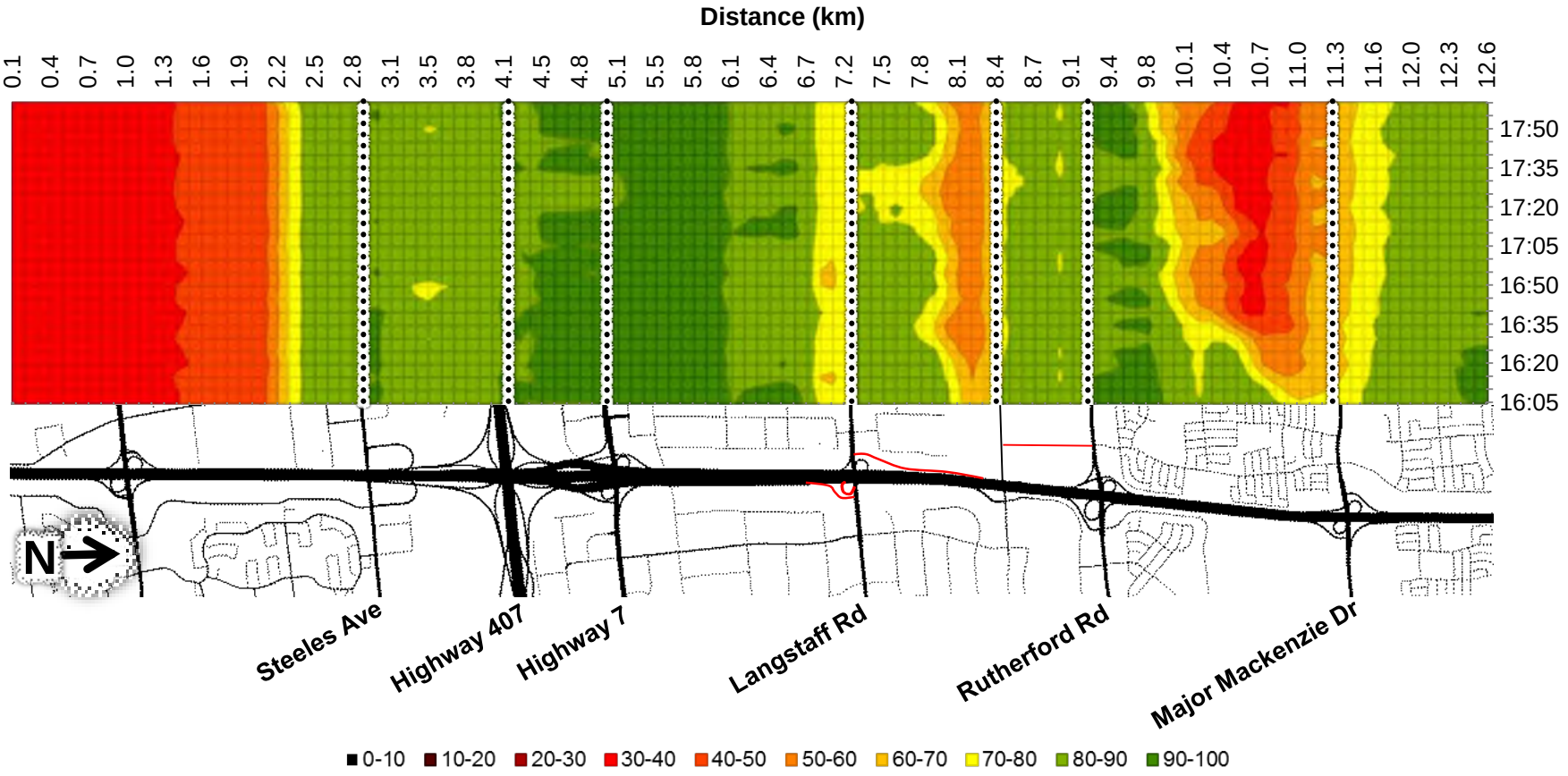
Future 2041 Speed Contour Plots

Interchange Option 2 (Re-route Bass Pro Mills) PM – NB Direction



Future 2041 Speed Contour Plots

Interchange Option 3 (Hybrid) PM – NB Direction



Findings

Future 2041 Highway Operations

AM Peak

- Traffic demand reduction and redistribution in the options relative to No-Build in southbound direction
- Minor travel time savings between 1 to 2.5 minutes in the southbound direction (peak); negligible difference in northbound direction (off-peak)

PM Peak

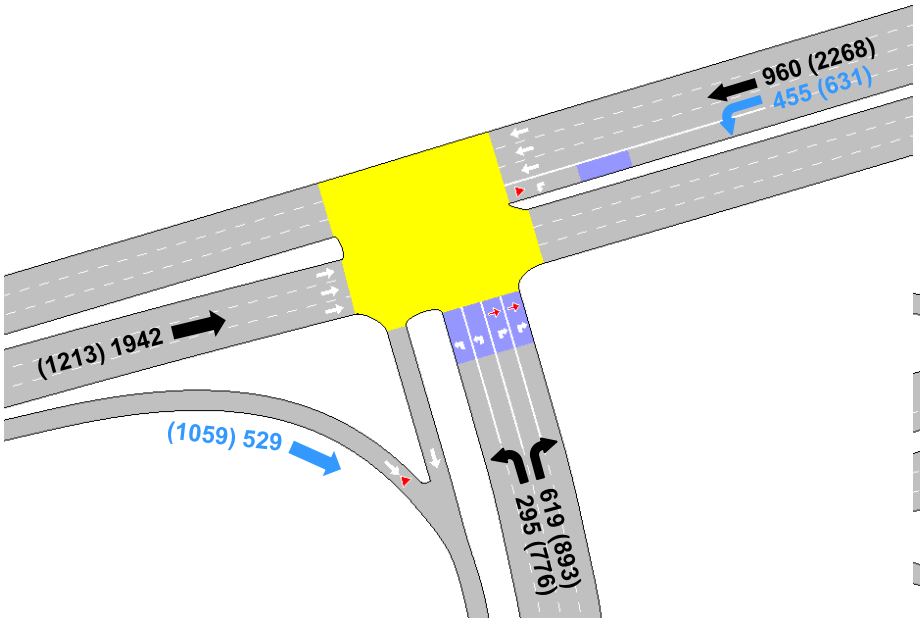
- Increase in demand in northbound direction
- Minor travel time increases between 1 to 1.5 minutes in the northbound direction (peak); negligible difference in southbound direction (off-peak)

Highway 400 Interchange at Langstaff Road

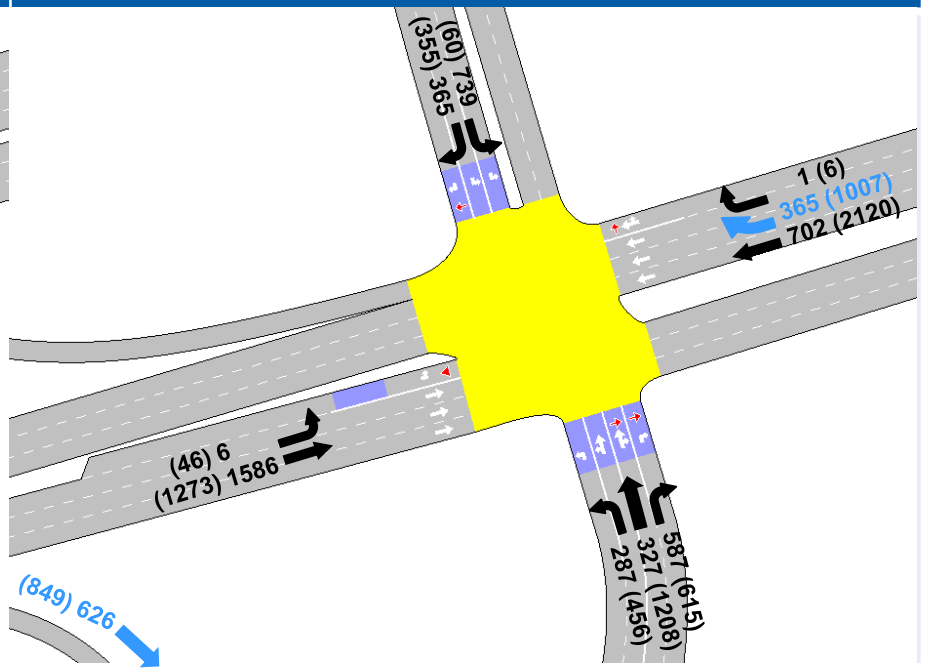
East Ramp Terminal

Proposed access to Highway 400 NB from Langstaff Road expected to be heavily used

Loop Ramp Only (Options 1 & 3)



Loop + Direct Ramps (Option 2)



Highway 400 Interchange at Langstaff Road

East Ramp Terminal

Overall Future (2041) Intersection Performance:

	AM Peak Hour		PM Peak Hour	
	Loop Only	Loop + Direct	Loop Only	Loop + Direct
Delay	15-20 s	~30	30-45 s	~40 s
LOS	B	C	C-D	D

Forecasted WBL Performance (Loop Only Option):

	AM Peak Hour	PM Peak Hour
Delay	40-50 s	90-100 s
LOS	D	F
95th Percentile Queue	90-100 m	200-300 m

Highway 400 Interchanges Near Study Area

Ramp Terminal Intersection Operations

Overall Intersection Delays:

Interchange	Ramp Terminal	AM Peak Hour				PM Peak Hour			
		No Build	Option 1	Option 2	Option 3	No Build	Option 1	Option 2	Option 3
Highway 400 at Major Mackenzie Dr	West	46	43	51	44	13	13	14	14
	East	71	20	20	20	22	25	23	25
Highway 400 at Rutherford Rd	West	16	11	21	16	23	20	18	17
	East	37	33	40	36	44	44	41	34
Highway 400 at Highway 7	West	26	23	24	24	35	32	28	29
	East	19	21	21	21	26	19	22	20

Surrounding Arterial Road Intersections

Overall Intersection Delays:

Intersection	AM Peak Hour				PM Peak Hour			
	No Build	Option 1	Option 2	Option 3	No Build	Option 1	Option 2	Option 3
Rutherford Rd at Weston Rd	53	55	89	143	57	73	65	58
Rutherford Rd at Jane St	38	37	36	36	64	79	66	67
Rutherford Rd at Keele St	58	61	59	60	263	39	36	40
Rutherford Rd at Dufferin St	64	72	69	72	140	148	148	153
Highway 7 at Weston Rd	54	56	46	43	86	74	58	60
Highway 7 at Jane St	48	44	44	45	103	56	55	51
Highway 7 at Keele St	42	38	39	39	79	49	48	49

Summary

Widening Langstaff Road to six lanes and provision of the connection across the CN Yard

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

Summary

Highway 400 Interchange Improvements

- Addresses traffic congestion within the overall transportation network
- Minor peak direction travel time reduction in AM; Minor increase in PM
- Minor improvement in traffic operations at the adjacent Highway 400 interchanges
- Supports Regional and Provincial Goods Movement strategies

Next Steps…

- Confirm design alternatives
- WSP to provide traffic analysis report, summarizing modeling results
- Conduct evaluation of interchange alternatives
- Identify ‘preferred’ interchange alternative

Thank You…

Langstaff Road Class EA Study - Meeting #5 with Ministry of Transportation (MTO)

March 22, 2018

York Region and MTO only

Langstaff Road
Class Environmental Assessment Study
Weston Road to Highway 7

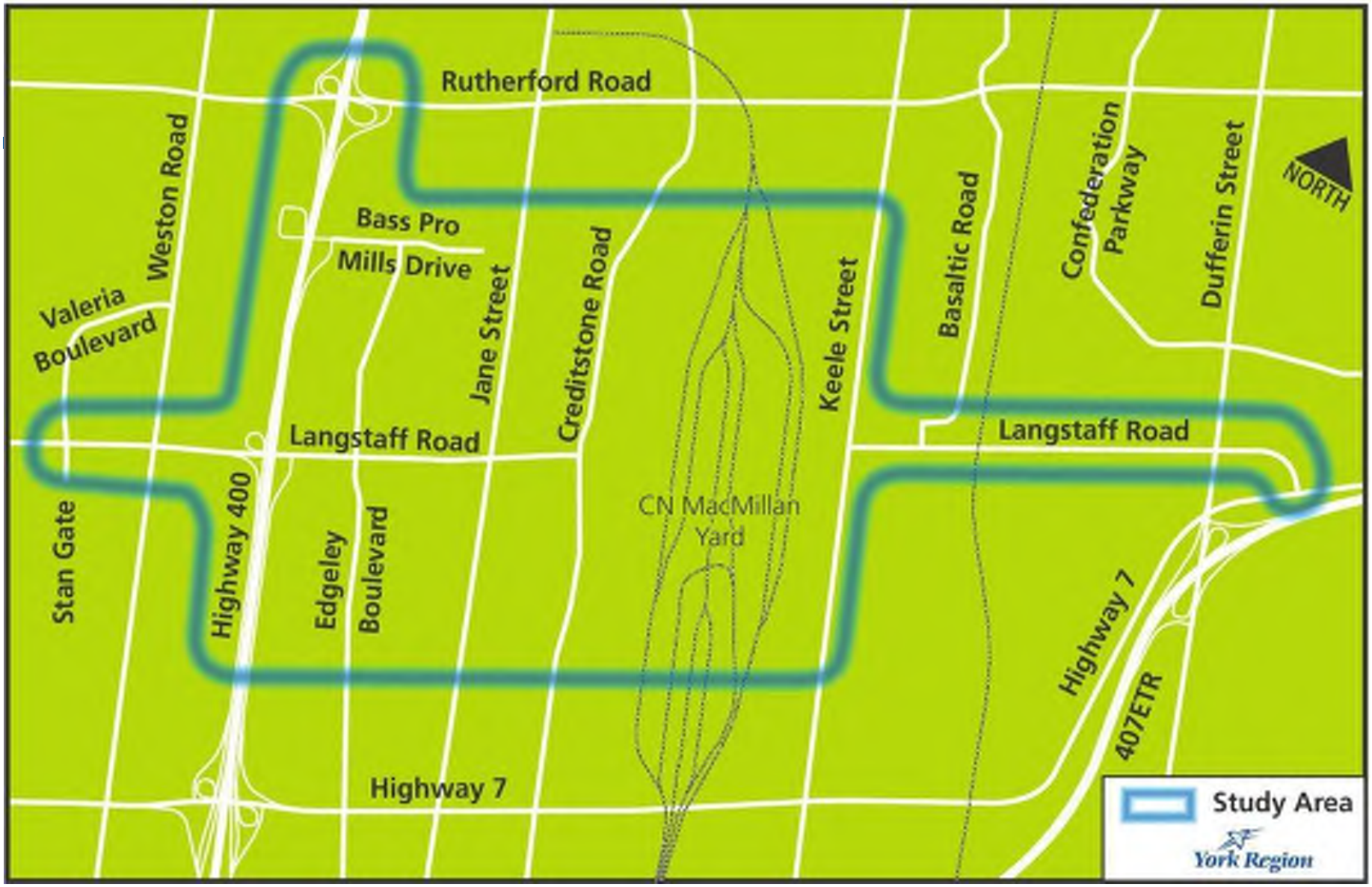
Ministry of Transportation Meeting
March 22, 2018


GREAT | STREETS
Building Roads that Build Community

York Region

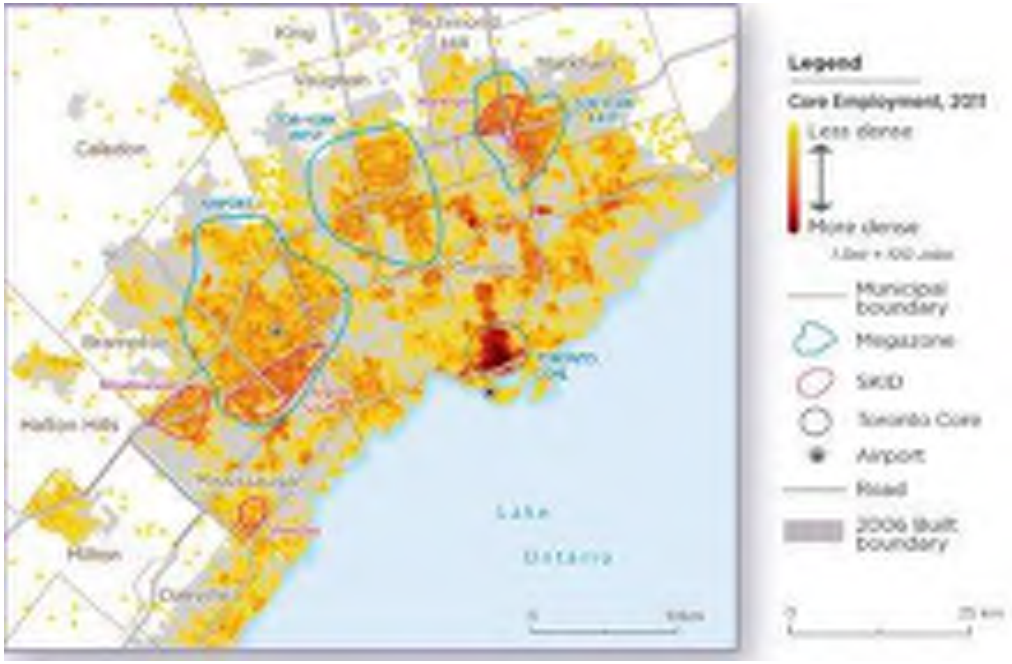
Agenda

- Introductions
- Project Scope and Key Features
- MTO Involvement / Input to Date
- Hwy 400 Interchange Options
- Microsimulation Analysis Outcomes
- Next Steps


Rutherford Road
Weston Road
Bass Pro
Mills Drive
Valeria
Boulevard
Jane Street
Creditstone Road
Keele Street
Basaltic Road
Confederation
Parkway
Dufferin Street
NORTH
Langstaff Road
Langstaff Road
Stan Gate
Highway 400
Edgeley
Boulevard
CN MacMillan
Yard
Highway 7
407ETR
Highway 7
Study Area
York Region

Growth in Vaughan - Employment

- One of the “megazones” in the GTA for employment
- Dense employment areas along Hwy 400, Hwy 7 and within the study area

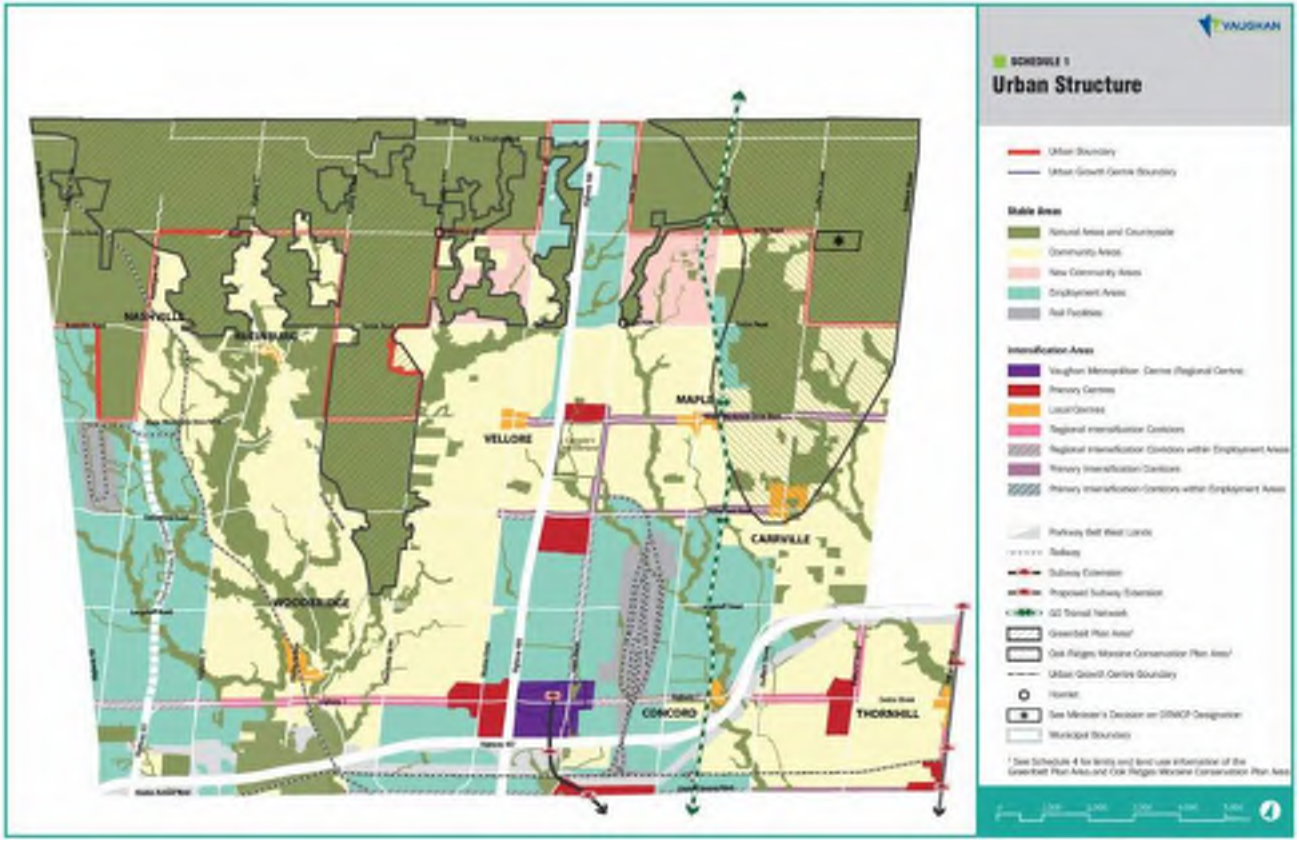


Source: Neptis Foundation Report – Planning for Prosperity , Map 9

Growth in Vaughan – Land Uses

A number of **growth centres** in close proximity to the study area:

- Vaughan Metropolitan Centre
- Vaughan Mills Centre
- Concord GO Centre
- Weston Road / Highway 7
- Carrville Centre



Growth in the City of Vaughan

Vaughan Metropolitan Centre

- 179 hectare site
- Adjacent to Hwy 400 and Hwy 407
- Vaughan Metropolitan Centre mobility hub
- 12,000 residences
- 11,500 employment

Vaughan Mills Centre

- 146.4 hectare site
- Between Rutherford Rd and Bass Pro Mills Dr adjacent to Hwy 400
- Potential for a complete, walkable and mixed-use community.
- 4,300 residences
- 10,900 employment

Concord GO Centre

- 162 hectare site
- Adjacent to Hwy 7 and Hwy 407
- Plans for mixed-use, higher density developments
- Supports Inter-Urban transit land use
- 4,000 to 8,000 residences
- 8,000 to 10,000 employment

VMC: Vaughan's New Downtown

VMC is a designated **"Urban Growth Centre" in the P*rovince of Ontario's Places to Grow* (2017)** and is expected to accommodate more than 25,000 residents in 12,000 residential units along with 11,000 jobs in the coming decades

Regional Road Truck Volumes

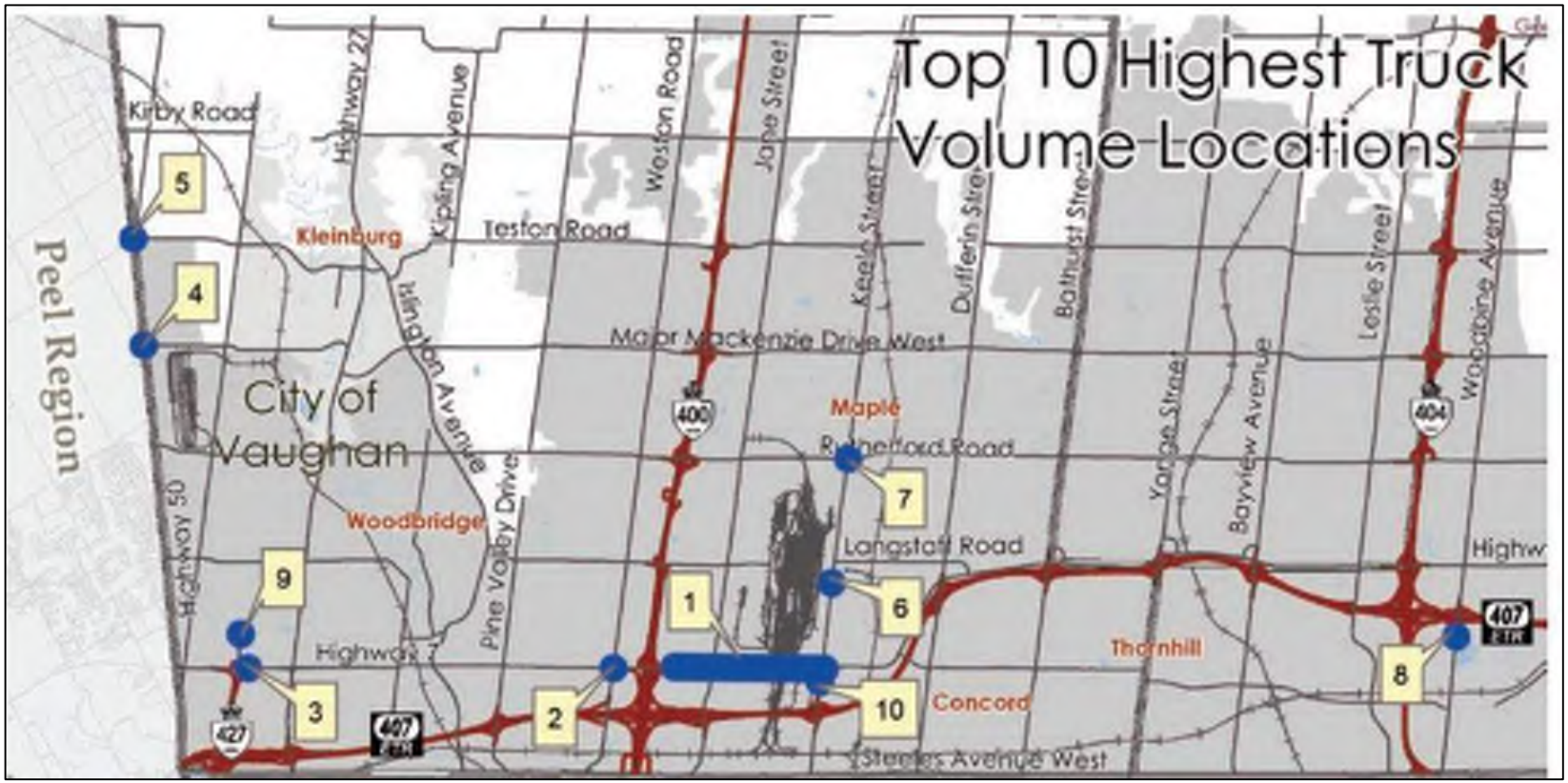
Weekday Truck Volumes on Regional Roads

- Under 1,000
- 1,000 to 3,000
- Over 3,000
- No Data Available

Data is compiled from vehicle classification counts (BIN) undertaken during annual Automatic Traffic Recorder (ATR) count program.

Source: *York Region Transportation Fact Book (2015)*

Highest Truck Volumes Locations



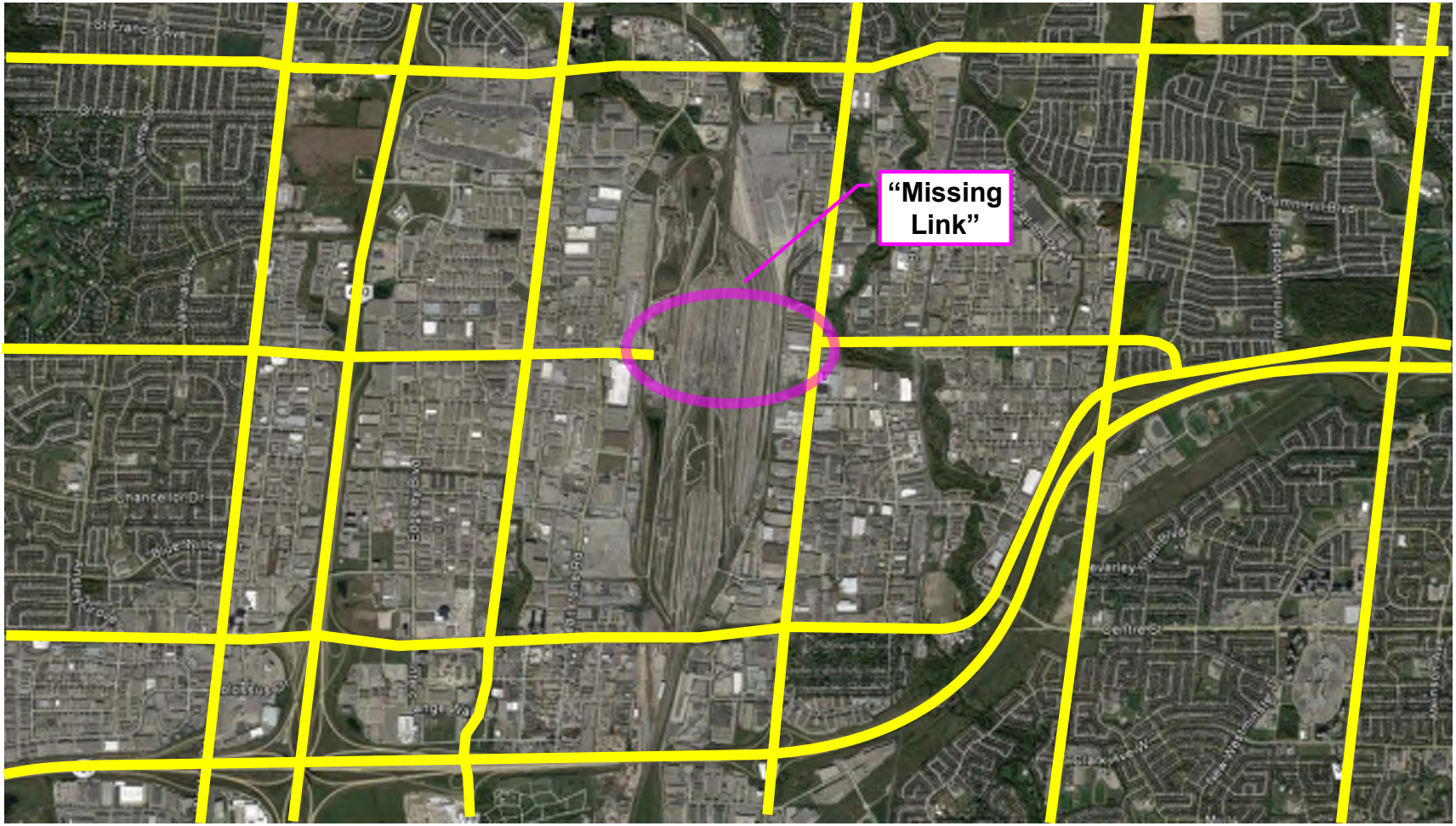
Source: *York Region Transportation Fact Book (2015)*

Goods Movement Industry Support

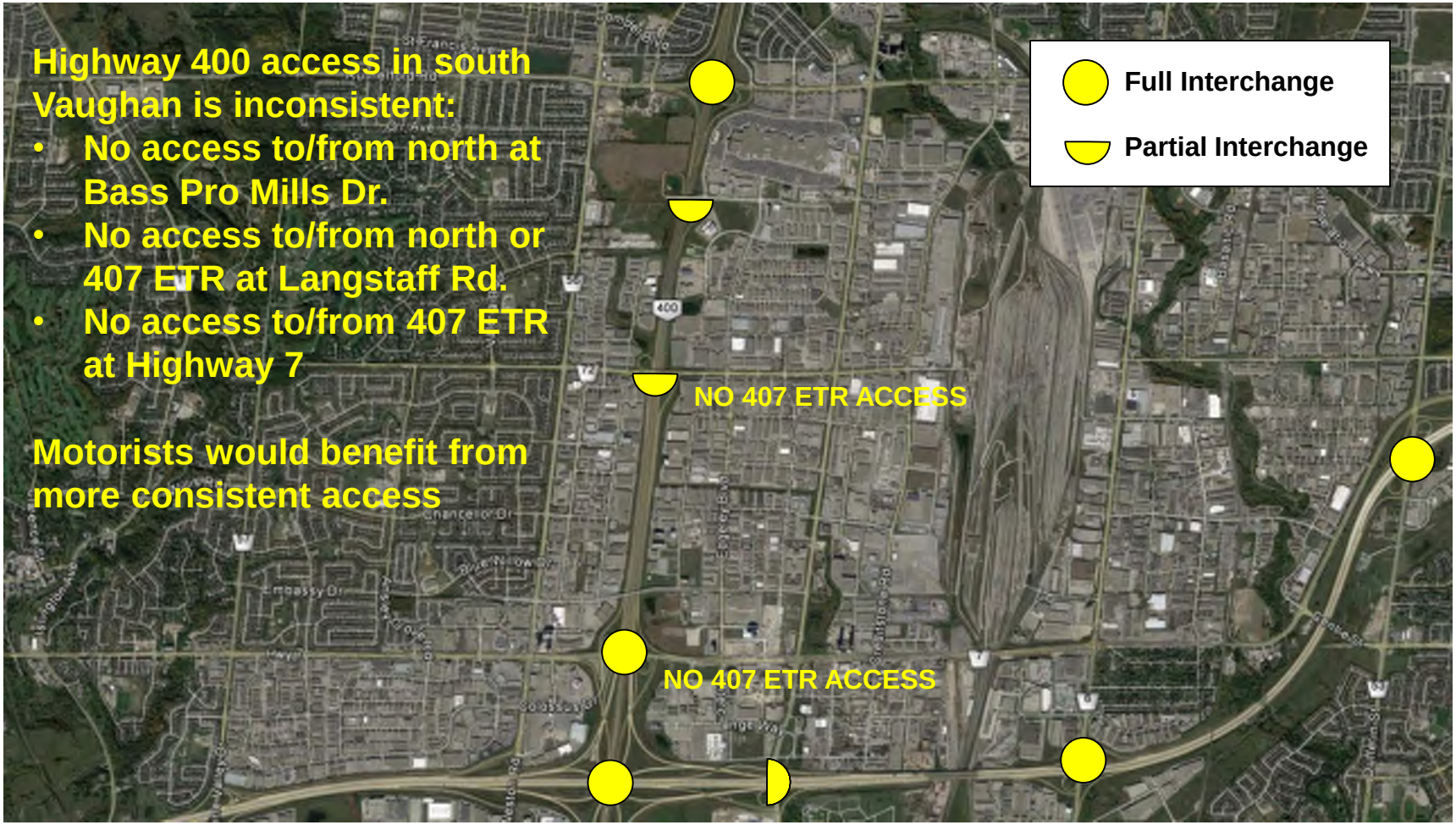
Several recent documents support improved linkage between industry hubs and major transportation network (efficiency, viability, growth):

- **MTO** *Freight Supportive Guidelines* (2016)
- **MTO** *Greater Golden Horseshoe Transportation Plan* (2017)
- **Ontario** *Growth Plan for the Greater Golden Horseshoe* (2017)
- **Metrolinx** *Estimating Urban Commercial Vehicle Movements in the Greater Toronto- Hamilton Area* (2010)
- **Metrolinx** *GTHA Urban Freight Study* (2011)
- **Metrolinx** *Urban Goods Movement Report* (2016)
- **Pembina** *Local Planning for Goods Movement in Ontario* (2017)
- **Pembina** *The State of Freight: Understanding greenhouse gas emissions from goods movement in Canada* (2017)
- **Neptis** *The Tor-York West Megazone: A Profile* (2017)
- **OTA** *Local Truck Routes: A Guide for Local Municipal Officials* (2011)

Transportation Network



Highway Access in Vaughan



Langstaff Road Extension Cost Benefit (2015)

- Region completed a CBA for the overall project including CN Yard crossing and interchange improvements
- The scenario with 6 lane multi-span yard crossing and interchange improvements resulted in B/C = 2.17
- Potential benefits include:
  - Lower fuel expenditures
  - Lower vehicle maintenance expenditures
  - Improved goods movement
  - Reduced roadway maintenance expenditures
  - Improved air quality
  - Travel time savings
  - Travel time reliability
  - Vehicular safety

Langstaff Road Extension Cost Benefit (2015)

Significant potential to be a multimodal road-rail or freight hub:

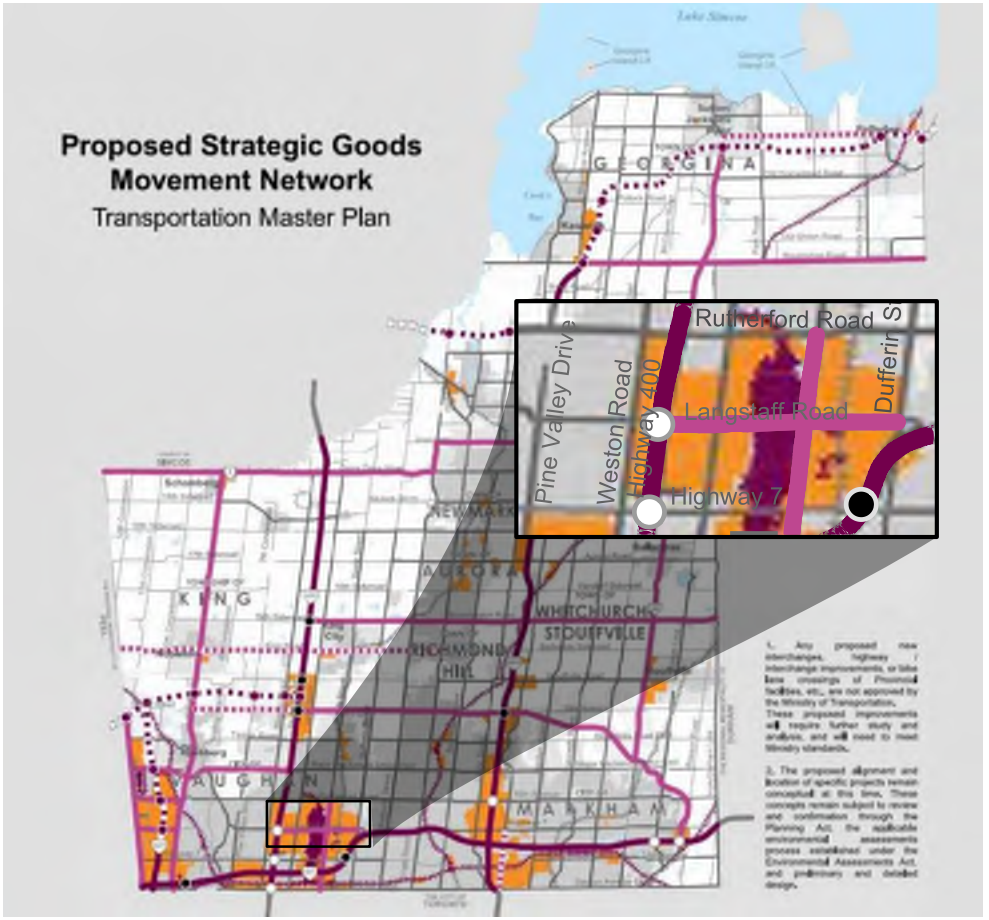
- Requires strategic collaboration of CN, shippers, truck carriers and logistics companies that rely on the intermodal CN Yard to access national and international markets
- Collaboration could benefit businesses further with Langstaff Road extension, as well as a complete suite of improvements to facilitate train and truck movements to, from and within CN MacMillan Yard

Goods Movement Plan for York Region

Regional Strategic Goods Movement Network tiers:

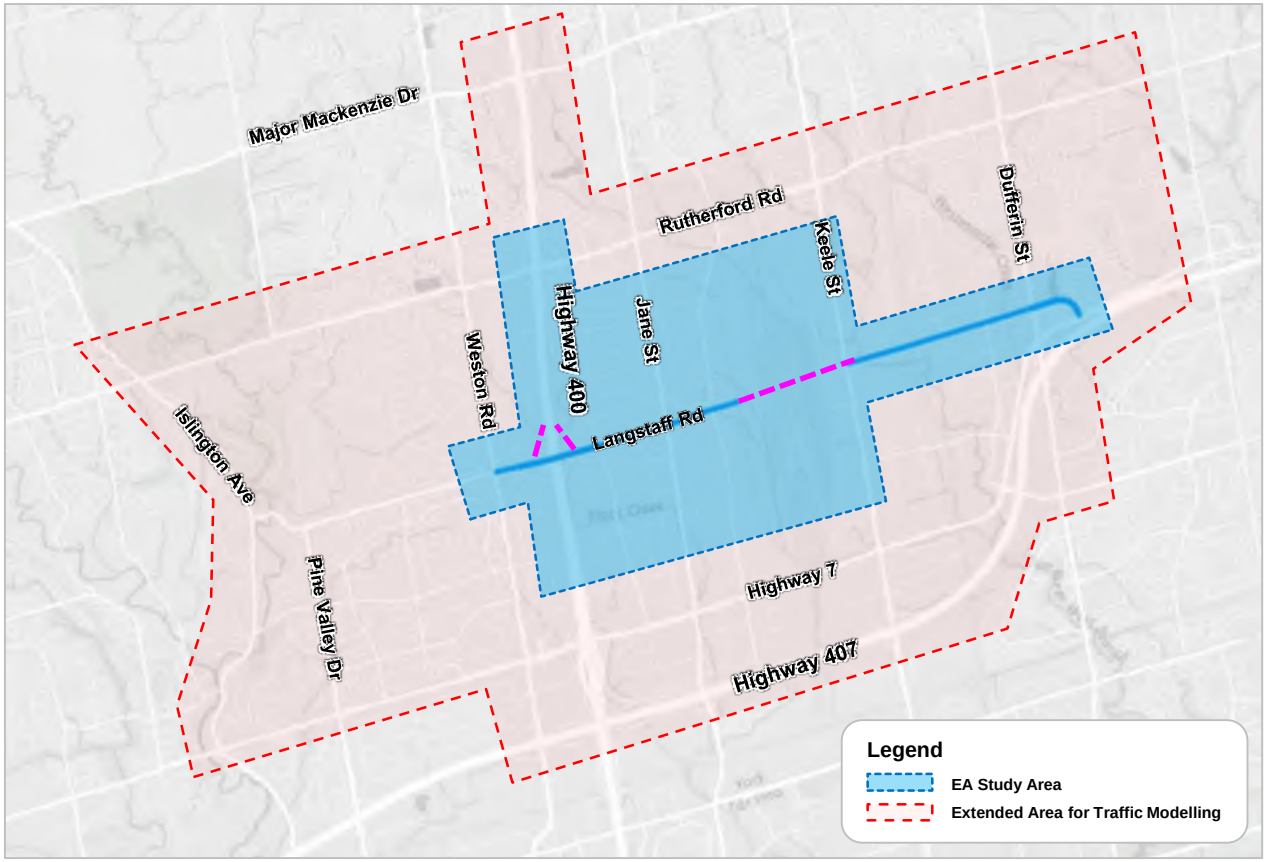
1. Highway goods movement corridor
2. Primary arterial goods movement corridor
3. Secondary goods movement corridor

Langstaff Road is identified as a **Primary Arterial Goods Movement Corridor** between Highway 400 and Dufferin Street and is surrounded by employment areas



Environmental Assessment Study Process

Travel Demand Analysis Study Area



Screenline Capacity Analysis Results

	Existing (2016)	Future (2041) Conditions AM				
		Scenario 1 (Base Case)	**Scenario 2** (Widen East Segment of 4GPL)	**Scenario 3** (Widen to 4GPL+2HOV)	**Scenario 4** (Scenario 3 + Hwy 400 IC Improvements)	**Scenario 5** (Widen to 6GPL + Hwy 400 IC Improvements)
N-S Screenline V/C						
1.East of Weston Rd	0.98	1.08	1.08	1.05	1.07	1.05
2. East of Hwy 400	1.03	1.10	1.10	1.10	1.10	1.08
3. At CN Rail Yard	1.06	**1.15**	**1.16**	1.01	1.01	0.98
4. West of Dufferin St	0.95	1.04	0.98	1.01	1.01	0.99
Link V/C @ CN Yard						
Rutherford Rd	**1.25**	**1.22**	**1.27**	1.07	1.07	1.06
Langstaff Rd	-	-	-	1.00	1.00	0.95
Highway 7	0.94	1.09	1.08	0.97	0.97	0.95

Recommended Planning Solution

- **Add New Lanes:** Widen Langstaff Road
- **Langstaff Road Connection:** Construct Langstaff Road link across the CN MacMillan Yard.
- **Highway 400 Interchange Improvements:** Convert Highway 400/Langstaff Road Interchange to a full-move interchange
- **Grade Separation:** Construct grade separation at Langstaff Road / Barrie GO Line
- **Intersection Improvements:** Turning lanes, traffic signal timing optimization, etc.
- **Alternative Modes of Transportation**: Provision of or improvements to pedestrian and cycling facilities. Improvements to transit system (e.g. improved transit amenities)

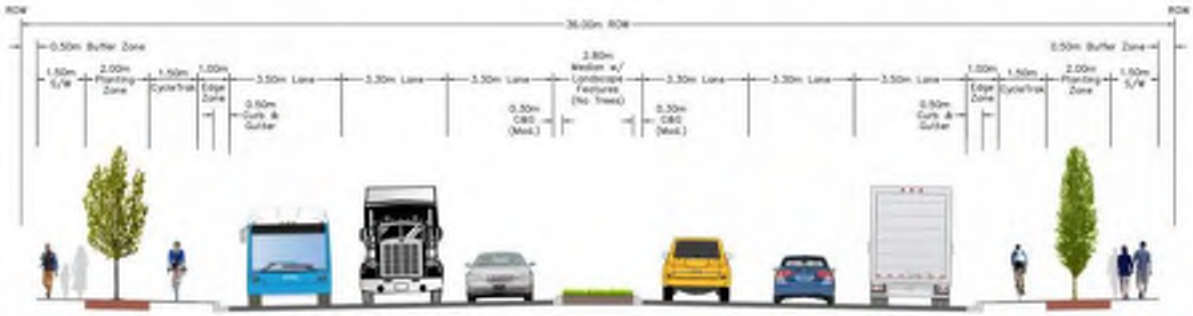





Langstaff Road Widening

- Widening Langstaff Road from 2 to 6 lanes between Weston Road and Dufferin Street based on best-fit alignment to minimize property impacts.

Langstaff Road EA – Weston Road to Highway 7 – Finalized Proposed Cross Section



MTO Involvement to Date

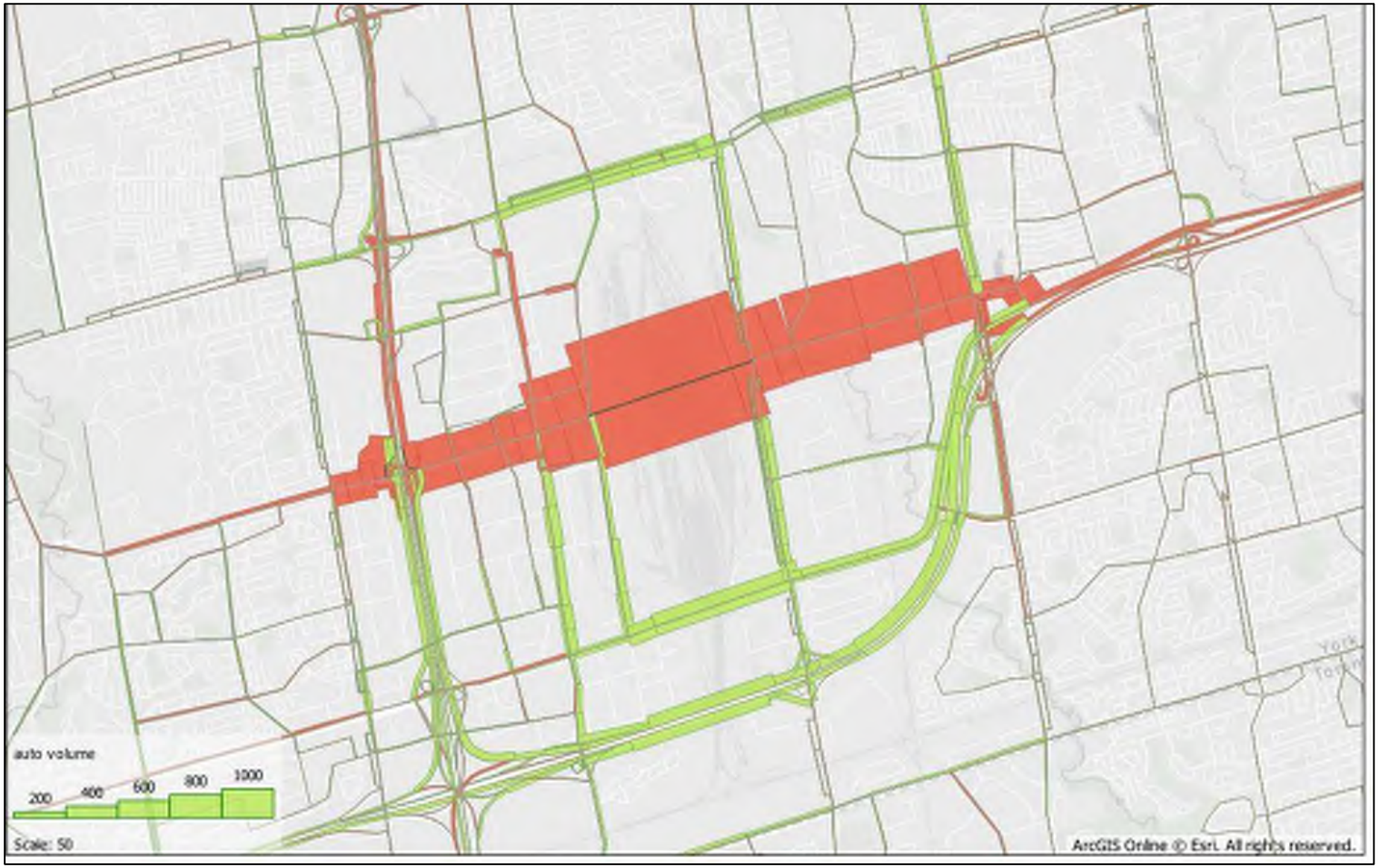
- Meeting 1 – December 2, 2016:
  - Project introduction
- Meeting 2 – May 10, 2017:
  - Screenline and capacity analysis results
- Meeting 3 – July 26, 2017:
  - Highway 400 model calibration and Highway 400 interchange design options
- MTO comments August 3, 2017 email re:
  - Highway 400 interchange design options
- Meeting 4 – November 30, 2017:
  - Updated Highway 400 interchange design options and micro-simulation results
- MTO comments February 1, 2018 email re:
  - Micro-simulation results/assumptions, Highway 400 interchange design options

MTO Response to Date

- Concerns with Highway 400 Design Options 1, 2, 3
  - Weaving distance
  - Limits to Highway 400 expansion
  - Overloaded ramps
  - Signing conflicts
- Altering start of NB HOV lane not acceptable
- Existing deficiencies/operational concerns to be addressed
- Simulation does not reflect expected conditions
- Improvements should have no negative impact on Highway 400

Preliminary Travel Demand

Future 2041 Travel Demands Changes – AM Peak



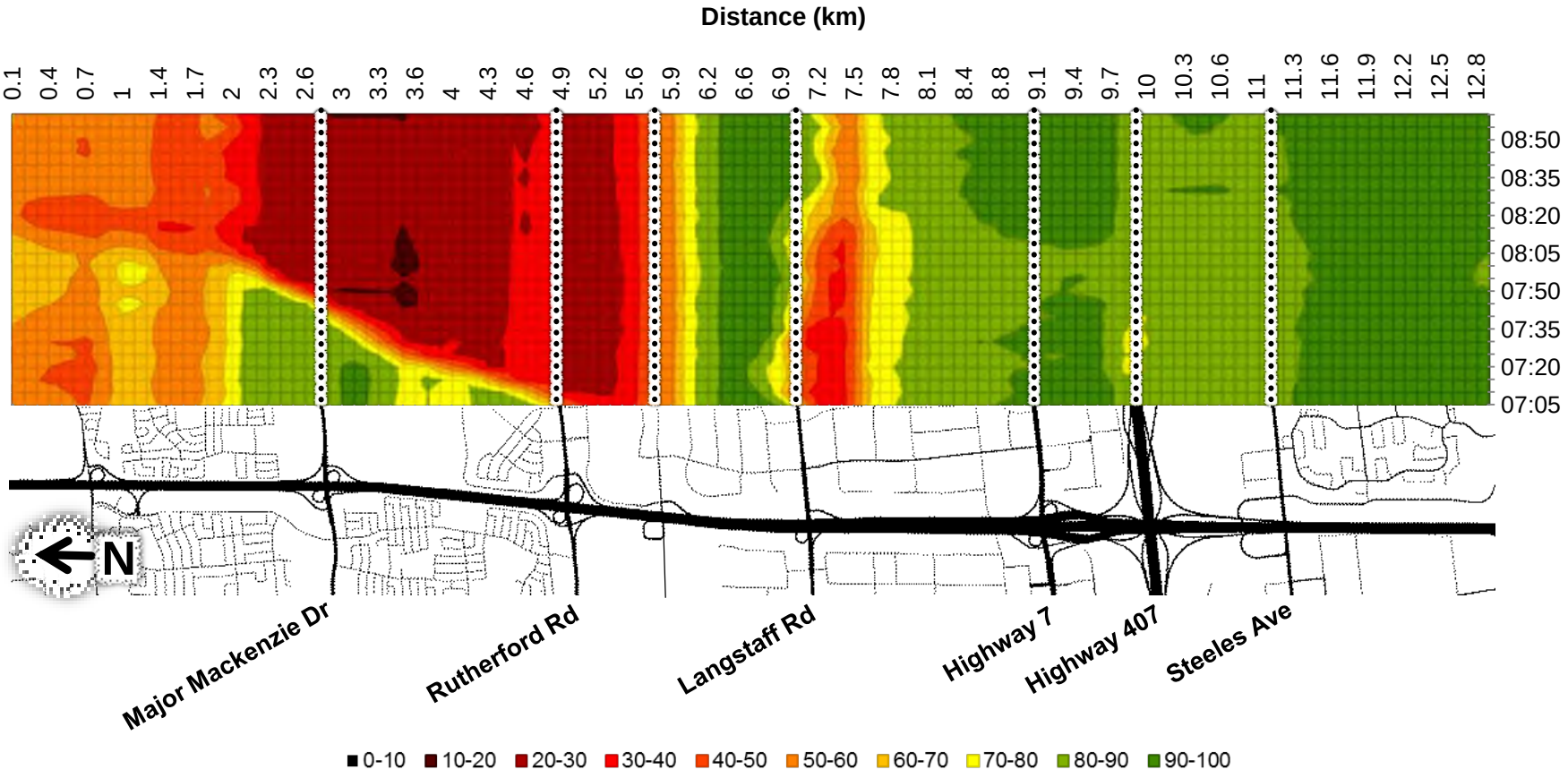
Option 1: “Ramp-Off-Ramp” Configuration

Option 2: Re-Route of Bass Pro Mills Ramps

Option 3: Hybrid Interchange Configuration

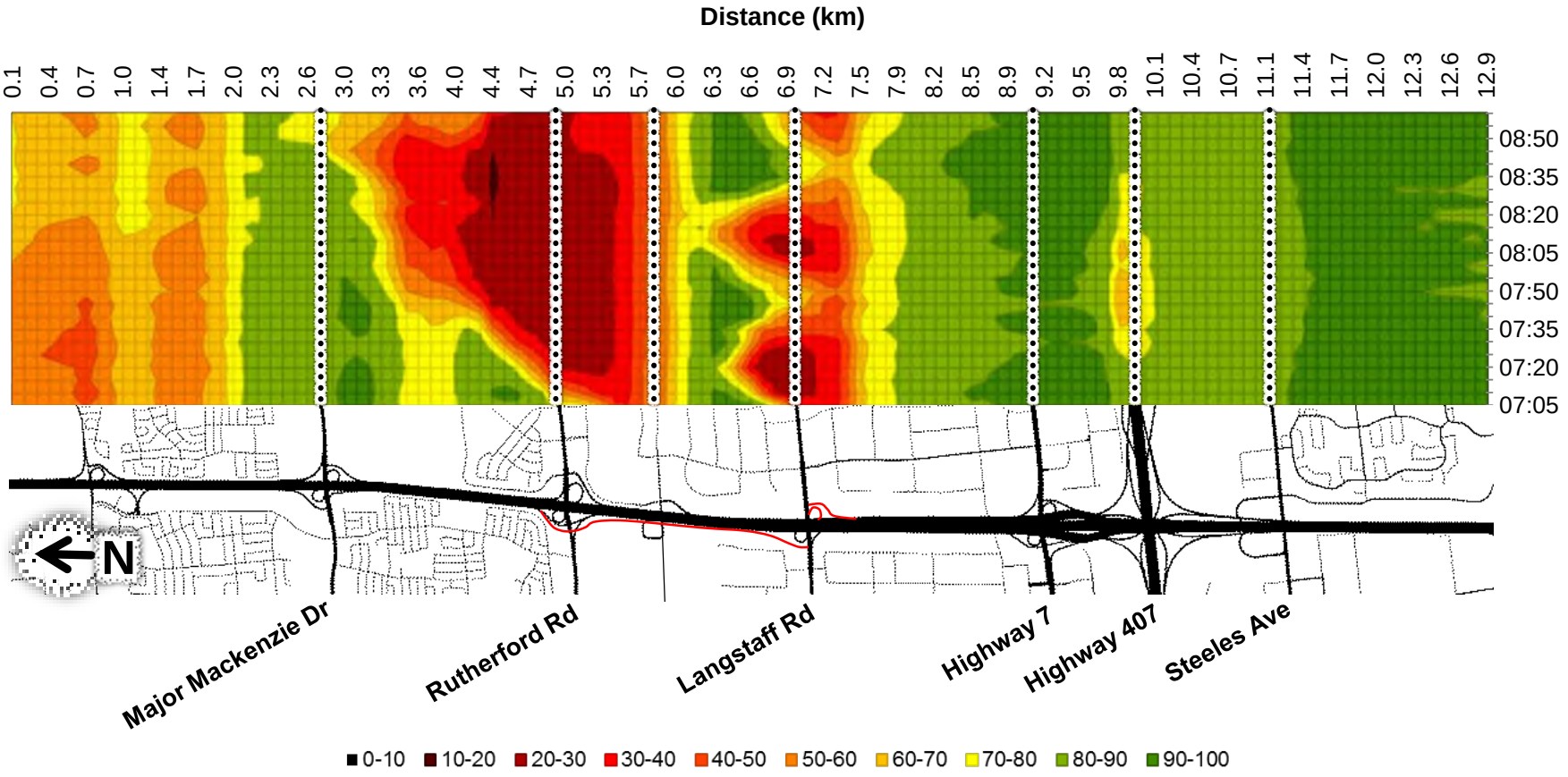
Future 2041 Speed Contour Plots

No-Build AM – SB Direction (Express Only)



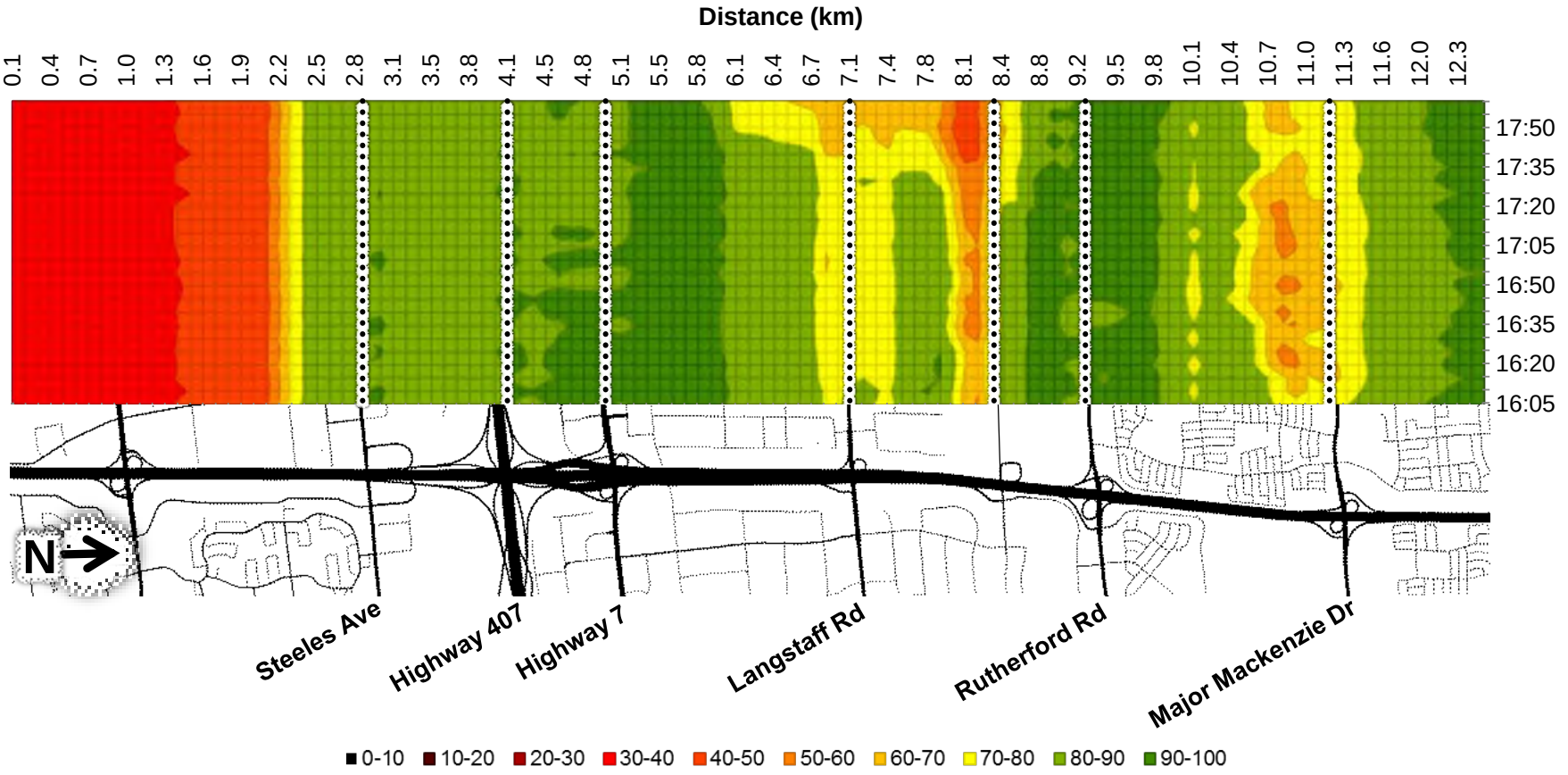
Future 2041 Speed Contour Plots

Option 1 AM – SB Direction (Express Only)



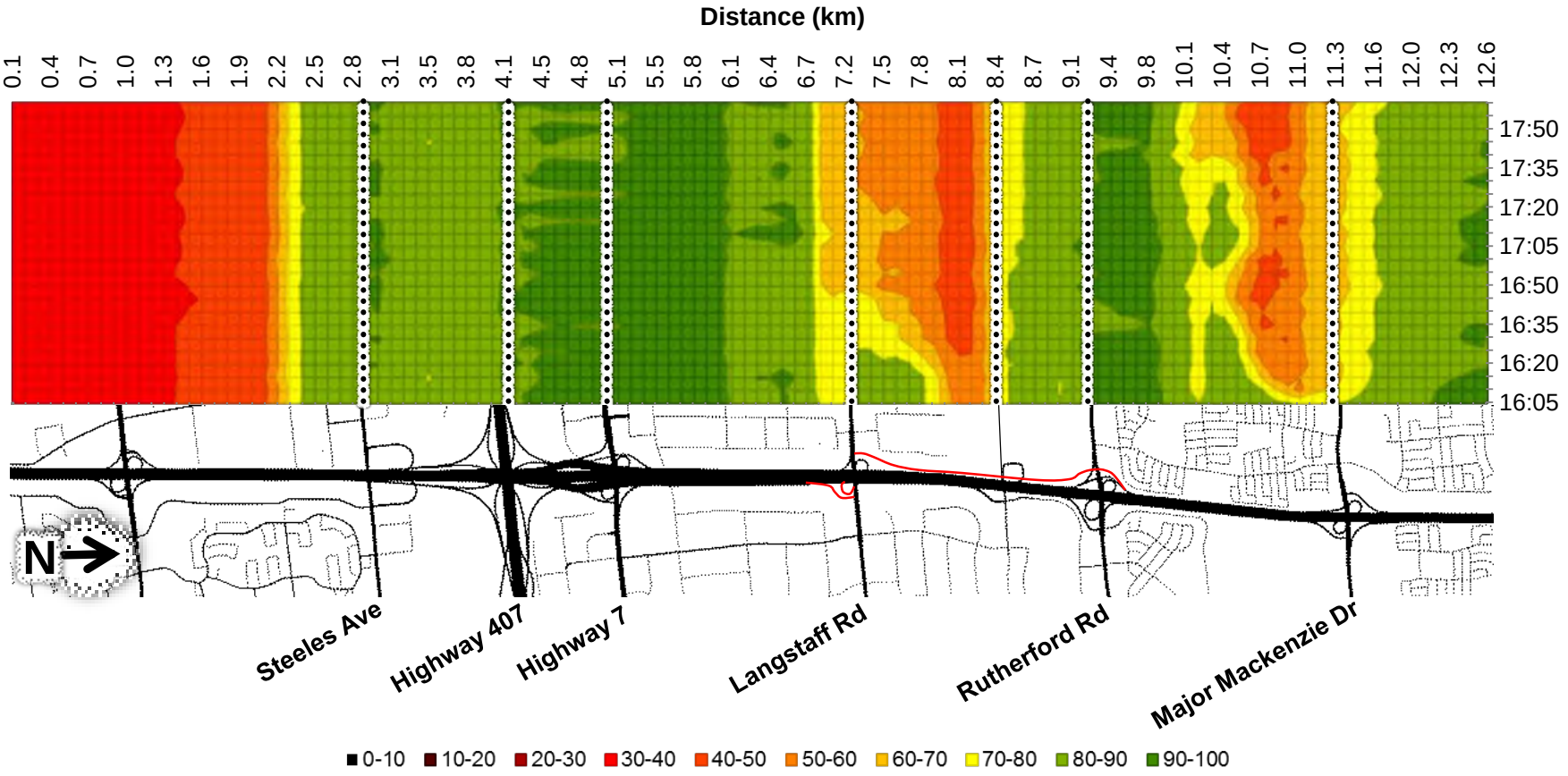
Future 2041 Speed Contour Plots

No-Build PM – NB Direction (Express Only)



Future 2041 Speed Contour Plots

Option 1 PM – NB Direction (Express Only)



Preliminary Traffic Analysis Findings

Future 2041 Highway Operations

AM Peak

- Traffic demand reduction and redistribution in the options relative to No-Build in southbound direction
- Minor travel time savings between 1 to 2.5 minutes in the southbound direction (peak); negligible difference in northbound direction (off-peak)

PM Peak

- Increase in demand in northbound direction
- Minor travel time increases between 1 to 1.5 minutes in the northbound direction (peak); negligible difference in southbound direction (off-peak)

Stakeholder Input to Date

- **MTO**
  - Concerns with forecasting and ramp configurations
- **City of Vaughan**
  - Support for project
  - Supportive policy and planning documents
  - Concerns with potential closure of Bass Pro Mills interchange
- **CN**
  - Concerns with potential impacts to yard operations
- **Ontario Trucking Association**
  - Support for project
- **Vaughan Community / Businesses**
  - Support for project

Next Steps…

- Refine design alternatives per input from technical agencies
- Conduct evaluation of:
  - interchange alternatives
  - grade separation alternatives
  - CN crossing alternatives
- Identify ‘preferred’ alternative for Langstaff Road corridor including Hwy 400 interchange
- Open House 2

MEETING MINUTES

Date:	August 8, 2018 1:30 p.m. to 3:30 p.m.	**Project Number:**	16M-01457-01
Location:	MTO 159 Sir William Hearst Avenue, Toronto 2rd Floor Boardroom	**Project:**	Langstaff Road EA – Weston Road to Highway 7

Purpose: Meeting #6 with Ministry of Transportation (MTO)

Attendees:	**Agency**
Margaret Mikolajczak	MTO – Corridor Management
Fiona Tam	MTO – Highway Engineering
Johnson Lau	MTO – Traffic
Aaron Janke	MTO – Traffic
Brian Wolf	York Region
Tim Kwan	York Region
Neil Ahmed	WSP
Brent Gotts	WSP
Keyur Shah	WSP
Brian Cheung	WSP
Jian Guan	WSP

Item	Details	Action By
ITEM 1 –	**INTRODUCTIONS**	
1.1	Those at the meeting were introduced. N. Ahmed circulated the presentation slide deck and provided a brief study update and background information.	
ITEM 2 –	**PREVIOUS MTO MEETINGS AND MTO COMMENTS**	
2.1	N. Ahmed provided a summary of previous MTO meetings and comments received to date: • Meeting 1 – December 2, 2016: Project introduction • Meeting 2 – May 10, 2017: Screenline and capacity analysis results • Meeting 3 – July 26, 2017: Highway 400 model calibration and Highway 400 interchange design options • MTO comments August 3, 2017 email regarding Highway 400 interchange design options • Meeting 4 – November 30, 2017: Updated Highway 400 interchange design options and micro-simulation results	

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Item	Details	Action By
	• Senior Management Meeting January 22, 2018 (MTO Staff only) • MTO comments February 1, 2018 email: Micro-simulation results and assumptions, Highway 400 interchange design options • Meeting 5 - Senior Management Meeting – March 22, 2018	
2.2	N. Ahmed provided a summary of key comments received from MTO: • Simulation model does not reflect expected conditions. • Concerns with Highway 400 design Options 1, 2, 3: o Weaving distance o Limitations to Highway 400 expansion o Loading on ramps o Highway signing conflicts • Altering start of potential northbound HOV lane is not acceptable. • Existing deficiencies/operational concerns to be addressed. • Improvements should have no negative impact on Highway 400.	
ITEM 3 –	**TRAFFIC UPDATES**	
3.1	K. Shah noted that, to address MTO's comments with regards to the simulation model not reflecting the current conditions (i.e. calibration), WSP has carried out the following tasks: • Obtained 2016 travel time data from MTO (2014 data was used in the original model). • Carried out 7-day vehicle classification counts at Highway 400 ramps (May 2018). • Re-calibrated the Aimsun simulation model.	
3.2	K. Shah presented the updated model calibration results and noted that the simulated Highway 400 operating speeds better match the observed average speeds and are within the observed 50th to 95th percentile speeds, except the southbound Highway 400 Express segment between Langstaff Road and Highway 7 during the morning peak period, as a result of how Aimsun model handles the lane changing behaviour upstream of the Highway 400-Highway 407 split. It is noted that this will not impact the operation analysis results of the Langstaff Road interchange improvement as no new southbound on-ramp is proposed at Langstaff Road.	

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Item	Details	Action By
3.3	K. Shah noted that three scenarios were used to assess the future (2041) conditions including with and without Highway 400 and Langstaff Road Interchange modifications: • Option 1 - No-Build (i.e. existing configuration on Hwy 400 and Langstaff Road) for comparison purposes; • Option 2 - Only with Langstaff Road Improvements (i.e. Langstaff Road widening and connection across CN Yard, and existing configurations on Hwy 400) (new scenario as per MTO request); and • Option 3 - Hybrid Interchange Configuration (assumes Langstaff Road improvements and Hwy 400 Interchange modification): o Rerouting the existing Bass Pro Mills Drive E-S ramp traffic to Rutherford Road W-S ramp. o An E/W-N loop ramp is proposed to provide access to Highway 400 northbound from Langstaff Road. o A N-E/W direct ramp is proposed to provide access to Langstaff Road from Highway 400 southbound.	
3.4	K. Shah provided a summary of the preliminary 2041 traffic analysis findings for Highway 400 between Major Mackenzie Drive and Steeles Avenue: • AM Peak o Reduction and redistribution of Highway 400 traffic demand in the design options results in travel time savings of 2 to 4 minutes in the southbound (peak) direction, relative to No-Build. o Negligible difference in northbound (off-peak) direction. • PM Peak o The Langstaff Connection-only alternative (Option 2) redistributes traffic to/from Highway 400 resulting in slight reduction in Hwy 400 northbound travel times compared to No-Build. o The Interchange Improvement alternative (Option 3), which introduces new accesses to Hwy 400 northbound, redistributes and adds traffic to Hwy 400 northbound resulting in increased travel times by up to 2.5 minutes in the northbound (peak) direction. o Negligible difference in southbound direction (off-peak).	

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Item	Details	Action By
3.5	N. Ahmed provided an overall summary of the proposed Langstaff Road interchange improvements: • Support Regional and Provincial Goods Movement strategies. • Reduce traffic congestion within the overall transportation network. • Reduce Peak direction travel time in the AM peak with minor increase in the PM peak – a net improvement. • Have minor improvement in traffic operations at the adjacent Highway 400 interchanges.	
3.6	WSP to provide the queuing summary and level-of-service at ramp terminals for the existing and future conditions. [*Post Meeting Note: The queuing summary and level-of-service at ramp terminals were provided via email on August 13, 2018.*]	
ITEM 4 –	**DESIGN WORKSHOP**	
4.1	There was general discussion about how Highway 400 could possibly be enhanced to operate better, based on techniques in use within the GTA area. N. Ahmed indicated that it would be beneficial for MTO and the Region's team to collaboratively share ideas that may result in overall solutions for the area and include Langstaff Road interchange improvements. MTO agreed to participate in a design workshop with the Project Team to address MTO's comments and identify a design concept. [*Post Meeting Note: A design workshop is scheduled for October 4th, 2018.*]	

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Langstaff Road
Class Environmental Assessment Study
Weston Road to Highway 7

MTO Meeting # 6
August 8, 2018

GREAT STREETS
Building Roads that Build Community

York Region

Agenda

- MTO Responses and Comments
- Additional Tasks Undertaken
- Aimsun Model Recalibration for Existing Conditions
- Modelling Results for Future (2041) Conditions
- Next Steps

MTO Involvement to Date

- Meeting 1 – December 2, 2016: Project introduction
- Meeting 2 – May 10, 2017: Screenline and capacity analysis results
- Meeting 3 – July 26, 2017: Highway 400 model calibration and Highway 400 interchange design options
- MTO comments August 3, 2017 email regarding Highway 400 interchange design options
- Meeting 4 – November 30, 2017: Updated Highway 400 interchange design options and micro-simulation results
- Senior Management Meeting January 22, 2018 (MTO Staff only)
- MTO comments February 1, 2018 email: Micro-simulation results and assumptions, Highway 400 interchange design options
  - Meeting 5 - Senior Management Meeting – March 22, 2018

MTO Response to Date

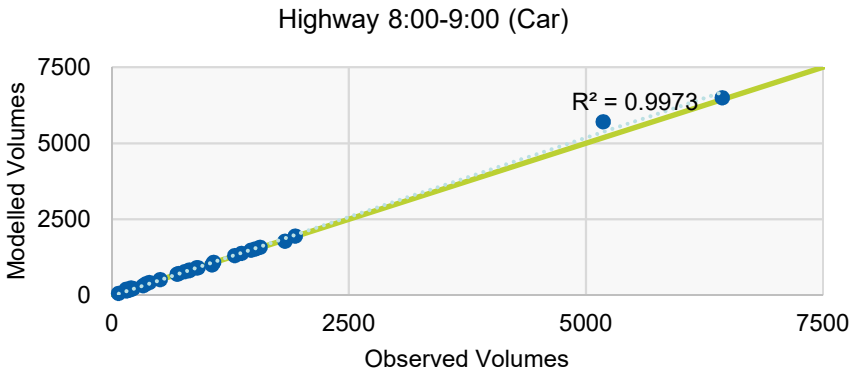
- Simulation model does not reflect expected conditions
- Concerns with Highway 400 Design Options 1, 2, 3
  - Weaving distance
  - Limits to Highway 400 expansion
  - Overloaded ramps
  - Signing conflicts
- Altering start of NB HOV lane not acceptable
- Existing deficiencies/operational concerns to be addressed
- Improvements should have no negative impact on Highway 400

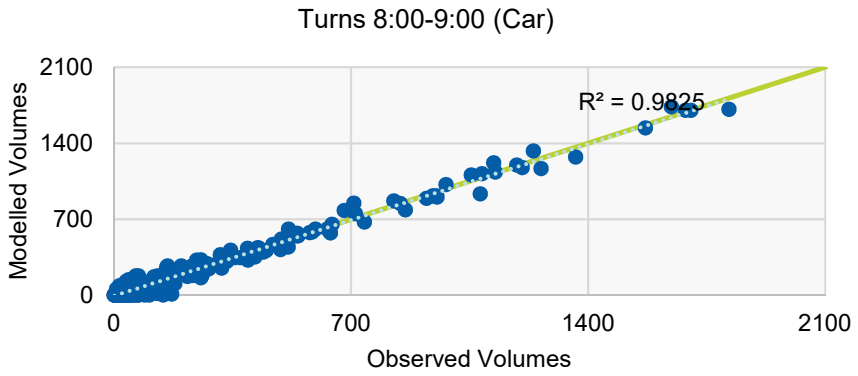
Additional Tasks to Address MTO Comment:

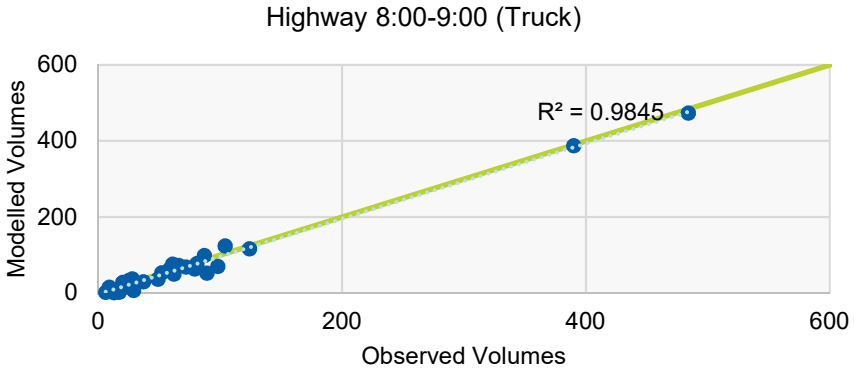
- Travel time data for 2016 from MTO (previous data from 2014)
- Vehicle Classification Counts for Highway 400 ramps (conducted May 2018)
- Aimsun model recalibration/validation

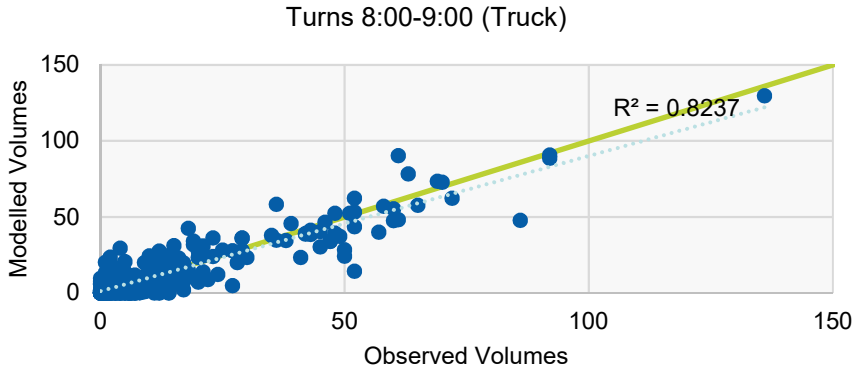
Updated Model Calibration

Observed vs Simulated Volumes (AM Peak Hour)





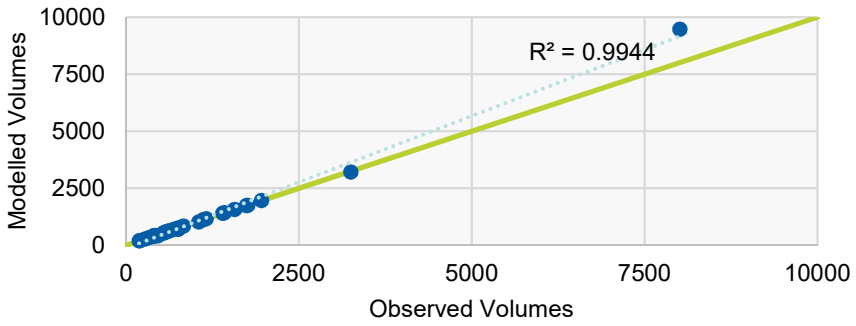




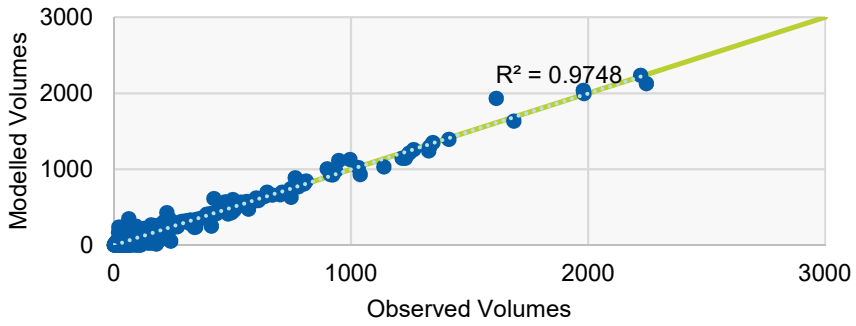
Updated Model Calibration

Observed vs Simulated Volumes (PM Peak Hour)

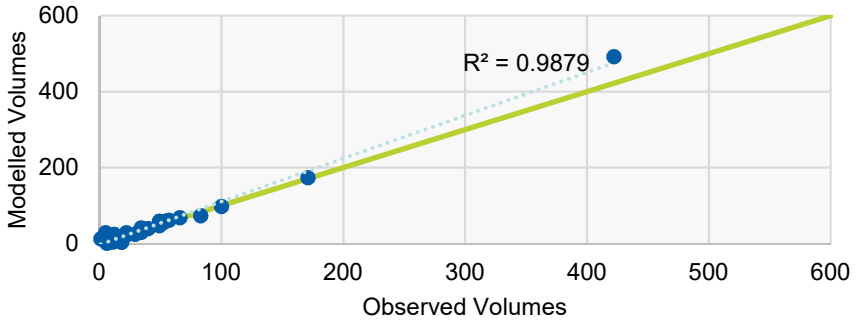
Highway 17:00-18:00 (Car)



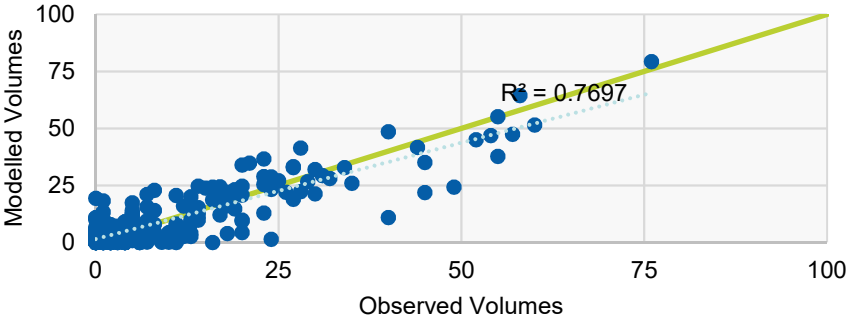
Turns 17:00-18:00 (Car)



Highway 17:00-18:00 (Truck)

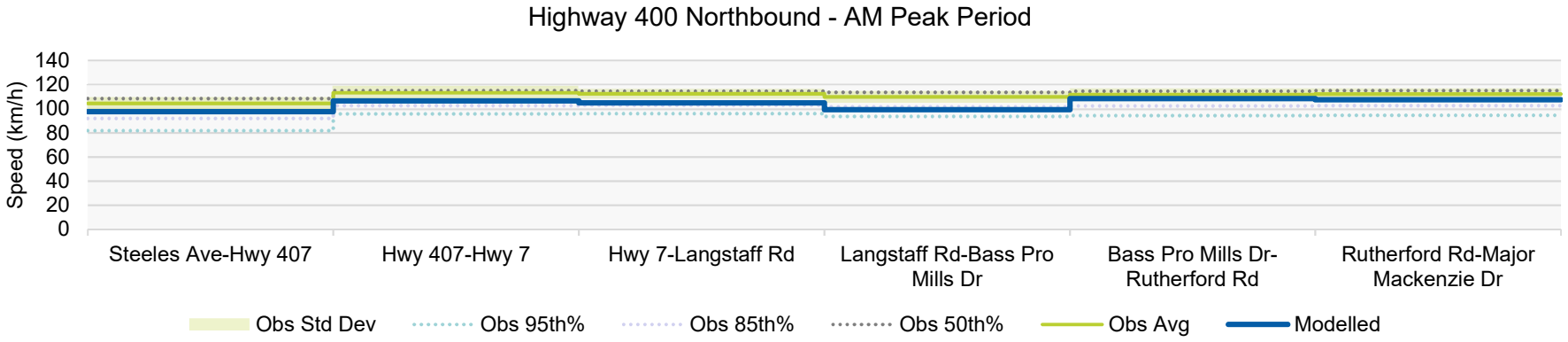


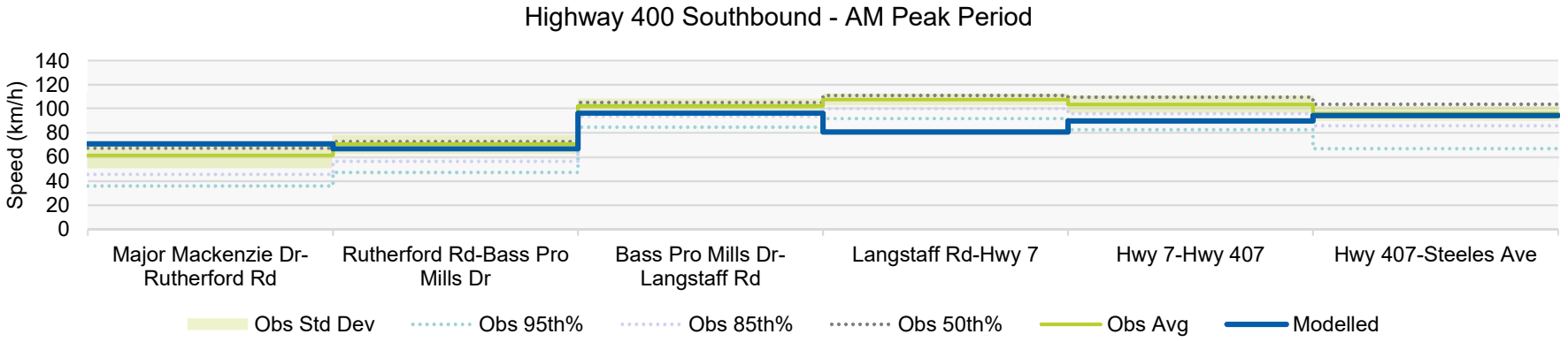
Turns 17:00-18:00 (Truck)



Updated Model Validation

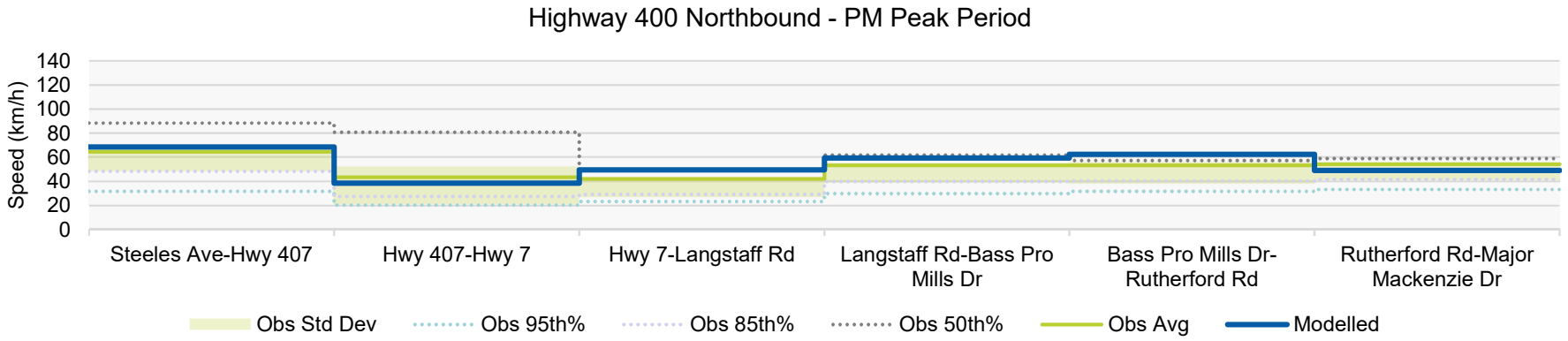
Observed vs Simulated Highway 400 Speed Profiles

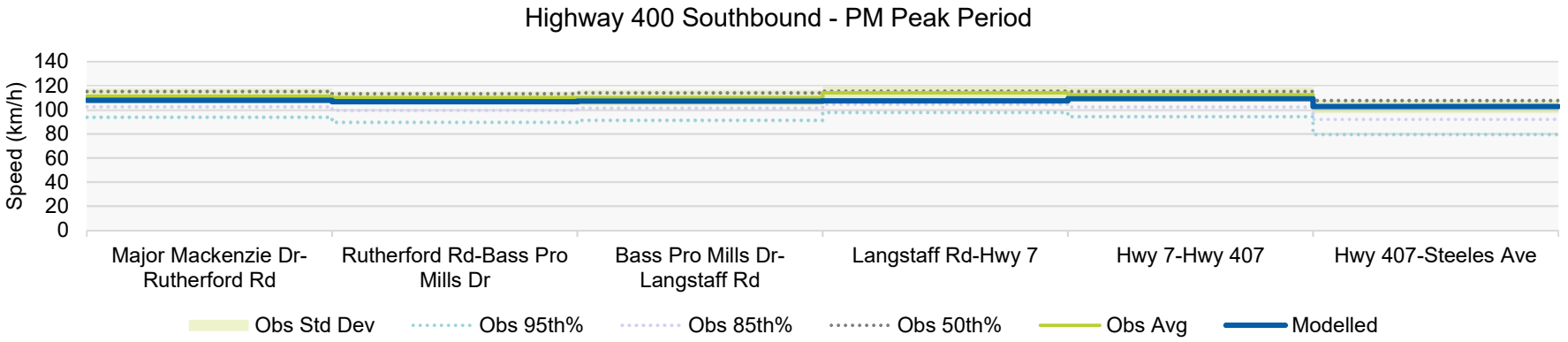




Updated Model Validation

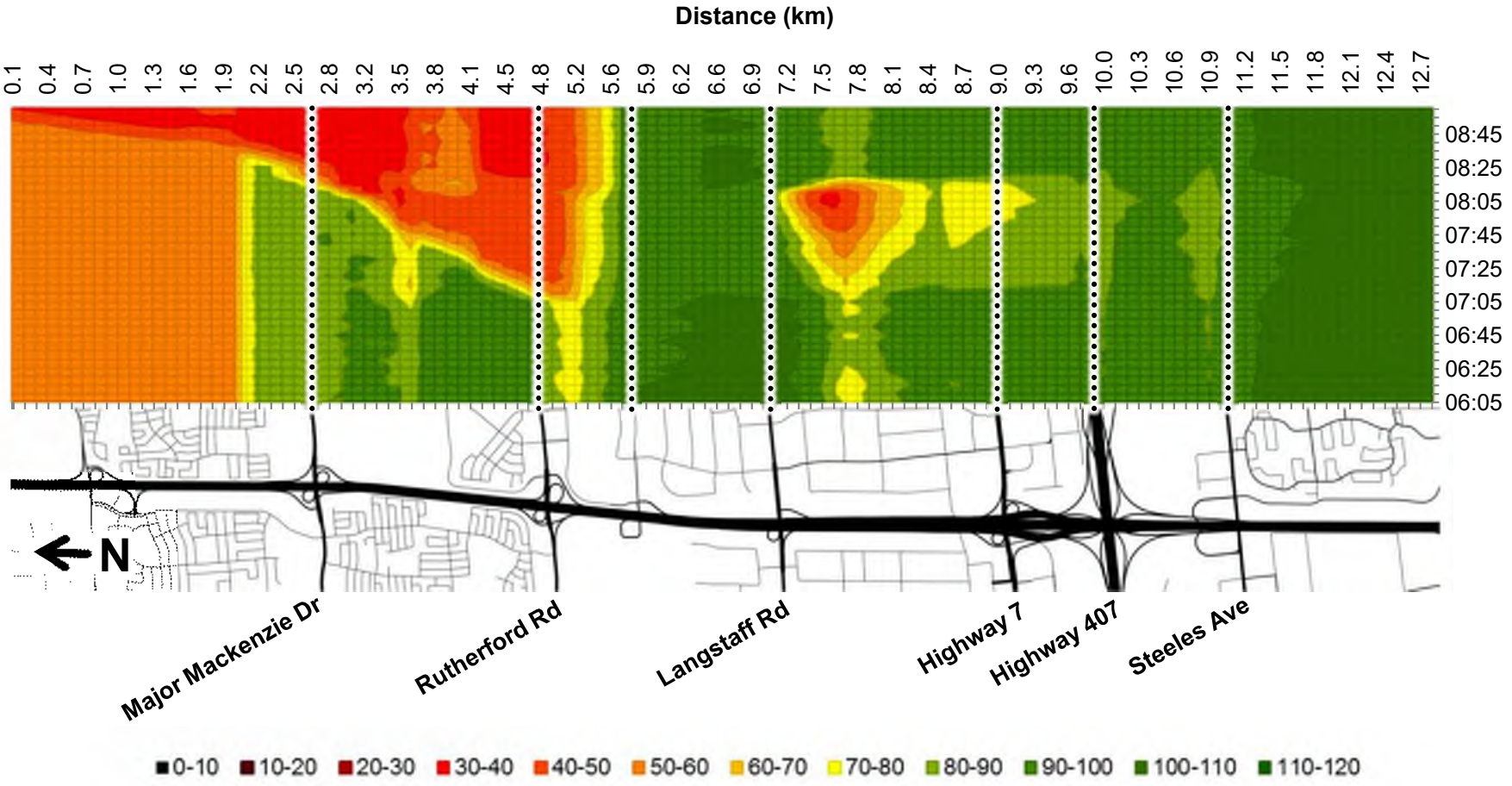
Observed vs Simulated Highway 400 Speed Profiles





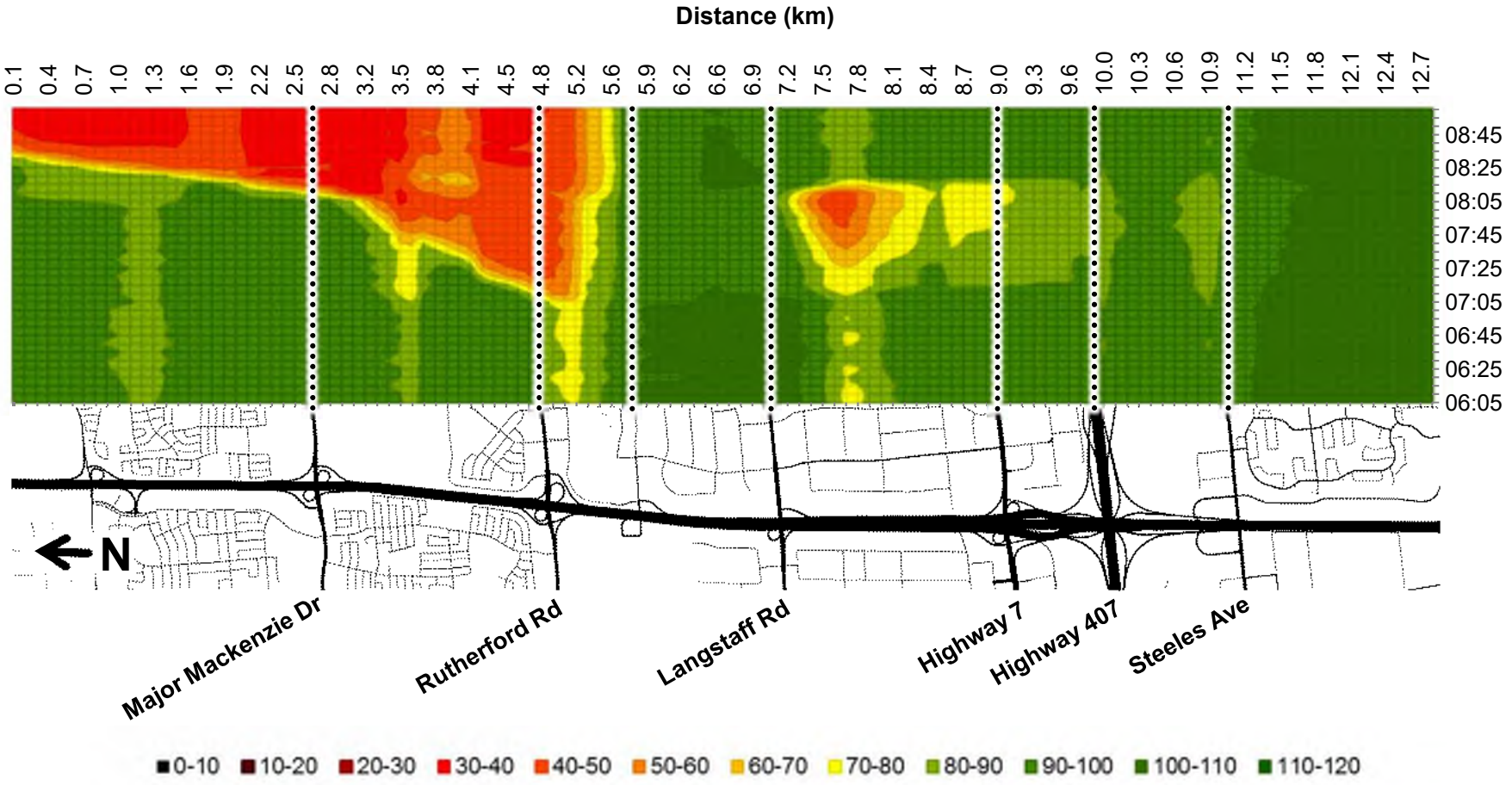
Existing Speed Contour Plots

AM – SB Direction



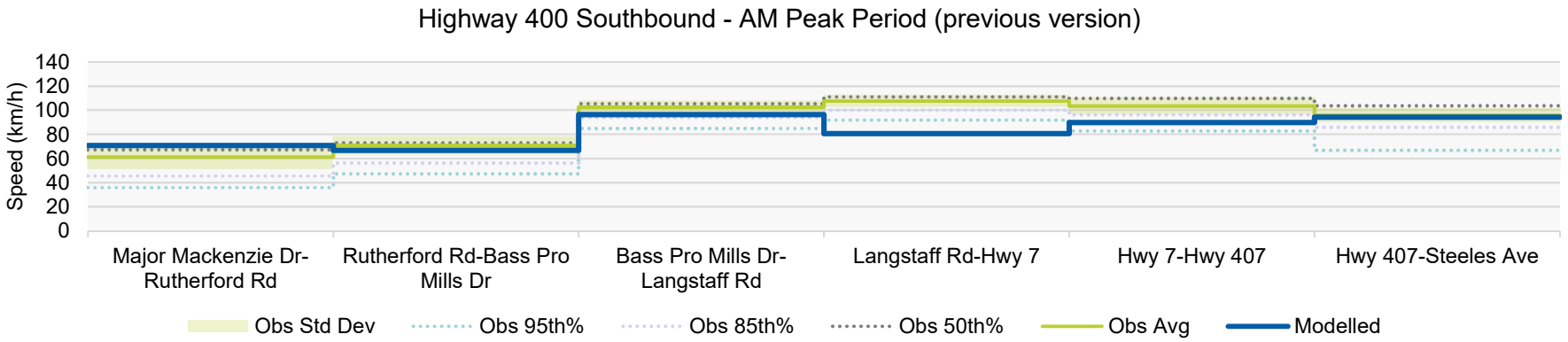
Existing Speed Contour Plots

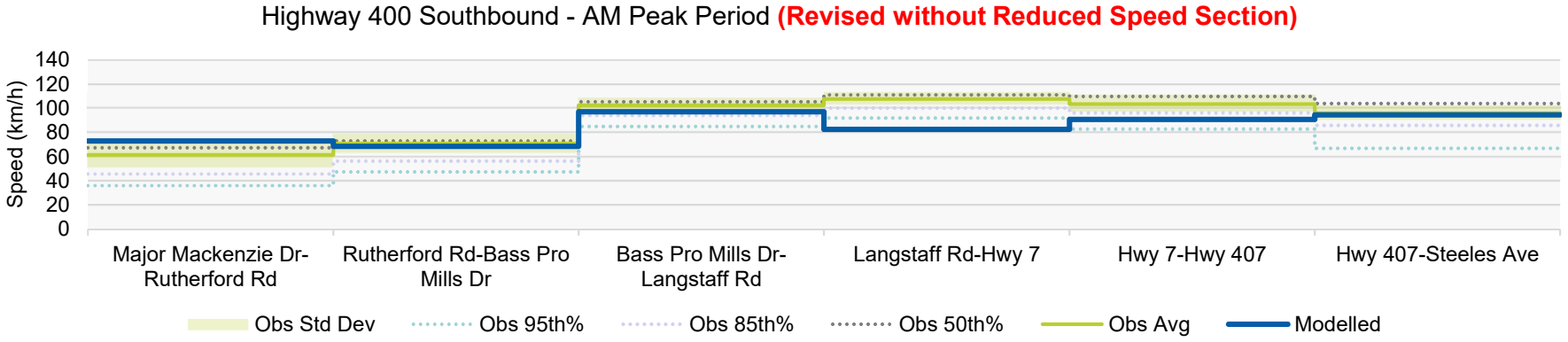
AM – SB Direction (Revised without Reduced Speed Section)



Updated Model Validation

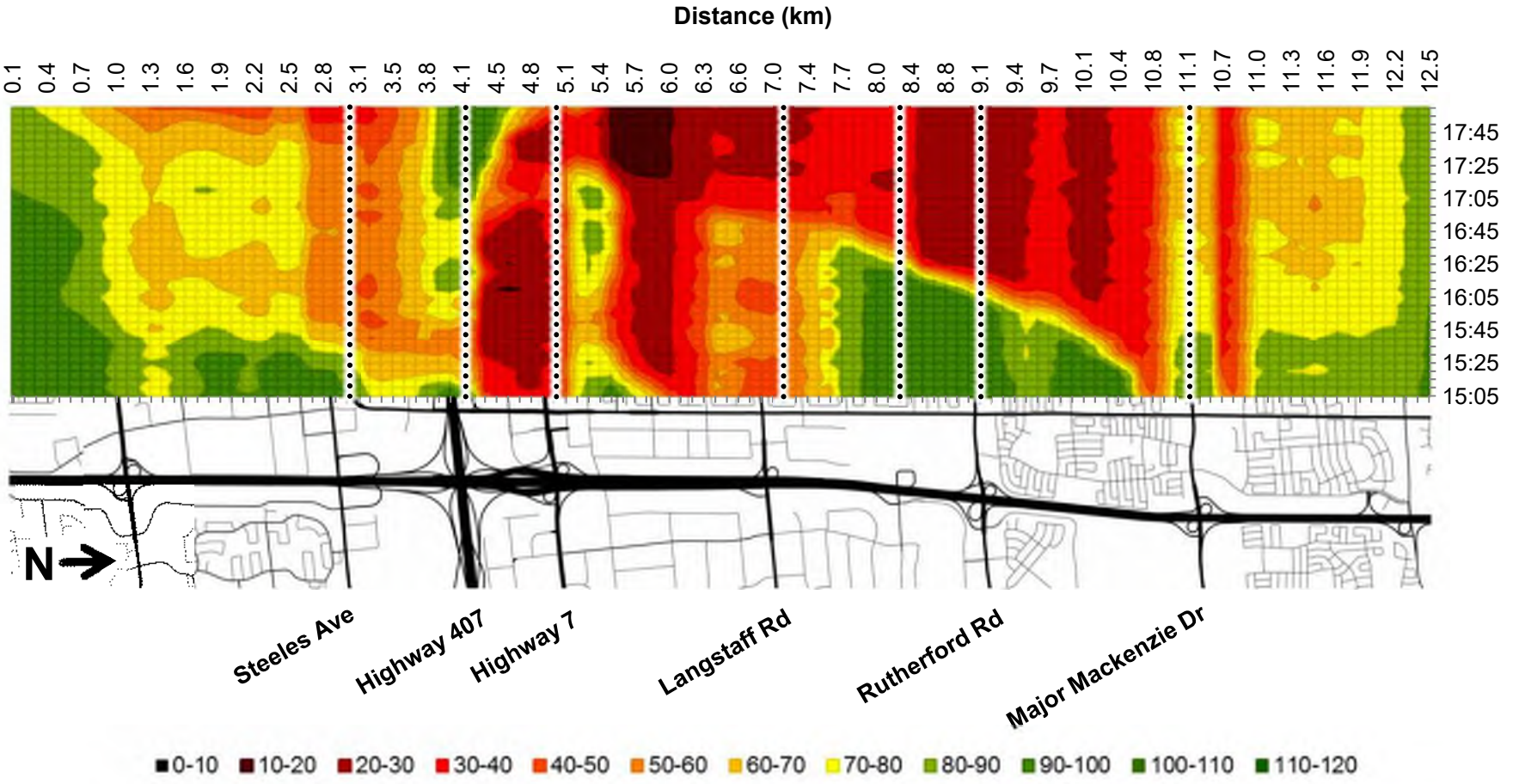
Observed vs Simulated Highway 400 Speed Profiles





Existing Speed Contour Plots

PM – NB Direction



Option 1: “Ramp-Off-Ramp” Configuration

Option 2: Re-Route of Bass Pro Mills Ramps

Option 3: Hybrid Interchange Configuration

This option used as a “sample” to test the future conditions.

Future (2041) Scenarios

Following three scenarios were used to assess the future (2041) conditions with and without Highway 400 and Langstaff Road Interchange modifications:

1. No-Build (i.e. existing configuration on Hwy 400 and Langstaff Road)
2. Only with Langstaff Road Improvements (i.e. Langstaff Road widening and connection across CN Yard, and existing configurations on Hwy 400)
3. Scenario 3 – Hybrid Interchange Configuration (assumes Langstaff Road improvements and Hwy 400 Interchange modification)

Preliminary Traffic Analysis Findings

Future 2041 AM Travel Times

Scenario	AM Peak Hour		Remarks
	Northbound	Southbound	
No-Build	8 min 18 sec	14 min 18 sec	
Only Langstaff Road Improvements (i.e. without Hwy 400 Interchange Improvements)	8 min 10 sec	12 min 35 sec (▼ 1:43 vs No Build)	**NB:** negligible change in travel time **SB:** reduced travel time. Mainline operation improves (vs No Build) due to traffic redistribution
Option 3: Hybrid	8 min 14 sec	10 min 22 sec (▼ 3:56 vs No Build)	**NB:** negligible change in travel time **SB:** reduced travel time. Mainline operation improves (vs No Build and Langstaff Road improvements) due to traffic redistribution

Note: Future 2041 simulated travel times measured for Highway 400 from south of Steeles Ave to north of Major Mackenzie Dr

Preliminary Traffic Analysis Findings

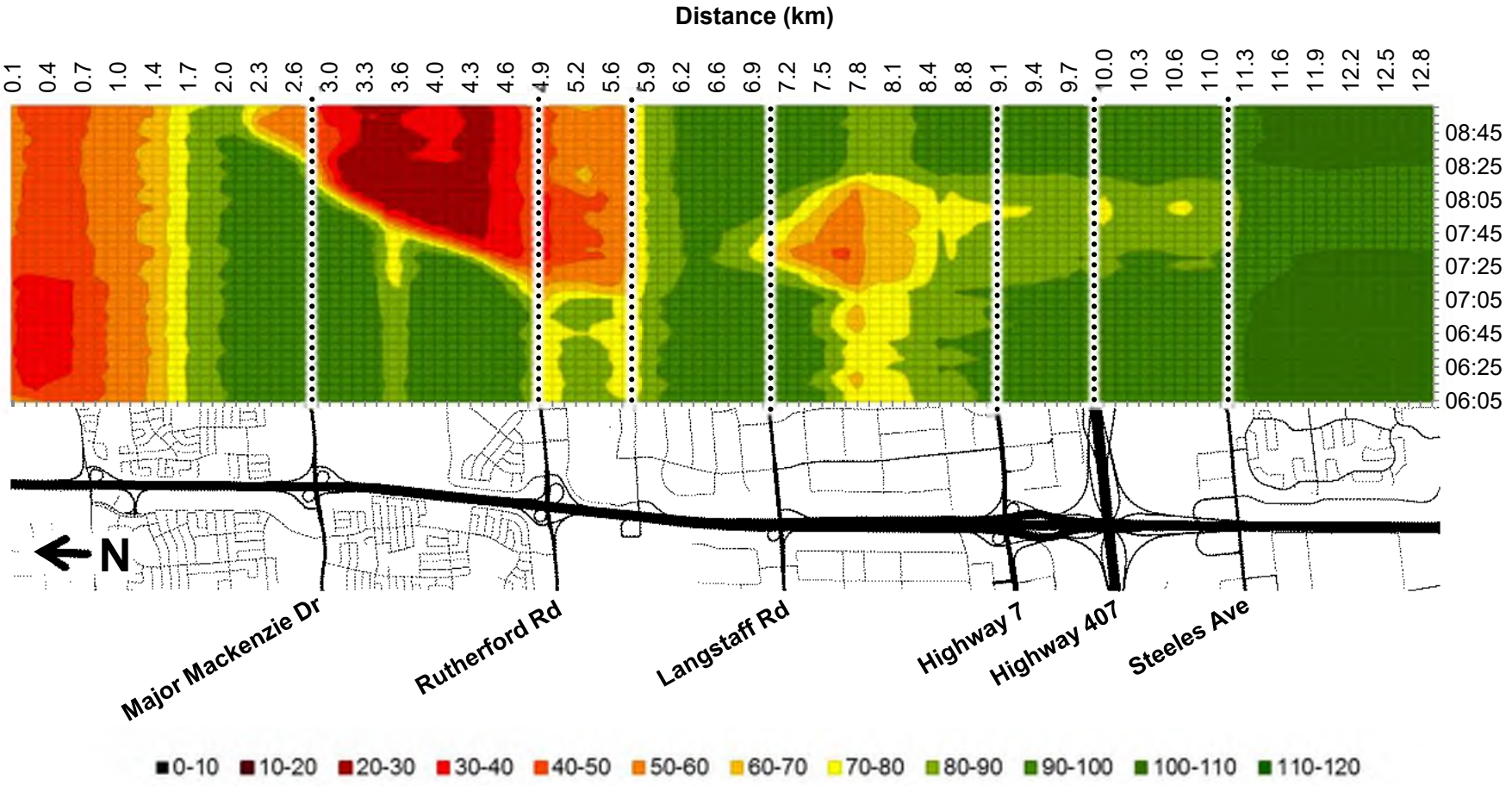
Future 2041 AM Average Speeds

Scenario	AM Peak Hour		Remarks
	Northbound	Southbound	
No-Build	91.7 kph	54.8 kph	
Only Langstaff Road Improvements (i.e. without Hwy 400 Interchange Improvements)	93.1 kph	62.2 kph (▲ 7.4 vs No-Build)	**NB:** negligible change in speed **SB:** increased speed. Mainline operation improves (vs No Build) due to traffic redistribution
Option 3: Hybrid	92.4 kph	75.4 kph (▲ 20.6 vs No-Build)	**NB:** negligible change in speed **SB:** increased speed. Mainline operation improves (vs No Build and Langstaff Road improvements) due to traffic redistribution

Note: Future 2041 simulated travel times measured for Highway 400 from south of Steeles Ave to north of Major Mackenzie Dr

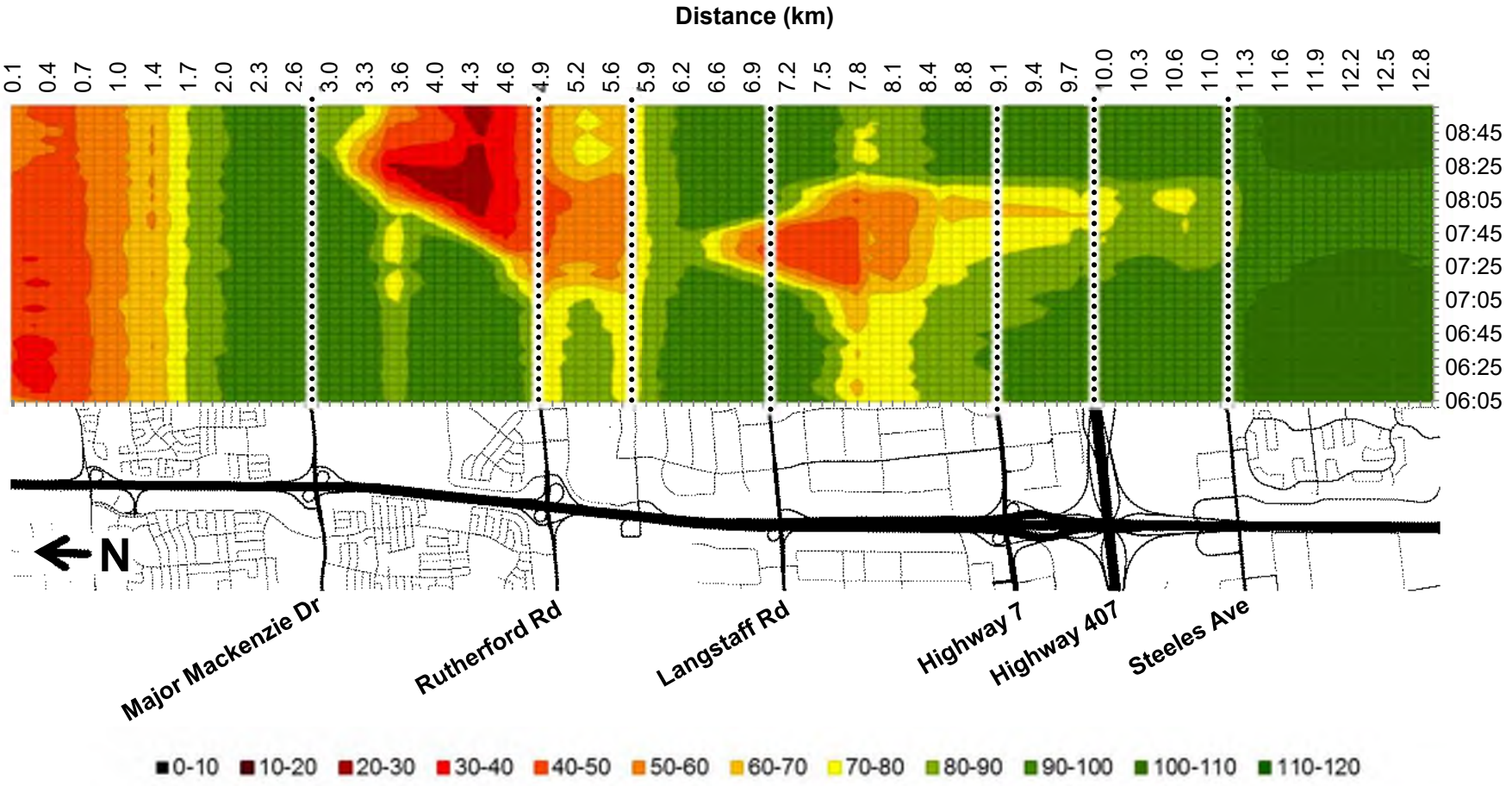
Future 2041 Speed Contour Plots

No-Build AM – SB Direction



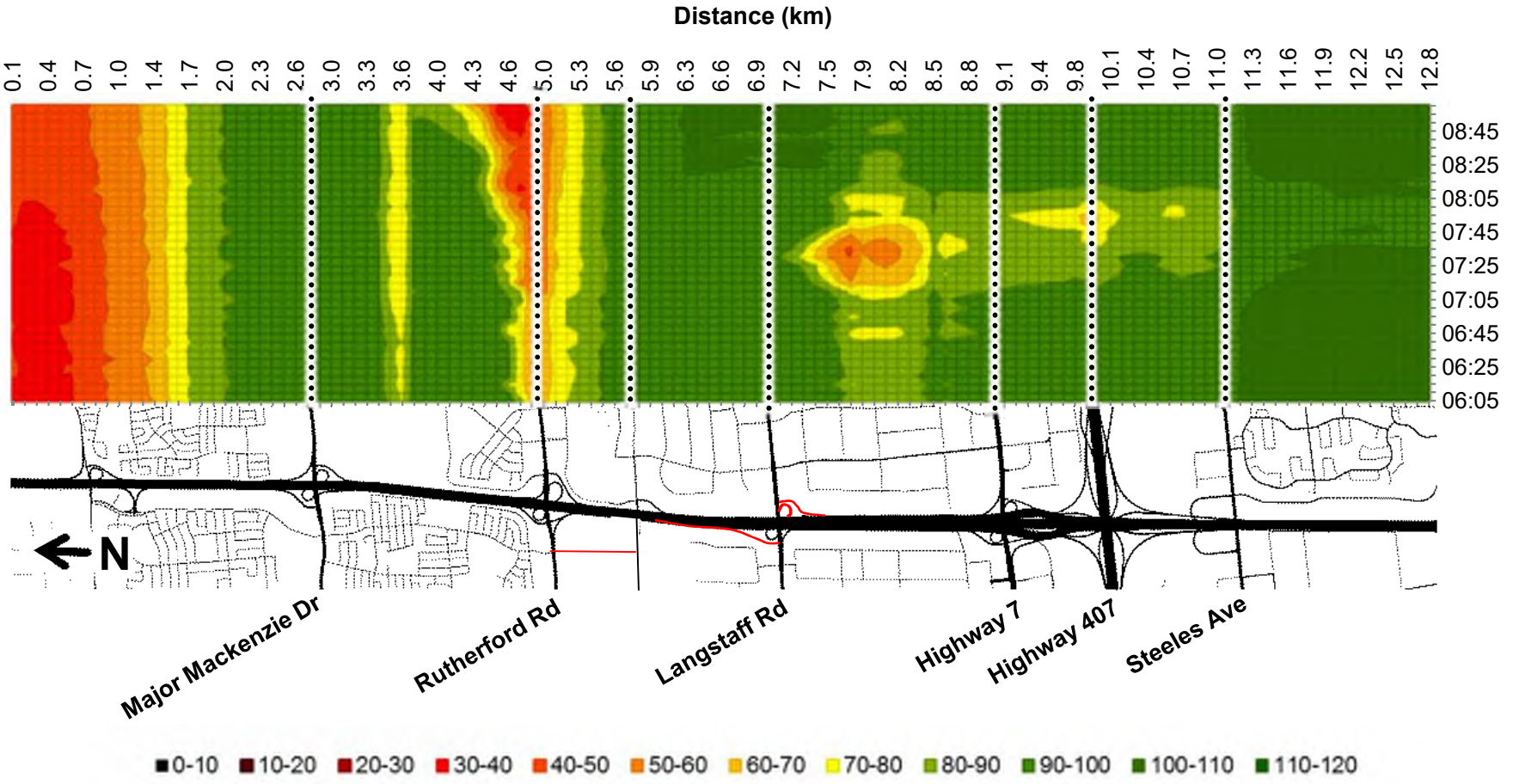
Future 2041 Speed Contour Plots

Only Langstaff Road Improvements AM – SB Direction



Future 2041 Speed Contour Plots

Interchange Option 3 (Hybrid) AM – SB Direction



Preliminary Traffic Analysis Findings

Future 2041 PM Travel Times

Scenario	PM Peak Hour		Remarks
	Northbound	Southbound	
No-Build	23 min 28 sec	9 min 10 sec	
Only Langstaff Road Improvements (i.e. without Hwy 400 Interchange Improvements)	22 min 56 sec (▼ 0:32 vs No Build)	9 min 22 sec	**NB:** decreased travel time. Lower mainline demand from existing interchange ramps due to traffic redistribution **SB:** negligible change in travel time
Option 3: Hybrid	25 min 53 sec (▲ 2:25 vs No-Build)	9 min 24 sec	**NB:** increased travel time. Additional demand from existing ramps and proposed Langstaff Road direct & loop on-ramps **SB:** negligible change in travel time

Note: Future 2041 simulated travel times measured for Highway 400 from south of Steeles Ave to north of Major Mackenzie Dr

Preliminary Traffic Analysis Findings

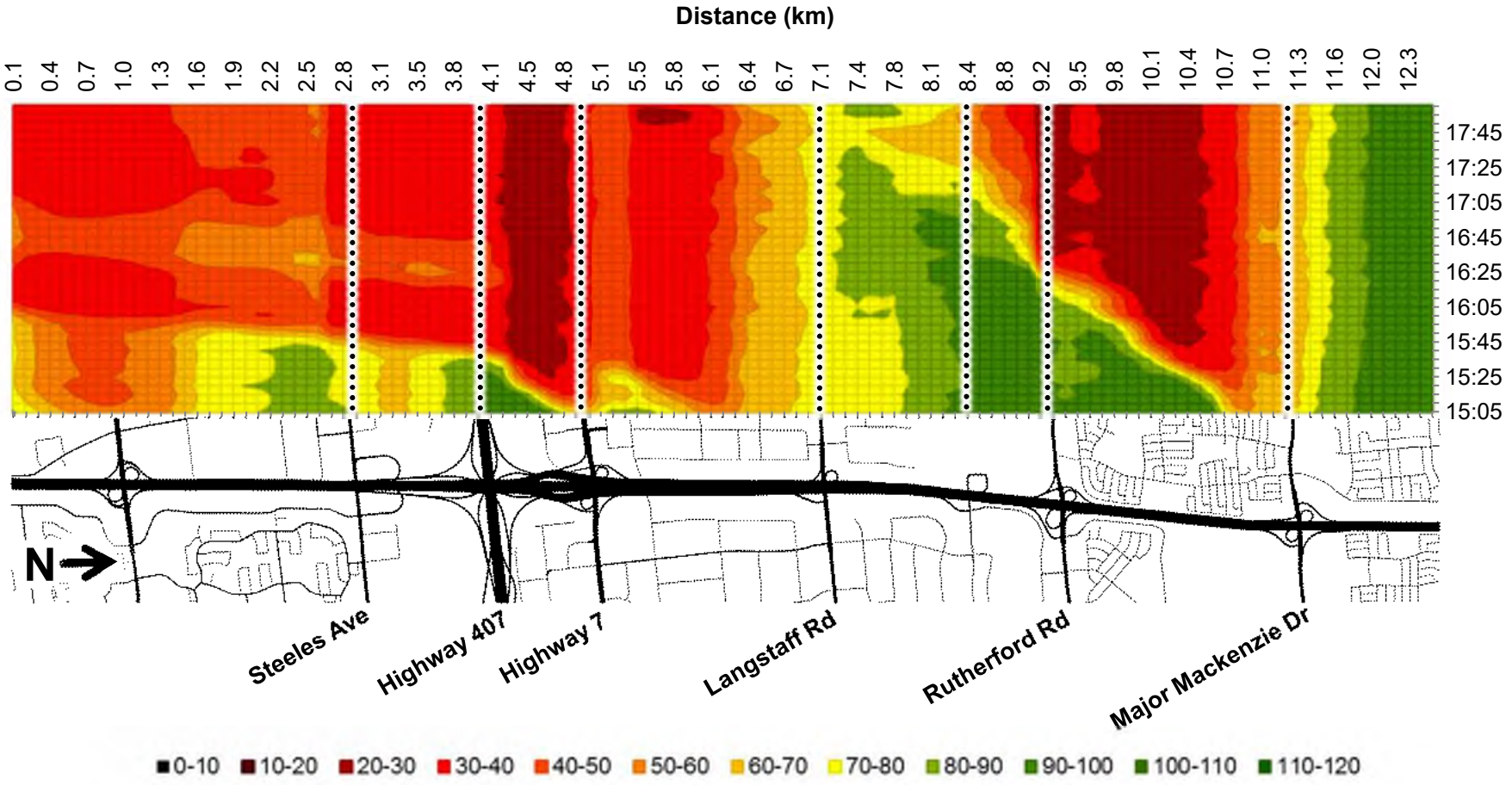
Future 2041 PM Average Speeds

Scenario	PM Peak Hour		Remarks
	Northbound	Southbound	
No-Build	32.4 kph	85.5 kph	
Only Langstaff Road Improvements (i.e. without Hwy 400 Interchange Improvements)	33.2 kph (▲ 0.8 vs No-Build)	83.6 kph	**NB:** increased speed. Lower mainline demand from existing interchange ramps due to traffic redistribution **SB:** negligible change in speed
Option 3: Hybrid	29.4 kph (▼ 3.0 vs No Build)	83.3 kph	**NB:** reduced speed. Additional mainline demand from existing ramps and proposed Langstaff Road direct & loop on-ramps **SB:** negligible change in speed

Note: Future 2041 simulated travel times measured for Highway 400 from south of Steeles Ave to north of Major Mackenzie Dr

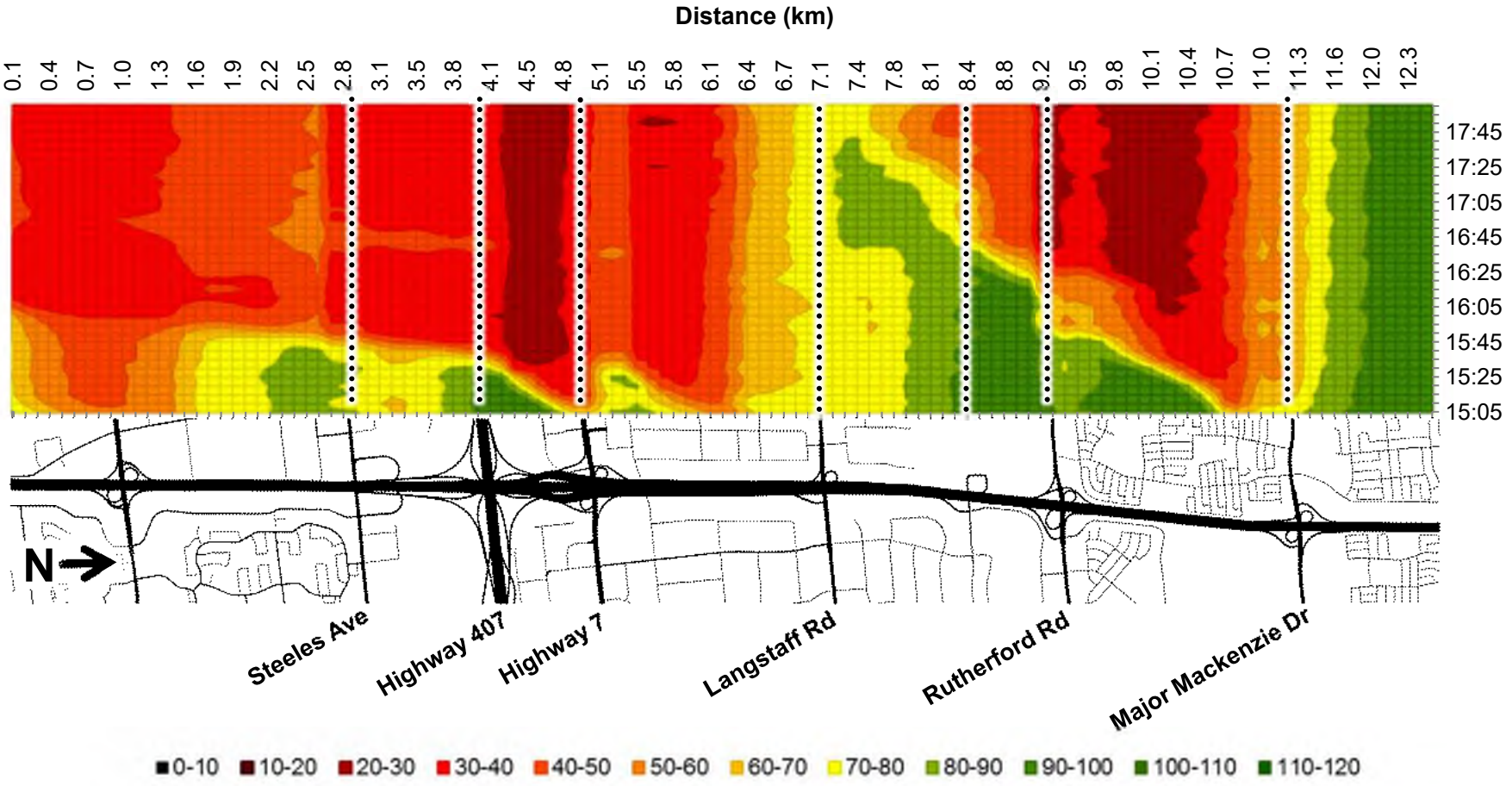
Future 2041 Speed Contour Plots

No-Build PM – NB Direction



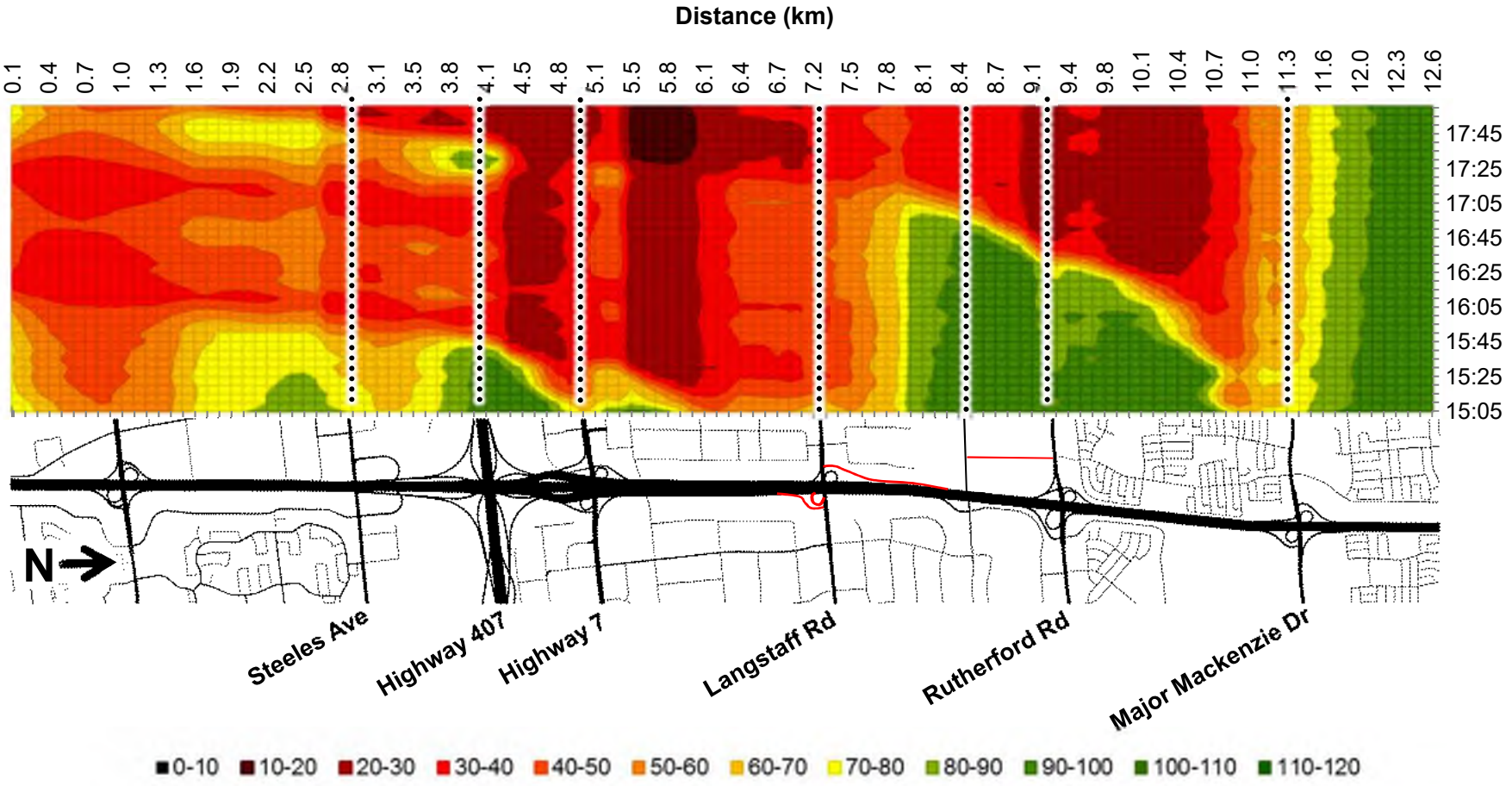
Future 2041 Speed Contour Plots

Only Langstaff Road Improvements PM – NB Direction



Future 2041 Speed Contour Plots

Interchange Option 3 (Hybrid) PM – NB Direction



Preliminary Traffic Analysis Findings

Future 2041 Highway Operations

AM Peak

- Traffic demand reduction and redistribution in the options relative to No-Build with travel time savings between 2 to 4 minutes in the southbound direction (peak)
- Negligible difference in northbound direction (off-peak)

PM Peak

- Langstaff Connection redistributes traffic to/from Highway 400 resulting in slight reduction in Hwy 400 northbound travel times
- Interchange improvements add traffic to Hwy 400 NB increasing travel times by 2.5 minutes in the northbound direction (peak);
- Negligible difference in southbound direction (off-peak)

Summary

Highway 400 Interchange Improvements

- Supports Regional and Provincial Goods Movement strategies
- Reduces traffic congestion within the overall transportation network
- Peak direction travel time reductions in AM; Minor increase in PM
- Minor improvement in traffic operations at the adjacent Highway 400 interchanges

Next Steps…

Design Workshop?

- In collaboration with MTO, develop additional conceptual Highway 400 Interchange design alternative(s) addressing MTO comments
- Following the workshop, prepare preliminary design of the Interchange
- Conduct Traffic Operational Analysis for the new design alternative
- Review findings with MTO

WORKSHOP NOTES

Date:	October 4, 2018 9:00 a.m. to 4:0 0 p.m.	**Project Number:**	16M-01457-01
Location:	MTO 159 Sir William Hearst Avenue, Toronto 2rd Floor – Operations Main Boardroom	**Project:**	Langstaff Road EA – Weston Road to Highway 7

Purpose: Langstaff Road/Highway 400 Interchange Design Workshop

Attendees:	**Agency**
Bob Stephenson	MTO – Planning and Design
Fiona Tam	MTO – Planning and Design
Frederic Szymanski	MTO – Planning and Design
Johnson Lau	MTO – Traffic
Aaron Janke	MTO – Traffic
Yat Yee	MTO – Traffic
John Mackinnon	MTO – Planning and Design
Tom Hewitt	MTO – Corridor Management
Maurizio Augurusa	MTO – Corridor Management
Marta Roias	City of Vaughan
Chris Tam	City of Vaughan
Frank Marzo	City of Vaughan
Hilda Hasedebe	City of Vaughan
David Atkins	York Region
Brian Wolf	York Region
Tim Kwan	York Region
Neil Ahmed	WSP
Jim Dowell	WSP
Ben Hui	WSP
Brent Gotts	WSP
Keyur Shah	WSP
Larry Sutherland	WSP
Jian Guan	WSP

Workshop Notes:

The following interchange improvement concepts (the concepts that are in green texts are newly development concepts at the workshop) were agreed by MTO to be carried forward for further review by the Project Team:

Northbound

- Parclo A3 - Northbound loop ramp only (base case)
- Core-Collector Extension (presented at the workshop)

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  - Current Plan (Parclo A4)
  - Remove direct ramp from the current option
  - Remove the loop ramp from the current option
- Service Road Option
  - Start Bass Pro Mills ramp south of Langstaff by creating a service road from the collector
- Ramp-off-a-ramp at Langstaff Road to Bass Pro
- Basket Weave (from the proposal)

Southbound

- Ramp-off-a-ramp
  - Terminates at Bass Pro Mills Drive (previously developed)
  - Terminates at Langstaff Road (previously developed)
- Realigning Bass Pro Mills Drive E-S ramp (previously developed)
- Core-Extension
  - Current plan (presented at the workshop) – could consider removing transfer to the core to improve weaving distance
  - Start collector at Rutherford Road, the Rutherford Road on-ramps and Bass Pro Mills Drive on-ramp basketweave over the collector.
  - Start collector at Rutherford Road, the Rutherford Road on-ramps and Bass Pro Mills Drive on-ramp connects to the collector.

Langstaff Road
Class Environmental Assessment Study
Weston Road to Highway 7

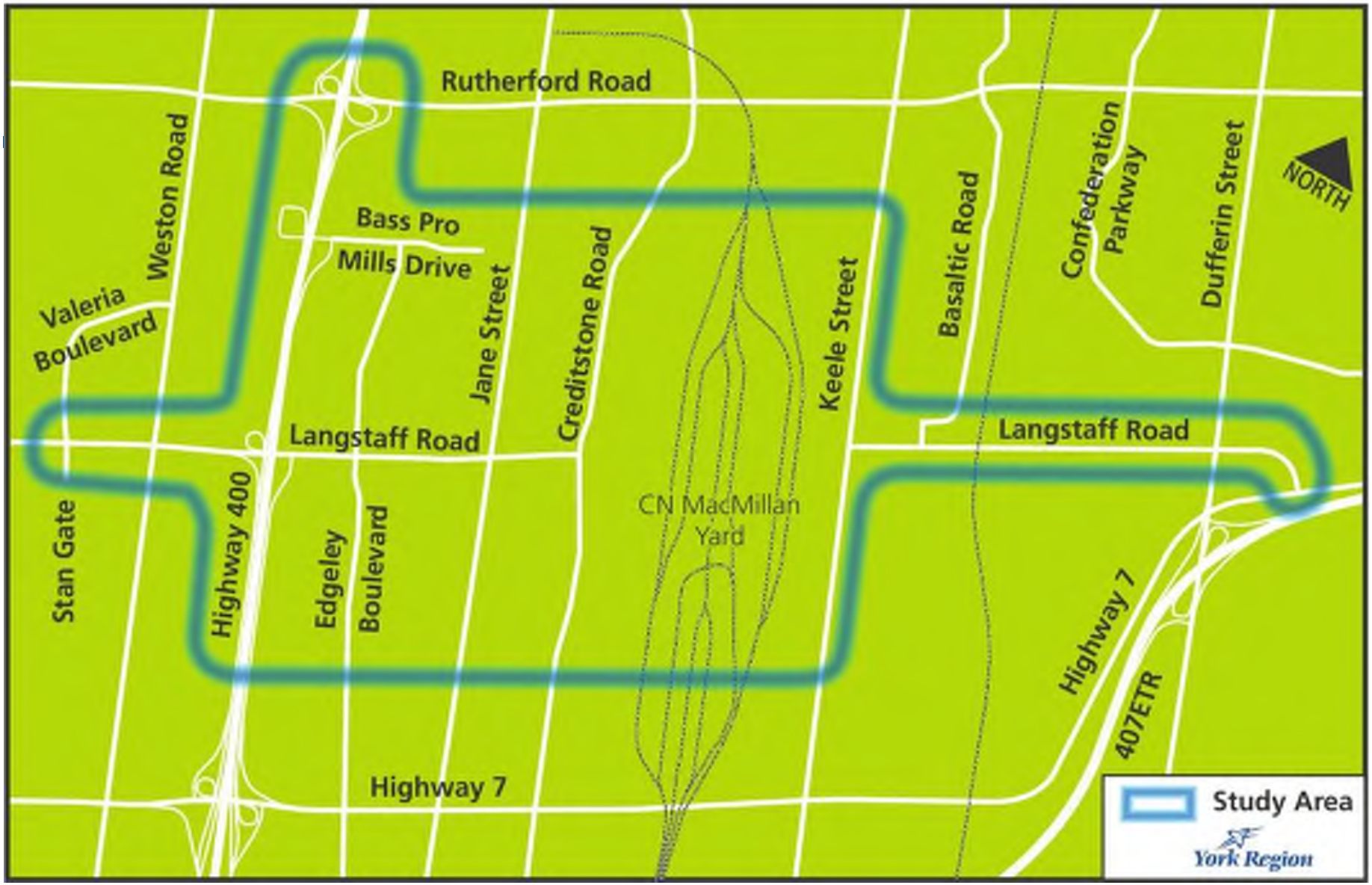
Interchange Design Workshop
October 4, 2018

GREAT|STREETS
Building Roads that Build Community

York Region

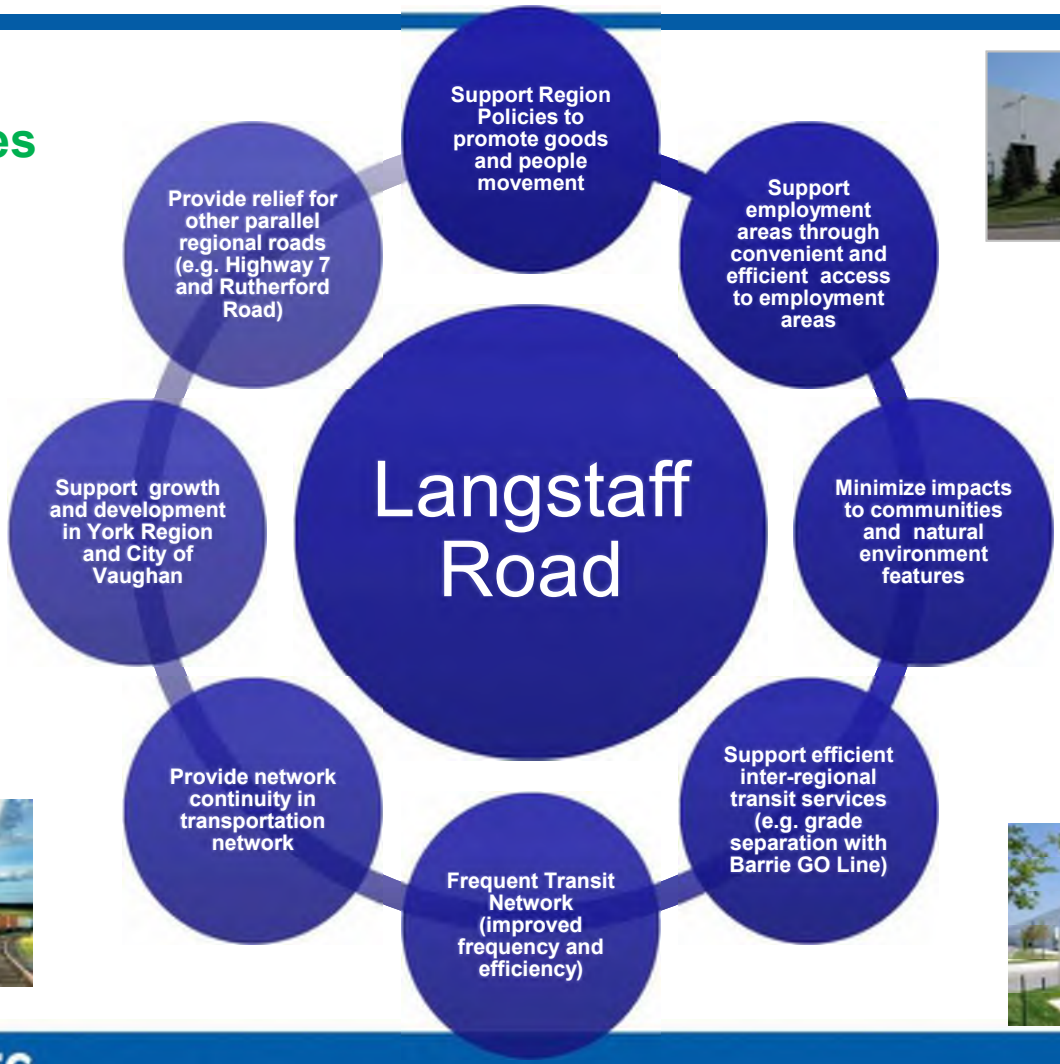
Agenda

- Introductions
- Purpose and Objectives of Workshop
- Background
- Discussion / Brainstorm – Southbound Direction
- **Lunch Break**
- Discussion / Brainstorm – Northbound Direction
- Discussion of Alternatives
- Closing Remarks


Rutherford Road
Weston Road
Bass Pro
Mills Drive
Valeria
Boulevard
Jane Street
Creditstone Road
Keele Street
Basaltic Road
Confederation
Parkway
Dufferin Street
NORTH
Langstaff Road
Langstaff Road
Stan Gate
Highway 400
Edgeley
Boulevard
CN MacMillan
Yard
Highway 7
407ETR
Highway 7
Study Area
York Region

Needs and Justification

The problems and opportunities identified for Langstaff Road are summarized here:



Recommended Planning Solution

- **Add New Lanes:** Widen Langstaff Road
- **Langstaff Road Connection:** Construct Langstaff Road link across the CN MacMillan Yard.
- **Highway 400 Interchange Improvements:** Convert Highway 400/Langstaff Road Interchange to a full-move interchange
- **Grade Separation:** Construct grade separation at Langstaff Road / Barrie GO Line
- **Intersection Improvements:** Turning lanes, traffic signal timing optimization, etc.
- **Alternative Modes of Transportation**: Provision of or improvements to pedestrian and cycling facilities. Improvements to transit system (e.g. improved transit amenities)






Purpose and Objectives of Workshop

The design of the Highway 400 / Langstaff Road interchange must consider:

Vaughan Growth

- Accommodating growth in VMC
- Accommodating businesses and growth in Vaughan Mills

Langstaff Road Improvements

- Accommodating proposed improvements including Highway 400 ramps to / from North
- Attracting goods movement to Langstaff Road corridor

Highway 400 Operations

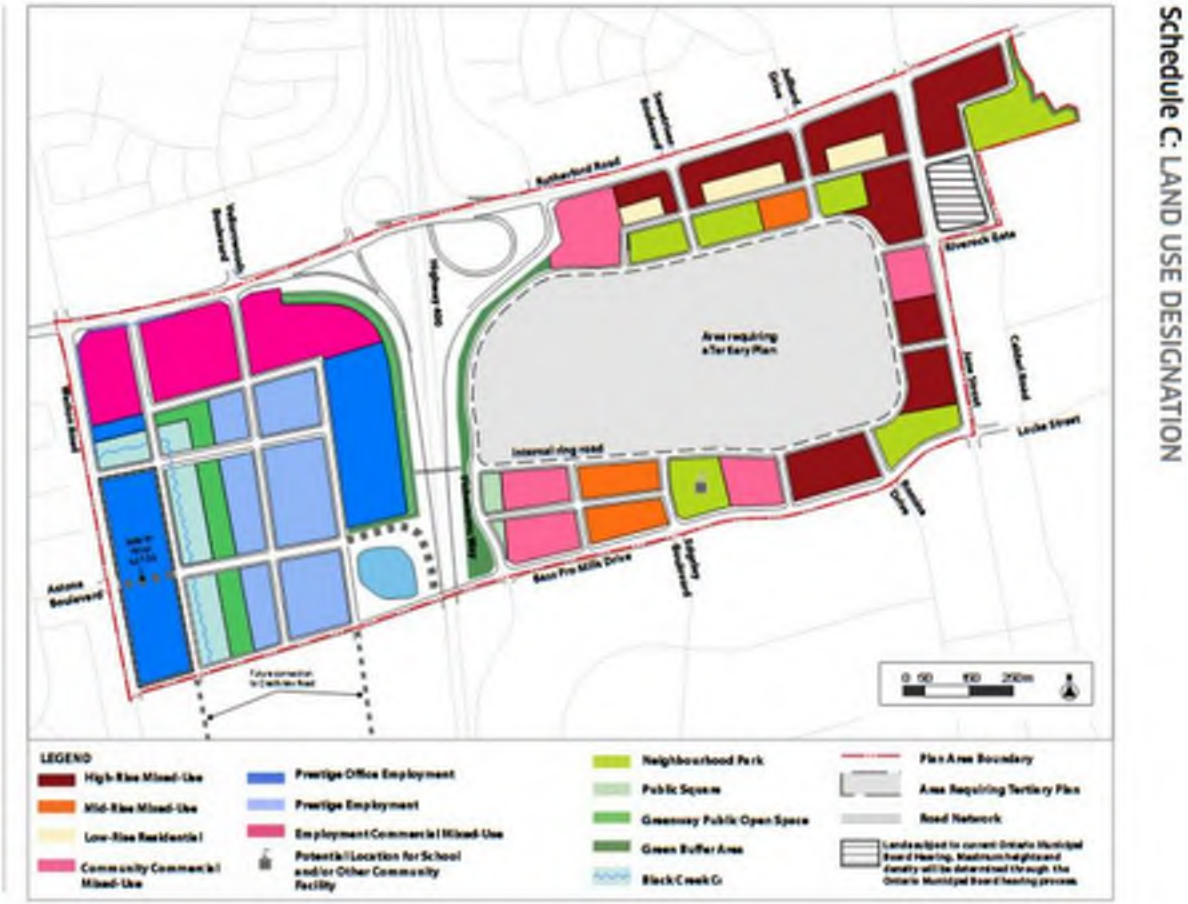
- Retaining or improving Highway 400 traffic operations
- Protecting future potential Highway 400 expansion (i.e. HOV/HOT)

VMC: Vaughan's New Downtown

VMC is a designated "Urban Growth Centre" in the Province of Ontario's Places to Grow Plan (2017) and is expected to accommodate more than 25,000 residents in 12,000 residential units along with 11,000 jobs in the coming decades

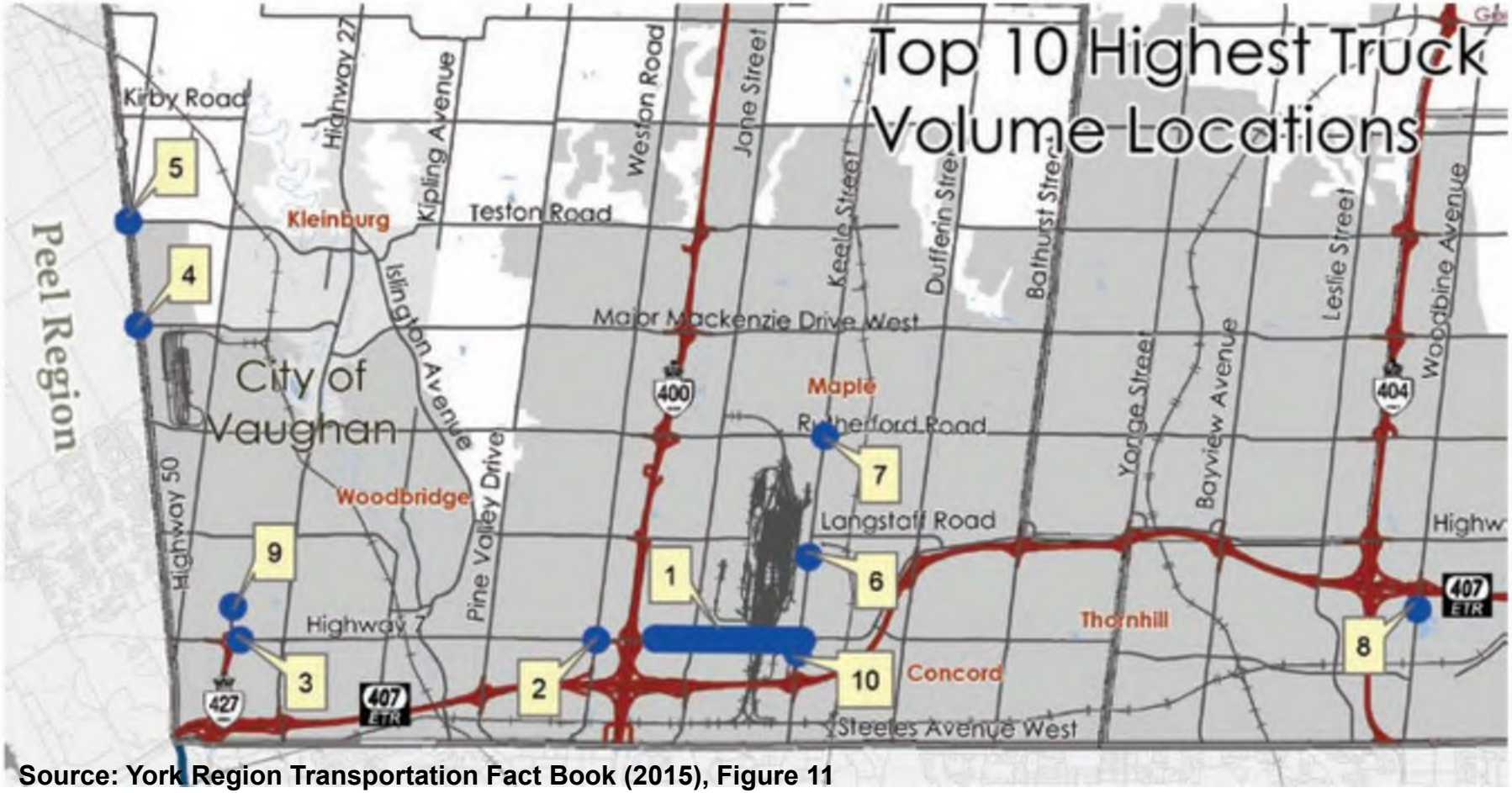
Vaughan Mills Expansion

- 146 hectare site
- Between Rutherford Road and Bass Pro Mills Drive adjacent to Highway 400
- Potential for a complete, walkable and mixed-use community.
- 10,907 new jobs
- Projected 8,778 new residents



Langstaff Road Connection To/From North

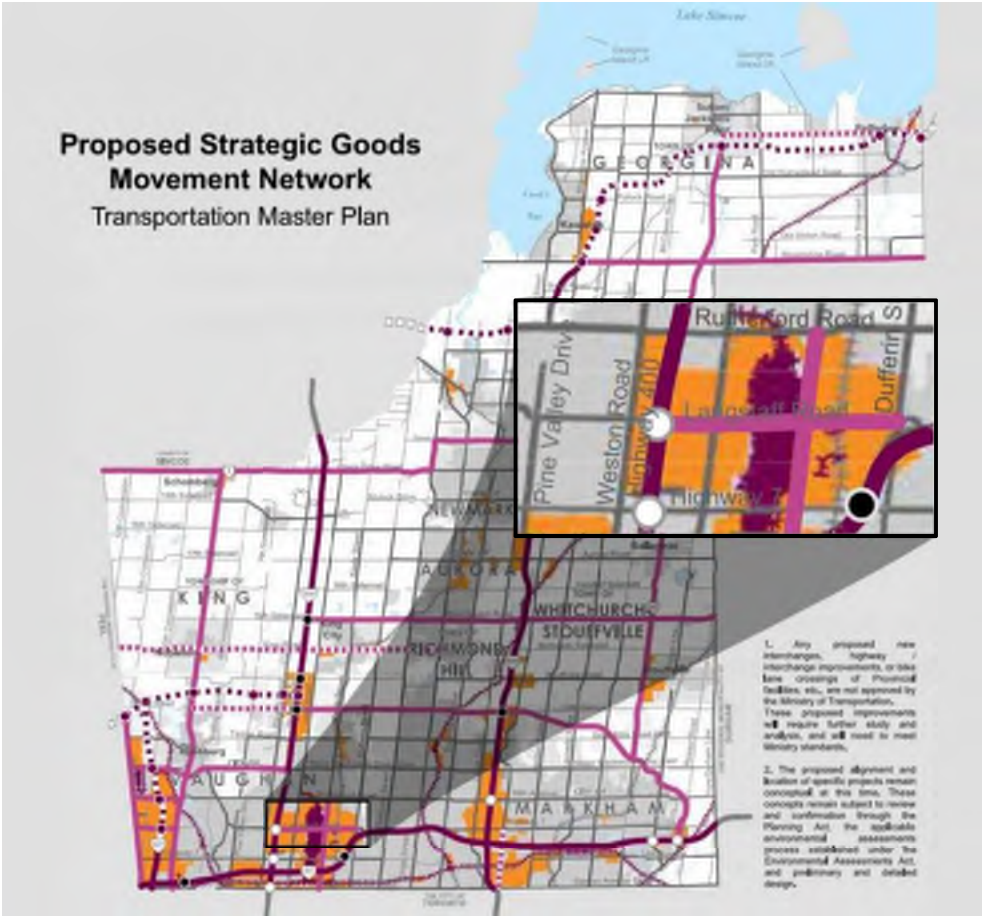
Highest Regional Road Truck Volumes (2014)



Source: York Region Transportation Fact Book (2015), Figure 11

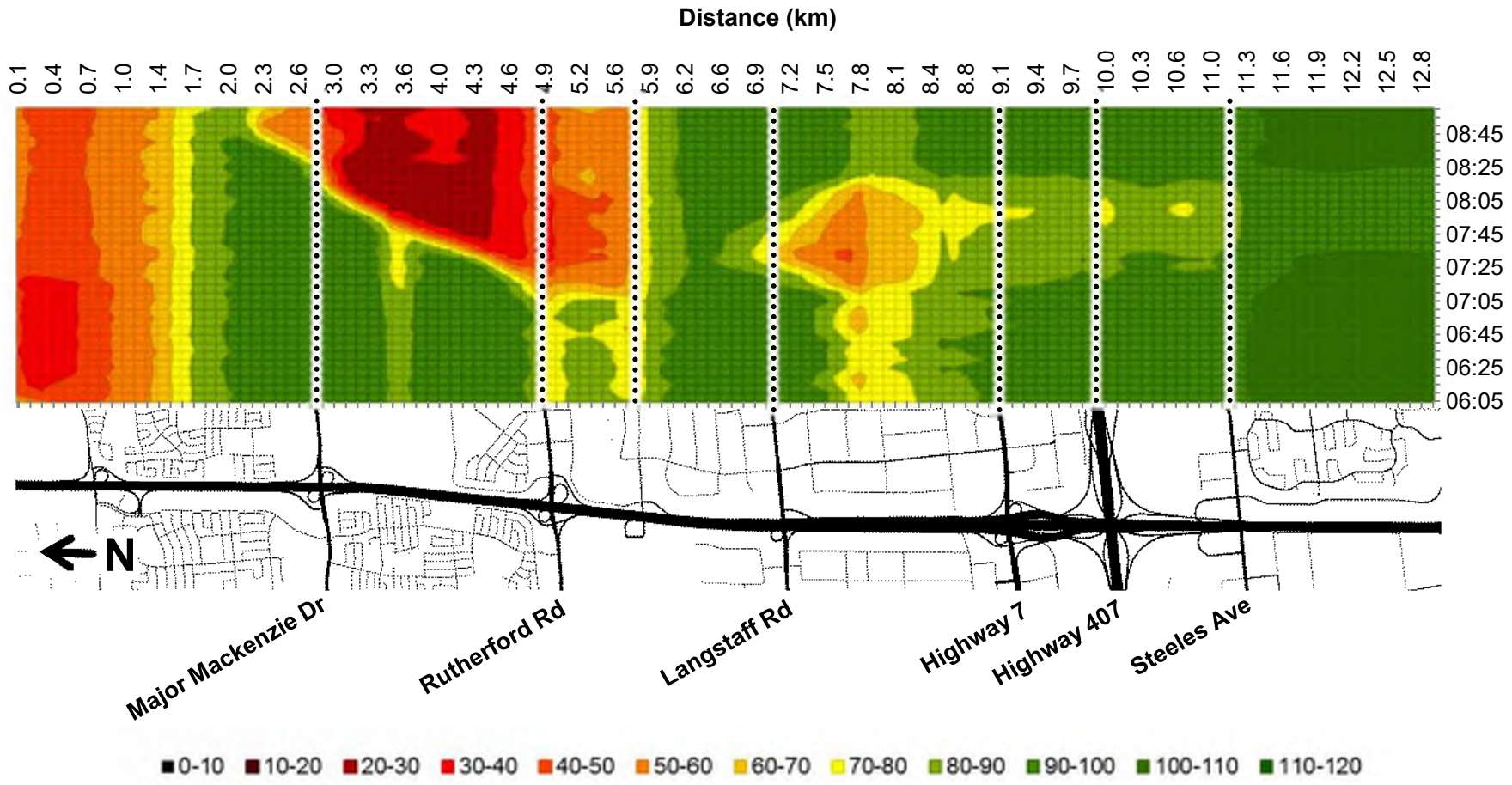
Goods Movement Plan for York Region

Langstaff Road is identified as a **Primary Arterial Goods Movement Corridor** between Highway 400 and Dufferin Street and is surrounded by employment areas



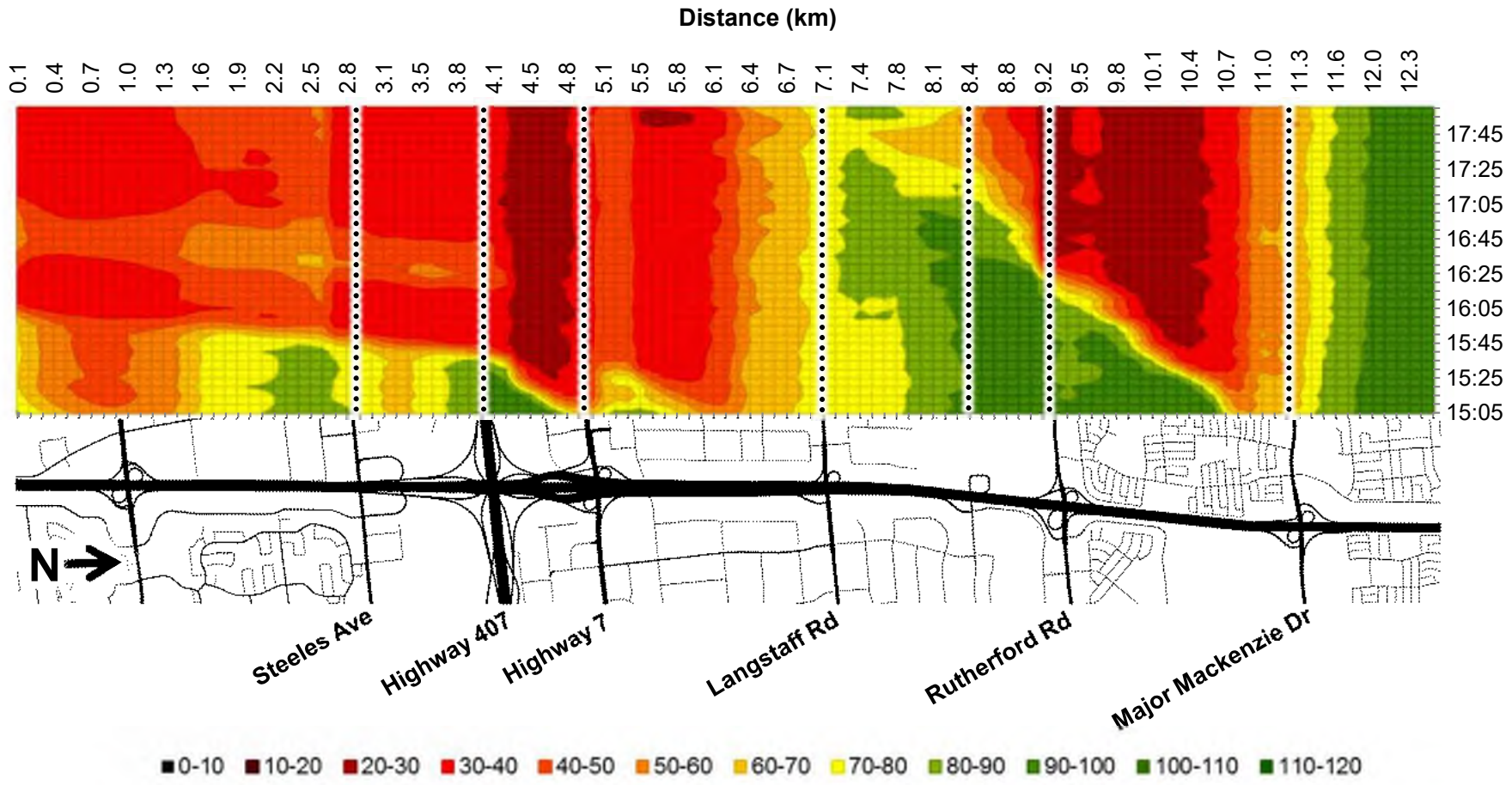
Future 2041 Speed Contour Plots

No-Build AM – SB Direction



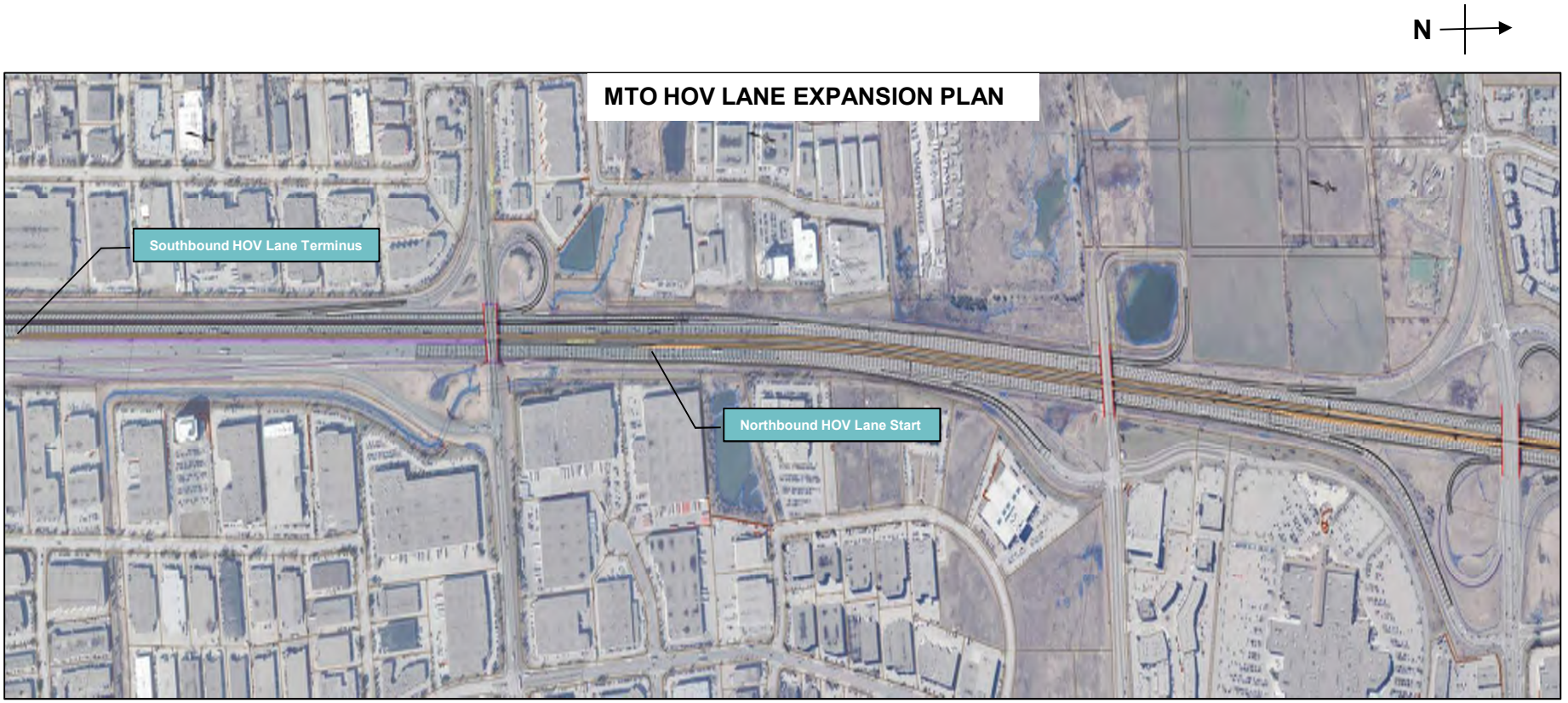
Future 2041 Speed Contour Plots

No-Build PM – NB Direction



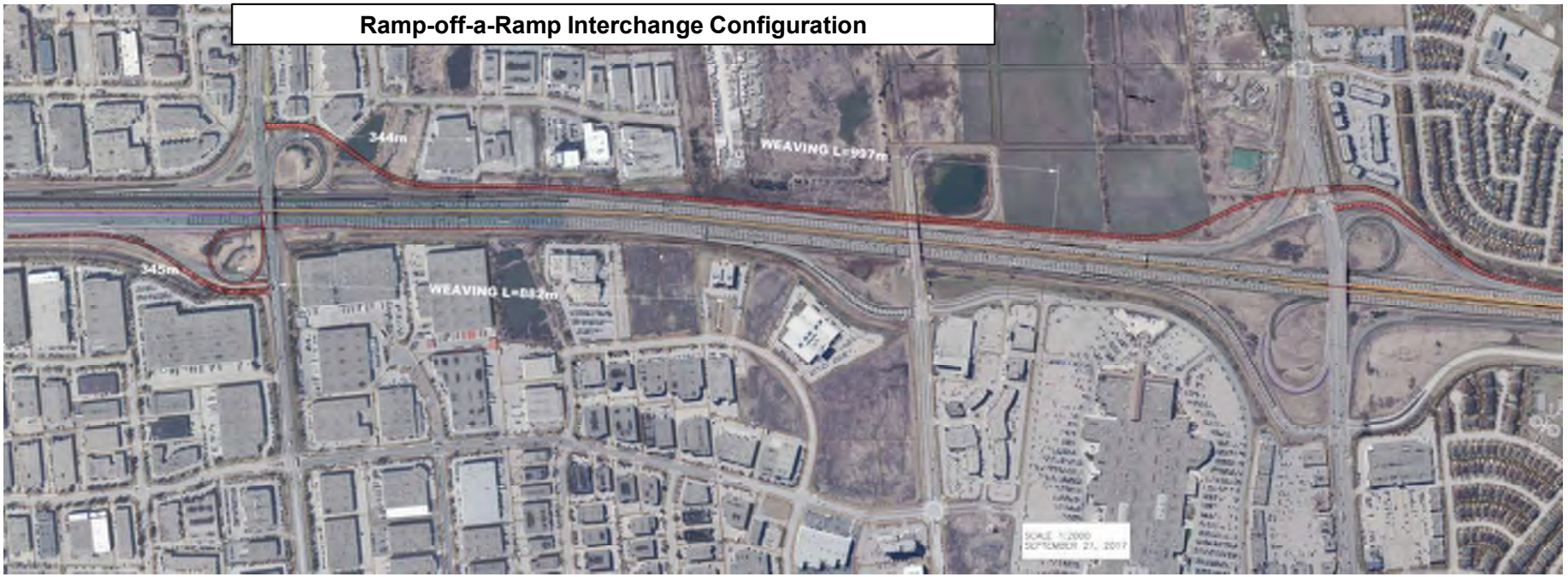
Existing Highway 400 Conditions

Potential Highway 400 Expansion



Option 1: “Ramp-Off-A-Ramp” Configuration

N



Option 2: Re-Route of Bass Pro Mills Ramps

Option 3: Hybrid Interchange Configuration

MTO Response to Date

- Simulation model does not reflect expected conditions
- Concerns with Highway 400 Design Options 1, 2, 3
  - Weaving distance
  - Limits to Highway 400 expansion
  - Overloaded ramps
  - Signing conflicts
- Altering start of NB HOV lane not acceptable
- Existing deficiencies/operational concerns to be addressed
- Improvements should have no negative impact on Highway 400

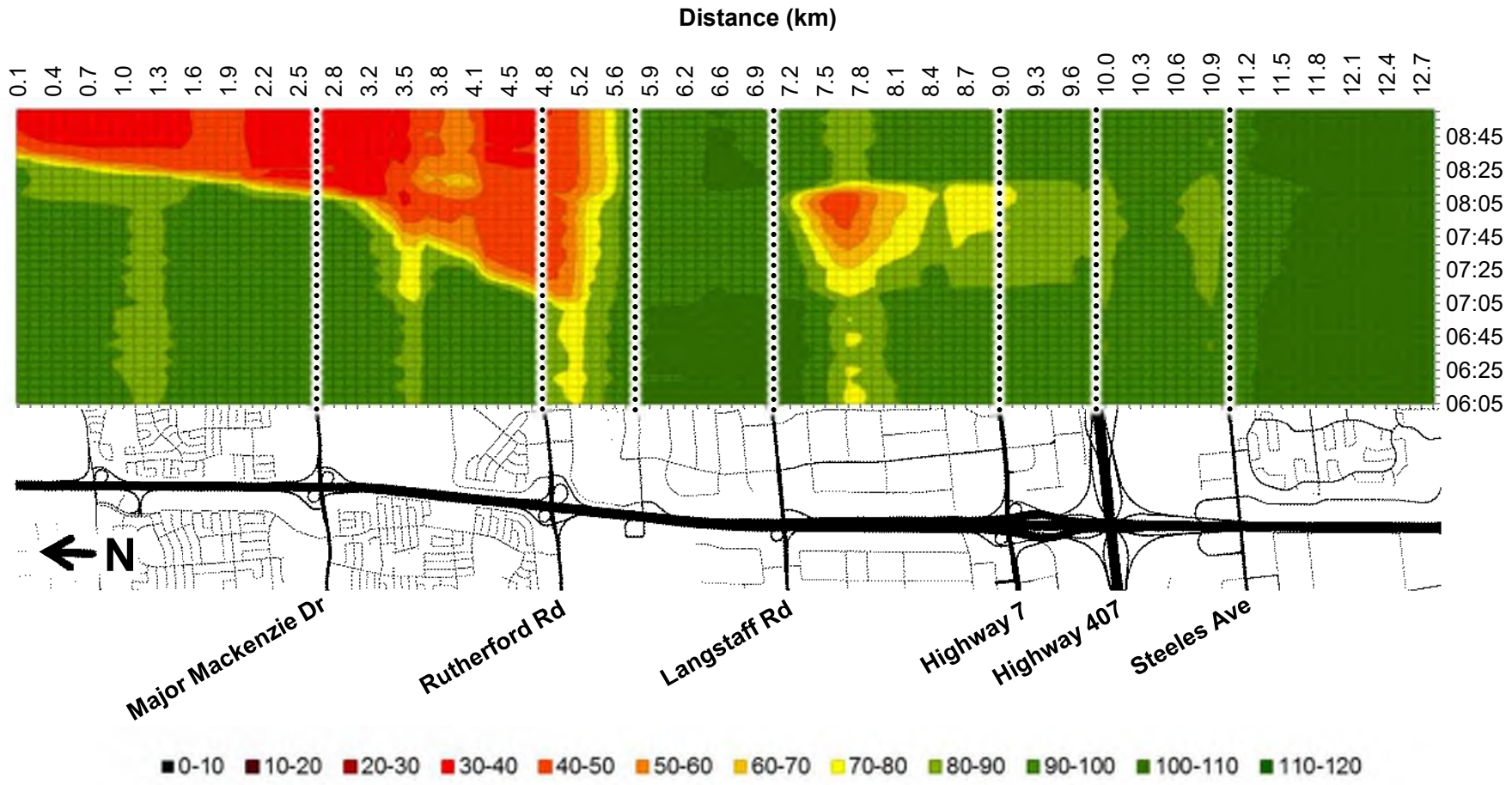
City of Vaughan Response to Date

- Incorporate City of Vaughan planning policies including Vaughan Mills Centre Secondary Plan
- Current OMB review may be impacted
- Concerns with Highway 400 Design Options 1, 2, 3
  - Impacts to surrounding land uses and properties (Vaughan Mills Centre Secondary Plan)
  - Impacts to existing Bass Pro Mills Drive interchange ramps
  - Impacts to traffic operation at ramp terminals and future transportation network

Reference Slides

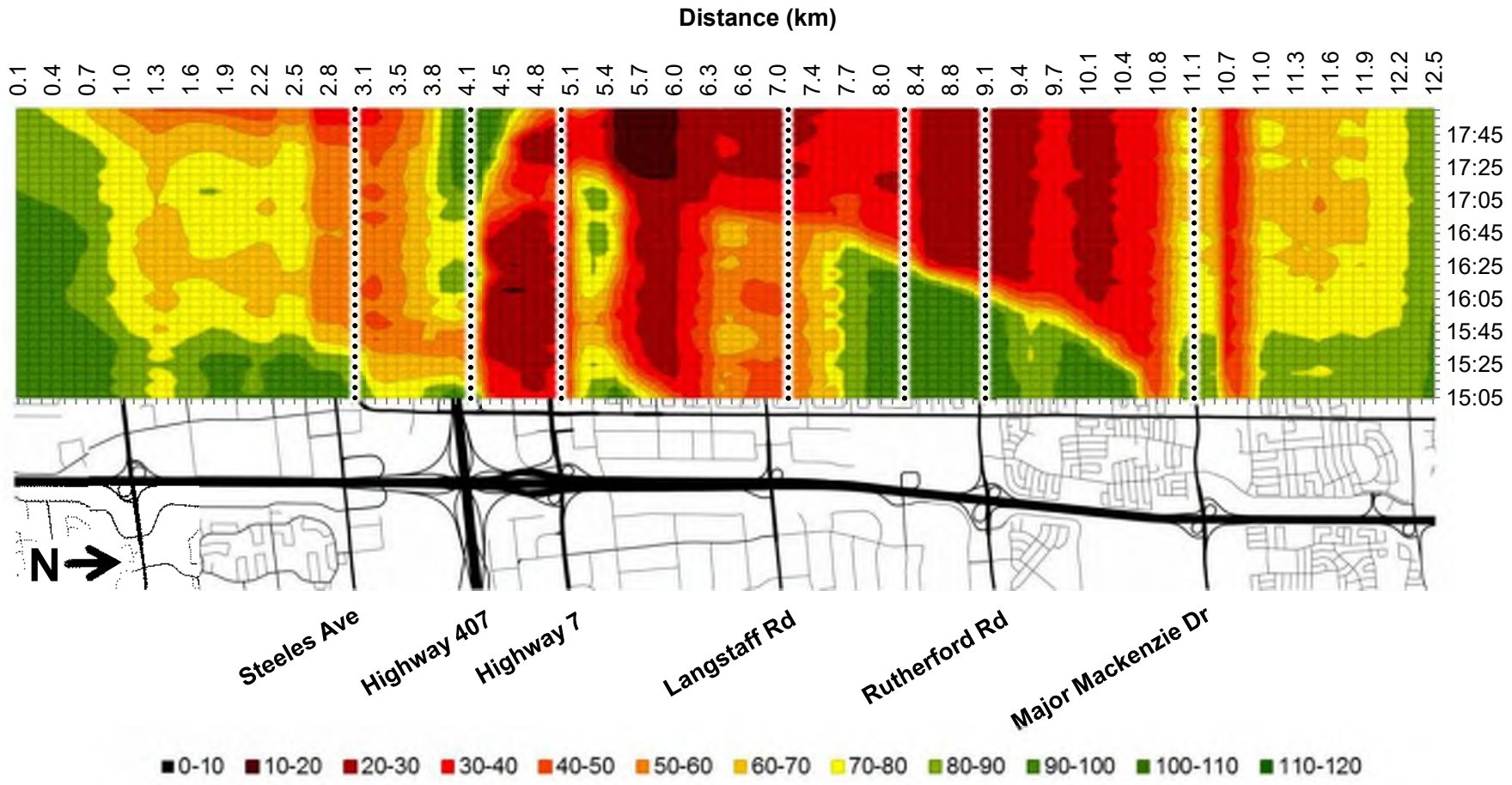
Existing Speed Contour Plots

AM – SB Direction



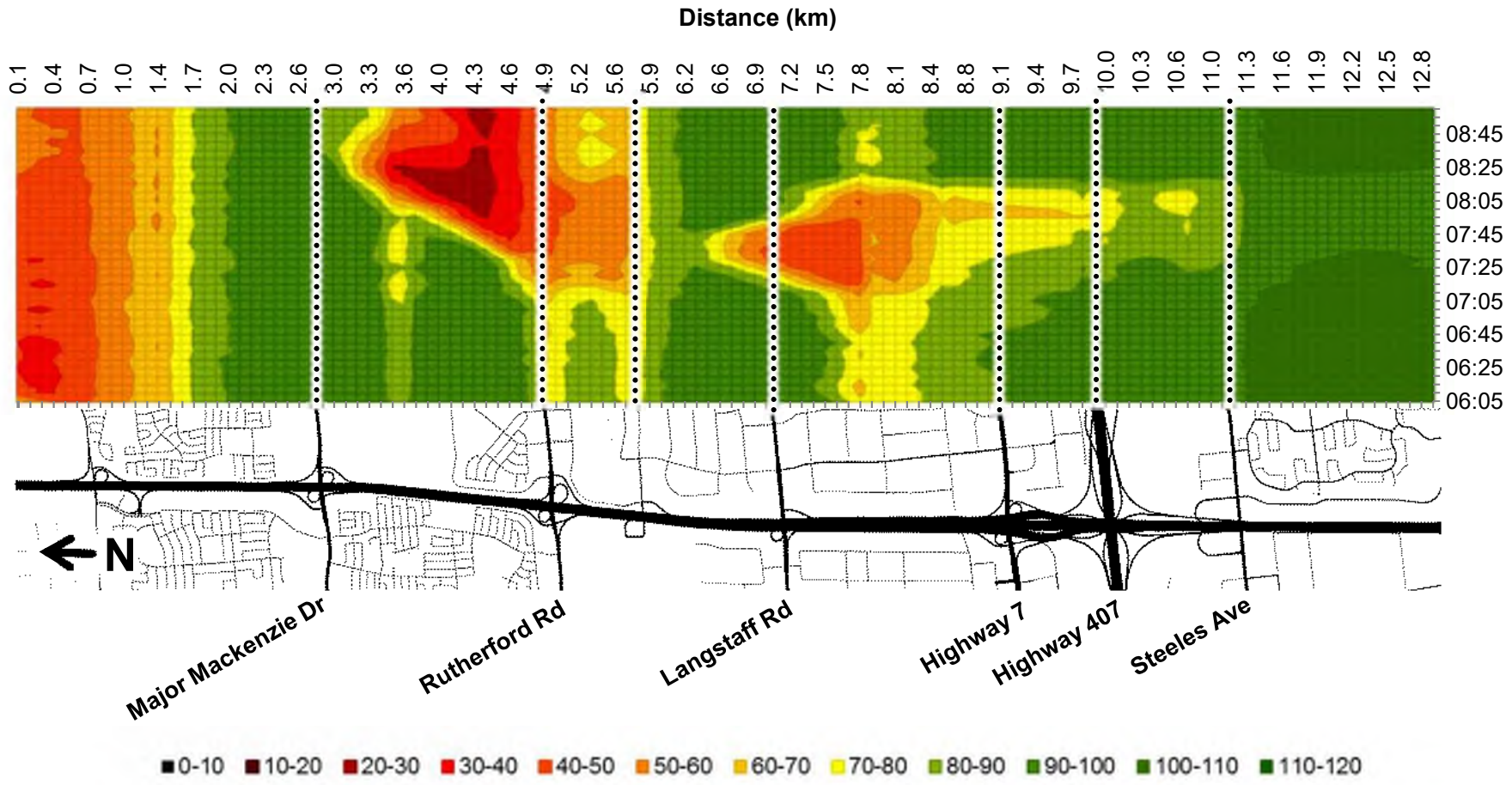
Existing Speed Contour Plots

PM – NB Direction



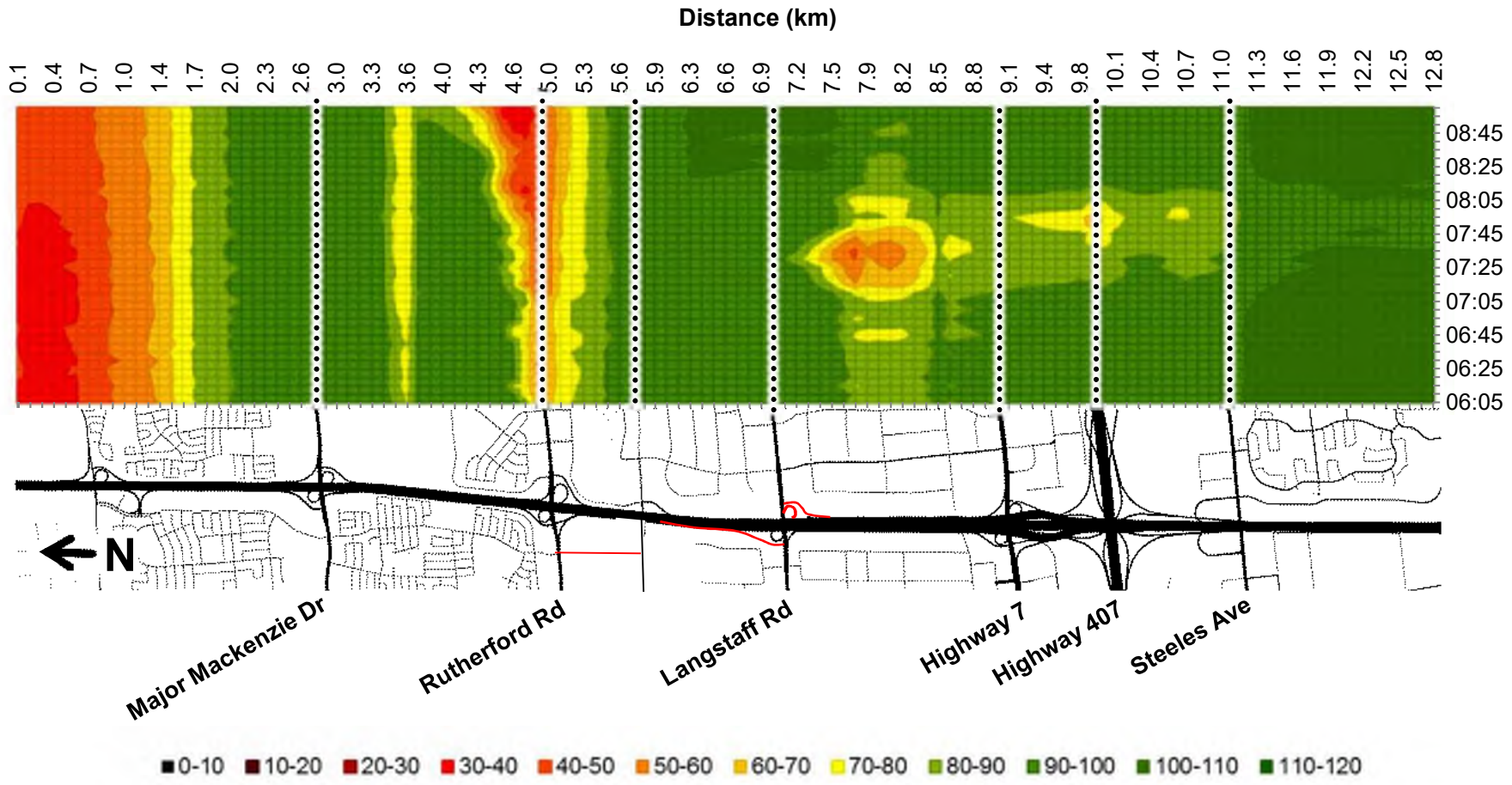
Future 2041 Speed Contour Plots

Only Langstaff Road Improvements AM – SB Direction



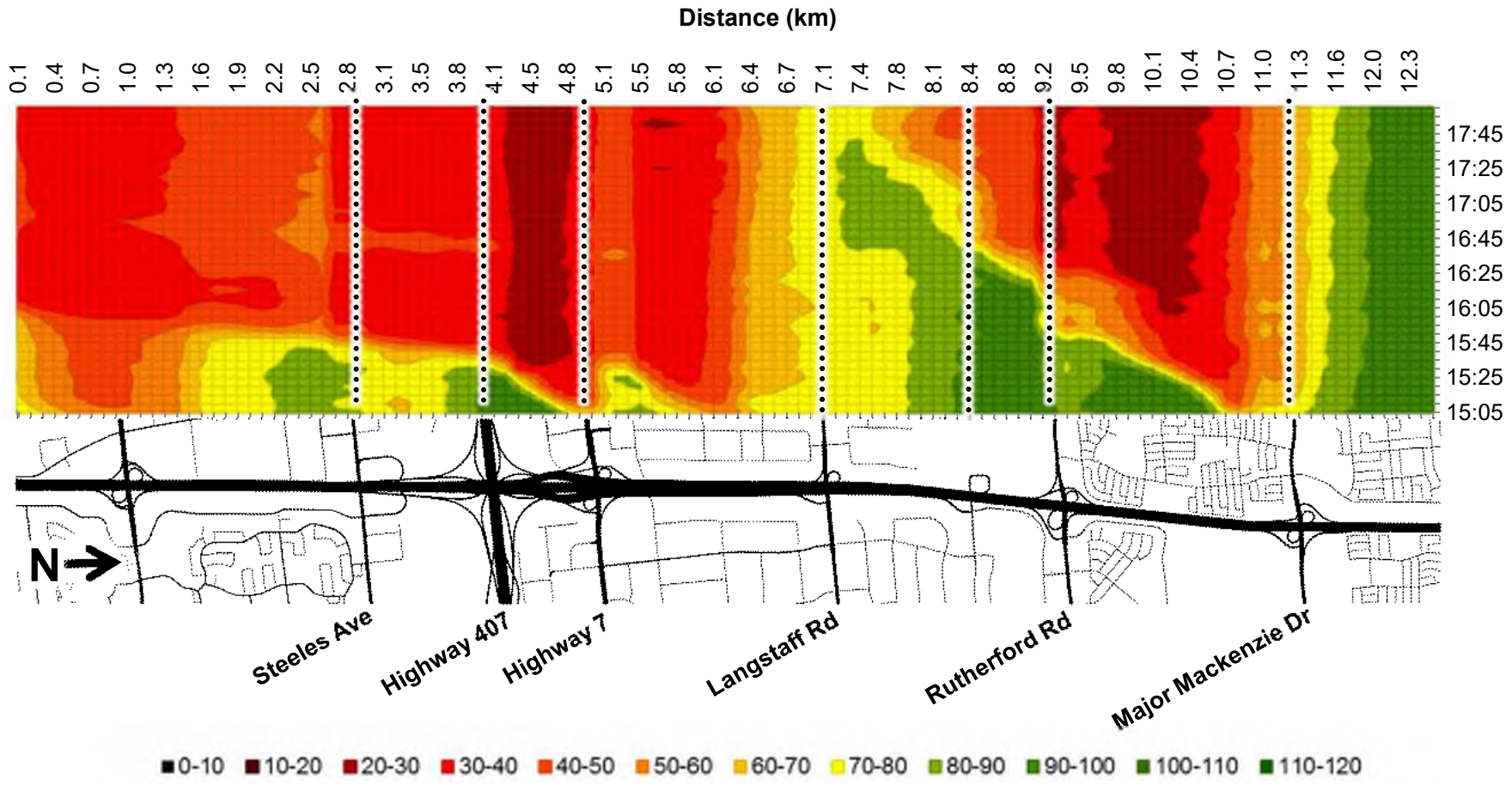
Future 2041 Speed Contour Plots

Interchange Option 3 (Hybrid) AM – SB Direction



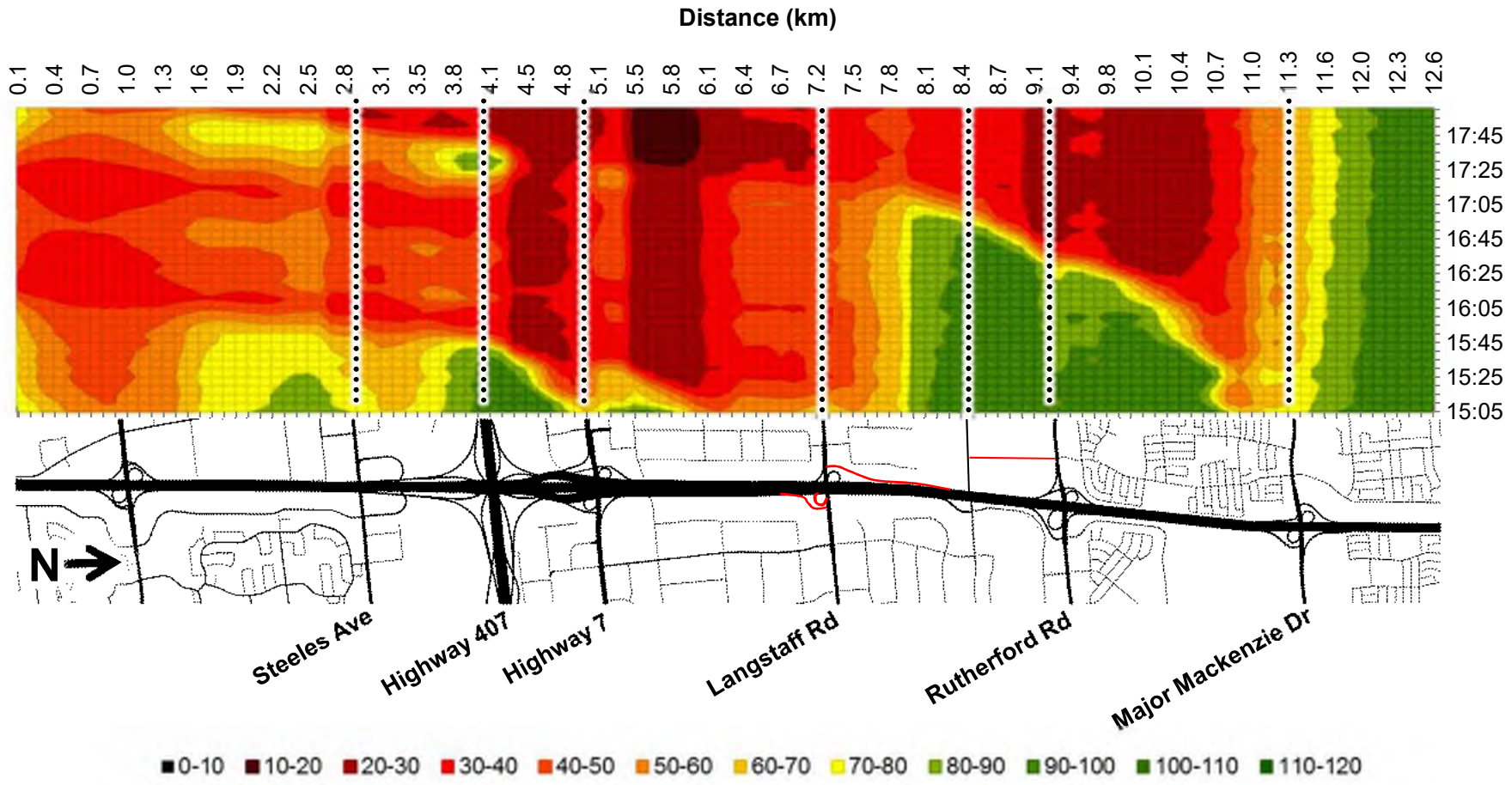
Future 2041 Speed Contour Plots

Only Langstaff Road Improvements PM – NB Direction



Future 2041 Speed Contour Plots

Interchange Option 3 (Hybrid) PM – NB Direction



Preliminary Traffic Analysis Findings

Future 2041 AM Travel Times

Scenario	AM Peak Hour		Remarks
	Northbound	Southbound	
No-Build	8 min 18 sec	14 min 18 sec	
Only Langstaff Road Improvements (i.e. without Hwy 400 Interchange Improvements)	8 min 10 sec	12 min 35 sec (▼ 1:43 vs No Build)	**NB:** negligible change in travel time **SB:** reduced travel time. Mainline operation improves (vs No Build) due to traffic redistribution
Option 3: Hybrid	8 min 14 sec	10 min 22 sec (▼ 3:56 vs No Build)	**NB:** negligible change in travel time **SB:** reduced travel time. Mainline operation improves (vs No Build and Langstaff Road improvements) due to traffic redistribution

Note: Future 2041 simulated travel times measured for Highway 400 from south of Steeles Ave to north of Major Mackenzie Dr

Preliminary Traffic Analysis Findings

Future 2041 AM Average Speeds

Scenario	AM Peak Hour		Remarks
	Northbound	Southbound	
No-Build	91.7 kph	54.8 kph	
Only Langstaff Road Improvements (i.e. without Hwy 400 Interchange Improvements)	93.1 kph	62.2 kph (▲ 7.4 vs No-Build)	**NB:** negligible change in speed **SB:** increased speed. Mainline operation improves (vs No Build) due to traffic redistribution
Option 3: Hybrid	92.4 kph	75.4 kph (▲ 20.6 vs No-Build)	**NB:** negligible change in speed **SB:** increased speed. Mainline operation improves (vs No Build and Langstaff Road improvements) due to traffic redistribution

Note: Future 2041 simulated travel times measured for Highway 400 from south of Steeles Ave to north of Major Mackenzie Dr

Preliminary Traffic Analysis Findings

Future 2041 PM Travel Times

Scenario	PM Peak Hour		Remarks
	Northbound	Southbound	
No-Build	23 min 28 sec	9 min 10 sec	
Only Langstaff Road Improvements (i.e. without Hwy 400 Interchange Improvements)	22 min 56 sec (▼ 0:32 vs No Build)	9 min 22 sec	**NB:** decreased travel time. Lower mainline demand from existing interchange ramps due to traffic redistribution **SB:** negligible change in travel time
Option 3: Hybrid	25 min 53 sec (▲ 2:25 vs No-Build)	9 min 24 sec	**NB:** increased travel time. Additional demand from existing ramps and proposed Langstaff Road direct & loop on-ramps **SB:** negligible change in travel time

Note: Future 2041 simulated travel times measured for Highway 400 from south of Steeles Ave to north of Major Mackenzie Dr

Preliminary Traffic Analysis Findings

Future 2041 PM Average Speeds

Scenario	PM Peak Hour		Remarks
	Northbound	Southbound	
No-Build	32.4 kph	85.5 kph	
Only Langstaff Road Improvements (i.e. without Hwy 400 Interchange Improvements)	33.2 kph (▲ 0.8 vs No-Build)	83.6 kph	**NB:** increased speed. Lower mainline demand from existing interchange ramps due to traffic redistribution **SB:** negligible change in speed
Option 3: Hybrid	29.4 kph (▼ 3.0 vs No Build)	83.3 kph	**NB:** reduced speed. Additional mainline demand from existing ramps and proposed Langstaff Road direct & loop on-ramps **SB:** negligible change in speed

Note: Future 2041 simulated travel times measured for Highway 400 from south of Steeles Ave to north of Major Mackenzie Dr

MEETING MINUTES

Date:	August 13, 2019 10:00 a.m. to 11:30 a.m.	**Project Number:**	16M-01457-01
Location:	MTO 159 Sir William Hearst Avenue, Toronto 4th Floor Boardroom	**Project:**	Langstaff Road EA – Weston Road to Highway 7

Purpose: Meeting #7 with Ministry of Transportation (MTO)

Attendees:	**Agency**
John Mackinnon	MTO – Planning and Design
Fiona Tam	MTO – Planning and Design
Tim Apostolopoulos	MTO – Traffic
Nina Vallve	MTO – Traffic
Johnson Lau	MTO – Traffic
Keith Cherneski	MTO – Environmental
David Atkins	York Region
Colin Wong	York Region
Katherine Jim	WSP
Brent Gotts	WSP
Keyur Shah	WSP
Jian Guan	WSP

Item	Details	Action By
ITEM 1 –	**INTRODUCTION**	
1.1z	Those at the meeting were introduced. C. Wong, York Region, noted that the purpose of the meeting is to present the traffic micro-simulation results for the Diverging Diamond Interchange (DDI) configuration at Highway 400 / Langstaff Road interchange and to discuss the next steps of the project.	
1.2	C. Wong noted that Brian Wolf has retired from the Region, and he is replacing Brian as the overall project manager. K. Jim, WSP, noted that Neil Ahmed has retired from WSP, and she is replacing Neil as the consultant project manager.	
1.3	K. Jim circulated the presentation slide deck and provided a brief overview of the study area, status of the project, as well as work	

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Item	Details	Action By
	completed to date regarding the proposed improvements to the Highway 400 / Langstaff Road interchange.	
ITEM 2 –	**MTO INVOLVEMENT TO DATE**	
2.1	K. Jim provided a summary of previous MTO meetings and comments received to date from MTO regarding the proposed Highway 400 / Langstaff Road interchange improvements: • Meeting 1 (December 2, 2016): Project introduction. • Meeting 2 (May 10, 2017): Screenline and capacity analysis results to demonstrate the need for improvements on Langstaff Road (widening to 6 lanes between Weston Road and Dufferin Street, extension of Langstaff Road across the CN MacMillan Yard, grade separation with the Metrolinx GO Barrie Line, as well as improvements to the Highway 400 / Langstaff Road interchange). • Meeting 3 (July 26, 2017): Review Highway 400 model calibration and Highway 400 interchange design options. • MTO comments (August 3, 2017): email regarding Highway 400 interchange design options as presented at Meeting 3. • Meeting 4 (November 30, 2017): Review updated Highway 400 interchange design options and micro-simulation results. • Senior Management Meeting (January 22, 2018) – MTO Staff only (present information based on Meeting 4 material). • MTO comments (February 1, 2018): Micro-simulation results and assumptions, Highway 400 interchange design options. • Meeting 5 (March 22, 2018): Senior Management Meeting. The Project Team presented the need and justification for the proposed improvements on Langstaff Road, as well as Highway 400 interchange design options and micro-simulation results. • Meeting 6 (August 8, 2018): Updated micro-simulation results using re-calibrated model. • Design Workshop (October 4, 2018): A workshop to discuss development of additional interchange design options (MTO, York Region, WSP and City of Vaughan attended). Subsequent to the meeting, the Project Team proposed that a Diverging Diamond Interchange (DDI) is to be considered at Highway 400 / Langstaff Road interchange given the constraints in the surrounding area including the proximity to the Bass Pro Mills interchange, as well as existing and planned land use. The main objectives of the DDI	

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Item	Details	Action By
	concept are to meet MTO geometric design requirements while limiting impacts to adjacent lands, as well as to not negatively impact Highway 400 traffic operations. • MTO comments (March 19, 2019): email regarding the DDI concept.	
ITEM 3 –	**DIVERGING DIAMOND INTERCHANGE CONFIGURATION**	
3.1	B. Gotts, WSP, provided a brief overview of the DDI design concept and the key points are summarized as follows: • The two main key features of the DDI interchange are providing full-movements at Highway 400/Langstaff Road by adding the ramps to-and-from the north, and extending the northbound collector from Langstaff Road to Rutherford Road and grade-separate the northbound on-ramp with the collector extension to address the potential weaving issues in the northbound direction. • The main reason a typical parclo A4 interchange is not carried forward for further consideration is because a direct off-ramp would not provide desirable bull-nose spacings in the southbound direction; whereas, a diamond off-ramp would meet the minimum MTO bull-nose spacing requirement. • The DDI configuration maintains all movements to-and-from Highway 7, 407ETR and Bass Pro Mills Drive. The concepts developed at the October 2018 Design Workshop do not maintain all the movements. • The collector extension would provide additional capacity between Langstaff Road and Rutherford Road in the northbound direction. • The DDI configuration has no direct impact to the development land west of Highway 400 between Bass Pro Mills Drive and Rutherford Road, identified as part of the Vaughan Mills Centre Secondary Plan.	
3.2	K. Jim noted that MTO provided comments on the DDI concept via email on March 19, 2019 and recommended WSP to move forward with the traffic micro-simulation of the DDI concept. The traffic results are being presented at the meeting today and other MTO's comments and response are summarized as follows: • *Confirm the angle being used at the cross-over intersections* – 43° was proposed at the west cross-over intersection and 30° was proposed at the east cross-over intersection. MTO noted that	

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Item	Details	Action By
	standard cross-over angles should be used for the design. J. Guan, WSP, noted that research in the U.S. indicated the desirable cross-over angle is 45° and some jurisdictions use a minimum angle of 35° and some other jurisdiction consider a minimum angle of 30° to be acceptable. The cross-over angles are currently under review for the MTO's QEW/Glendale interchange peer review project. MTO to confirm the recommended cross-over angles as part of the Glendale DDI design. WSP will review the DDI to provide appropriate cross-over angles. [*Post Meeting Note: MTO noted that the recommended cross-over angles are 40° and 43° via email on August 13, 2019. WSP updated to the cross-over angles to 45°. The updated design was provided to MTO as part of the design package as noted under item 5.3*] • *Confirm the truck type used for the design. DDI design should accommodate Long Combination Vehicles (LCVs)* – WB 20 was used for the design. WSP will review the DDI design and the feasibility to accommodate LCVs. [*Post Meeting Note: WSP updated to the interchange design to accommodate LCVs. The updated design was provided to MTO as part of the design package as noted under item 5.3*] • *Confirm overhead signing locations* – Overhead signing locations will be further reviewed once MTO is satisfied with the traffic micro-simulation findings and a general agreement to proceed with the DDI design for the proposed improvements at the Highway 400 / Langstaff Road interchange. J. Guan noted that that advance signing cannot be accommodated on the collector given the closely spaced interchange off-ramps; however, as per OTM Book 8, an Interchange Sequence Sign can replace the advance signs for up to three closely spaced interchanges. WSP will review the design to meet the minimum signing spacing requirements. [*Post Meeting Note: WSP prepared an overhead signing plan for the proposed DDI design. The overhead signing plan was provided to MTO as part of the design package as noted under item 5.3*]	
3.3	J. Guan noted that the DDI design presented today is still at a conceptual level. Although extensive effort was made to develop a feasible concept, further refinements will be required and MTO's comments will be incorporated as part of the design refinement.	
ITEM 4 –	**MODELLING RESULTS FOR FUTURE (2041) CONDITIONS**	
4.1	K. Shah, WSP, presented the preliminary traffic simulation results for the DDI configuration compared to the No-Build option (i.e. existing	

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Item	Details	Action By
	configuration on Highway 400 and Langstaff Road) and the Langstaff Road Improvements Only option (i.e. Langstaff Road widening, connection across CN MacMillan Yard, Metrolinx Barrie Line grade separation, and existing configuration on Highway 400). The key discussions are summarized as follows: • During the AM Peak in the southbound direction (peak direction), Langstaff Road Improvements Only and DDI options have travel time savings of approximately 1.5 – 2 minutes compared to the No-Build Option. The travel time difference is negligible for both Langstaff Road Improvements Only and DDI options. • During the AM Peak in the northbound direction (off-peak direction), there are some minor improvements in travel time for the Langstaff Road Improvement Only and DDI options. • During the PM Peak in the northbound direction (peak direction), there are some improvements in travel for the DDI option compared to the No-Build and Langstaff Road Improvements Only options for two of the three peak hours. From 5:00 p.m. to 6:00 p.m., however, the traffic demand increases on the arterial roads and introduces more traffic to Highway 400, resulting an increase of travel time by approximately 3 minutes for the DDI option compared to the Langstaff Road Improvements Only Option. • During the PM Peak in the northbound direction (off-peak direction), congestion is also observed on the collector extension between Langstaff Road and Rutherford Road. • For the DDI option, at ramp terminals and adjacent Langstaff Road intersections including Weston Road, Simar Drive/Terecar Drive and Edgeley Boulevard, the traffic operations are generally similar or slightly better than those under the Langstaff Road Improvements Only option. • A series of speed plots for each of the three options for AM and PM peaks were reviewed at the meeting. In general, the DDI option in combination with the core/collector configuration provides additional capacity through the Langstaff Road area and allow better flow of traffic through that area. However, a bottle neck is still observed north of Langstaff Road approaching Rutherford Road area. (See further discussion below).	
4.2	WSP noted that based on drawings provided by MTO, it is observed the existing outside general-purpose lane (GPL) lane drops at Major	

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Item	Details	Action By
	Mackenzie Drive, creating a bottle neck in the northbound direction, as a result, the traffic backs up to the Langstaff Road area. J. Guan noted that the Highway 400 Widening EA Study (2003) from north of Major Mackenzie Drive to north of South Canal Bridge recommended widening from the existing 6-lane cross-section to an interim 8-lane cross-section and an ultimate 10-lane cross-section. Highway 400 is currently being widened from 6 lanes to 8 lanes from Major Mackenzie Drive to King Road. The northbound HOV lane is being developed within the median and the outside GPL is being dropped just south of Major Mackenzie Drive. However, it is anticipated that this outside GPL will be extended when Highway 400 is ultimately widened to 10 lanes; the Project Team recognized the 10-lane widening would be a long term initiative and is not in the current MTO capital program. K. Shah noted that the 10-lane configuration is tested in the traffic model to review the potential impact to the traffic operations within the Langstaff Road study area. The traffic micro-simulation results indicated the additional GPL through Major Mackenzie Drive could significantly improve the mainline traffic operations in the northbound direction and able to alleviate the bottle neck observed under the DDI option. MTO is supportive of improvements to the Highway 400 traffic operation.	
4.3	The Project Team noted that the DDI configuration would provide a "win-win" situation for York Region and MTO as it supports the Regional and Provincial Goods Movement strategies, reduces traffic congestion within the overall transportation network, provides travel time benefits on Highway 400 and improves the traffic operations at the adjacent Highway 400 interchanges (i.e. Highway 7 and Rutherford Road).	
ITEM 5 –	**NEXT STEPS**	
5.1	The Project Team noted that the potential next steps regarding the Highway 400/Langstaff Road interchange improvements are the following, depending on MTO comment/feedback: • Develop the preliminary design based on the MTO comments; or • Have an agreement in principle on the DDI concept for the current EA and the design of the DDI is to be reviewed in the future as part of an overall corridor study (York Region and MTO may be joint partner in the future study).	

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Item	Details	Action By
5.2	There was some discussion about the EA process to be undertaken (i.e. Municipal Class EA vs. Provincial Class EA) should the Highway 400 / Langstaff Road interchange improvements be carried out as a future / separate study given the extent of proposed changes to Highway 400. K. Cherneski, MTO, noted that as long as the Municipal Class EA is carried out also in accordance with the Provincial EA process, and documented as such, the study may be carried out as a Municipal Class EA.	
5.3	MTO agreed to have the Project Team presenting the DDI concept to its Senior Management (SM). MTO to schedule a SM meeting in September 2019. [*Post Meeting Note: MTO provided additional comments via email on August 22, 2019 and requested the Project Team to address all outstanding comments before scheduling a SM Meeting. The Project Team provided a Comments and Response Table and relevant updated design package to MTO via email on September 27, 2019]*	MTO
5.4	WSP to provide presentation slide deck to MTO for circulation for additional comments. [*Post Meeting Note: The presentation slide deck was provided to MTO via email on August 13, 2019. MTO provided additional comments via email on August 22, 2019*]	
5.5	WSP to review the collector extension design to optimize the traffic operations. [*Post Meeting Note: WSP modified the collector lane configuration. The updated design and the traffic operational analysis results for the revised collector lane configuration was provided to MTO as part of the design package as noted under item 5.3.]*	
5.6	WSP to provide a table documenting the proposed weaving distance for the DDI concept. [*Post Meeting Note: WSP provided a weaving distance summary table for the proposed DDI design to MTO as part of the design package as noted under item 5.3.]*	
5.7	WSP to include the queue lengths on the adjacent Langstaff Road intersections in the DDI traffic memo. [*Post Meeting Note: WSP updated the Traffic Analysis Memo to include the queue lengths on the adjacent Langstaff Road intersections and provided the memo to MTO as part of the design package as noted under item 5.3.]*	

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Langstaff Road
Class Environmental Assessment Study
Weston Road to Highway 7

MTO Meeting # 7
August 13, 2019

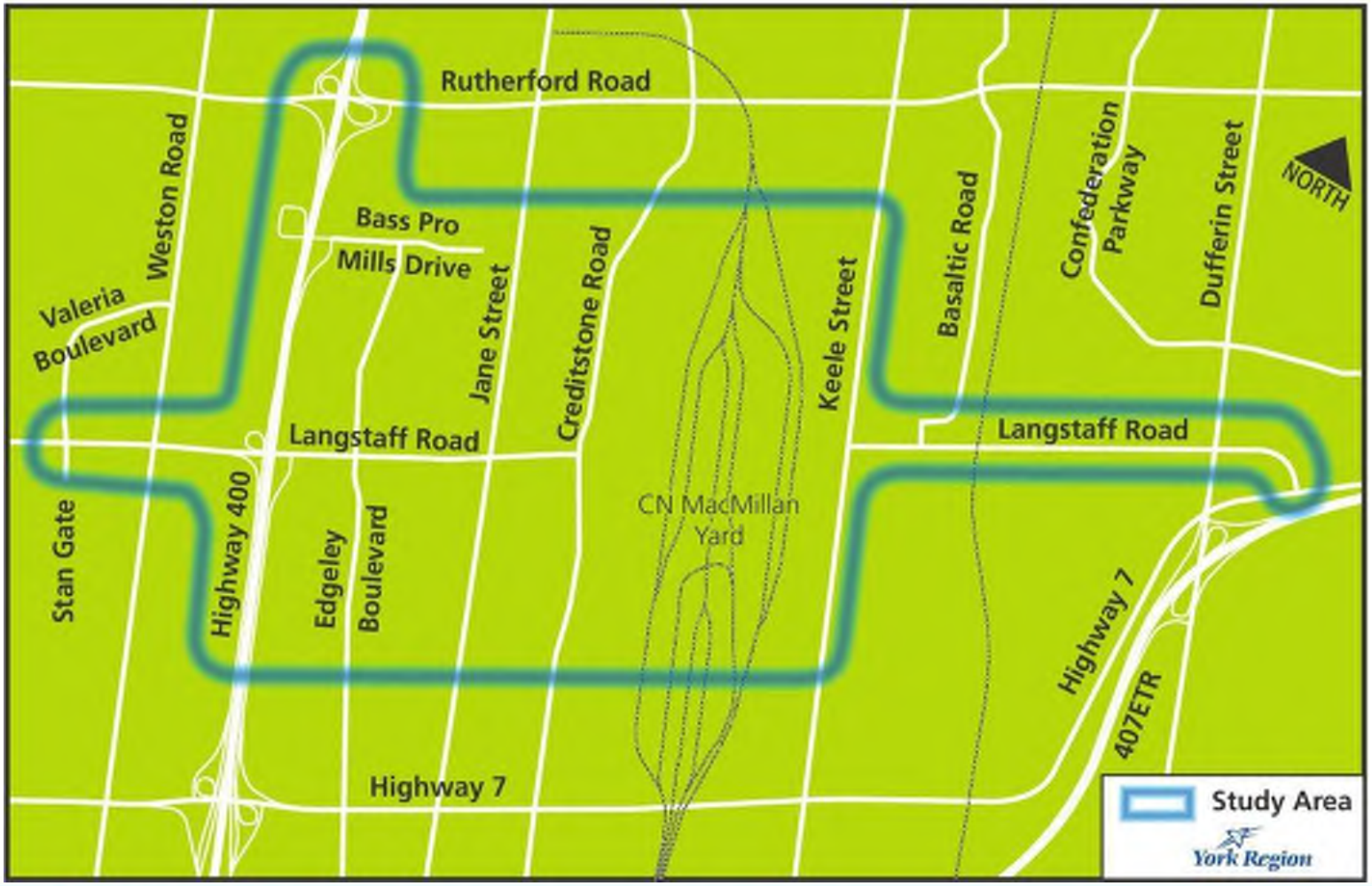

GREAT | STREETS
Building Roads that Build Community

York Region

Agenda

- Introduction
- MTO Involvement to Date
- Recap of Design Workshop (October 4, 2018)
- Diverging Diamond Interchange Concept
- Modelling Results for Future (2041) Conditions
- Next Steps

MTO Involvement to Date



MTO Involvement to Date

- Meeting 1 (December 2, 2016): Project introduction
- Meeting 2 (May 10, 2017): Screenline and capacity analysis results
- Meeting 3 (July 26, 2017): Highway 400 model calibration and Highway 400 interchange design options
- MTO comments (August 3, 2017 email) regarding Highway 400 interchange design options
- Meeting 4 (November 30, 2017): Updated Highway 400 interchange design options and micro-simulation results
- Senior Management Meeting (January 22, 2018) – MTO internal staff only
- MTO comments (February 1, 2018 email): Micro-simulation results and assumptions, Highway 400 interchange design options
- Meeting 5 (March 22, 2018): Senior Management Meeting
- Meeting 6 (August 8, 2018): Updated micro-simulation results using re-calibrated model
- Design Work Shop (October 4, 2018): Development of additional interchange design options
- MTO comments (March 19, 2019 email): Diverging Diamond Interchange comments

Recap of Design Workshop (October 4, 2018)

- Staff from MTO, City of Vaughan, York Region and WSP attended a Design Workshop, held on October 4, 2019, to develop additional interchange design options.
- In addition to previously developed interchange design options, various collector extension options were discussed.
- Subsequent to the Design Workshop, an interchange design alternatives screening was carried out and was provided to MTO prior to this meeting.
- The Diverging Diamond Interchange (DDI) design was ultimately selected to be carried forward for traffic micro-simulation.

Diverging Diamond Interchange Configuration

See separate roll plan

Diverging Diamond Interchange Configuration

- The key advantages of DDI design are summarized as follows:
  - Maintain all existing movements to-and-from Highway 7, 407ETR and Bass Pro Mills Drive.
  - No impact to the development land identified as part of Vaughan Mills Centre Secondary Plan.
  - Improved ramp terminal traffic operations compared to the previously developed interchange design options.
  - Providing adequate weaving distance on mainline Highway 400.
  - Providing additional capacity between Langstaff Road and Rutherford Road.
- The DDI design was provided to MTO for comments via email on February 22, 2019.

Diverging Diamond Interchange Configuration

- MTO provided comments on the DDI interchange via email on March 19, 2019. Key comments and response are summarized in table below:

MTO Comments	WSP Response
Confirm the options developed at the workshop reviewed	An alternatives screening table was developed shared with MTO on July 31, 2019
A traffic micro-simulation to be carried out the DDI design	The traffic micro-simulation results are presented on the following slides.
Confirm the angle being used at the cross-over intersections	43° was used at the west cross-over intersection and 30° was used at the east cross-over intersection.
Confirm the truck type used for the design. DDI design should accommodate LCVs.	WB 20 was used for the design. To accommodate LCVs, significant property impact is expected.
Confirm overhead signing locations	Overhead signing locations will be reviewed once MTO is satisfied with the traffic micro-simulation results.
A parallel lane should be provided for the Rutherford Road E-N ramp.	A speed-change lane was added.
The southbound on-ramps spacing from Rutherford Road and Bass Pro Mills are not ideal. Traffic modeling to confirm the operational performance.	The traffic micro-simulation results are presented on the following slides.
Concerns with the capacity for the two lane collector.	The traffic micro-simulation results are presented on the following slides.

Future (2041) Scenarios

Three scenarios were assessed under the future (2041) conditions with and without Highway 400 and Langstaff Road Interchange modifications:

1. No-Build (i.e. existing configuration on Hwy 400 and Langstaff Road)
2. Langstaff Road Improvements Only (i.e. Langstaff Road widening and connection across CN Yard, and existing configurations on Hwy 400)
3. Diverging Diamond Interchange Configuration (includes Langstaff Road improvements and Hwy 400 Interchange modification to provide connection to/from the North)

Preliminary Traffic Analysis Findings

Future 2041 AM Travel Times

Scenario	6am to 7am		7am to 8am		8am to 9am	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
No-Build	8 min 9 sec	10 min 4 sec	8 min 35 sec	12 min 9 sec	8 min 18 sec	14 min 18 sec
Langstaff Road Improvements Only (i.e. without Hwy 400 Interchange Improvements)	8 min 4 sec (▼ 0:05 vs No Build)	10 min 7 sec (▲ 0:03 vs No Build)	8 min 26 sec (▼ 0:09 vs No Build)	11 min 59 sec (▼ 0:10 vs No Build)	8 min 10 sec (▼ 0:08 vs No Build)	12 min 35 sec (▼ 1:43 vs No Build)
Diverging Diamond Interchange	8 min (▼ 0:09 vs No Build) (▼ 0:04 vs Langstaff Road Improvements)	9 min 59 sec (▼ 0:05 vs No Build) (▼ 0:08 vs Langstaff Road Improvements)	8 min 13 sec (▼ 0:22 vs No Build) (▼ 0:13 vs Langstaff Road Improvements)	11 min 23 sec (▼ 0:46 vs No Build) (▼ 0:36 vs Langstaff Road Improvements)	8 min 04 sec (▼ 0:14 vs No Build) (▼ 0:06 vs Langstaff Road Improvements)	12 min 41 sec (▼ 1:37 vs No Build) (▲ 0.06 vs Langstaff Road Improvements)

Note: Future 2041 simulated travel times measured for Highway 400 from south of Steeles Ave to north of Major Mackenzie Dr

Preliminary Traffic Analysis Findings

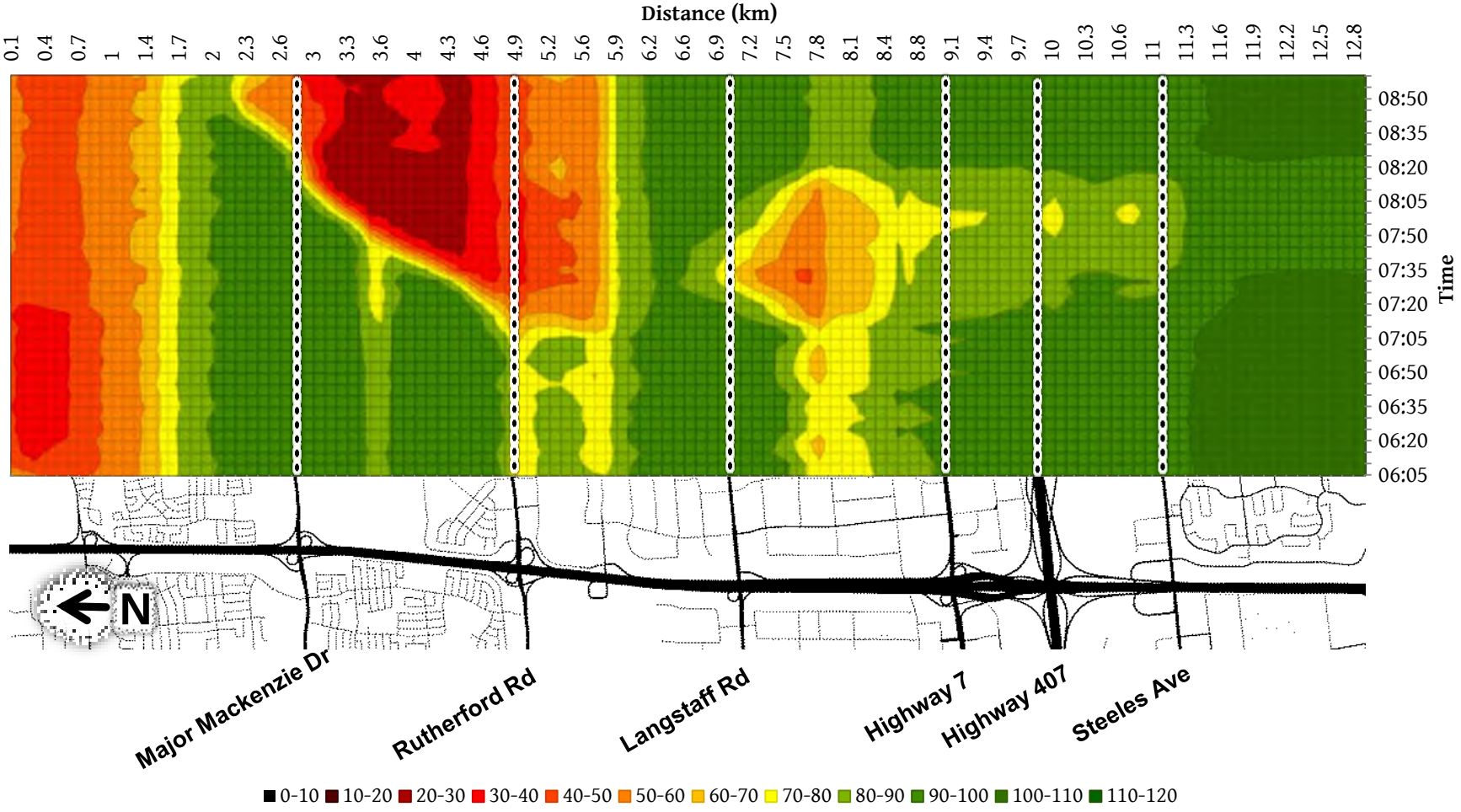
Future 2041 AM Average Speeds

Scenario	6am to 7am		7am to 8am		8am to 9am	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
No-Build	87.4 km/h	77.8 km/h	88.6 km/h	64.4 km/h	91.7 km/h	54.8 km/h
Langstaff Road Improvements Only (i.e. without Hwy 400 Interchange Improvements)	94.3 km/h (▲ 6.9 vs No Build)	77.5 km/h (▼ 0.3 vs No Build)	90.3 km/h (▲ 1.7 vs No Build)	65.4 km/h (▲ 1.0 vs No Build)	93.1 km/h (▲ 1.4 vs No Build)	62.2 km/h (▲ 7.4 vs No Build)
Diverging Diamond Interchange	95.3 km/h (▲ 7.9 vs No Build) (▲ 1.0 vs Langstaff Road Improvements)	78.4 km/h (▲ 0.6 vs No Build) (▲ 0.9 vs Langstaff Road Improvements)	92.7 km/h (▲ 4.1 vs No Build) (▲ 2.4 vs Langstaff Road Improvements)	68.8 km/h (▲ 4.4 vs No Build) (▲ 3.4 vs Langstaff Road Improvements)	94.5 km/h (▲ 2.8 vs No Build) (▲ 1.4 vs Langstaff Road Improvements)	61.7 km/h (▲ 6.9 vs No Build) (▼ 0.5 vs Langstaff Road Improvements)

Note: Future 2041 simulated travel times measured for Highway 400 from south of Steeles Ave to north of Major Mackenzie Dr

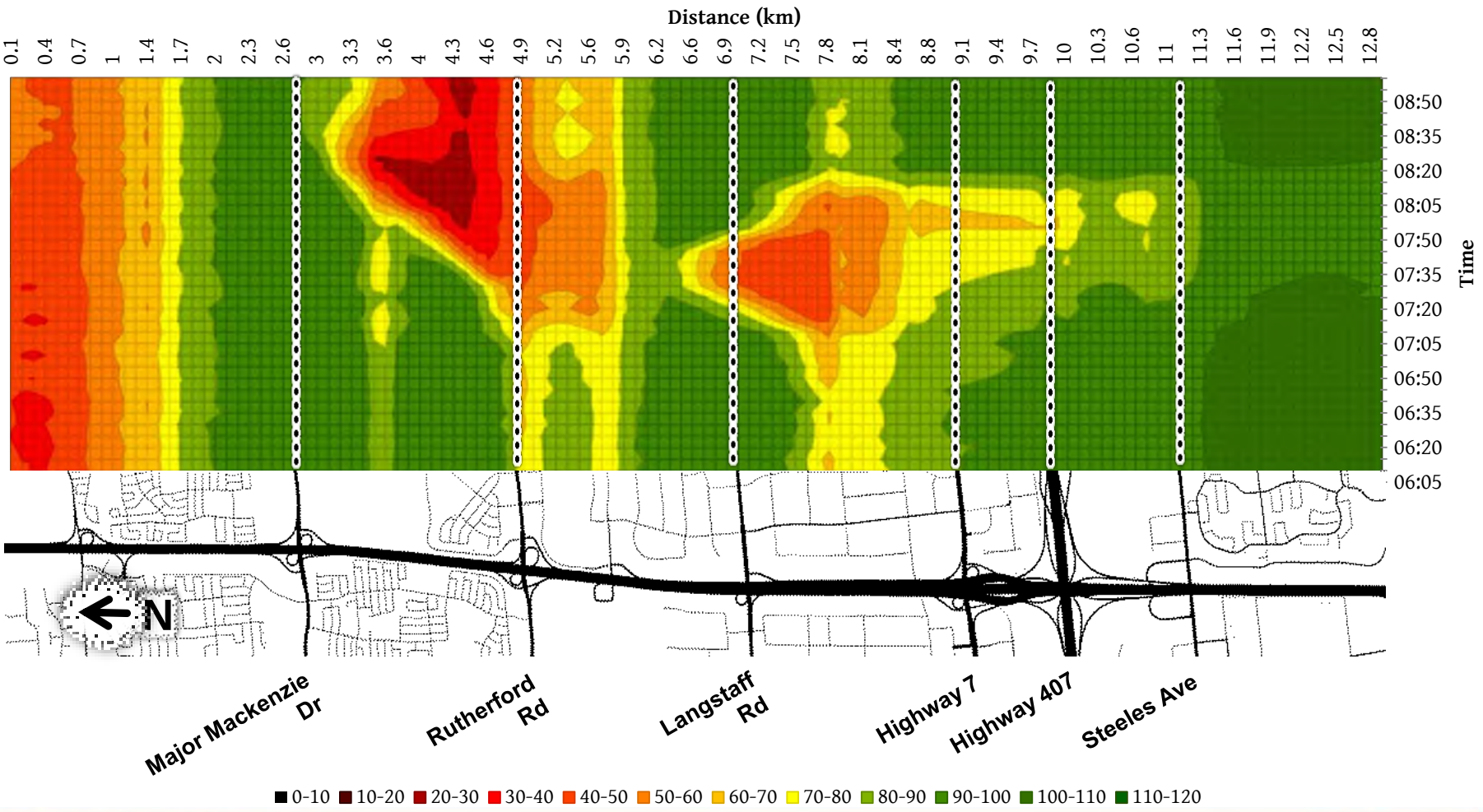
Future 2041 Speed Contour Plots

No-Build AM – SB Direction



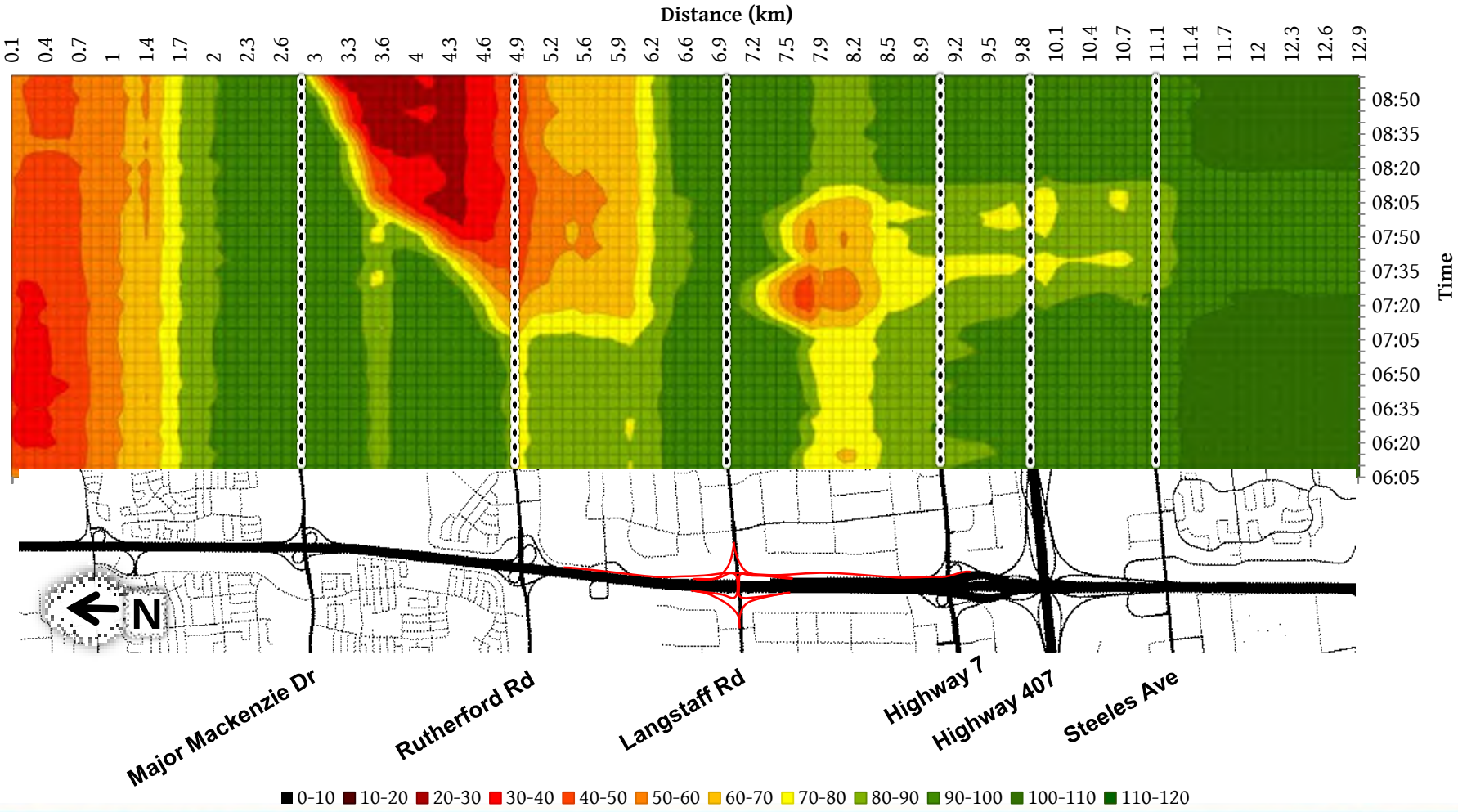
Future 2041 Speed Contour Plots

Langstaff Road Improvements Only AM – SB Direction



Future 2041 Speed Contour Plots

Diverging Diamond Interchange Option AM – SB Direction



Preliminary Traffic Analysis Findings

Future 2041 PM Travel Times

Scenario	3pm to 4pm		4pm to 5pm		5pm to 6pm	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
No-Build	14 min 59 sec	9 min 8 sec	20 min 49 sec	9 min 12 sec	23 min 28 sec	9 min 10 sec
Langstaff Road Improvements Only (i.e. without Hwy 400 Interchange Improvements)	15 min 2 sec (▲ 0:03 vs No Build)	9 min 3 sec (▼ 0:05 vs No Build)	21 min 31 sec (▲ 0:42 vs No Build)	9 min 12 sec (▼ 0:00 vs No Build)	23 min 07 sec (▼ 0:21 vs No Build)	9 min 23 sec (▲ 0:13 vs No Build)
Diverging Diamond Interchange	12 min 58 sec (▼ 2:01 vs No Build) (▼ 2:04 vs Langstaff Road Improvements)	8 min 52 sec (▼ 0:16 vs No Build) (▼ 0:11 vs Langstaff Road Improvements)	19 min 38 sec (▼ 1:11 vs No Build) (▼ 1:53 vs Langstaff Road Improvements)	9 min 3 sec (▼ 0:09 vs No Build) (▼ 0:09 vs Langstaff Road Improvements)	26 min 21 sec (▲ 2:53 vs No Build) (▲ 3:14 vs Langstaff Road Improvements)	9 min 19 sec (▲ 0:09 vs No Build) (▼ 0:04 vs Langstaff Road Improvements)

Note: Future 2041 simulated travel times measured for Highway 400 from south of Steeles Ave to north of Major Mackenzie Dr

Preliminary Traffic Analysis Findings

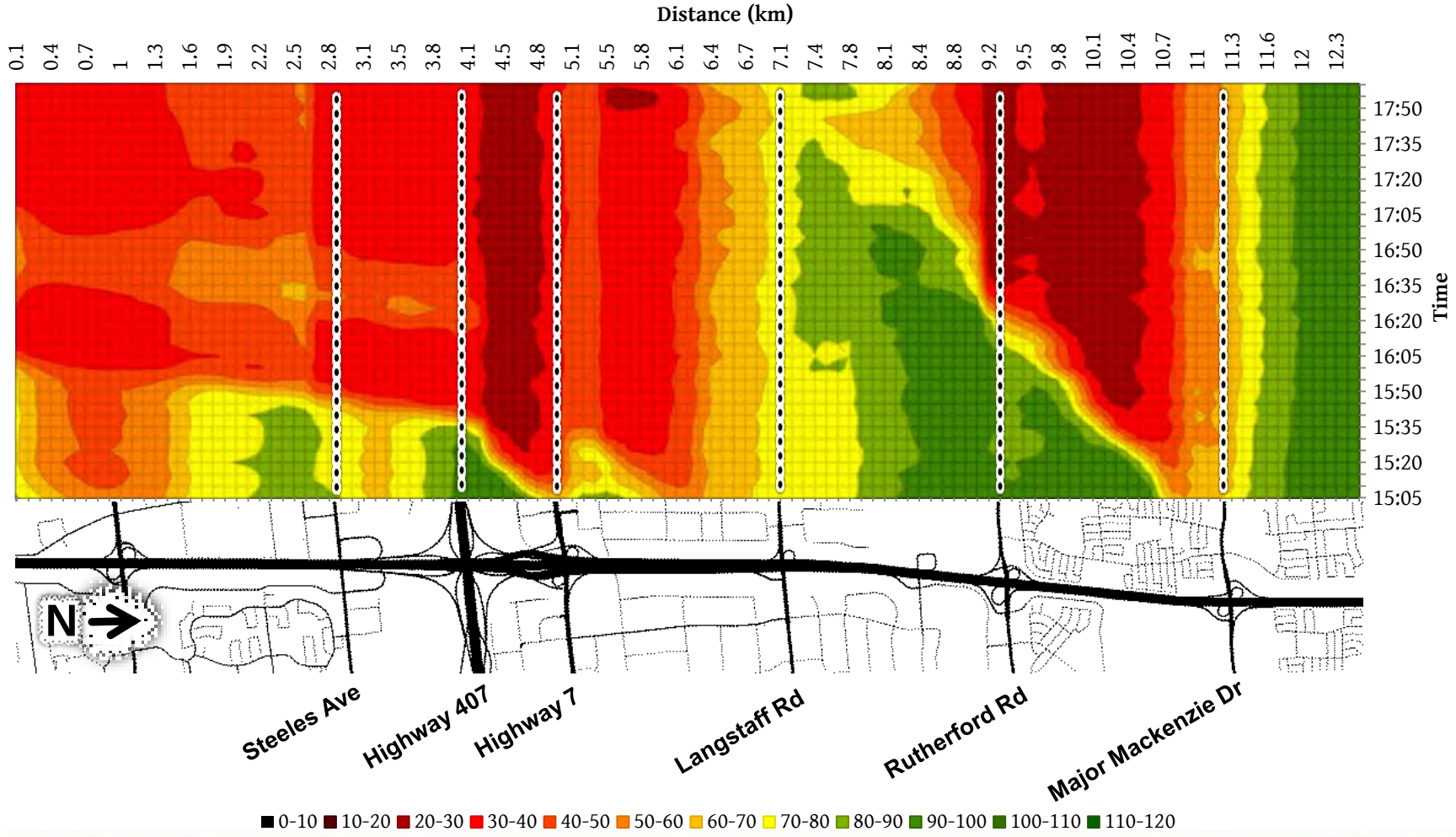
Future 2041 PM Average Speeds

Scenario	3pm to 4pm		4pm to 5pm		5pm to 6pm	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
No-Build	50. 8 km/h	85.8 km/h	37.0 km/h	85.2 km/h	32.4 km/h	85.5 km/h
Langstaff Road Improvements Only (i.e. without Hwy 400 Interchange Improvements)	50.6 km/h (▼ 0.2 v No Build)	86.6 km/h (▲ 0.8 v No Build)	35.3 km/h (▼ 1.7 vs No Build)	85.1 km/h (▼ 0.1 vs No Build)	32.9 km/h (▲ 0.5 vs No Build)	83.5 km/h (▼ 2.0 vs No Build)
Diverging Diamond Interchange	58.8 km/h (▲ 8.0 vs No Build) (▲ 8.2 vs Langstaff Road Improvements)	88.2 km/h (▲ 2.4 vs No Build) (▲ 1.6 vs Langstaff Road Improvements)	38.8 km/h (▲ 1.8 vs No Build) (▲ 3.5 vs Langstaff Road Improvements)	86.5 km/h (▲ 1.3 vs No Build) (▲ 1.4 vs Langstaff Road Improvements)	28.9 km/h (▼ 3.5 vs No Build) (▼ 4.0 vs Langstaff Road Improvements)	84.1 km/h (▼ 1.4 vs No Build) (▲ 0.6 vs Langstaff Road Improvements)

Note: Future 2041 simulated travel times measured for Highway 400 from south of Steeles Ave to north of Major Mackenzie Dr

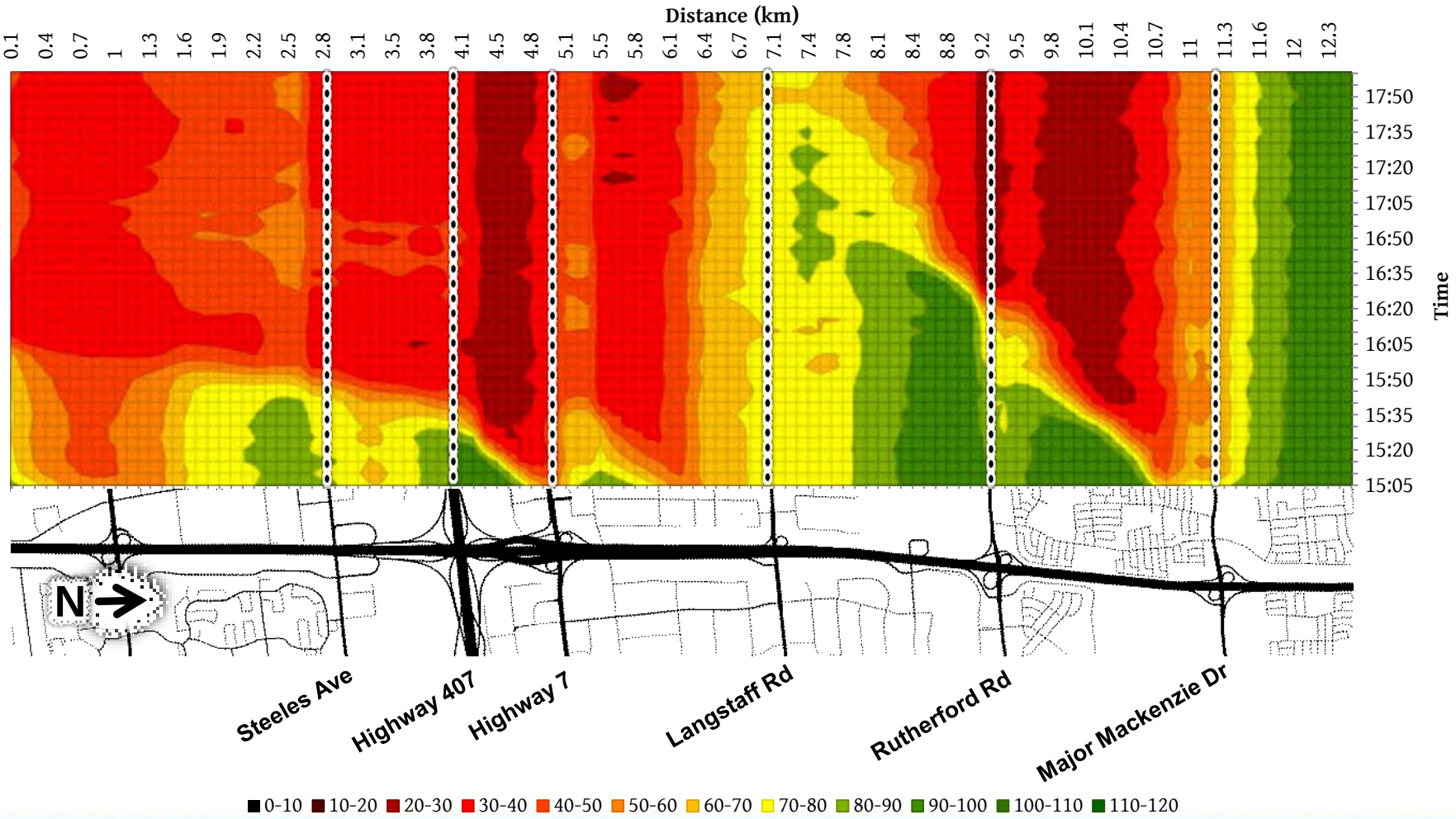
Future 2041 Speed Contour Plots

No-Build PM – NB Direction



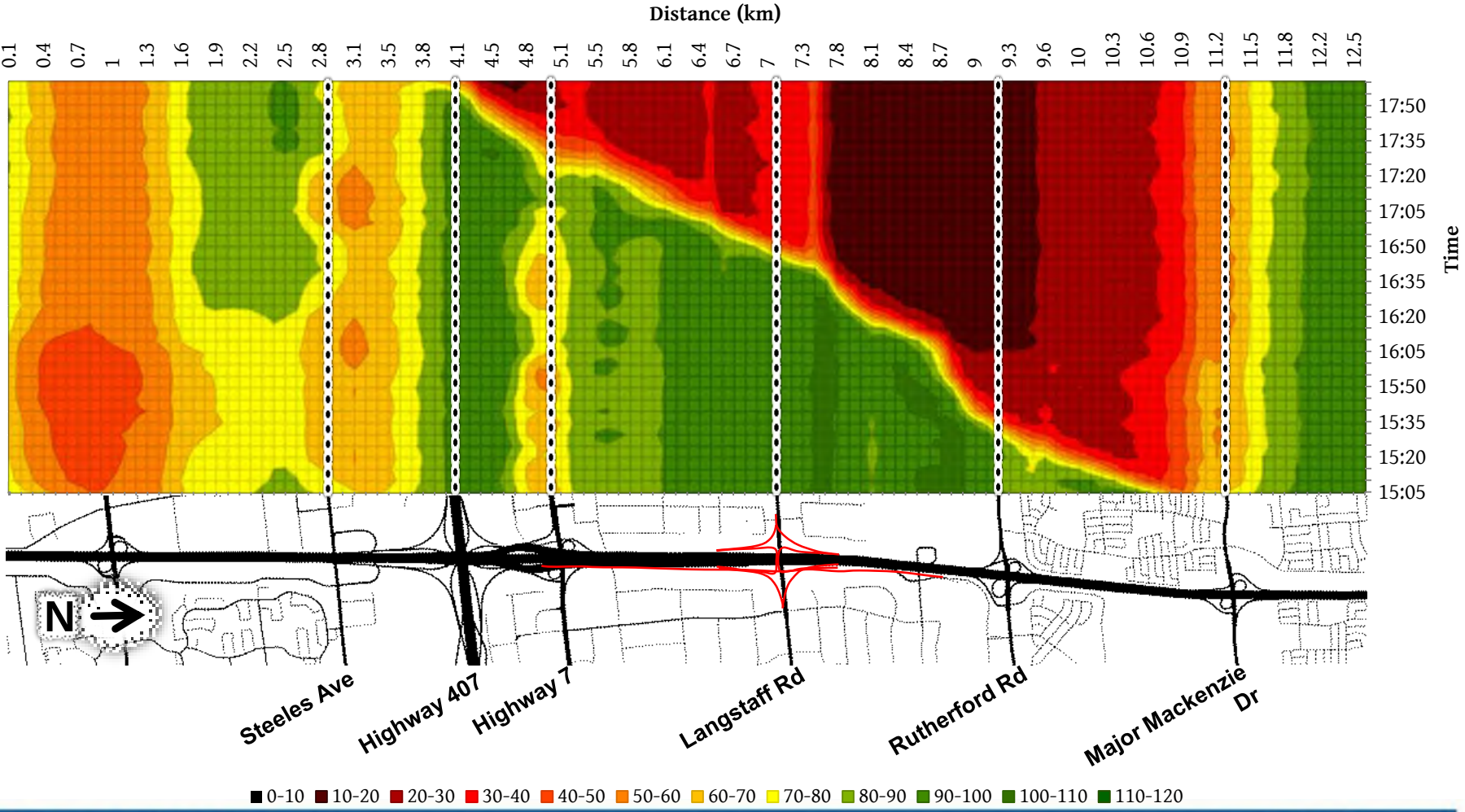
Future 2041 Speed Contour Plots

Langstaff Road Improvements Only PM – NB Direction



Future 2041 Speed Contour Plots

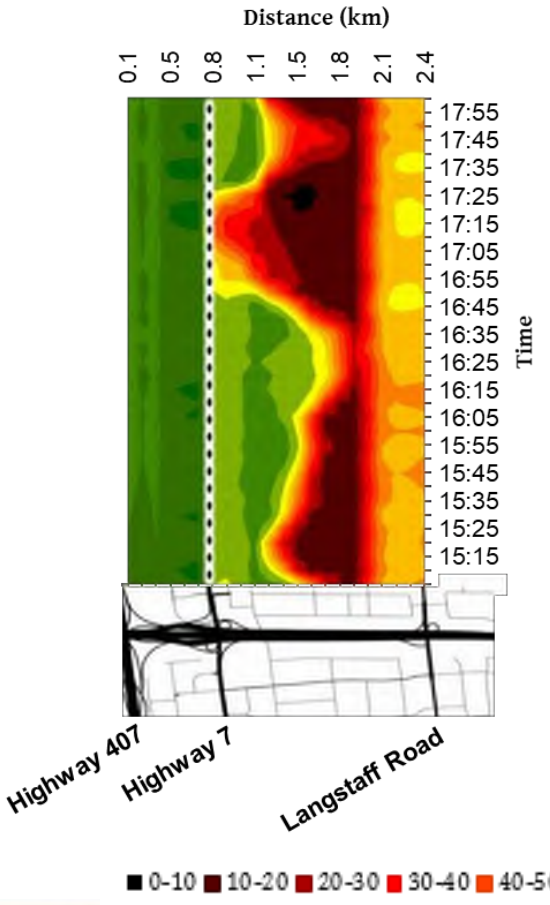
Diverging Diamond Interchange PM – NB Direction



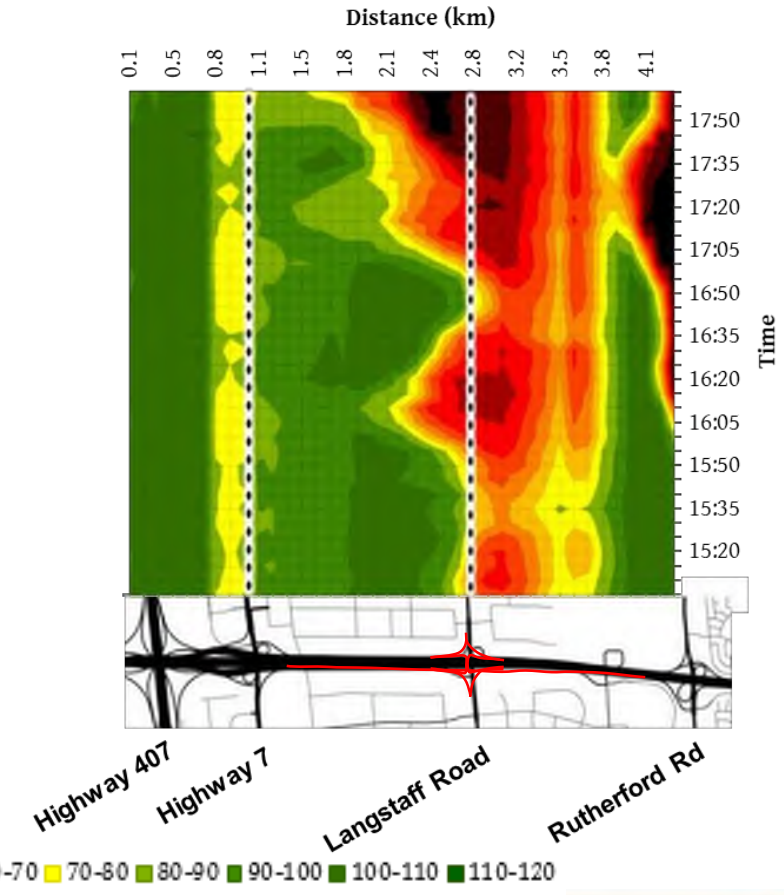
Future 2041 Speed Contour Plots

PM Peak – NB Collector

Langstaff Improvements Only Option



Diverging Diamond Configuration Option



0-10 10-20 20-30 30-40 40-50 50-60 60-70 70-80 80-90 90-100 100-110 110-120

Highway 400 Interchange at Langstaff Road

Overall Future (2041) Intersection Performance

East Ramp Terminal:

	AM Peak Hour		PM Peak Hour	
	Langstaff Improvements only	Diverging Diamond	Langstaff Improvements only	Diverging Diamond
Delay	75-80 s	~30 s	10-15 s	~30 s
LOS	E	C	B	C

West Ramp Terminal:

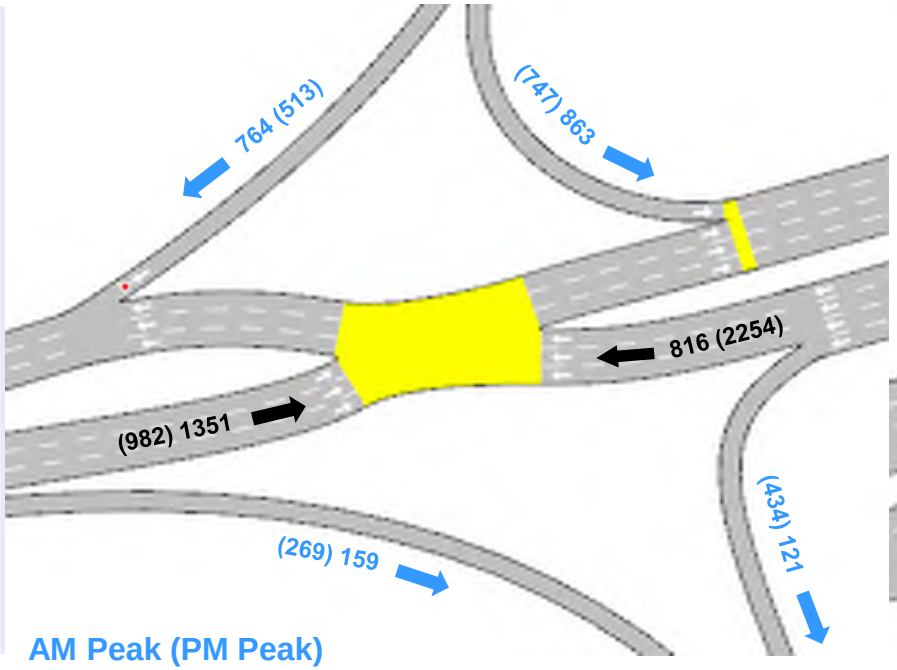
	AM Peak Hour		PM Peak Hour	
	Langstaff Improvements only	Diverging Diamond	Langstaff Improvements only	Diverging Diamond
Delay	NA	~35 s	NA	~25 s
LOS	NA	C	NA	C

Highway 400 Interchange at Langstaff Road

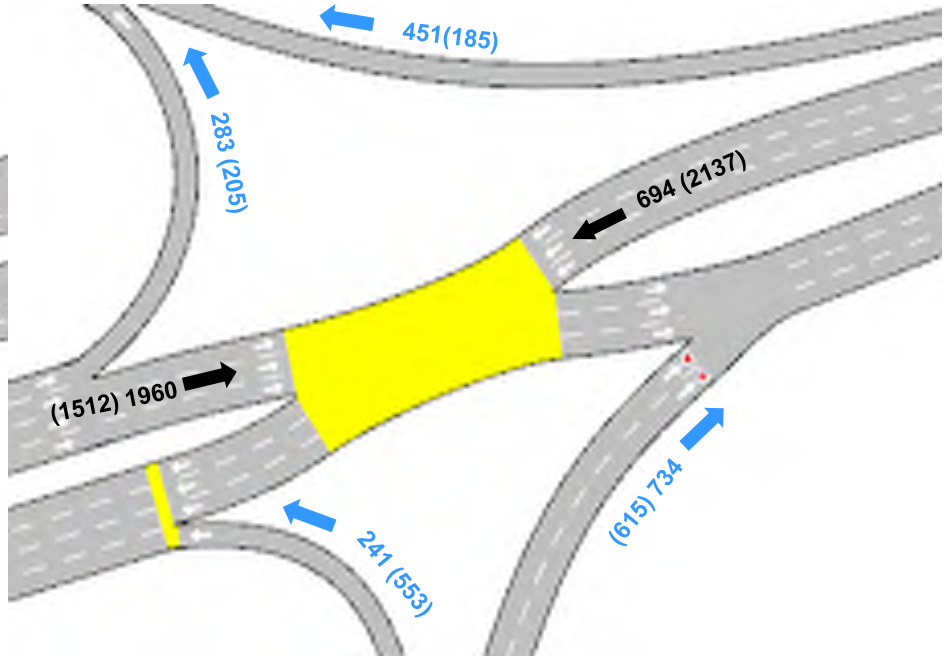
Ramp Terminal Traffic Volumes

Proposed access to and from Highway 400 from Langstaff Road is expected to be heavily used

West Ramp Terminal



East Ramp Terminal



AM Peak (PM Peak)

Langstaff Road Intersections

Overall Future (2041) Intersection Performance

Langstaff Road and Weston Road:

	AM Peak Hour		PM Peak Hour	
	Langstaff Improvements only	Diverging Diamond	Langstaff Improvements only	Diverging Diamond
Delay	~40 s	~40 s	85-90 s	~60 s
LOS	D	D	F	E

Langstaff Road and Silmar Drive/Terecar Drive:

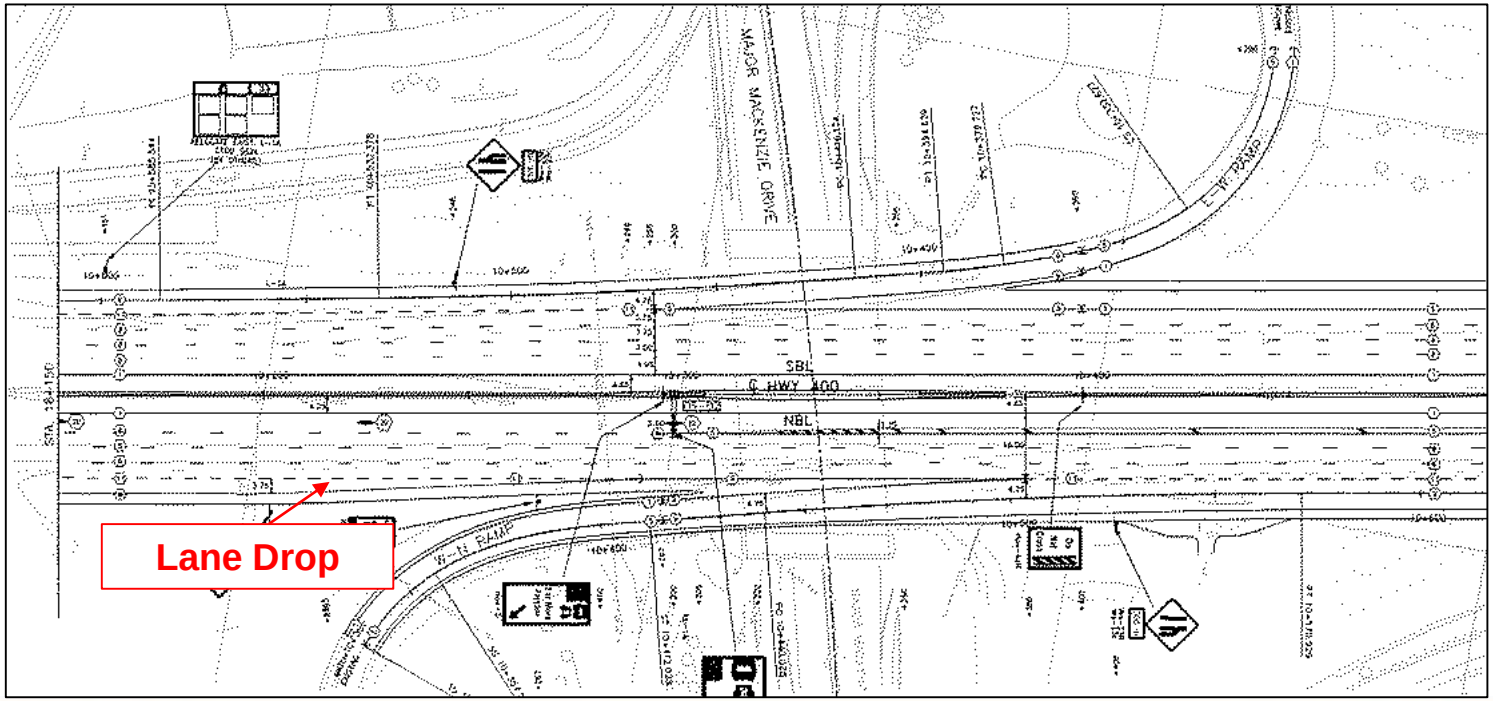
	AM Peak Hour		PM Peak Hour	
	Langstaff Improvements only	Diverging Diamond	Langstaff Improvements only	Diverging Diamond
Delay	~20 s	~20 s	25-30 s	25-30 s
LOS	B	B	C	C

Langstaff Road and Edgeley Boulevard:

	AM Peak Hour		PM Peak Hour	
	Langstaff Improvements only	Diverging Diamond	Langstaff Improvements only	Diverging Diamond
Delay	~15 s	~15 s	~25 s	~30 s
LOS	B	B	C	C

Analysis of Highway 400 Ultimate Widening

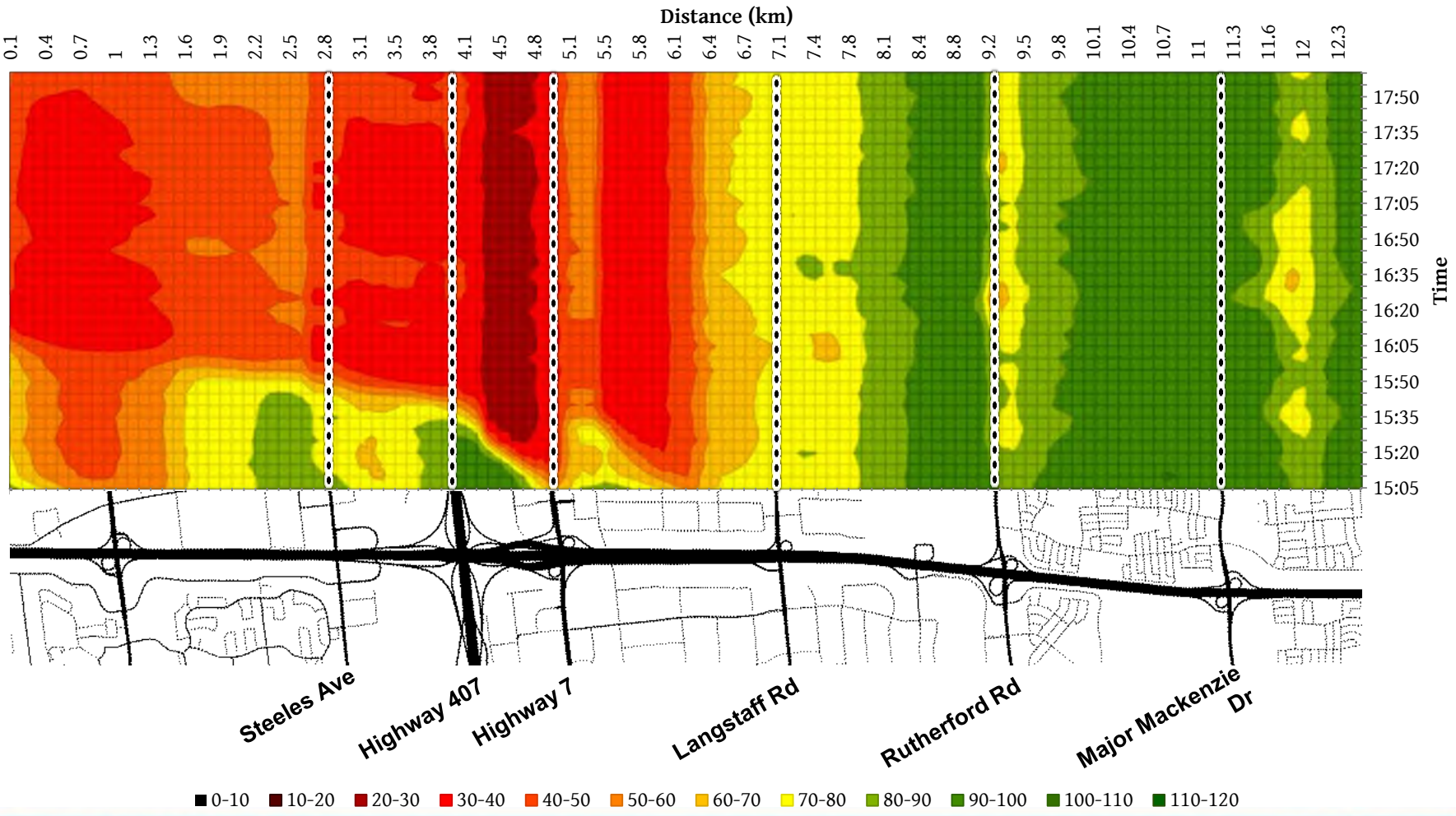
- The Highway 400 EA Study (2003) from north of Major Mackenzie Drive to north of South Canal Bridge recommended widening from the existing 6-lane cross-section to an interim 8-lane cross-section and ultimately a 10-lane cross-section.
- Highway 400 is currently being widened from 6 lanes to 8 lanes from Major Mackenzie Drive to King Road. The NB outside GPL is being dropped just south of Major Mackenzie Drive. It is anticipated that this outside GPL will be extended when Highway 400 is ultimately widened to 10 lanes.



Future 2041 Speed Contour Plots

Langstaff Improvements Only + Widening at Major Mackenzie Interchange

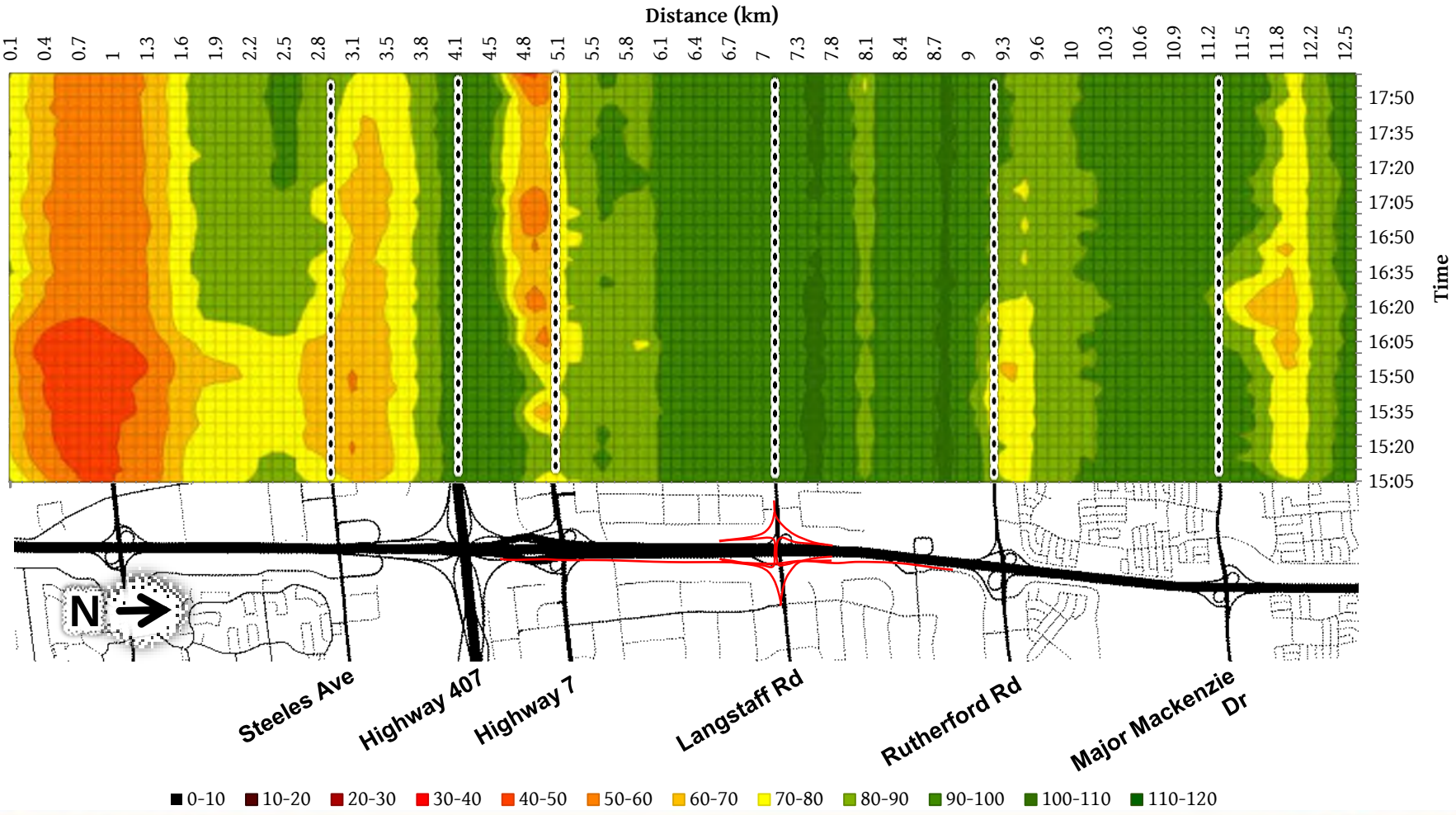
PM – NB Direction



Future 2041 Speed Contour Plots

Diverging Diamond Interchange + Widening at Major Mackenzie Interchange

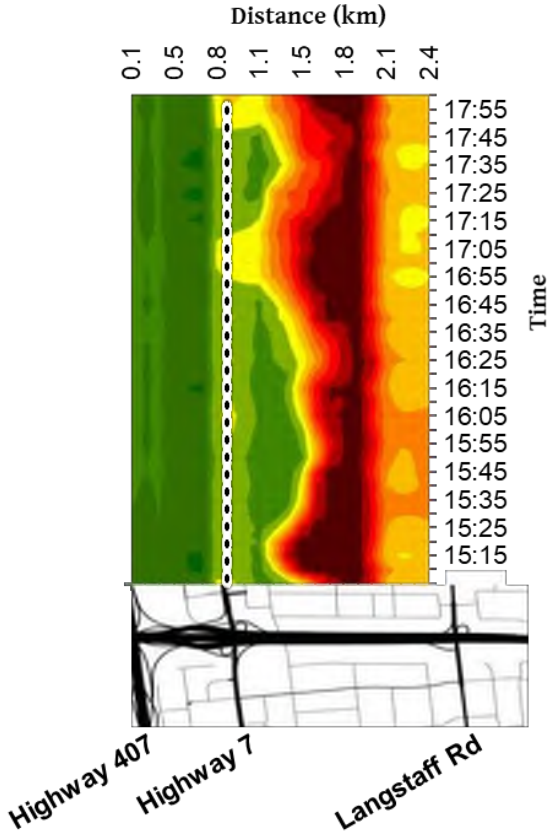
PM – NB Direction



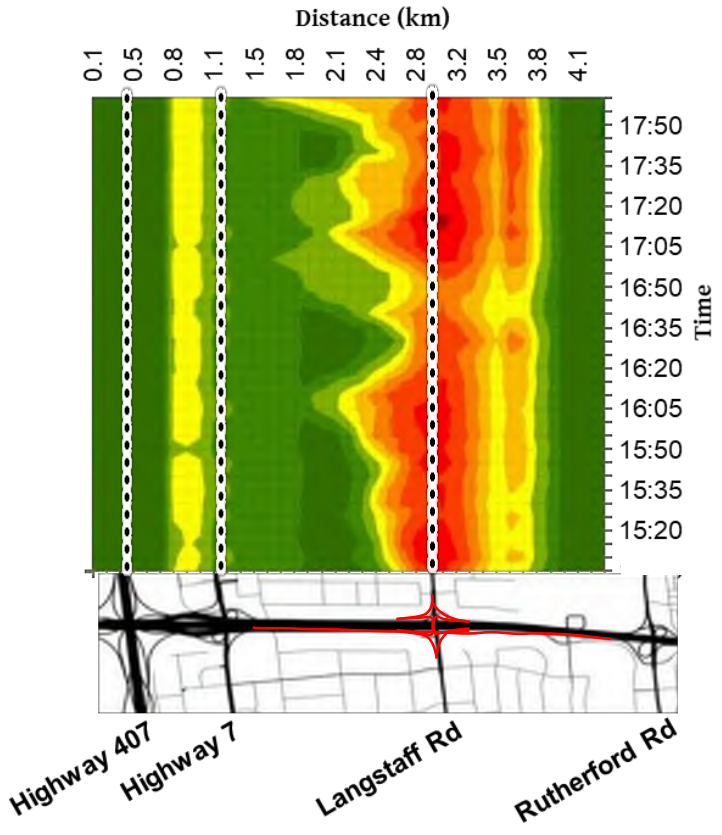
Future 2041 Speed Contour Plots

Widening at Major Mackenzie Interchange PM Peak – NB Collector

Langstaff Improvements Only Option



Diverging Diamond Configuration Option



0-10 10-20 20-30 30-40 40-50 50-60 60-70 70-80 80-90 90-100 100-110 110-120

Preliminary Traffic Analysis Findings

Future 2041 Highway Operations

AM Peak

- Langstaff Road Improvements Only and DDI options compared to the No-Build option - traffic demand is redistributed, with travel time savings of approximately **1.5 - 2 minutes** in the southbound direction (peak hour only).
- Travel time difference is negligible between Langstaff Road Improvements Only option and DDI option in the southbound direction.
- Minor improvements for travel time in the northbound direction for both options.

PM Peak

- Langstaff Road Improvements Only option compared to the No-Build option - traffic demand is redistributed, which slightly reduces travel times in the northbound direction on Hwy 400.
- DDI option compared to Langstaff Road Improvements Only option - increased traffic in the northbound direction on Hwy 400, increases travel time by approximately **3 minutes** (peak hour only).
- Negligible difference for the travel time in the southbound direction for both options.
- Congestion is observed on the collector extension between Langstaff Road to Rutherford Road.
- The additional lane at the Major Mackenzie Interchange could significantly improve the mainline traffic operations in the northbound direction.

Summary

Highway 400 Interchange Improvements

- Supports Regional and Provincial Goods Movement strategies
- Reduces traffic congestion within the overall transportation network
- Expected to provide an overall travel time benefit for both the northbound and southbound trips
- Minor improvement in traffic operations at the adjacent Highway 400 interchanges

Next Steps…

- Confirm with MTO regarding the next steps for the Highway 400/Langstaff Road interchange improvements:
  - Develop the preliminary design based on comments received from MTO following the meeting today.

  Or

  - Agreement in principle on the Diverging Diamond Interchange concept for the current EA. The design of the DDI is to be reviewed in the future as part of an overall corridor study.
- Prepare Environmental Study Report to document decision making process of the EA Study.
- File ESR in 2020 (tentative).

MEETING MINUTES

Date:	March 26, 2021 1:00 p.m. to 2:00 p.m.	**Project Number:**	16M-01457-01
Location:	Teleconference (MS Teams)	**Project:**	Langstaff Road EA – Weston Road to Highway 7

Purpose: Meeting #8 with Ministry of Transportation (MTO)

Attendees:	**Agency**
Lukasz Grobel	MTO – Project Delivery
Cristian Crosato	MTO – Project Delivery
Tim Apostolopoulos	MTO – Traffic
Aaron Janke	MTO – Traffic
Zaka Uddin	MTO – Traffic
Colin Wong	York Region
Tim Kwan	York Region
Katherine Jim	WSP
Jian Guan	WSP

Item	Details	Action By
ITEM 1 –	**INTRODUCTION**	
1.1	Those at the meeting were introduced. L. Grobel, MTO, noted that C. Crosato will be the new project manager and the main contact from MTO.	
1.2	A presentation slide deck was shared on screen (see presentation slides attached). K. Jim, WSP, provided a brief project overview and status update.	
ITEM 2 –	**MTO INVOLVEMENT TO DATE**	
2.1	K. Jim provided a recap of MTO involvement to-date re: Langstaff Road Class Environmental Assessment (EA) Study and noted that the Project Team has had extensive consultation with MTO since the start of the EA Study to review the consideration of the Highway 400 / Langstaff Road interchange improvements (i.e. from the current partial interchange to a full move interchange), as well as to review various interchange improvement design concepts. A total of six (6) staff-level meetings, one Senior Management Meeting and a design workshop have been held to date.	

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Item	Details	Action By
	The high level design concepts have evolved over the course of the study based on ongoing input from MTO, including the design workshop which was held in October 2018. At the last meeting with MTO held on August 13, 2019, the Project Team presented a Diverging Diamond Interchange (DDI) design concept including the northbound collector extension that was previously discussed at the design workshop held on October 4, 2018 and reviewed the traffic analysis findings associated with the DDI concept, including a sensitivity analysis accounting for the Highway 400 ultimate 10-lanning from Major Mackenzie Drive to north of South Canal Bridge.	
ITEM 3 –	**DIVERGING DIAMOND INTERCHANGE CONFIGURATION**	
3.1	J. Guan provided a brief overview of the DDI design concept and noted that the key feature of the DDI concept is providing full-movements at Highway 400/Langstaff Road interchange while meeting the ramp spacing requirements. WSP reiterated the benefits of DDI interchange as it supports the Regional and Provincial Goods Movement strategies, reduces traffic congestion within the overall transportation network, provides travel time benefits on Highway 400 and improves the traffic operations at the adjacent Highway 400 interchanges (i.e. Highway 7 and Rutherford Road).	
ITEM 4 –	**MEETING DISCUSSION**	
4.1	K. Jim noted that, as an action item at the August 2019 meeting, MTO staff was planning to present the DDI concept to Senior Management and would follow up with the Project Team thereafter. MTO noted that staff have put this project file on-hold as MTO was under the impression that the interchange improvement will not be included in the MECA study. C. Wong noted while the Region has identified the Highway 400 / Langstaff Road interchange improvements as part of the Regional Transportation Master Plan (2016), through the course of the Langstaff Road EA Study, the extent of the improvements associated with the Highway 400 / Langstaff Road interchange is expanded to a corridor-level with a significant amount of improvements expected on mainline Highway 400. Per above, it would be more appropriate for the planning of the Highway 400 / Langstaff Road improvements to be undertaken in a future corridor study. For the purpose of the Langstaff Road Class EA Study, the Region is proposing to document the work (high level design	

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Item	Details	Action By
	concepts and traffic analysis) and consultation associated with the Highway 400 / Langstaff Road interchange that were carried out during the Class EA Study in the ESR. This will serve as the basis and background for the future corridor study. York Region and the Project Team is asking MTO not to preclude a full-move interchange at this location and commit to revisiting the interchange design concept when MTO is improving Highway 400 corridor in the future. MTO indicated that MTO cannot commit to endorse any of the proposed design concepts without further analysis and cannot also commit to any cost sharing or future studies.	
4.2	MTO asked how the Region is planning to document the interchange improvements in the recommended plan for Langstaff Road in the proximity of Highway 400 within the ESR. C. Wong noted that Highway 400 and Langstaff Road interchange will be "bubbled off" with a note stating that the interchange improvements will be considered in a future corridor study.	
4.3	MTO expressed concerns with the inclusion of the DDI concept in the ESR may confuse the public. WSP noted that the Project Team could include watermark on the plan to indicate the DDI design is a concept plan only.	
4.4	MTO noted that there are still some uncertainties with DDI concept from the traffic perspective and the Ministry may not agree with more moves (i.e. ramps to and from the north) at this interchange. The Project Team noted that York Region is not seeking MTO's endorsement on the DDI concept but rather an agreement that it can be documented in ESR and that a range or reasonable design alternatives (including the DDI) may be revisited in a future corridor study or when Highway 400 corridor is being improved.	
4.5	York Region noted the importance of documenting the work conducted to date associated with the Highway 400 / Langstaff Road interchange during the Class EA Study. The consideration of the Highway 400 / Langstaff Road interchange improvements were noted in previous consultation (e.g. Open House 1 and Open House 2), as well as with other stakeholders such as the City of Vaughan. The consideration of the Highway 400 / Langstaff Road interchange improvements has been carried out through ongoing consultation with MTO during the EA Study. In line with the Class EA process, it is expected that the high level design concepts and associated consultation be documented as part of the ESR.	

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Item	Details	Action By
4.6	MTO noted that they will have internal discussion with regards to the material presented at the meeting (as well as material from the August 19, 2019 meeting) and provide feedbacks on how to document the interchange design in the ESR and next steps (i.e. timing of meeting with MTO).	MTO
ITEM 5 –	**NEXT STEPS**	
5.1	K. Jim presented the following next steps regarding the Highway 400 / Langstaff Road interchange improvements: • Due to the complexity and the extent of the improvement limits associated with the Highway 400 / Langstaff Road interchange modification (i.e. it may require the review of a core/collector system , York Region will not be including in the improvements of the Highway 400 / Langstaff Road interchange in the current Municipal Class Environmental Assessment (MCEA) study. The review of the Highway 400 / Langstaff Road should be reviewed in a future corridor study to ensure a more comprehensive and holistic review. • For the purpose of the Langstaff Road EA Study documentation, the high level concept designs developed to date, as well as the associated traffic analysis findings and consultation with MTO will be documented in the Environmental Study Report (ESR); • Following today's meeting, MTO to confirm that the interchange improvements will be deferred to a future corridor-level joint study (with York Region) to find a solution that may benefit both parties; • Prepare ESR to document decision making process of the MCEA study; and File ESR in Summer 2021 (tentative).	

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Langstaff Road
Class Environmental Assessment Study
Weston Road to Highway 7

MTO Meeting # 8
March 26, 2021

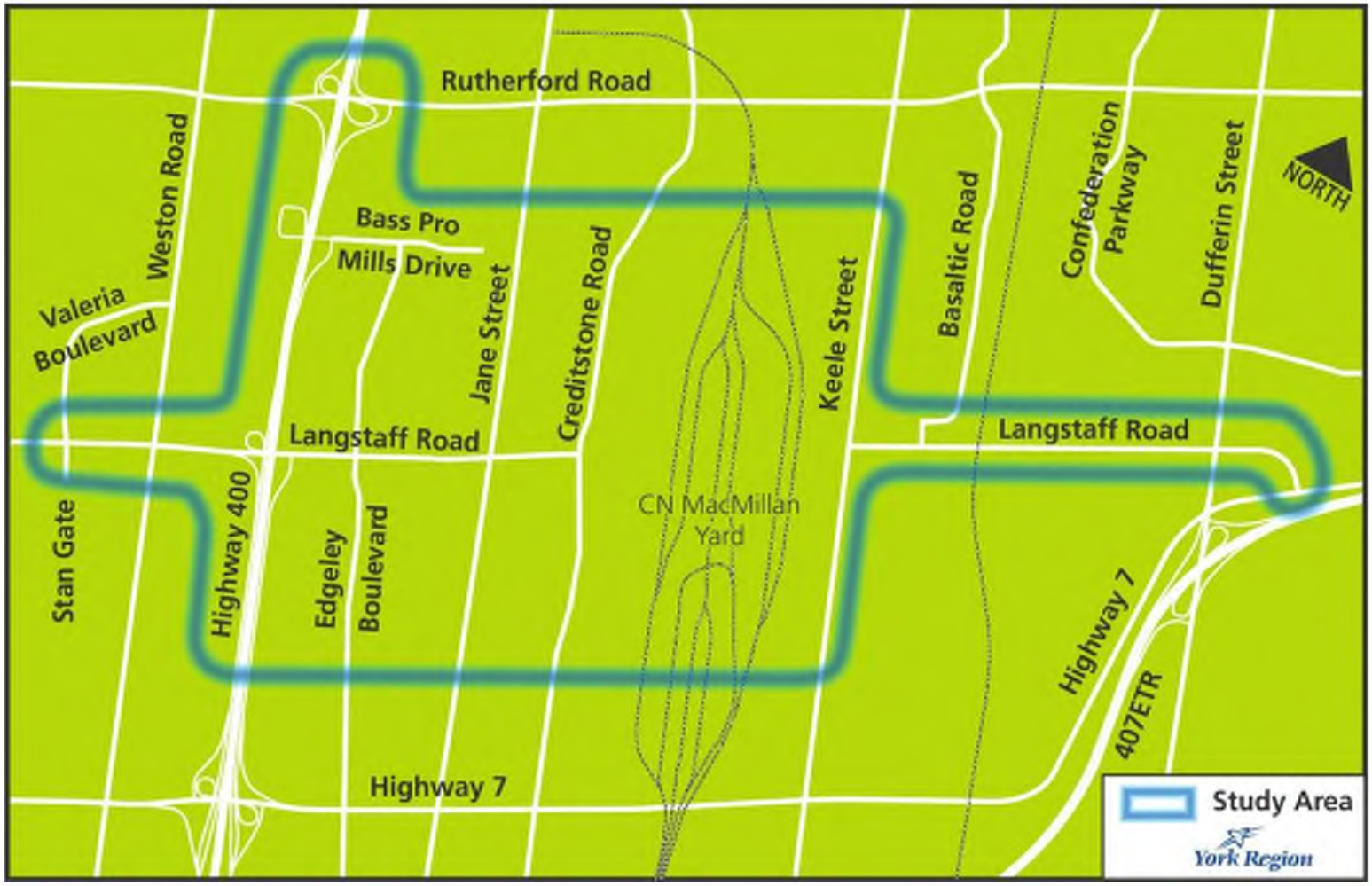

GREAT STREETS
Building Roads that Build Community

York Region

Agenda

- Introduction
- MTO Involvement to Date
- Diverging Diamond Interchange Concept
- Next Steps

Introduction



MTO Involvement to Date

- Meeting 1 (December 2, 2016): Project introduction
- Meeting 2 (May 10, 2017): Screenline and capacity analysis results
- Meeting 3 (July 26, 2017): Highway 400 model calibration and Highway 400 interchange design options
- MTO comments (August 3, 2017 email) regarding Highway 400 interchange design options
- Meeting 4 (November 30, 2017): Updated Highway 400 interchange design options and micro-simulation results
- Senior Management Meeting (January 22, 2018) – MTO internal staff only
- MTO comments (February 1, 2018 email): Micro-simulation results and assumptions, Highway 400 interchange design options
- Meeting 5 (March 22, 2018): Senior Management Meeting
- Meeting 6 (August 8, 2018): Updated micro-simulation results using re-calibrated model
- Design Work Shop (October 4, 2018): Development of additional interchange design options
- MTO comments (March 19, 2019 email): Diverging Diamond Interchange (DDI) comments
- Meeting 7 (August 13, 2019): Presented traffic analysis for the DDI concept

Recap of Design Workshop (October 4, 2018)

- Staff from MTO, City of Vaughan, York Region and WSP attended a Design Workshop, held on October 4, 2019, to develop additional interchange design options.
- In addition to previously developed interchange design options, various collector extension options were discussed.
- Subsequent to the Design Workshop, an interchange design alternatives screening was carried out and was provided to MTO prior to this meeting.
- The Diverging Diamond Interchange (DDI) design was ultimately selected to be carried forward for traffic micro-simulation.

Recap of MTO Meeting (August 13, 2019)

- Presented the DDI design
- Reviewed traffic analysis findings associated with DDI design
- Sensitivity analysis and review accounting for the ultimate widening of Highway 400 from north of Major Mackenzie Drive to north of South Canal Bridge to 10-lane

Benefits of Highway 400 Interchange Improvements

- Supports Regional and Provincial Goods Movement strategies
- Reduces traffic congestion within the overall transportation network
- Expected to provide an overall travel time benefit for both the northbound and southbound trips
- Minor improvement in traffic operations at the adjacent Highway 400 interchanges

Next Steps…

- Highway 400 / Langstaff Road interchange improvement will not be included in the current MCEA Study. Concept designs and associated traffic analysis findings will be documented in the Environmental Study Report (ESR).
- Confirm with MTO that the interchange improvements will be deferred to a future corridor-level joint study to find a solution may benefit both parties.
- Prepare ESR to document decision making process of the EA Study.
  - File ESR in Summer 2021 (tentative).

MEETING MINUTES

Date:	July 22, 2021 1:00 p.m. to 2:00 p.m.	**Project Number:**	16M-01457-01
Location:	Teleconference (MS Teams)	**Project:**	Langstaff Road EA – Weston Road to Highway 7

Purpose: Meeting #9 with Ministry of Transportation (MTO)

Attendees:	**Agency**
Lukasz Grobel	MTO – Project Delivery
Cristian Crosato	MTO – Project Delivery
Sandra Sadek	MTO – Project Delivery
Johnson Lau	MTO – Traffic
Aaron Janke	MTO – Traffic
Zaka Uddin	MTO – Traffic
Colin Wong	York Region
Tim Kwan	York Region
Katherine Jim	CIMA+
Nadia Dabagh	WSP
Rhonda George-Hiebert	WSP

Item	Details	Action By
ITEM 1 –	**INTRODUCTION**	
1.1	Those at the meeting were introduced. L. Grobel, MTO, noted that S. Sadek, MTO, will be the new project representative for the Langstaff Road EA file at MTO in replacement of C. Crosato.	
1.2	K. Jim, CIMA+, provided a brief project overview and status update.	
ITEM 2 –	**MEETING DISCUSSION**	
2.1	In the June 23, 2021 email, MTO noted concerns with the concept and requested a Safety and Human Factor analysis be completed in relation to the Diverging Diamond Interchange and collector extension. Upon review and confirmation that the analysis observes satisfactory performance and safety objectives, a presentation could be made to MTO Senior Management for acceptance of the concept. C. Wong, York Region, expressed that the Region's position is not to include the Highway 400 / Langstaff Road interchange design as part of the ESR, as the proposed improvement associated with the interchange is extensive and well beyond the scope of the Langstaff Road EA. The ESR design plates will have the interchange "bubbled off" and will be identified as "requiring future studies". The EA Study	

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	will not be recommending improvements associated with the interchange. At the suggestion of MTO, WSP will revisit the ESR and remove any suggestions that the DDI is an EA recommendation. L. Grobel noted that without completion of the Human Factors and Safety studies, MTO cannot accept the DDI concept and it should not be part of the Langstaff Road EA recommended plan. While the Project Team and MTO acknowledge this is a "work in progress" concept and no decisions has been made, the level of detail associated with the interchange concepts review / documentation to be included in the Langstaff Road ESR (i.e. a public document) was requested to be submit to MTO for review.	
2.2	C. Wong noted that as part of the ESR and mandates of the MCEA process, the Project Team will document all of the consultation that was undertaken during the Class EA study. From a consultation record perspective, meetings with MTO and associated presentation material are required to be documented in the ESR; not including the consultation materials would have serious implications to the integrity of the MCEA process. L Grobel noted that all sections of the ESR identifying the interchange concept should be clear that it has not yet been accepted by MTO and there are outstanding comments. The concern is with public misunderstanding that the interchange concept is part of this EA and has been endorsed by MTO. L. Grobel asked the Project Team to provide a package of all meeting minutes and presentation materials (as they would be documented in the ESR) to MTO for review. C. Wong noted that materials shown to the public at Open House 2, included information regarding the potential improvements at the interchange that were reviewed by MTO. L. Grobel noted that MTO would connect with their Environmental Team for any comments regarding presentation of interchange materials and documentation in the ESR, since the interchange concept is not being included in the Langstaff Road Class EA Study.	WSP
2.3	S. Sadek asked if there was any plan to take the interchange study to a further level of discussion. C. Wong noted that the only section that is part of the Region's 10-year Capital Plan is from Keele Street to Dufferin Street and will include widening this section from two lanes to four lanes. The interchange improvements goes hand-in-hand with the CN MacMillan Rail Yard crossing. The Region does not have any plans to conduct the Highway 400 / Langstaff Road interchange studies. L. Grobel added that MTO current plans show to widen the Highway 400	

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	from Langstaff Road to Major Mackenzie Drive to ten lanes based on previously approved planning study.	
2.4	The Project Team noted that that all of the work associated with the DDI concept will be documented under a separate cover for York Region's record. The ESR may include wording referring this separate memo. MTO requested to review proposed wording to be used in the ESR in reference to the interchange improvements.	
2.5	L. Grobel requested that the Project Team present the final design of Langstaff Road EA to MTO Senior Management. C. Wong noted that the Project Team is not making any recommendation for the Highway 400 / Langstaff Road interchange may not be necessary but will discuss with L. Grobel regarding the need to present to MTO Senior Management.	
2.6	L. Grobel asked what the timeline was for filing the ESR. York Region noted that the ESR will be filed in the near future in the Fall of 2021. The Project Team will provide MTO with a package of MTO meeting minutes and associated presentation materials, as well as sample ESR text relating to the interchange design consideration for MTO review. L. Grobel noted that it would likely take a few weeks and suggested to flag dates for turnaround time (minimum of two weeks) and if MTO has issues being able to make the timeline they will let the Project Team know. When forwarding the material, those who attended the meeting should be cc'd (except for C. Crosato).	WSP
3.0	**NEXT STEPS**	
3.1	The meeting minutes will serve as response to MTO June 23, 2021 email.	

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