

# **MEMO**

Page 1 of 6

Date: December 8, 2023

To: Raad Akrawi, 12714001 Canada Inc.

From: Bomo Dambo, EIT, JLR

Rani Nahas, P.Eng., JLR

CC: Carmine Zayoun, 12714001 Canada Inc.

Karla Ferrey, P.Eng., JLR

Subject: 3070 Navan Development Blocks 14, 15, 16, and 17 – Trip Generation Technical Memorandum

JLR No.: 29899-005

#### Introduction

From the information provided, it is our understanding that the proponent is moving forward with the site plan applications for Blocks 14, 15, 16, and 17 of the 3079 Navan development. Blocks 14, 15, and 17 are each comprised of two 4-storey condo buildings with approximately 83 to 96 total units per block. Access to the main apartment building and its underground parking will be provided via the internal subdivision. Block 16 is a commercial block consisting of a gas station and drive-through restaurant. The proposed Site Plan is provided in **Attachment A**. The Transportation Impact Assessment (TIA) for the entirety of the 3079 Navan development (i.e., the condo buildings, gas station, and subdivision) was previously submitted in September 2022.

As part of the Site Plan Phase 1 comments, City staff indicated that a technical memorandum outlining the projected site trip generation for each Block will be required to satisfy the transportation analysis component of this application.

As such, the following technical memorandum has been prepared to determine the projected site-generated traffic from Blocks 14, 15, 16 and 17, and provide recommendations, as required.

#### **Trip Generation Analysis**

The latest Site Plan indicates the following for each block:

- Block 14 will consist of two 4-storey condominium buildings (Building A and Building B)
  - Building A 48 units
  - Building B 36 units with a 10,000 square feet commercial and office space
- Block 15 will consist of two 4-storey condominium building (Building C and Building D)
  - o Building C 36 units with a10,000 square feet commercial and office space
  - Building D 47 units
- Block 16 is a commercial block and will consist of:
  - o A gasoline service station
  - A fast-food restaurant with drive-through
- Block 17 will consist of two 4-storey condominium buildings (Building E and Building F)
  - Building E 48 units
  - o Building F 48 units

Consistent with the City's Transportation Impact Assessment (TIA) Guidelines, projected site-generated traffic was estimated using appropriate trip generation rates from the 11<sup>th</sup> Edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual for commercial trips and the latest TRANS Trip Generation Manual Summary Report, dated October

Page 2 of 6

21, 2020 for residential trips. Based on the location and type of development envisioned, the following **Table 1** summarizes the appropriate trip generation rates for estimating projected site-generated traffic.

Note that in the initial TIA, the trip generation rates used were from the 10th Edition of the ITE Trip Generation Manual. Since then, the 11th Edition has been released and was used for this exercise. As such, there are slight discrepancies between the trip generation rates between the TIA submitted in September 2022 and the following memo.

Table 1: ITE and TRANS Peak Hour Trip Generation Rates

Land Use	ITE Land Use Code	AM Peak Hour	PM Peak Hour
Multifamily Housing (Mid-Rise)	ITE 221 TRANS Study Table 3 & 4 Person Trips	T <sub>P</sub> = 0.80(U) x 0.50	T <sub>P</sub> = 0.90(U) x 0.44
Gasoline/Service Station with Convenience Market	ITE 945 General Urban/Suburban Vehicle Trips	$T_A = 91.35(X);$ $T_F = n/a$	$T_A = 78.95(X);$ $T_F = n/a$
Fast Food Restaurant with Drive-Through Window	ITE 934 General Urban/Suburban Vehicle Trips	$T_A = 44.61(X);$ $T_F = n/a$	T <sub>A</sub> = 33.03(X); T <sub>F</sub> = n/a

 $T_A$  = Average Vehicle Trips Notes:

 $T_F$  = Vehicle Trips by Fitted Curve

 $X = 1,000 \text{ ft}^2 \text{ of Gross Floor Area (GFA)}$ 

 $T_P$  = Average Person Trips

U = Per Unit

Based on the foregoing, the projected weekday morning and afternoon peak hour person trip generation for the proposed development is summarized in Table 2.

Table 2: Modified Peak Hour Person Trips

Block	Land Use	Supply		M Peak Horson Trips			/I Peak Horson Trips	
			ln	Out	Total	ln	Out	Total
14	Multifamily Housing (Mid-Rise)	84 units	10	24	34	19	14	33
15	Multifamily Housing (Mid-Rise)	83 units	10	23	33	19	14	33
17	Multifamily Housing (Mid-Rise)	96 units	11	27	38	22	16	38
16	Gasoline/Service Station with Convenience Market	2,982 ft <sup>2</sup>	174	175	349	150	151	301
10	Fast Food Restaurant with Drive-Through Window	3,897 ft <sup>2</sup>	113	110	223	85	80	165
	Tota	al Person Trips	318	359	677	295	275	570
10% Multi-Purpose Trip Reduction		-32	-36	-68	-29	-27	-56	
Total 'New' Person Trips		Person Trips	286	323	609	266	248	514

Page 3 of 6

As summarized in **Table 2**, Block 14 is projected to generate an approximate two-way total of 34 and 33 person trips/h during the weekday morning and afternoon peak hours, respectively. Block 15 is projected to generate an approximate two-way total of 33 person trips/h during both weekday peak hours. Block 17 is projected to generate an approximate two-way total of 38 person trips/h during both weekday peak hours. Block 16 is projected to generate an approximate two-way total of 572 and 466 person trips/h during the weekday morning and afternoon peak hours, respectively.

In total, Blocks 14 to 17 are projected to generate an approximate two-way total of 609 and 514 person trips/h during the weekday morning and afternoon peak hours, respectively including a 10% multi-purpose trip reduction.

Directional splits (i.e., inbound vs. outbound trips) were obtained from the TRANS Trip Generation Manual Summary Report. Additionally, given the proposed development is considered mixed-use, a 'multi-purpose' trip reduction of 10% was assumed to account for the internal trips between residential and commercial land uses.

#### **Travel Mode Shares**

To determine the number of person trips arriving/departing by travel mode, total projected person trips were subdivided by percent mode shares. To remain consistent with previously completed and approved work, the mode shares for each land use identified in the TIA has been carried forward within this memo. The following **Table 3**, **Table 4**, **Table 5**, **Table 6**, **Table 7**, and **Table 8** summarize the appropriate mode share values that were used for analysis purposes, based on the proposed land uses.

Given the nature of the proposed land uses, it should be noted that a percentage of the projected site-generated trips can be attributed to 'pass-by' traffic (i.e., a quick diversion to/from the subject development on someone's otherwise, normal daily commute). This additional 'pass-by' traffic does not impact overall network capacity, as this traffic already exists and is using the adjacent transportation network; however, 'pass-by' trips do impact the performance of turning movements at intersections within close proximity to the proposed development, typically where development site access/egress is provided. As such, and for analysis purposes, it was assumed approximately 80% and 50% of projected site-generated traffic will be comprised of 'pass-by' trips for the proposed gas station/convenience store and the fast-food restaurant land uses, respectively.

Table 3: Projected Modal Site Generated Trips – Multifamily Housing (Mid-Rise) – Block 14

Travel Mode	Mode Share	AM Peak Hour (Person Trips/h)			PM Peak Hour (Person Trips/h)		
		ln	Out	Total	ln	Out	Total
Auto Driver	50%	5	11	16	9	7	16
Auto Passenger	10%	1	3	4	2	2	4
Transit	30%	3	6	9	5	3	8
Non-motorized	10%	0	2	2	1	1	2
Total Person Trips	100%	9	22	31	17	13	30
Total 'New' Vehicle Trips		5	11	16	9	7	16

As shown in **Table 3**, Block 14 is projected to generate approximately two-way vehicle volumes of 16 veh/h during both weekday morning and afternoon peak hours. With regard to active modes, Block 14 is projected to generate approximately two-way person trips of 2 persons/h, during both weekday morning and afternoon peak hours. With regard to transit trips during weekday morning and afternoon peak hour, Block 14 is projected to generate approximately two-way person trips of 9 persons/h and 8 persons/h, respectively.

Page 4 of 6

Table 4: Projected Modal Site Generated Trips - Multifamily Housing (Mid-Rise) - Block 15

Travel Mode	Mode Share	AM Peak Hour (Person Trips/h)			PM Peak Hour (Person Trips/h)		
		ln	Out	Total	ln	Out	Total
Auto Driver	50%	5	11	16	9	7	16
Auto Passenger	10%	1	2	3	2	2	4
Transit	30%	3	6	9	5	3	8
Non-motorized	10%	0	2	2	1	1	2
Total Person Trips	100%	9	21	30	17	13	30
Total 'New' Vehicle Trips		5	11	16	9	7	16

As shown in **Table 4**, Block 15 is projected to generate approximately two-way vehicle volumes of 16 veh/h during both weekday morning and afternoon peak hours. With regard to active modes, Block 15 is projected to generate approximately two-way person trips of 2 persons/h, during both weekday morning and afternoon peak hours. With regard to transit trips during weekday morning and afternoon peak hours, Block 15 is projected to generate approximately two-way person trips of 9 persons/h and 8 persons/h, respectively.

Table 5: Projected Modal Site Generated Trips – Multifamily Housing (Mid-Rise) – Block 17

Travel Mode	Mode Share	AM Peak Hour (Person Trips/h)			PM Peak Hour (Person Trips/h)		
		ln	Out	Total	In Out	Out	Total
Auto Driver	50%	5	12	17	10	7	17
Auto Passenger	10%	1	3	4	2	2	4
Transit	30%	3	7	10	6	4	10
Non-motorized	10%	1	2	3	2	1	3
Total Person Trips	100%	10	24	34	20	14	34
Total 'New' Vehicle Trips		5	12	17	10	7	17

As shown in **Table 5**, Block 17 is projected to generate approximately two-way vehicle volumes of 17 veh/h during both weekday morning and afternoon peak hours. With regard to active modes, Block 17 is projected to generate approximately two-way person trips of 3 persons/h, during both weekday morning and afternoon peak hours. With regard to transit trips during both weekday morning and afternoon peak hours, Block 17 is projected to generate approximately two-way person trips of 10 persons/h.

Table 6: Projected Modal Site Generated Trips – Gasoline Service Station – Block 16

Travel Mode	Mode Share		/ Peak Horson Trips			PM Peak Hour (Person Trips/h)	
		ln	Out	Total	ln	In Out	
Auto Driver	70%	110	111	221	95	96	191

Page 5 of 6

Auto Passenger	15%	24	24	48	21	21	42
Transit	5%	8	8	16	6	6	12
Non-motorized	10%	15	15	30	13	13	26
Total Person Trips	100%	157	158	315	135	136	271
	Less Pass-by 80%	-88	-88	-176	-76	-76	-152
Total 'New' Vehicle Trips		22	23	45	19	20	39

As shown in **Table 6**, the gasoline service station in Block 16 is projected to generate approximately two-way vehicle volumes of 45 veh/h during the weekday morning peak hour and 39 veh/h during the afternoon peak hour. With regard to active modes, the gas station is projected to generate approximately two-way person trips of 30 persons/h and 26 persons/h during the weekday morning and afternoon peak hours, respectively. With regard to transit trips during both weekday morning and afternoon peak hours, the gasoline service station in Block 16 is projected to generate approximately two-way transit trips of 16 and 12 person trips/h, respectively.

Table 7: Projected Modal Site Generated Trips - Fast Food Restaurant - Block 16

Travel Mode	Mode Share	AM Peak Hour (Person Trips/h)			PM Peak Hour (Person Trips/h)		
		ln	Out	Total	In	Out	Total
Auto Driver	60%	62	60	122	47	44	91
Auto Passenger	10%	10	10	20	8	7	15
Transit	20%	20	20	40	15	14	29
Non-motorized	10%	10	9	19	7	7	14
Total Person Trips	100%	102	99	201	77	72	149
L	ess Pass-by 50%	-31	-31	-62	-23	-23	-46
Total 'New' Vehicle Trips		31	29	60	24	21	45

As shown in **Table 7**, the fast-food restaurant in Block 16 is projected to generate approximately two-way vehicle volumes of 60 veh/h during the weekday morning peak hour and 45 veh/h during the afternoon peak hour. With regard to active modes, the restaurant is projected to generate approximately two-way person trips of 19 persons/h and 14 persons/h during the weekday morning and afternoon peak hours, respectively. With regard to transit trips, the restaurant is projected to generate approximately two-way person trips of 40 persons/h and 29 persons/h during the weekday morning and afternoon peak hours, respectively.

Table 8: Projected Modal Site Generated Trips - Block 16 Total

Travel Mode		M Peak Ho erson Trips		PM Peak Hour (Person Trips/h)			
	In	Out	Total	ln	Total		
Auto Driver	172	171	343	142	140	282	
Auto Passenger	34	34	68	29	28	57	
Transit	28	28	56	21	20	41	
Non-motorized	25	24	49	20	20	40	



## **MEMO**

Page 6 of 6

Total 'New' Vehicle Trips	53	52	105	43	41	84
Less Pass-by 50%	-119	-119	-238	-99	-99	-198
Total Person Trips	259	257	516	212	208	420

As shown in **Table 8***Table* **7**, Block 16, in total, is projected to generate approximately two-way vehicle volumes of 105 veh/h during the weekday morning peak hour and 84 veh/h during the afternoon peak hour. With regard to active modes, Block 16 is projected to generate approximately two-way person trips of 49 persons/h and 40 persons/h during the weekday morning and afternoon peak hours, respectively. With regard to transit trips, Block 16 is projected to generate approximately two-way person trips of 56 persons/h and 41 persons/h during the weekday morning and afternoon peak hours, respectively.

### **Findings and Conclusions**

Based on the foregoing, the following conclusions are made:

- Block 14 is projected to generate approximate two-way vehicle volumes of 16 veh/h during both weekday morning and afternoon peak hours.
- Block 15 is projected to generate approximate two-way vehicle volumes of 16 veh/h during both weekday morning and afternoon peak hours.
- Block 16 is projected to generate approximate two-way vehicle volumes of 105 veh/h during the weekday morning peak hour and 84 veh/h during the afternoon peak hour.
- Block 17 is projected to generate approximate two-way vehicle volumes of 17 veh/h during both weekday morning and afternoon peak hours.

Sincerely,

J.L. RICHARDS & ASSOCIATES LIMITED

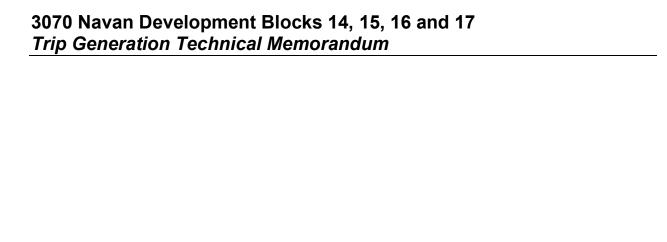
Prepared by:

Bomo Dambo, EIT Transportation Engineer-In-Training Reviewed by:

Rani Nahas, P.Eng. Transportation Engineer

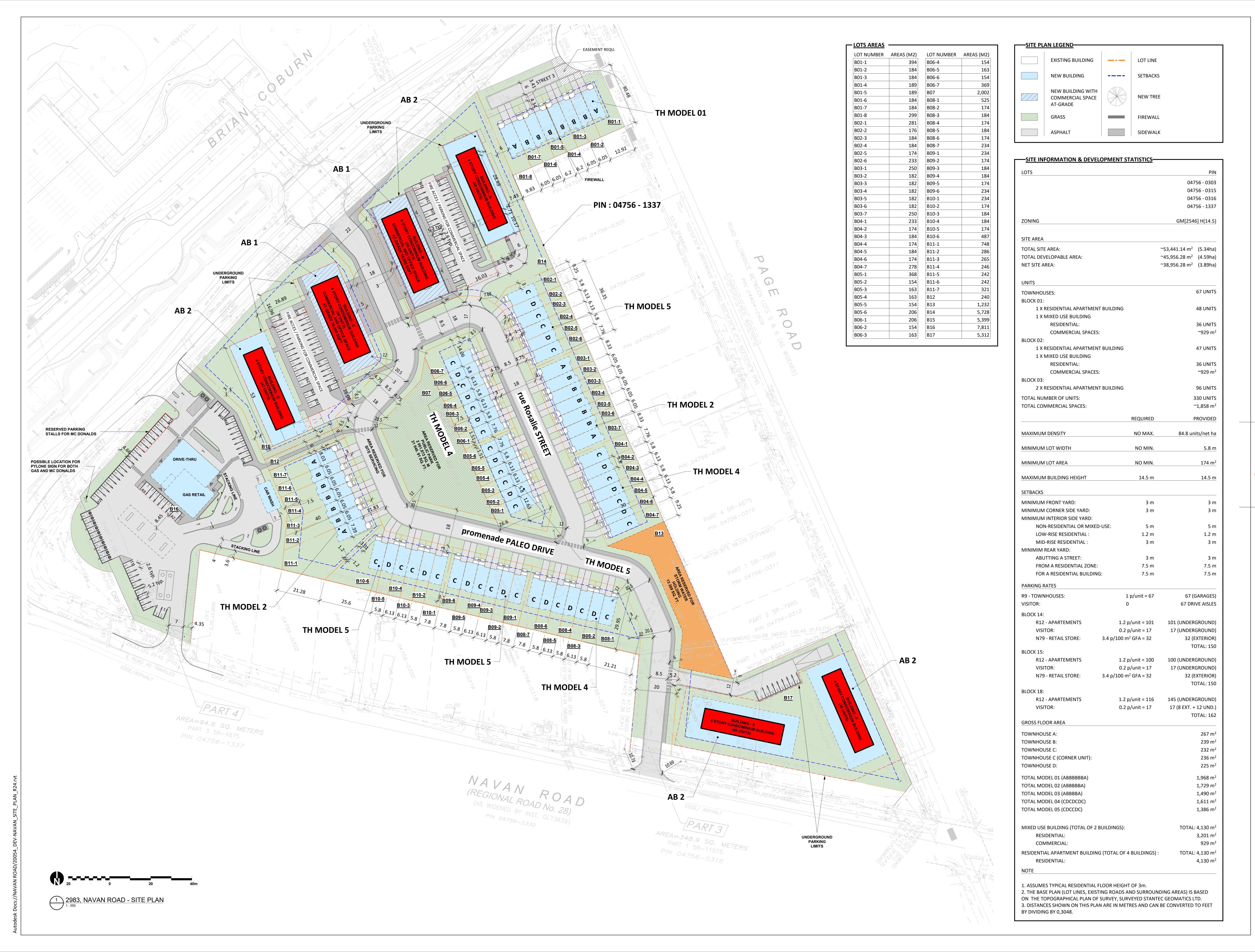
R. R. NAHAS 100509225 2023-12-08

Attachments



# **Attachment A**

Site Plan



NAVAN ROAD DEVELOPMENT

> 2983, Navan Road, Orleans, ON K1C 7G4

768, BOUL. SAINT-JOSEPH, SUITE 100
GATINEAU, QC J8Y 4B8

PMA ARCHITECTES

(418) 651-8954

INFO@PMAARCHITECTES.COM

—

3070, CHEMIN DES QUATRE-BOURGEOIS
QUÉBEC (QC) G1W 2K4

PMAARCHITECTES.COM

LAPALME RHEAULT
ARCHITECTES I + ASSOCIÉS

53, BOUL. SAINT-RAYMOND,

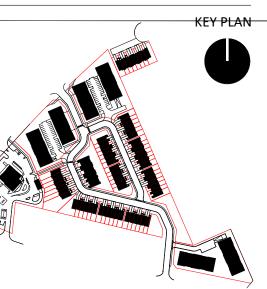
ENGINEERS / PLANNER

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

1565 CARLING AVENUE, SUITE 700, OTTAWA, ON K1Z 8R1

Stantec

1331 CLYDE AVENUE, SUITE 400,
OTTAWA, ON K2C 3G4



ARCHITECT SEAL

FOR CITY REVIEW 2022-11-28
FOR COORDINATION 2022-11-01
FOR COORDINATION 2022-11-01
FOR COORDINATION 2022-01-01

NOTE
IT IS THE RESPONSIBILITY OF THE APPROPRIATE
CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS
ON THE SITE AND TO REPORT ALL ERRORS AND/OR
OMISSIONS TO THE ARCHITECT. ALL CONTRACTORS
MUST COMPLY WITH ALL PERTINENT CODES AND BYLAWS. DO NOT SCALE DRAWINGS.

THIS DOCUMENT AND ITS CONTENT IS COPYRIGHTED.
ANY REPRODUCTION IS PROHIBITED UNLESS GRANTED
BY THE ARCHITECT.

FOR COORDINATION
DESCRIPTION

DO NOT USE FOR CONSTRUCTION

DATE DESIGNED
2023-11-29 PP

PROJECT NO CHECKED 20054 PM

SHEET TITLE

SITE PLAN

A100