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2022-10-17
Project: 220513

Columbia Hemlock Holdings Inc
c/o Susan Connor
PRISM Partners Inc.
5515 North Service Road, Suite 305
Burlington ON L7L 6G4

Dear Ms. Connor:

**RE: 85-89 COLUMBIA STREET AND 300 HEMLOCK STREET, WATERLOO
TRANSPORTATION IMPACT BRIEF**

This Transportation Impact Brief (TIB) was prepared to investigate the impact of a proposed residential development located at 85 – 89 Columbia Street West and 300 Hemlock Street in Waterloo. **Figure 1** shows the location of the development. This TIB focusses on the impact on Columbia Street West.

Existing Conditions

Columbia Street West is a City Arterial as classified by the City of Waterloo Transportation Master Plan¹. According to the Transportation Association of Canada's Geometric Design Guide², arterial roads are typically designed to carry upwards of 30,000 vehicles per day.

A Turning Movement Count at the intersection of Columbia Street West and Albert Street were available from before the Covid-19 pandemic (counted January 2019). The turning movements counts are shown in **Figure 2**. The counts showed that Columbia Street has 1870 vehicles in the AM peak hour and 2190 vehicles in the PM peak hour, in both directions, on the east leg of the intersection, which would be at the location of the subject development. In general, daily volumes can be estimated by multiplying the PM peak hour volumes by a factor of 10, which would be 21,900 vehicles per day.

¹ City of Waterloo, *Transportation Master Plan 2020 Update, Volume 1 – Foundations*, (2020), Map 5.3.

² Transportation Association of Canada, *Geometric Design Guide for Canadian Road*, (Ottawa, TAC, 2017), Table 2.6.5.

Description of Development

The development is proposed to be a eight-storey tower with 136 units containing 137 bedrooms with 3,332 sq. ft. of ground floor commercial space. A single access is proposed to be onto Columbia Street West. **Figure 3** shows the site plan of the subject development.

Trip Generation

Trip Generation forecasts were made using the Institute of Transportation Engineers Trip Generation Manual (11th Edition)³. The following Land Use Codes (LUC) were used:

- ▶ LUC 221 Multifamily Housing (Mid-Rise): apartments and condominiums located in a building that has between four and 10 floors of living space.
- ▶ LUC 822 Strip Retail Plaza (<40k): an integrated group of commercial establishments this planned, developed, owned, and managed as a unit. Less than 40,000 square feet of gross leasable area.

Table 1 summarizes the trip generation forecasts. This development is forecast to generate 62 new trips in the AM peak hour and 63 new trips in the PM peak hour.

TABLE 1: TRIP GENERATION FORECASTS

Land Use Code	Units	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out
LUC 221 Multifamily Housing (Mid-Rise)	136 units	48	11	37	53	32	21
Internal Capture		0	0	0	7	5	2
LUC 822 Strip Retail Plaza (<40k)	3.33 x 1000 ft ²	14	8	6	36	18	18
Passby (AM - 0%, PM - 34%)		0	0	0	12	6	6
Internal Capture		0	0	0	7	2	5
Total New Trips		62	19	43	63	37	26

Equations used: LUC 221 AM: $T = 0.44(X) - 11.61$ PM: $T = 0.39(X) + 0.34$

Equations used: LUC 822 AM: $\ln(T) = 0.66 \ln(X) + 1.84$ PM: $\ln(T) = 0.71 \ln(X) + 2.72$

Using the estimation method of using a factor of 10 on the PM peak hour volumes to estimate daily volumes, this development may add 630 vehicles to Columbia Street West per day.

Impact of Development on Columbia Street

Adding the estimated daily traffic to the existing traffic on Columbia Street West, the daily traffic after the completion of the subject development is forecast to be 22,530 vehicles per day, which is below the typical threshold of an arterial road.

³ Institute of Transportation Engineers, Trip Generation Manual, 11th ed., (Washington, DC: ITE, 2021), Volume 3 273-304 and Volume 5 228-241




Conclusion

The traffic forecast to be generated by the subject development is expected to be able to be accommodated by Columbia Street.

Yours very truly,

PARADIGM TRANSPORTATION SOLUTIONS LIMITED



Matt Brouwer

P.Eng.

Senior Project Manager

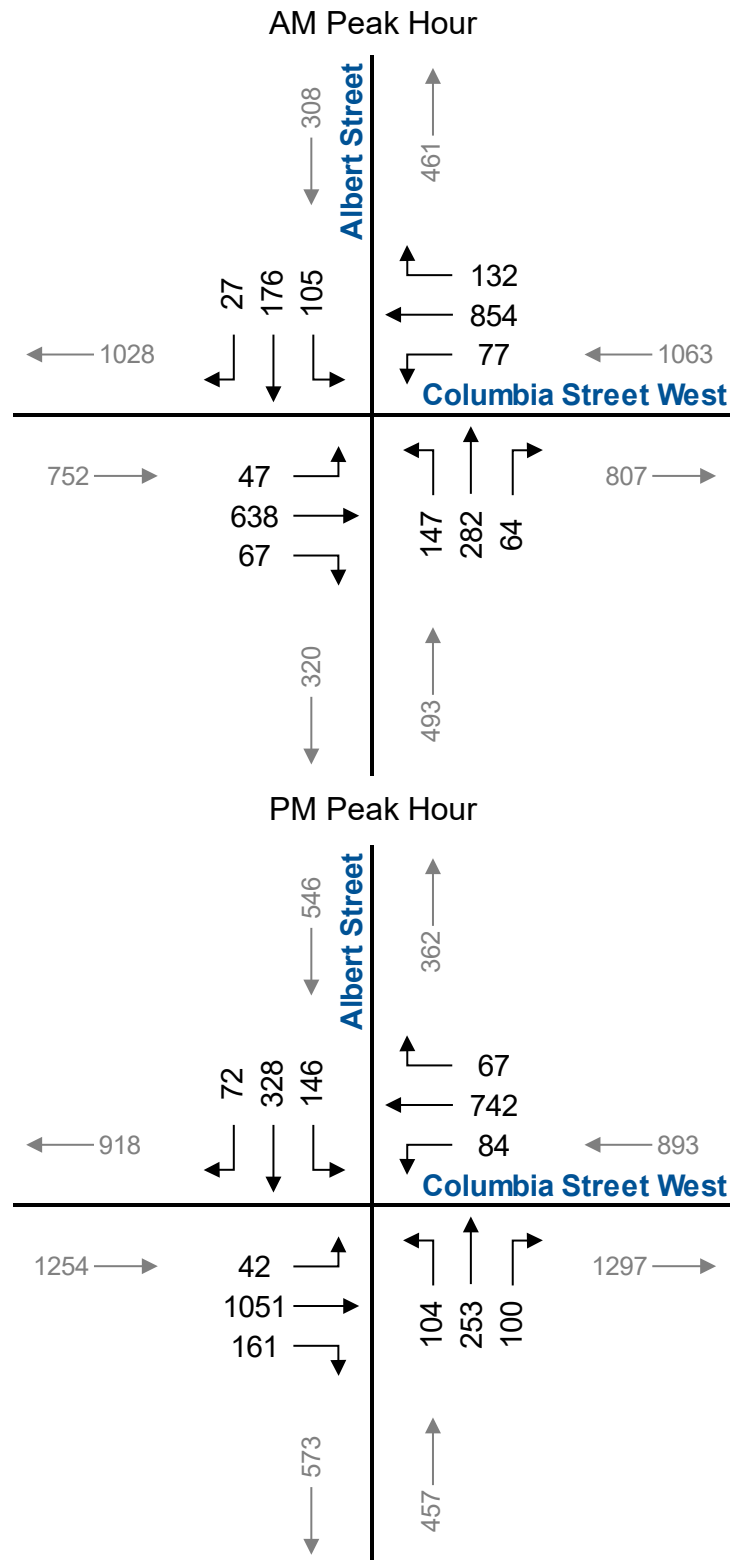




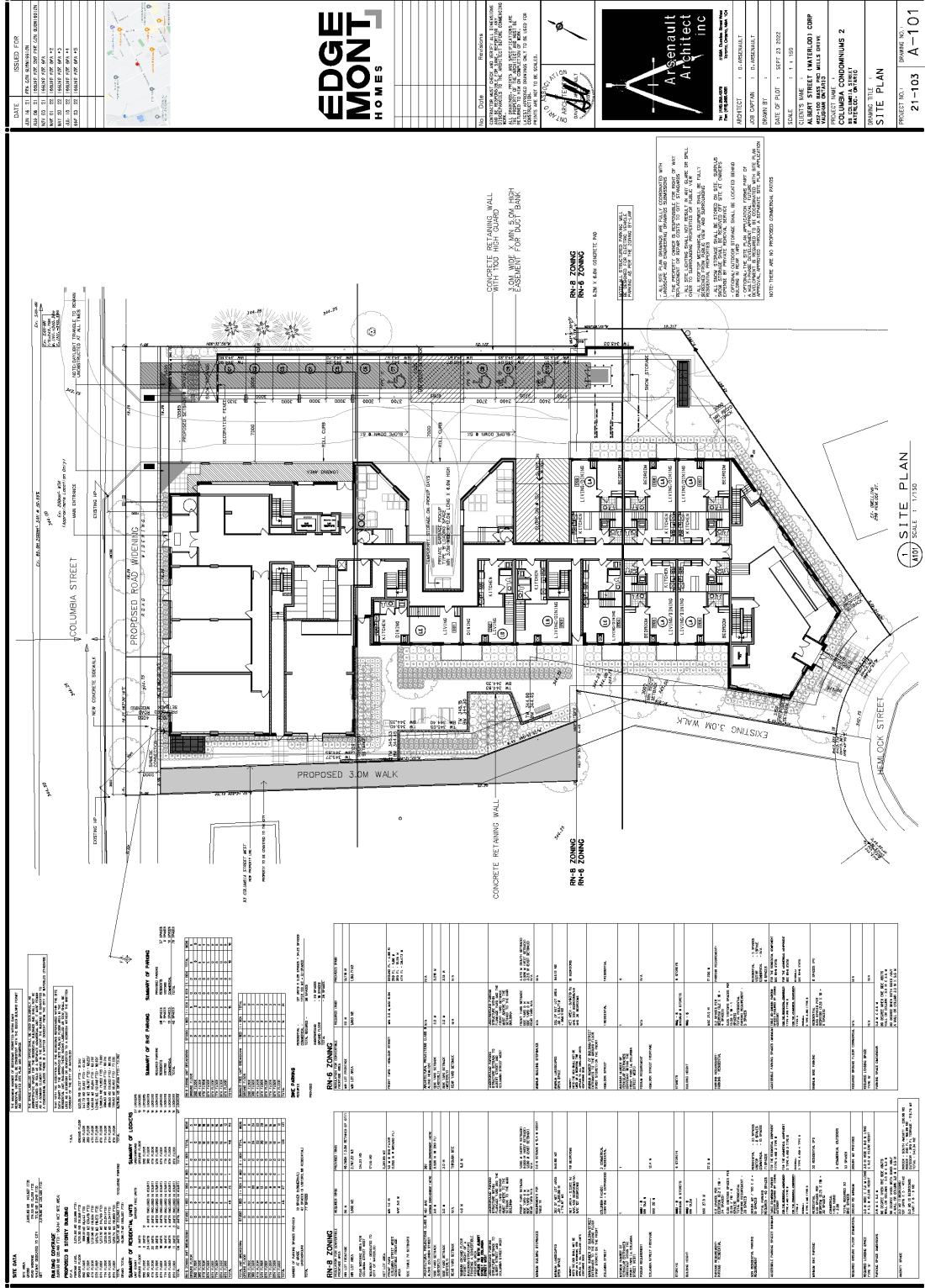
Map source: Region of Waterloo GIS Locator



Location of Subject Development



Existing Traffic Volumes

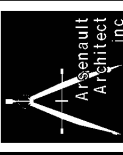


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PROJECT NO. 21-103
DRAWING NO. A-101
SITE PLAN
DATE OF PLAN 23.09.2022
SCALE 1:1750
CLIENT'S NAME WATERLOO CORP
ADDRESS 300 HEMLOCK STREET, WATERLOO, ONTARIO N2Y 5G9
PROJECT NAME COLUMBIA CONDOMINIUMS 2
ARCHITECT ARSENAULT ARCHITECT INC.
DATE OF PLAN 23.09.2022
SCALE 1:1750
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ADDRESS 300 HEMLOCK STREET, WATERLOO, ONTARIO N2Y 5G9
PROJECT NAME COLUMBIA CONDOMINIUMS 2
ARCHITECT ARSENAULT ARCHITECT INC.

REMARKS:
 1. ALL WORK SHALL BE IN ACCORDANCE WITH THE CITY OF WATERLOO ZONING BY-LAW AND THE CITY OF WATERLOO DEVELOPMENT ACT.
 2. THE PROPOSED DEVELOPMENT SHALL BE IN ACCORDANCE WITH THE CITY OF WATERLOO ZONING BY-LAW AND THE CITY OF WATERLOO DEVELOPMENT ACT.
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Site Plan
 Figure 3