COLAND DEVELOPMENT CORPORATION

PROPOSED MIXED-USE DEVELOPMENT AT 710 BALM BEACH ROAD, TOWN OF MIDLAND – TRAFFIC IMPACT STUDY ADDENDUM

October 4, 2023

1.0 BACKGROUND AND INTRODUCTION

WSP Canada Inc. (WSP) submitted a Transportation Impact Study (TIS) report, dated May 22, 2019, in support of the 710 Balm Beach Road development.

By way of background, the site is currently vacant. As part of the May 2019 TIS, the site plan proposed 5 buildings consisting of an office building, a medical office building, two retail buildings and a daycare. The site was previously approved for these five commercial buildings in 2019. Since then, residential uses have been proposed in two of the buildings with corresponding reduction in other non-residential uses. The purpose of this TIS Addendum is to:

- Forecast how much traffic the updated development proposal would generate;
- Evaluate the updated future total traffic conditions with the updated land use;
- Comment on how the proposed auto parking supply compares to the Town's By-law requirements with consideration of shared-use parking; and
- Complete a site plan review of the areas of the site plan that have been modified since the original TIS.

2.0 TRAFFIC ASSESSMENT

The site plan has since been modified and the purpose of this TIS Addendum is to consider the changes that have occurred from a transportation perspective. The updated site plan is shown in **Figure 1**. **Table 1** summarizes the comparison of land uses proposed in the May 2019 TIS and this TIS Addendum.

Table 1: Land Use Comparison

Submission / Site	May 22, 2019 TIS	Current TIS Addendum	Difference
710 Balm Beach Road	30,000 ft^2 Office 20,000 ft^2 Medical Office 31,420 ft^2 Retail 4,995 ft^2 Daycare --	39,996 ft^2 Office 9,566 ft^2 Medical Office 29,337 ft^2 Retail 5,208 ft^2 Daycare 68 Residential Units	+9,996 ft^2 Office -10,434 ft^2 Medical Office -2,083 ft^2 Retail +213 ft^2 Daycare +68 Residential Units

As shown in Table 1, the updated site plan removes 10,434 ft^2 medical office and 2,083 ft^2 retail, while adding 9,996 ft^2 office, 213 ft^2 daycare and 68 residential units when compared to the May 2019 TIS.

2.1 Trip Generation

To be consistent with the May 2019 report, the same trip generation methodologies were used in this addendum, which includes using the methodology outlined in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th edition. As with May 2019 report, this is with the exception of the Specialty Retail Store land use, where the ITE Trip Generation Manual, 9th Edition was used. For the new residential component in the updated site plan, the ITE Trip Generation Manual, 11th edition was used. Consistent with the May 2019 TIS, a multi-use factor was applied to account for the proximity of the different land uses within the site. **Table 2** summarizes the overall trip generation. The residential site-generated volumes is presented in **Figure 2**. The non-residential component of the site-generated volumes is provided in **Figure 3**. The total site generated volumes are presented in **Figure 4**.

Table 2: Site Generated Trips

Land Use	Basis/Parameter	Weekday A.M. Peak Hour			Weekday P.M. Peak Hour		
		In	Out	Total	In	Out	Total
General Office Building (LUC 710)	Directional Splits	86%	14%	100%	16%	84%	100%
	Trip Equation	T = 0.94 X + 26.49			Ln(T) = 0.95 Ln(X) + 0.36		
	Site Generated Trips	55	9	64	8	40	48
	Multi-Use Factor %	1%	0%	1%	10%	7%	17%
	Multi-Use Factor Trip Reduction	--	--	--	(1)	(3)	(4)
	Office Site Trips	**55**	**9**	**64**	**7**	**37**	**44**
General Medical / Dental Office Building (LUC 720)	Directional Splits	78%	22%	100%	28%	72%	100%
	Trip Equation	Ln(T) = 0.89 Ln(T) + 1.31			T = 3.39 X +2.02		
	Site Generated Trips	22	6	28	10	25	35
	Multi-Use Factor %	--	--	--	--	--	--
	Multi-Use Factor Trip Reduction	--	--	--	--	--	--
	Medical Site Trips	**22**	**6**	**28**	**10**	**25**	**35**
Specialty Retail Store (LUC 826)	Directional Splits	--	--	--	44%	56%	100%
	Trip Equation	--			T = 11.12 X		
	Site Generated Trips	--	--	--	40	51	91
	Multi-Use Factor %	--	--	--	18%	28%	46%
	Multi-Use Factor Trip Reduction	--	--	--	(7)	(14)	(21)
	Retail Site Trips	**--**	**--**	**--**	**33**	**37**	**70**
Day Care Centre (LUC 565)	Directional Splits	53%	47%	100%	47%	53%	100%
	Trip Equation	T = 11.00 X			T = 11.12 X		
	Site Generated Trips	30	27	57	27	31	58
	Multi-Use Factor %	--	--	--	--	--	--
	Multi-Use Factor Trip Reduction	--	--	--	--	--	--
	Day Care Centre Site Trips	**30**	**27**	**57**	**27**	**31**	**58**
Multifamily Housing (Low-Rise) (LUC 220)	Directional Splits	24%	76%	100%	63%	37%	100%
	Trip Equation	T = 0.31 X + 22.85			T = 0.43 X + 20.55		
	Site Generated Trips	11	33	44	31	18	49
	Multi-Use Factor %	0%	2%	2%	46%	26%	72%
	Multi-Use Factor Trip Reduction	--	(1)	(1)	(15)	(5)	(20)
	Residential Site Trips	**11**	**32**	**43**	**16**	**13**	**29**
Total Site Trips		**118**	**74**	**192**	**93**	**143**	**236**

The development is forecast to generate 192 trips in the a.m. peak hour and 236 trips in the p.m. peak hour. Compared to the May 2019 report, there is an additional 28 in the a.m. peak hour and 14 fewer trips in the p.m. peak hour, which is relatively minimal change. The trip generation from the May 2019 TIS is provided in **Appendix A**.

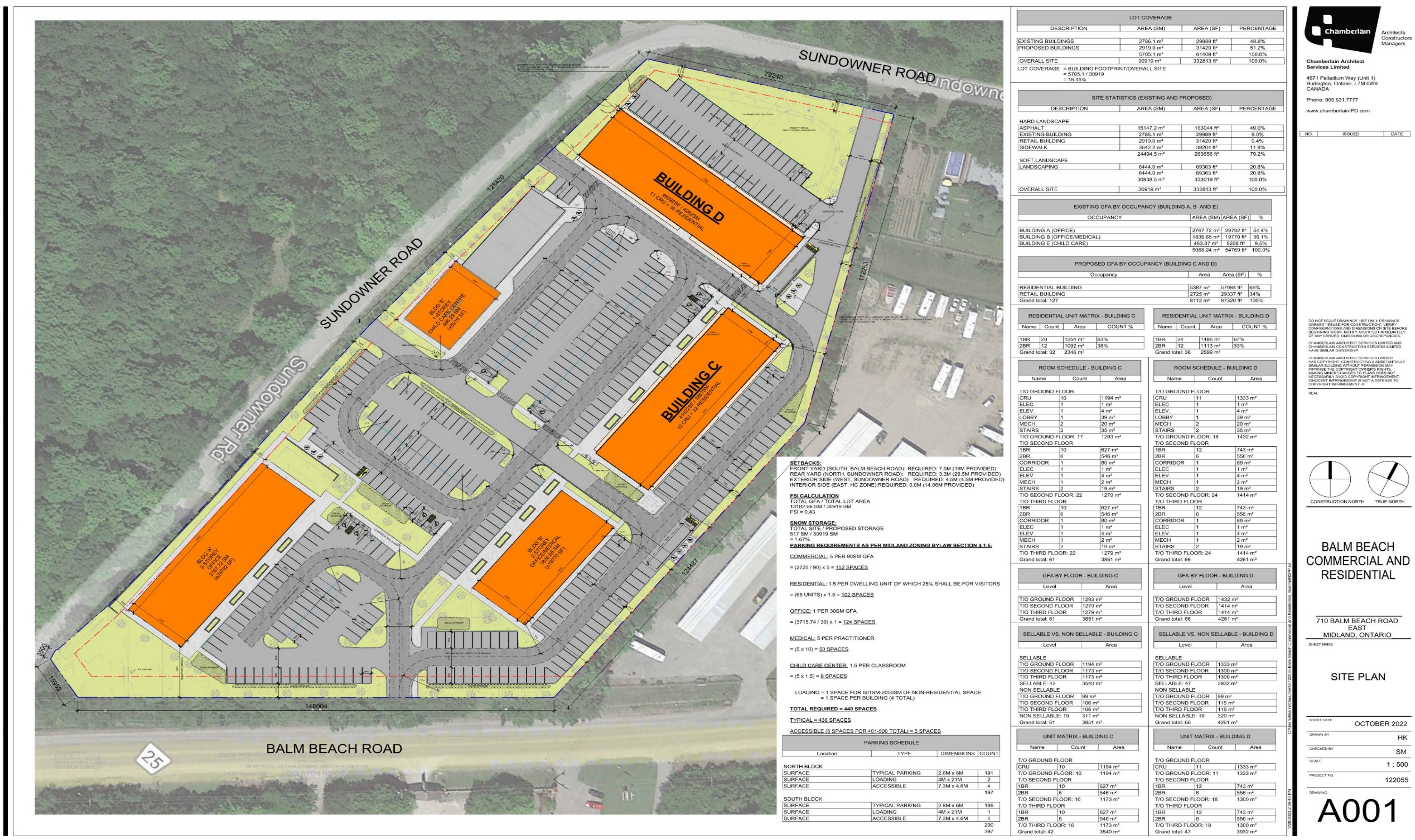

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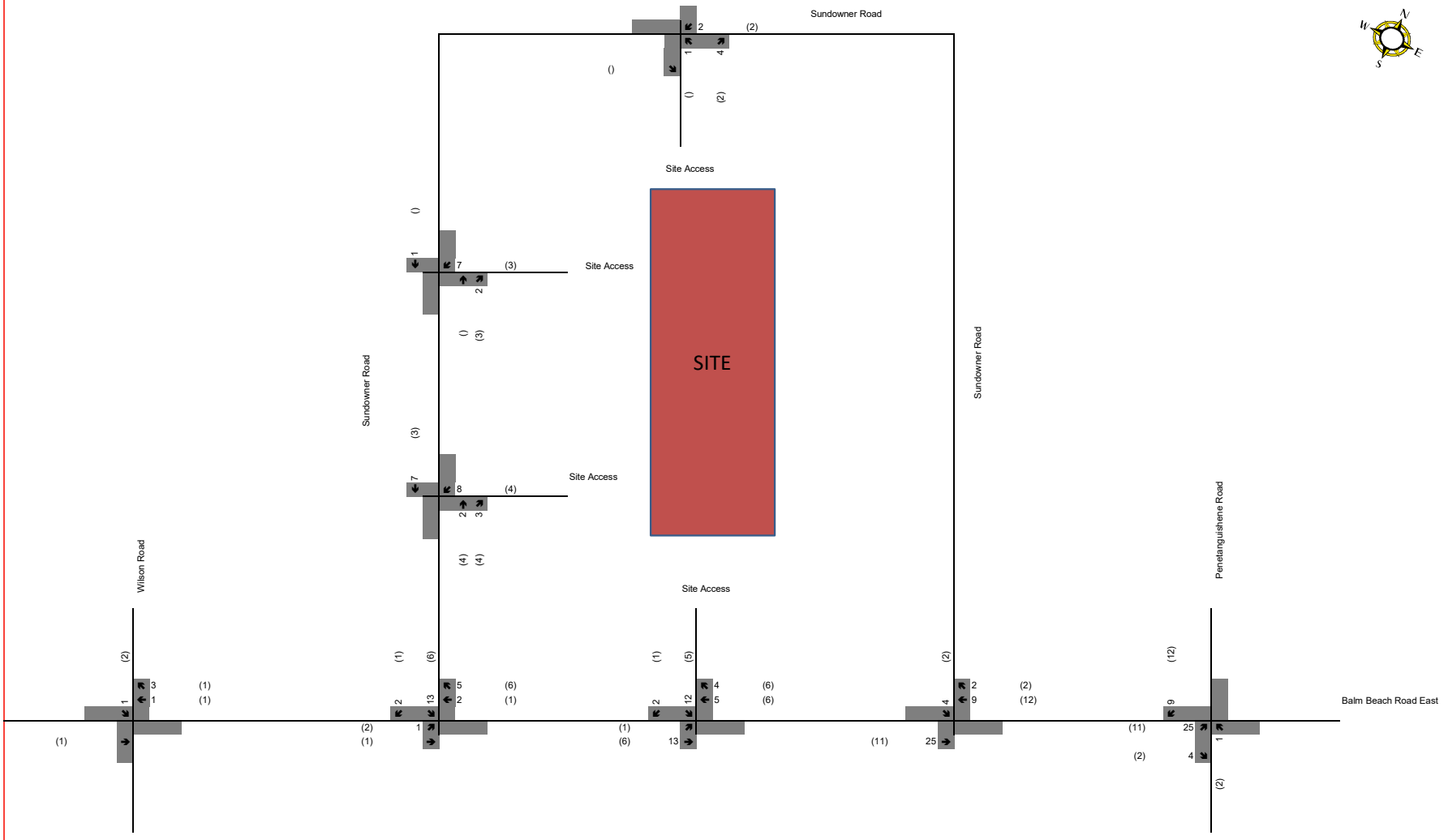
Figure 1

Proposed Site Plan

710 Balm Beach Road East



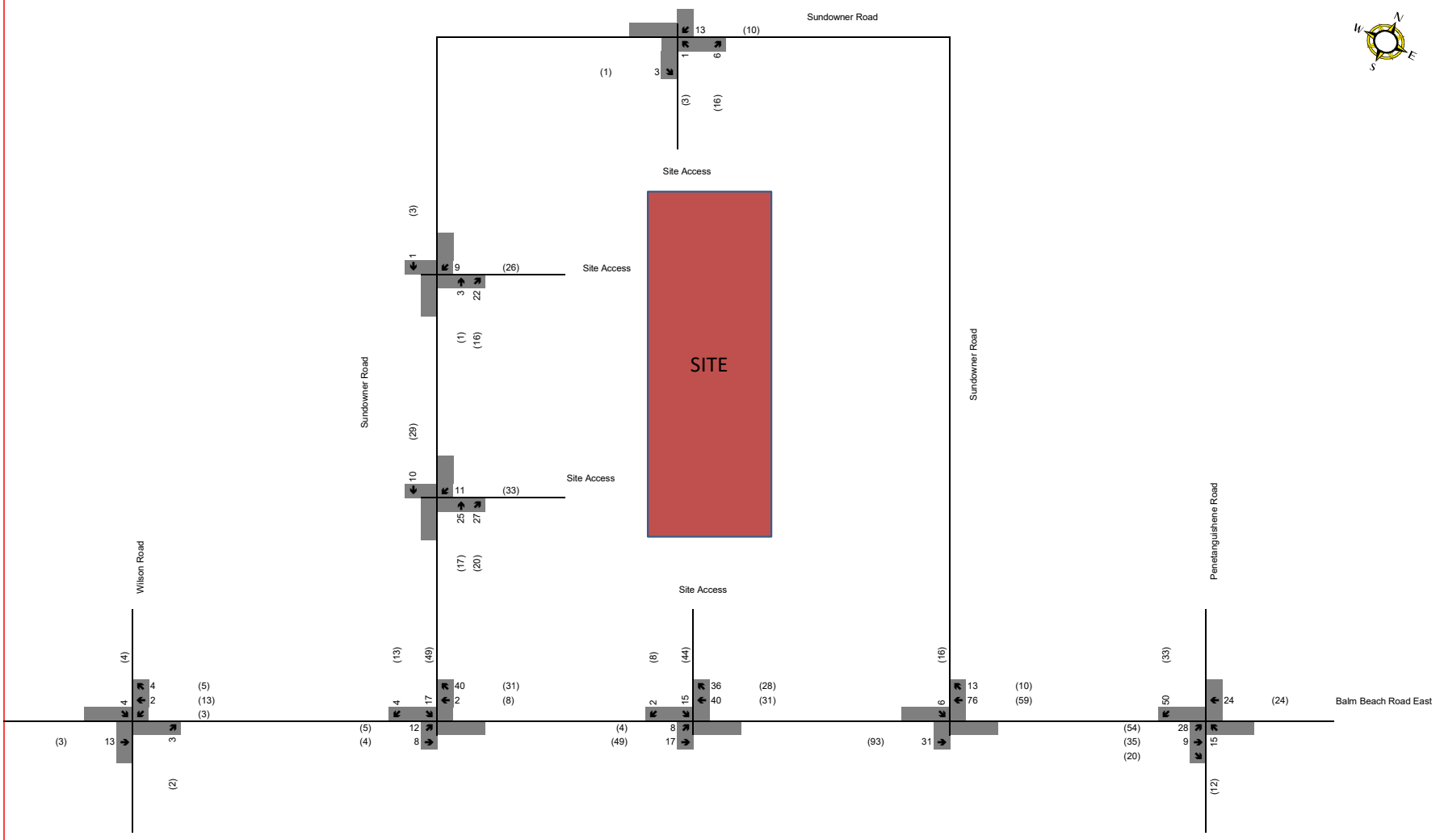
Legend

A.M. Peak Hour Traffic Volumes	xx
P.M. Peak Hour Traffic Volumes	(xx)

Figure 2

Site Generated Traffic Volumes (Residential)

710 Balm Beach Road East



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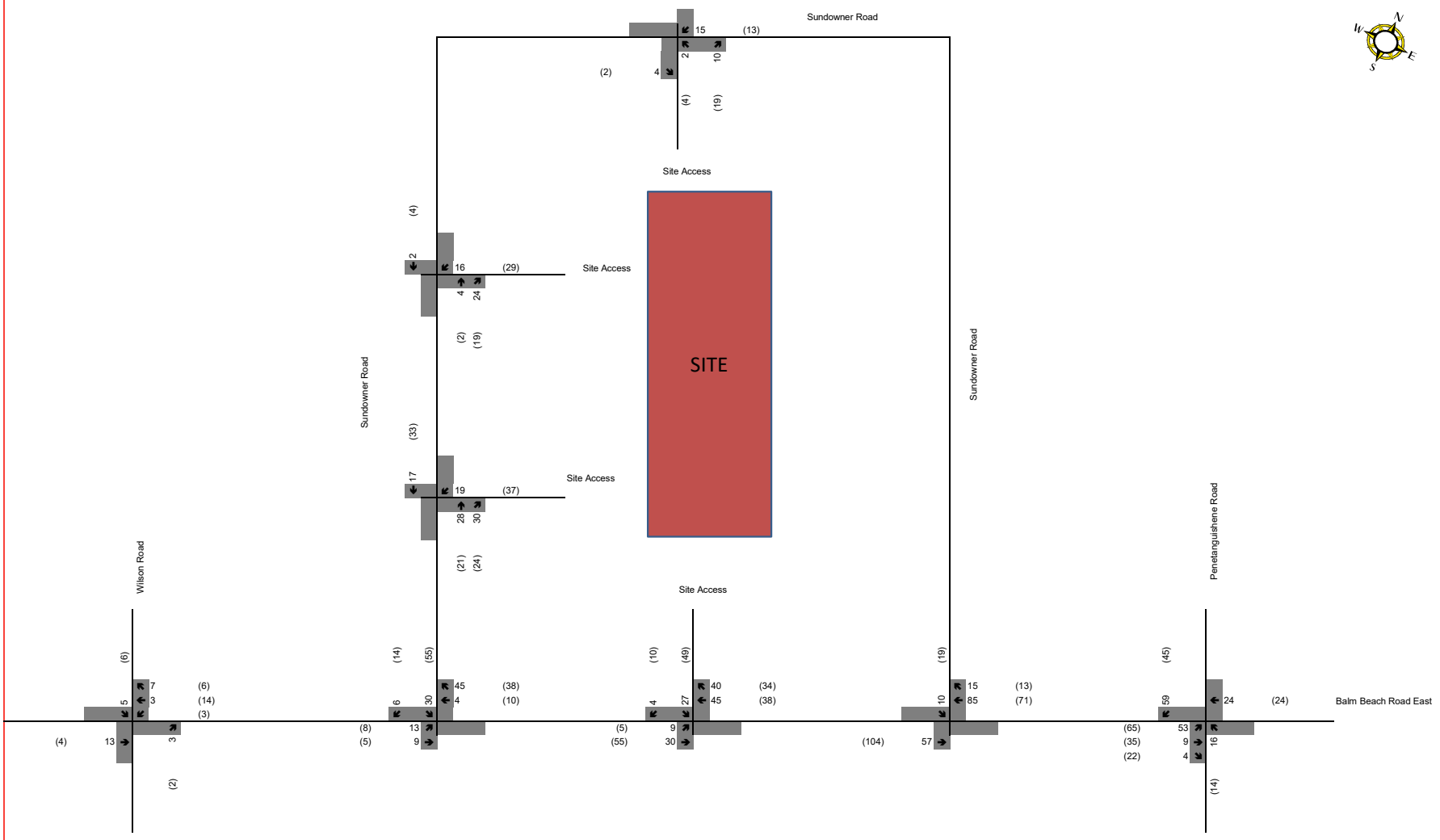
A.M. Peak Hour Traffic Volumes	xx
P.M. Peak Hour Traffic Volumes	(xx)

Figure 3

Site Generated Traffic Volumes (Non-Residential)

710 Balm Beach Road East



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A.M. Peak Hour Traffic Volumes	xx
P.M. Peak Hour Traffic Volumes	(xx)

Figure 4

Total Site Generated Traffic Volumes

710 Balm Beach Road East

2.2 Future Total Traffic Analysis

The same future total horizon years evaluated in the original TIS have been evaluated in this addendum (2024 and 2029). This is appropriate since due to COVID-19, traffic volume and general growth have either declined or stabilized. This is due to the prevalence of people working from home and holding virtual sessions for various errands. The site-generated volumes in Figure 4 are overlaid onto the same 2024 and 2029 future background volumes derived in the original TIS. The resulting 2024 and 2029 future total volumes are presented in **Figures 5 and 6**, respectively. The updated 2024 and 2029 future total analysis results are presented in **Tables 3** and **4**, respectively. Detailed synchro results are provided in **Appendix B**. For the signalized intersection, the existing cycle length and signal split has been maintained for all future total scenarios.

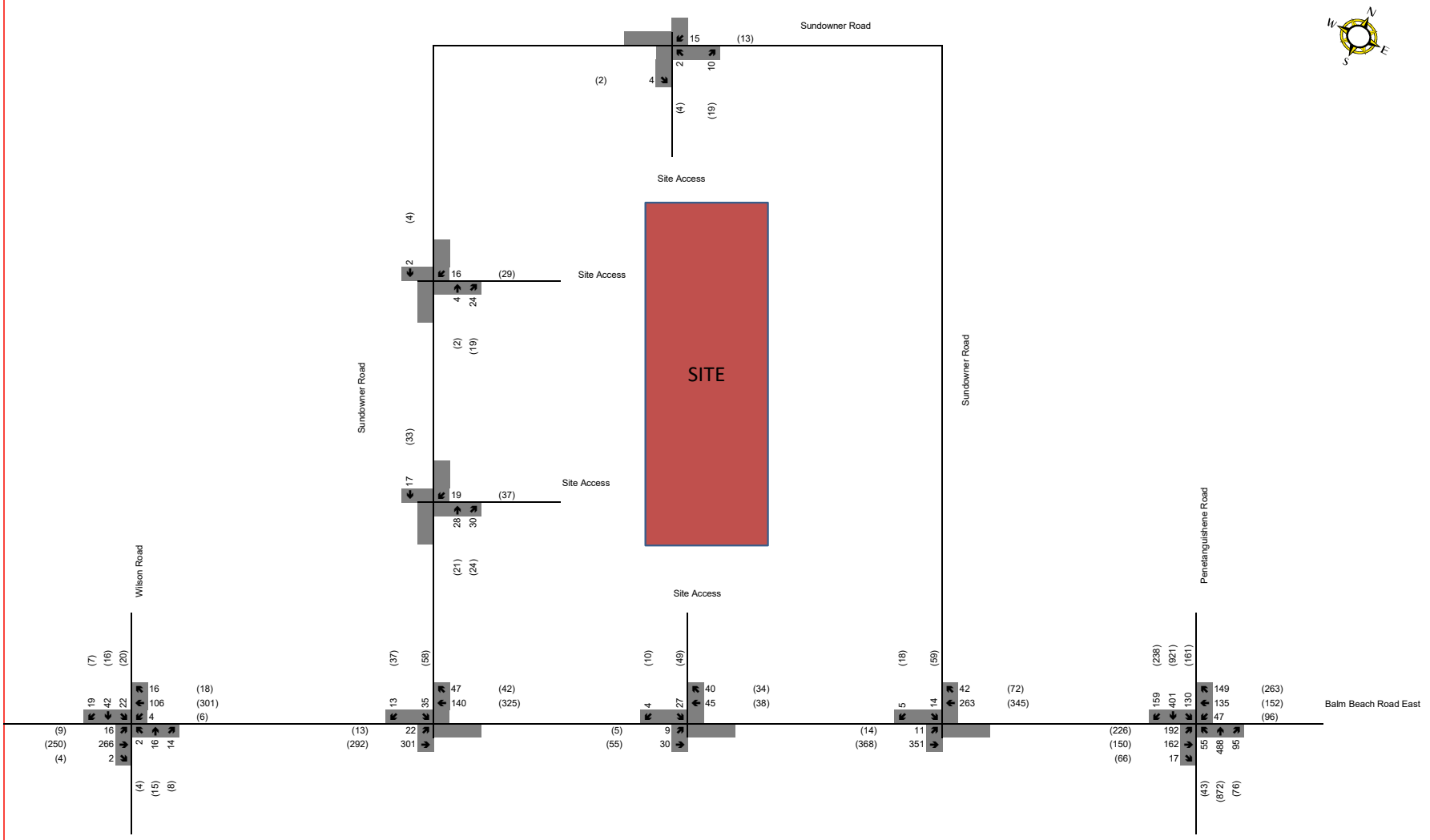
Table 3: 2024 Future Total

Intersection (control)	**Weekday A.M. Peak Hour**		**Weekday P.M. Peak Hour**	
	LOS (Delay in Seconds)	**Critical Movement Volume-to-Capacity Ratio**	**LOS (Delay in seconds)**	**Critical Movement Volume-to-Capacity Ratio**
Balm Beach Road E & Wilson Road (Minor-street stop controlled)	B (13)	SB-LTR (0.17)	C (15)	SB-LTR (0.12)
Balm Beach Road East and Sundowner Road West (Minor-street stop controlled)	B (12)	SB-LR (0.09)	B (15)	SB-LR (0.22)
Balm Beach Road East and Sundowner Road East (Minor-street stop controlled)	B (14)	SB-LR (0.05)	C (17)	SB-LR (0.21)
Penetanguishene Road and Balm Beach Road East/Yonge Street (signalized)	B (17)	--	C (21)	--

Table 4: 2029 Future Total

Intersection (control)	**Weekday A.M. Peak Hour**		**Weekday P.M. Peak Hour**	
	LOS (Delay in Seconds)	**Critical Movement Volume-to-Capacity Ratio**	**LOS (Delay in seconds)**	**Critical Movement Volume-to-Capacity Ratio**
Balm Beach Road E & Wilson Road (Minor-street stop controlled)	B (14)	SB-LTR (0.19)	C (17)	SB-LTR (0.14)
Balm Beach Road East and Sundowner Road West (Minor-street stop controlled)	B (13)	SB-LR (0.10)	C (16)	SB-LR (0.24)
Balm Beach Road East and Sundowner Road East (Minor-street stop controlled)	B (15)	SB-LR (0.05)	C (18)	SB-LR (0.24)
Penetanguishene Road and Balm Beach Road East/Yonge Street (signalized)	B (17)	--	C (23)	SB-T (0.88)

As shown in Tables 3 and 4, all of the study intersections are forecast to operate well at LOS 'C' or better with all movements operating within capacity. **Thus, the site-generated traffic from the development proposal can continue to be accommodated by the proposed access arrangement and boundary road network.**



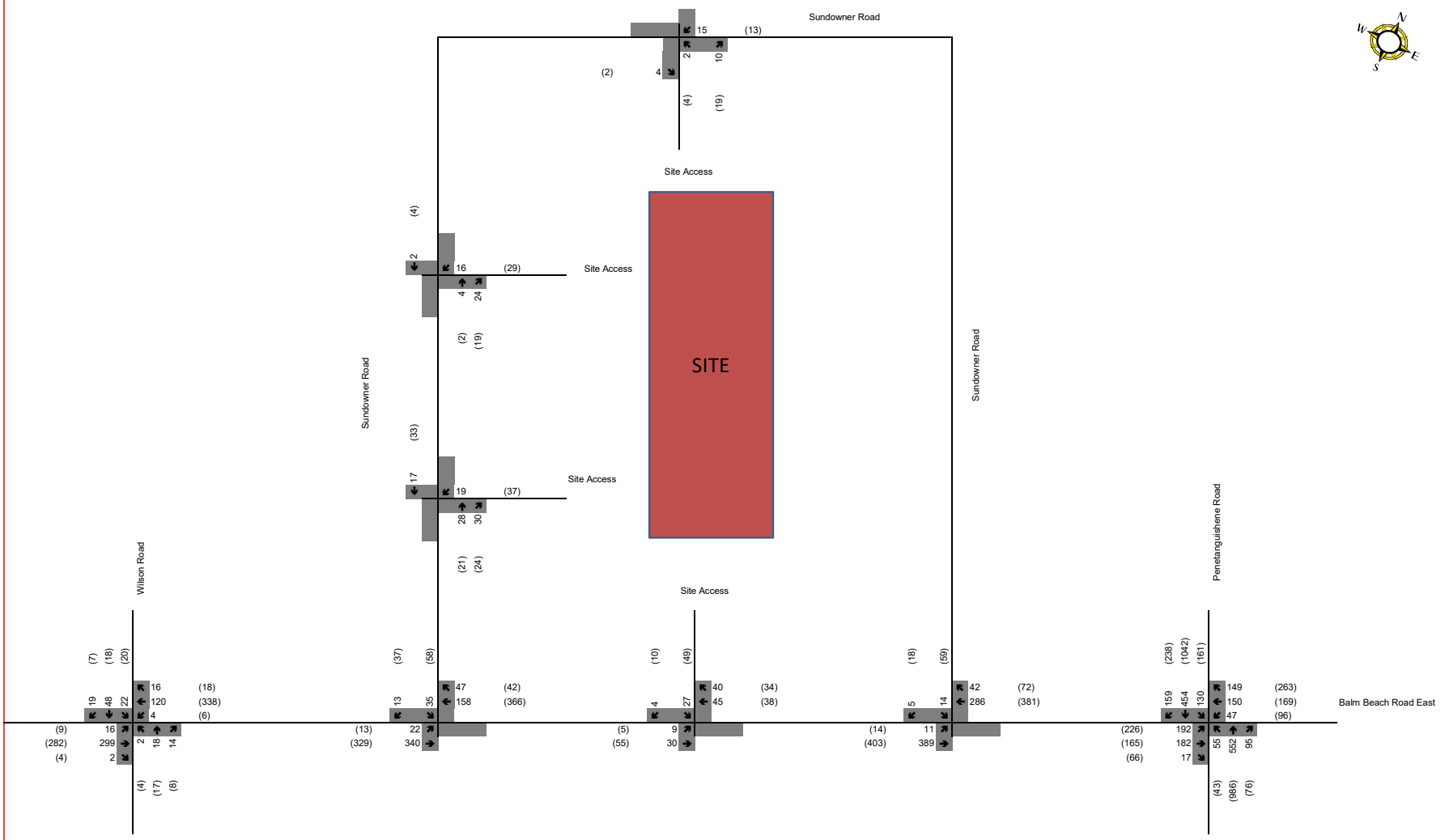
Legend

A.M. Peak Hour Traffic Volumes	xx
P.M. Peak Hour Traffic Volumes	(xx)

Figure 5

Future Total (2024) Traffic Volumes

710 Balm Beach Road East



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A.M. Peak Hour Traffic Volumes	xx
P.M. Peak Hour Traffic Volumes	(xx)

Figure 6

Future Total (2029) Traffic Volumes

710 Balm Beach Road East

3.0 PARKING ASSESSMENT

3.1 Vehicular Parking

The parking requirement as stated in the Town of Midland's Zoning By-law 2004-90 is summarized in **Table 5.**

Table 5: By-law 2004-90 - Vehicle Parking Requirements

Land Use / Unit Type	By-Law Minimum Requirements	
	Parking Rate	Parking Required
Office (39,996 ft^2 / 3,716 m^2)	1 per 30m^2 GFA	124 spaces
Medical Office (9,566 ft^2 / 889 m^2)	5 per practitioner	50 spaces
Retail (29,337 ft^2 / 2,725 m^2)	5 per 90m^2 GFA	152 spaces
Child Care Centre (5,208 ft^2 / 484 m^2)	1.5 for each classroom or teaching area	8 spaces
Residential (68 units)	1.5 spaces per dwelling unit (of which 0.375 spaces/unit need to be visitor)	102 spaces (25 visitor and 77 residential)
Total		**436 spaces**

As shown in Table 5, a total of 436 spaces are required for the entire site. A total of 395 parking spaces are proposed, which is 41 spaces lower than the By-law requirement. A pool of 318 parking spaces will be shared amongst all of the non-residential land uses across the site (including residential visitor). Since the site has a wide variety of land uses, it can be expected that the parking occupancy for each use will change through out the course of the day depending on the characteristics of each use. For example, office or daycare parking demands will be very low during the evening period while retail and visitor parking demand tend to low during the morning period and peak towards the evening period. This creates opportunity to optimize the supply of unique parking spaces to satisfy a mixed-use site.

Since the Town of Midland does not currently have a shared parking calculation component in the By-law, WSP has consulted the shared parking provisions from other municipalities - where an occupancy percentage is provided for different uses during different times of the day. This approach is important to avoid having excessive parking that go underutilized. The municipalities consulted include the City of Toronto and the City of Vaughan. The respective shared parking provisions from these two municipalities were applied to the absolute minimum requirements from the Town's By-law as calculated in Table 5. The resulting minimum parking requirement for non-residential uses based on a shared parking approach is shown in **Figures 7 and 8**. The associated parking by-law excerpt for the two municipalities are provided in **Appendix C** for reference. It should be noted that while the calculation includes the residential component, residential parking is always required at 100% throughout the day, therefore, is not influenced by a shared parking arrangement.

Figure 7: City of Toronto Shared Parking Calculation

Land Use	Density		Min. Parking Requirement (By-law 2004-90)		Peak Parking Demand	Shared Parking Adjustment (City of Toronto Zoning By-law 89-2002)			Adjusted Parking Demand with Shared Use		
						Morning	Afternoon	Evening	Morning	Afternoon	Evening
Residential	68	units	1.125	spaces/unit	77	100%	100%	100%	77	77	77
Visitor Parking	68	units	0.375	spaces/unit	26	10%	35%	100%	3	9	26
Retail	2,725	sq.m.	5.00	spaces/90 sq.m.	152	20%	100%	100%	31	152	152
Office	3,716	sq.m.	1.00	spaces/30 sq.m.	124	100%	60%	0%	124	75	0
Medical Office (889 sq.m.)	10	practitioner	5.00	per practitioner	50	100%	100%	50%	50	50	25
Child Care (484 sq.m.)	5	classrooms	1.50	per classroom	8	100%	100%	50%	8	8	4
								Total:	293	371	284
Total Non-adjusted Parking Requirement:					437	Total Adjusted Parking Requirement:					371

Figure 8: City of Vaughan Shared Parking Adjustment Calculation

Land Use	Density		Min. Parking Requirement (By-law 2004-90)		Peak Parking Demand	Shared Parking Adjustment (City of Vaughan Zoning By-law 001-2021)			Adjusted Parking Demand with Shared Use		
						Morning	Afternoon	Evening	Morning	Afternoon	Evening
Residential	68	units	1.125	spaces/unit	77	100%	100%	100%	77	77	77
Visitor Parking	68	units	0.375	spaces/unit	26	20%	60%	100%	5	15	26
Retail	2,725	sq.m.	5.00	spaces/90 sq.m.	152	80%	90%	100%	122	137	152
Office	3,716	sq.m.	1.00	spaces/30 sq.m.	124	100%	95%	10%	124	118	13
Medical Office (889 sq.m.)	10	practitioner	5.00	per practitioner	50	65%	80%	100%	33	40	50
Child Care (484 sq.m.)	5	classrooms	1.50	per classroom	8	100%	100%	20%	8	8	2
								Total:	369	395	320
Total Non-adjusted Parking Requirement:					437	Total Adjusted Parking Requirement:					395

Based on the shared parking calculations, the average parking minimum requirement between the City of Toronto and the City of Vaughan (for all of the uses proposed on the site including residential) is 383 spaces, with the peak parking demand occurring in the weekday afternoon period. Given the proposed parking supply of 395 parking spaces is 12 spaces higher than the average minimum parking requirements, it is WSP's opinion that the **overall parking supply of 395 spaces (with 318 spaces pooled and signed as shared use with non-residential uses) will adequately serve the parking demands of the development.** 77 spaces will be signed and reserved for the respective residents. To facilitate the shared parking, a pool of 318 non-residential spaces should be signed and communicated to surrounding owners, residents, employees and visitors. A dedicated supply of 77 spaces is recommended for the residential use located in the immediate vicinity of Buildings C and D.

4.0 SITE PLAN REVIEW

The site layout and site access onto the boundary roadways have largely remained the same as the approved version stemming from the original TIS. In fact, a notable portion of the site has already been constructed. The only changes to the site layout from a transportation perspective is the drive aisle, parking and loading arrangements near Buildings C and D where the residential uses are now proposed. Therefore, only this area of the site has been reviewed using the AutoTURN software package. The vehicles used for the AutoTURN analyses are consistent with those used in the original TIS: Molok Garbage Truck, a Transportation Association of Canada (TAC) heavy single unit truck, and P-TAC passenger vehicle. The following outlines the review completed:

- **Figures 9**A&B: illustration of a Molok truck pulling up parallel to the garbage storage unit adjacent to Building D and leaving.
- **Figure 10**: illustrating a Molok truck navigating the corner near Building C and leaving the site.
- **Figure 11**: illustrating a TAC HSU truck navigating the corner near Building C and leaving the site, as well as entering and access the loading area near Building D.
- **Figure 12**: illustrating a P-TAC passenger car entering and accessing the site and circulating at key locations within the drive aisles.
- **Figure 13**: illustrating passenger vehicle parking at the dead-end spaces of the parking aisle adjacent to Building D. While one of the dead-end space cannot accommodate a P-TAC vehicle (representative of that of a large truck by length and width), the space can readily accommodate an average vehicle like a Honda Civic as represented by the P-Compact vehicle template.
- **Figure 14**: illustrating a fire truck circulating the drive aisle that near Buildings C and D. All of the fire routes are proposed as 6m wide as per OBC requirements.

The results show that the updated site plan while incorporating residential uses in Buildings C and D, will continue to function from a transportation/circulation perspective.

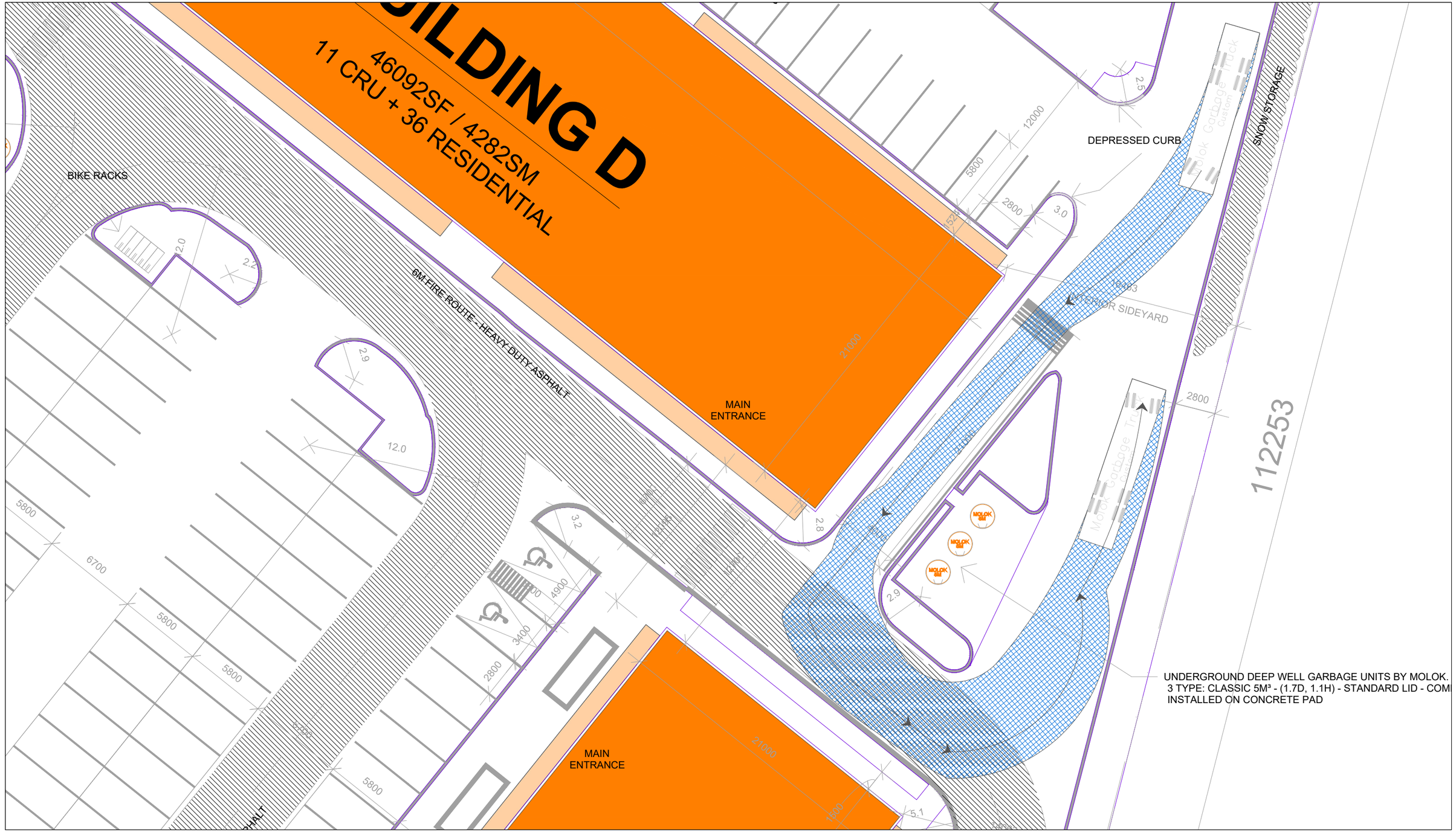

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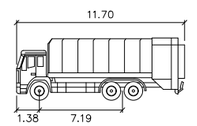
Figure 9A
Garbage Truck Movement - Buildings C and D
710 Balm Beach

Molok Garbage Truck

	meters
Width	: 2.47
Track	: 2.47
Lock to Lock Time	: 6.0
Steering Angle	: 53.0



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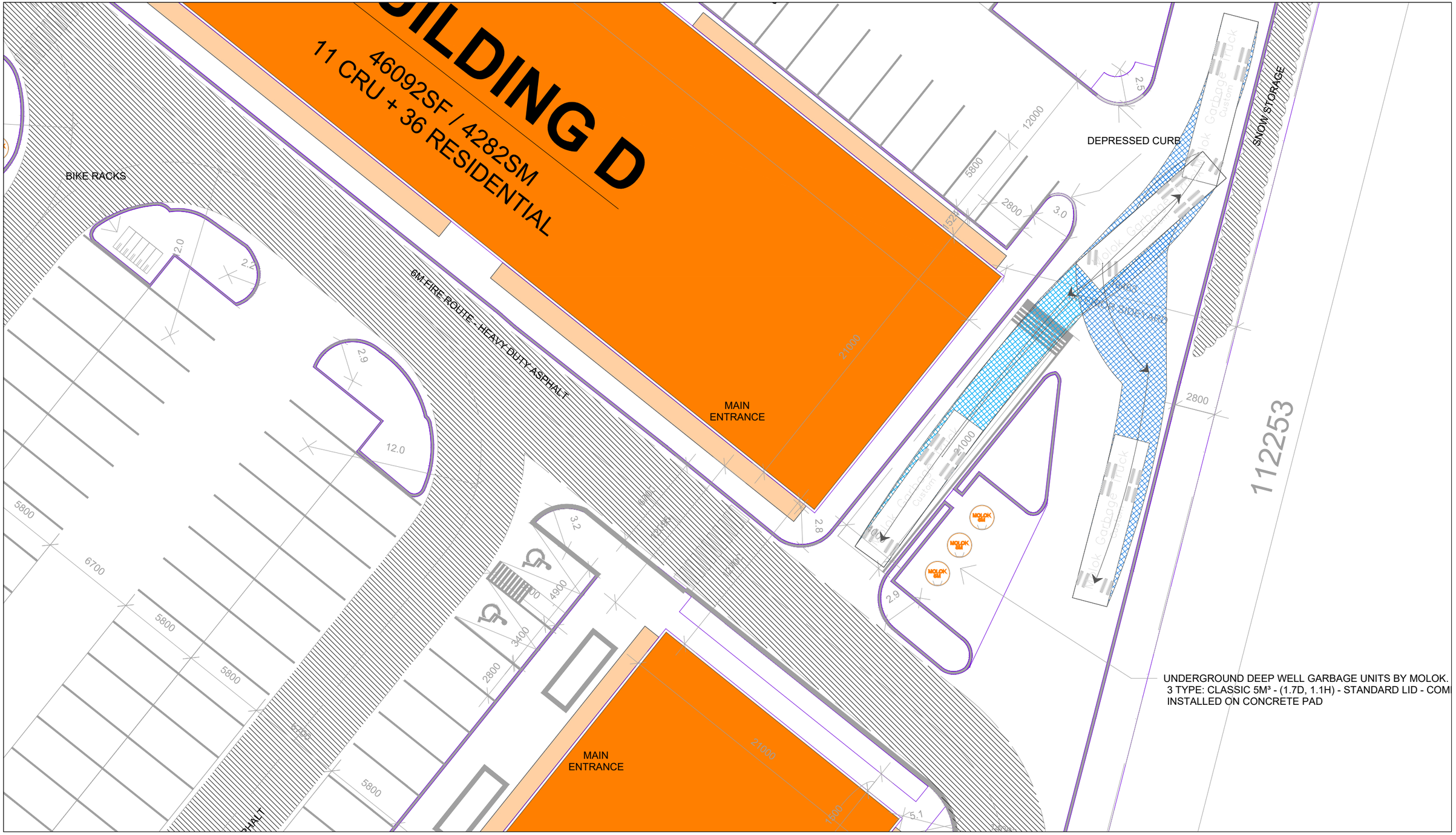

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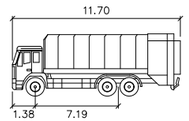
Figure 9B
Garbage Truck Movement - Buildings C and D
710 Balm Beach

Molok Garbage Truck

	meters
Width	: 2.47
Track	: 2.47
Lock to Lock Time	: 6.0
Steering Angle	: 53.0



Balm Beach_SPR.dwg_Figure 6-1A

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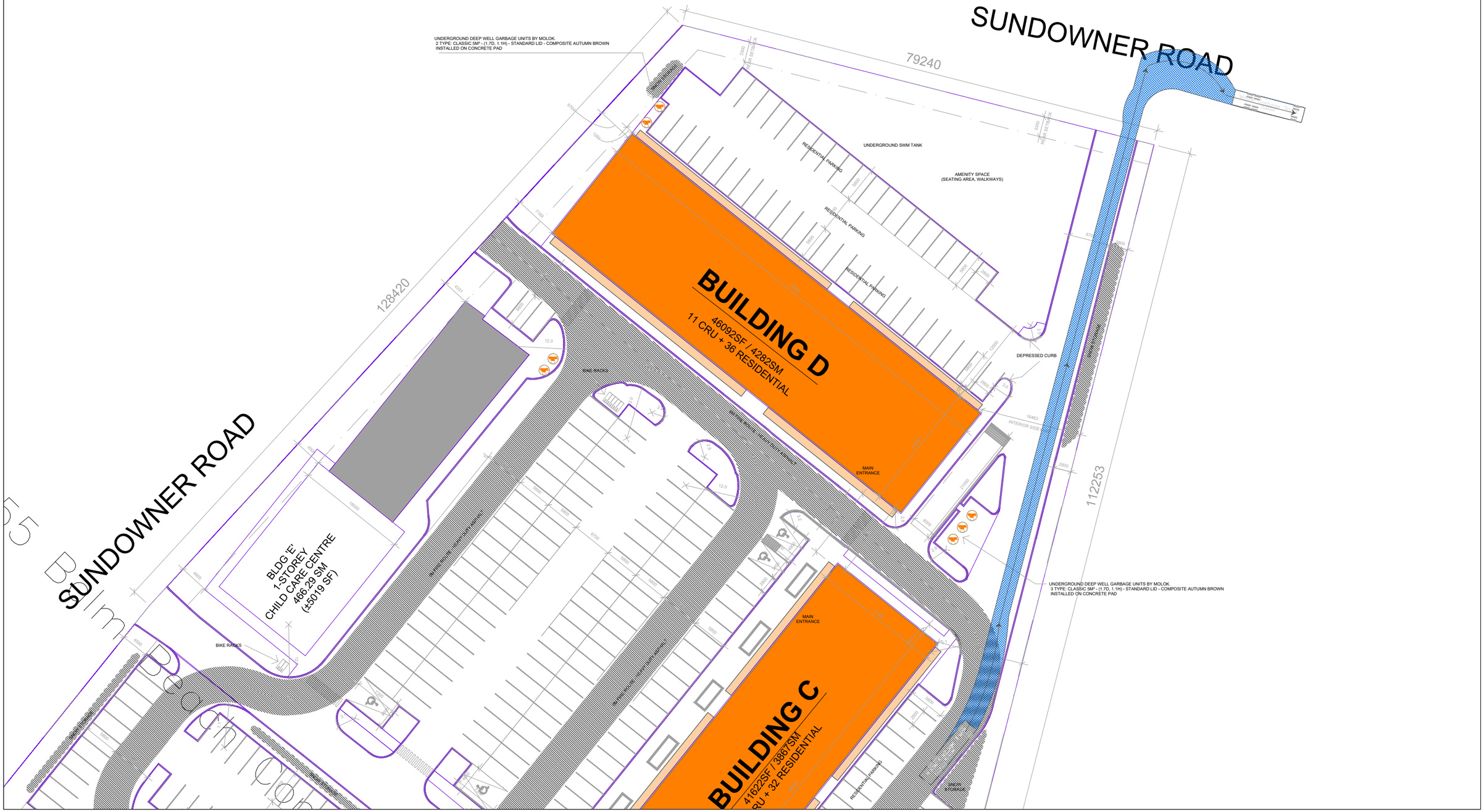

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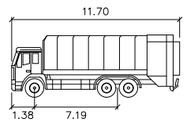
Figure 10
Garbage Truck Movement - Buildings C and D
710 Balm Beach

Molok Garbage Truck

	meters
Width	: 2.47
Track	: 2.47
Lock to Lock Time	: 6.0
Steering Angle	: 53.0



Balm Beach_SPR.dwg_Figure 6-2

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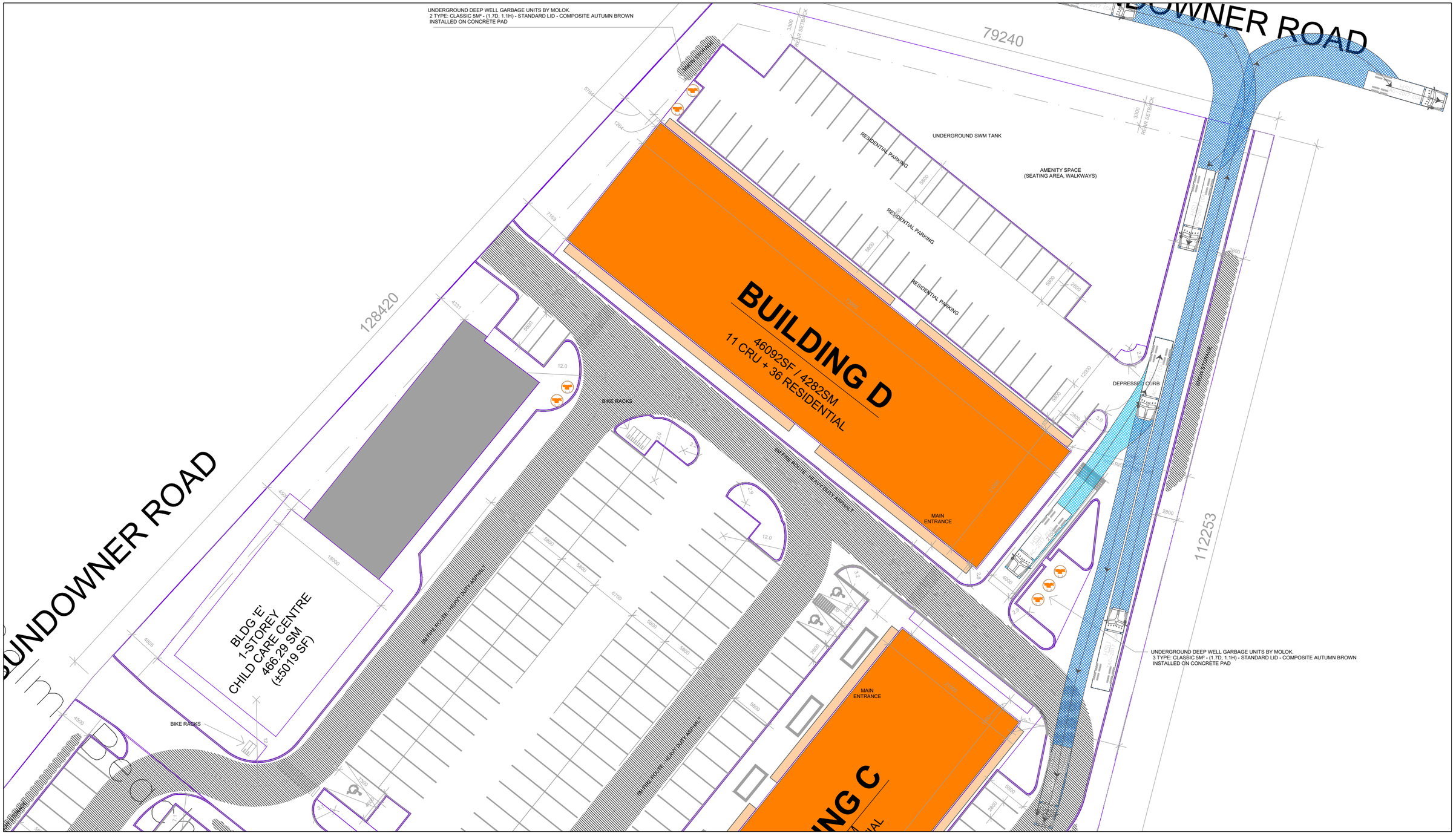

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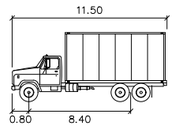
Figure 11
Heavy Vehicle Loading Movement
710 Balm Beach

HSU

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 40.0



Balm Beach_SPR.dwg_Figure 6-4

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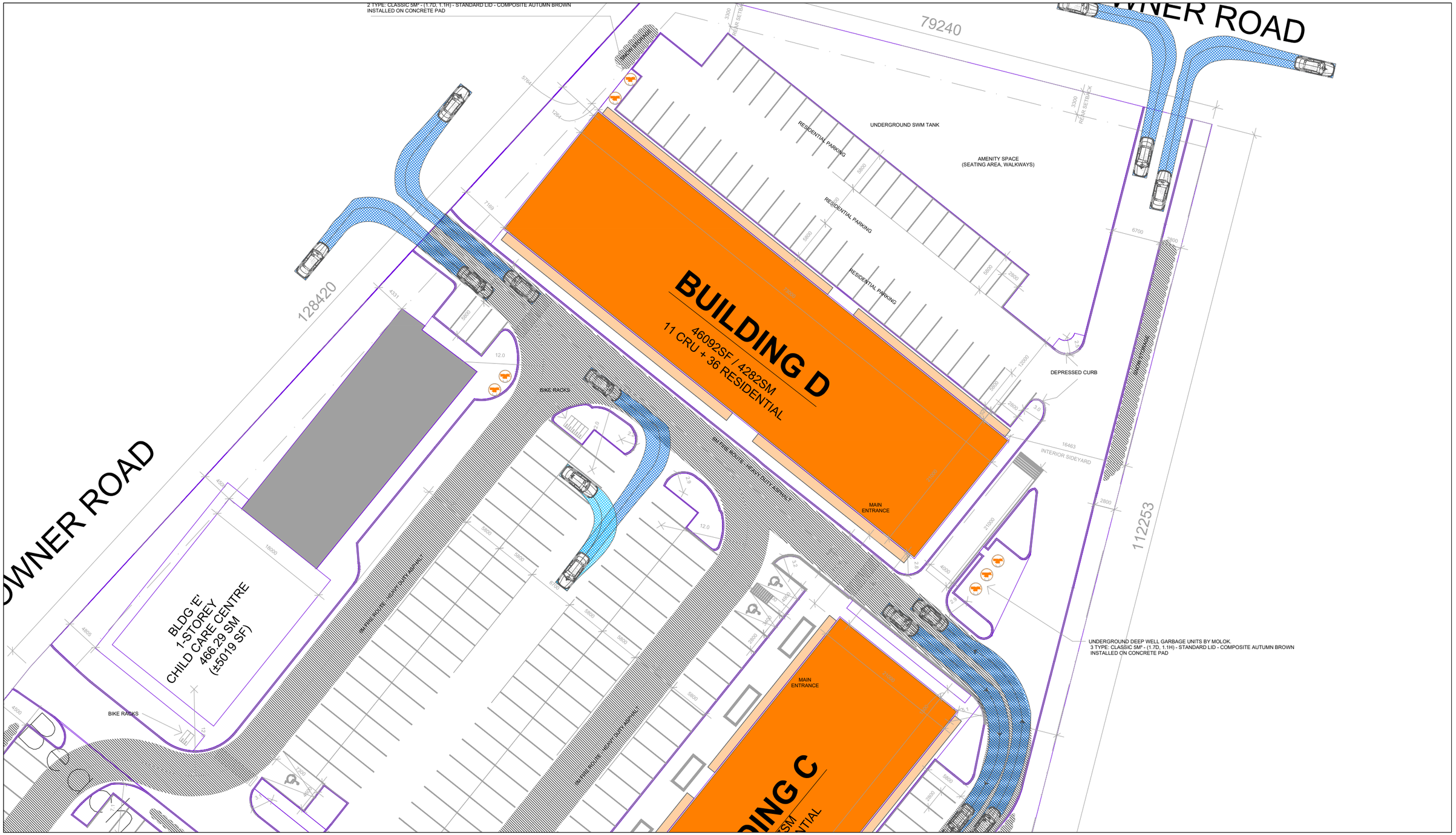

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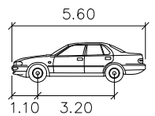
Figure 12
TAC Passenger Vehicle Movements
710 Balm Beach

P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9



Balm Beach_SPR.dwg_Figure 6-6

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Figure 13
TAC Passenger Vehicle Movements
710 Balm Beach

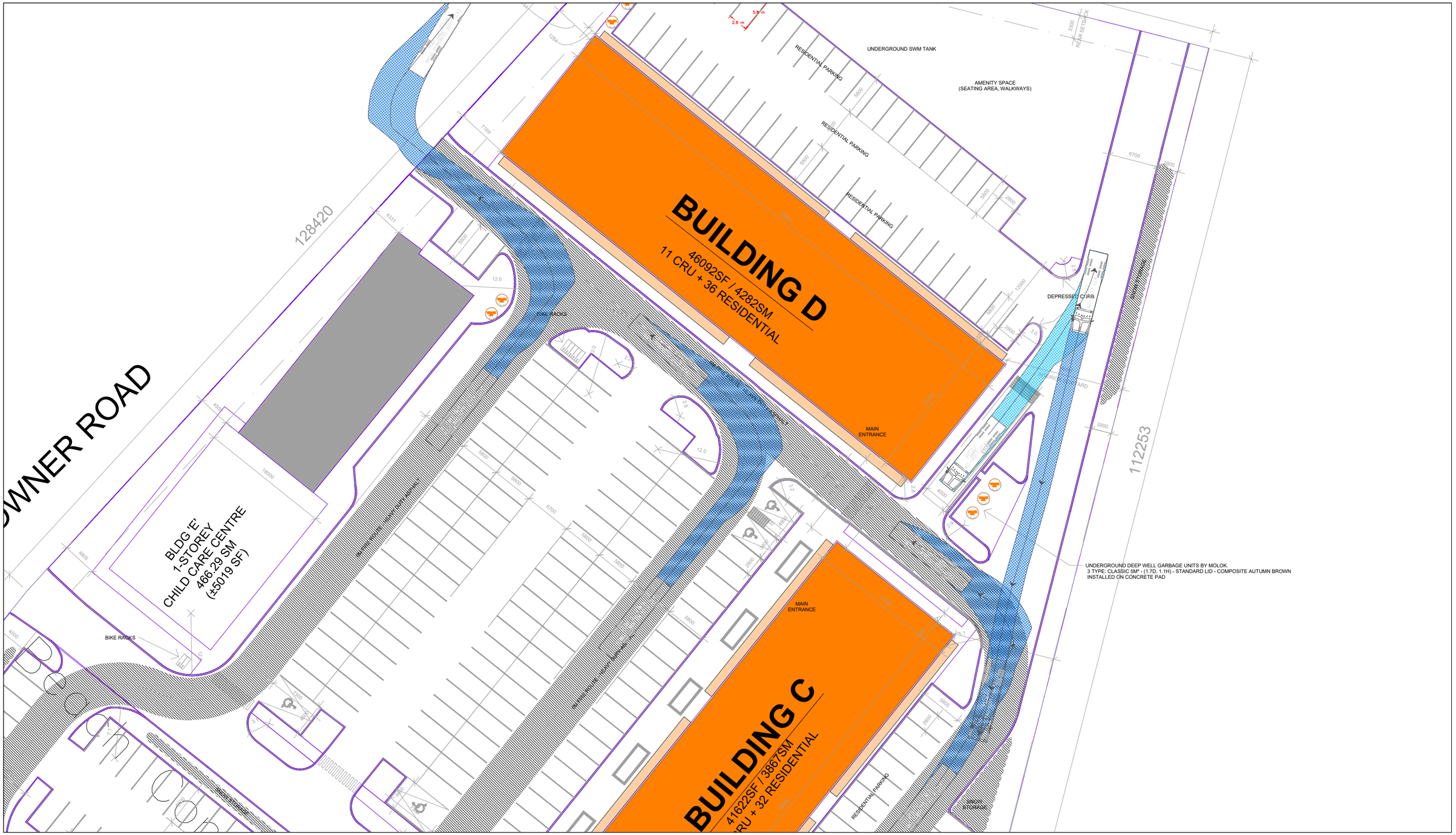

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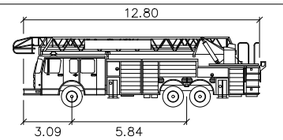
Figure 14
Fire Truck Movements
710 Balm Beach

Aerial Fire

	meters
Width	: 2.54
Track	: 2.54
Lock to Lock Time	: 6.0
Steering Angle	: 37.0



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Balm Beach_SPR.dwg_Figure 6-8

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5.0 CONCLUSIONS

This TIS Addendum supports the Site Plan Application for the 710 Balm Beach Road development.

The proposed site statistics has changed since those evaluated in the approved May 2019 TIS. The updated site plan removes 10,434 ft^2 medical office and 2,083 ft^2 retail, while adding 9,996 ft^2 of office, 213 ft^2 of daycare and 68 residential units when compared to the May 2019 TIS. Using the same trip generation methodology applied in the May 2019 TIS, the proposed site is forecast to generate 192 two-way trips in the a.m. peak hour, and 236 two-way trips in the p.m. peak hour. This is an additional 28 in the a.m. peak hour and the removal of 12 trips less in the p.m. peak hour, relative to the May 2019 TIS. Even with the minor increase in site-generated trips during the morning peak hour, the 2024 and 2029 future total results continue to show that the surrounding road network can readily accommodate the future volumes.

The proposed vehicular parking supply of 395 spaces is 41 spaces lower than the Town of Midland's Zoning by-law 2004-90 requirement of 436 parking spaces. However, when considering a shared parking provisions prevalent from other municipalities, WSP is of the opinion that the proposed parking supply is sufficient for the subject site. To facilitate the shared parking, a pool of 318 non-residential spaces should be signed and communicated to surrounding owners, residents, employees and visitors. A dedicated supply of 77 spaces is recommended for the residential use located in the immediate vicinity of Buildings C and D.

The site plan review of the internal road network where there have been minor changes to the site layout indicate that the various design vehicles can continue to be accommodated.

APPENDIX

A MAY 2019 TIS EXCERPTS

3 SITE GENERATED TRAFFIC

3.1 TRIP GENERATION

The vehicle trips generated by the proposed development during the weekday A.M. and P.M. peak hours were estimated using trip generation rates outlined in the Institute of Transportation Engineers (ITE) Trip Generation manual, 10th Edition, with adjustments to reflect local modal split characteristics based on Transportation Tomorrow Survey (TTS) 2016 data. The Specialty Retail Store land use was chosen from the ITE 9th Edition Trip Generation Manual, as it was the most accurate representation of expected conditions. A multi-use factor was applied to accommodate for the proximity of the different land uses. The rates, directional split, and site generated traffic used in this analysis are detailed in **Table 3-1**.

Table 3-1 Site Generated Trips

Land Use	Basis/Parameter	Vehicle Trips					
		Weekday A.M. Peak Hour			Weekday P.M. Peak Hour		
		Inbound	Outbound	Total	Inbound	Outbound	Total
General Office Building	ITE Land Use 710	47	8	55	6	30	36
	Multi-Use Factor Trip Reduction					(1)	
General Medical / Dental Office Building	ITE Land Use 720	42	12	54	20	50	70
	Multi-Use Factor Trip Reduction				(1)	(2)	
Specialty Retail Store	ITE Land Use 826 9th Edition				43	54	97
	Multi-Use Factor Trip Reduction				(3)	(1)	
Day Care Centre	ITE Land Use 565	29	26	55	26	29	55
	Multi-Use Factor Trip Reduction						
Total		**118**	**46**	**164**	**91**	**159**	**250**

As shown in **Table 3-1**, the proposed development is expected to generate 164 two-way (118 inbound and 46 outbound) trips in the A.M. peak hour and 250 two-way (91 inbound and 159 outbound) trips in the P.M. peak hour.

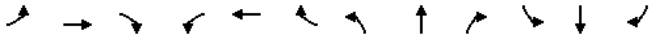
3.2 TRIP DISTRIBUTION

The 2016 TTS findings and convenience of routings were used to determine site traffic distribution and assignments for the proposed development. The site generated trips were distributed based on the TTS data and engineering judgement. The distribution of trips to the study area intersections is summarized in **Table 3-2** for the A.M. and P.M. peak hours.

APPENDIX

B FUTURE TOTAL SYNCHRO REPORTS

HCM Unsignalized Intersection Capacity Analysis <FT2024>AM
1: Balm Beach Road E & Wilson Road 10-03-2023

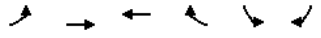


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	266	2	4	106	16	2	16	14	22	42	19
Future Volume (Veh/h)	16	266	2	4	106	16	2	16	14	22	42	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	289	2	4	115	17	2	17	15	24	46	21
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	132			291			500	464	290	479	456	124
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	132			291			500	464	290	479	456	124
tC, single (s)	4.1			4.1			7.1	6.6	6.2	7.2	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.1	3.3	3.6	4.0	3.4
p0 queue free %	99			100			100	96	98	95	91	98
cM capacity (veh/h)	1466			1282			435	479	754	462	491	917

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	308	136	34	91
Volume Left	17	4	2	24
Volume Right	2	17	15	21
cSH	1466	1282	567	540
Volume to Capacity	0.01	0.00	0.06	0.17
Queue Length 95th (m)	0.3	0.1	1.5	4.8
Control Delay (s)	0.5	0.3	11.8	13.0
Lane LOS	A	A	B	B
Approach Delay (s)	0.5	0.3	11.8	13.0
Approach LOS			B	B

Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	38.9%	ICU Level of Service	A	
Analysis Period (min)	15			

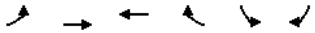
HCM Unsignalized Intersection Capacity Analysis <FT2024>AM
2: Balm Beach Road E & Sundowner Road West 10-03-2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	22	301	140	47	35	13
Future Volume (Veh/h)	22	301	140	47	35	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	327	152	51	38	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	203				552	178
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	203				552	178
tC, single (s)	4.1				6.4	6.4
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.4
p0 queue free %	98				92	98
cM capacity (veh/h)	1381				489	833

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	351	203	52
Volume Left	24	0	38
Volume Right	0	51	14
cSH	1381	1700	550
Volume to Capacity	0.02	0.12	0.09
Queue Length 95th (m)	0.4	0.0	2.5
Control Delay (s)	0.7	0.0	12.2
Lane LOS	A		B
Approach Delay (s)	0.7	0.0	12.2
Approach LOS			B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	30	45	40	27	4
Future Volume (Veh/h)	9	30	45	40	27	4
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	33	49	43	29	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	92				124	70
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	92				124	70
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	100
cM capacity (veh/h)	1503				866	992

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	43	92	33
Volume Left	10	0	29
Volume Right	0	43	4
cSH	1503	1700	879
Volume to Capacity	0.01	0.05	0.04
Queue Length 95th (m)	0.2	0.0	0.9
Control Delay (s)	1.8	0.0	9.3
Lane LOS	A		A
Approach Delay (s)	1.8	0.0	9.3
Approach LOS			A

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	18.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	19	0	28	30	0	17
Future Volume (Veh/h)	19	0	28	30	0	17
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	21	0	30	33	0	18
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	64	46			63	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	64	46			63	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	941	1023			1540	

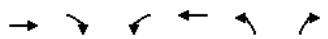
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	21	63	18
Volume Left	21	0	0
Volume Right	0	33	0
cSH	941	1700	1540
Volume to Capacity	0.02	0.04	0.00
Queue Length 95th (m)	0.5	0.0	0.0
Control Delay (s)	8.9	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.9	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	16	0	4	24	0	2
Future Volume (Veh/h)	16	0	4	24	0	2
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	0	4	26	0	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	19	17			30	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	19	17			30	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	998	1062			1583	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	17	30	2
Volume Left	17	0	0
Volume Right	0	26	0
cSH	998	1700	1583
Volume to Capacity	0.02	0.02	0.00
Queue Length 95th (m)	0.4	0.0	0.0
Control Delay (s)	8.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.7	0.0	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	13.3%	ICU Level of Service		A
Analysis Period (min)	15			

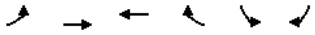


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	4	15	0	2	10
Future Volume (Veh/h)	0	4	15	0	2	10
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	4	16	0	2	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			4		34	2
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			4		34	2
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	99
cM capacity (veh/h)			1618		970	1082

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	4	16	13
Volume Left	0	16	2
Volume Right	4	0	11
cSH	1700	1618	1063
Volume to Capacity	0.00	0.01	0.01
Queue Length 95th (m)	0.0	0.2	0.3
Control Delay (s)	0.0	7.2	8.4
Lane LOS		A	A
Approach Delay (s)	0.0	7.2	8.4
Approach LOS			A

Intersection Summary				
Average Delay	6.8			
Intersection Capacity Utilization	17.5%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis <FT2024>AM
7: Balm Beach Road E & Sundowner Road East 10-03-2023

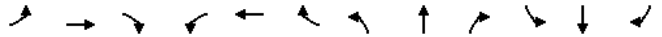


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	351	263	42	14	5
Future Volume (Veh/h)	11	351	263	42	14	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	382	286	46	15	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			95			
pX, platoon unblocked	0.98				0.98	0.98
vC, conflicting volume	332				692	286
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	312				678	265
tC, single (s)	4.2				6.6	6.4
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.5
p0 queue free %	99				96	99
cM capacity (veh/h)	1184				374	720

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	394	286	46	20
Volume Left	12	0	0	15
Volume Right	0	0	46	5
cSH	1184	1700	1700	425
Volume to Capacity	0.01	0.17	0.03	0.05
Queue Length 95th (m)	0.2	0.0	0.0	1.2
Control Delay (s)	0.3	0.0	0.0	13.9
Lane LOS	A			B
Approach Delay (s)	0.3	0.0		13.9
Approach LOS				B

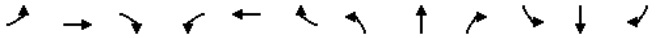
Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	37.3%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Signalized Intersection Capacity Analysis <FT2024>AM
8: Penetanguishene Road & Balm Beach Road E 10-03-2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	192	162	17	47	135	149	55	488	95	130	401	159
Future Volume (vph)	192	162	17	47	135	149	55	488	95	130	401	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0		5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1764		1752	1792	1509	1597	3574	1509	1719	3406	1553
Flt Permitted	0.56	1.00		0.64	1.00	1.00	0.45	1.00	1.00	0.36	1.00	1.00
Satd. Flow (perm)	1051	1764		1173	1792	1509	761	3574	1509	653	3406	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	209	176	18	51	147	162	60	530	103	141	436	173
RTOR Reduction (vph)	0	5	0	0	0	113	0	0	78	0	0	131
Lane Group Flow (vph)	209	189	0	51	147	49	60	530	25	141	436	42
Heavy Vehicles (%)	2%	6%	8%	3%	6%	7%	13%	1%	7%	5%	6%	4%
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2			6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		4
Actuated Green, G (s)	25.1	25.1		17.1	17.1	17.1	19.0	14.0	14.0	19.0	14.0	14.0
Effective Green, g (s)	25.1	25.1		17.1	17.1	17.1	19.0	14.0	14.0	19.0	14.0	14.0
Actuated g/C Ratio	0.44	0.44		0.30	0.30	0.30	0.33	0.25	0.25	0.33	0.25	0.25
Clearance Time (s)	3.0	5.0		5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Vehicle Extension (s)	3.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	524	775		351	536	451	326	876	369	310	835	380
v/s Ratio Prot	c0.03	0.11			0.08		0.02	c0.15		c0.04	0.13	
v/s Ratio Perm	c0.14			0.04		0.03	0.05		0.02	0.11		0.03
v/c Ratio	0.40	0.24		0.15	0.27	0.11	0.18	0.61	0.07	0.45	0.52	0.11
Uniform Delay, d1	10.3	10.0		14.6	15.3	14.5	13.2	19.1	16.5	13.9	18.7	16.7
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.2		0.2	0.3	0.1	0.3	1.2	0.1	1.1	0.6	0.1
Delay (s)	10.8	10.3		14.8	15.5	14.6	13.5	20.3	16.6	15.0	19.2	16.9
Level of Service	B	B		B	B	B	B	C	B	B	B	B
Approach Delay (s)		10.5			15.0			19.2			17.9	
Approach LOS		B			B			B			B	

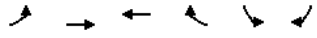
Intersection Summary					
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.50				
Actuated Cycle Length (s)	57.1	Sum of lost time (s)		16.0	
Intersection Capacity Utilization	61.5%	ICU Level of Service		B	
Analysis Period (min)	15				
c Critical Lane Group					



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	250	4	6	301	18	4	15	8	20	16	7
Future Volume (Veh/h)	9	250	4	6	301	18	4	15	8	20	16	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	272	4	7	327	20	4	16	9	22	17	8
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	347			276			662	655	274	662	647	337
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	347			276			662	655	274	662	647	337
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			99	96	99	94	96	99
cM capacity (veh/h)	1223			1299			358	383	770	358	387	710

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	286	354	29	47
Volume Left	10	7	4	22
Volume Right	4	20	9	8
cSH	1223	1299	449	403
Volume to Capacity	0.01	0.01	0.06	0.12
Queue Length 95th (m)	0.2	0.1	1.7	3.1
Control Delay (s)	0.4	0.2	13.6	15.1
Lane LOS	A	A	B	C
Approach Delay (s)	0.4	0.2	13.6	15.1
Approach LOS			B	C

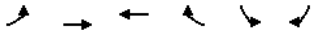
Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	31.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	292	325	42	58	37
Future Volume (Veh/h)	13	292	325	42	58	37
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	317	353	46	63	40
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	399				721	376
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	399				721	376
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				84	94
cM capacity (veh/h)	1171				392	675

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	331	399	103
Volume Left	14	0	63
Volume Right	0	46	40
cSH	1171	1700	469
Volume to Capacity	0.01	0.23	0.22
Queue Length 95th (m)	0.3	0.0	6.6
Control Delay (s)	0.5	0.0	14.8
Lane LOS	A		B
Approach Delay (s)	0.5	0.0	14.8
Approach LOS			B

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	38.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	55	38	34	49	10
Future Volume (Veh/h)	5	55	38	34	49	10
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	60	41	37	53	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	78				130	60
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	78				130	60
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				94	99
cM capacity (veh/h)	1520				862	1006

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	65	78	64
Volume Left	5	0	53
Volume Right	0	37	11
cSH	1520	1700	884
Volume to Capacity	0.00	0.05	0.07
Queue Length 95th (m)	0.1	0.0	1.9
Control Delay (s)	0.6	0.0	9.4
Lane LOS	A		A
Approach Delay (s)	0.6	0.0	9.4
Approach LOS			A

Intersection Summary			
Average Delay		3.1	
Intersection Capacity Utilization		17.0%	ICU Level of Service A
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	37	0	21	24	0	33
Future Volume (Veh/h)	37	0	21	24	0	33
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	40	0	23	26	0	36
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	72	36			49	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	72	36			49	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	100			100	
cM capacity (veh/h)	932	1037			1558	

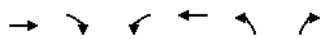
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	40	49	36
Volume Left	40	0	0
Volume Right	0	26	0
cSH	932	1700	1558
Volume to Capacity	0.04	0.03	0.00
Queue Length 95th (m)	1.1	0.0	0.0
Control Delay (s)	9.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay		2.9	
Intersection Capacity Utilization		13.3%	ICU Level of Service A
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	29	0	2	19	0	4
Future Volume (Veh/h)	29	0	2	19	0	4
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	0	2	21	0	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	16	12			23	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	16	12			23	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	1002	1068			1592	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	32	23	4
Volume Left	32	0	0
Volume Right	0	21	0
cSH	1002	1700	1592
Volume to Capacity	0.03	0.01	0.00
Queue Length 95th (m)	0.8	0.0	0.0
Control Delay (s)	8.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.7	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

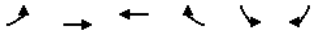


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	2	13	0	4	19
Future Volume (Veh/h)	0	2	13	0	4	19
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2	14	0	4	21
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			2		29	1
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2		29	1
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	98
cM capacity (veh/h)			1620		977	1084

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	2	14	25
Volume Left	0	14	4
Volume Right	2	0	21
cSH	1700	1620	1065
Volume to Capacity	0.00	0.01	0.02
Queue Length 95th (m)	0.0	0.2	0.6
Control Delay (s)	0.0	7.2	8.5
Lane LOS		A	A
Approach Delay (s)	0.0	7.2	8.5
Approach LOS			A

Intersection Summary			
Average Delay	7.6		
Intersection Capacity Utilization	17.4%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis <FT2024>PM
7: Balm Beach Road E & Sundowner 10-03-2023

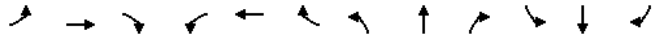


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	368	345	72	59	18
Future Volume (Veh/h)	14	368	345	72	59	18
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	400	375	78	64	20
Pedestrians		1				
Lane Width (m)		3.6				
Walking Speed (m/s)		1.2				
Percent Blockage		0				
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			99			
pX, platoon unblocked	0.96				0.96	0.96
vC, conflicting volume	453				805	376
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	410				776	329
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				81	97
cM capacity (veh/h)	1114				345	688

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	415	375	78	84
Volume Left	15	0	0	64
Volume Right	0	0	78	20
cSH	1114	1700	1700	392
Volume to Capacity	0.01	0.22	0.05	0.21
Queue Length 95th (m)	0.3	0.0	0.0	6.4
Control Delay (s)	0.4	0.0	0.0	16.7
Lane LOS	A			C
Approach Delay (s)	0.4	0.0		16.7
Approach LOS				C

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	42.1%	ICU Level of Service		A
Analysis Period (min)	15			

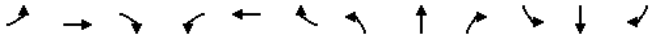
HCM Signalized Intersection Capacity Analysis <FT2024>PM
8: Penetanguishene Road & Balm Beach Road E 10-03-2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	226	150	66	96	152	263	43	872	76	161	921	238
Future Volume (vph)	226	150	66	96	152	263	43	872	76	161	921	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0		5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1749		1805	1863	1583	1687	3574	1583	1805	3539	1583
Flt Permitted	0.55	1.00		0.61	1.00	1.00	0.17	1.00	1.00	0.17	1.00	1.00
Satd. Flow (perm)	1044	1749		1163	1863	1583	309	3574	1583	330	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	246	163	72	104	165	286	47	948	83	175	1001	259
RTOR Reduction (vph)	0	23	0	0	0	168	0	0	54	0	0	169
Lane Group Flow (vph)	246	212	0	104	165	118	47	948	29	175	1001	90
Heavy Vehicles (%)	1%	3%	5%	0%	2%	2%	7%	1%	2%	0%	2%	2%
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2			6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		4
Actuated Green, G (s)	25.0	25.0		17.0	17.0	17.0	28.0	23.0	23.0	28.0	23.0	23.0
Effective Green, g (s)	25.0	25.0		17.0	17.0	17.0	28.0	23.0	23.0	28.0	23.0	23.0
Actuated g/C Ratio	0.38	0.38		0.26	0.26	0.26	0.42	0.35	0.35	0.42	0.35	0.35
Clearance Time (s)	3.0	5.0		5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Vehicle Extension (s)	3.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	451	662		299	479	407	235	1245	551	251	1233	551
v/s Ratio Prot	c0.04	0.12			0.09		0.02	0.27		c0.05	c0.28	
v/s Ratio Perm	c0.17			0.09		0.07	0.07		0.02	0.24		0.06
v/c Ratio	0.55	0.32		0.35	0.34	0.29	0.20	0.76	0.05	0.70	0.81	0.16
Uniform Delay, d1	15.5	14.5		20.0	20.0	19.7	12.6	19.1	14.3	13.5	19.5	14.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4	0.4		0.7	0.4	0.4	0.4	2.8	0.0	8.2	4.2	0.1
Delay (s)	16.8	14.9		20.7	20.4	20.1	13.0	21.9	14.3	21.6	23.7	15.0
Level of Service	B	B		C	C	C	B	C	B	C	C	B
Approach Delay (s)		15.9			20.3			20.9			21.9	
Approach LOS		B			C			C			C	

Intersection Summary						
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service		C		
HCM 2000 Volume to Capacity ratio	0.71					
Actuated Cycle Length (s)	66.0	Sum of lost time (s)		16.0		
Intersection Capacity Utilization	75.0%	ICU Level of Service		D		
Analysis Period (min)	15					
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis <FT2029>AM
1: Balm Beach Road E & Wilson Road 10-03-2023

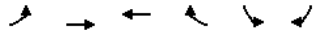


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	299	2	4	120	16	2	18	14	22	48	19
Future Volume (Veh/h)	16	299	2	4	120	16	2	18	14	22	48	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	325	2	4	130	17	2	20	15	24	52	21
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	147			327			554	515	326	532	508	138
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	147			327			554	515	326	532	508	138
tC, single (s)	4.1			4.1			7.1	6.6	6.2	7.2	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.1	3.3	3.6	4.0	3.4
p0 queue free %	99			100			99	96	98	94	89	98
cM capacity (veh/h)	1447			1244			394	448	720	423	460	899

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	344	151	37	97
Volume Left	17	4	2	24
Volume Right	2	17	15	21
cSH	1447	1244	525	502
Volume to Capacity	0.01	0.00	0.07	0.19
Queue Length 95th (m)	0.3	0.1	1.8	5.7
Control Delay (s)	0.5	0.2	12.4	13.9
Lane LOS	A	A	B	B
Approach Delay (s)	0.5	0.2	12.4	13.9
Approach LOS			B	B

Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	41.3%	ICU Level of Service	A	
Analysis Period (min)	15			

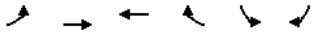
HCM Unsignalized Intersection Capacity Analysis <FT2029>AM
2: Balm Beach Road E & Sundowner Road West 10-03-2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	22	340	158	47	35	13
Future Volume (Veh/h)	22	340	158	47	35	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	370	172	51	38	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	223				616	198
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	223				616	198
tC, single (s)	4.1				6.4	6.4
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.4
p0 queue free %	98				92	98
cM capacity (veh/h)	1358				450	812

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	394	223	52
Volume Left	24	0	38
Volume Right	0	51	14
cSH	1358	1700	511
Volume to Capacity	0.02	0.13	0.10
Queue Length 95th (m)	0.4	0.0	2.7
Control Delay (s)	0.6	0.0	12.8
Lane LOS	A		B
Approach Delay (s)	0.6	0.0	12.8
Approach LOS			B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	30	45	40	27	4
Future Volume (Veh/h)	9	30	45	40	27	4
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	33	49	43	29	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	92				124	70
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	92				124	70
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	100
cM capacity (veh/h)	1503				866	992

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	43	92	33
Volume Left	10	0	29
Volume Right	0	43	4
cSH	1503	1700	879
Volume to Capacity	0.01	0.05	0.04
Queue Length 95th (m)	0.2	0.0	0.9
Control Delay (s)	1.8	0.0	9.3
Lane LOS	A		A
Approach Delay (s)	1.8	0.0	9.3
Approach LOS			A

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	18.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	19	0	28	30	0	17
Future Volume (Veh/h)	19	0	28	30	0	17
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	21	0	30	33	0	18
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	64	46			63	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	64	46			63	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	941	1023			1540	

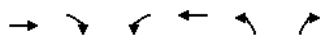
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	21	63	18
Volume Left	21	0	0
Volume Right	0	33	0
cSH	941	1700	1540
Volume to Capacity	0.02	0.04	0.00
Queue Length 95th (m)	0.5	0.0	0.0
Control Delay (s)	8.9	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.9	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	16	0	4	24	0	2
Future Volume (Veh/h)	16	0	4	24	0	2
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	0	4	26	0	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	19	17			30	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	19	17			30	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	998	1062			1583	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	17	30	2
Volume Left	17	0	0
Volume Right	0	26	0
cSH	998	1700	1583
Volume to Capacity	0.02	0.02	0.00
Queue Length 95th (m)	0.4	0.0	0.0
Control Delay (s)	8.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.7	0.0	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	13.3%	ICU Level of Service		A
Analysis Period (min)	15			

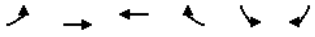


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	4	15	0	2	10
Future Volume (Veh/h)	0	4	15	0	2	10
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	4	16	0	2	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			4		34	2
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			4		34	2
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	99
cM capacity (veh/h)			1618		970	1082

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	4	16	13
Volume Left	0	16	2
Volume Right	4	0	11
cSH	1700	1618	1063
Volume to Capacity	0.00	0.01	0.01
Queue Length 95th (m)	0.0	0.2	0.3
Control Delay (s)	0.0	7.2	8.4
Lane LOS		A	A
Approach Delay (s)	0.0	7.2	8.4
Approach LOS			A

Intersection Summary				
Average Delay	6.8			
Intersection Capacity Utilization	17.5%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis <FT2029>AM
7: Balm Beach Road E & Sundowner Road East 10-03-2023

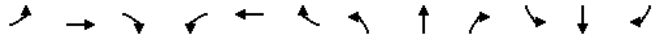


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	389	286	42	14	5
Future Volume (Veh/h)	11	389	286	42	14	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	423	311	46	15	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			95			
pX, platoon unblocked	0.97				0.97	0.97
vC, conflicting volume	357				758	311
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	316				732	269
tC, single (s)	4.2				6.6	6.4
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.5
p0 queue free %	99				96	99
cM capacity (veh/h)	1159				341	704

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	435	311	46	20
Volume Left	12	0	0	15
Volume Right	0	0	46	5
cSH	1159	1700	1700	391
Volume to Capacity	0.01	0.18	0.03	0.05
Queue Length 95th (m)	0.3	0.0	0.0	1.3
Control Delay (s)	0.3	0.0	0.0	14.7
Lane LOS	A			B
Approach Delay (s)	0.3	0.0		14.7
Approach LOS				B

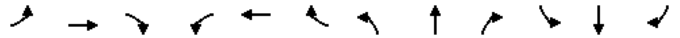
Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	39.3%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Signalized Intersection Capacity Analysis <FT2029>AM
8: Penetanguishene Road & Balm Beach Road E 10-03-2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	192	182	17	47	150	149	55	552	95	130	454	159
Future Volume (vph)	192	182	17	47	150	149	55	552	95	130	454	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0		5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1767		1752	1792	1509	1597	3574	1509	1719	3406	1553
Flt Permitted	0.56	1.00		0.62	1.00	1.00	0.40	1.00	1.00	0.31	1.00	1.00
Satd. Flow (perm)	1036	1767		1149	1792	1509	677	3574	1509	561	3406	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	209	198	18	51	163	162	60	600	103	141	493	173
RTOR Reduction (vph)	0	5	0	0	0	115	0	0	76	0	0	127
Lane Group Flow (vph)	209	211	0	51	163	47	60	600	27	141	493	46
Heavy Vehicles (%)	2%	6%	8%	3%	6%	7%	13%	1%	7%	5%	6%	4%
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2			6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		4
Actuated Green, G (s)	25.1	25.1		17.1	17.1	17.1	20.4	15.4	15.4	20.4	15.4	15.4
Effective Green, g (s)	25.1	25.1		17.1	17.1	17.1	20.4	15.4	15.4	20.4	15.4	15.4
Actuated g/C Ratio	0.43	0.43		0.29	0.29	0.29	0.35	0.26	0.26	0.35	0.26	0.26
Clearance Time (s)	3.0	5.0		5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Vehicle Extension (s)	3.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	507	758		335	523	441	314	940	397	294	896	408
v/s Ratio Prot	c0.04	0.12			0.09		0.02	c0.17		c0.04	0.14	
v/s Ratio Perm	c0.14			0.04		0.03	0.05		0.02	0.13		0.03
v/c Ratio	0.41	0.28		0.15	0.31	0.11	0.19	0.64	0.07	0.48	0.55	0.11
Uniform Delay, d1	10.9	10.8		15.3	16.1	15.1	12.9	19.1	16.2	13.7	18.6	16.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.3		0.2	0.3	0.1	0.3	1.4	0.1	1.2	0.7	0.1
Delay (s)	11.5	11.1		15.5	16.5	15.2	13.2	20.5	16.2	14.9	19.3	16.5
Level of Service	B	B		B	B	B	B	C	B	B	B	B
Approach Delay (s)		11.3			15.8			19.4			17.9	
Approach LOS		B			B			B			B	

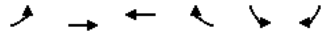
Intersection Summary						
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio	0.53					
Actuated Cycle Length (s)	58.5	Sum of lost time (s)		16.0		
Intersection Capacity Utilization	63.3%	ICU Level of Service		B		
Analysis Period (min)	15					
c Critical Lane Group						



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	282	4	6	338	18	4	17	8	20	18	7
Future Volume (Veh/h)	9	282	4	6	338	18	4	17	8	20	18	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	307	4	7	367	20	4	18	9	22	20	8
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	387			311			738	730	309	738	722	377
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	387			311			738	730	309	738	722	377
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			99	95	99	93	94	99
cM capacity (veh/h)	1183			1261			314	347	736	316	350	674

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	321	394	31	50
Volume Left	10	7	4	22
Volume Right	4	20	9	8
cSH	1183	1261	403	361
Volume to Capacity	0.01	0.01	0.08	0.14
Queue Length 95th (m)	0.2	0.1	2.0	3.8
Control Delay (s)	0.3	0.2	14.7	16.6
Lane LOS	A	A	B	C
Approach Delay (s)	0.3	0.2	14.7	16.6
Approach LOS			B	C

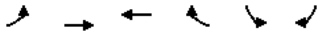
Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	34.2%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	329	366	42	58	37
Future Volume (Veh/h)	13	329	366	42	58	37
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	358	398	46	63	40
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	444				807	421
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	444				807	421
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				82	94
cM capacity (veh/h)	1127				349	637

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	372	444	103
Volume Left	14	0	63
Volume Right	0	46	40
cSH	1127	1700	423
Volume to Capacity	0.01	0.26	0.24
Queue Length 95th (m)	0.3	0.0	7.5
Control Delay (s)	0.4	0.0	16.2
Lane LOS	A		C
Approach Delay (s)	0.4	0.0	16.2
Approach LOS			C

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	40.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	55	38	34	49	10
Future Volume (Veh/h)	5	55	38	34	49	10
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	60	41	37	53	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	78				130	60
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	78				130	60
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				94	99
cM capacity (veh/h)	1520				862	1006

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	65	78	64
Volume Left	5	0	53
Volume Right	0	37	11
cSH	1520	1700	884
Volume to Capacity	0.00	0.05	0.07
Queue Length 95th (m)	0.1	0.0	1.9
Control Delay (s)	0.6	0.0	9.4
Lane LOS	A		A
Approach Delay (s)	0.6	0.0	9.4
Approach LOS			A

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	17.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	37	0	21	24	0	33
Future Volume (Veh/h)	37	0	21	24	0	33
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	40	0	23	26	0	36
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	72	36			49	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	72	36			49	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	100			100	
cM capacity (veh/h)	932	1037			1558	

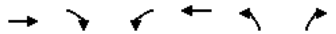
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	40	49	36
Volume Left	40	0	0
Volume Right	0	26	0
cSH	932	1700	1558
Volume to Capacity	0.04	0.03	0.00
Queue Length 95th (m)	1.1	0.0	0.0
Control Delay (s)	9.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	29	0	2	19	0	4
Future Volume (Veh/h)	29	0	2	19	0	4
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	0	2	21	0	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	16	12			23	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	16	12			23	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	1002	1068			1592	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	32	23	4
Volume Left	32	0	0
Volume Right	0	21	0
cSH	1002	1700	1592
Volume to Capacity	0.03	0.01	0.00
Queue Length 95th (m)	0.8	0.0	0.0
Control Delay (s)	8.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.7	0.0	0.0
Approach LOS	A		

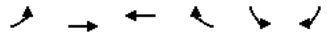
Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	2	13	0	4	19
Future Volume (Veh/h)	0	2	13	0	4	19
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2	14	0	4	21
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			2		29	1
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2		29	1
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	98
cM capacity (veh/h)			1620		977	1084

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	2	14	25
Volume Left	0	14	4
Volume Right	2	0	21
cSH	1700	1620	1065
Volume to Capacity	0.00	0.01	0.02
Queue Length 95th (m)	0.0	0.2	0.6
Control Delay (s)	0.0	7.2	8.5
Lane LOS		A	A
Approach Delay (s)	0.0	7.2	8.5
Approach LOS			A

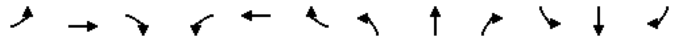
Intersection Summary			
Average Delay	7.6		
Intersection Capacity Utilization	17.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	403	381	72	59	18
Future Volume (Veh/h)	14	403	381	72	59	18
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	438	414	78	64	20
Pedestrians		1				
Lane Width (m)		3.6				
Walking Speed (m/s)		1.2				
Percent Blockage		0				
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			99			
pX, platoon unblocked	0.94				0.94	0.94
vC, conflicting volume	492				882	415
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	429				844	347
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				79	97
cM capacity (veh/h)	1074				309	659

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	453	414	78	84
Volume Left	15	0	0	64
Volume Right	0	0	78	20
cSH	1074	1700	1700	353
Volume to Capacity	0.01	0.24	0.05	0.24
Queue Length 95th (m)	0.3	0.0	0.0	7.3
Control Delay (s)	0.4	0.0	0.0	18.3
Lane LOS	A			C
Approach Delay (s)	0.4	0.0		18.3
Approach LOS				C

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	226	165	66	96	169	263	43	986	76	161	1042	238
Future Volume (vph)	226	165	66	96	169	263	43	986	76	161	1042	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0		5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1756		1805	1863	1583	1687	3574	1583	1805	3539	1583
Flt Permitted	0.52	1.00		0.60	1.00	1.00	0.16	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)	981	1756		1147	1863	1583	291	3574	1583	311	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	246	179	72	104	184	286	47	1072	83	175	1133	259
RTOR Reduction (vph)	0	21	0	0	0	160	0	0	53	0	0	165
Lane Group Flow (vph)	246	230	0	104	184	126	47	1072	30	175	1133	94
Heavy Vehicles (%)	1%	3%	5%	0%	2%	2%	7%	1%	2%	0%	2%	2%
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2			6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		4
Actuated Green, G (s)	25.0	25.0		17.0	17.0	17.0	29.4	24.4	24.4	29.4	24.4	24.4
Effective Green, g (s)	25.0	25.0		17.0	17.0	17.0	29.4	24.4	24.4	29.4	24.4	24.4
Actuated g/C Ratio	0.37	0.37		0.25	0.25	0.25	0.44	0.36	0.36	0.44	0.36	0.36
Clearance Time (s)	3.0	5.0		5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Vehicle Extension (s)	3.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	423	651		289	469	399	230	1293	573	246	1281	573
v/s Ratio Prot	c0.04	0.13			0.10		0.02	0.30		c0.05	c0.32	
v/s Ratio Perm	c0.17			0.09		0.08	0.07		0.02	0.26		0.06
v/c Ratio	0.58	0.35		0.36	0.39	0.32	0.20	0.83	0.05	0.71	0.88	0.16
Uniform Delay, d1	16.5	15.3		20.7	20.9	20.5	13.1	19.6	14.0	13.9	20.2	14.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0	0.5		0.8	0.5	0.5	0.4	4.5	0.0	9.3	7.6	0.1
Delay (s)	18.5	15.8		21.5	21.5	20.9	13.5	24.1	14.0	23.2	27.8	14.7
Level of Service	B	B		C	C	C	B	C	B	C	C	B
Approach Delay (s)		17.1			21.2			23.0			25.1	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	67.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

APPENDIX

C PARKING BY-LAW EXCERPTS

(4) Parking Space Access

Other than **stacked parking space** and **tandem parking spaces**, all areas used for required **parking spaces** must have **driveway** access to a **street** or **lane** that is direct and unobstructed, excluding a gate, moveable barrier or similar security feature.

(5) Parking Space Rates

Off **street parking spaces** must be provided for every **building** or **structure** erected or enlarged, in compliance with Table 970.10.15.5 - Parking Space Rates and Parking Space Occupancy below:

Table 970.10.15.5
Parking Space Rates and Parking Space Occupancy

Notes:
AM = 6 a.m. to Noon. PM = Noon to 6 p.m. Eve = 6 p.m. to 6 a.m.

		Parking Occupancy Rate		
Land Use	**Parking Rate**	**AM**	**PM**	**Eve**
Adult Education School	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2) and Policy Area 3 (PA3) at a minimum rate of 1.0 for each 100 square metres of **gross floor area**; (B) in Policy Area 4 (PA4) at a minimum rate of 1.5 for each 100 square metres of **gross floor area**; and (C) in all other areas of the City, at a minimum rate of 2.0 for each 100 square metres of **gross floor area**.	100%	100%	25%
Adult Entertainment	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) at a minimum rate of 3.0 for each 100 square metres of **gross floor area**; (B) in Policy Area 2 (PA2) at a minimum rate of 4.5 for each 100 square metres of **gross floor area**; (C) in Policy Area 3 (PA3) at a minimum rate of 5.5 for each 100 square metres of **gross floor area**; (D) in Policy Area 4 (PA4) at a minimum rate of 5.5 for each 100 square metres of **gross floor area**; and (E) in all other areas of the City, at a minimum rate of 7.0 for each 100 square metres of **gross floor area**.	25%	100%	100%
Alternative Housing	**Parking spaces** must be provided at a minimum rate of 0.1 for each **dwelling unit**.	100%	100%	100%
Ambulance Depot	**Parking spaces** must be provided at a minimum rate of 0.2 for each 100 square metres of **gross floor area**.	100%	100%	100%
Amusement Arcade	**Parking spaces** must be provided at the same rate as a **retail store**.	25%	100%	100%

		Parking Occupancy Rate		
Land Use	**Parking Rate**	**AM**	**PM**	**Eve**
Animal Shelter	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) at a minimum rate of 0.4 for each 100 square metres of **gross floor area** and at a maximum rate of 0.8 for each 100 square metres of **gross floor area**; and (B) in the rest of the City at a minimum rate of 1 for each 100 square metres of **gross floor area**.	100%	100%	100%
Artist Studio	**Parking spaces** must be provided at the same rate as a **retail store**.	25%	100%	100%
Art Gallery	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3), Policy Area 4 (PA4) at a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City at a minimum rate of 1.3 for each 100 square metres of **gross floor area**.	25%	100%	100%
Assisted Housing	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) for each **dwelling unit** at a minimum rate of: (i) 0.12 for a bachelor **dwelling unit** up to 45 square metres and 0.5 for each bachelor **dwelling unit** greater than 45 square metres; (ii) 0.18 for a one bedroom **dwelling unit**; (iii) 0.3 for a two bedroom **dwelling unit**; and (iv) 0.5 for a three or more bedroom **dwelling unit**; and (B) in Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4), for each **dwelling unit** at a minimum rate of: (i) 0.14 for a bachelor **dwelling unit** up to 45 square metres and 0.5 for each bachelor **dwelling unit** greater than 45 square metres; (ii) 0.24 for a one bedroom **dwelling unit**; (iii) 0.4 for a two bedroom **dwelling unit**; and (iv) 0.75 for a three or more bedroom; **dwelling unit** and (C) in all other areas of the City for each **dwelling unit** at a minimum rate of: (i) 0.16 for a bachelor **dwelling unit** up to 45 square metres and 0.5 for each bachelor **dwelling unit** greater than 45 square metres; (ii) 0.3 for a one bedroom **dwelling unit**; (iii) 0.5 for a two bedroom **dwelling unit**; and (iv) 0.9 for a three or more bedroom **dwelling unit**.	100%	100%	100%
Billiard Hall, Pool Hall	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) at a minimum rate of 2.5 for each 100 square metres of **gross floor area**; (B) in Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4) at a minimum rate of 3.5 for each 100 square metres of **gross floor area**; and (C) in all other areas of the City at a minimum rate of 4.0 for each 100 square metres of **gross floor area**.	25%	50%	100%

		Parking Occupancy Rate		
Land Use	**Parking Rate**	**AM**	**PM**	**Eve**
Bowling Alley	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) at a minimum rate of 2.5 for each 100 square metres of **gross floor area**; (B) in Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4) at a minimum rate of 3.5 for each 100 square metres of **gross floor area**; and (C) in all other areas of the City at a minimum rate of 4.0 for each 100 square metres of **gross floor area**.	25%	50%	100%
Bus Station	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2) and Policy Area 3 (PA3) at a minimum rate of 0.1 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City at a minimum rate of 0.2 for each 100 square metres of **gross floor area**.	100%	100%	50%
Cabaret	**Parking spaces** must be provided at the same rate as an **eating establishment**.	10%	100%	100%
Cemetery	**Parking spaces** must be provided at a minimum rate of 2.0 for each 100 square metres of **gross floor area**.	100%	100%	100%
Clinic (medical)	**Parking spaces** must be provided : (A) in Policy Area 1 (PA1), Policy Area 2 (PA2) and Policy Area 3 (PA3): (i) at a minimum rate of 0.4 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 0.8 for each 100 square metres of **gross floor area**; and (B) in Policy Area 4 (PA4): (i) at a minimum rate of 0.6 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 1.0 for each 100 square metres of **gross floor area**; and (C) in all other areas of the City, at a minimum rate of 1.0 for each 100 square metres of **gross floor area**.	100%	100%	100%
Club	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), at a minimum rate of 3.0 for each 100 square metres of **gross floor area**; (B) in Policy Area 2 (PA2), at a minimum rate of 4.5 for each 100 square metres of **gross floor area**; (C) in Policy Area 3 (PA3)and Policy Area 4 (PA4), at a minimum rate of 5.5 for each 100 square metres of **gross floor area**; and (D) in all other areas of the City at a minimum rate of 7.0 for each 100 square metres of **gross floor area**.	25%	75%	100%
Community Centre	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4): (i) at a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 1.3 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City at a minimum rate of 3.0 for each 100 square metres of **gross floor area**.	25%	100%	100%

		Parking Occupancy Rate		
Land Use	**Parking Rate**	**AM**	**PM**	**Eve**
Contractor's Establishment	**Parking spaces** must be provided at a minimum rate of 0.5 for each 100 square metres of **gross floor area**.	100%	100%	100%
Court of Law	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4) at a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City at a minimum rate of 1.0 for each 100 square metres of **gross floor area**.	100%	100%	0%
Crisis Care Shelter	**Parking spaces** must be provided: (A) at a minimum rate of 0.22 for each 100 square metres of **gross floor area**; and (B) at a maximum rate of 1.5 for each 100 square metres of **gross floor area**.	100%	100%	100%
Day Nursery	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4): (i) at a minimum rate of 0.4 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 0.8 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City at a minimum rate of 1.0 for each 100 square metres of **gross floor area**.	100%	100%	50%
Dwelling Unit in a **Detached House**, **Semi-detached House**, **Townhouse**, **Duplex**, **Triplex or Fourplex**	**Parking spaces** must be provided at a minimum rate of 1.0 for each **dwelling unit**.	100%	100%	100%
Dwelling unit in a Multiple Dwelling Unit Buildings – Resident **Parking Space**	**Parking spaces** must be provided at a minimum rate of 1.0 for each **dwelling unit**.	100%	100%	100%
Dwelling unit in a Multiple Dwelling Unit Buildings – Visitor **Parking Space**	**Parking spaces** must be provided at a minimum rate of 0.2 for each **dwelling unit**. [1676-2013]	100%	100%	100%

		Parking Occupancy Rate		
Land Use	**Parking Rate**	**AM**	**PM**	**Eve**
Dwelling unit in an **Apartment Building** (Resident requirement)	For a **dwelling unit** in an **apartment building**, **parking spaces** must be provided: (A) in Policy Area 1 (PA1): (i) at a minimum rate of : (a) 0.3 for each bachelor **dwelling unit** up to 45 square metres and 1.0 for each bachelor **dwelling unit** greater than 45 square metres; (b) 0.5 for each one bedroom **dwelling unit**; (c) 0.8 for each two bedroom **dwelling unit**; and (d) 1.0 for each three or more bedroom **dwelling unit**; and (ii) at a maximum rate of: (a) 0.4 for each bachelor **dwelling unit** up to 45 square metres and 1.2 for each bachelor **dwelling unit** greater than 45 square metres; (b) 0.7 for each one bedroom **dwelling unit**; (c) 1.2 for each two bedroom **dwelling unit**; and (d) 1.5 for each three or more bedroom **dwelling unit**; and (B) in Policy Area 2 (PA2) and Policy Area 3 (PA3): (i) at a minimum rate of : (a) 0.6 for each bachelor **dwelling unit** up to 45 square metres and 1.0 for each bachelor **dwelling unit** greater than 45 square metres; (b) 0.7 for each one bedroom **dwelling unit**; (c) 0.9 for each two bedroom **dwelling unit**; and (d) 1.0 for each three or more bedroom **dwelling unit**; and (ii) at a maximum rate of: (a) 0.9 for each bachelor **dwelling unit** up to 45 square metres and 1.3 for each bachelor **dwelling unit** greater than 45 square metres; (b) 1.0 for each one bedroom **dwelling unit**; (c) 1.3 for each two bedroom **dwelling unit**; and (d) 1.5 for each three or more bedroom **dwelling unit**; and (C) in Policy Area 4 (PA4): (i) at a minimum rate of : (a) 0.7 for each bachelor **dwelling unit** up to 45 square metres and 1.0 for each bachelor **dwelling unit** greater than 45 square metres; (b) 0.8 for each one bedroom **dwelling unit**; (c) 0.9 for each two bedroom **dwelling unit**; and (d) 1.1 for each three or more bedroom **dwelling unit**; and (ii) at a maximum rate of: (a) 1.0 for each bachelor **dwelling unit** up to 45 square metres and 1.3 for each bachelor **dwelling unit** greater than 45 square metres; (b) 1.2 for each one bedroom **dwelling unit**; (c) 1.3 for each two bedroom **dwelling unit**; and (d) 1.6 for each three or more bedroom **dwelling unit**; and (D) in all other areas of the City: (i) at a minimum rate of : (a) 0.8 for each bachelor **dwelling unit** up to 45 square metres and 1.0 for each bachelor **dwelling unit** greater than 45 square metres; (b) 0.9 for each one bedroom **dwelling unit**; (c) 1.0 for each two bedroom **dwelling unit**; and (d) 1.2 for each three or more bedroom **dwelling unit**.	100%	100%	100%

		Parking Occupancy Rate		
Land Use	**Parking Rate**	**AM**	**PM**	**Eve**
Dwelling unit in an **Apartment Building** – (Visitor requirement)	For a **dwelling unit** in an **Apartment Building**, **parking spaces** for visitors must be provided: (A) in Policy Area 1 (PA1) at a minimum rate of 0.1 for each **dwelling unit**; (B) in Policy Area 2 (PA2) at a minimum rate of 0.1 for each **dwelling unit**; (C) in Policy Area 3 (PA3) at a minimum rate of 0.1 for each **dwelling unit**; (D) in Policy Area 4 (PA4) at a minimum rate of 0.15 for each **dwelling unit**; and (E) in all other areas of the City at a minimum rate of 0.2 for each **dwelling unit**.	10%	35%	100%
Dwelling unit in a **Mixed Use Building**	**Parking spaces** are to be provided at the same rate as a **Dwelling unit** in an **Apartment Building**. [1675-2013]	100%	100%	100%
Dwelling unit in a **Mixed Use Building Visitor Parking**	For a **dwelling unit** in an **Mixed Use Building**, **parking spaces** for visitors must be provided: (A) in Policy Area 1 (PA1) at a minimum rate of 0.1 for each **dwelling unit**; (B) in Policy Area 2 (PA2) at a minimum rate of 0.1 for each **dwelling unit**; (C) in Policy Area 3 (PA3) at a minimum rate of 0.1 for each **dwelling unit**; (D) in Policy Area 4 (PA4) at a minimum rate of 0.15 for each **dwelling unit**; and (E) in all other areas of the City at a minimum rate of 0.2 for each **dwelling unit**. [1676-2013]	10%	35%	100%
Eating Establishment	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1): (i) at a minimum of 0; and (ii) at a maximum rate of 3.5 for each 100 square metres of **gross floor area**; and (B) in Policy Area 2 (PA2): (i) at a minimum of 0; and (ii) at a maximum rate of 4.0 for each 100 square metres of **gross floor area**; and (C) in Policy Areas and 3 (PA3) and 4 (PA4) : (i) at a minimum of 0; and (ii) at a maximum rate of 5.0 for each 100 square metres of **gross floor area**; and (D) in all other areas of the City: (i) where the **gross floor area** used for **eating establishments** in a building is less than 200 square metres no **parking space** is required; (ii) where the **gross floor area** used for **eating establishments** in a building is 200 square metres or more but less than 500 square metres, **parking spaces** must be provided at a minimum rate of 3.0 for each 100 square metres of **gross floor area**; and (iii) where the **gross floor area** used for **eating establishments** in a building is 500 square metres or more, **parking spaces** must be provided at a minimum rate of 5.0 for each 100 square metres of **gross floor area**.	100%	100%	100%

		Parking Occupancy Rate		
Land Use	**Parking Rate**	**AM**	**PM**	**Eve**
Education Use	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) and Policy Area 2 (PA2), at a minimum rate of 0.5 for each 100 square metres of **gross floor area**; (B) in Policy Area 3 (PA3) at a minimum rate of 1.5 for each 100 square metres of **gross floor area**; (C) in Policy Area 4 (PA4) at a minimum rate of 2.0 for each 100 square metres of **gross floor area**; and (D) in all other areas of the City at a minimum rate of 3.0 for each 100 square metres of **gross floor area**.	100%	100%	50%
Entertainment Place of Assembly	**Parking spaces** must be provided at the a minimum rate of: (A) 5.0 for each 100 square metres of **gross floor area** in Policy Area 1 (PA1) ; (B) 8.0 for each 100 square metres of **gross floor area** in Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4); and (C) 10.0 for each 100 square metres of **gross floor area** in all other areas.	25%	50%	100%
Financial Institution	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) at: (i) a minimum rate of 2.0 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 3.5 for each 100 square metres of **gross floor area**; and (B) in Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4) at: (i) a minimum rate of 2.0 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 4.5 for each 100 square metres of **gross floor area**; and (C) in all other areas of the City, at a minimum rate of 4.0 for each 100 square metres of **gross floor area**.	20%	100%	50%
Fire Hall	**Parking spaces** must be provided at a minimum rate of 0.2 for each 100 square metres of **gross floor area**.	100%	100%	100%

		Parking Occupancy Rate		
Land Use	**Parking Rate**	**AM**	**PM**	**Eve**
Funeral Home	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) and Policy Area 2 (PA2): (i) at a minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 4.0 for each 100 square metres of **gross floor area**; and (B) in Policy Area 3 (PA3): (i) at a minimum rate of 2.0 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 5.0 for each 100 square metres of **gross floor area**; and (C) in Policy Area 4 (PA4): (i) at a minimum rate of 3.0 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 6.0 for each 100 square metres of **gross floor area**; and (D) in all other areas of the City at a minimum rate of 6.0 for each 100 square metres of **gross floor area**.	20%	100%	100%
Gaming Establishment	**Parking spaces** must be provided at a minimum rate of 25.0 for each 100 square metres of **gross floor area**.	100%	100%	100%
Golf Course	The minimum number of **parking space** to be provided is the greater of: (A) 24; and (B) 3.5 for each 100 square metres of **gross floor area** of all **buildings**.	100%	100%	100%
Grocery Store	**Parking spaces** must be provided if the **gross floor area** used for grocery stores is greater than 200 square metres: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4): (i) at a minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 4.5 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City, at a minimum rate of 2.5 for each 100 square metres of **gross floor area**; and (C) if the **gross floor area** is 200 square metres or less, no **parking space** is required.	20%	100%	100%
Group Home	**Parking spaces** must be provided at a minimum rate of 2 for a **group home.**	100%	100%	100%
Hospice Care Home	**Parking spaces** must be provided at a rate of 0.3 for each **dwelling unit** and **bed-sitting room**.	100%	100%	100%

		Parking Occupancy Rate		
Land Use	**Parking Rate**	**AM**	**PM**	**Eve**
Hospital	**Parking spaces** must be provided : (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4) at: (i) a minimum rate of 0.4 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 0.8 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City, at a minimum rate of 3.5 for each 100 square metres of **gross floor area**.	20%	100%	100%
Hotel	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4); (i) a minimum rate of 0.2 per 100 square metres of **gross floor area**; (ii) a maximum rate of 1.0 per 100 square metres of **gross floor area**; and (B) in all other areas of the City, at a minimum rate of 1.0 for each guest room.	80%	75%	100%
Industrial Sales and Service	**Parking spaces** must be provided at the same rate as a **retail store**.	100%	100%	0%
Industrial Skills Training	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2) at a minimum rate of 2.0 for each 100 square metres of **gross floor area**; (B) in Policy Area 3 (PA3) at a minimum rate of 2.5 for each 100 square metres of **gross floor area**; (C) in Policy Area 4 (PA4) at a minimum rate of 3.0 for each 100 square metres of **gross floor area**; and (D) in all other areas of the City, at a minimum rate of 5.0 for each 100 square metres of **gross floor area**.	100%	100%	0%
Kennel	**Parking spaces** must be provided at a minimum of 1 for each 100 square metres of pen area for animals.	100%	100%	0%
Laboratory	**Parking spaces** must be provided at the same rate as office.	100%	60%	0%
Library	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3), Policy Area 4 (PA4) at a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City at a minimum rate of 1.3 for each 100 square metres of **gross floor area**.	25%	100%	100%
Manufacturing Uses	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4), at a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City, at a minimum rate of 1.0 for each 100 square metres of **gross floor area**.	100%	100%	100%

		Parking Occupancy Rate		
Land Use	**Parking Rate**	**AM**	**PM**	**Eve**
Medical Office	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) at: (i) a minimum rate of 0.3 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 3.0 for each 100 square metres of **gross floor area**; and (B) in Policy Area 2 (PA2) at: (i) a minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 3.5 for each 100 square metres of **gross floor area**; and (C) in Policy Area 3 (PA3) and Policy Area 4 (PA4) at: (i) a minimum rate of 1.5 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 6.0 for each 100 square metres of **gross floor area**; and (D) in all other areas of the City, at a minimum rate of 3.0 for each 100 square metres of **gross floor area**.	100%	100%	50%
Motel	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4): (i) a minimum rate of 0.2 per 100 square metres of **gross floor area**; and (ii) a maximum rate of 1.0 per 100 square metres of **gross floor area**; and (B) in all other areas of the City, at a minimum rate of 1.0 for each guest room.	80%	75%	100%
Municipal Shelter,	**Parking spaces** must be provided: (A) at a minimum rate of 0.22 for each 100 square metres of **gross floor area**; and (B) at a maximum rate of 1.5 for each 100 square metres of **gross floor area**.	100%	100%	100%
Museum	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3), Policy Area 4 (PA4) at a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City at a minimum rate of 1.3 for each 100 square metres of **gross floor area**.	25%	100%	100%
Nightclub	**Parking spaces** must be provided at the minimum rate of: (A) 3.0 for each 100 square metres for **gross floor area** in Policy Area 1 (PA1) ; (B) 4.5 for each 100 square metres for **gross floor area** in Policy Area 2 (PA2); (C) 5.5 for each 100 square metres for **gross floor area** in Policy Area 3 (PA3) and Policy Area 4 (PA4); and (D) 7.0 for each 100 square metres for **gross floor area** in all other areas of the City.	20%	50%	100%

		Parking Occupancy Rate		
Land Use	**Parking Rate**	**AM**	**PM**	**Eve**
Nursing Home	**Parking spaces** must be provided at a rate of 0.3 for each **dwelling unit** and **bed-sitting room**.	100%	100%	100%
Office (excluding Medical office)	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) at: (i) a minimum rate of 0.35 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 0.8 for each 100 square metres of **gross floor area**; and (B) in Policy Area 2 (PA2)at: (i) a minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) a maximum rate 1.4 for each 100 square metres of **gross floor area**; and (C) in Policy Area 3 (PA3) and Policy Area 4 (PA4) at: (i) a minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 2.0 for each 100 square metres of **gross floor area**; and (D) in all other areas of the City, at a minimum rate of 1.5 for each 100 square metres of **gross floor area**.	100%	60%	0%
Park	**Parking spaces** must be provided: (A) for a **building** with a **recreation use** and located in the OR zone: (i) at a minimum 0.25 for each 100 square metres of **gross floor area** if it is located in Policy Areas 1 through 4; and (ii) at a minimum rate of 1.0 for each 100 square metres of **gross floor area** if not located in Policy Areas 1 through 4; and (B) for an arena located in the OR zone at a minimum rate of 3.0 for each 100 square metres of **gross floor area**.	100%	100%	100%
Performing Arts Studio	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), and Policy Area 3 (PA3) and Policy Area 4 (PA4); (i) at a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 1.3 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City, at a minimum rate of 3.0 for each 100 square metres of **gross floor area**.	10%	100%	100%

		Parking Occupancy Rate		
Land Use	**Parking Rate**	**AM**	**PM**	**Eve**
Personal Service Shop	**Parking spaces** must be provided if the **gross floor area** used for **personal service shops** is greater than 200 square metres: (A) in Policy Area 1 (PA1) at a: (i) minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) maximum rate of 3.5 for each 100 square metres of **gross floor area**; and (B) in Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4) at a: (i) minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) maximum rate of 4.0 for each 100 square metres of **gross floor area**; and (C) in all other areas of the City at a minimum rate of 1.5 for each 100 square metres of **gross floor area**; and (D) if the **gross floor area** is 200 square metres or less, no **parking space** is required.	20%	100%	100%
Pet Services	**Parking spaces** must be provided at the same rate as a **retail store**.	20%	100%	100%
Place of Assembly	**Parking spaces** must be provided at the minimum rate of: (A) 3.0 for each 100 square metres for **gross floor area** in Policy Area 1 (PA1) ; (B) 4.5 for each 100 square metres for **gross floor area** in Policy Area 2 (PA2); (C) 5.5 for each 100 square metres for **gross floor area** in Policy Area 3 (PA3) and Policy Area 4 (PA4); and (D) 7.0 for each 100 square metres for **gross floor area** in all other areas of the City.	25%	50%	100%

		Parking Occupancy Rate		
Land Use	**Parking Rate**	**AM**	**PM**	**Eve**
Place of Worship	**Parking spaces** must be provided at the greater of : (A) if there is permanent or fixed seating in a **Place of Worship** and: (i) if it is in Policy Area 1 (PA1) at: (a) a minimum rate of 9.0 for each 100 square metres of worship area; and (b) a maximum rate of 18.0 for each 100 square metres of worship area; and (ii) if it is in Policy Area 2 (PA2) at: (a) a minimum rate of 15.0 for each 100 square metres of worship area; and (b) a maximum rate of 23.0 for each 100 square metres of worship area; and (iii) if it is in Policy Area 3 (PA3) or Policy Area 4 (PA4) at: (a) a minimum rate of 18.0 for each 100 square metres of worship area; and (b) a maximum rate of 29.0 for each 100 square metres of worship area; and (iv) at a minimum rate of 23.0 for each 100 square metres of worship area if it is located in any other area of the City; and (B) if there is no seating or variable seating in a **Place of Worship** and: (i) if it is in Policy Area 1 (PA1) at: (a) a minimum rate of 11.0 for each 100 square metres of worship area; and (b) a maximum rate of 22.0 for each 100 square metres of worship area; and (ii) if it is in Policy Area 2 (PA2) at: (a) a minimum rate of 18.0 for each 100 square metres of worship area; and (b) a maximum rate of 27.0 for each 100 square metres of worship area; and (iii) if it is in Policy Area 3 and Policy Area 4 (PA4)at : (a) a minimum rate of 22.0 for each 100 square metres of worship area; and (b) a maximum rate of 33.0 for each 100 square metres of worship area; and (iv) at a minimum rate of 27.0 for each 100 square metres of worship area if it is located in any other area of the City; or (C) the required minimum parking rate for all other permitted uses on the lot.	100%	100%	100%
Police Station	**Parking spaces** must be provided at a minimum rate of 0.2 for each 100 square metres of **gross floor area**.	100%	100%	100%
Post Secondary School	**Parking spaces** must be provided at a minimum rate of: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2) and Policy Area 3 (PA3), 0.1 for each 100 square metres of **gross floor area**; (B) in Policy Area 4 (PA4), 1.0 for each 100 square metres of **gross floor area**; and (C) in all other areas of the City, 2.0 for each 100 square metres of **gross floor area**.	50%	100%	50%

		Parking Occupancy Rate		
Land Use	**Parking Rate**	**AM**	**PM**	**Eve**
Private School	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) at: (i) a minimum rate of 0.15 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 0.3 for each 100 square metres of **gross floor area**; and (B) in Policy Area 2 (PA2) and Policy Area 3 (PA3) at: (i) a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 1.0 for each 100 square metres of **gross floor area**; and (C) in Policy Area 4 (PA4) at: (i) a minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 2.0 for each 100 square metres of **gross floor area**; and (D) in all other areas of the City, at a minimum rate of 1.5 for each 100 square metres of **gross floor area**.	100%	100%	20%
Production Studio	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) at: (i) a minimum rate of 0.35 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 0.8 for each 100 square metres of **gross floor area**; and (B) in Policy Area 2 (PA2) at: (i) a minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) a maximum rate 1.4 for each 100 square metres of **gross floor area**; and (C) in Policy Area 3 (PA3) and Policy Area 4 (PA4) at: (i) a minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 2.0 for each 100 square metres of **gross floor area**; and (D) in all other areas of the City, at a minimum rate of 1.5 for each 100 square metres of **gross floor area**.	100%	60%	0%

		Parking Occupancy Rate		
Land Use	**Parking Rate**	**AM**	**PM**	**Eve**
Public School	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) at: (i) a minimum rate of 0.15 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 0.3 for each 100 square metres of **gross floor area**; and (B) in Policy Area 2 (PA2) and Policy Area 3 (PA3) at: (i) a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 1.0 for each 100 square metres of **gross floor area**; and (C) in Policy Area 4 (PA4) at: (i) a minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 2.0 for each 100 square metres of **gross floor area**; and (D) in all other areas of the City, at a minimum rate of 1.5 for each 100 square metres of **gross floor area**.	100%	100%	20%
Railway Service and Repair Yard; Railway Station	**Parking spaces** must be provided at a minimum rate of 0.1 per 100 square metres of **gross floor area**.	100%	100%	50%
Recreation Use	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), and Policy Area 3 (PA3) and Policy Area 4 (PA4): (i) at a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 1.3 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City, at a minimum rate of 3.0 for each 100 square metres of **gross floor area**.	25%	100%	100%
Religious Education Use	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1): (i) at a minimum rate of 0.15 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 0.3 for each 100 square metres of **gross floor area**; and (B) in Policy Area 2 (PA2) and Policy Area 3 (PA3): (i) at a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 1.0 for each 100 square metres of **gross floor area**; and (C) in Policy Area 4 (PA4): (i) at a minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 2.0 for each 100 square metres of **gross floor area**; and (D) in all other areas of the City, at a minimum rate of 1.5 for each 100 square metres of **gross floor area**.	100%	100%	20%
Religious Residence	**Parking spaces** must be provided at a minimum rate of 1.0 for each 10 **bed-sitting rooms** or **dwelling units**.	100%	100%	100%

		Parking Occupancy Rate		
Land Use	**Parking Rate**	**AM**	**PM**	**Eve**
Residential Care Home	**Parking spaces** must be provided: (A) at a minimum rate of 0.22 for each 100 square metres of **gross floor area**; and (B) at a maximum rate of 1.5 for each 100 square metres of **gross floor area**.	100%	100%	100%
Respite Care Facility	**Parking spaces** must be provided at a rate of 0.3 for each **dwelling unit** and **bed-sitting room**.	100%	100%	100%
Retail Store	**Parking spaces** must be provided if the **gross floor area** on a lot is more than 200 square metres: (A) in Policy Area 1 (PA1) at a: (i) minimum of 1.0 for each 100 square metres of **gross floor area**; and (ii) maximum of 3.5 for each 100 square metres of **gross floor area**; and (B) in Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4) at: (i) minimum of 1.0 for each 100 square metres of **gross floor area**; and (ii) maximum of 4.0 for each 100 square metres of **gross floor area**; and (C) in all other areas of the City: (i) if the **gross floor area** is more than 200 square metres and less than 10,000 square metres, at a minimum rate of 1.5 for each 100 square metres of **gross floor area**; and (ii) if the **gross floor area** is 10,000 square metres or more but less than 20,000 square metres, at a minimum rate of 3.0 for each 100 square metres of **gross floor area**; and (iii) if the **gross floor area** is 20,000 square metres or more, at a minimum rate of 6.0 for each 100 square metres of **gross floor area**; and (D) if the **gross floor area on a lot** is 200 square metres or less, no **parking space** is required.	20%	100%	100%
Retail Service	**Parking spaces** must be provided at the same rate as a **retail store**.	100%	100%	20%
Retirement Home	**Parking spaces** must be provided at a rate of 0.3 for each **dwelling unit** and **bed-sitting room**.	100%	100%	100%
Secondary Suite	**Parking spaces** must be provided at a minimum rate of 1.0 for each **secondary suite** in excess of one. [549-2019]	100%	100%	100%
Self Storage Warehouse	(See **Warehouse**, self storage)			
Seniors Community House	**Parking spaces** must be provided at a minimum rate of 1.0 per **building**.			

		Parking Occupancy Rate		
Land Use	**Parking Rate**	**AM**	**PM**	**Eve**
Service Shop	**Parking spaces** must be provided if the **gross floor area** is more than 200 square metres: (A) in Policy Area 1 (PA1) at a: (i) minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) maximum rate of 3.5 for each 100 square metres of **gross floor area**; and (B) in Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4) at: (i) minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) maximum rate of 4.0 for each 100 square metres of **gross floor area**; and (C) in all other areas of the City a minimum rate of 1.5 for each 100 square metres of **gross floor area**; and (D) if the **gross floor area** is 200 square metres or less, no **parking space** is required.	100%	100%	100%
Software Development and Processing	**Parking spaces** must be provided at the same rate as an office.	100%	100%	10%
Vehicle Dealership	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4): (i) at a minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 1.5 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City at a minimum rate of 3.0 for each 100 square metres of **gross floor area**.	100%	100%	100%
Vehicle Depot	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2) and Policy Area 3 (PA3) at a minimum rate of 0.1 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City at a minimum rate of 0.2 for each 100 square metres of **gross floor area**.	100%	100%	50%
Vehicle Fuel Station	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2) and Policy Area 3 (PA3) at a minimum rate of 2.5 for each 100 square metres of **gross floor area**; (B) in Policy Area 4 (PA4) at a minimum rate of 3.0 for each 100 square metres of **gross floor area**; and (C) in all other areas of the City at a minimum rate of 3.5 for each 100 square metres of **gross floor area**.	100%	100%	100%
Vehicle Service Shop	**Parking spaces** must be provided at a minimum rate of 3.5 for each 100 square metres of **gross floor area**.	100%	100%	100%
Vehicle Repair Shop	**Parking spaces** must be provided at a minimum rate of 3.5 for each 100 square metres of **gross floor area**.	100%	100%	100%

		Parking Occupancy Rate		
Land Use	**Parking Rate**	**AM**	**PM**	**Eve**
Veterinary Hospital	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) at a minimum rate of 0.4 for each 100 square metres of **gross floor area** and at a maximum rate of 0.8 for each 100 square metres of **gross floor area**; and (B) in the rest of the City at a minimum rate of 1 for each 100 square metres of **gross floor area**.	100%	100%	100%
Visitation Centre	**Parking spaces** must be provided at a minimum rate of 2.0 for each 100 square metres of **gross floor area**.	100%	100%	100%
Warehouse	**Parking spaces** must be provided at a minimum rate of 1.0 for each 100 square metres of **gross floor area** up to 2750 square metres; plus 0.5 for each 100 square metres of **gross floor area** in excess of 2750 square metres.	100%	100%	50%
Warehouse, Self Storage	**Parking spaces** must be provided at a minimum rate of 0.6 for each 100 square metres of **gross floor area**.	100%	100%	50%
Wholesaling Use	**Parking spaces** must be provided at the same rate as a **retail store.**	100%	100%	50%

(6) Parking Space Rates - Multiple Uses on a Lot

If there are multiple uses on a **lot**, the respective **parking space** rate for each use on the **lot** applies and the total number of required **parking spaces** is the cumulative total for all uses.

(7) Shared Parking Space Calculation (Minimum)

In Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3), Policy Area 4 (PA4), the minimum number of **parking spaces** required for a **lot** is determined as follows:

(A) for each of the morning, afternoon and evening parking periods Table 200.5.10.1, the minimum number of **parking spaces** required for each use, is calculated using the respective **parking space** rate and occupancy rate;

(B) the minimum number of **parking spaces** required for each parking period is the total of the **parking spaces** required for all uses during that parking period; and

(C) the minimum number of **parking spaces** required for the **lot** is equal to the largest number of **parking spaces** required for any parking period.

(8) Interpretation of Minimum and Maximum Parking Space Requirement

If Table 970.10.15.5 - Parking Space Rates and Parking Space Occupancy has a minimum and maximum number of **parking spaces** for a use, the number of **parking spaces** for that use listed on the Table may not:

(A) be less than the required minimum; and

(B) exceed the permitted maximum.

c. For each time period, calculate the total parking spaces, based on the percent reduction, required for all uses to determine the cumulative total. For clarity, the total required number of parking spaces for each use shall be calculated separately for each time period in both Table 6-12 and Table 6-13.

d. The greatest cumulative total for all uses in any time period shall be interpreted as the total number of parking spaces required for the mixed-use development.

2. The identified time periods in Table 6-12 and Table 6-13 shall be interpreted as:

   a. Morning shall be between 6:00AM to 12:00PM;

   b. Noon shall be between 12:00PM and 1:00PM;

   c. Afternoon shall be between 1:00PM to 5:00PM; and,

   d. Evening shall be between 5:00PM to 6:00AM.

3. With the exception of residential visitor parking, shared parking reductions shall not be applied to a residential use.

6.8.3 Shared Parking Reductions on Weekdays

Parking rates during weekdays (Monday, Tuesday, Wednesday, Thursday and Friday) shall be calculated in accordance with Table 6-12. It shall be interpreted that where a use that is not identified, the full parking rate shall apply during all time periods.

Table 6-12: Shared Parking Reduction Formula on Weekdays

Use	Morning	Noon	Afternoon	Evening
	Percentage of Peak Period (Weekdays)			
Business service	65%	90%	80%	100%
Community facility	10%	40%	40%	80%
Financial institution	65%	90%	80%	100%
Garden centre	65%	90%	80%	100%
Health and fitness centre	65%	90%	80%	100%
Hotel and hotel (small scale)	70%	70%	70%	100%
Office	100%	90%	95%	10%
Personal service	65%	90%	80%	100%
Pet care establishment and pet services establishment	65%	90%	80%	100%

Use	Morning	Noon	Afternoon	Evening
	Percentage of Peak Period (Weekdays)			
Place of assembly	10%	40%	40%	80%
Place of entertainment	10%	40%	40%	80%
Research and development	100%	90%	95%	10%
Restaurant, take-out restaurant, including any outdoor patio	20%	100%	30%	100%
Retail, retail convenience and shopping centre	80%	90%	90%	100%
Residential visitor parking	20%	20%	60%	100%
School and post-secondary school	100%	100%	100%	20%
Service or repair shop	65%	90%	80%	100%
Theatre	10%	40%	40%	80%

6.8.4 Shared Parking Reductions on Weekends

Parking rates during weekends (Saturday and Sunday) shall be calculated in accordance with Table 6-13. It shall be interpreted that where a use that is not identified, the full parking rate shall apply during all time periods.

Table 6-13: Shared Parking Reduction Formula on Weekends

Use	Morning	Noon	Afternoon	Evening
	Percentage of Peak Period (Weekends)			
Business service	80%	85%	100%	40%
Community facility	10%	50%	80%	100%
Financial institution	80%	85%	100%	40%
Garden centre	80%	85%	100%	40%
Health and fitness centre	80%	85%	100%	40%
Hotel and hotel (small scale)	70%	70%	70%	100%
Office	10%	10%	10%	10%