

September 25, 2020

**Attn: Laura Drennan**

c/o Paul Valeri  
Valery (Chedoke Browlands) Development Inc.  
Hamilton, ON L8K 1W6

**Re: Neighbourhood Traffic Calming Study  
Proposed Browlands Residential Development  
801, 820, 855, 865 and 870 Scenic Drive  
City of Hamilton, Ontario  
Our Project No. NT-18-048**

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This Neighbourhood Traffic Calming Study is prepared to provide a response to the City of Hamilton's pre-consultation comments related to neighbourhood traffic calming requirements as part of the proposed Browlands Residential Development.

The project team has received the Letter from the City of Hamilton dated August 11, 2020 (**Appendix A**) that speaks to the following requirements:

1. Transportation Planning requires a Neighbourhood Traffic Calming Study be submitted to the satisfaction and approval of the Manager of Transportation Operations. This study and any modifications to the related municipal infrastructure will be entirely at the expense of the Applicant. It will be the Applicant's responsibility to contact [trafficops@hamilton.ca](mailto:trafficops@hamilton.ca) (with cc to [tplanning@hamilton.ca](mailto:tplanning@hamilton.ca)) for further details on the scope and requirements of a Neighbourhood Traffic Calming Study, with a subject line of 801, 820, 828, 855, 865, 870 Scenic Drive - FC-18-004 (Ward 14 Neighbourhood Traffic Calming). The study must be submitted in digital and hardcopy (Transportation Planning Coordinator, 77 James Street North, Suite 400, Hamilton, L8R 2K3) and digital format ([tplanning@hamilton.ca](mailto:tplanning@hamilton.ca)).
2. At a minimum, the full traffic calming report shall include the following:
  - a. Safety audit;
  - b. Review of neighbourhood speeding; and
  - c. Recommended traffic calming measures to address speed and safety concerns (bump-outs, islands, protected bike lanes, etc.).
3. The current speed humps have not addressed the speeding and safety concerns of the neighbourhood and additional traffic calming measures are required with this development.

The traffic calming assessment, as well as the suggestions for calming measures to address the City's comments noted above are outlined in this Study.

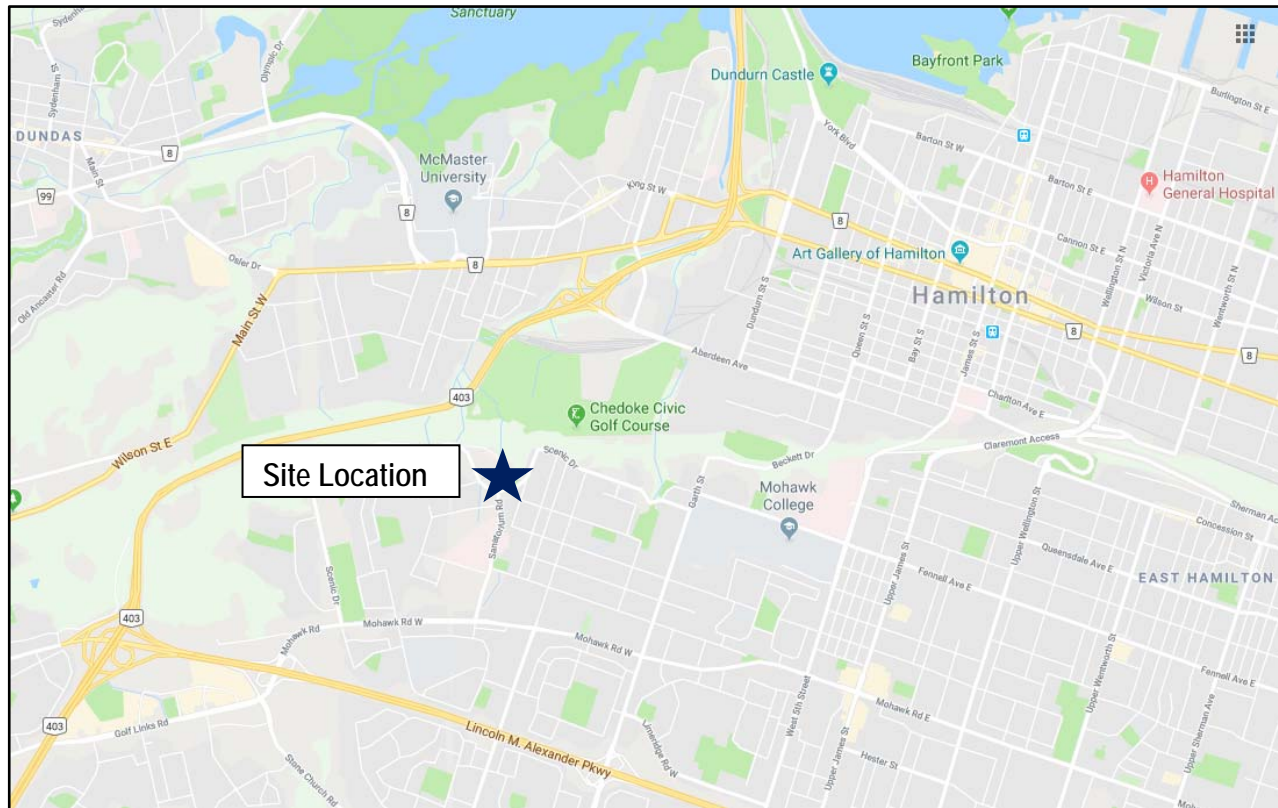
## 1.0 EXISTING ROAD NETWORK AND CONDITIONS

### 1.1 Site Location and Existing Road Network

The subject site is an assemble of the lands located at 801, 820, 855, 865 and 870 Scenic Drive, which is bounded by Scenic Drive to the south and the wood lot to the north, in the City of Hamilton. The subject site is mostly vacant, with the exception of the existing Chedoke Hospital Long & Bisby Building located at the north part of the site.

The location of the proposed development is illustrated in Figure 1.

**Figure 1 – Proposed Development Location**



Source: Google Map

The existing road network, lane configuration and existing traffic control devices for the intersections in the study area are shown in Figure 2. The description of the existing road network in the study area is summarizes in Table 1 below.

The proposed development consists of 574 condominium residential dwelling units and 56 townhouse units, for a total of 630 residential dwelling units.

Currently, Scenic Drive in the vicinity of the proposed development has mixed urban and rural cross-section with sidewalk generally located on the south side of Scenic Drive. Scenic Drive has an existing pavement width of 8 m, with one traffic lane in each direction. The majority of the existing land uses along Scenic Drive is low-rise residential. The main destinations in this area are located along Sanatorium Road such as the Columbia International College - Pine Girls and Boys, Chedoke Twin Pad Arena, CCE Mountain Learning Centre and Hamilton Health Sciences.

Table 1 – Summary of the Existing Road Network

Road Name	Jurisdiction	Number of Lanes	Sidewalk	Speed
Scenic Drive	City of Hamilton	2-lane cross-section with two-way operations (Collector Road)	On the south side Bike lanes and short multiuse path on the north side east of W 35 <sup>th</sup> St No sidewalks or bike lanes/multiuse paths west of San Pedro Dr	Posted 40 km/h
Sanatorium Road	City of Hamilton	2-lane cross-section with two-way operations (Collector Road)	Sidewalks on both sides south of Scenic Drive and sidewalk on the west side only north of Scenic Drive Bike lanes on both sides south of Redfern Avenue	assumed 40 km/h
San Pedro Drive	City of Hamilton	3 lanes southbound one-way only (Local Road)	Sidewalks on both sides of the street, no bike lanes	assumed 40 km/h
Angela Avenue	City of Hamilton	one lane and one-way westbound only (Local Road)	Sidewalks on both sides of the street, no bike lanes	assumed 40 km/h
Upper Paradise Road	City of Hamilton	2-lane cross-section with two-way operations, on-street parking lane on the east side (Collector Road)	Sidewalks on both sides, Bike lanes on both sides south of Scenic Drive	assumed 40 km/h
Rice Avenue	City of Hamilton	2-lane cross-section with two-way operations (Local Road)	Sidewalks and bike lanes on both sides of the street	Assumed 40 km/h

### 1.2. Existing Scenic Drive/Sanatorium Road Intersection

Nextrans has undertaken several existing pictures of the Scenic Drive/Sanatorium Road intersection (September 2020). Figure 2 illustrates the intersection looking east on Scenic Drive, with Figure 3 illustrating Sanatorium Road looking north.

Figure 2 – Scenic Drive looking East



Figure 3 – Sanatorium Road Looking North



### 1.3. 5-Year Historical Collision Data

Nextrans requested and received the five-year collision data from the City of Hamilton on September 16, 2020 for Scenic Drive between San Pedro Drive and Angela Avenue. A review of this data indicates that there were only two collisions in the last five-year that involved motor vehicles:

- Rear-end collision at San Pedro Drive and Scenic Drive (May 29, 2015) – non reportable and no cyclist or pedestrian involved
- Intersection related angle collision at Sanatorium Road and Scenic Drive (November 20, 2017) – property damage only and no cyclist or pedestrian involved

Based on this data, it appears that there are no notable or existing pattern related to traffic safety on Scenic Drive in the vicinity of the proposed development.

### 1.4. Speed Study

Nextrans requested and received the speed study data from the City of Hamilton on September 16, 2020 for Scenic Drive between Angela Avenue and West 35<sup>th</sup> Street. The study began on 2016-09-21 at 12:00 AM and concluded on 2016-09-24 at 12:00 AM (72.00 hours). Traffic statistics were recorded in 15-minute interval. The speed study summary based on MH Corbin Traffic Analyzer Study – Computer Generated Summary Report is provided below.

### Scenic Drive Northbound

The total recorded volume showed 5,346 vehicles passed through the location with a peak volume of 64 on 2016-09-22 between 7:30 AM - 7:45 AM and a minimum volume of 0 on 2016-09-21 between 1:15 AM - 1:30 AM. The AADT for this study was 1,782 vehicles. **Table 2** summarizes the speed data collected for the northbound direction on Scenic Drive.

**Table 2 – Summary of the Speed Data Collected for Scenic Drive Northbound**

0 to 9 km/h	10 to 19 km/h	20 to 29 km/h	30 to 39 km/h	40 to 49 km/h	50 to 59 km/h	60 to 69 km/h	70 to 79 km/h
0	23	93	520	2,152	1,904	317	93

The data indicates that at least half the vehicles were traveling in the 40 - 50 km/h range or lower. The average speed for all classified vehicles was 49 km/h with 87.53% vehicles exceeding the posted speed of 40 km/h. 0.00% percent of the total vehicles were traveling in excess of 89 km/h. The mode speed for this traffic study was 40 km/h and the 85<sup>th</sup> percentile speed was 58.13 km/h.

### Scenic Drive Southbound

The total recorded volume showed 4,815 vehicles passed through the location with a peak volume of 62 on 2016-09-22 between 5:30 PM - 05:45 PM and a minimum volume of 0 on 2016-09-21 between 12:30 AM-12:45 AM. The AADT count for this study was 1,605 vehicles. **Table 3** summarizes the speed data collected for the northbound direction on Scenic Drive.

**Table 3 – Summary of the Speed Data Collected for Scenic Drive Southbound**

0 to 9 km/h	10 to 19 km/h	20 to 29 km/h	30 to 39 km/h	40 to 49 km/h	50 to 59 km/h	60 to 69 km/h	70 to 79 km/h
0	23	113	713	2,087	1,248	215	60

The data indicates that at least half the vehicles were traveling in the 40 - 50 km/h range or lower. The average speed for all classified vehicles was 47 km/h with 80.96% vehicles exceeding the posted speed of 40 km/h. 0.00% percent of the total vehicles were traveling in excess of 89 km/h. The mode speed for this traffic study was 40 km/h and the 85<sup>th</sup> percentile was 56.84 km/h.

It should be noted that the posted speed limit for this section of Scenic Drive is 40 km/h. Based on the speed data collected, it appears that the 85<sup>th</sup> percentile speed for the northbound direction is 58.13 km/h and 56.84 km/h for the southbound direction. Based on industry standard, the 85<sup>th</sup> percentile speed of 10 km/h above posted speed limit is expected, however, in this case, the 85<sup>th</sup> percentile speed is 18.13 km/h and 16.84 km/h above the posted speed limit for the northbound and southbound direction, respectively. Therefore, there is a speed issue in this area.

### 1.5. Existing Speed Hump

It is Nextrans' understanding that the City of Hamilton has installed a speed hump on Scenic Drive approximately 50 m north of Angela Avenue. This was confirmed through Nextrans' site visit. **Figure 2** illustrates the existing speed hump on Scenic Drive.

The City has indicated in their pre-consultation comments that despite the installation of the speed hump, there are still speeding issues on Scenic Drive. Based on Nextrans' assessment, it is Nextrans' opinion that:

- Installation of only one speed hump may not effective, it should be installed in a series of speed hump in order to effectively reduce speeding;
- This speed hump may not have sufficient profile to effectively slow down traffic;

- Lack of posted speed limit signs; and
- Additional yard signs may be required to compliment the speed hump

Nextrans' will provide additional recommendations to address the potential issues noted above as part of this Study.

Figure 4 – Existing Speed Hump on Scenic Drive



Source: Google Streetview (June 2019)

## 2.0 PROPOSED BROWLANDS DEVELOPMENT SUMMARY

### 2.1. Development Overview

The subject site is an assemble of the lands located at 801, 820, 855, 865 and 870 Scenic Drive, which is bounded by Scenic Drive to the south and the wood lot to the north, in the City of Hamilton. The subject site is mostly vacant, with the exception of the existing Chedoke Hospital Long & Bisby Building located at the north part of the site. The proposed development consists of 574 condominium residential dwelling units and 56 townhouse units, for a total of 630 residential dwelling units.

### 2.2. Site Trip Generation

Based on the site trip generation analysis *without* any transit modal split reduction, the proposed development is expected to generate 217 two-way auto trips (55 inbound and 162 outbound) and 272 two-way auto trips (167 inbound and 105 outbound) during the morning and afternoon peak hours, respectively.

### 2.3. Intersection Operational Analysis

The analysis indicates that under the existing conditions, all signalized and unsignalized intersections are currently operating at acceptable levels of service during the morning and afternoon peak periods. However, based on the

intersection operational capacity analysis findings, site visits/observations and review of the traffic cameras, it is Nextrans' opinion that no improvements are required at this time as all the intersections considered in the analysis are expected to operate within the parameters.

The analysis indicates that under the future background conditions, all signalized and unsignalized intersections are generally expected to operate at acceptable levels of service during the morning and afternoon peak periods. Some movements are expected to operate with slightly higher delay. However, based on the intersection operational capacity analysis findings, it is Nextrans' opinion that no improvements are required at this horizon year as all the intersections considered in the analysis are expected to operate within the parameters.

The analysis indicates that similar to the existing and future background conditions, under the future total traffic conditions, all signalized and unsignalized intersections are generally expected to operate at acceptable levels of service during the morning and afternoon peak periods. Some movements are expected to operate with slightly higher delay and queue may occasionally spillback as they are slightly exceeding existing available storage length.

However, it is still acceptable based on both delay and v/c ratio. As the 95<sup>th</sup> percentile queue only occurs 5% of the time, it is Nextrans' opinion that it is acceptable to have queue spills over as long as it can be cleared within the same cycle, which is confirmed by the analysis. Therefore, no improvements are recommended for these improvements at this time.

The proposed access to the east part of the development will be located opposite Sanatorium Road and will be integrated as part of the proposed roundabout. The analysis indicates that single-lane entry roundabout at the Scenic Drive/Sanatorium Road intersection is sufficient to accommodate the proposed development site generated traffic and background traffic to 2027 horizon.

### **3.0 BACKGROUND DOCUMENTS AND POLICIES ON TRAFFIC CALMING IN HAMILTON**

#### **3.1. City of Hamilton Vision Zero**

It is Nextrans' understanding that on August 15, 2014, City Council approved report PW14090 to re-establish the Hamilton Strategic Road Safety Program. The Hamilton Strategic Road Safety Committee was formed to provide guidance, oversight, and direction to the Hamilton Strategic Road Safety Program. The Committee is formed of members from Roads and Traffic, Hamilton Public Health Services, and the Ministry of Transportation Road Safety Marketing Division. A road safety program to address transportation related injuries and fatalities, requires a multifaceted program that is coordinated with various stakeholders. The action items that are identified in this report, were developed through review of best practices, public survey, and public/stakeholder engagement. There are five main sections aligned with this Vision Zero Action Plan, Evaluation, Engineering, Enforcement, Education and Engagement (5 E's).

*Source: Hamilton Strategic Road Safety Program and Vision Zero Action Plan 2019 – 2025 (PW19015) (City Wide)*

#### **3.2. City of Hamilton 2019 Traffic Calming Program Update**

Based on Nextrans' review of the May 30, 2019 2019 Traffic Calming Program Update (TOM1903) (City Wide) Staff Report, currently there are a total of 169 speed humps/speed cushions installed throughout the City of Hamilton (91 permanent installations and 78 temporary installations).

There is a total of 9 speed humps/speed cushions installed (1 permanent and 8 temporary) in Ward 4. However, there are none installed in the study area bounded by Parkdale Avenue/Queenston Road/Red Hill Valley Parkway and Roxborough Avenue.

#### **3.3. City of Hamilton Speed Hump Policy (2000)**

In May 2000, Council adopted a recommendation to support the general concept of the use of speed humps and speed tables to control speeds on two-lane residential streets with a posted speed of 50 km/h or less and a demonstrated

speeding concern. In addition, 75% neighbourhood resident support is required for implementation. Speed humps were not recommended for routes that comprise primary emergency response or HSR routes.

## 4.0 TRAFFIC CALMING MEASURES

Nextrans has reviewed the following documents, which published by the City of Hamilton in order to assess the appropriate traffic calming measures for the study area:

- Development of Policy Papers for Phase Two of the Transportation Master Plan for the City of Hamilton – Traffic Calming Policy Paper, final report dated January 2005.
- Background Report: Road Safety – City of Hamilton Transportation Master Plan Review and Update
- The 2007 Transportation Master Plan

Based on Nextrans' review of the documents noted, the following are typical traffic calming measures are currently utilized by the City of Hamilton:

- Speed hump/cushions;
- Bump-outs;
- Median islands and knockdown sticks
- Chicane
- Curb extensions
- Traffic circle/mini roundabout
- others

### 4.1. TRAFFIC CALMING ASSESSMENT

#### 4.1.1. Existing Area Context

Currently, Scenic Drive in the vicinity of the proposed development has mixed urban and rural cross-section with sidewalk generally located on the south side of Scenic Drive. Scenic Drive has an existing pavement width of 8 m, with one traffic lane in each direction.

The majority of the existing land uses along Scenic Drive is low-rise residential. The main destinations in this area are located along Sanatorium Road such as the Columbia International College - Pine Girls and Boys, Chedoke Twin Pad Arena, CCE Mountain Learning Centre and Hamilton Health Sciences.

#### Traffic Calming Measure Consideration

As indicated in the assessment noted above, speeding through the neighbourhood is one of the major factors that contributed to collisions with pedestrians, cyclists and motor vehicles. There are several traffic calming measures that can be implemented to reduce speed through the neighbourhood. However, the traffic calming measures are context sensitive, which means one solution will not fit all scenarios.

Table 4 below summarizes the potential traffic calming measures, as well as the pros and cons for each measure.



**Table 4 – Traffic Calming Measure Comparison**

Traffic Calming Measures	Pros	Cons
Speed hump	<ul style="list-style-type: none"> <li>• Effective in slowing down traffic</li> <li>• Reasonable cost</li> <li>• Quick installation</li> <li>• Minimal modifications to existing road way</li> </ul>	<ul style="list-style-type: none"> <li>• Will slow down emergency vehicles and servicing vehicles</li> </ul>
Speed cushion	<ul style="list-style-type: none"> <li>• Effective in slowing down traffic</li> <li>• Reasonable cost</li> <li>• Quick installation</li> <li>• Minimal modifications to existing road way</li> <li>• It is a modified speed hump that can better accommodate emergency vehicle (i.e. it doesn't span the entire length of the lane)</li> </ul>	<ul style="list-style-type: none"> <li>• Will slow down emergency vehicles and servicing vehicles</li> </ul>
Bump-out	<ul style="list-style-type: none"> <li>• Effective in slowing down traffic</li> </ul>	<ul style="list-style-type: none"> <li>• Will slow down emergency vehicles and servicing vehicles</li> <li>• Difficult for winter maintenance and snow removal/storage</li> <li>• Challenges for cyclists</li> <li>• Modifications to existing roadway will be required (i.e. drainage)</li> </ul>
Median island and knockdown stick	<ul style="list-style-type: none"> <li>• Effective in slowing down traffic</li> </ul>	<ul style="list-style-type: none"> <li>• Will slow down emergency vehicles and servicing vehicles</li> <li>• Difficult for winter maintenance and snow removal/storage</li> <li>• Require pavement</li> <li>• May requires additional lands</li> <li>• Modifications to existing roadway will be required (i.e. drainage)</li> </ul>
Chicane	<ul style="list-style-type: none"> <li>• Effective in slowing down traffic</li> </ul>	<ul style="list-style-type: none"> <li>• Will slow down emergency vehicles and servicing vehicles</li> <li>• Difficult for winter maintenance and snow removal/storage</li> <li>• Challenges for cyclists</li> </ul>
Curb extension	<ul style="list-style-type: none"> <li>• Effective in slowing down traffic</li> </ul>	<ul style="list-style-type: none"> <li>• Will slow down emergency vehicles and servicing vehicles</li> <li>• Challenges for cyclists</li> </ul>
Traffic circle/mini roundabout	<ul style="list-style-type: none"> <li>• Effective in slowing down traffic</li> </ul>	<ul style="list-style-type: none"> <li>• Requires additional lands</li> <li>• Will slow down emergency vehicles and servicing vehicles</li> <li>• Difficult for winter maintenance and snow removal if traffic circle is too small</li> </ul>

Based on the comparison noted above, it is evident that speed cushion is a preferred traffic calming measure due to its effectiveness, quick installation, minimal modifications to the existing roadway and cost effectiveness.

As indicated, the proposed access to the east part of the development will be located opposite Sanatorium Road and will be integrated as part of the proposed roundabout. Based on the information provided in Table 4, roundabout is also a traffic calming measure.

Based on the review of the area context, the proposed roundabout and an existing speed hump on Scenic Drive north of Angela Avenue, a speed cushion can be installed south of Angela Avenue and south of W 35<sup>th</sup> Street. Similarly, a speed cushion can be installed between Sanatorium Road and the proposed west access/San Pedro Drive, and a second one can be installed north of San Pedro Drive.

Figure 3 illustrates the potential speed cushion location, all-way stop location and ladder cross-walk location. Figure 4 illustrates the speed cushion example (*Source: City of Hamilton 2018 Annual Collision Report - Page 10*).

Figure 5 – Suggested Speed Cushion Locations



Source: Google Map

Based on Nextrans’ review, the area is currently lack of posted limit speed signs on Scenic Drive in the vicinity of Sanatorium Road. It is suggested that the City of Hamilton consider install additional speed limit to alert drivers that the speed limit in the area is only 40 km/h.

Figure 6 – Speed Cushion Example



Source: City of Hamilton 2018 Annual Collision Report (Page 10)

## 5.0 CONCLUSION

Based on the assessment outlined in this Study, it is Nextrans' opinion that the proposed roundabout and potential speed cushions are appropriate traffic calming measures for the context of the area. In addition, speed cushion is cost effective, relatively easy to install and required minimal or no modifications to the existing roadway compared to other types of traffic calming measures.

We trust the enclosed sufficiently addresses your needs. Should you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

**Nextrans Consulting Engineers**

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