Appendix H – Transportation Systems

Schedule “C” Class Environmental Assessment for Airport Road from Braydon Boulevard / Stonecrest Drive to Countryside Drive

H.1 – Long Range Transportation Plan Validation Memorandum

Schedule “C” Class Environmental Assessment for Airport Road from Braydon Boulevard / Stonecrest Drive to Countryside Drive

Memo

Project: Airport Road Municipal Class Environmental Assessment from Braydon Boulevard / Stonecrest Drive to Countryside Drive

To: Tareq Mahmood – Regional Municipality of Peel

From: Anthony Reitmeier – HDR
Veronica Restrepo – HDR

Subject: **2012 Peel Long Range Transportation Plan (LRTP) Validation Memo**

Date: Thursday, August 03, 2017

The Regional Municipality of Peel (Peel Region) has retained HDR to undertake a Municipal Class Environmental Assessment Study (Class EA) to review the transportation needs for Airport Road between Braydon Boulevard/Stonecrest Drive and Countryside Drive.

This memo reviews the analysis previously completed by Peel Region to assess future transportation conditions along Airport Road and examines traffic growth projections through 2031. The objective of the memo is to validate the findings of the 2012 Updated Peel Region Long Range Transportation Plan (LRTP), which recommends widening of Airport Road within the EA project limits.

Municipal Class Environmental Assessment Planning Process

The Airport Road EA study will be prepared in accordance with the guidelines of the Municipal Engineers Association (MEA) Municipal Class Environmental Assessment (October 2000, as amended in 2007, 2011 and 2015).

There are four schedules for project classification: Schedule A, Schedule A+, Schedule B and Schedule C, rated according to their potential environmental impacts. Schedule C is the most stringent of the four processes. The Airport Road EA study is being conducted in compliance with a Schedule C classification. A Schedule C project involves either the construction of new facilities or major expansion of existing facilities. For the existing facilities, this could include road widening, adjustments, and operational improvements.

The Schedule C Municipal Class EA process is characterized by a five phase planning and design process:

- **Phase 1 (Problem and Opportunity) –** Identify the problem or opportunity.
- **Phase 2 (Alternative Solutions) –** Identify alternative solutions to address the problem or opportunity considering the existing environment, and establish the preferred solution taking into account public and review agency input.
- **Phase 3 (Alternative Design Concepts for Preferred Solution) –** Examine alternative methods of implementing the preferred solution, based on the existing environment, public and review agency input, anticipated environmental effects, and methods of minimizing negative effects and maximizing positive effects.

- **Phase 4 (Environmental Study Report) –** Document in an Environmental Study Report (ESR) a summary of the study background, problem statement, alternative solutions, alternative designs, and the public consultation process. Place the ESR on public record for a minimum 30 calendar days for review, and notify completion of the ESR and opportunity for Part II Order requests.
- **Phase 5 (Implementation) –** Completion of detailed design and preparation of contract/tender documents followed by construction, operation, and monitoring.

Peel Long Range Transportation Plan (LRTP)

The 2012 Peel LRTP provides a policy implementation framework for the Peel Regional Official Plan to address transportation challenges to the year 2031. The scope of Master Plans such as the LRTP is broad and assesses transportation needs from a network perspective in order to develop a framework for future works and developments. They do not typically address site-specific issues. However, they address Phases 1 and 2 of the Municipal Class EA process including problem identification and alternative planning solutions.

For the Airport Road EA study, the work completed in preparing the LRTP was completed in accordance with the requirements of the first two phases of the Municipal Class EA process, identifying the need for Airport Road widening.

Widening Airport Road from four to six lanes is recommended in the LRTP for the year 2027 as shown in **Exhibit 1**. The widening is needed to address projected capacity deficiencies in northeast Brampton/southeast Caledon resulting from planned growth. The improvements will also benefit goods movement and provide opportunities to enhance the active transportation network.

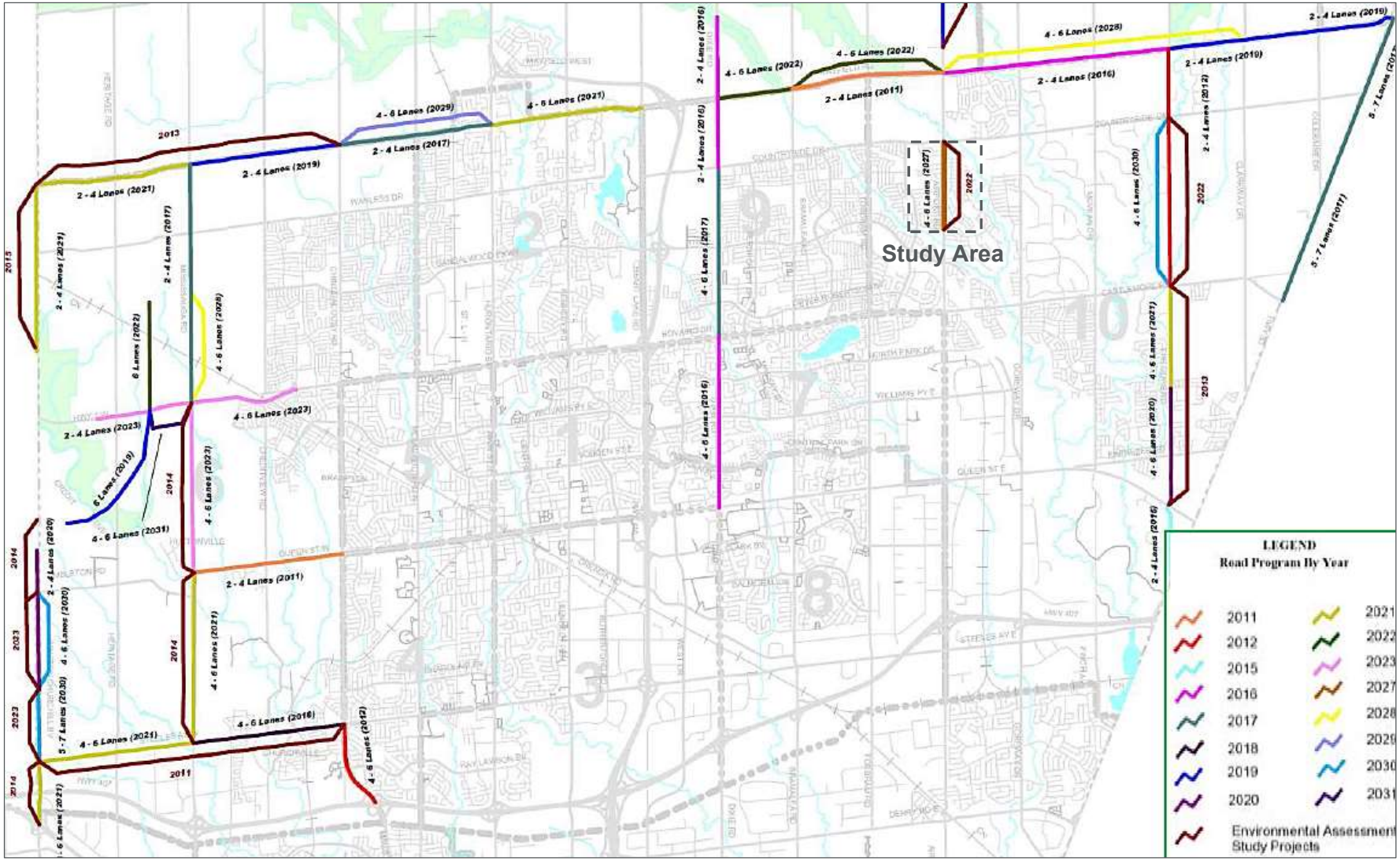

Exhibit 1: Planned Road Improvements in the City of Brampton (Source: 2012 Peel LRTP Update)

Screenline Analysis

HDR Analysis

HDR conducted a screenline analysis to validate the findings of the Region's LRTP and further reconfirm the need and justification for improving Airport Road. Screenlines are used to measure travel demand and transportation network capacity across a series of parallel corridors. To assess the existing and future north-south deficiency in the transportation network, HDR evaluated a screenline north of Stonecrest Drive/Braydon Boulevard across Goreway Drive, Airport Road, Mountainash Road and Torbram Road. **Exhibit 2** shows the screenline used for the analysis.

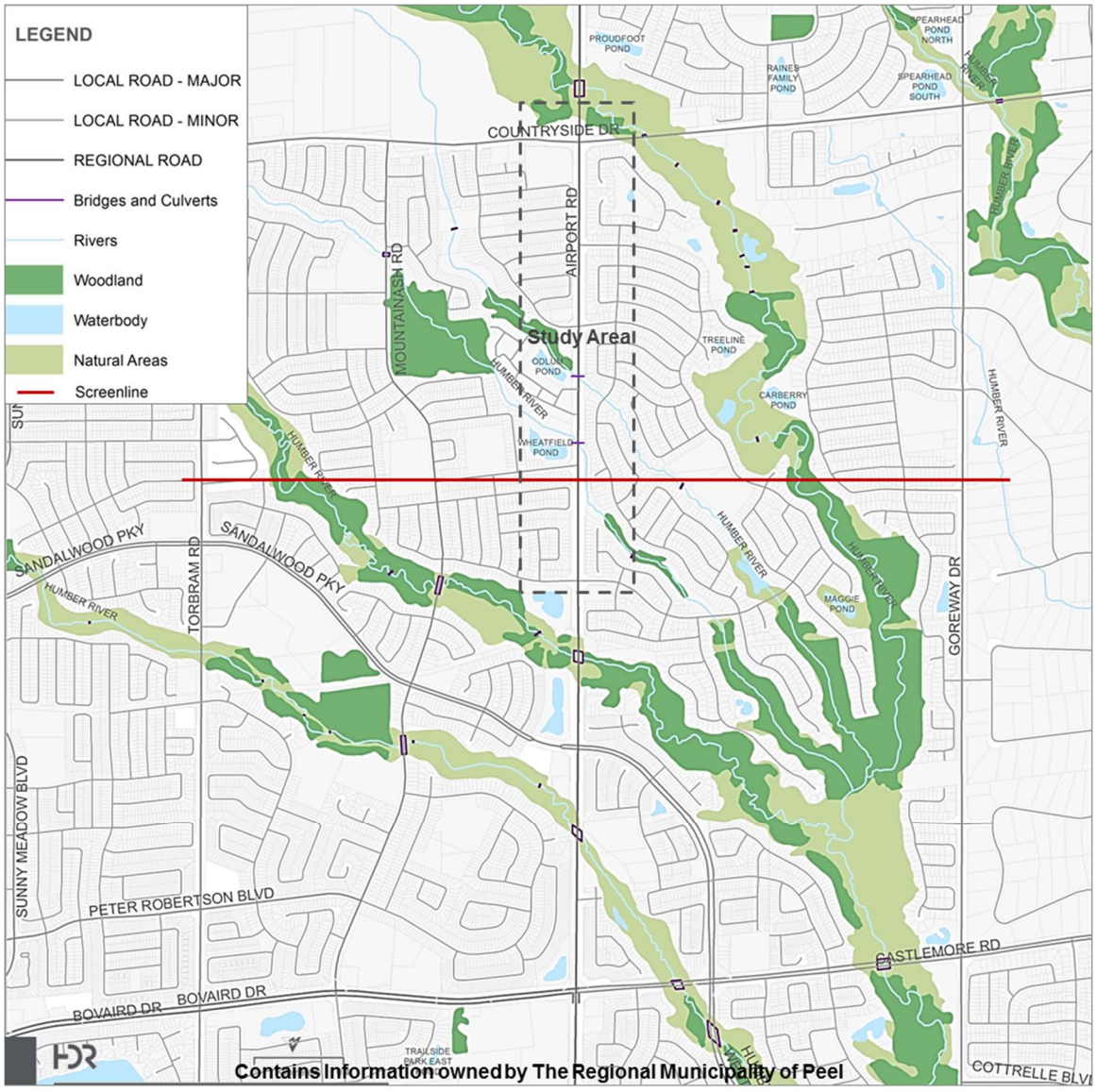

Exhibit 2: Screenline used to assess north-south network deficiency

The screenline traffic volumes, capacities and volume-to-capacity ratios for the Do Nothing (no widening) scenario are shown in **Table 1** and illustrated in **Exhibit 3, Exhibit 4** and **Exhibit 5**. The Do Nothing scenario assumes that all other road improvements will be carried out while Airport Road itself will remain in the existing four lane configuration (two lanes per direction). The table and exhibits indicate the demand for peak direction travel (southbound) in the AM peak period versus supplied road capacity to support that demand.

The peak direction (southbound), AM peak traffic volume across Airport Road was under capacity in 2011 with a v/c ratio of 0.75. When it is modeled as two lanes per direction in 2021, traffic volumes on Airport Road exceed capacity with a v/c ratio of 1.15. Traffic volumes on Airport Road increase by approximately 53% in the period between 2011 and 2021.

At a screenline level, the north-south traffic volumes were below capacity in 2011 with a v/c ratio of 0.52. In the period between 2011 and 2021, volumes across the screenline are expected to grow by 88%, equivalent to a 6.5% annual growth rate. The 2021 network is still anticipated to have excess capacity in the Do Nothing scenario, due in part to planned capacity expansions of the Goreway Drive from two rural lanes to four urban lanes in 2020. However, the 2021 road network is approaching capacity and has a v/c ratio of 0.82.

Traffic volumes from the Region's 2031 EMME model were projected assuming Airport Road is widened from four to six lanes. Therefore, the model outputs do not provide an accurate depiction of traffic volumes on roads within the screenline assuming Airport Road is not widened. Therefore, a 3% annual growth rate was assumed and applied to 2021 volumes in order to estimate 2031 traffic volumes for the "Do Nothing" scenario. The 3% growth rate is based on a conservative assumption, considerably lower than the annual traffic growth of 6.5% that was experienced between 2011 and 2021. The results showed that in 2031, traffic volumes across all roads (except Torbram Road) would exceed capacity. The overall v/c ratio across the screenline would reach 1.11 in 2031.

The AM peak period was reviewed based on data provided by the Region. Based on HDR's understanding of traffic patterns along the corridor, the PM peak period is expected to have similar capacity issues (notwithstanding local issues, particularly intersection operations) in the northbound direction.

It must be noted that the 2031 scenario considered for the purposes of this Memo is the scenario without the GTA West build-out, in light of the GTA West Corridor provincial EA being put on hold.

Table 1: Summary of Screenline Analysis - Southbound, AM Peak Hour, Do Nothing Scenario

	AM - SB	Torbram Road	Mountainash Road	Airport Road	Goreway Drive	Screenline Total	Volume Constant Annual Growth Rate
2011	Volume	394	465	1356	714	2929	N/A
	Capacity	2400	500	1800	900	5600	
	V-C ratio	0.16	0.93	0.75	0.79	0.52	
2021	Volume	1417	497	2068	1539	5521	6.5% (2011-2021)
	Capacity	2400	500	1800	2000	6700	
	V-C ratio	0.59	0.99	1.15	0.77	0.82	
2031 without GTA West	Volume	1904	668	2779	2068	7420	3% (assumed)
	Capacity	2400	500	1800	2000	6700	
	V-C ratio	0.79	1.34	1.54	1.03	1.11	

Exhibit 3: 2011 Screenline Analysis Results for Peak Direction (SB)

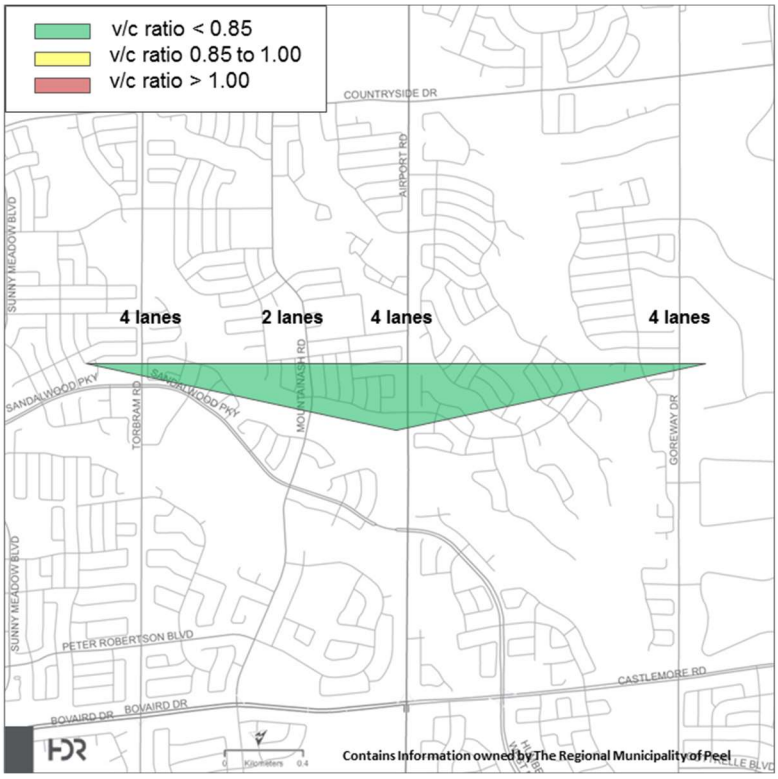

Exhibit 4: 2021 Screenline Analysis (Do Nothing)

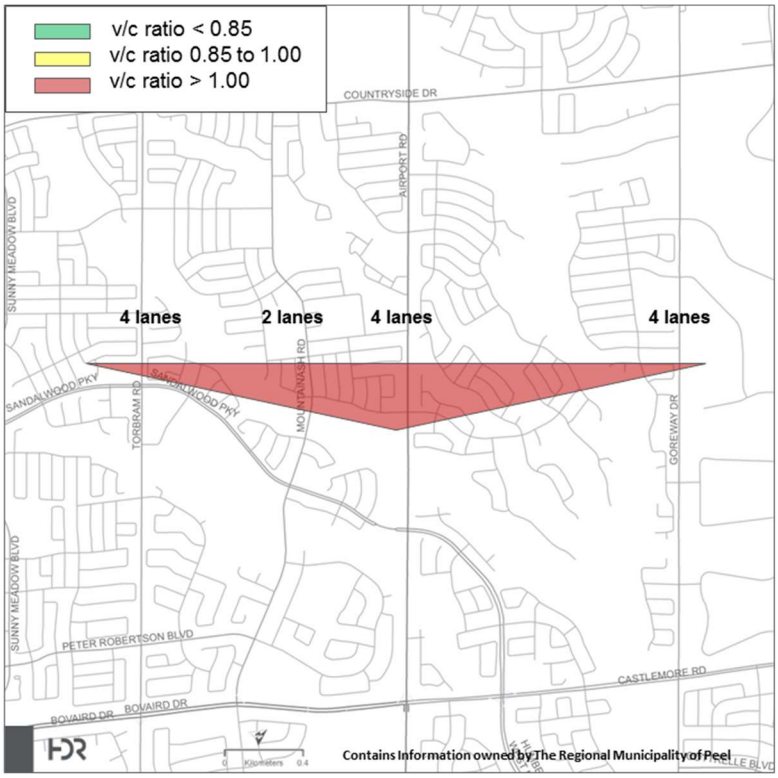

Exhibit 5: 2031 Screenline Analysis (Do Nothing)

City of Brampton TMP (2009 & 2014)

The 2009 City of Brampton Transportation Master Plan (TMP) conducted its own screenline analysis to assess the overall road network's ability to handle future travel demand. A city-wide "Do Nothing" scenario was analyzed with a 2031 horizon. Results of the analysis, presented in **Exhibit 6**, showed that, without any investments in road infrastructure, north-south roads in Brampton would be on the verge of reaching capacity by 2031.

The Bovaird Drive and Countryside Drive screenlines, extending from Heart Lake Road to Highway 50, are particularly relevant to the study area due to their proximity to Airport Road. In the future scenario where no widening is to occur, north-south roads along both screenlines would be nearing capacity in 2031. The overall v/c ratio for the Bovaird Drive screenline was in the range of 0.9 to 1.0 while that of the Mayfield Road screenline ranged between 0.80 and 0.90. These results help provide a glimpse into future traffic conditions along Airport Road.

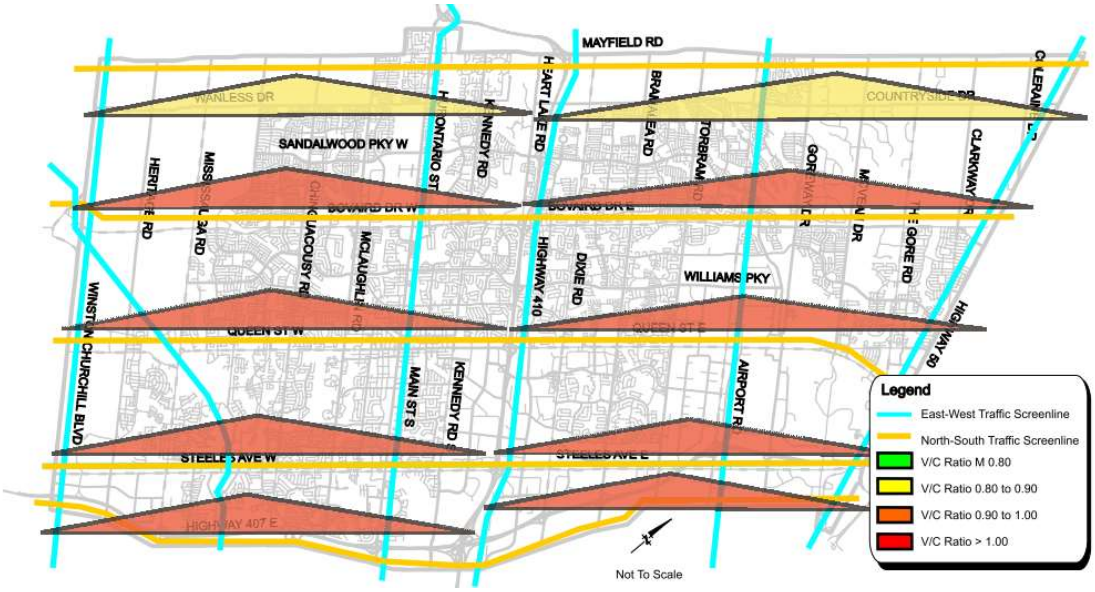

Exhibit 6: Screenline V/C ratios of "Do Nothing" Scenario, Horizon Year 2031, P.M. Peak Hour, North-South Traffic, Peak Direction (Source: 2009 Brampton TMP)

The 2014 City of Brampton TMP also performed a screenline analysis for the "Do Nothing" scenario but with a 2041 horizon. Results of the analysis, shown in **Exhibit 7,** demonstrated that conditions are expected to worsen for the Bovaird Drive screenline, whose v/c ratio will increase and exceed 1.0. Furthermore, analysis for a screenline along Countryside Drive was performed and indicated that a v/c ratio ranging between 0.8 and 0.9 is anticipated by 2041.

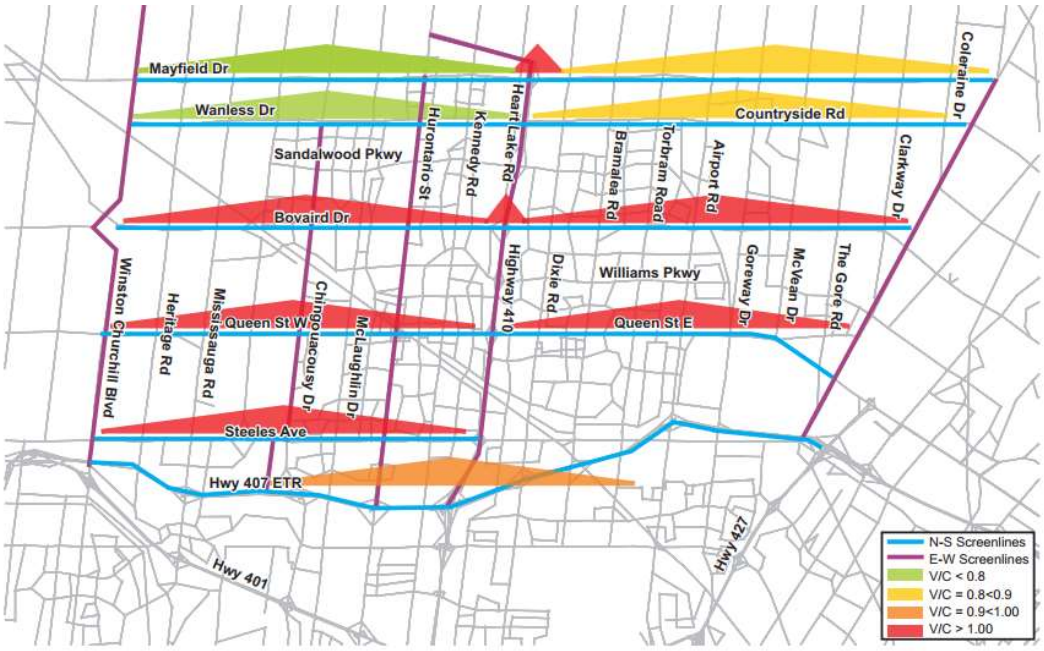

Exhibit 7: Screenline V/C Ratios of "Do Nothing" Scenario, Horizon Year 2041, P.M. Peak Hour, North-South Traffic, Peak Direction (Source: 2014 Brampton TMP)

This analysis illustrates that transportation improvements to north-south roads are necessary in the area to support planned growth and further justify the widening of Airport Road by 2031.

Future Development

It is important to note that localized access or intersection issues are sometimes not captured in a screenline analysis. Therefore, Block Plans in the vicinity of the study area were examined to identify any future development areas that may cause and/or worsen access issues onto Airport Road in the future.

Certain areas of Peel Region, which are expected to undergo significant change, may require a more detailed planning framework. These are typically developed in a Block Plan, which helps address issues pertaining to the Natural Heritage Network, servicing and infrastructure details such as road and pedestrian networks, lot patterns and the precise location of community services such as schools, parks and community centres.

Two block plans, 48-2 and 42-1, were identified by Peel Region and are located within close proximity to the study area. As of 2017, Block 42-1 has already been developed into a low-rise residential community while Block 48-2 is currently greenfield. The block locations are shown in **Exhibit 8**.

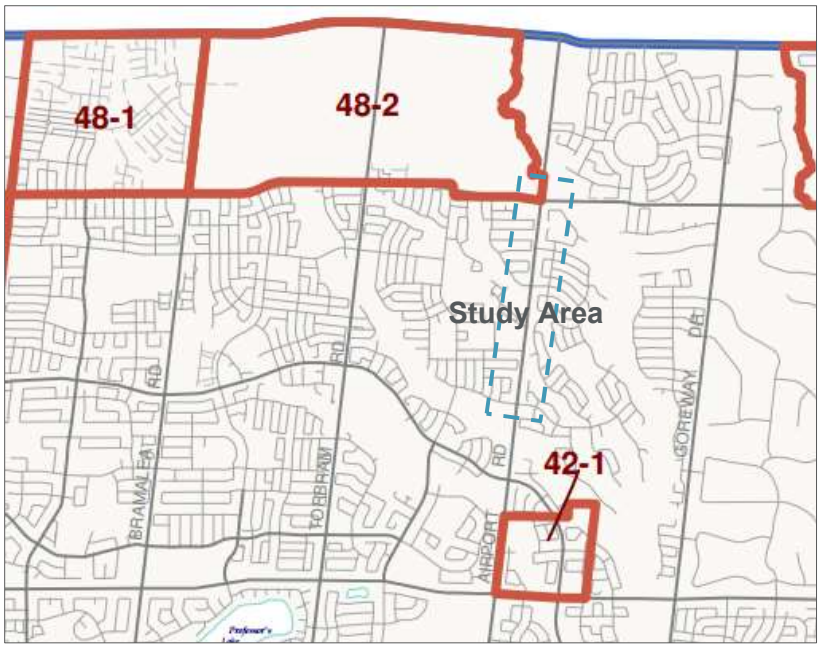

Exhibit 8: Community Block Plans adjacent to study area (Source: City of Brampton Community Block Plan)

Because the Block Plans identify locations where new development is anticipated, growth in those areas is likely to pose additional stress on Airport Road between Stonecrest Drive/Braydon Boulevard and Countryside Drive. New traffic from the implementation of the plans suggests impending capacity deficiencies and access issues along the study corridor, further justifying the need to widen Airport from four to six lanes between Braydon Boulevard/Stonecrest Drive and Countryside Drive.

Summary

The Peel Region LRTP identified the need to widen Airport Road from four to six lanes by 2027 based on projected development and associated traffic growth in the Region. HDR has reviewed the findings and underlying analysis of the LRTP based on data provided by the Region and confirmed that the LRTP documents the need and justification for widening Airport Road based on transportation network needs, in accordance with the requirements of Phases 1 and 2 of the Municipal Class EA Process.

Furthermore, HDR has completed a screenline of the “Do Nothing” scenario for the 2011, 2021, and 2031 horizon years to assess volumes on Airport Road and parallel regional roads. This analysis confirmed that Airport Road is projected to exceed capacity by 2031.

HDR also reviewed the City of Brampton TMP and nearby Block Plans. The Brampton TMP identified the need for additional north-south capacity in the area and confirmed that City and Regional roads will approach capacity (v/c ratio greater than 0.90) by 2031 at a screenline level,

and exceed capacity by 2041. Block plans for blocks 42-1, 48-1, and 48-2 are expected to generate additional localized traffic demand that will impact Airport Road. The impact of this development will be captured in the future conditions assessment as part of this study, along with corridor-specific needs and opportunities such as intersections, commercial entrances, and active transportation improvements.