November 5, 2024

SENT BY E-MAIL

City of Burlington
426 Brant Street
Burlington, ON L7R 3Z6

Attention: **Dan Ozimkovic, C.E.T., A.Sc.T.**
Transportation Planning Technologist, City of Burlington

RE: **TRANSPORTATION BRIEF**
PROPOSED RESIDENTIAL DEVELOPMENT
2170 GHENT AVENUE
CITY OF BURLINGTON

Dear Dan,

C.F. Crozier & Associates Inc. (Crozier) was retained by Argo Development Corp/Northern Cardinal Homes to prepare a Transportation Brief in support of a Zoning By-Law Amendment (ZBA) application for the proposed residential development located at 2170 Ghent Avenue in the City of Burlington (City).

The Transportation Brief herein reviews the following aspects of the development from a transportation engineering perspective:

- Trip Generation
- Parking and Loading Requirements
- Sight Distance Assessment
- Transportation Demand Management (TDM) Measures

This Transportation Brief has been completed in accordance with the agreed upon Terms of Reference with City of Burlington staff, received on August 23rd, 2024. The Terms of Reference is included in correspondence as **Attachment 1**.

1.0 Development Proposal

The Subject Property covers an area of approximately 0.40 ha and currently consists of an empty lot. The Subject Property is located within a residential neighbourhood, south-east of Brant Street and Ghent Avenue, and is bound by Ghent Avenue to the north and residential buildings to the west, south, and east.

Per the Site Plan prepared by Limberlost Building Design dated August 8, 2024, the development proposes:

- The construction of 21 townhouse units in three buildings
- A full moves Site Access at Ghent Avenue

To facilitate the development, a garage and driveway are proposed for each unit to a private drive aisle with access to Ghent Avenue. Five (5) visitor spaces including one accessible parking space are also proposed.

The Site Plan is included as **Attachment 2** of this letter.

2.0 Trip Generation

The trip generation for the site was forecasted using published data from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition. The ITE Trip Generation Manual is a compendium of industry collected trip generation data across North America for a variety of land uses and is used industry wide as a source for trip generation forecasts.

The Land Use Category (LUC) 220 Multifamily Housing (Low-Rise) was applied to the proposed residential townhouse units.

Average rates for a General Urban/Suburban setting, not close to rail transit were used. The forecasted weekday a.m. and p.m. trip generation for the site is outlined in **Table 1** below.

Table 1: Trip Generation

ITE Land Use Category	Units	Peak Hour	Trips Generated		
			Inbound	Outbound	Total
LUC 220 "Multifamily Housing (Low-Rise)" General Urban/Suburban Not Close to Rail Transit	21	A.M.	2 (24%)	6 (76%)	8 (0.40 trips per unit)
		P.M.	7 (63%)	4 (37%)	11 (0.51 trips per unit)

Based on the ITE Trip Generation estimates, the proposed townhouse development is forecasted to generate 8 and 11 total two-way vehicle trips during the weekday a.m. and p.m. peak hours, respectively.

3.0 Impacts to Traffic Operations

The proposed development is expected to generate a total of 8 and 11 two-way trips during the weekday a.m. and p.m. peak hours, respectively. The trip generation forecasts are minimal from a traffic operations perspective and are typically not associated with traffic operational issues. As such, minimal traffic impact is expected in the boundary road network and a traffic capacity analysis has not been undertaken herein.

4.0 Zoning By-Law Review

The City of Burlington Zoning By-Law (ZBL) 2020 parking and loading requirements have been reviewed in the following sections.

4.1 Vehicle Parking Requirements Review

The City of Burlington ZBL 2020 minimum vehicle parking requirements have been reviewed. Under ZBL 2020, the subject site is zoned as residential medium density (RM2). **Table 2** below outlines the minimum parking requirements for the proposed development per Table 1.2.6 of ZBL 2020.

Table 2: Parking Requirements

Land Use	Units	Minimum Vehicle Parking Rates	Parking Spaces
Townhouse Dwelling Occupant Spaces	21	2 occupant spaces per unit	**42 spaces**
Townhouse Dwelling Visitor Spaces		0.25 visitor spaces per unit	**5 spaces**
Minimum Parking Required			**47 spaces**
Total Parking Supply			**47 spaces**

As outlined above, ZBL 2020 requires the proposed development to provide 47 vehicle parking spaces. As the Site Plan proposes 2 spaces per townhouse (within the individual garage and driveway), as well as 5 visitor spaces, the proposed development adheres to the City's ZBL requirements.

4.2 Accessible Parking Review

Per Table 1.2.7 of ZBL 2020, one (1) designated accessible parking space is required where 5 to 50 vehicle parking spaces are required. As 47 vehicle parking spaces are required, 1 accessible parking space is required. As the Site Plan proposes 1 accessible parking space, the accessible parking space requirements are met. It is also noted that the individual driveways for each townhouse units, may also be used as accessible parking, if required.

4.3 Bicycle Parking Review

ZBL 2020, Section 2.26 (10), states that bicycle parking spaces are only required for office, retail, service commercial, industrial, and institutional developments. Accordingly, no bicycle parking spaces are required for the residential development. Residents will be able to store bikes inside their unit and/or garage.

4.4 Loading Review

Per ZBL 2020, Section 2.25.3, no loading space is required for residential buildings less than 4 storeys high. As the development is less than four (4) storeys, no loading space is required. Waste collection and deliveries are expected to be conducted on-street, as typically observed for smaller residential developments.

5.0 Intersection Sight Distance Assessment

The available sightlines at the proposed site access on Ghent Avenue were measured and compared to the standards set out in the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR). Section 9.9 of TAC GDGCR provides intersection sight distance for different intersection control types. The applicable cases are as follows:

- Case B – Intersections with stop control on the minor road
  - Case B1 – Left turn from the minor road
  - Case B2 – Right turn from the minor road

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

$$ISD = 0.278 * V_{major} * t_g$$

Where:

- ISD = Intersection Sight Distance
- V_{major} = design speed of roadway (km/h)
- t_g = assumed time gap for vehicles to turn from stop onto roadway (s)

Sight distance was measured from the site accesses using the following assumptions:

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

The design speed of a roadway in an urban environment is typically 10 km/h greater than the posted speed limit. Ghent Avenue has a posted speed limit of 40 km/h. Accordingly, a design speed of 50 km/h was assumed for the analysis. In this case, the passenger design vehicle was used for the assessment given that this vehicle is expected to be the most common vehicle profile to use the access.

Table 3 summarizes the sight distance analysis for the proposed site access.

Table 3: Intersection Sight Distance Assessment

Feature	Case B1 – Left Turn	Case B2 – Right Turn
Time Gap	Left Turn = 7.5 s	Right Turn = 6.5 s
Required Sight Distance	105 m (looking east)	95 m (looking west)
Available Sight Distance	105 m	95 m +

As outlined in **Table *3***, the minimum sight distance requirements are satisfied at the proposed site access to Ghent Avenue.

As typically observed in residential neighbourhoods, egressing vehicles may be required to conduct a two-stage egress maneuver due to presence of on-street parking. From this perspective, egressing vehicles can observe pedestrians and cyclists without expected sight distance issues while stopped at 4.4 m to 5.4 m from the edge of roadway. Once moved closer to the edge of roadway, drivers are expected to have a clear visual of the roadway. Accordingly, no sight distance issues are expected at the proposed sight access regardless of on-street parking.

Figure 1 illustrates the sight distance analysis.





FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION

LEGEND

- VEHICLE
- REQUIRED SIGHT DISTANCE
- AVAILABLE SIGHT DISTANCE

10 0m 10 20 30
SCALE: 1:400

Note: As observed in urban environments, egressing vehicles are expected to conduct a two-stage egress maneuver. From this perspective, egressing vehicles can observe pedestrians and cyclists without expected sight distance issues while stopped ahead of the sidewalk. Once moved closer to the edge of roadway, drivers are expected to have a clear visual of the roadway.

No.	ISSUE	DATE: MM/DD/YYYY
1	ISSUED FOR REVIEW	09/04/2024

Project
2170 GHENT AVENUE
CITY OF BURLINGTON

Drawing
SIGHT DISTANCE ANALYSIS

CROZIER CONSULTING ENGINEERS
2800 High Point Drive
Suite 100
Milton, ON, L9T 6P4
905 875 0026 T
905 875 4915 F
www.cfcrozier.ca
info@cfcrozier.ca

Drawn By	Design By	Project	
I.A.			0912-7186
Check By	Check By	Scale	Drawing
A.B.	M.C.	1:400	T100





FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION

LEGEND	
	VEHICLE
	REQUIRED SIGHT DISTANCE
	AVAILABLE SIGHT DISTANCE

10 0m 10 20 30
SCALE: 1:400

Note: As observed in urban environments, egressing vehicles are expected to conduct a two-stage egress maneuver. From this perspective, egressing vehicles can observe pedestrians and cyclists without expected sight distance issues while stopped ahead of the sidewalk. Once moved closer to the edge of roadway, drivers are expected to have a clear visual of the roadway.

No.	ISSUE	DATE: MM/DD/YYYY
1	ISSUED FOR REVIEW	09/04/2024

Project
2170 GHENT AVENUE
CITY OF BURLINGTON

Drawing
SIGHT DISTANCE ANALYSIS

CROZIER CONSULTING ENGINEERS
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Drawn By	Design By	Project
I.A.		0912-7186
Check By	Check By	Scale / Drawing
A.B.	M.C.	1:400 / T101

6.0 Transportation Demand Management (TDM)

There are several opportunities for the development to promote TDM measures in support of reduced automobile use. These site specific TDM measures are only recommended at this time and will be confirmed during the detailed submission. The site specific TDM measures herein are expected to reduce single-occupancy vehicle trips and increase sustainable mode share.

TDM Information Package for Prospective Buyers

Prior to occupancy, a TDM information package should be provided to prospective buyers. Promotional material should increase awareness of available alternate travel modes and reduce the barriers to adopting more sustainable travel behavior. Such marketing allows prospective buyers 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
- Car rental and carshare locations
- Bike share and bike repair station locations
- Local business info

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

Information on the future transit projects could also be provided to prospective buyers to raise awareness of pending mass transit opportunities, which can encourage measures such as reduced vehicle ownership and single-occupancy vehicle use.

Pre-Loaded Presto Cards

Given that Burlington GO station is a 14-minute walk, or 5-minute bicycle ride away, one-time pre-loaded Presto cards could be provided to new buyers at occupancy to encourage transit use as a primary mode of transportation.

Secure Bicycle Parking

Residents will be able to park bicycles safely and securely by storing bikes within their home or within their individual garage. This will support cycling as a reliable mode of transportation for residents.

7.0 Conclusions

Argo Development Corp/Northern Cardinal Homes proposes the construction of 21 townhouse units in three buildings. As the development proposal is small, from a vehicle trip generation perspective, a full traffic operational analysis has not been conducted.

A review of the trip generation indicates that the proposed residential townhouses are anticipated to generate a total of 8 and 11 two-way trips during the weekday a.m. and p.m. peak hours respectively. Accordingly, no material impacts to the transportation network are expected and a full scope Transportation Impact Study has not been conducted.

The development meets the City of Burlington Zoning By-Law minimum requirements for vehicle parking, accessible parking, and bicycle parking, as well as loading.

Sight Distance Assessment for the proposed site access at Ghent Avenue indicates that there is sufficient sight distance for vehicles exiting the subject property.

There are several opportunities for the development to promote TDM measures in support of reduced single occupancy vehicle use including:

- TDM Information Package for Prospective Tenants
- Pre-Loaded Presto Cards
- Secure Bicycle Parking

We trust that this Transportation Brief addresses the City's transportation concerns. Should you have any questions or require any further information, please feel free to contact the undersigned.

Respectfully submitted by,

C.F. CROZIER & ASSOCIATES INC.

Andrew Bader, B.Eng.
Engineering Intern, Transportation

C.F. CROZIER & ASSOCIATES INC.

Martin Chan, P.Eng.
Project Manager, Transportation



Enclosed
Attachment 1: Correspondence
Attachment 2: Site Plan

AB
J:\900\912-Argo Development Corp\7186 - 2170 Ghent Avenue\Reports\Transportation\2024.11.05 2170 Ghent Avenue Transportation Brief Final.docx

Attachment 1

Correspondence

Andrew Bader

From: Ozimkovic, Dan <Dan.Ozimkovic@burlington.ca>
Sent: Friday, August 23, 2024 11:44 AM
To: Andrew Bader
Cc: Martin Chan; Aaron Wignall
Subject: RE: 2170 Ghent Avenue Transportation Brief ToR

Hi Andrew,
I am OK with the scope of work that you provided for the Traffic Brief.
Recognizing that this is a mature neighbourhood, it's always a good idea to have a traffic report.

Thanks,
Dan Ozimkovic, C.E.T., A.Sc.T.
Transportation Planning Technologist
Transportation Services Department
City of Burlington
Our working hours may be different. You are not obligated to reply outside of your typical working hours.

From: Andrew Bader <abader@cfcrozier.ca>
Sent: Thursday, August 22, 2024 1:44 PM
To: Ozimkovic, Dan <Dan.Ozimkovic@burlington.ca>
Cc: Martin Chan <mchan@cfcrozier.ca>; Aaron Wignall <awignall@cfcrozier.ca>
Subject: 2170 Ghent Avenue Transportation Brief ToR

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good afternoon Dan,

Hope you are doing well and are enjoying the summer. Crozier has been retained to prepare a Transportation Brief for the townhouse development at 2170 Ghent Avenue, in the City of Burlington.

The elements envisioned for this development includes:

- 20 townhouse units
- Individual garage and driveway, as well as 5 visitor parking spaces and 1 accessible parking space
- A full moves site access at Ghent Avenue.

After reviewing the pre-consultation meeting package, we noticed that a Transportation Impact Study is required on page 4, however, on page 28, it was acknowledged that a Transportation Impact Study is not required given the size of the development.

On this basis, we propose the following Terms of Reference, should a Transportation Brief be required.

Transportation Brief

- Forecast the trip generation of the proposed development using the Institute of Transportation Engineers Trip Generation Manual (11th edition).

- Based on the trip generation, confirm the development is not expected to materially affect traffic operations.
- The sight distance for the proposed site access will be analyzed for conformance with the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR).
- Confirm the proposed parking meets the requirements outlined in City of Burlington Zoning By-Law.
- Transportation Demand Management (TDM) opportunities will be assessed, and site-specific measures will be recommended to reduce single-occupancy vehicle (SOV) trips and promote sustainable transportation.

Please do not hesitate to contact us if any other transportation materials are required, or if you have any questions or concerns.

Thanks,
Andrew

Andrew Bader
Engineering Intern, Transportation
Office: 289.204.8341
Collingwood | Milton | Toronto | Bradford | Guelph

We've elevated our leadership team – click to learn more.

CROZIER

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Attachment 2

Site Plan

TOWNHOMES

TYPE	FOOTPRINT	FLOOR AREA	# OF UNITS
A	877.99 SQF	2,633.97 SQF	4 UNITS
B	571.28 SQF	1,713.84 SQF	6 UNITS
C	685.54 SQF	2,056.62 SQF	5 UNITS
D	597.16 SQF	1,791.48 SQF	2 UNITS
E	597.16 SQF	1,791.48 SQF	4 UNITS
			21 UNITS

SETBACKS

YARD	REQUIRED	PROPOSED
STREET	7.50m	4.00m
SIDE (EAST)	9.00m	6.00m
SIDE (WEST)	4.50m	3.00m
REAR	9.00m	6.00m

PRIVACY AREA REQUIRED
20 SQM PER UNIT
TOTAL REQ. PRIVACY AREA = 20 UNITS x 20 SQM = 400 SQM

PRIVACY AREA PROPOSED	BLOCK A UNIT A	BLOCK A UNIT C	BLOCK B UNIT A	BLOCK B UNIT B	BLOCK C UNIT D	BLOCK C UNIT E
AT FRONT COVERED PORCH	3.66	3.83	3.66	3.83	4.35	4.35
AT FRONT YARD	7.32	7.66	7.32	7.66	8.70	8.70
AT REAR RAISED DECK	11.70	9.09	9.36	5.99	6.75	6.75
AT REAR YARD	39.34	30.72	17.22	11.20	17.70	17.70
TOTAL (SQM)	62.02	51.30	37.56	28.68	37.50	37.50

AMENITY AREA REQUIRED
25 SQM PER 3 BEDROOM UNIT
TOTAL REQ. AMENITY AREA = 20 UNITS x 3 BDRMS x 25 SQM = 1,500 SQM

AMENITY AREA PROPOSED

AREA A	82.78 SQM
AREA B	75.68 SQM
AREA C	176.07 SQM
AREA D	140.70 SQM
AREA E	125.60 SQM
AREA F	61.97 SQM
TOTAL AMENITY AREAS	662.80 SQM
TOTAL PRIVACY AREA	852.74 SQM (SEE TABLE BELOW FOR UNIT CALCS)
GRAND TOTAL	1,515.54 SQM



1 SITE PLAN
3/32" = 1'-0"

LIMBERLOST BUILDING DESIGN

EMAIL: office@limberlostdesign.com

TORONTO OFFICE: (647) 607-9693
887 DUNDAS STREET WEST
TORONTO, ON M6J 1Y9

MUSKOKA OFFICE: (705) 704-9615
1038 FIELDALE ROAD
HUNTSVILLE, ON P1H 2J6

NO.	DATE	REVISION
0	08/08/2024	PRELIMINARY DESIGN

PROJECT NORTH: TRUE NORTH:

PROJECT:
2170 GHENT AVENUE
BURLINGTON, ON L7R 1Y6

DRAWING TITLE:
SITE PLAN

DATE: 08/08/2024
SCALE: 3/32" = 1'-0"
DRAWN BY: AG
PROJECT NO: 2413
DRAWING NO: SP1