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TRANSPORTATION SOLUTIONS LIMITED

**14337 Highway 50, Bolton,  
Town of Caledon, ON**

**Proposed Residential  
Subdivision**

**Transportation Impact Study**

Paradigm Transportation Solutions Limited

2025-03  
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## 14337 Highway 50, Bolton, Town of Caledon, ON Proposed Residential Subdivision Transportation Impact Study



Adrian Soo P.Eng.

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# Executive Summary

## Content

Paradigm Transportation Solutions Limited (Paradigm) was retained to conduct a Transportation Impact Study (TIS) for a proposed residential subdivision on the lands located at the municipal address of 14337 Highway 50 in the community of Bolton, Town of Caledon.

This study has been prepared in support of a sought Draft Plan of Subdivision (DPOS) application. The subject lands are located within the Bolton North Hill Secondary Plan area. Furthermore, the subject lands are part of the Bolton North Hill Landowners Group which has submitted an Official Plan Amendment (OPA) application, where an overall Transportation Assessment has been conducted to evaluate the transportation-related impacts arising from the development of the Secondary Plan area lands to determine the necessary mitigation measures required on the boundary road network.

This study builds off the transportation assessment conducted to date. Specifically, the latest Transportation Assessment authored by C.F. Crozier & Associates Inc. dated February 2026 (submitted as part of the OPA third submission), herein referred to as the “Crozier study”.

For the subject lands, the development statistics accounted for and assessed within the Crozier study have been compared with the latest development statistics proposed. If any significant differences are identified, we will reassess applicable external boundary intersections.

In addition to potentially re-evaluating traffic operations at external boundary intersections, additional analyses have been undertaken to satisfy requirements for the Draft Plan of Subdivision application. This includes the examination of internal intersections to the site ensuring compliance with design requirements per the Town’s design criteria and applicable industry guidelines, that is, review of roadway classification and right-of-way, cross-sections, vertical and horizontal curves, etc. to ensure safe and efficient operations and to preserve the long-term functionality of the road network.

## Proposed Subdivision

The proposed residential subdivision is located within the Bolton North Hill Secondary Plan area in the Town of Caledon. A collection of landowners propose to develop a complete community at the north extent of Bolton’s urban boundary and settlement area.



On the subject lands, a total of 316 residential dwelling units are proposed, consisting of 180 detached single-family units, and 136 townhouse units.

Vehicular access to the lands from the external boundary transportation network is proposed via “Street 2” (Street D per the Crozier study) forming a three-legged “T” intersection with Highway 50. Additionally, inter-connections with adjacent lands to the north and south are provided. The subject lands would be served by an internal road network consisting of collector and local roads.

As part of the overall Bolton North Hill Tertiary Plan, the subject lands are anticipated to be constructed/occupied by a 2031 horizon as assessed within the Crozier study.

## Findings

### External Road Network Impact Assessment

- ▶ A residential subdivision is proposed to be developed on the lands located at the municipal address of 14337 Highway 50 in the community of Bolton, Town of Caledon.

A Transportation Assessment was undertaken for the overall Bolton North Hill Secondary Plan lands conducted by C.F. Crozier & Associates Inc. (February 2026). The assessment accounted for the subject lands.

In reviewing the development statistics accounted for the subject lands and comparing with the current Draft Plan development statistics, it is determined the total dwelling unit count accounted within the Crozier study is conservative and accounts for 25 more dwelling units compared to the current proposal.

Specifically, the latest development statistics proposes three (3) additional detached single-family homes, and a reduction of 28 townhouse units in comparison to the unit yields assessed within the Crozier study.

- ▶ Based upon the current Draft Plan of Subdivision unit counts, it results in a reduction of vehicular trips generated during the AM and PM peak hours in comparison to what was assessed within the Crozier study.

The difference in vehicular trips is considered imperceptible; therefore, the overall operational assessment and associated findings, conclusions and recommendations as contained within the Crozier study are validated as applicable.



- ▶ As related to the subject lands, the following is summarized as related to the external boundary transportation network:
  - With construction of the subject lands, vehicular access would be provided with the external network via the construction of Street 2 (Street D per the Crozier study).
  - Street 2 (Street D) would form an unsignalized three-legged “T” intersection with Highway 50 with stop-control provided on the Street 2 (Street D) approach.
  - The Crozier study identified by the 2031 horizon, an auxiliary southbound left-turn lane on Highway 50 at Street 2 (Street D) would be warranted for implementation requiring a storage length of 55.0 metres.
  - Under forecast 2051 horizon traffic conditions, the Crozier study indicates the Highway 50 and Street 2 (Street D) intersection is forecast to operate with movements operating at LOS F and reported volume-to-capacity (V/C) ratios approaching capacity; however, these are typical operations expected at a minor stop-controlled approach at a major roadway.
  - The Crozier study identified that traffic signal control would not be warranted under 2051 traffic conditions, further noting that motorists may choose to alternate their travel behaviours and utilize the adjacent signalized intersection of Street 1 (Street G per the Crozier study) and Columbia Way if delays are observed to be higher during the peak hours at Street 2 (Street D).

### **Internal Road Network Review**

- ▶ Based upon the assessment conducted, it is confirmed the proposed Draft Plan of Subdivision has been designed in compliance with the Town of Caledon’s design criteria and applicable industry guidelines.

That is, the roadway classification and right-of-way, cross-sections, vertical and horizontal curves, etc. ensure safe and efficient operations and to preserve the long-term functionality of the road network.

### **Transportation Demand Management (TDM)**

- ▶ A TDM Plan has been prepared identifying applicable initiatives for implementation upon development of the subject site.



## Parking Review

- ▶ It is anticipated the proposed subdivision development will be provide adequate parking to satisfy municipal requirements.

## Conclusions

Regarding the external boundary intersections serving the Bolton North Hill Secondary Plan area lands, the findings and conclusions reached from the Transportation Assessment conducted by C.F. Crozier & Associates (February 2026) remain applicable and appropriate.

Regarding the internal transportation network proposed to serve the subject residential subdivision, it is confirmed it has been designed in compliance with the Town of Caledon's design criteria and applicable industry guidelines.

## Recommendations

The recommendations of this study are as follows:

- ▶ The Town of Caledon and Region of Peel recognize the findings and conclusions of this study.
- ▶ Upon construction/development of the subject lands, the proposed TDM plan with noted initiatives should be implemented.
- ▶ Upon construction/development of the subject lands, an auxiliary southbound left-turn lane should be provided on Highway 50 at the intersection of Street 2 (Street D per the Crozier study) providing a storage length of 55.0 metres.
- ▶ From a transportation perspective, the sought Draft Plan of Subdivision application to allow the proposed development should be approved.



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# 1 Introduction

Paradigm Transportation Solutions Limited (Paradigm) was retained to conduct a Transportation Impact Study (TIS) for a proposed residential subdivision on the lands located at the municipal address of 14337 Highway 50 in the community of Bolton, Town of Caledon.

This study has been conducted in support of a sought Draft Plan of Subdivision (DPOS). At the time of writing, the proposed study Terms of Reference were not circulated to Town of Caledon nor to Peel Region staff due to an accelerated submission schedule requested by the applicant.

This study has been conducted in general accordance with typical industry requirements/guidelines associated with DPOS applications; however, recognizing that following this initial submission there may be additional items for assessment based upon review agency comments.

## 1.1 Scope and Methodology

This structure of this study consists of two main components, assessing the external boundary transportation network, and assessing the internal transportation network serving the proposed subdivision.

### 1.1.1 External Road Network

This study builds off previous transportation assessment conducted to date. Specifically, the latest Transportation Assessment authored by C.F. Crozier & Associates Inc. dated February 2026 (submitted as part of the OPA third submission), herein referred to as the “Crozier study” to confirm the external boundary transportation network improvements to accommodate the development of the overall Bolton North Hill Secondary Plan area lands.

For the subject lands, we will confirm the development statistics accounted for and assessed within the Crozier study, and compare with the latest development statistics proposed. For any significant differences, we will reassess applicable external boundary intersections.

### 1.1.2 Internal Road Network

In addition to re-evaluating traffic operations at external boundary intersections, if required, additional analyses will be undertaken to satisfy requirements for the Draft Plan of Subdivision application.



This includes the examination of internal intersections to the site ensuring compliance with design requirements per the Town's design criteria and applicable industry guidelines, that is, review of roadway classification and right-of-way, cross-sections, vertical and horizontal curves, etc. to ensure safe and efficient operations and to preserve the long-term functionality of the road network.



## 2 Background Studies

The following reports/documents have been reviewed with key points and relevant information applicable to this study extracted. Specific planning policies and relevant studies include:

- ▶ Town of Caledon Development Standards Manual (2019)
- ▶ Town of Caledon Multi-Modal Transportation Master Plan (April 2024)
- ▶ Chapter 34: Bolton North Hill Secondary Plan (Draft, March 3, 2026)
- ▶ Bolton North Hill Option 1 & Option 2 Lands, Transportation Assessment (February 2026, Crozier Consulting Engineers)



## 3 Proposed Development

### 3.1 Context

The proposed residential subdivision is located within the Bolton North Hill Secondary Plan area in the Town of Caledon. A collection of landowners propose to develop a complete community at the north extent of Bolton's urban boundary and settlement area.

**Figure 3.1** illustrates the current Bolton North Hill Tertiary Plan.

### 3.2 Development Statistics

On the subject lands, a total of 316 residential dwelling units are proposed, consisting of 180 detached single-family units, and 136 townhouse units.

**Figure 3.2** illustrates the current proposed Draft Plan of Subdivision.

#### 3.2.1 Vehicular Access Connections

Vehicular access to the lands from the external transportation network is proposed via "Street 2" forming a three-legged "T" intersection with Highway 50 facilitating full-movements. It is noted that "Street 2" is referred to as "Street D" within the Crozier study.

Additionally, inter-connections with adjacent lands to the north and south are provided. The subject lands would be served by an internal road network consisting of collector and local roads.

It is noted the proposed draft plan matches the proposed access location proposed within the Bolton North Hill Secondary Plan.

#### 3.2.2 Internal Road Network

The residential development would be served by collector and local roads.

Street 2 also referred to as Street D within the Crozier study, and Street 1 (future extension of Kingsview Drive), are proposed as collector roads with 20.0 metre and 22.0 metre right-of-way (ROW) widths, respectively.

Streets 3, 4, 5, 6, 7, 8, 9, 10, and 11 are proposed as local roads with an 18.0 metre ROW width.



The proposed collector and local road ROW widths comply with the Bolton North Hill Secondary Plan requirements, where collector roads will provide a minimum ROW width of 20.0 metres per the Official Plan, and Local roads shall provide ROW widths between 16.0 to 20.0 metres.

### **3.2.3 Active Transportation**

Per the draft Bolton North Hill Secondary Plan:

- ▶ Collector roads shall be designed to accommodate some degree of separation for cycling facilities, where appropriate, and pedestrian facilities are to be provided on both sides of the road where feasible.
- ▶ Local roads will facilitate shared cycling facilities, and provide sidewalks on both sides of the road where feasible.

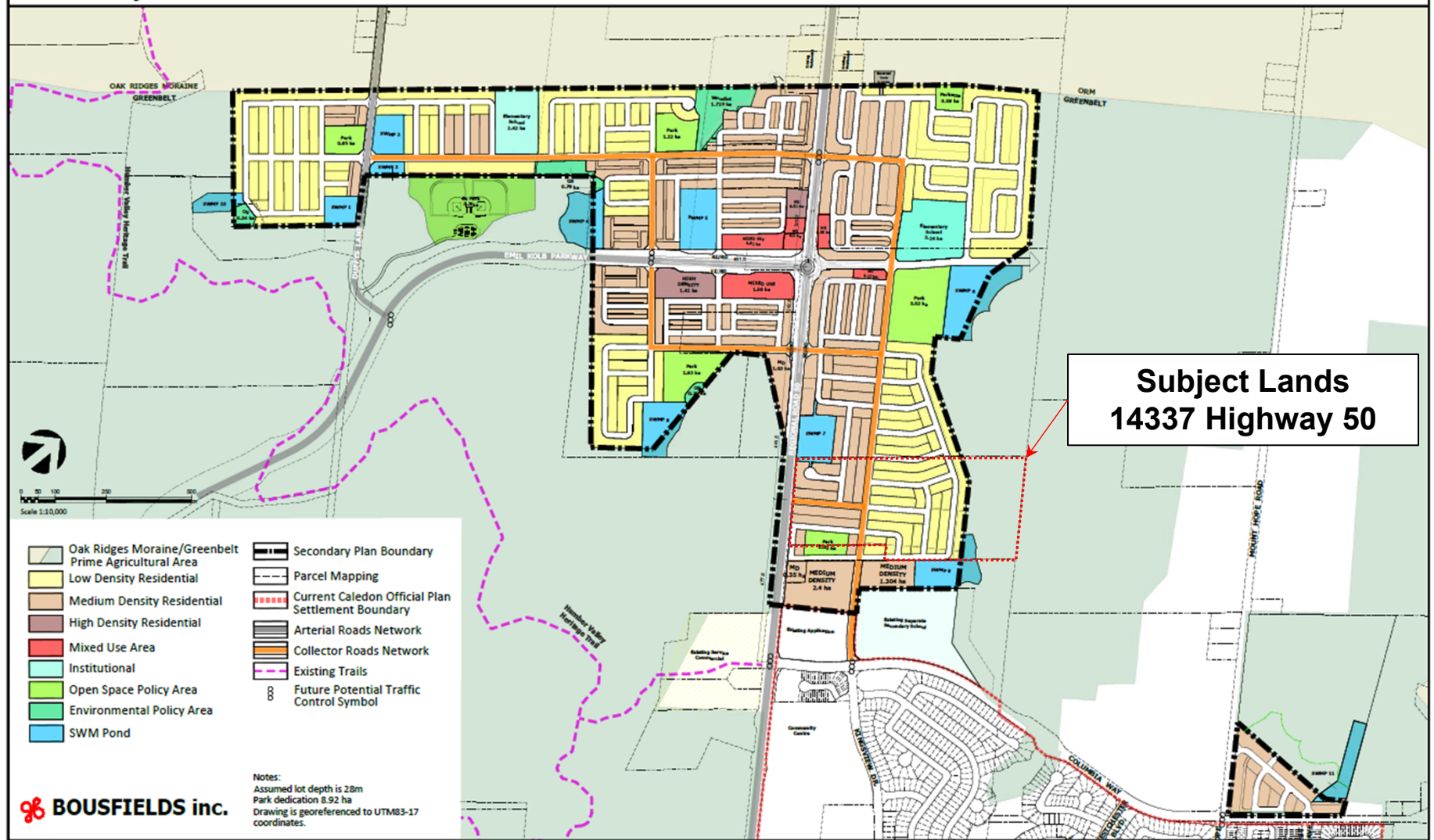
### **3.2.4 Anticipated Build-Out**

As part of the overall Bolton North Hill Tertiary Plan, the subject lands are anticipated to be constructed/occupied by a 2031 horizon as assessed within the Crozier Transportation Assessment Study.

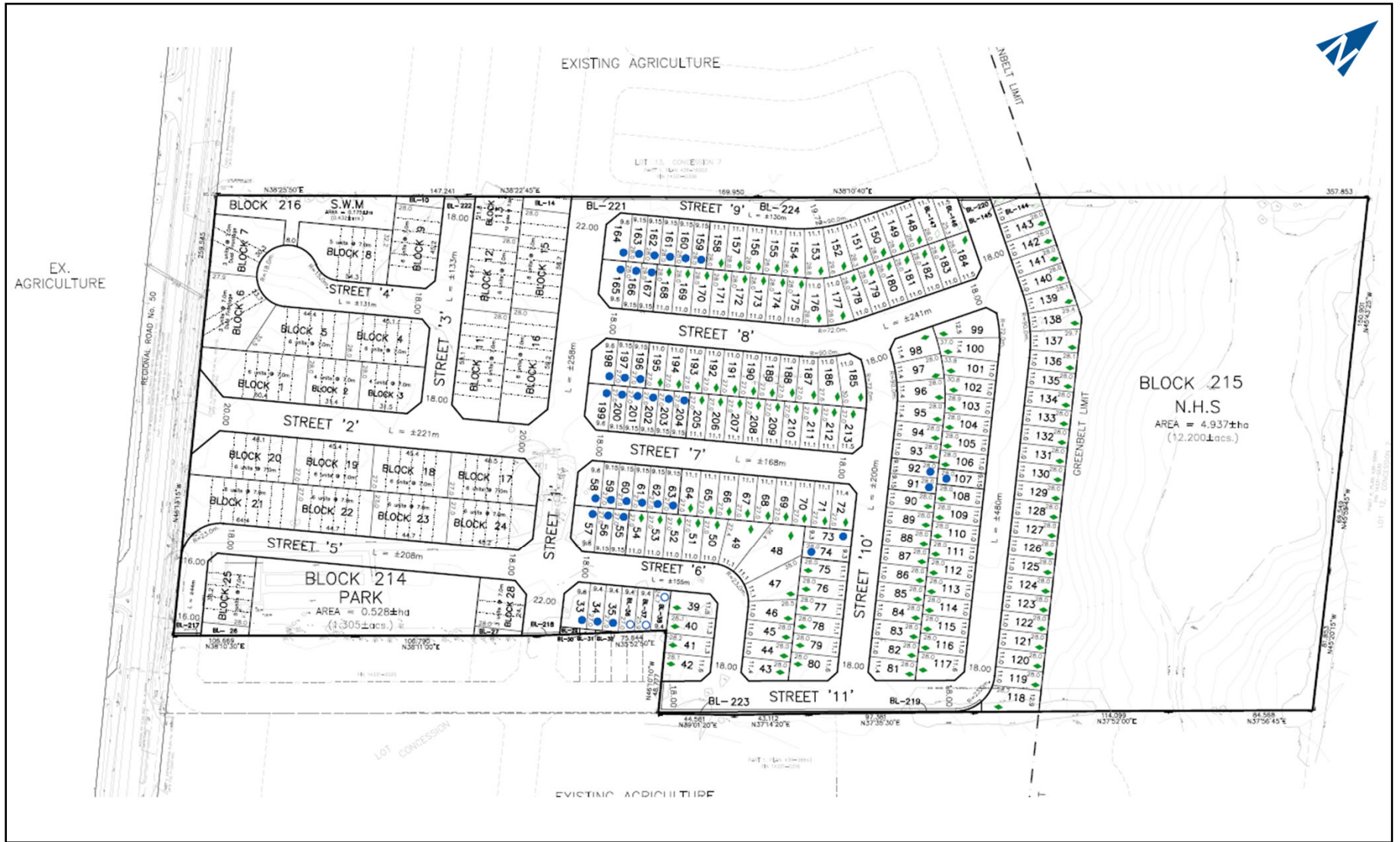


# Bolton North Hill Tertiary Plan

# Owner's Plans Consolidation



## Bolton North Hill Tertiary Plan



## Proposed Draft Plan of Subdivision

## 4 Transportation Impact Assessment

Reference is made to the Transportation Assessment study conducted for the Bolton North Hill Option 1 & Option 2 Lands, authored by C.F. Croziers & Associates Inc., February 2026.

### 4.1 Development Statistics

Based upon our review of the latest Transportation Assessment, the Crozier study accounts for the subject lands (lands referred to as Marhome Ventures).

**Table 4.1** summarizes and compares the development statistics for the subject lands between the Crozier study and the current Draft Plan of Subdivision.

**TABLE 4.1: DEVELOPMENT STATISTICS COMPARISON – 14337 HIGHWAY 50**

Land Use	Crozier Study (February 2026)	Current Proposal (05 March 2026)	Difference
<b>Single-Detached Homes</b>	177 units	180 units	+3 units
<b>Townhouses</b>	164 units	136 units	-28 units
<b>Total Residential Dwelling Units</b>	341 units	316 units	-25 units

As tabulated above, the current development proposal for the subject lands results in a minor increase of single-family detached homes, and a reduction in townhouse dwelling units.

Overall, the current Draft Plan of Subdivision results in a net reduction of residential dwelling units in comparison to the development statistics assessed for the subject lands within the Crozier study.

The difference in vehicular trip generation has been investigated to determine whether reassessment of the external boundary intersections would be triggered. For consistency with the Crozier study the same trip generation data is applied.

**Table 4.2** summarizes the difference in vehicular trip generation.



**TABLE 4.2: TRIP GENERATION COMPARISON – 14337 HIGHWAY 50**

Land Use	Total Trips			
	Peak Hour	Crozier Study (February 2026)	Current Proposal (05 March 2026)	Difference
Single-Detached Homes <sup>1</sup>	AM	125	127	+2
	PM	163	166	+3
Townhouses <sup>2</sup>	AM	82	65	-17
	PM	86	70	-16
Total Trips	AM	207	192	-15
	PM	249	236	-13

<sup>1</sup> LUC 210: AM =  $T=0.67(X)+5.59$ ; PM =  $Ln(T)=0.92Ln(X)+0.33$   
<sup>2</sup> LUC 215: AM =  $T=0.59(X)-15.25$ ; PM =  $T=0.57(X)-7.84$

Based upon the current Draft Plan of Subdivision unit counts, it results in a reduction of vehicular trips generated during the AM and PM peak hours in comparison to what was assessed within the Crozier study.

The difference in vehicular trips is considered imperceptible; therefore, the overall operational assessment and associated findings, conclusions and recommendations as contained within the Crozier study are validated as applicable.

## 4.2 External Road Network Impact Assessment

The findings, conclusions, and recommendations within the latest Crozier study are validated as applicable.

Accordingly, as related to the subject lands the following is summarized as related to the external boundary transportation network:

- ▶ With construction of the subject lands, vehicular access would be provided with the external network via the construction of Street 2 (Street D per the Crozier study).



- ▶ Street 2 (Street D) would form an unsignalized three-legged “T” intersection with Highway 50 with stop-control provided on the Street 2 (Street D) approach.

The Crozier study identified by the 2031 horizon, an auxiliary southbound left-turn lane on Highway 50 at Street 2 (Street D) would be warranted for implementation requiring a storage length of 55.0 metres.

- ▶ Under forecast 2051 horizon traffic conditions, the Crozier study indicates the Highway 50 and Street 2 (Street D) intersection is forecast to operate with movements reporting LOS F and volume-to-capacity (V/C) ratios approaching capacity; however, these are typical operations expected at a minor stop-controlled approach at a major roadway.

The Crozier study identified that traffic signal control would not be warranted under 2051 traffic conditions, further noting that motorists may choose to alternate their travel behaviours and utilize the adjacent signalized intersection of Street 1 (Street G per the Crozier study) and Columbia Way if delays are observed to be higher during the peak hours at Street 2 (Street D).



## 5 Internal Road Network Functional Review

A functional review of the proposed internal road network has been conducted to ensure compliance with roadway requirements per the Town of Caledon's Development Standards Manual (2019) and applicable industry guidelines. The main areas of review include:

- ▶ Road Classification and Right-of-Way
- ▶ Cross-Sections
- ▶ On-Street Parking
- ▶ Vertical and Horizontal Curves
- ▶ Internal Intersections
- ▶ Traffic Calming

### 5.1 Road Classifications and Right-of-Way (ROW)

Street 1 (Street G) and Street 2 (Street D) are proposed as collector roads, and Streets 3 to 11 are proposed as local roads.

The current draft plan indicates Street 1 (Street G) will provide a ROW width of 22.0 metres, Street 2 (Street D) will provide a ROW width of 20.0 metres, and Streets 3 to 11 will provide ROW widths of 18.0 metres.

The proposed roadway classifications and ROW widths comply with the Town of Caledon's Development Standards Manual criteria noted in Table 1.2 – Town of Caledon Geometric Road Design Standards<sup>1</sup>, where the required residential collector ROW is 20.0 metres, and local residential ROW requirement is 18.0 metres.

### 5.2 Cross-Sections

#### 5.2.1 Street 1 (Street G) – Residential Collector, 22.0m ROW

Street 1 (Street G) is proposed to provide a two-lane cross-section with one travel lane in each direction. Each vehicular travel lane is 4.9 metres wide (total pavement width of 9.8 metres), and 1.5 metre wide sidewalks on both sides of the road.

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<sup>1</sup> Town of Caledon, *Development Standards Manual, Table 1.2 – Geometric Road Design Standards*, 2019, p59



The proposed cross-section is anticipated to follow the Town of Caledon's Standard Drawing No. 205.

### **5.2.2 Street 2 (Street D) – Residential Collector, 20.0m ROW**

Street 2 (Street D) is proposed to provide a two-lane cross-section with one travel lane in each direction. Each vehicular travel lane is 4.45 metres wide (total pavement width of 8.9 metres), and 1.5 metre wide sidewalk, and 2.0 metre wide sidewalk on each side of the road.

The proposed cross-section is anticipated to follow the Town of Caledon's Standard Drawing No. 204.

### **5.2.3 Streets 3 to 11 – Local Residential, 18.0m ROW**

Streets 3 to 11 are proposed to provide a two-lane cross-section with one travel lane in each direction. Each vehicular travel lane is 3.95 metres wide (total pavement width of 7.9 metres), and 1.5 metre wide sidewalks on both sides of the road.

The proposed cross-section is anticipated to follow the Town of Caledon's Standard Drawing No. 202.

## **5.3 On-Street Parking**

On-street parking is expected to be provided where permitted by road classification. Per the draft Bolton Hill North Secondary Plan document, on-street parking may be permitted on collector and local roads.

The location of on-street parking along the proposed collector and local roads will be further evaluated once the locations of driveways for each lot is determined.

On-street parking is anticipated to be permitted on collector and local roads; however, parking will not be permitted in front of private driveways or along horizontal curved sections. Additionally, on-street parking will be subject to applicable Town by-laws.

## **5.4 Vertical and Horizontal Curves**

### **5.4.1 Vertical Curves**

As required in the Town's Development Standards Manual, vertical curves need to be applied when all grade changes are in excess of 1.5%.



**Table 5.1** summarizes the detailed vertical curve criteria extracted from Table 1.2 – Town of Caledon Geometric Road Design Standards<sup>2</sup>. Streets 1 to 11 will be designed following the required vertical curve criteria.

**TABLE 5.1: VERTICAL CURVE DESIGN CRITERIA**

Item	Local Residential	Residential Collector
Posted Speed (km/h)	50	60
Desirable Minimum Sag Curve – K Value	12	18
Desirable Minimum Crest Curves – K Value	8	15

#### 5.4.2 Horizontal Curves

Based on Table 1.2 – Town of Caledon Geometric Road Design Standards, the minimum centreline curve radius (with no superelevation) for local residential and residential collector roads are 90 and 130 metres, respectively.

The proposed centreline curve radii were reviewed against the Town’s standards. It is determined Streets 1 to 2 (collector), and Streets 3 to 7, (local) do not have any horizontal curvature.

Street 8, Street 9, Street 10, and Street 11 propose horizontal curves which comply with the Town’s design requirements.

#### 5.5 Internal Intersections

All internal intersections have been reviewed. This includes the following intersections:

- ▶ Street 1 (Street G) and Street 2 (Street D)/Street 7
- ▶ Street 1 and Street 5/Street 6
- ▶ Street 1 and Street 8
- ▶ Street 1 and Street 9
- ▶ Street 2 and Street 3
- ▶ Street 3 and Street 4

<sup>2</sup> Town of Caledon, *Development Standards Manual, Table 1.2 – Geometric Road Design Standards*, 2019, p59



- ▶ Street 6 and Street 11
- ▶ Street 7 and Street 10
- ▶ Street 8 and Street 10
- ▶ Street 8 and Street 11
- ▶ Street 9 and Street 11
- ▶ Street 10 and Street 11

### 5.5.1 Lane Configurations and Traffic Control

**Table 5.2** summarizes the assumed intersection lane configuration and traffic control for the internal intersections.

The assumed intersection lane configuration and traffic control is based upon the proposed development statistics, anticipated vehicular site traffic and background through traffic, block layout, road connectivity, and our engineering judgement.

**TABLE 5.2: ASSUMED INTERSECTION LANE CONFIGURATION AND TRAFFIC CONTROL**

Intersection	Lane Configuration	Traffic Control
Street 1 and Street 2/Street 7	Single Lane Approach (Shared Movement)	All-Way Stop Control  Stop control on the Street 1 and Street 2/Street 7 approaches
Street 1 and Street 5/Street 6	Single Lane Approach (Shared Movement)	Two-Way Stop Control  Stop control on the Street 5/Street 6 approaches
Street 1 and Street 8	Single Lane Approach (Shared Movement)	Two-Way Stop Control  Stop control on the Street 8 approach
Street 1 and Street 9	Single Lane Approach (Shared Movement)	Two-Way Stop Control  Stop control on the Street 9 approach



Street 2 and Street 3	Single Lane Approach (Shared Movement)	Two-Way Stop Control Stop control on the Street 3 approach
Street 3 and Street 4	Single Lane Approach (Shared Movement)	Two-Way Stop Control Stop control on the Street 4 approach
Street 6 and Street 11	Single Lane Approach (Shared Movement)	Two-Way Stop Control Stop control on the Street 6 approach
Street 7 and Street 10	Single Lane Approach (Shared Movement)	Two-Way Stop Control Stop control on the Street 7 approach
Street 8 and Street 10	Single Lane Approach (Shared Movement)	Two-Way Stop Control Stop control on the Street 10 approach
Street 8 and Street 11	Single Lane Approach (Shared Movement)	Two-Way Stop Control Stop control on the Street 8 approach
Street 9 and Street 11	Single Lane Approach (Shared Movement)	Two-Way Stop Control Stop control on the Street 9 approach
Street 10 and Street 11	Single Lane Approach (Shared Movement)	Two-Way Stop Control Stop control on the Street 10 approach

It is noted the Draft Bolton North Hill Secondary Plan document proposes all intersections of collector to collector roads shall be designed to include auxiliary turn lanes, where feasible and will be subject to detailed design.



At the Street 1 and Street 2/Street 7 intersection, Street 1 and Street 2 are classified as collectors, whereas the Street 7 intersection leg is classified as a local road. This intersection is anticipated to operate unsignalized under all-way stop-control.

Auxiliary turn lanes are not recommended at this location as multi-lane approaches operating under all-way stop-control typically result in an increased potential for vehicular conflicts and increased vehicle delays if motorists are not attentive to the order of arrivals at the intersection approaches. Furthermore, based upon anticipated site traffic volumes auxiliary turn lanes are not likely to be warranted on a volume perspective.

### 5.5.2 Intersection Spacing

Intersection spacing among all internal intersections have been reviewed.

The Town's Development Standards Manual does not identify minimum spacing requirements between intersections. Per the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR)<sup>3</sup>, the minimum intersection spacing requirements are as follows:

- ▶ Collectors
  - The typical minimum spacing between adjacent intersections along a collector road is 60.0 metres.
- ▶ Locals
  - 60.0 metres between adjacent four-legged intersections along a local road. Where the adjacent intersections are three-legged, a minimum spacing of 40.0 metres is acceptable.

**Table 5.3** summarizes the proposed intersection spacing for the internal road network.

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<sup>3</sup> Transportation Association of Canada, *Geometric Design Guide for Canadian Roads, Chapter 9 – Intersections*, 2017, p27



**TABLE 5.3: INTERSECTION SPACING – INTERNAL**

Roadway	From	To	Proposed Spacing (m)	Minimum Requirement (m)
Street 1 (Collector)	Street 5/ Street 6	Street 7	75.0	60.0
	Street 7	Street 8	75.0	60.0
	Street 8	Street 9	75.0	60.0
Street 2 (Collector)	Street 3	Street 1	75.0	60.0
Street 3 (Local)	Street 2	Street 4	75.0	40.0
Street 8 (Local)	Street 10	Street 11	80.0	40.0
Street 10 (Local)	Street 8	Street 7	80.0	40.0
	Street 7	Street 11	130.0	40.0

The current proposed draft plan meets and satisfies the TAC spacing requirements.

### 5.5.3 Intersection Angle

The Town's Development Standards Manual, Table 1.2 – Town of Caledon Geometric Road Design Standards identifies for all road classifications, intersection angles of 85 – 95 degrees are acceptable.

The current proposed draft plan indicates all internal intersections comply with the Town standards. All intersection angles formed are close to 90 degrees.

### 5.5.4 Curb Radii

**Table 5.4** summarizes the curb radii requirements at intersections, as extracted from Section 1.5.2.1 of the Town's Development Standards Manual.



**TABLE 5.4: INTERSECTION CURB RADII CRITERIA**

Intersection Roads	Minimum Curb Radii (measured at Edge of Pavement) (m)
Residential Collector to Local Residential	10.0
Local Residential to Local Residential	10.0

Currently the proposed draft plan does not contain curbs and sidewalks. This will be confirmed once the information/drawing is available.

Regardless, it is anticipated that the roadways will be designed with appropriate curb radii satisfying Town's standards.

### 5.5.5 Corner Rounding

Sufficient corner rounding is important for improving visibility for drivers, pedestrians, and cyclists at intersections.

As noted within Section 1.5.2.1 of the Town's Development Standards Manual, the required corner lot radii is a minimum of 5.0 metres property radius.

Currently the proposed draft plan does not contain curbs and sidewalks. This will be confirmed once the information/drawing is available.

Regardless, it is anticipated that the roadways will be designed with appropriate corner rounding satisfying Town's standards.

### 5.5.6 Intersection Operations

The proposed subdivision is estimated to generate approximately 200 and 240 vehicular trips under the AM and PM peak hours, respectively.

Based upon anticipated trip assignment and vehicle routing for the residential dwellings, all internal intersections are anticipated to operate at acceptable levels of service and with all movements within capacity under the anticipated lane configurations and traffic control devices.



## 5.6 Traffic Calming

Traffic calming aims to improve road safety and enhance community livability by reducing the negative effects of motor vehicle use, altering driver behaviour, and improving conditions for pedestrians and cyclists. Calming traffic also aligns with broader municipal objectives to foster accessibility, support active travel (walking and cycling), promote public health, and enrich “quality of life” – to name a few – demonstrating the interdependence between street design and strong, vibrant neighbourhoods.

When properly used, traffic calming can help reduce motor vehicle speeds, and pedestrian crossing distances and times at intersections. They can also result in fewer conflicts between roadway users. These factors all reduce both the likelihood and severity of motor vehicle collisions.

While offering potential benefits, inappropriate use of traffic calming measures can increase emergency vehicle response times, transit travel times, and costs associated with winter maintenance.

Traffic calming measures can be grouped as follows:

- ▶ **Education and Enforcement** techniques and strategies raise awareness and influence motorist behaviour (education) or use the force of law to deter unsafe driving practices and ensure compliance with traffic regulations (enforcement);
- ▶ **Vertical Deflection** measures raise the height of the road surface, forcing motorists to slow their vehicles to comfortably navigate the change in profile;
- ▶ **Horizontal Deflection** measures shift the driving path, forcing motorists to slow their vehicles to comfortably navigate the change in direction;
- ▶ **Roadway Narrowing** measures reduce the road width, forcing motorists to slow their vehicles by constricting the available driving space; and
- ▶ **Surface Treatments and Pavement Markings** draw attention, or create optical effects, forcing motorists to slow their vehicles.



The proposed development is a residential subdivision, accordingly, potential applicable measures within each group that could be applied within the subject site include are listed below.

### *Education and Enforcement*

- ▶ **Radar Speed Feedback Sign:** an interactive sign that displays vehicle speeds as oncoming motorists approach. Vehicle speed is captured using radar and can trigger the display board to show when vehicles approach at predetermined undesirable speeds. They have been shown to reduce 85<sup>th</sup> percentile speed by between 3 and 14 kph.

### *Vertical Deflection*

- ▶ **Speed Hump:** A raised area of a roadway, which causes the vertical upward movement of a traversing vehicle. The purpose of a speed hump is to cause discomfort for drivers travelling at higher speeds and to reduce vehicle speeds. A series of humps is generally more effective than a single hump.

Speed humps have been shown to reduce 85<sup>th</sup> percentile speed by between 6 and 13 kph. However, they have negatively effects on emergency vehicle response times, transit travel times, and ease of winter maintenance.

- ▶ **Speed Cushion:** A raised area on a road like a speed hump but does not cover the entire width of the road. The width is designed to allow a large vehicle, such as a fire truck or bus, to “straddle” the cushion, while light vehicles will have at least one side of the vehicle deflected upward. The design is intended to produce sufficient discomfort to limit passenger vehicle travel speeds yet allow the driver to maintain vehicle control, while allowing larger vehicles to pass without difficulty.

Speed cushions have been shown to reduce 85<sup>th</sup> percentile speed by to 8 kph. However, they have negativel effects on ease of winter maintenance.

- ▶ **Raised Crosswalk:** A marked pedestrian crosswalk at an intersection or midblock location constructed at a higher elevation than the adjacent roadway. The purpose of a raised crosswalk is to reduce vehicle speeds (like a speed hump), improve pedestrian visibility, and reduce pedestrian–vehicle conflicts.

Raised crosswalks have been shown to reduce 85<sup>th</sup> percentile speed by between 5 and 13 kph. However, they have negatively effects on emergency vehicle response times, transit travel



times, and ease of winter maintenance. They may also create obstacles for on-road cyclists.

### *Horizontal Deflection*

- ▶ **Curb Radii Reduction:** Is the modification of intersection design standards to provide corner with a smaller radius to 3-5m, compared with the 10m used in Caledon for residential collector and local roads. The purpose is to slow down right-turning vehicles, reduce crossing distances for pedestrians, and to improve visibility of pedestrians.

Emergency services are not be impacted if sufficient road width for turning radius is provided. The implications for winter maintenance and transit vehicles need to be confirmed on a site-specific basis.

- ▶ **Chicane:** A series of curb extensions on alternating sides of a roadway, which narrow the roadway and require drivers to steer from one side of the roadway to the other to travel through the chicane. Multiple series of curb extensions can be used. This reduces overall speeds by forcing the lateral shifting of vehicles travelling through the chicane.

Chicanes typically reduce average vehicle speeds on two-lane roads by between 6 and 11 kph. However, they may negative effect emergency vehicle response times and transit vehicle travel times, depending on design and placement.

### *Roadway Narrowing*

- ▶ **Curb Extension / Bump Out:** A horizontal intrusion of the curb into the roadway resulting in a narrow section of roadway. The curb is extended on one or both sides of the roadway to reduce its width to as a little as 6.0 m for two-lane, two-way traffic. The purpose is to reduce vehicle speeds, reduce crossing distance for pedestrians, increase visibility of pedestrians, and prevent parking close to an intersection.

Curb extensions typically reduce average vehicle speeds on two-lane roads by between 2 and 8 kph. However, the reduced effective roadway width make complicate snow clearance activities, resulting in more snow on the (larger) area above the curb.

- ▶ **Raised Median Island:** An elevated median constructed on the centerline of a two-way roadway to reduce the overall width of the adjacent travel lanes. The purpose is to reduce vehicle speeds and to reduce pedestrian–vehicle conflicts. They are



more effective if combined with curb nearby. Landscaping should not negatively impact pedestrian visibility.

Median islands typically reduce average vehicle speeds on two-lane roads by between 3 and 8kph. The roadways either side generally do not have on-street parking

- ▶ **Gateways:** A combination of traffic calming devices that help to provide an entry or “gateway” which identifies transitional zones such as between commercial/rural areas and urban/rural residential zones, villages, or hamlets. An example in Caledon can be found in the community of Alton, as vehicles from the south approach on Main Street, or from the east on Queen Street. The effects depend on the measures chosen.

- ▶ **Centreline Signage:** The use of vertical treatments such as flexible post-mounted delineators or raised pavement markers to create a centre median. This could be used to give drivers a perception of lane narrowing and create a sense of constriction.

They typically reduce average vehicle speeds on two-lane roads by up to 5kph. However, they require regular maintenance if they tend to get struck by vehicles, and may negatively effect the ease of winter maintenance.

### *Surface Treatments and Pavement Markings*

- ▶ **Textured Crosswalk:** A crosswalk (raised or non-raised) with textured/patterned elements that contrast the roadway can be incorporated into the sidewalk extension. This typically matches the appearance of the adjacent sidewalks. The purpose is to visually enhance a pedestrian crossing location so drivers become more aware of its presence.

With a sidewalk extension/textured crosswalk the continuation of the surface and enhanced visual/tactile identification of the crosswalk area emphasizes pedestrian priority.

- ▶ **Lane Narrowing:** Reducing lane widths using pavement markings (rather than actually narrowing the paved area). Drivers will then perceive the roadway to be less comfortable at higher speeds due to the narrowing of the lanes and ultimately reduce their operating speed.

Lane narrowing has been shown to reduce 85<sup>th</sup> percentile speed by up to 10kph. Like any pavement marking, they require regular maintenance.

- ▶ **On-Road ‘Sign’ Pavement Markings:** Provide information that would typically be shown to drivers through signage but are painted on the roadway to provide a larger image, and one that



is directly in the driver's line of sight. Some examples could be "SLOW", "STOP AHEAD", or the speed limit.

The markings have been shown to reduce 85<sup>th</sup> percentile speed by up to 10kph. Like any pavement marking, they require regular maintenance.

Any of these measures are potentially applicable within the context of the proposed development. Further engagement with Town staff is needed to determine the specific measures and locations. These measures will then be included in the detailed design stage.



## 6 Transportation Demand Management (TDM)

### 6.1 Planned TDM Measures

TDM strategies are aimed at influencing land use patterns, development design, parking availability and cost, and/or the relative cost, convenience, and availability of other travel modes to reduce reliance on motor vehicles for travel. These strategies can be divided into two categories:

- ▶ Pre-occupancy: Measures implemented in the design and construction of the development; and
- ▶ Post-occupancy: Measures implemented once the development is operational.

Measures taken pre-occupancy can influence how attractive, convenient, and safe travel by modes other than the single-occupant vehicle will be once the site is developed and occupied. At this stage, the site can be designed to better facilitate travel by walking, cycling, and transit, while ensuring sufficient vehicle parking is provided to meet but not exceed demand. The Town also has greater influence on their implementation than post-occupancy measures.

Offering incentives after the development is completed can influence behaviour but may not be as effective if the site and its surroundings are still oriented to travel by automobile. Measures in this category include subsidies to use transit, provision of trip-end facilities like bicycle parking, and information about where and how to use different travel modes.

The following sections outline applicable TDM measures that are planned for the site and are categorized into pre-occupancy and post-occupancy initiatives.

**Table 6.1** summarizes the measures and denotes responsibility.

The TDM measures identified are focused towards residents and visitors of the proposed residential subdivision.



**TABLE 6.1: TDM INITIATIVES**

Measure	Description
Walking and Cycling Infrastructure	<p>Provision of continuous active transportation infrastructure.</p> <p>Active transportation infrastructure should provide direct access to transit routes/stops.</p> <p>Install pedestrian and cyclist-oriented pavement markings and signing where appropriate/feasible.</p>
Transit Infrastructure	Develop and implement an appropriate transit system serving the needs of the Bolton North Hill Secondary Plan area
Vehicle Parking	Reduce the provision of surplus parking if feasible.

### 6.1.1 Walking and Cycling (Pre-Occupancy)

Walking will be supported and encouraged through the provision of connections to the proposed pedestrian network. This would include internal site walkways and/or paths that are well designed in terms of accessibility, lighting, and where necessary, wayfinding signage. With sufficient on-site pedestrian infrastructure planned, pedestrian connectivity to the public sidewalks will be adequately provided for. For this to be successful, the larger municipal networks need to be expanded and provide continuous connections.

The promotion of cycling will likely be achieved through the provision of cycling infrastructure. The provision of cycling facilities makes a strong statement about a 'cycle-friendly' community and further encourages this mode of transportation.

Furthermore, walking and cycling will be supported within the Bolton North Hill Secondary Plan area through the provision of pedestrian and cycling infrastructure as part of the overall active transportation network.

### 6.1.2 Transit (Pre-Occupancy & Post-Occupancy)

Increasing public transit use as part of the TDM Plan has many benefits such as reducing traffic congestion on Regional and Town roads.

Transit usage can be further promoted through marketing efforts through the provision of transit informational packages containing route



maps, schedules, identifying routes to key locations within the Town including hospitals, other institutions, recreational facilities, etc., and other applicable information to residents with the purchase of units.

### **6.1.3 Vehicle Parking (Pre-Occupancy)**

By providing sufficient parking to accommodate demands and not having an overly excess supply of parking available encourages residents within walking distance to walk rather than utilize a vehicle and create a vehicle trip.

To further encourage residents of the development to utilize sustainable travel modes, the development should consider appropriate parking rates for the residential dwellings.



## 7 Parking Review

The property owner proposes to construct a residential community comprised of single-detached homes, townhouses, and the supporting transportation road network.

The detailed development breakdown is as follows:

- ▶ 180 single-detached homes; and
- ▶ 136 townhouse units.

The vehicular parking requirements for the proposed development have been verified against the Town of Caledon *Zoning By-law (ZBL) 2006-50*<sup>4</sup>.

As per Table 5.1: Parking Requirements for Residential Uses in the ZBL, the following parking requirements are identified:

- ▶ Dwelling, Detached
  - 2.00 parking spaces per dwelling unit
- ▶ Dwelling, Townhouse
  - 2.00 parking spaces per dwelling units plus 0.25 spaces per dwelling unit for visitors on a lot with four or more dwelling units

For all single-detached dwelling units, it is anticipated a minimum of two (2) parking spaces will be provided for each unit via a driveway parking space and a garage parking space.

For all townhouse dwelling units, it is anticipated two (2) parking spaces will be provided for each townhouse unit via a driveway parking space and a garage parking space.

All townhouse dwellings will require the provision of visitor parking spaces. It is anticipated the provided supply will be provided at-grade via dedicated delineated spaces or via driveway spaces satisfying municipal requirements.

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<sup>4</sup> Town of Caledon, *Zoning By-law 2006-50*, Revised November 25, 2025, Section 5 – Parking, Loading and Delivery Standards, Table 5.2.



## 8 Findings

### External Road Network Impact Assessment

- ▶ A residential subdivision is proposed to be developed on the lands located at the municipal address of 14337 Highway 50 in the community of Bolton, Town of Caledon.

A Transportation Assessment was undertaken for the overall Bolton North Hill Secondary Plan lands conducted by C.F. Crozier & Associates Inc. (February 2026). The assessment accounted for the subject lands.

In reviewing the development statistics accounted for the subject lands and comparing with the current Draft Plan development statistics, it is determined the total dwelling unit count accounted within the Crozier study is conservative and accounts for 25 more dwelling units compared to the current proposal.

Specifically, the latest development statistics proposes three (3) additional detached single-family homes, and a reduction of 28 townhouse units in comparison to the unit yields assessed within the Crozier study.

- ▶ Based upon the current Draft Plan of Subdivision unit counts, it results in a reduction of vehicular trips generated during the AM and PM peak hours in comparison to what was assessed within the Crozier study.

The difference in vehicular trips is considered imperceptible; therefore, the overall operational assessment and associated findings, conclusions and recommendations as contained within the Crozier study are validated as applicable.

- ▶ As related to the subject lands, the following is summarized as related to the external boundary transportation network:
  - With construction of the subject lands, vehicular access would be provided with the external network via the construction of Street 2 (Street D per the Crozier study).
  - Street 2 (Street D) would form an unsignalized three-legged “T” intersection with Highway 50 with stop-control provided on the Street 2 (Street D) approach.
  - The Crozier study identified by the 2031 horizon, an auxiliary southbound left-turn lane on Highway 50 at Street 2 (Street D) would be warranted for implementation requiring a storage length of 55.0 metres.



- Under forecast 2051 horizon traffic conditions, the Crozier study indicates the Highway 50 and Street 2 (Street D) intersection is forecast to operate with movements operating at LOS F and reported volume-to-capacity (V/C) ratios approaching capacity; however, these are typical operations expected at a minor stop-controlled approach at a major roadway.
- The Crozier study identified that traffic signal control would not be warranted under 2051 traffic conditions, further noting that motorists may choose to alternate their travel behaviours and utilize the adjacent signalized intersection of Street 1 (Street G per the Crozier study) and Columbia Way if delays are observed to be higher during the peak hours at Street 2 (Street D).

### **Internal Road Network Review**

- ▶ Based upon the assessment conducted, it is confirmed the proposed Draft Plan of Subdivision has been designed in compliance with the Town of Caledon's design criteria and applicable industry guidelines.

That is, the roadway classification and right-of-way, cross-sections, vertical and horizontal curves, etc. ensure safe and efficient operations and to preserve the long-term functionality of the road network.

### **Transportation Demand Management (TDM)**

- ▶ A TDM Plan has been prepared identifying applicable initiatives for implementation upon development of the subject site.

### **Parking Review**

- ▶ It is anticipated the proposed subdivision development will be provide adequate parking to satisfy municipal requirements.



## 9 Conclusions

Regarding the external boundary intersections serving the Bolton North Hill Secondary Plan area lands, the findings and conclusions reached from the Transportation Assessment conducted by C.F. Crozier & Associates (February 2026) remain applicable and appropriate.

Regarding the internal transportation network proposed to serve the subject residential subdivision, it is confirmed it has been designed in compliance with the Town of Caledon's design criteria and applicable industry guidelines.



## 10 Recommendations

The recommendations of this study are as follows:

- ▶ The Town of Caledon and Region of Peel recognize the findings and conclusions of this study.
- ▶ Upon construction/development of the subject lands, the proposed TDM plan with noted initiatives should be implemented.
- ▶ Upon construction/development of the subject lands, an auxiliary southbound left-turn lane should be provided on Highway 50 at the intersection of Street 2 (Street D per the Crozier study) providing a storage length of 55.0 metres.
- ▶ From a transportation perspective, the sought Draft Plan of Subdivision application to allow the proposed development should be approved.

