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# Memorandum

<b>To/Attention</b>	Ryan Au (City of Mississauga)	<b>Date</b>	May 15, 2020
<b>From</b>	Fadi Madi (IBI Group)	<b>Project No</b>	125140
<b>cc</b>	Peter Richards (IBI Group) Ron Stewart (IBI Group) Andrae Griffith (IBI Group)		
<b>Subject</b>	<b>Hanlon Glen Subdivision Transportation Impact Study - Final Peer Review Findings</b>		

## 1. Introduction

IBI Group was retained by the City of Mississauga (“City”) to conduct an independent peer review of a Traffic Impact Study report (“TIS”) authored WSP Canada Group Limited (the “consultant”) for a proposed development at 1200 Old Derry Road in Mississauga. The purpose of this memorandum is to present the results of the peer review of the TIS, *Hanlon Glen Developments Inc. - Transportation Impact Study* (June 2019).

Upon a review of the TIS, and the provided Synchro intersection capacity files, items which we deem to require further analysis, justification, or refinement are noted in this memorandum. City comments on the TIS are also discussed, as appropriate. It is our understanding that the City may require these elements to be resolved, and a revised TIS be submitted by the consultant as the proposed development application undergoes the approval process. The peer review is organized by each TIS section.

## 2. TIS Section 2.1 Study Area (Boundary Roadways)

This section of the TIS identifies the study area. Despite the study area being defined in WSP’s Terms of Reference (Appendix A of the report) and agreed upon by the City staff, it is our opinion that the study area be expanded to include roads and intersections to the west due to the proposed development size and existing observed travel patterns.

As illustrated in **Figure 2-4 (Existing Traffic Volumes)** of the report, the majority of traffic at the intersection of Old Derry Road and Historic Trail were observed travelling to / from the west during the weekday AM and PM peak hours. We recommend that the TIS consider an expanded study area which includes the following intersections:

- Mavis Road and Derry Road:
  - To account for trips to / from Highway 407 to the north.
- Mississauga Road and Derry Road:
  - To account for trips to / from Highway 407 to the north and to/from Highway 401 to the south.

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- Mississauga Road and Meadowvale Boulevard:
  - To account for trips to / from the north that will likely bypass the intersection to the south.
- Old Derry Road / Old Creditview Road and Creditview Road:
  - To include an intersection within the new boundaries, and to account for trips to / from Britannia Road West to the south.
- Creditview Road / Meadowvale Boulevard and Derry Road:
  - To include an intersection within the new boundaries.

### 3. TIS Section 2 – Existing Conditions

- 3.1. **City's comment: Figure 2-1 (Existing Lane Configurations)** of the report indicates that the northbound approach at the intersection of Mavis Road and Sombrero Way / Courtneypark Drive has an exclusive right-turn lane. However, the corresponding Synchro models indicate a shared through-right lane at this location.

IBI Group has reviewed the comment and note that an exclusive right-turn lane is the correct configuration. We recommend that this discrepancy be reconciled in the Synchro model, and the revised figures be provided in the TIS.

- 3.2. **City's comment: Figure 2-1 (Existing Lane Configurations)** of the report indicates that the intersection of Historic Trail and Carding Mill Place is a stop-controlled intersection with stop signs on the east and west approaches (on Carding Mill Place). However, the corresponding Synchro models indicate that the stop signs are on the north and south approaches (on Historical Trail).

IBI Group has reviewed the comment and note that stop signs on the east and west approaches is the appropriate configuration. We recommended that this discrepancy be reconciled in the Synchro model and revised analysis be provided. We further recommend that all traffic control measures in the Synchro models be reviewed to ensure that field conditions are accurately represented.

- 3.3. **City's comment: Section 2.4 (Traffic Data)** of the report states that the illegal movement (i.e. prohibited left-turns) were reassigned as through movements. However, it does not provide details on which left turn movements are prohibited and how the volumes were reassigned.

IBI Group has reviewed the comment and is in agreement with the City. We recommend that appropriate clarity be provided on the prohibited left turn movements and the corresponding volume assignments.

- 3.4. **City's comment: In Section 2.5 (Existing Transportation Conditions)** of the report, the report only provides the capacity analysis summaries with the traffic signal optimization, where the report should also include capacity analysis summaries for the Synchro models without traffic signal optimizations.

IBI Group notes that the TIS provides the requested capacity analysis summaries in **Table 2-2 [Existing Intersection Operations]** and in **Table 2-3 [Existing Intersection Operations (Optimized Splits)]**. Therefore, we are of the opinion that this concern has been resolved.

- 3.5. **City's comment: In Section 2.5 (Existing Transportation Conditions)** of the report, Table 2-2 (Existing Intersection Operations) and Table 2-3 [Existing Intersection Operations (Optimized

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Splits]] include level of service (LOS), delay and volume to capacity ratio in the capacity analysis summaries, but does not include the available storage and the 95<sup>th</sup> percentile queue.

IBI Group has reviewed the comment and is in agreement with the City. We recommend that the available storage and the 95<sup>th</sup> percentile queue be provided in the summaries, and all corresponding Synchro reports be provided in the appendices.

#### 4. TIS Section 3 – Future Background Conditions

- 4.1. **City's comment:** In **Section 3.2 (Background Developments)** of the report, whereas the report states that no developments are planned within the immediate study area, the Terms of Reference (Appendix A of the report) identifies the proposed subdivision application at 6611 Second Line West as a background development.

IBI Group has reviewed the comment and is in agreement with the City. We recommend that this proposed development be included in the future background conditions, and the revised figures and analysis be provided.

- 4.2. **City's comment:** In **Section 3.3 (Background General Traffic Growth)** of the report, the growth rates used are not consistent with growths rates provided by the City.

IBI Group has reviewed the comment and cannot locate the agreed-upon growth rates in the Terms of Reference. We recommend that the consultant check the rates provided by the City and revise the analysis as necessary. We further recommend that relevant correspondence regarding agreed-upon growth rates be included as an appendix item in the updated TIS.

- 4.3. **City's comment:** In **Section 3.4 (Background Road Network)** of the report, a planned road improvement along Mavis Road is described, however, the report does not provide a figure of the future lane configurations.

IBI Group has reviewed the comment and is in agreement with the City. We recommend that a figure of the future lane configurations be provided. Additionally, IBI Group reviewed the provided Synchro models and determined that there is a lane configuration inconsistency between the planned road improvement and the Synchro models for the future background conditions.

Specifically, at the intersection of Mavis Road and Courtney Park Drive / Sombrero Way, the planned road improvement includes an additional southbound left-turn lane, while the Synchro model reflects the existing conditions configuration. We recommend that all planned road improvements be included in the future conditions Synchro models, and the revised analysis be provided.

- 4.4. **City's comment:** In **Section 3.5 (Future Background Operations)** of the report, the report only provides the capacity analysis summaries with the traffic signal optimization, where the report should also include capacity analysis summaries for the Synchro models without traffic signal optimizations.

IBI Group has reviewed the comment and is in agreement with the City. We recommend that the capacity analysis summaries be provided for both scenarios with and without traffic signal optimizations, and all Synchro reports be provided in the appendices. We further recommend that the available storage and the 95<sup>th</sup> percentile queue be included in the summaries, and all corresponding Synchro reports be provided in the appendices.

## 5. TIS Section 4 – Site Generated Traffic

- 5.1. **City's comment:** In **Section 4.3 (Trip Distribution and Assignment)** of the report, it is recommended that the TTS 2016 results for the mode splits be provided in Appendix F.

IBI Group recommends that mode split be noted, but recommend that no changes be made to the trip generation estimates. As the ITE trip generation formulas used in **Table 4-1 (ITE Trip Generation Rates and Equations)** forecast vehicular trips in a typical general urban / suburban environment, any additional modal share reductions may result in the “double counting” of removed trips.

- 5.2. **City's comment:** In **Section 4.4 (Site Traffic Scenarios)**, the three access scenarios only include site accesses at Old Derry Road, Carding Mill Place and Lamplight Way, while the development site plan illustrates additional access to Shade House Court and Hickory Hollow Glen.

IBI Group has reviewed the comment and is in agreement with the City. We recommend that the TIS consider access onto Shade House Court and onto Hickory Hollow Glen, and that the revised figures and analysis be provided.

## 6. Report Section 5 – Future Total Conditions

- 6.1. **City's comment:** **Section 5.1 (Scenario 1)**, **Section 5.2 (Scenario 2)**, and **Section 5.3 (Scenario 3)** of the report should include figures of the future lane configurations and stop controls.

IBI Group has reviewed the comment and is in agreement with the City. We recommend that figures of the future lane configurations and stop controls be provided. Additionally, IBI Group reviewed the planned road improvement and the provided Synchro models, and found an inconsistency on lane configurations between the planned road improvement and the Synchro models of the future total conditions.

At the intersection of Mavis Road and Courtney Park Drive / Sombrero Way, the planned road improvement includes an additional southbound left-turn lane but this is not reflected in the future total Synchro models. We recommend that all planned road improvements be included in the future conditions Synchro models and the revised analysis be provided.

- 6.2. **City's comment:** **Section 5.2 (Scenario 2)**, and **Section 5.3 (Scenario 3)** of the report should evaluate the possibility of an exclusive westbound left-turn lane at the intersection of Old Derry Road and Street 'A'.

IBI Group has reviewed the comment and is in agreement with the City. We recommend that a dedicated westbound left-turn lane be investigated using an appropriate left-turn lane warrant, and the results be incorporated into the TIS.

- 6.3. **City's comment:** In **Section 5.1 (Scenario 1)**, **Section 5.2 (Scenario 2)**, and **Section 5.3 (Scenario 3)** of the report, whereas some proposed intersections are evaluated as all-way stop intersections, the report does not provide all-way stop warrants for them. The City suggested that the main connections for ingress and egress to the subdivision shall be free flowing as much as reasonably possible.

IBI Group has reviewed the comment and is in agreement with the City. We recommend that proposed all-way stop controlled intersections be justified by providing the completion of appropriate warrants, otherwise two-way stop control traffic control is preferred.

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6.4. **City's comment:** In **Section 5 (Future Total Conditions)** of the report, the report only provides the capacity analysis summaries with the traffic signal optimization, where the report should also include capacity analysis summaries for the Synchro models without traffic signal optimizations.

IBI Group has reviewed the comment and is in agreement with the City. We recommend that the capacity analysis summaries be provided for both models with and without traffic signal optimizations, and all Synchro reports be provided in the appendices. Additionally, we recommend that the available storage and the 95<sup>th</sup> percentile queue be included in the summaries, and all corresponding Synchro reports be provided in the appendices.

## 7. Report Section 6.2 – Sight Distance Review

In **Section 6.2 (Sight Distance Review)** of the report, it states that the City of Mississauga Standard 2211.010 was used to assess the minimum intersection sight line distance requirements. We recommend that the sight line assessment should also be compared against the TAC Manual. Stopping sight, decision sight, and intersection sight distances should be reviewed and the report should be updated to confirm that the intersections also comply with the TAC manual.

## 8. Synchro Model Development Review

The following summarizes our observations and recommendations with respect to the Synchro model coding and development used for the TIS.

### 8.1. Traffic Signal Timing

**City's comment:** In **Section 1 (Introduction)** of the report, it states that the study complies with the City of Mississauga and Region of Peel Requirements for a Traffic Impact Study. However, based on the Region of Peel's Regional Guidelines for Using Synchro Version 7.73 Rev 8 (the "Guidelines"), the lost time adjustments for all movements at signalized intersections should be 0 seconds, instead of -1 second in the provided Synchro models.

IBI Group has reviewed the comment and is in agreement with the City. We recommend that this traffic signal timing parameter be adjusted in the models.

Additionally, the Guidelines require the vehicle extensions for all movements to be set as 5 seconds, instead of the 3 seconds in the provided models. We recommend that this traffic signal setting be adjusted in the models.

In terms signal timing plan coding, in the provided existing condition PM peak hour Synchro model, the offset is set to be 10 seconds at the intersection of Mavis Road and Sombrero Way / Courtneypark Drive, whereas this parameter is 106 seconds according to the signal timing card provided by the City. We recommend that this traffic signal setting be adjusted in the models.

### 8.2. Bus Blockages

Whereas **Section 2.2 (Transit Assessment)** identifies the MiWay transit routes that serve the study area, the Synchro analysis of this study does not consider the impact of transit vehicles to the intersection traffic operations. This impact can be determined by including bus blockages in Synchro models.

Therefore, we recommend that the Synchro models be revised based on the appropriate transit routes and bus schedule (i.e. arrival times) for the traffic scenario.

## 9. Additional Peer Review Comments

- 9.1. **City's comment:** The street naming conventions are inconsistent between **Figure 1-2 (Subdivision Plan)** of the report and the provided Synchro models. IBI Group has reviewed the comment and is in agreement with the City. We recommend that all figures, tables and Synchro reports be reviewed to ensure the street names are consistent.
- 9.2. **City's comment:** Whereas in the Terms of Reference (Appendix A of the report), WSP states signal warrants will be included in the study for the intersection of Old Derry Road and Historic Trail, and at the intersection of Second Line West at Lamplight Way, the study does not include these two signal warrants. IBI Group has reviewed the comment and is in agreement with the City. We recommend that the appropriate traffic signal warrant analysis be completed and summary of the results provided in the report.
- 9.3. **City's comment:** The report shall include a section to address Community Impacts. Comments or concerns from the community that are related to traffic shall be addressed in a section in the report. IBI Group has reviewed the comment and is in agreement with the City. We recommend that responses to community concerns be discussed in the report, as appropriate.

## 10. Peer Review Summary and Recommendations

Based on the observations presented in this peer review, the following revisions to the TIS are recommended for the proposed Hanlon Glen development:

- Expand the study area further to the west of the existing study area;
- Reconcile the following discrepancies between report exhibits and corresponding Synchro models, and provide the revised analysis as appropriate:
  - The northbound right turn movement at the intersection of Mavis Road and Sombrero / Courtneypark Drive (**Figure 2-1** of the report); and
  - The stop control signs at the intersection of Historic Trail and Carding Mill Place (**Figure 2-1** of the report).
- Provide more clarity on which left turn movements are prohibited and how the volumes of the illegal movements were reassigned;
- Provide the capacity analysis summaries for models with and without traffic signal optimizations for all conditions;
- Include the available storage and the 95<sup>th</sup> percentile queue results in all capacity analysis summaries for all conditions;
- Include the proposed subdivision application at 6611 Second Line West in future background conditions analysis;
- Revise the analysis for future background conditions and future total conditions based on the growth rate provided by the City;
- Provide figures with future lane configurations under both future background conditions and future total conditions;
- Provide the mode splits from the TTS 2016 results in the Appendix F;

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- Include two additional site accesses in future total conditions on the following two streets:
  - Shade House Court; and
  - Hickory Hollow Glen;
- Evaluate the possibility of an exclusive westbound left-turn lane at the intersection of Old Derry Road and Street 'A' in future total conditions;
- Provide all-way stop warrants for the proposed all-way stop intersections in the future total conditions;
- Revise the signal timing settings in Synchro models to meet the City of Mississauga and the Region of Peel's requirements for traffic impact study;
- Include bus blockages in the Synchro models based on the existing MiWay's transit routes and schedules;
- Provide additional sight distance reviews based on the TAC Manual;
- Ensure the street naming conventions are consistent between all figures, tables and Synchro reports;
- Include the two signal warrants, at intersection of Old Derry Road and Historic Trail, and at the intersection of Second Line West at Lamplight Way; and
- Discuss the community's traffic related comments or concerns, as appropriate.

Please do not hesitate to contact me should you have any questions regarding our peer review or our recommendations.

Yours truly,

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