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1223 Michael Street North, Suite 100 | Ottawa, ON K1J 7T2
P: +1 613.738.4160 | F: +1 613.739.7105 | www.parsons.com

Technical Memorandum

To: Paul Cope

Date: 13 April 2022

From: Jake Berube, P.Eng / Mark Baker, P.Eng

Our Ref: 478165-02000

Subject: TIS Addendum No. 6 – Zibi Block 204

1.0 Introduction

This letter report has been prepared to satisfy the submission requirements of the City of Ottawa for the Site Plan Control application for Block 204 of the Zibi Ontario Phase 4 Development. The most current version of the Site Plan for Block 204 is included in Appendix A.

Previous transportation planning documents related to the Transportation Impact Assessment (TIA) and prepared by Parsons for various phases of the Zibi development include:

- Domtar Lands Redevelopment - Multi-Modal Transportation Impact Study dated 21 April 2014;
- Zibi Ontario Phase 1A Transportation Impact Study dated 4 September 2015;
- Zibi Ontario Phase 1A Response to City of Ottawa Comments dated 5 January 2016, 20 July 2017 and 16 November 2017 (Addendum No. 1, 2, and 3, respectively);
- Addendum 4 was submitted in July 2019, and revised in July 2020, with a focus solely on Block 207; and
- Addendum 5 was submitted in June 2019 to support Block 211 in Phase 2.

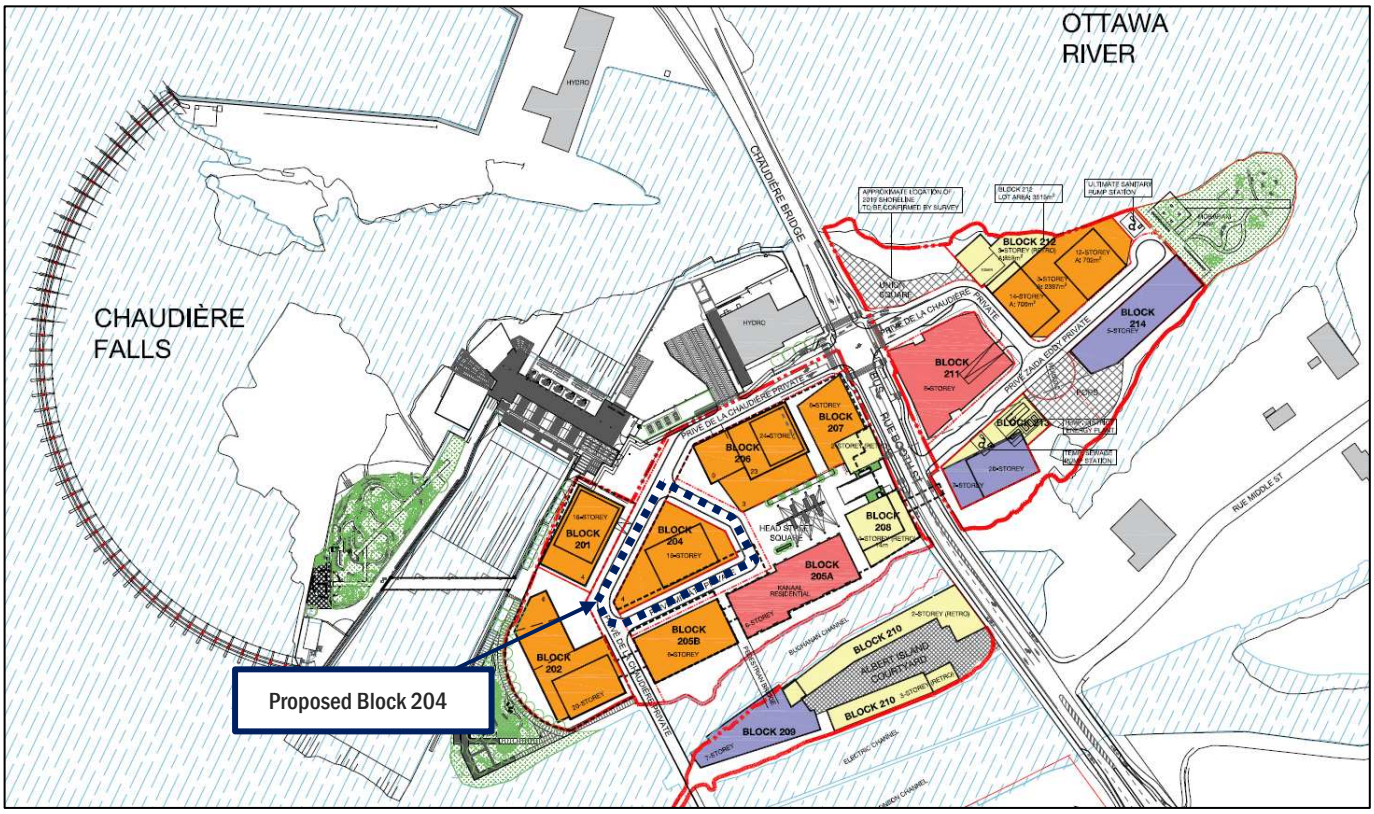
It is important to note that the base TIA was completed in 2015, prior to the overhaul of the TIA Guidelines in 2017. Furthermore, the original TIA from 2015 reflects “stale” existing transportation data, however, any update to current 2021 conditions is challenged by the impact of the on-going COVID-19 pandemic on travel behaviour. Hence, an addendum with limited scope was agreed upon with City transportation staff (Mike Giampa/Neeti Paudel), prior to obtaining sufficient base data for future submissions.

2.0 Approved Transportation Impact Assessment (TIA) Study 2015

Figure 1 illustrates the Zibi Ontario Master Site Plan located on either side of Booth Street. The original TIA completed for ZIBI Phase 1A in 2015 was a key reference for this addendum. The original TIS document was approved by the City of Ottawa, with certain conditions. We have outlined the important considerations brought forward for this memo.

- The Zoning By-law applicable to this area of the City does not require any resident/employee off-street parking on site, only visitors. This By-law must be balanced with market demand.
- The accepted methodology to estimate AM and PM peak hour vehicular trips to/from a development site was based on land use, not parking supply. This set the vehicular trip limit or “bar” for ZIBI. The land use approach inherently assumes there is sufficient parking to accommodate the auto-driver/auto-passenger demand. Thus, intensifying existing uses or changing uses to a different type may have significant implications on parking.
- The TIA stipulated that approximately 400 vph in the southbound direction must be diverted elsewhere in the morning peak hour to accommodate full buildout of the site. This suggests the 2015 densities were already pushing the limit for the operational capacity of the Chaudière intersection.
- One condition of approval was that transportation mode shares need to be monitored as development progresses to ensure target mode shares are being achieved (to avoid exceeding the trip generate “bar”), and if not, additional measures are to be implemented in order to maintain minimum operational standards at the Chaudière intersection. This ties together the preceding points, if the TIA approved densities/site plan change, the targets in the TIA must still be met, which may require significant effort.

Figure 1: Zibi Site Plan, Dec 2020



A summary of the proposed site statistics from the 2015 TIA is summarized in Table 1 below. These statistics have since been modified by subsequent phases of the development.

Table 1: 2015 TIA Site Statistics

Land Use	Ph1	Ph 2-8	Total
Condominiums	315 du	1,106 du	**1,421 du**
Office	38,000 ft²	81,000 ft²	**129,000 ft²**
Specialty Retail Centre	49,908 ft²	49,300 ft²	**99,208 ft²**
Recreational Community Centre	7,000 ft²	-	**7,000 ft²**
Hotel	-	100 rms	**100 rms**

Table 2 provides the most up-to-date detailed breakdown of the ZIBI development statistics by Block number, with the statistics for the subject site plan highlighted within the table. The table indicates the status of each block (be it constructed, in construction, in design, or future planned), the total gross-floor-area (GFA – ft²) by use, the total number of residential units and the known number of parking stalls. The onsite density proposed in the 2021 development plan is less conservative than what was assumed in 2019, but still remains higher than the approved densities that the 2015 TIA was based on. A comparative summary has been provided in **Table 3** below.

Table 2: ZIBI Development Statistics - Dec 2021

Status	Block	Total GFA	GFA by use					Units	Parking
			Rental	Condo	Comm	Retail	Office		
Planned	201	134,000	130,000	-	-	4000	-	160	TBD
Planned	202	73,800	71,000	-	-	2800	-	60	TBD
Planned	203	155,500	152,000	-	-	3500	-	180	TBD
Design[1]	204A/B	200,000	224,000	-	17,175	-	-	239	95
Occupied	205A	85,472	-	76,944	-	8528	-	71	73
Planned	205B	87,000	-	-	79,000	8000	-	-	0
Construction	206	188,392	179,114	-	-	9278	-	188	90
Construction	207	79,522	-	-	-	14,636	64,886	-	50
Built	208	34,345	-	-	-	-	34,345	-	15
Planned	209	80,000	-	-	-	17,000	63,000	-	TBD
Planned	210A	30,000	-	-	30,000	-	-	-	0
Design	210B	27,414	-	-	27,414	-	-	-	0
Occupied	211	198,120	-	-	-	12,089	186,031	-	75
Planned	212	150,000	-	-	-	10,000	140,000	-	TBD
Planned	213	180,000	176,000	-	-	4000	-	150	TBD
Planned	214	80,000	-	70,000	-	10,000	-	73	TBD
Occupied	301	-	-	-	-	-	-	-	135
TOTAL		**1,824,740**	**932,114**	**146,944**	**153,589**	**103,831**	**488,262**	**1,121**	**550**

1. GFA, Unit Count and Parking Stall Count updated March 2022

Table 3: ZIBI Onsite Density Comparison

Land Use	Approved Density (ft2)	2019 Proposed Density (ft2)	2021 Proposed Density (ft2)
Total	1,424,151	2,038,323	1,824,740
Residential	1,065,000	1,019,000	1,079,058
Non-Residential	359,151	1,019,000	745,682

Note: The Approved and 2019 residential/non-residential splits were estimated based on client information.

3.0 TIS Addendum Review

The previous Addendum studies served to address City of Ottawa staff comments and provide updates to the 2015 TIA, primarily due to adjustments in land use details undertaken in the subsequent design phases. The two most recent addendums provided refined traffic information for the following Zibi Blocks:

- Addendum No. 4 provided a revised assessment for Block 207, located in Phase 1 of the Zibi development, which had a site plan revision that indicated an increase in office/retail GFA (to 70,209 ft^2), which was approximately 50% greater than the size of land use assumed in the original submission. Therefore, the updated total Phase 1 office space was estimated to be approximately 72,500 ft^2 (versus 38,000 ft^2 previously assumed), the retail space was updated to approximately 28,300 ft^2 (versus 50,000 ft^2 previously assumed) and there was a new addition of approximately 8,800 ft^2 of proposed restaurant space. The number of residential units remains unchanged at approximately 300 units. The projected vehicle trip generation associated with the increased office space (and

reduced retail space) for Block 207, as well as the previously approved Blocks 205A, 208 and 301, was 110 veh/h and 140 veh/h during the weekday morning and afternoon peak hours, respectively. These totals are within 20 veh/h of the volume projections forecasted as part of the original TIA, and therefore no further transportation-related analysis was required for the revised Block 207.

- Addendum No. 5 provided an updated submission for the inclusion of Block 211, to be comprised of up to 80 residential units, approximately 163,300 ft² of office space and 12,270 ft² of ground floor supporting retail. Block 211 was forecast to generate 60 veh/h two-way total auto traffic during the peak hours of travel demand. This traffic volume will be treated as an additional layer in the subsequent analysis.

4.0 Block 204 (A and B) Site Plan Submission

Figure 3 illustrates the current site plan for Block 204 (formerly two buildings in the Master Plan, Block 204A and 204B), the subject of the current site plan control application. The Block 204 proposal is located west of Booth Street, and is bordered by Chaudière Private to the north and east, and Miwate Private to the south and east. The development is proposed to include 239 residential condo units (Approx. 173,000 ft²), 17,200 ft² of commercial ground-floor retail space, and associated underground parking that is accessed through the adjacent Block 206.

The Block 204 site will accommodate loading on-site, accessed from Chaudiere Private. The underground parking will accommodate 95 vehicle parking spaces (visitor, tenant, retail) and 120 bicycle parking spaces. Additional bicycle parking stalls will also be provided onsite to achieve a minimum of one stall per residential unit (>239 stalls). Underground parking access is to be provided through Block 206 along Chaudiere Private. The site offers a pick-up/drop-off area nearest the Chaudiere Private/Miwate Private intersection, illustrated in **Figure 2**.

The previous TIA submissions and related addendums had indicated Block 204A/B (now designated as Block 204) to have a total of 210,000 ft² of residential use (Approx. 280 units) and 4,500 ft² of non-office retail use. The updated submission indicates a decrease in residential units (41 units) and an increase in commercial retail (12,700 ft²). The change in land use results between the current proposal and the 2015 TIA results in a nominal net decrease of 1 trip during the AM peak hour and 3 trips during the PM peak hour. The current proposal for Block 204 is anticipated to generate 37 to 51 veh/hr two way during the AM and PM peak hours, based on the trip rate assumptions presented in the 2015 TIA.

Figure 2: Landscape Plan and Floor Plan, March 2022

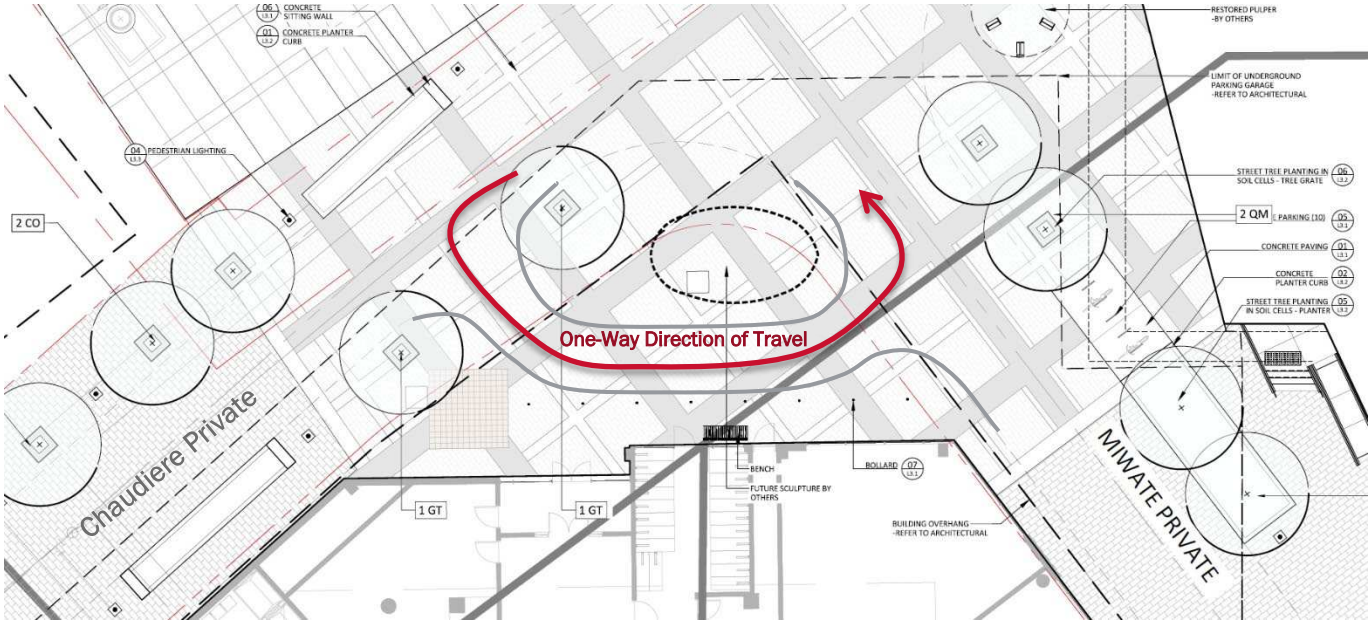
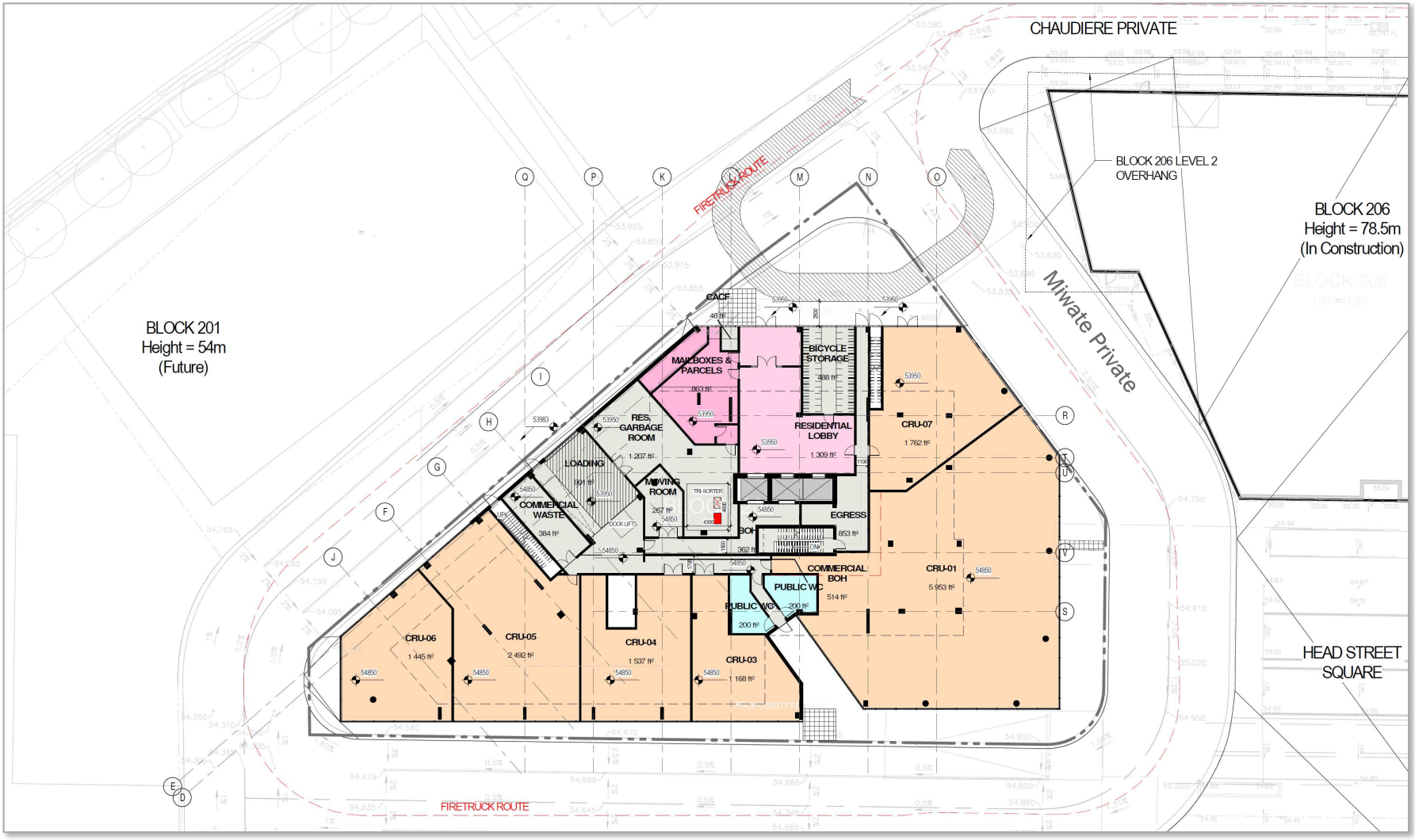


Figure 3: Preliminary Ground Level Floor Plan, February 2022



4.1 Block 204 Projected Trip Generation

The trip generation for Block 204 was conducted with the same set of trip rate, modal and distribution assumptions developed within the 2015 TIA for the sake of having comparable traffic projections. It is recognized that these trip generation assumptions are dependent on the implementation of significant TDM programming and the assignment to non-auto modes.

It is also recognized that the TRANS Trip Generation Manual 2020 identifies the new preferred methodology for forecasting development trips. This new methodology has been included in the appendices as a sensitivity analysis that can inform a future revision to the 2015 TIA. In comparison, the TRANS 2020 methodology was found to produce less auto trips during the peak hours of travel demand when compared to the ITE rates below.

Table 4: Block 204 Trip Generation Rates - ITE

Land Use	Data Source	ITE Vehicle Trip Rates	
		AM Peak Hr.	PM Peak Hr.
Condominiums	ITE 230	0.44	0.52
Specialty Retail	ITE 826	1.36	2.71

Table 5: Total Site Generated Vehicle Traffic – Update Block 204

Travel Mode	AM Peak Hr. (veh/hr)			PM Peak Hr. (veh/hr)		
	In	Out	Total	In	Out	Total
Condominiums Trip Generation	6	28	34	26	14	40
Specialty Retail Trip Generation	6	5	11	10	13	23
Specialty Retail Pass-by (30%)	-2	-2	-4	-3	-3	-6
Multi-purpose Trips (10%)	-1	-3	-4	-4	-2	-6
Total 'New' Auto Trips	9	28	37	29	22	51

Table 6: Total Site Generated Vehicle Traffic – 2015 TIS

Travel Mode	AM Peak Hr. (veh/hr)			PM Peak Hr. (veh/hr)		
	In	Out	Total	In	Out	Total
Condominiums Trip Generation	6	32	38	30	16	46
Specialty Retail Trip Generation	3	3	6	5	6	11
Specialty Retail Pass-by (30%)	-1	-1	-2	-2	-2	-4
Multi-purpose Trips (10%)	-1	-3	-4	-3	-2	-5
Total 'New' Auto Trips	7	31	38	30	18	48

4.2 Parking Supply

Bicycles

As per the site conditions of development, the proposal must include at least one bicycle stall per residential unit. Therefore, the site must achieve the following bicycle parking requirements for the combined residential and commercial designations of the site:

- 239 bicycle parking stalls for the residential units, to maintain the 1 stall:1 unit ratio; and
- 7 bicycle parking stalls for the approximately 1,600 m^2 of commercial/retail development (1 stall:250 m^2 GFA, Part 4 - Table 11A)

The site is anticipated to accommodate the residential bicycle stall requirements within the enclosed areas on the ground floor and parking levels. The retail stalls would be accommodated through sheltered stalls on the ground floor as well as bike stall stations located outside.

Vehicles

The proposed vehicle parking supply for Block 204 is to satisfy both the minimum and maximum spaces required through By-law. It is recognized that the on-site parking supply can have a notable impact on the magnitude of peak hour site-generated traffic. A reduced parking supply can result in lower than forecasted vehicle trips, and vice versa. Within the context of the TIA, the forecasted peak hour traffic volume is traditionally based on floor area of the proposed land use (or number of residential units), with an underlying assumption that the parking supply will be generally consistent with the modal share targets. The Zoning By-law applicable to this area of the City does not require any resident/employee off-street parking within the site, only visitors, and the developer is very aware of the importance of balancing market demand for on-site parking with the By-law requirement and meeting the ambitious non-auto modal share targets established for the development.

The proposed vehicle parking for Block 204 would include a total of 95 stalls within a single parking garage level. According to the Transportation Incentive and Education Program (Section 5.0), the proponent is to provide designated parking spaces for car-share parking.

4.3 Site Plan Review

Pedestrian and Cycling Access

The Block 204 development provides separate pedestrian accesses for the residential lobby and commercial areas on the north and south facades of the building, respectively. These accesses are approximately 200m from the Booth Street / Chaudiere Private intersection which provides a short distance to nearby transit opportunities along Booth Street. There are additional access doors along Chaudiere Private for loading and parking garage access.

With regard to on-site cycling, cyclists will share the 6.0 m wide one-way 'woonerf', illustrated in **Figure 4**, with slow moving vehicles and, once they reach the site driveway connection to Booth Street, there is a proposed 3.0 m wide multi-use pathway (MUP) on the north side. This MUP will connect to the proposed cycle track on Booth Street south of the intersection and to the proposed bicycle lanes on the Chaudière Bridge. At the southwest end of Chaudière Island there is a bridge that connects south to Albert Island and then further south to the south shore of the Ottawa River. This facility provides a direct connection from the City-wide MUP that runs along the John A. MacDonald Parkway to the site driveway connection to Booth Street. This link will provide an alternative pedestrian/cycle route to the Booth Street Corridor between Wellington Street and the site.

Vehicle Access to Underground Parking

Block 203 plans to offer a pick-up/drop-off area fronting the residential lobby nearest the Chaudiere/Miwate intersection.

Vehicle access for the parking spaces serving Block 204 will be through a vehicular access ramp located at Block 206 to/from Chaudière Private and through Block 301 (via the surface street network). Block 301 provides 2-levels of underground parking located beneath Head Street. For the foreseeable future, vehicles will enter the underground parking garage via both the temporary ramp in Block 301 (which will eventually be removed as other phases of the development unfold) and also from the vehicle access at Block 206 to/from Chaudière Private.

Figure 5 depicts the parking layout for Block 204 which is proposed on a single underground level. The figure also illustrates the envisioned primary vehicle access route to the underground parking from Chaudiere Private access from Block 206.

Figure 4: Landscape and Ground Floor Plan, Block 204

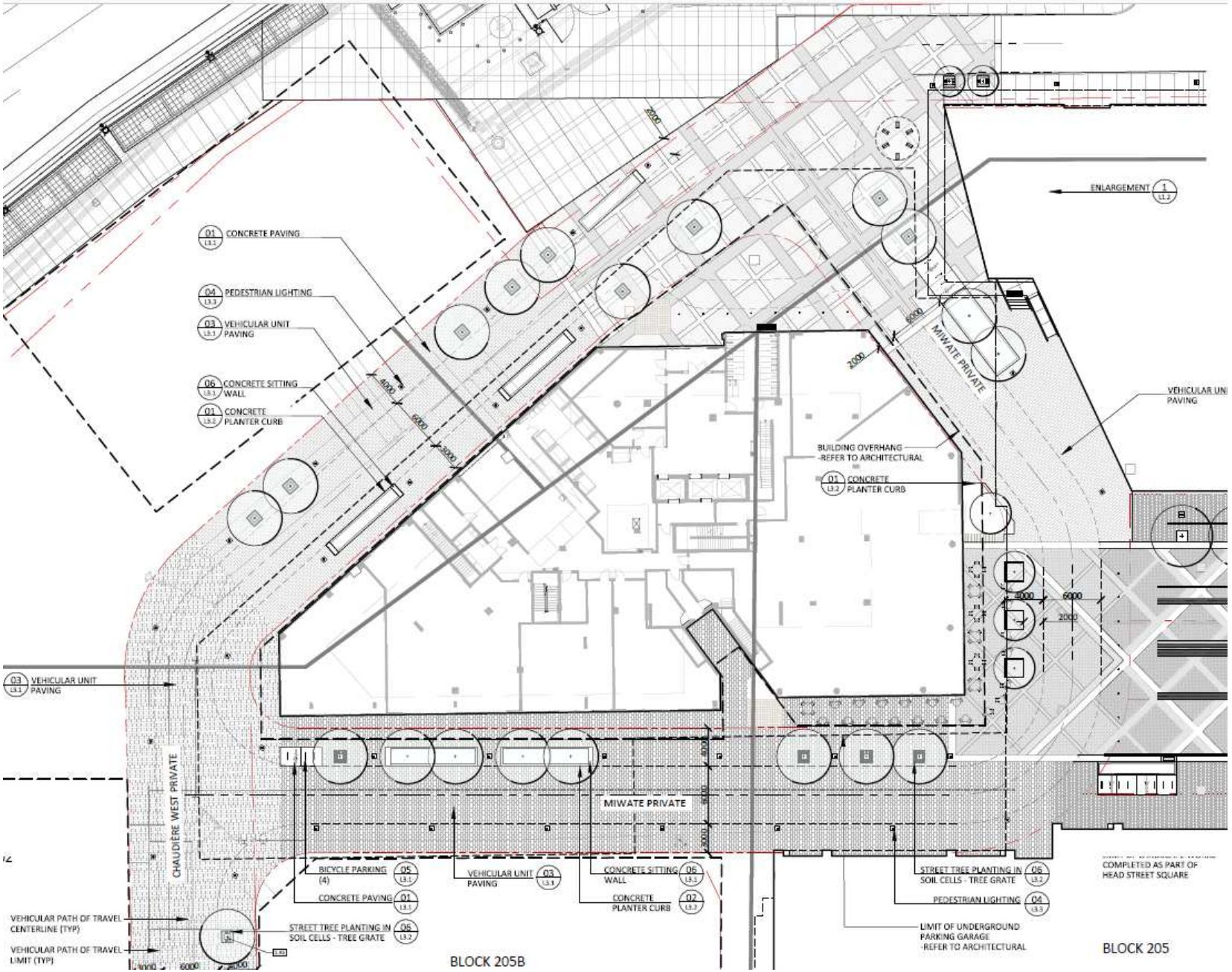
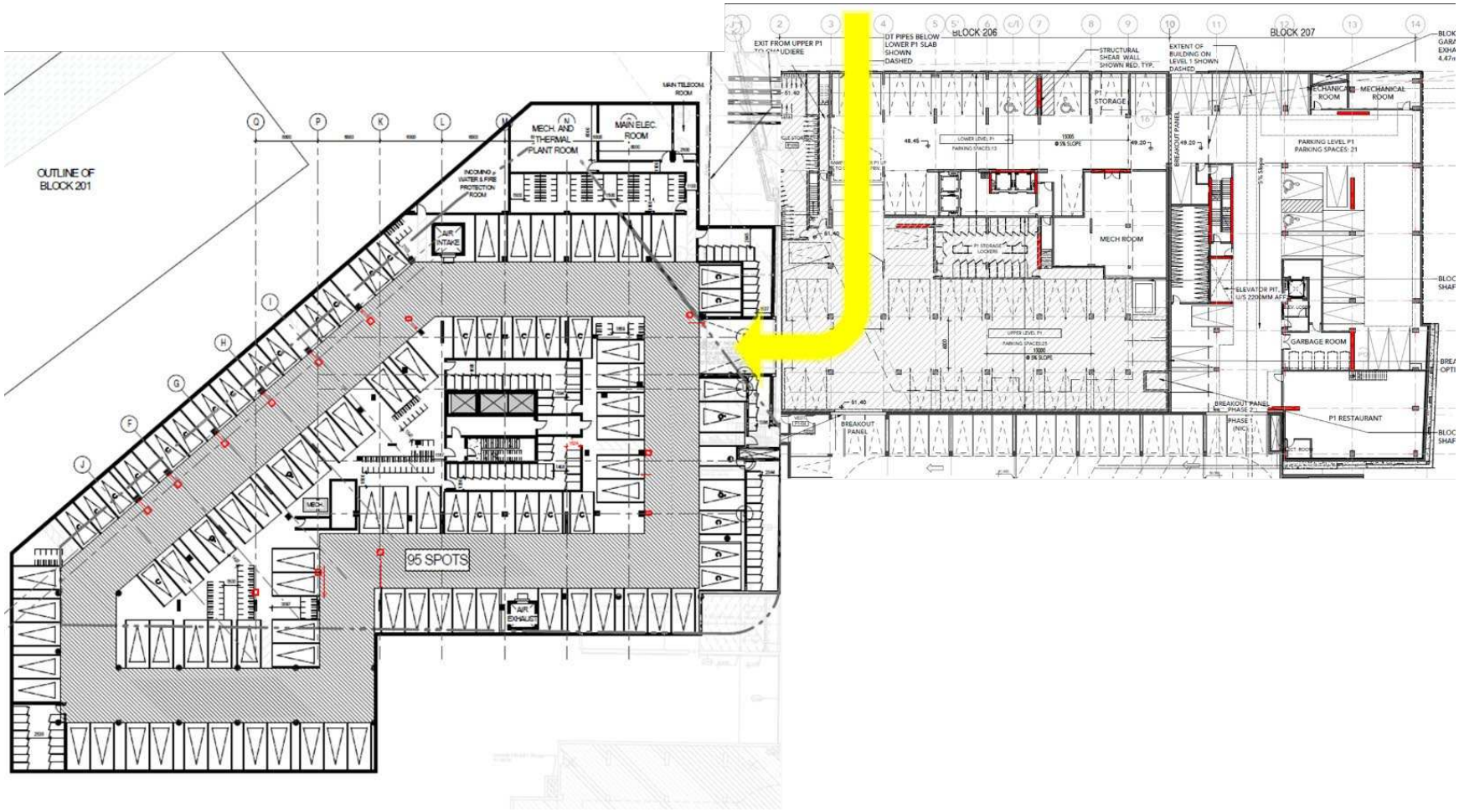


Figure 5: Block 204 On-site Vehicle Circulation (underground parking)



Loading and Waste Collection

As illustrated in **Figure 1**, the loading and waste collection area for Block 204 is located mid-block along Chaudière Private. Similar to Block 206, a delivery vehicle would be expected to reverse into the loading area from the street and not block Chaudiere Private. Waste collection is also envisioned to be provided at the same loading dock location where the residential and commercial waste areas converge. The loading and waste collection is not anticipated to have an impact along Chaudiere Private.

5.0 Transportation Incentive and Education Program

Transportation Demand Management (TDM) measures will be critical to supporting a high non-auto mode share for the overall Zibi development. The Master Site Plan Agreement identifies a number of transportation incentives to be implemented throughout development. These are summarized in **Table 7**.

Table 7: Status of TDM Measures outlined in Master Site Plan Agreement

Item	Status
Charge fees for parking within a garage or parking structure.	Yes - *it is expected that a parking fee will be charged*
Provide information on sustainable transportation to residents and business including a transportation options package of all new residents.	Yes - *Marketing package includes this material*
Provide exclusive designated parking spaces for car-share parking.	Yes
Continue to advertise the ZIBI ON Development as a leader in active and healthy transportation.	Yes
Ensure the provision of at least bicycle parking space per residential unit is provided on-site.	Yes *Site Plan currently showing 120 bicycle parking spaces for Block 204 (239 residential units).* *Proponent has committed to achieving at least one space per unit.*
Display real-time transit arrival and departure time and other sustainable transportation related information at prominent locations within the development	Yes *Passenger Information Display (PID) has been incorporated into northbound and southbound bus shelters in 2021*
Implement wayfinding signage at all on-site plazas, parks, pathways, and pedestrian links that detail pedestrian routes, cycling facilities (including designated bike parking areas), and transit stop locations (including the nearest rapid transit stations)	Still being reviewed

6.0 Traffic Monitoring

Travel behavior and parking utilization are highly contextual. ZIBI is a very unique development and industry standard forecasting practices must be supported by a strategic data collection program to ensure the approach is representative of local behaviour. This point was stressed in the 2015 TIA as part of the monitoring program. A fulsome program will help identify the local nuances in travel and parking behaviour, from which more reliable parking demand forecasts can be developed. This program can only be initiated when sufficient occupancy has been achieved onsite and only becomes meaningful when the impacts of COVID-19 on travel patterns is lessened.

It is also recognized that, according to the Master Site Plan Agreement, a Transportation Impact Assessment (TIA) will be required in support of each future development phase (i.e., Phase 2 through 8). The analysis should include estimated exiting and entering traffic volumes at the proposed Chaudière Private access during the AM and PM peak hours under the cumulative development phase build-out conditions. The TIA is also expected to include the monthly average of vehicles entering and exiting the subject lands during the weekday peak hours for up to, and including, each of the 6 months previous to the submission of the applications for that specific phase. The TIA must also include a typical one

weekday count of pedestrians and cyclists exiting and entering the subject lands during the weekday peak hours with the intent of demonstrating that the non-car modal share targets in the original master TIA report (from 2014) are being met.

To satisfy the technology requirement to support the aforementioned Traffic Monitoring Plan, a comparison between Miovision and EcoCounter collection technologies was undertaken since the time of the original TIA. EcoCounter was selected as the approved vendor to collect relevant pedestrian and vehicle data. It is understood that the traffic counting devices have been installed in the first quarter of 2022 and will be leveraged in future submissions.

7.0 Recommendations

At this time, no further transportation analysis is considered necessary. It is acknowledged that the original 2015 TIA will eventually require updating in support of SPAs for subsequent phases of development when it becomes appropriate to collect background data.

It is understood that as of early 2022, there are approximately 69 residential units sold and occupied as part of Phase 1 development (Block 205A, Kanaal), and therefore the number of trips currently being generated by the current development is negligible. There is no basis on which to evaluate the key assumptions used within the original transportation study, including trip generation rates, modal share assumptions, etc.

Based on the foregoing, the proposed Zibi Ontario Block 204 development continues to be recommended from a transportation perspective. If there are any questions, please contact the undersigned.

Sincerely,

Jake Berube, P.Eng.

Transportation Engineer

Approved by:

Mark Baker, P.Eng.

Senior Transportation Engineer

Appendix A:

Site Plan

BLOCK #: 204
SITE AREA: 29,224 sq. ft.

		A	B	C = A-B	D	D/C	NOTE: GFA IN THIS SECTION MUST TOTAL THE GFA TO THE LEFT							# OF RESIDENTIAL UNITS								# OF PARKING STALLS		# OF LOCKERS
	HEIGHT	TOTAL GCA	BALCONY/ TERRACE	TOTAL GFA	TOTAL SGFA, RENTABLE, LEASABLE	EFFICIENCY	BACK-OF-HOUSE	AMENITY	CONDO		RETAIL		GFA CHECK											
							GFA	GFA	GFA	SGFA	GFA	LEASABLE	TOTAL	TOTAL	STUDIO	1B	1B+D	2B	2B+D	3B	OTHER	TOTAL	RES	TOTAL
Mech Penthouse		2,165	0	2,165	0	0.0%	0	0	2,165	0	0	0	0	0	0	0	0	0	0	0	0			
Floor 22		8,363	820	7,543	6,501	86.2%	0	0	7,543	6,501	0	0	0	10	1	5	0	4	0	0	0			
Floor 21		8,363	820	7,543	6,501	86.2%	0	0	7,543	6,501	0	0	0	10	1	5	0	4	0	0	0			
Floor 20		8,363	820	7,543	6,501	86.2%	0	0	7,543	6,501	0	0	0	10	1	5	0	4	0	0	0			
Floor 19		8,363	820	7,543	6,501	86.2%	0	0	7,543	6,501	0	0	0	10	1	5	0	4	0	0	0			
Floor 18		8,363	820	7,543	6,501	86.2%	0	0	7,543	6,501	0	0	0	10	1	5	0	4	0	0	0			
Floor 17		8,363	820	7,543	6,501	86.2%	0	0	7,543	6,501	0	0	0	10	1	5	0	4	0	0	0			
Floor 16		8,363	820	7,543	6,501	86.2%	0	0	7,543	6,501	0	0	0	10	1	5	0	4	0	0	0			
Floor 15		8,363	820	7,543	6,501	86.2%	0	0	7,543	6,501	0	0	0	10	1	5	0	4	0	0	0			
Floor 14		8,363	820	7,543	6,501	86.2%	0	0	7,543	6,501	0	0	0	10	1	5	0	4	0	0	0			
Floor 13		8,363	820	7,543	6,501	86.2%	0	0	7,543	6,501	0	0	0	10	1	5	0	4	0	0	0			
Floor 12		8,363	820	7,543	6,501	86.2%	0	0	7,543	6,501	0	0	0	10	1	5	0	4	0	0	0			
Floor 11		8,363	820	7,543	6,501	86.2%	0	0	7,543	6,501	0	0	0	10	1	5	0	4	0	0	0			
Floor 10		8,173	513	7,660	5,658	73.9%	0	959	6,701	5,658	0	0	0	9	1	5	0	3	0	0	0			
Floor 9		13,078	1,337	11,741	9,878	84.1%	0	0	11,741	9,878	0	0	0	15	1	7	3	4	0	0	0			
Floor 8		13,078	1,337	11,741	9,878	84.1%	0	0	11,741	9,878	0	0	0	15	1	7	3	4	0	0	0			
Floor 7		13,078	1,337	11,741	9,878	84.1%	0	0	11,741	9,878	0	0	0	15	1	7	3	4	0	0	0			
Floor 6		13,078	1,337	11,741	9,878	84.1%	0	0	11,741	9,878	0	0	0	15	1	7	3	4	0	0	0			
Floor 5		13,078	1,337	11,741	9,878	84.1%	0	0	11,741	9,878	0	0	0	15	1	7	3	4	0	0	0			
Floor 4		13,078	1,337	11,741	9,878	84.1%	0	0	11,741	9,878	0	0	0	15	1	7	3	4	0	0	0			
Floor 3		9,745	962	8,783	6,623	75.4%	0	0	8,783	6,623	0	0	0	10	0	5	3	2	0	0	0			
Floor 2		13,201	962	12,239	6,597	53.9%	0	3,482	8,757	6,597	0	0	0	10	0	5	3	2	0	0	0			
Mezzanine		9,416	0	9,416	2,828	30.0%	6,069	0	519	0	2,828	2,828	0	0	0	0	0	0	0	0	0			
Floor 1		22,779	0	22,779	14,347	63.0%	5,856	400	2,176	0	14,347	14,347	0	0	0	0	0	0	0	0	0			
				0		0.0%							0	0										
			0			n/a																0		
P1		44,977	0			n/a																95		
P2		0	0			n/a																0		
TOTAL	0.0 ft a/g	289,280	20,299	224,004	173,333	77.4%	11,925	4,841	190,063	156,158	17,175	17,175	0	239	19	117	24	79	0	0	0	95	0	0

INSTRUCTIONS: Please fill out only grey filled cells with blue text

DEFINITIONS

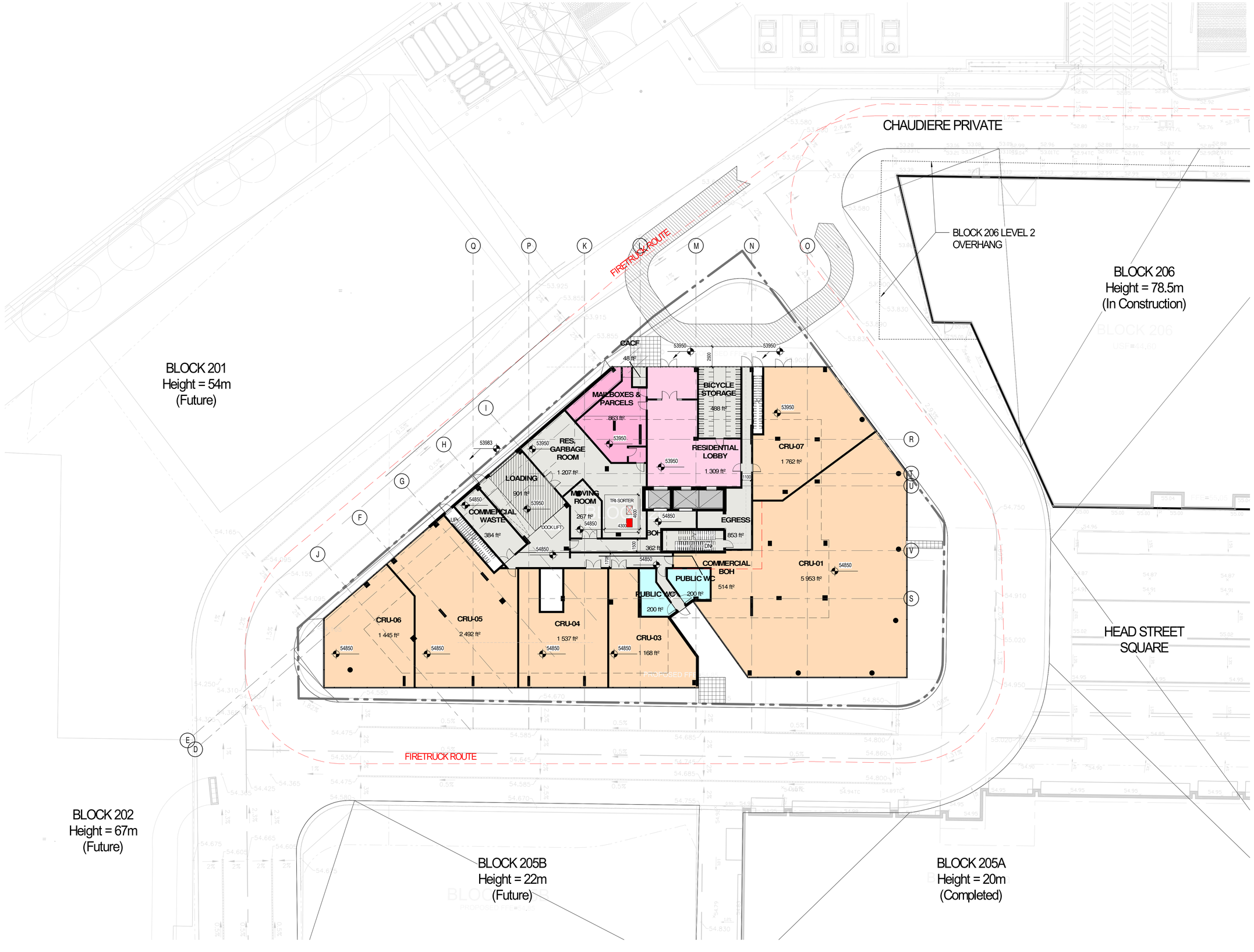
Name	Definition
Gross Construction Area	- Dimensioned from the exterior face of all exterior walls and the slab edge of the balconies, includes parking garage
Balcony/Terrace	- Dimensioned from the exterior face of the building and the slab edge.
Gross Floor Area (GFA)	- Calculated by subtracting B from A. Outside face of exterior walls, less balconies or terraces that are not enclosed within the building envelope. GFA Is Building Area above Grade and is used by Ledcor and Windmill as the denominator in cost calculations and the Ciyt of Ottawa for fee calculations (see below).
GFA=GBA	https://documents.ottawa.ca/sites/default/files/documents/gross_floor_fee_sked_en.pdf **<-- GFA As per City of Ottawa**
Saleable Floor Area Residential (SGFA)	- Calculated on a suite-by-suite basis using the Tarion definition of calculating saleable area. (To be checked against any Quebec rules on reporting suite areas)
Rentable Residential	- Refer to ONHWP Bulletin 22 - uses outsides wall, centre line of demising wall and the outside of the corridor wall
Leasable Floor Area Office	- Calculated on a suite-by-suite basis using the BOMA definition of calculating saleable area. (To be checked against any Quebec rules on reporting office suite areas)
Leasable Floor Area Retail	- Calculated on a suite-by-suite basis using the BOMA definition of calculating saleable area. (To be checked against any Quebec rules on reporting office suite areas)

TOTAL	STUDIO	1B	1B+D	2B	2B+D
239	19	117	24	79	0
		160		79	
		67%		33%	
	12%	**73%**	**15%**	**100%**	**0%**

TOTAL	STUDIO	1B	1B+D	2B	2B+D
	10%	60%	30%	70%	30%
		60%		40%	
239		143		96	
	14	86	43	67	29

	STUDIO	1B	1B+D	2B	2B+D	TOTAL
PROPOSED	19	117	24	79	0	**239**
TARGET	14	86	43	67	29	
DIFFERENCE	**5**	**31**	**-19**	**12**	**-29**	
	2%	13%	-15%	30%	-30%	

	VISITOR	RESIDENT	TOTAL
PARKING	24	96	120



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Structural Engineer
RJC Engineers
1545 Carling Avenue Suite 304
Ottawa, ON, K1Z 8P9

Electrical & Mechanical Engineer
Smith + Andersen
1600 Carling Avenue, Suite 530
Ottawa, ON, K1Z 1G3

Planning
Fotenn Planning + Design
396 Cooper Street, Suite 300
Ottawa, ON, K2P 2H7

Landscape Architect
CSW
319 McRae Avenue, Suite 502
Ottawa, ON, M1Z 0B9

Civil
CIMA
240 Catherine Street, Unit 110
Ottawa, ON, K2P 2G8

Architect
NEUF architect(e)s CANADA INC.
47 Clarence St. Suite 406, Ottawa, ON K1N 9K1

PROJECT NORTH TRUE NORTH

Client
DREAM UNLIMITED
30 Adelaide Street East
Suite 301
Toronto, ON, M5C 3H1

ZIBI
6 Booth Street (Albert Island)
Ottawa, ON, M1R 6K8

Project
ZIBI - BLOCK 204

Location
315 Miwate Private
Ottawa, ON

PROJET No.
0000.00

NO	REVISION	DATE (yy-mm-dd)

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Author

Checked by
Checker

DATE (yy.mm.dd)
02/17/22

Scale
1 : 200

Drawing Title
GROUND LEVEL - STRAIGHT

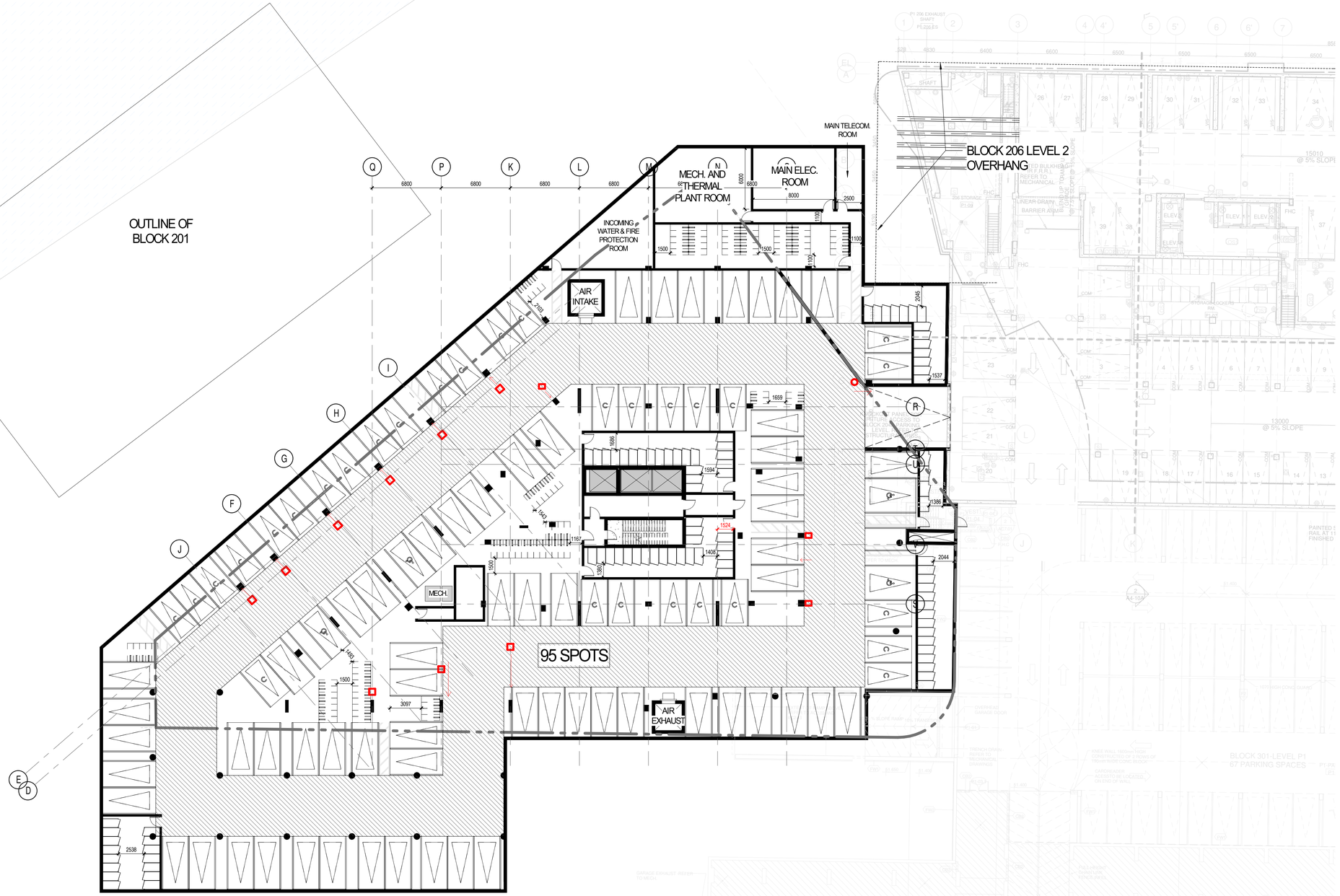
Revision

Drawing Number
Z017

PARKING SCHEDULE - SINGLE LEVEL OPTION
Parking Category
COMPACT PARKING SPACE
30
TYPE A ACCESSIBLE PARKING SPACE
2
TYPE B ACCESSIBLE PARKING SPACE
2
TYPICAL PARKING SPACE
61
Grand total: 95

BIKE PARKING SCHEDULE
Parking Category
BIKE PARKING SPACE
120
Grand total: 120

LOCKER SCHEDULE
Parking Category
LOCKER
90
Grand total: 90



dream zibi

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Structural Engineer
RJC Engineers
1545 Carling Avenue Suite 304
Ottawa, ON, K1Z 8P9

Electrical & Mechanical Engineer
Smith + Andersen
1600 Carling Avenue, Suite 530
Ottawa, ON, K1Z 1G3

Planning
Fotenn Planning + Design
396 Cooper Street, Suite 300
Ottawa, ON, K2P 2H7

Landscape Architect
CSW
319 McRae Avenue, Suite 502
Ottawa, ON, M1Z 0B9

Civil
CIMA
240 Catherine Street, Unit 110
Ottawa, ON, K2P 2G8

Architect
NEUF architect(e)s CANADA INC.
47 Clarence St. Suite 406, Ottawa, ON K1N 9K1
NEUF ARCHITECTES

PROJECT NORTH TRUE NORTH

Client
DREAM UNLIMITED
30 Adelaide Street East
Suite 301
Toronto, ON, M5C 3H1

ZIBI
6 Booth Street (Albert Island)
Ottawa, ON, M1R 6K8

Project
ZIBI - BLOCK 204

Location
315 Miwate Private
Ottawa, ON

PROJET No.
0000.00

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03/17/22

Scale
1 : 200

Drawing Title
P1 - SINGLE LEVEL

Revision

Drawing Number
Z016b

Appendix B:

TRANS 2020 Trip Generation

1223 Michael Street North, Suite 100 | Ottawa, ON K1J 7T2
P: +1 613.738.4160 | F: +1 613.739.7105 | www.parsons.com

APPENDIX B: TRANS 2020 TRIP GENERATION

The following trip generation procedure was undertaken to compare the previous TIA methodologies to the current practice of forecasting trips by utilizing 2020 TRANS assumptions for peak hour and peak period travel. The new methodologies largely impact the forecast residential trip generation, which has been included below for comparison purposes. This approach is to be revisited at a future stage.

The proposed development will consist of 239 residential units and approximately 17,200 [2] of commercial space. The appropriate trip generation rates for a high-rise apartment land use were obtained from the 2020 TRANS Trip Generation Manual. Table 3 in the Manual provides person-trip rates during the peak AM and PM periods (7am-9:30am and 3:30PM-6PM). The trip rates are summarized in **Table 1** below.

Table 1: Trip Generation Trip Rates

Land Use	Data Source	Trip Rates	
		AM Peak Period (7-9:30am)	PM Peak Period (3:30-6pm)
High-Rise Apartments	TRANS 2020	T = 0.8(du);	T = 0.9(du);
Notes: *T = Average Vehicle Trip Ends* *du = Dwelling unit*			

Using the trip rates provided in **Table 1**, the total number of person trips generated during the morning and afternoon peak periods can be found in **Table 2**.

Table 2: Apartment Units Peak Period Person Trip Generation

Land Use	Dwelling Units	AM Peak Period Person Trips	PM Peak Period Person Trips
High-Rise Apartments	239	191	215

The proposed development is anticipated to generate 191 and 215 person trips during the morning and afternoon peak periods, respectively. The total peak period person trips in **Table 3** are then divided into different travel modes, as shown in **Table 4**, using mode share percentages obtained from the 2020 TRANS Manual for the "Ottawa Centre" district.

Table 3: Peak Period Trips Mode Shares Breakdown

Travel Mode	Mode Share	AM Peak Period Person Trip	Mode Share	PM Peak Period Person Trips
Auto Driver	18%	34	17%	37
Auto Passenger	2%	5	9%	20
Transit	26%	50	21%	44
Cycling	1%	3	1%	1
Walking	52%	100	52%	112
Total Person Trips	**100%**	**191**	**100%**	**215**

Standard traffic analysis is usually conducted using the morning and afternoon peak hour trips as they represent a worst-case scenario. In the 2020 TRANS Manual, Table 4 provides conversions rates from peak period to peak hours for different mode shares. The conversion rates are provided in **Table 5** below.

Table 4: Peak Period to Peak Hour Conversion Factors (2020 TRANS Manual)

Travel Mode	Peak Period to Peak Hour Conversion Factors

	AM	PM
Auto Driver	0.48	0.44
Passenger	0.31	0.29
Transit	0.55	0.47
Bike	0.58	0.48
Walk	0.58	0.52

Note that conversion factors for auto passenger trips are not available in the 2020 TRANS Manual. To obtain the passenger trip factor it was assumed that the total person trip peak hour conversion factor is the average of the provided adjustment factors minus the passenger trip peak hour conversion factor and has been calculated as shown in the example below:

$$0.5 = \frac{x + 0.48 + 0.55 + 0.58 + 0.58}{5}$$

$$x = 2.5 - 0.48 - 0.55 - 0.58 - 0.58$$

$$x = 0.31 \rightarrow AM\ passenger\ trip\ peak\ hour\ conversion\ factor$$

Using the conversion rates in **Table 5** and the peak period person trips for different travel modes in **Table 4**, the peak hour trips for different travel modes can be calculated as shown in **Table 6**. The actual peak hour mode share percentages can be reverse calculated using the percentage of each travel mode to the total person trips.

Table 5: Peak Hour Trips, with Actual Mode Share Percentages

Travel Mode	Peak Hour Mode Share Percentages	AM Peak Hour Trips	Peak Hour Mode Share Percentages	PM Peak Hour Trips
Auto Driver	15%	16	16%	16
Auto Passenger	1%	1	6%	6
Transit	26%	28	20%	21
Cycling	1%	1	1%	1
Walking	55%	58	57%	58
Total Person Trips	**100%**	105	**100%**	102

As shown in **Table 6**, the proposed development is anticipated to generate a total of approximately 102-to-105 person trips during both the morning and afternoon peak hours. Vehicle trips are anticipated to be approximately 16 veh/h during both the morning and afternoon peak hours. Active transportation mode shares (bike and walk) generate the highest number of trips for the proposed development (up to 60 trips during peak hours), which is expected given the location of the development in a core sector of the City of Ottawa.

In comparison to the previous TIA methodology, the new TRANS methodology forecasts a 50% reduction in the amount of auto vehicle traffic. This methodology, its assumed mode shares, and overall distribution/assignment procedure will be revised at the time of a complete TIA.