MARCH 4, 2025

PROJECT NO: 2764-7251

SENT BY: EMAIL
WESLEY@HIPDEVELOPMENTS.COM

HIP Investments Inc
74 Grand Avenue South, Suite 201
Cambridge, ON N1S 0B7

Attention: **Wesley Hordyk, Vice President**

RE: **TRANSPORTATION IMPACT BRIEF**
105 ELMIRA ROAD NORTH
CITY OF GUELPH

Dear Wesley,

In support of the Zoning By-Law Amendment and Official Plan Amendment related to the proposed residential development at 105 Elmira Road Noth in the City of Guelph (City), C.F. Crozier & Associates Inc. (Crozier) has prepared the following Transportation Impact Brief (TIB).

The purpose of this letter is to analyze the following aspects of the proposed development from a transportation operations perspective:

- The existing road network and record information relating to road jurisdiction, road classification, posted speed limit, lane configuration, cross-section elements.
- Forecast the trip generation characteristics of the proposed development using the Institute of Transportation Engineers Manual (11th edition).
    - The trips generated from the proposed development are less than 100 new trips, therefore a Transportation Impact Study (TIS) is not required.
- Evaluate the proposed site access from a sight distance perspective.
- Review on site-circulation for passenger, loading, waste collection, and emergency vehicles.
- Review existing and future Transportation Demand Management (TDM) opportunities and site-specific measures to reduce single-occupancy (SOV) trips.
- Review the proposed on-site parking against the City of Guelph parking Zoning By-Law.

1.0 Introduction

C.F. Crozier & Associates Inc. (Crozier) was retained by HIP Investments to complete a TIB for a proposed residential apartment development situated at 105 Elmira Road North in the City of Guelph.

The purpose of this brief is to assess the impact of the proposed development on the surrounding road network and recommend transportation mitigation measures, based on existing and future TDM opportunities.

A Terms of Reference (ToR) encompassing the scope of the TIB was circulated to the City of Guelph on October 15, 2024, and comments were received from the City on October 22, 2024. Correspondence from the City of Guelph is included in **Appendix A.**

1.1 Development Lands

The subject lands cover an area of approximately 0.97 ha and currently consist of a greenfield. The property, located in a residential area, is bounded by Elmira Road North to the west, Willow Road to the south, and residential dwellings to the north and east.

1.2 Development Proposal

Per the most recent concept plan prepared by aba architects Inc. received November 1st, 2024. The elements envisioned for the full buildout of this development include approximately:

- A 6-storey building with 126 residential units.
- 144 vehicle parking spaces.
- 126 indoor bicycle parking spaces and 14 outdoor bicycle parking spaces.
- Additional indoor bicycle parking spaces within the units' storage lockers

The most recent site plan is shown in **Figure 1**.

SITE PLAN LEGEND

- EXISTING HYDRO POLE
- EXISTING HYDRO POLE ANCHOR
- EXISTING SIGN
- EXISTING BELL BOX
- EXISTING STANDARD IRON BAR
- CATCH BASIN
- MANHOLE
- FIRE DEPARTMENT CONNECTION
- FIRE HYDRANT
- ENTRANCE/EXIT
- VEHICLE ENTRANCE/EXIT
- BARRIER FREE PARKING SPACE
- FLUSH CURBING (FC)
- CONCRETE CURB
- PROPERTY LINE
- PROPOSED FIRE ROUTE
- PROPOSED FENCE
- LANDSCAPED AREA
- CONCRETE AREA
- STOP SIGN RA-1 (60x60) cm SUPPORT: STEEL
- ACCESSIBLE PARKING SIGN RB-93 (30x45) cm SUPPORT: STEEL
- FIRE ROUTE SIGN S-5 (30x45) cm SUPPORT: STEEL
- VISITOR PARKING SIGN 30x45) cm SUPPORT: STEEL
- TRANSFORMER c/w CONCRETE PAD AND GROUNDING RODS
- PARKING COUNT BUBBLE
- PROPOSED LIGHT FIXTURES (REFER TO SITE ELECTRICAL PLAN)
- PROPOSED ELECTRICAL VEHICLE PARKING (EV)
- PROPOSED CURB RAMP c/w TACTILE WARNING STRIP INDICATOR (TWSI)
- TACTILE WARNING STRIP INDICATOR (TWSI)
- BIKE RACK (##)

SITE PLAN NOTES

1. LEGAL DESCRIPTION: BLOCK 180 ON PLAN 61M-68
2. SITE INFORMATION TAKEN FROM BSR&D LTD.
3. FOR SITE GRADING, SERVICES & STORM WATER MANAGEMENT REFER TO DRAWINGS PREPARED BY MTE
4. FOR LANDSCAPE WORK REFER TO DRAWINGS PREPARED BY GSP
5. FOR SITE LIGHTING REFER TO DRAWINGS PREPARED BY S+A
6. ALL ROADS & ISLANDS SHALL HAVE 150mm CURBS UNLESS NOTED OTHERWISE.
7. CURB RADIUS = 1.20m UNLESS OTHERWISE DIMENSIONED.
8. STANDARD PARKING STALLS TO BE 2.75m x 5.5m. BARRIER FREE PARKING STALLS TO MEET CITY OF GUELPH REQUIREMENTS FOR TYPE 'A' (3.4m x 5.5m) AND TYPE 'B'. (2.4m x 5.5m) INCLUDING ALL APPLICABLE ACCESS AISLES (2.0m WIDE).
9. LIGHT FIXTURES & BOLLARDS ARE NOT TO OBSTRUCT PEDESTRIAN MOVEMENT.
10. ALL OUTDOOR LIGHTING MUST BE FULL CUT-OFF & HAVE NO GLARE.
11. TREE PROTECTION FENCING SHOULD BE ERECTED AROUND ALL EXISTING LANDSCAPED AREAS AND SHOULD REMAIN ON SITE FOR THE DURATION OF THE CONSTRUCTION.
12. ALL ROOF-TOP EQUIPMENT TO BE SCREENED AND/OR LOCATED SO THAT IT CANNOT BE VIEWED FROM THE STREET.
13. SIGNAGE (BUILDING, PYLON & OTHERWISE) NOT APPROVED VIA THE SITE PLAN APPROVAL PROCESS.
14. ANY MULTIPLE UNIT IDENTIFICATION SIGNAGE TO HAVE REFLECTIVE LETTERING.
15. THERE WILL BE NO OUTDOOR STORAGE OF ANY ITEMS ON SITE.
16. ALL GARBAGE TO BE STORED INTERNALLY UNTIL SCHEDULED PICK-UP.
17. NO SNOW STORAGE ON-SITE. EXCESS SNOW TO BE REMOVED.

PROJECT NORTH

1 SP-1 SITE PLAN

1 : 300

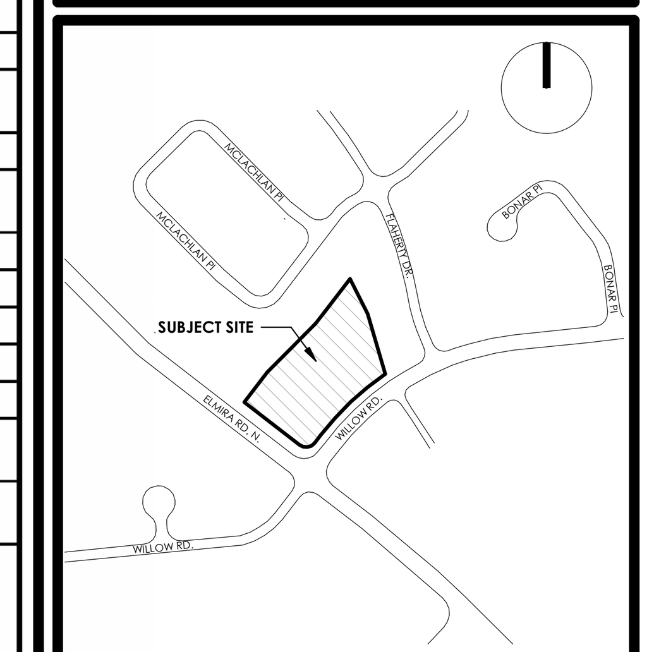
Residential Townhouse RM.6 Zone (Legal Description: BLOCK 180 on PLAN 61M-68) — Zoning Bylaw 2023-20790

Zoning Regulation RM.6 Zone	Required	Provided	Compliance
Maximum Density (units/ha)	100	130	No
Minimum Lot Frontage (m)	30	64.6	Yes
Minimum Front Yard (Elmira Rd.)	6	4.3m	No
Minimum Exterior Side Yard (Willow Rd.)	6	6.0m	Yes
Minimum Interior Side Yard	7.5	19.0m	Yes
Minimum Rear Yard	7.5	23.1m	Yes
Maximum Building Height (# storeys)	6	6	Yes
Minimum Common Amenity Area (20 sq.m./DU)	2,520.0	1,181.9	No
Exterior Common Amenity Areas		*719.2*	
Interior Common Amenity Areas		*462.7*	
Minimum Landscaped Open Space	40%	35%	No
Minimum Buffer Strips (m)	3	3	Yes
Garbage, Refuse Storage and Composters	Within main building or any accessory building	Within Main Building	Yes
Angular Plane from Front Lot Line (Elmira Road)	45 degrees	43 degrees	Yes
Angular Plane from Exterior Side Lot Line (Willow Rd.)	45 degrees	46 degrees	No
Angular Plane from Int. Side Yard (North)	45 degrees	49 degrees	No
Angular Plane from Rear Yard (East)	45 degrees	41 degrees	Yes
Parking Data			
Parking Dimensions	2.75m x 5.5m	2.75m x 5.5m	Yes
Off-Street Parking - Residential	163	144	No
Accessible Parking	Type A - Accessible Spaces = 3	3	Yes
	Type B - Accessible Spaces = 3	3	Yes
Bike Parking	139	139	Yes
Short Term (Exterior)		*13*	
Long Term - Horizontal (Interior)		*32*	
Long Term - Stacked (Interior)		*94*	

Units	Front End Bins (Yd3)			240 L Carts
	Grey	Blue	Total	Green
126	20	30	50	5
6 Yd3 Bins	3.4	5.0	8	
4 Yd3 Bins	5.1	7.5	13	

ONTARIO ASSOCIATION OF ARCHITECTS — ANDREW BOUSFIELD — LICENCE 4371

No.	REVISIONS	DATE



KEY PLAN

ZBA/OPA SUBMISSION	2025.01.31
SPA PRECONSULTATION	2024.11.18
CHRONOLOGY	DATE

aba architects inc.

CLIENT

HIP Developments
74 GRAND AVE SOUTH, SUITE 201
CAMBRIDGE ON, N1S 0B7
TEL: 519.886.8855

PROJECT NAME

105 ELMIRA ROAD
105 ELMIRA ROAD NORTH, GUELPH, ON. N1K 1Z1

DRAWING TITLE

SITE PLAN

SCALE 1:300

SHEET SIZE 24X36

PROJECT NUMBER 2024-069

DRAWING NUMBER SP-1

2.0 Site Generated Traffic

The proposed development will result in additional turning movements at the nearby intersections. Therefore, this section describes the trip forecasting methodology and results of this forecast for the development proposal.

2.1 ITE Trip Generation

The trip generation of the proposed residential dwelling was forecasted using published data from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition.

The applicable fitted curve equation for Land Use Category (LUC) 221 "Multifamily Housing (Mid-Rise)" was applied to the proposed residential dwelling units. Relevant excerpts from the ITE Trip Generation Manual, 11th Edition have been included in **Appendix B**. The forecasted trip generation of the proposed residential development is summarized in **Table 1.**

Table 1: Site Generated Trips

Land Use (ITE LUC)	Units	Equation	Trip Generation			
			Weekday A.M.		Weekday P.M.	
			Inbound	Outbound	Inbound	Outbound
LUC 221: Multifamily Housing (Mid-Rise)	126 Units	**Equation** A.M. T = 0.44 X – 11.61 P.M. T = 0.39 X + 0.34	10	34	30	19
Total			**44**		**49**	

The proposed development is expected to generate 44 two-way (10 inbound and 34 outbound) trips during the weekday a.m. peak hour, and 49 two-way (30 inbound and 19 outbound) trips during the weekday p.m. peak hour

3.0 Site Access Review

It is important to check the site access for safety concerns for corner clearance, access spacing and sightlines. These were checked using the standards set out in the Geometric Design Guide for Canadian Roads (GDGCR) June 2017.

3.1 Intersection Sight Distance

A review of the available sight distance at the proposed site accesses was undertaken based on Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR) (June 2017). Sight distance was measured from the site access using the following assumptions:

- A standard driver eye height of 1.08 metres for a passenger car.
- A 4.4 metre setback from the approximate extension of the outer curb to represent a passenger vehicle waiting to exit the site.

Intersection sight distance is calculated using Equation 9.9.1 from the GDGCR as outlined below:

*ISD = 0.278 * V major * tg*

Where:

ISD = Intersection Sight Distance

V major = design speed of roadway (km/h)

tg = assumed time gap for vehicles to turn from stop onto roadway (s)

A design speed 10 km/h higher than the posted or assumed speeds of each road of study was assumed for the sight distance analysis. **Table 2** summarizes the sight distance analysis.

Table 2: Site Access Sight Distance Calculations

Feature	Site Access and Willow Road
Access Type	Full-Movement
Posted Speed Limit of Roadway	40 km/h
Assumed Design Speed	50 km/h
Base Time Gap	6.5 s (right) 7.5 s (left)
Grade of Roadway	Less than 3%
Horizontal Alignment of Roadway[1]	Slight curve to the right north of Flaherty Drive
Required Sight Distance (right turn)	95 m
Available Sight Distance (right turn)	150 m
Required Sight Distance (left turn)	105 m
Available Sight Distance (left turn)[2]	195 m
Minimum Sight Distances Satisfied?	Yes

Note 1: Willow Road between Elmira Road North and Imperial Road North.
Note 2: Middle of the intersection to the location of the driveway is 110 meters, can see beyond the intersection.

Utilizing equation 9.9.1 as well as tables 9.9.6 and 9.9.4 provided by the TAC guideline, the required sight distance of a passenger vehicle making a right-turn and a left-turn from stop are approximately 95 metres and 105 metres, respectively, for the design speed of 50 km/h. The proposed site access along Willow Road meets all relevant TAC GDGCR requirements for the sight distance analysis.

3.2 Stopping Sight Distance

Willow Road has a posted speed limit of 40 km/h accordingly, a design speed of 50 km/h was selected. Willow Road is relatively straight in the study area but has slight curvature to the right when heading north past Flaherty Drive. For level roadways, the stopping sight distance requirements are tabulated in TAC GDGCR Table 2.5.2.

Table 3: Stopping Sight Distance Assessment

Intersection	Willow Road and Site Access Posted Speed = 40 km/h Design Speed = 50 km/h
Formula (TAC GDGCR 2.5.2)	**SSD = 0.278 * V * t + 0.039 * (V^2/a)**
Design Speed (V)	50 km/h
Brake Reaction Time (t)	2.5 s
Deceleration Rate (a)	3.4 m/s^2
Required Stopping Sight Distance	65 m
Available Sight Distance	> 110 m (looking south)

According to **Table 3**, clear visibility in excess of 110 meters is available to the north and south of the proposed site accesses on Willow Road. Accordingly, there is sufficient stopping sight distance for vehicles approaching from the north and south of the site accesses respectively. Thus, there is sufficient clear sight distance for outgoing vehicles to exit the site access safely, and clear sight distance for vehicles approaching the site to stop safely. **Appendix C** contains relevant TAC GDGCR excerpts.

3.3 Corner Clearance

Corner clearance is the distance between the site access and nearby intersections. The required spacing per Figure 8.8.2 in TAC GDGCR is summarized in **Table 4. Appendix C** contains relevant TAC GDGCR excerpts.

Table 4: Corner Clearence

Feature	Site Access and Flaherty Drive	Site Access and Elmira Road North
Minimum Spacing Requirement	15 m	
Available Spacing	~42 m	~106 m
Minimum Spacing Satisfied?	**Yes**	**Yes**

The spacing between the access and the crossroad satisfies the requirements outlined in TAC.

4.0 Parking Review

The following section reviews the adequacy of the parking supply of the proposed development. The parking review includes an assessment of the proposed parking supply of the development against the requirements outlined in the City of Guelph's Zoning By-Law (2023)-20790 requirements.

Appendix D contains relevant Zoning By-Law (2023)-20790 excerpts.

4.1 Vehicle Parking Assessment

The site is currently zoned NCC (Neighborhood Commercial Center), designated as a Mixed-Use zone. The City does not consider this site to be a PA (parking adjustment) area, therefore the parking rate without the PA was used to calculate the parking requirements. The City of Guelph Zoning By-Law (2023)-20790 Part C: General Provisions and Parking and Table 5.3 row 12 was used to determine the adequacy of the residential parking supply for the Site. The Zoning By-Law excerpts can be found in **Appendix D.**

Table 5: City of Guelph Zoning By-Law Parking Requirements

Use	Statistic	Parking Rate	Total Parking Required	Proposed Parking	Surplus/ Deficit
Mixed-use Building	126 Units	In addition to the non-residential parking rate, 1 space per dwelling unit plus 0.15 visitor spaces per dwelling unit	Resident: 126 Visitor: 19	Resident: 136 Visitor: 8	Resident: **+10** Visitor: **-11**

The site has allocated 144 parking spaces for the development. Per the Zoning By-law, the site is required to have a minimum of 126 resident parking spaces which leads to a surplus of 10 residential parking spaces. The site is also required to provide 19 visitor spaces, the site proposes eight (8) therefore is deficient by 11 visitor parking spaces.

Although the site does not propose any commercial space, adding commercial uses to the site would not reduce the residential parking demand. Therefore, the site would essentially provide enough parking spaces for the development as the parking for the development would be unbundled.

While the site is in a mixed-use zone, the intended use of the proposed development is purely residential which has a different parking requirement rate than the site's current zoning requirements. **Table 6** summarizes the Zoning By-Law requirements applied to the proposed development.

Table 6: City of Guelph Zoning By-Law Parking Requirements

Use	Statistic	Parking Rate	Total Parking Required	Proposed Parking	Surplus/ Deficit
Apartment Building	126 Units	Min: First 20 units 1.5 spaces/unit, for each unit in excess of 20, 1.25 spaces / unit. 20% of the required spaces shall be for visitor parking Max: 1.5 spaces per unit plus 0.25 visitor spaces per unit	Min: 163 Max: 221	144	**-19**

IBI Group prepared a review of the Guelph Parking Standards in cooperation with the City of Guelph as part of its comprehensive Zoning By-Law review. This review was submitted in September 2019 and recommended generally lower parking rates across the city. For this type of development in a mixed-use area of the City, the review by the City's external consultant, IBI Group, recommended a rate of 1.0 space per unit plus 0.15 visitor parking spaces after concluding that in all cases the parking demand for Apartment Buildings throughout the City was lower than the required parking rate.

Excerpts from the IBI report can be found in **Appendix E. Table 7** outlines the parking requirements for the site if the rates from the IBI report are applied.

Table 7: IBI Group Proposed Parking Rates

Use	Statistic	Parking Rate	Total Parking Required	Proposed Parking	Surplus/ Deficit
Apartment Building	126 Units	1 space per unit plus 0.15 spaces per unit for visitor parking	145	144	-1

This deficit can be justified when applying the combined rate of 1.15 spaces per unit to the site, resulting in 145 required parking spaces. The site is proposing 144 spaces in total, which would essentially meet the proposed rates in the report when the spaces are unbundled as the IBI Group report notes that unbundled parking in residential buildings has been shown to result in a reduction of car ownership when compared to buildings with bundled parking.

Following the IBI report, City of Guelph staff prepared their own report, dated April 2023, that included the IBI report's findings as well as other information and the results of public meetings regarding parking rates. In that report, City staff proposed the same rate as the rate seen in **Table 7**.

4.2 Surrogate Sites

To support the visitor parking deficiency, two (2) surrogate sites with similar uses and TDM measures to the proposed development were selected.

The following table summarizes the visitor parking space utilization for the surrogate sites.

Table 8: Surrogate Site

Address	Units	Visitor Spaces Provided	Visitor Spaces Utilized	Visitor Spaces - Utilization Rate per Unit
680 Saginaw Parkway, Cambridge	93	24	6 - 10	0.06 – 0.11
100 Eagle Street North, Cambridge	225	26	16 – 18	0.07 - 0.08

The visitor parking spaces at 680 Saginaw Parkway have an average visitor parking space utilization of 6-10 spaces under normal conditions, i.e., non-holidays. The visitor parking at 100 Eagle Street North is split between the ground level and 3rd level of the parking structure. The ground level visitor parking is busier due to PSW's and delivery vehicles utilizing these spaces. The utilization presented in **Table *8*** represents the total utilization across both levels.

4.3 105 Elmira Road North Visitor Parking Utilization

Based on **Table *8***, the visitor parking utilization rates have been applied to the proposed development to determine the visitor parking demand.

Table 9: Visitor Parking Demand

Surrogate Site	Visitor Parking Utilization Rate	105 Elmira Road Proposed Visitor Parking Spaces	105 Elmira Road North - Visitor Space Demand based on per Unit Utilization
680 Saginaw Parkway, Cambridge	0.06 - 0.10	8 spaces (0.06 spaces per unit)	8 – 13 spaces
100 Eagle Street North, Cambridge	0.07 - 0.08		9 – 10 spaces

After applying the parking utilization rates from the surrogate sites, the proposed development is expected to have a maximum visitor parking demand of eight (8) spaces to 13 spaces. The development has proposed eight (8) spaces; therefore, the site should have sufficient visitor parking spaces.

4.4 Barrer-Free Parking Assessment

The City of Guelph Zoning By-Law (2023)-20790 Part C: General Provisions and Parking and Table 5.5 was used to determine the adequacy of the accessible parking supply for the site. The Zoning By-Law excerpts can be found in **Appendix D.**

Table 10: City of Guelph Accessible Parking Requirements

Required Parking Spaces	Accessible Parking Rate	Required Accessible Parking	Proposed Accessible Parking	Surplus/ Deficit
163	1 accessible parking spaces plus an additional 3% of total spaces with an equal number of Type A and Type B accessible parking spaces.	6	6	**0**

The Site has provided sufficient accessible parking spaces per the Zoning By-Law.

4.5 Bicycle Parking Assessment

The City of Guelph Zoning By-Law (2023)-20790 Part C: General Provisions and Parking and Table 5.7 were used to determine the required bicycle parking. The Zoning By-Law excerpts can be found in **Appendix D.**

Table 11: City of Guelph Bicycle Parking Requirements

Use	Statistic	Parking Rate	Total Parking Required
Apartment Building	126 Units	Short Term: 0.1 spaces per unit Long Term: 1 space per unit	ST: 13 LT: 126
Total Bicycle Parking Provided			**ST: 14** **LT: 126**

The Site has proposed to supply 14 short term parking spaces and 126 long term bicycle parking spaces. The site has provided sufficient bicycle parking spaces.

5.0 Transportation Demand Management

Transportation Demand Management (TDM) is the practice of influencing or maximizing the travel choices for users through infrastructure improvements, strategic services and programs, or public outreach, with the purpose of shifting travel demands away from the auto travel mode to make more efficient use of the transportation system.

5.1 Existing Pedestrian and Cyclist Facilities

The current pedestrian facilities around the site include 1.5 m sidewalks on the surrounding road network, connecting to the proposed site through the proposed accesses. These paths should be well-lit to be safe and appealing to residents and visitors. Furthermore, pedestrian refuges, such as benches or fixtures, may be provided for additional aesthetic value and refuge for walking residents.

Willow Road currently has protected bicycle facilities along both sides of the roadway in the study area. It is part the Spine Cycling Network per the City of Guelph 2022 Transportation Master Plan.

To accommodate these bicycle trips, safe and secure bicycle parking spaces are being considered in the proposed development. The provision of bicycle parking will provide cyclists with a safe space to store their bikes and encourage cycling as another mode of transportation to reduce automobile trips.

5.1.1 Proximity to Commercial Centers

The site is conveniently located within a 10-minute walk to Costco and 13 minutes from a Zehrs grocery store. These major commercial retailers are in close proximity to the site, this encourages a reduction in vehicle trips.

5.2 Existing Transit Services

The site is currently serviced by three (3) bus routes located within 200 meters (3 minutes walking) of the site.

Table 12: Transit Stops in the Study Area

Route	Direction	Span	Days of Operation	Peak Hour Headway	Bus Stops in Study Area	Walk Time to Bus Stop
17 - Woodlawn Watson	North - South	Imperial to Woodlawn Smart Centres to University Centre (loop)	Monday – Sunday	30 minutes	Willow Road and Flaherty (eastbound)	3 minutes (190 metres)
18 – Watson Woodlawn	North - South	Eastview to Woodlawn Smart Centres to University Centre (loop)	Monday – Sunday	30 minutes	Willow Road and Flaherty (westbound)	3 minutes (200 metres)
20 – Northwest Industrial	North - South	Guelph Central Station Platform 1 to Guelph Central Station Platform 6 (loop)	Monday – Sunday	30 minutes	Willow Road and Flaherty (westbound)	3 minutes (190 metres)

As shown, the subject development is located in an area with multiple transit services that connect the site to the rest of the City, as well as to/from Guelph Central Station. Via a short 3-minute walk from the subject development, residents and visitors can connect to Guelph Central Station where a number of other local and regional transit services can be accessed. As such, the site is located in a convenient transit area with a multitude of transit options available.

5.3 Future Transit Services

The Guelph Transportation Master Plan (TMP) outlines several objectives to improve the public transit network. Some of these objectives and their actions include, developing policy to connect all bus stops to active transportation networks, frequent service to more employment hubs as part of the TMP update, and reduce transit travel time to make it competitive with car trave times. Elmira Road South is part of the Quality Transit Network, where these changes will occur. The City of Gulph is on track to improve transit networks in order to meet the needs of the growing City.

5.4 Site-Specific TDM Opportunities

There are several opportunities for the development to promote TDM measures to support reduced automobile use. As the tenants of the residential building have not been confirmed, these site specific TDM measures are only recommended at this time and should be finalized upon occupancy of the buildings. The recommendations outlined are expected to reduce SOV trips and increase sustainable mode share.

5.4.1 Bicycle Parking Spaces

It is recommended that the provided bicycle parking spaces are secure and equipped with overhead weather protection. Access to safe and secure bicycle parking will increase the confidence of prospective cyclists to cycle as their mode of transportation. Overhead weather protection encourages people to cycle as parked bicycles are protected from poor weather conditions, such as rain and snow.

5.4.2 TDM Information Package for New Tenants

Upon occupancy, a TDM information package could be provided to residents. Promotional material could also be readily available (and continuously updated) in the building's lobby to increase awareness of available alternate travel modes and reduce the barriers to adopting more sustainable travel behavior. Such marketing allows prospective tenants to be aware of sustainable travel options, as well as updates in the transit and cycling infrastructures improvements of the area.

The TDM Information Package can comprise of:

- Active transportation network maps
- Transit maps and schedules

Local commercial, retail, and institutional facilities should also be included in the marketing package to support local businesses and to promote a walkable mixed-use community.

Periodic transit and TDM information updates can also be provided to residents via mailbox.

5.4.3 Pre-Loaded Transit Passes

Public transit can be promoted by subsidizing a monthly transit pass for occupants for their first month of occupancy at one (1) pass per unit.

5.4.4 Unbundled Parking

It is noted that parking for the development will be unbundled. IBI Group prepared a review of the Guelph Parking Standards in cooperation with the City of Guelph as part of its comprehensive Zoning By-Law review. This review was submitted in September 2019 and their report notes that unbundled parking in residential buildings has been shown to result in a reduction of car ownership when compared to buildings with bundled parking.

6.0 Conclusion

This study has analyzed potential traffic impact on the boundary road network in relation to the proposed residential apartment development at 105 Elmira Road South in the City of Guelph. The conclusion in this report may be summarized with the following key findings:

- The proposed development is expected to generate 44 two-way (10 inbound and 34 outbound) trips during the weekday a.m. peak hour, and 49 two-way (30 inbound and 19 outbound) trips during the weekday p.m. peak hour.

- Analysis of site access safety components associated with the proposed development indicate the following:

    - The available sight distance, stopping sight distance, and corner clearance at the proposed site access exceeds the minimum sight distance requirements set out in the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR), June 2017.

    - There are no expected vehicle maneuverability constraints within the subject site for passenger vehicles, fire trucks, waste collection vehicles or loading vehicles.

- The proposed residential parking meets the parking requirements outlined in the City's Zoning By-Law. The visitor parking supply for the site is deficient 11 spaces for the mixed-use requirements and overall deficient per the Apartment building requirements. After applying the parking utilization from the surrogate sites, the visitor parking spaces have been met.

- IBI Group's report, as part of the City of Guelph's staff report, concluded that in all cases the parking demand for Apartment Buildings throughout the City was lower than the required parking rate.

- The existence of local transit, planned cycling facilities, combined with the provision of pedestrian infrastructure at the Site and the availability of several TDM options for the development are expected to reduce auto trips on the study road network.

The analysis undertaken herein was prepared using the most recent concept plan available at the time of writing this report. Any minor changes to the plan are not expected to materially affect the conclusions contained within this report. In conclusion, the proposed residential development can be supported from a traffic operations and safety perspective.

Respectfully submitted,

C.F. CROZIER & ASSOCIATES INC.

Shaira Ahmed, EIT
Engineering Intern, Transportation

C.F. CROZIER & ASSOCIATES INC.

Ian Lindley, P.Eng. MASc.
Project Engineer, Transportation

IL/cj

J:\2700\2764 - HIP Developments\7251 - 105 Elmira Road North\Reports\Transportation\2025.03.04 _(2764-7251) _105 Elmira Rd TIB _Final.docx

Appendix A

Terms of Reference Correspondence

From: Munshif Muccaram <Munshif.Muccaram@guelph.ca>
Sent: October 22, 2024 1:19 PM
To: Shaira Ahmed
Cc: Aaron Wignall; Ian Lindley; Gwen Zhang
Subject: RE: 105 Elmira Road North Terms of Reference (CFCA#2764-7251)

Good afternoon Shaira,

Thank you for reaching out to us and sharing the TOR. Please see below for Transportation staff comments in Red.

Please let us know if you have any questions.

Thank you,

Munshif Muccaram
Development Engineering Transportation Technologist II
Engineering and Transportation Services
City of Guelph
519-822-1260 extension 2043
TTY 519-826-9771
munshif.muccaram@guelph.ca

From: Shaira Ahmed <sahmed@cfcrozier.ca>
Sent: Tuesday, October 22, 2024 10:59 AM
To: Gwen Zhang <Gwen.Zhang@guelph.ca>
Cc: Aaron Wignall <awignall@cfcrozier.ca>; Munshif Muccaram <Munshif.Muccaram@guelph.ca>; Ian Lindley <ilindley@cfcrozier.ca>
Subject: RE: 105 Elmira Road North Terms of Reference (CFCA#2764-7251)

Hi Gwen,

I hope you are doing well.

We are looking to follow up on the terms of reference sent below for this project. If you have any questions or concerns, please let us know.

Thanks,
Shaira
Shaira Ahmed
Engineering Intern, Transportation
Office: 905.693.4706
Collingwood | Milton | Toronto | Bradford | Guelph

Celebrating 20 years and another year as one of Canada's Top Growing Companies.

From: Gwen Zhang <Gwen.Zhang@guelph.ca>
Sent: October 16, 2024 9:05 AM
To: Shaira Ahmed <sahmed@cfcrozier.ca>
Cc: Aaron Wignall <awignall@cfcrozier.ca>; Munshif Muccaram <Munshif.Muccaram@guelph.ca>
Subject: RE: 105 Elmira Road North Terms of Reference (CFCA#2764-7251)

Hi Shaira,

This is to acknowledge that we have received your email. Thank you for reaching out. We will review your message and respond as soon as possible.

Regards,

Gwen Zhang, M.Sc., P.Eng (she/her), Transportation Planning Engineer
Engineering and Transportation Services
T 519-822-1260 x 2638
E gwen.zhang@guelph.ca

From: Shaira Ahmed <sahmed@cfcrozier.ca>
Sent: Tuesday, October 15, 2024 4:48 PM
To: Gwen Zhang <Gwen.Zhang@guelph.ca>
Cc: Aaron Wignall <awignall@cfcrozier.ca>; Munshif Muccaram <Munshif.Muccaram@guelph.ca>
Subject: 105 Elmira Road North Terms of Reference (CFCA#2764-7251)

Hello,

I hope you are doing well. We are working with our Client to complete a Transportation Brief for the proposed apartment development at 105 Elmira Road North in the City of Guelph. The development concept proposes 6-storey residential building totaling 130 residential units, 144 vehicle parking spaces, and 140 bicycle parking spaces.

To facilitate the development, access to the building is proposed by one (1) full-moves access along Willow Road.

The study will be prepared in accordance with the City of Guelph Transportation Impact Study Guidelines (October 2023). On this basis, we propose the following Terms of Reference for the Transportation Brief:

Trip Generation

The City of Guelph TIS guidelines states that a TIS is triggered when at least 100 additional new net trips are added to the adjacent roadways. The site is expected to generate 48 and 51 new net a.m. and p.m. peak hour trips. Based on the low trip generation we do not anticipate operational analysis to be required. **Please confirm if this is acceptable.**

- Trip Distribution will be based on the 2016 Transportation Tomorrow Survey (TTS) data and/or existing travel patterns.
- Trip Generation will be based on ITE Trip Generation Manual, 11th edition using the following Land Use Category's (LUC):
    - LUC 221 Multifamily Housing (Mid-Rise)
        - Trip generation will be forecasted for passenger vehicles.

Traffic Safety

- The available sight distance at the proposed site access will be compared to standards set out by the Transportation Associates of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR) and Guelph's Development Engineering Manual (DEM).
- The supportability of the site access location and restrictions will be reviewed and the access width, access radii, throat width, throat length, centerline radius, drive aisle, with be assessed. Access to the development must be designed in accordance with the City's Development Engineering Manual (DEM). Please refer to section 6.3.5.4.
-
- Should the site access not meet the TAC GDGCR guidelines or other applicable guidelines, recommendations will be made to improve the safety at the site access. Site access must review any operational impacts of offset intersection (to the east).
- Conflicts will be reviewed between vehicles, pedestrians, cyclists, and recommendations made to maintain multimodal safety.

Truck Turning Analysis

- We will use AutoTurn to review on-site circulation for passenger, loading (HSU), waste collection (11.4m Front loading) and fire trucks (full size). Please refer to City's Waste Collection Guidelines for Multi Residential Development in the City of Guelph for waste pick up requirements including any turn around design.
- Provide design recommendations for the Site Plan where needed to ensure sufficient space for vehicle turning radii, pedestrian connections, and site circulation.

Transportation Demand Management (TDM) Review

- TDM opportunities will be assessed, and site-specific measures for the development will be recommended to reduce single-occupancy vehicle (SOV) trips and promote sustainable transportation. This development is situated in a walkable, bikeable, transit-friendly area, making it well-suited for Transportation Demand Management (TDM) measures. The site is located adjacent to the existing cycling network and adjacent to the future planned quality transit network, as indicated in the 2022 Transportation Master Plan.

- TDM will also include the Multi-modal Level of Service analysis that the City of Guelph is known to be exploring. Unless the City provides its recommendations for this analysis, the analysis will be based on other similar municipalities' guidelines.
- **Please confirm if this is acceptable. Yes, this is acceptable.**

Parking Justification Study

Per the City's zoning by-law parking requirements, 1.5 spaces plus 0.25 visitor parking spaces per dwelling unit are required. Loading space, electric vehicle, barrier free, and bicycle parking requirements will also be analyzed. **Please confirm if this methodology is acceptable or what requirements are needed for the PJS.**

Functional Design Plan

Per the DRC Pre-Consultation summary and checklist, a functional design plan was requested for a new left turn storage lane along Willow Road into the proposed site access.

Based on the existing cross-section of Willow Road there is an existing single lane in the eastbound and westbound direction, with a two way left turning lane (TWLTL) through the median. The existing eastbound left turn lane along Willow Road roughly contains 22 metres of storage length that can utilized to access the site. **What would the City be looking for in terms of a functional design for the access based on the existing TWLTL**? Existing TWLT is provided on Willow Road between Flaherty Drive and approximately a point 75m west thereof. Within this area, a full movement access to the residential development is located on the south side of Willow Road opposite (slightly to east) to the proposed development access. Concept plan must demonstrate improvements to pavement markings to facilitate the left turn lanes for both the residential accesses and at the intersection.

I hope the contents outlined in this email are acceptable.

If you have any questions or would like to discuss further, please do not hesitate to reach out.

Regards,

Shaira Ahmed
Engineering Intern, Transportation
Office: 905.693.4706
Collingwood | Milton | Toronto | Bradford | Guelph

Celebrating 20 years and another year as one of Canada's Top Growing Companies.

CROZIER

Disclaimer

Appendix B

ITE 11th Edition Excerpts

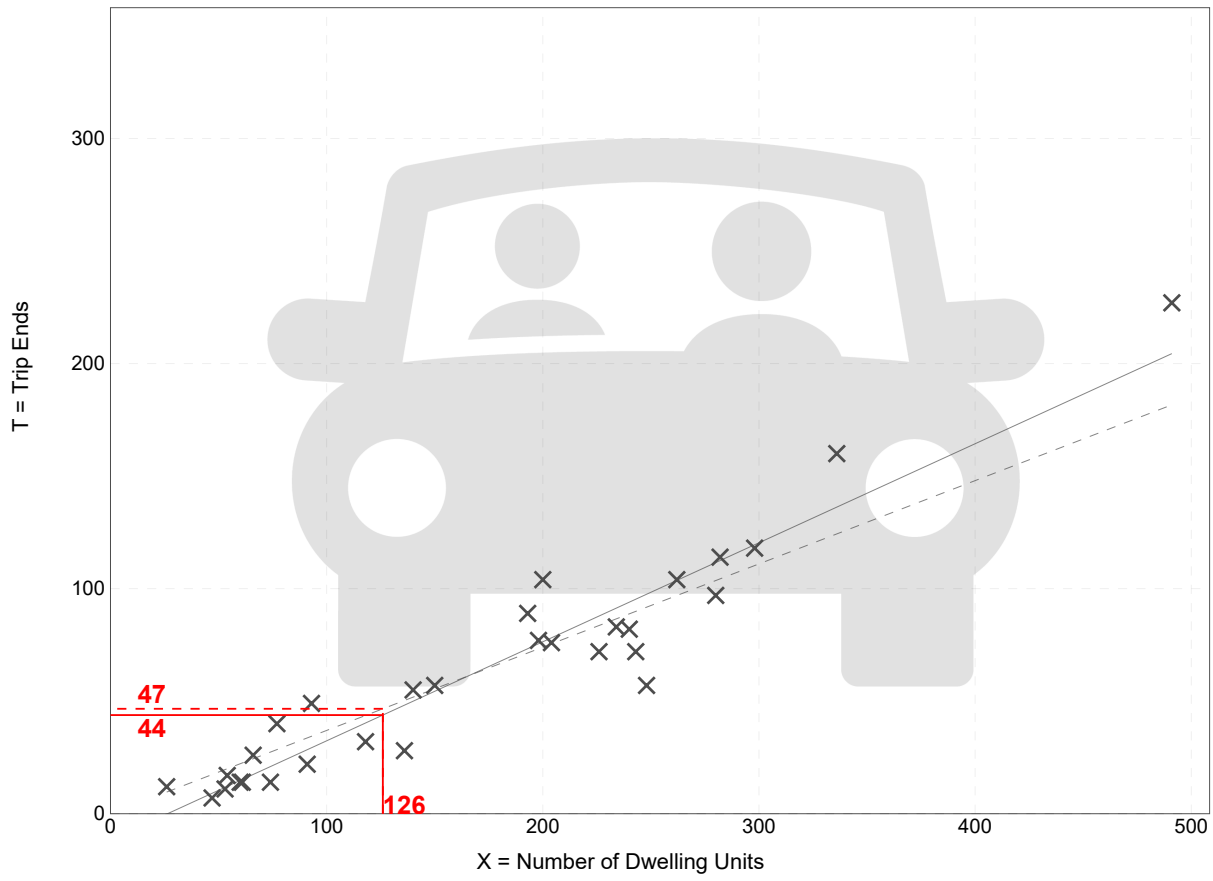
Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	30
Avg. Num. of Dwelling Units:	173
Directional Distribution:	23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.37	0.15 - 0.53	0.09

Data Plot and Equation



Fitted Curve Equation: T = 0.44(X) - 11.61

R^2= 0.91

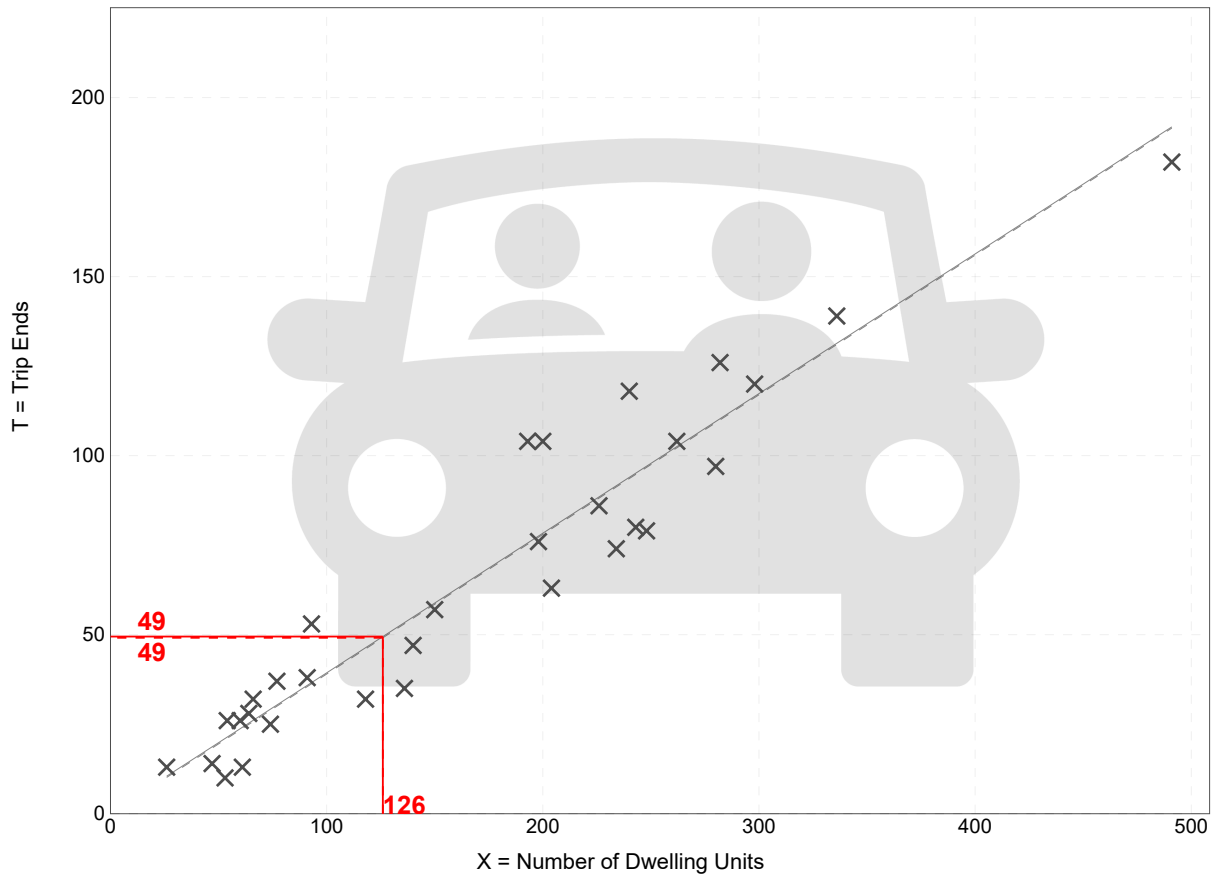
Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	31
Avg. Num. of Dwelling Units:	169
Directional Distribution:	61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.39	0.19 - 0.57	0.08

Data Plot and Equation



Fitted Curve Equation: T = 0.39(X) + 0.34

R^2= 0.91

Appendix C

TAC Excerpts

Table 9.9.3: Time Gap for Case B1, Left Turn from Stop

Design Vehicle	Time Gap (t_g)(s) at Design Speed of Major Road
Passenger car	7.5
Single-unit truck	9.5
Combination truck (WB 19 and WB 20)	11.5
Longer truck	To be established by road authority

Notes: Time gaps are for a stopped vehicle to turn left onto a two-lane highway with no median and with grades of 3% or less. The table values should be adjusted as follows:

- For multi-lane highways: For left turns onto two-lane highways with more than two lanes, add 0.5 s for passenger cars and 0.7 s for trucks for each additional lane, from the left, in excess of one, to be crossed by the turning vehicle.
- For minor approach grades: If the approach grade is an upgrade that exceeds 3%, add 0.2 s for each percent grade for left turns.
- Some road authorities use higher values for certain specialized vehicles (e.g., Alberta uses 22 s for very long log trucks).

The intersection sight distance along the major road (distance b in **Figure 9.9.2**) is determined by:

$$ISD = 0.278\ V_{major}\ t_g \qquad (9.9.1)$$

Where:

ISD = intersection sight distance (length of the leg of sight triangle along the major road) (m)
V_{major} = design speed of the major road (km/h)
t_g = time gap for minor road vehicle to enter the major road (s)

For example, a passenger car turning left onto a two-lane major road should be provided sight distance equivalent to a time gap of 7.5 s in major-road traffic. If the design speed of the major road is 100 km/h, this corresponds to a sight distance of 0.278(100)(7.5) = 208.5 or 210 m, rounded for design.

A passenger car turning left onto a four-lane undivided roadway will need to cross two near lanes, rather than one. This increases the recommended gap in major-road traffic from 7.5 to 8.0 s. The corresponding value of sight distance for this example would be 223 m. If the minor-road approach to such an intersection is located on a 4% upgrade, then the time gap selected for intersection sight distance design for left turns should be increased from 8.0 to 8.8 s, equivalent to an increase of 0.2 s for each percent grade.

The design values for intersection sight distance for passenger cars are shown in **Table 9.9.4**. **Figure 9.9.4** includes design values, based on the time gaps for the design vehicles included in **Table 9.9.3**.

No adjustment of the recommended sight distance values for the major-road grade is generally needed because both the major- and minor-road vehicle will be on the same grade when departing from the intersection. However, if the minor-road design vehicle is a heavy truck and the intersection is located near a sag vertical curve with grades over 3%, then an adjustment to extend the recommended sight distance based on the major-road grade should be considered.

Table 9.9.4: Design Intersection Sight Distance – Case B1, Left Turn From Stop

Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance for Passenger Cars	
		Calculated (m)	Design (m)
20	20	41.7	45
30	35	62.6	65
40	50	83.4	85
50	65	104.3	105
60	85	125.1	130
70	105	146.0	150
80	130	166.8	170
90	160	187.7	190
100	185	208.5	210
110	220	229.4	230
120	250	250.2	255
130	285	271.1	275

Note: Intersection sight distance shown is for a stopped passenger car to turn left onto a two-lane highway with no median and grades 3% or less. For other conditions, the time gap should be adjusted and the sight distance recalculated.

Sight distance design for left turns at divided-highway intersections should consider multiple design vehicles and median width. If the design vehicle used to determine sight distance for a divided-highway intersection is larger than a passenger car, then sight distance for left turns will need to be checked for that selected design vehicle and for smaller design vehicles as well. If the divided-highway median is wide enough to store the design vehicle with a clearance to the through lanes of approximately 1 m at both ends of the vehicle, no separate analysis for the departure sight triangle for left turns is needed on the minor-road approach for the near roadway to the left. In most cases, the departure sight triangle for right turns (case B2) will provide sufficient sight distance for a passenger car to cross the near roadway to reach the median. Possible exceptions are addressed in the discussion of case B3.

The time gaps in **Table 9.9.3** can be decreased by 1.0 s for right-turn maneuvers without undue interference with major-road traffic. These adjusted time gaps for the right turn from the minor road are shown in **Table 9.9.5**. Design values based on these adjusted time gaps are shown in **Table 9.9.6** for passenger cars. **Figure 9.9.5** includes the design values for the design vehicles for each of the time gaps in **Table 9.9.5**.

Table 9.9.5: Time Gap for Case B2—Right Turn from Stop and Case B3—Crossing Maneuver

Design Vehicle	Time Gap (t_g)(s) at Design Speed of Major Road
Passenger car	6.5
Single-unit truck	8.5
Combination truck (WB 19 and WB 20)	10.5

Note: Time gaps are for a stopped vehicle to turn left onto a two-lane highway with no median and with grades of 3% or less. The table values should be adjusted as follows:

- For multi-lane highways: For left turns onto two-lane highways with more than two lanes, add 0.5 s for passenger cars and 0.7 s for trucks for each additional lane, from the left, in excess of one, to be crossed by the turning vehicle.
- For minor approach grades: If the approach grade is an upgrade that exceeds 3%, add 0.1 s for each percent grade for left turns.

Table 9.9.6: Design Intersection Sight Distance – Case B2, Right Turn from Stop, and Case B3, Crossing Maneuver

Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance for Passenger Cars	
		Calculated (m)	Design (m)
20	20	36.1	40
30	35	54.2	55
40	50	72.3	75
50	65	90.4	95
60	85	108.4	110
70	105	126.5	130
80	130	144.6	145
90	160	162.6	165
100	185	180.7	185
110	220	198.8	200
120	250	216.8	220
130	285	234.9	235

Note: Intersection sight distance shown is for a stopped passenger car to turn right onto or to cross a two-lane highway with no median and with grades of 3% or less. For other conditions, the time gap should be adjusted and the sight distance recalculated.

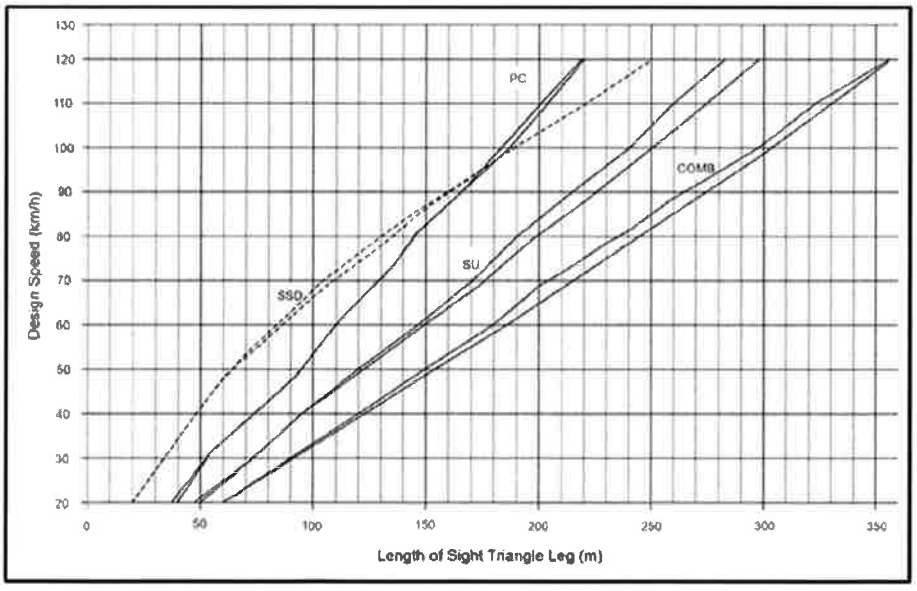


Figure 9.9.5: Intersection Sight Distance – Case B2, Right Turn from Stop, and Case B3, Crossing Maneuver (Calculated and Design Values Plotted)

Case F – Left Turns from the Major Road

All locations along a major highway from which vehicles are permitted to turn left across opposing traffic, including intersections and driveways, should have sufficient sight distance to accommodate the left-turn maneuver. Left-turning drivers need sufficient sight distance to decide when to turn left across the lane(s) used by opposing traffic. Sight distance design should be based on a left turn by a stopped vehicle, since a vehicle that turns left without stopping would need less sight distance. The sight distance along the major road to accommodate left turns is the distance traversed at the design speed of the major road in the travel time for the design vehicle given in **Table 9.9.11**.

Table 9.9.11: Time Gap for Case F, Left Turns from the Major Road

Design Vehicle	Time Gap (t_g)(s) at Design Speed of Major Road
Passenger car	5.5
Single-unit truck	6.5
Combination truck (WB 19 and WB 20)	7.5

Note: Adjustment for multi-lane highways: For turning vehicles that cross more than one opposing lane, add 0.5 s for passenger cars and 0.7 s for trucks for each additional lane to be crossed.

The table also contains appropriate adjustment factors for the number of major-road lanes to be crossed by the turning vehicle. The unadjusted time gap in **Table 9.9.11** for passenger cars was used to develop the sight distances in **Table 9.9.12** and is illustrated in **Figure 9.9.8.**

Table 9.9.12: Intersection Sight Distance – Case F, Left Turn from the Major Road

Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance	
		Passenger Cars	
		Calculated (m)	Design (m)
20	20	30.6	35
30	35	45.9	50
40	50	61.2	65
50	65	76.5	80
60	85	91.7	95
70	105	107.0	110
80	130	122.3	125
90	160	137.6	140
100	185	152.9	155
110	220	168.2	170
120	250	183.5	185
130	285	198.8	200

Note: Intersection sight distance shown is for a passenger car making a left turn from an undivided highway. For other conditions and design vehicles, the time gap should be adjusted and the sight distance recalculated.

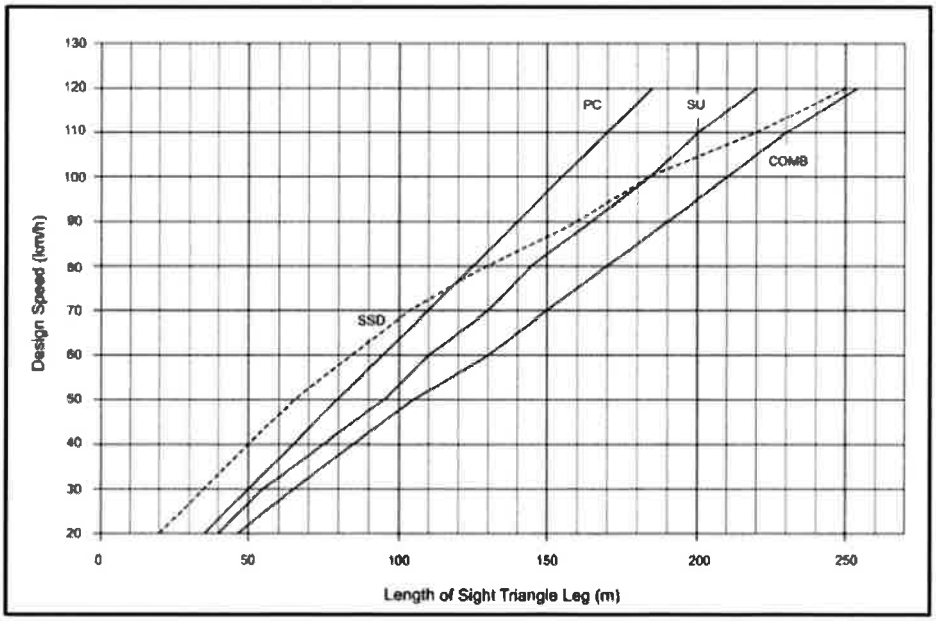
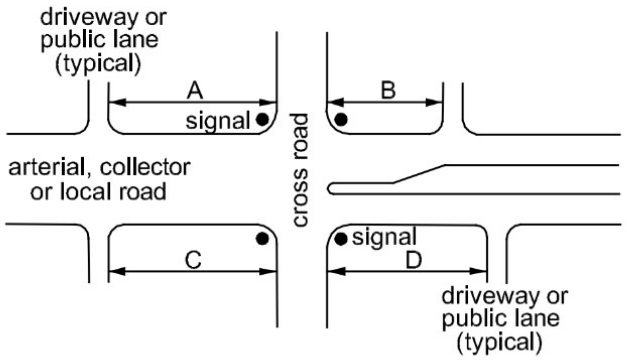


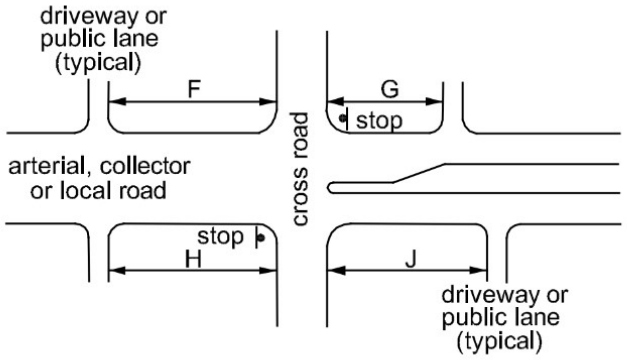
Figure 9.9.8: Intersection Sight Distance – Case F, Left Turn from the Major Road



item	min. clearance, m		
	arterial	collector [b]	local [d]
A	70 [c]	55	15
B	# [a]	25	15
C	70	55	15
D	70 [c]	55	15

Notes: a. Distance (#) positions driveway or public lane in advance of the left turn storage length (min.) plus bay taper (des.).
b. Lesser values reflect lower volumes and reduces level of service on collectors and locals.
c. Reduced distances feasible if auxiliary lane implemented, see Section 8.5
d. Values based on operating speed of 50km/h, higher values desirable for higher speeds or may be warranted by traffic conditions.

signals at the cross road



item	min. clearance, m		
	arterial	collector [b]	local [b]
F	35	20	15
G	# [a]	25	15
H	25	25	15
J	35	20	15

Notes: a. Distance (#) positions driveway or public lane in advance of the left turn storage length (min.) plus bay taper (des.).
b. Lesser values reflect lower volumes and reduces level of service on collectors and locals.

stop control at the cross road

Figure 8.8.2: Suggested Minimum Corner Clearances to Accesses or Public Lanes at Major Intersections

Inadequate corner clearance between accesses and signalized intersections along a major road, such as a major arterial, can create serious operational problems including:

Appendix D

City of Guelph Zoning By-Law

5. Parking

No land shall be **used**, and no **building** or **structure** shall be **used** or erected in any **zone** unless off-street **parking spaces**, **parking areas, driveways**, **loading spaces**, or any other applicable requirement specified within this section, are provided and maintained in accordance with all applicable provisions, unless explicitly stated otherwise.

5.1 Calculation

(a) If the calculation of the required **parking spaces** or **bicycle parking spaces** results in a fraction, the required **parking spaces** or **bicycle parking spaces** shall be rounded up to the next higher whole number.

5.2 Location

(a) Every off-street **parking area** shall be located on the same **lot** as the **use** requiring the parking and shall not infringe on or obstruct any required **loading spaces**, walkways, or other site elements required pursuant to this **by-law**.

(b) Despite any **yard** provisions of this **by-law** to the contrary, **parking spaces** and **parking areas** are permitted in accordance with the following provisions:

5.2.1 Residential uses

(a) For every **single detached dwelling**, **semi-detached dwelling**, **on-street townhouse**, **rear access on-street townhouse**, **duplex dwelling**, and multi-unit **buildings** with 3 **dwelling units** or less, the following provisions apply:

(i) One required **parking space** for the **uses** specified in 5.2.1 (a) shall be located a minimum distance of 6 metres from the **street line** and to the rear of the front wall of the **main building**.

(ii) Where an off-street **parking space** does not exist and where such space cannot be provided to the rear of the front wall of the **main building** of an existing **dwelling unit**, 1 off-street **parking space** may be wholly or partially located within the required **front yard** provided such **parking space** is **setback** a minimum of 0.5 metres from the **side lot line**.

(iii) Despite 5.2.1 (a) (i), in the case of a **through lot**, **parking spaces** may be wholly located within one of the **front yards**, behind the front wall of the **main building** and be **setback** a minimum of 0.5 metres from the **side lot line**.

(iv) When situated in the **rear yard**, an exterior **parking area** shall be **setback** 0.5 metre from any **lot line** and is to be screened from adjacent properties with a minimum 1.5 metre high solid **fence** or suitable landscaping consisting of sod, trees, shrubbery or berms.

(v) In a D.1 or D.2 **zone**, where an enclosed **parking area** is located within 1 metre of any **lot line** adjacent to a **single detached dwelling**, **semi-detached dwelling**, **duplex dwelling**, or **on-street townhouse**, it is to be screened along those **lot lines** with a minimum 1.5 metre high solid **fence**.

Table 5.3 Required parking rates in all zones except downtown zones

Row	Use	Lots identified with parking adjustment (PA) suffix		Lots without parking adjustment (PA) suffix
		Minimum required	**Maximum permitted**	**Minimum required**
Residential uses				
1.	**Additional residential dwelling unit** (2)(5)	1 space per **dwelling unit**	Not applicable	1 space per **dwelling unit**
2.	**Apartment building** (6)(7)	For the first 20 **dwelling units**: 1.5 spaces per **dwelling unit**, and for each **dwelling unit** in excess of 20: 1.25 spaces per **dwelling unit**. A minimum of 20% of the required **parking spaces** shall be for the use of visitor parking	1.5 spaces per **dwelling unit** plus, 0.25 visitor spaces per **dwelling unit**	For the first 20 **dwelling units**: 1.5 spaces per **dwelling unit**, and for each **dwelling unit** in excess of 20: 1.25 spaces per **dwelling unit**. A minimum of 20% of the required **parking spaces** shall be for the use of visitor parking
3.	**Bed and breakfast**	1 space per **building**, plus 1 space for owner	Not applicable	1 space per **building**, plus 1 space for owner
4.	**Duplex dwelling**	1 space per **dwelling unit**	Not applicable	1 space per **dwelling unit**
5.	**Emergency shelter**	1 space per 4 beds	Not applicable	1 space per 4 beds
6.	**Group home** (4)	1 space per **building**, plus 1 space per staff	Not applicable	1 space per **building**, plus 1 space per staff
7.	**Home occupation**	In accordance with Section 4.15.2	Not applicable	In accordance with Section 4.15.2
8.	**Hospice**	1 space per 3 beds	Not applicable	1 space per 3 beds
9.	**Live-work unit**	In addition to the non-residential parking rate, 1 space per **dwelling unit**	In addition to the non-residential parking rate, 1.5 spaces per **dwelling unit**	In addition to the non-residential parking rate, 1 space per **dwelling unit**
10.	**Lodging house type 1** (3)(4)	1 space per **building**, plus 1 per 3 **lodging units**	Not applicable	1 space per **building**, plus 1 per 3 **lodging units**
11.	**Long term care facility**	1 space per 3 beds	Not applicable	1 space per 3 beds

Table 5.5 – Accessible parking rates

Row	Number of required parking spaces	Type A accessible parking spaces (min)	Type B accessible parking spaces (min)
1.	12 or fewer	1	0
2.	13 to 100	4% of total spaces(1) with an equal number of Type A and Type B **accessible parking spaces**(2)(3)	
3.	101 to 200	1 **accessible parking space** plus an additional 3% of total spaces(1) with an equal number of Type A and Type B **accessible parking spaces**(2)	
4.	201 to 1,000	2 **accessible parking spaces** plus an additional 2% of total spaces(1) with an equal number of Type A and Type B **accessible parking spaces**(2)	
5.	Over 1,000	11 **accessible parking spaces** plus an additional 1% of spaces(1) with an equal number of Type A and Type B **accessible parking spaces**(2)	

Additional regulations for Table 5.5:

1. Rounded up to the nearest whole number
2. If an odd number of **accessible parking spaces** is required, the additional space may be a Type B **accessible parking space**
3. If only one **accessible parking space** is required, the space must be a Type A **accessible parking space**.

Table 5.6 – Accessible parking space dimensions

Row	Element	Dimensions - minimum required
1.	Type A **accessible parking space** (1)(2)	3.4 metre width x 5.5 metre length
2.	Type B **accessible parking space** (2)	2.4 metre width x 5.5 metre length

Additional regulations for Table 5.6:

1. Type A **accessible parking spaces** shall be identified with signage indicating spaces are van accessible
2. Access aisles shall be provided directly adjacent to all off-street **accessible parking spaces** in accordance with the following specifications:
   i. Access aisles shall be a minimum of 2 metres wide.
   ii. Access aisles shall extend along the entire length of the **accessible parking space**, with a minimum length of 5.5 metres.
   iii. When located on asphalt, concrete, or other hard surface, access aisles shall be marked with high tonal contrast diagonal lines.

5.8 Bicycle parking rates

(a) **Bicycle parking spaces, long term** and **bicycle parking spaces, short term** shall be provided in accordance with Table 5.7 and Table 5.8.

(b) Where a **lot** contains more than one **use**, not within a **multi-unit building**, the required number of **bicycle parking spaces** is the sum of all **bicycle parking spaces** required for each **use**.

Table 5.7 - Required bicycle parking rates in all zones except downtown zones

Row	Use	Bicycle parking spaces, short term – minimum required	Bicycle parking spaces, long term – minimum required
1.	Residential • **Apartment building** (1) • **Townhouse** – **back-to-back, cluster, stacked, stacked back-to-back** (where individual **garages** are not provided) (1)	0.1 spaces per **dwelling unit**, 2 spaces minimum	1 space per **dwelling unit**, 2 spaces minimum
2.	**Supportive housing**	0.1 spaces per **dwelling unit** or suite, 2 spaces minimum	1 space per **dwelling unit** or suite, 2 spaces minimum
3.	**Live-work unit, mixed-use building** (1)	In addition to the non-residential parking requirement, 0.1 spaces per **dwelling unit** is required, 2 spaces minimum	In addition to the non-residential parking requirement, 1 space per **dwelling unit** is required, 2 spaces minimum
4.	**Multi-unit building** (commercial) (includes individual **buildings** on the same **lot** as the **multi-unit building**)	0.2 spaces per 100 m^2 **GFA**, 2 spaces minimum	0.1 spaces per 100 m^2 **GFA**, 2 spaces minimum
5.	**Multi-unit building** (industrial) (includes individual **buildings** on the same **lot** as the **multi-unit building**)	0.03 spaces per 100 m^2 **GFA**, 2 spaces minimum	0.07 spaces per 100 m^2 **GFA**, 2 spaces minimum
6.	Commercial, service, retail • **Convenience store** • **Financial establishment** • **Fitness centre** • **Retail establishment** • **Service establishment** • **School, commercial**	0.2 spaces per 100 m^2 **GFA**, 2 spaces minimum	0.1 spaces per 100 m^2 **GFA**, 2 spaces minimum
7.	**Day care centre**	0.3 spaces per 100 m^2 **GFA**, 2 spaces minimum	0.2 spaces per 100 m^2 **GFA**, 2 spaces minimum

5.8.2 Bicycle parking space and aisle dimensions

(a) Horizontal **bicycle parking spaces** shall:

(i) Be a minimum dimension of 0.6 metres wide by 1.8 metres horizontal length, with a minimum vertical clearance of 1.9 metres.

(ii) Be accessed by an aisle with a minimum width of 1.5 metres.

(b) Vertical **bicycle parking spaces** shall:

(i) Have a minimum dimension of 0.6 metres wide by 1.8 metres vertical length, where the bike, when secured on the storage rack is provided with a minimum horizontal clearance from the wall of 1.2 metres.

(ii) Be accessed by an aisle with a minimum width of 1.2 metres.

(c) Stacked **bicycle parking spaces** shall:

(i) Have minimum dimensions of 0.6 metres wide by 1.8 metres horizontal length, with a minimum vertical clearance of 1.2 metres.

(ii) Be accessed by an aisle with a minimum width of 1.2 metres.

5.9 Electric vehicle parking requirements

(a) A minimum of 20% of the total required **parking spaces** for multi-unit **buildings** with 3 or more **dwelling units** and **mixed-use buildings** on **lots** identified with a (PA) suffix shall be provided as **electric vehicle parking spaces**.

(b) A minimum of 80% of total required **parking spaces** for multi-unit **buildings** with 3 or more **dwelling units**, **townhouse – cluster, stacked, stacked back-to-back**, and **mixed-use buildings** shall be provided as **designed electric vehicle parking spaces**.

(c) For any non-residential **use**, a minimum of 10% of required **parking spaces** shall be provided as **electric vehicle parking spaces** and a minimum of 20% of required **parking spaces** shall be provided as **designed electric vehicle parking spaces**.

5.10 Parking spaces within automated parking systems

(a) Despite Table 5.2, **parking spaces** provided within an **automated parking system** may count towards satisfying the required minimum and maximum **parking space** calculations under this **by-law**, except this shall not apply to satisfying required **accessible parking spaces**, visitor **parking spaces**, and/or **electric vehicle parking spaces**.

5.11 Garages and driveways–residential zones

5.11.1 Maximum width of attached garage - residential

(a) The maximum permitted **garage width** within residential **zones** shall be in accordance with Table 5.9.

5.11.2 Garage location

(a) Within residential **zones**, attached **garages** shall not project beyond the main front wall of the **first storey** containing **habitable floor space** oriented towards the **front lot line** or **exterior side lot line** abutting a **street line**. Where a roofed **porch** is provided, the attached **garage** may be located ahead of the main front wall, to a maximum projection of 2 metres.

(i) For **single detached dwellings** and **semi-detached dwellings** in downtown **zones**, attached **garages** shall not project beyond the main front wall of the **building**.

Link to **Table of Contents**
Link to **Zoning Schedules**

Appendix E

IBI Report Excerpts

Exhibit 5-8: Existing and Proposed Parking Rates in Apartments

Existing Rate: Minimum	Average Rate in Comparable Municipalities	ITE Rate	Existing Downtown Rate: Minimum	Observed Rate	Recommended Rates	
					Mixed Use Areas / Corridors: Minimum	Other Areas: Minimum
1.5 space per unit for the first 20 units and 1.25 space per unit per unit thereafter	Varies (see Section 5.3 of this Report for analysis)	1.22 to 2.05 spaces per unit (includes visitor parking)	1 space per unit plus 0.05 for visitor parking	0.8 spaces per unit (includes visitor parking)	1 space per unit plus 0.1 spaces per unit for visitor parking	If development contains less than 20 units: 1 space per unit plus 0.25 additional spaces per unit for visitor parking If development contains20 units or greater: 1 space per unit plus 0.15 additional spaces per unit for visitor parking

Maximum parking rates should be considered for apartment buildings within priority growth areas (Intensification Corridors and Community Mixed Use Nodes), For example, as previously mentioned, the City of Kitchener sets its maximum parking space rate (including visitor parking) for multiple residential buildings at between 1 and 1.4 spaces per dwelling, depending on the zoning of the site. We recommend that a maximum parking rate of 1.5 spaces per unit (inclusive of visitor parking) be established for the City's Mixed Use Areas / Corridors.

Proposed maximum rates for Mixed Use Areas are set out in Appendix C. For apartment units within Mixed Use Areas, we recommend a maximum parking rate of 1.5 (inclusive of visitor parking) spaces per unit.

5.4.3 Single Detached Dwellings, Semi-Detached Dwellings, and Duplex Dwellings

The City of Guelph's current parking rate of 1 space per unit for single detached and semi-detached dwellings is consistent with what is required in the municipalities of the Cities of Kitchener, St. Catharines, and Waterloo. We note that these types of dwellings were not considered as part of the parking demand review. It is not recommended that this rate be adjusted.