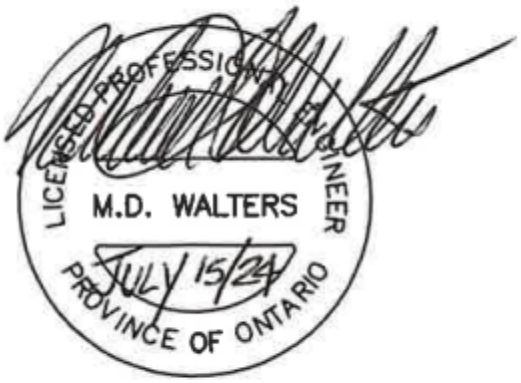
DILLON CONSULTING

AGBABA HOLDINGS CORPORATION

2121 Riverside Drive West Development, Windsor, ON

Transportation Impact Study



July 2024 - 24-8291

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July 15, 2024

Agbaba Holdings Corporation
2121 Riverside Drive West
Windsor, ON N98 1A8

Attention: Marko Agbaba

2121 Riverside Drive West Development, Windsor, ON
Transportation Impact Study

Please find enclosed a copy of the transportation impact study prepared as part of the site plan application for the development proposed at the southwest corner of Riverside Drive East and Rankin Avenue.

Should you have any questions or wish to discuss our findings, please contact me at (416) 229-4647, extension 2376, or at mwalters@dillon.ca.

Yours sincerely,

DILLON CONSULTING LIMITED

Mike Walters, P. Eng.
Transportation Engineer

Our File: 24-8291

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1.0 Introduction

1.1 Purpose

Dillon Consulting Limited (Dillon) has been retained by Agbaba Holdings Corporation to prepare a transportation impact study (TIS) for a development application at 2121 Riverside Drive East in Windsor, Ontario. The site is currently occupied by a single-detached home. The development application seeks to permit the construction of a 46-unit apartment building, that will be occupied by students (given the close proximity to the University of Windsor).

The subject lands are on the southwest quadrant of Riverside Drive West and Rankin Avenue. The site context and location is illustrated in ***Figure 1*** and ***Figure 2***, respectively.

Figure 1: Site Context

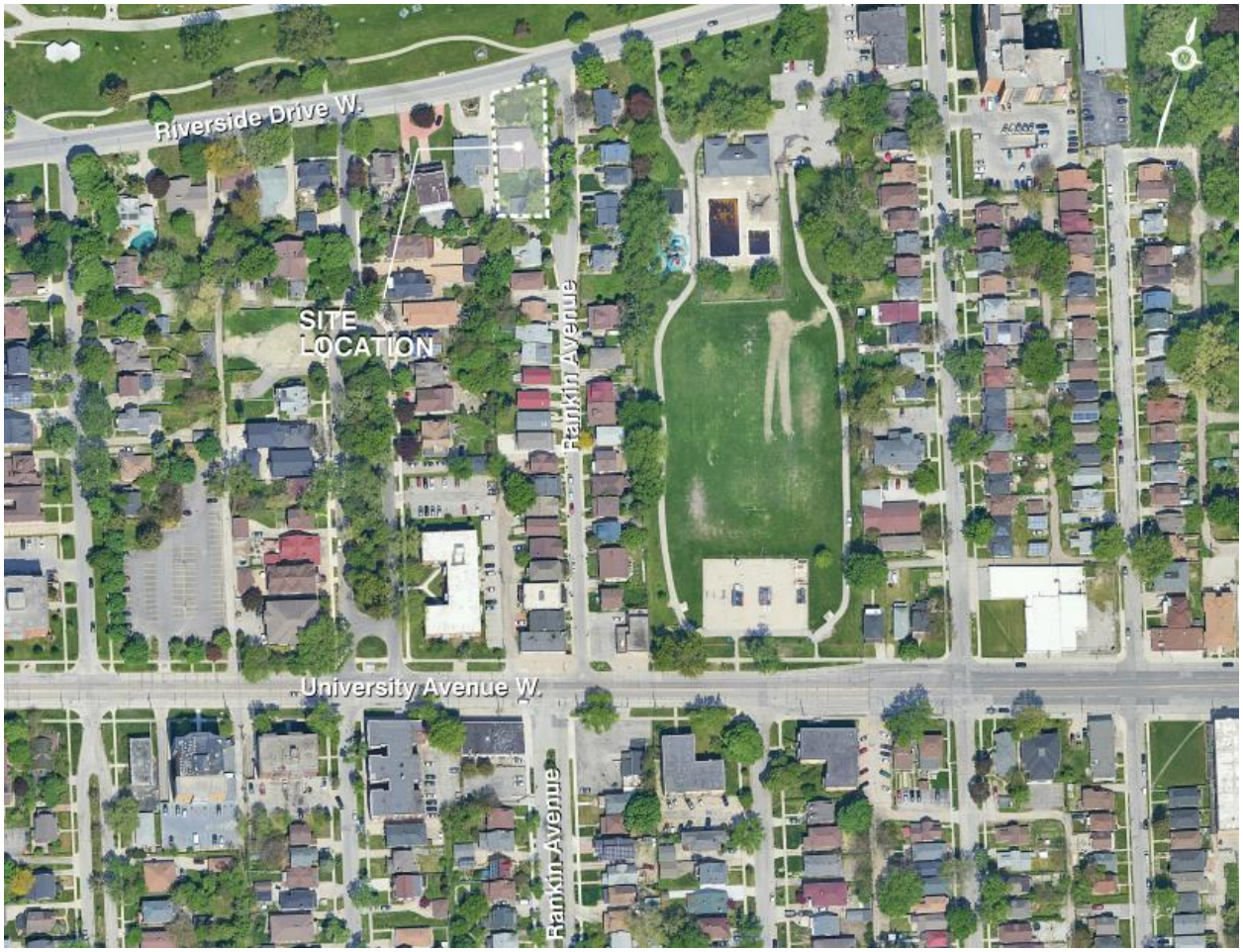
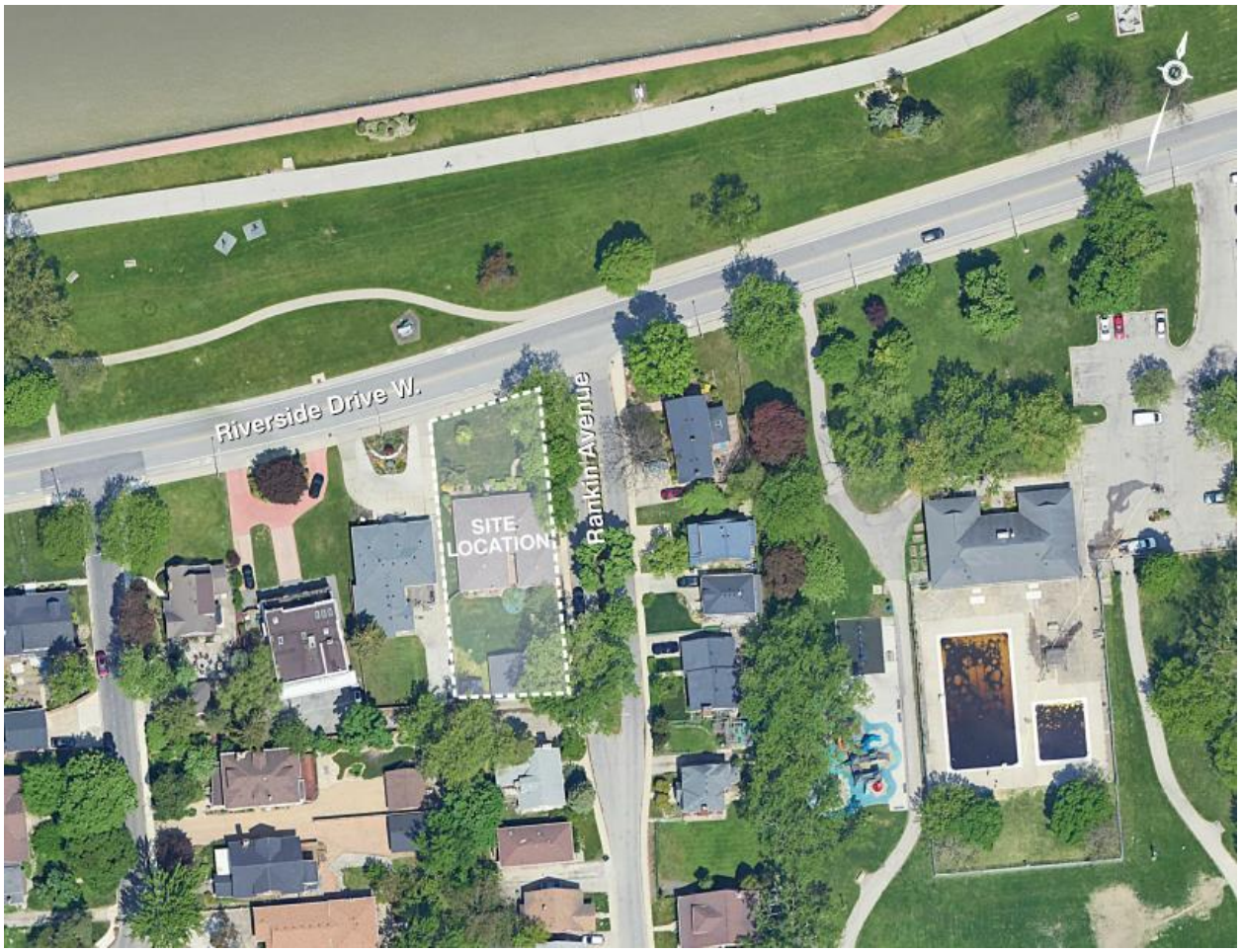


Figure 2: Site Location



1.2 Proposed Development

The proposed development consists of a three (3) storey residential building featuring 46 units and a surface parking lot with 12 parking spaces.

One vehicular access is proposed for the site on Rankin Avenue. It is located approximately 45 metres south of Riverside Drive West. Two entrances to the building itself are proposed, with one entrance proposed along Rankin Avenue (main building entrance) and another on the west side of the building (secondary building entrance), accessed via a concrete pathway that connects to Riverside Drive West.

The conceptual development plan can be seen in ***Appendix A.***

1.3 Scope of Analysis

Based on discussions with City of Windsor staff, the study area consists of the following intersections:

- Riverside Drive West and Rankin Avenue;
- University Drive West and Rankin Avenue; and
- The proposed site driveway to Rankin Avenue.

Traffic analyses have been prepared for the weekday AM and PM peak hours. Two horizon years have been assessed:

- 2026, corresponding to the anticipated build-out year; and
- 2031, corresponding to five years after the anticipated build-out year.

In addition to traffic analyses, the following have been considered:

- The impacts of the proposed development on active transportation infrastructure and non-auto modes; and
- Identification of any roadway or traffic control modifications that may be required to accommodate the traffic generated by the site.

2.0 Existing Conditions

2.1 Existing Road Network

The following describes the roadways within the study area.

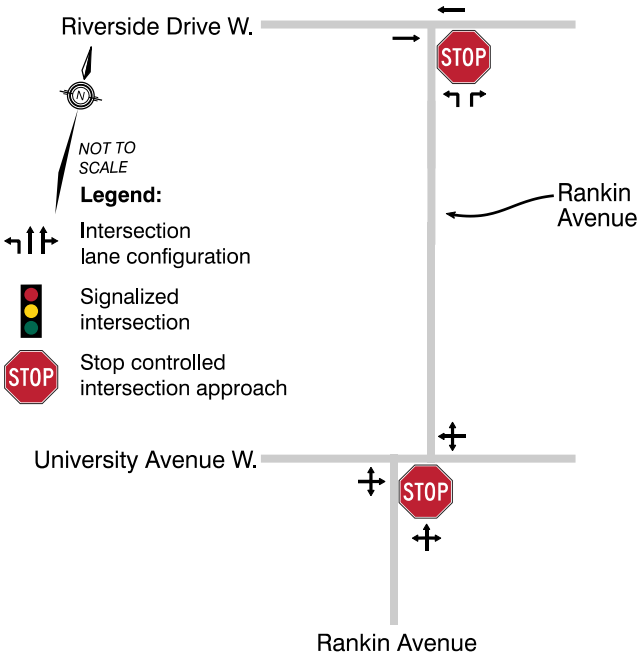
Riverside Drive West is an east-west road under the jurisdiction of the City of Windsor. It is classified as a scenic drive. Within the study area, Riverside Drive features a two-lane cross-section. As no speed limit signage is present, the speed limit would default to the statutory limit of 50 km/h. No on street parking is available on Riverside Drive West within the study area.

Rankin Avenue is a local road under the jurisdiction of the City of Windsor. It runs north-south, beginning at Union Street in the south and terminating at Riverside Drive West in the north. The road is a two-way street between University Avenue West and Union Street. North of University Avenue West, Rankin Avenue becomes a one-way street, only allowing traffic in the northbound direction. On-street parking along this street is restricted to residents of the area with a valid permit. Parking is available on the west side of the street north of University Avenue West and on both sides of the street to the south of University Avenue West. Raised landscaped islands are present along Rankin Avenue. South of University Avenue West, the landscaped islands begin at University Avenue West and extend southerly for approximately 300 metres. A landscape island is also present on Rankin Avenue north of University Avenue, beginning at Riverside Drive West and extending southerly for approximately 60 metres. Within the study area, truck restrictions are present on this road south of University Avenue West. There are no posted speed limits within the study area, and therefore a 50 km/h statutory speed limit applies under the *Highway Traffic Act*. Within the study area, the north and south legs of Rankin Avenue are not aligned at University Avenue West.

University Avenue is a two-lane Class I arterial road under the jurisdiction of the City of Windsor. It extends easterly from Sandwich Street before terminating at Pierre Avenue. There are no posted speed limits within the study area, and therefore a 50 km/h statutory speed limit applies under the *Highway Traffic Act*. Metered on-street parking exists on both sides of the roadway within the study area.

Figure 3 illustrates the existing traffic control and lane configuration at the study area intersections.

Figure 3: Existing Intersection Geometry and Traffic Control



2.2 Existing Facilities

2.2.1 Existing Active Transportation Facilities

Active transportation facilities currently exist in the study area. A summary of these facilities is noted below:

Riverside Drive West: Within the study area, sidewalks and bicycle lanes are present on both sides of the roadway. A multi-use trail, known as the Riverfront Trail is present on the north side of the roadway.

Rankin Avenue: Within the study area, sidewalks exist on both sides of the road.

University Avenue West: Within the study area, sidewalks and dedicated bicycle lanes exists on the both sides of the roadway.

2.2.2 Existing Transit Services

Transit service in the study area is operated by Transit Windsor. There are two routes that pass through the study area:

Transway 1C links the Hotel-Dieu Grace Healthcare Terminal, the University of Windsor, the downtown core, and Forest Glade. It provides east-west service, using Ouellette Avenue to travel north-south

between University Avenue and Tecumseh Road. From Monday to Saturday the service operates at 10-minute headways during the day and 30-minute headways in the early-morning and evening. On Sundays and holidays, service operates at 40- to 60-minute headways. The closest stops to the subject site are located along University Avenue West at Randolph Avenue, Partington Avenue and Bridge Avenue.

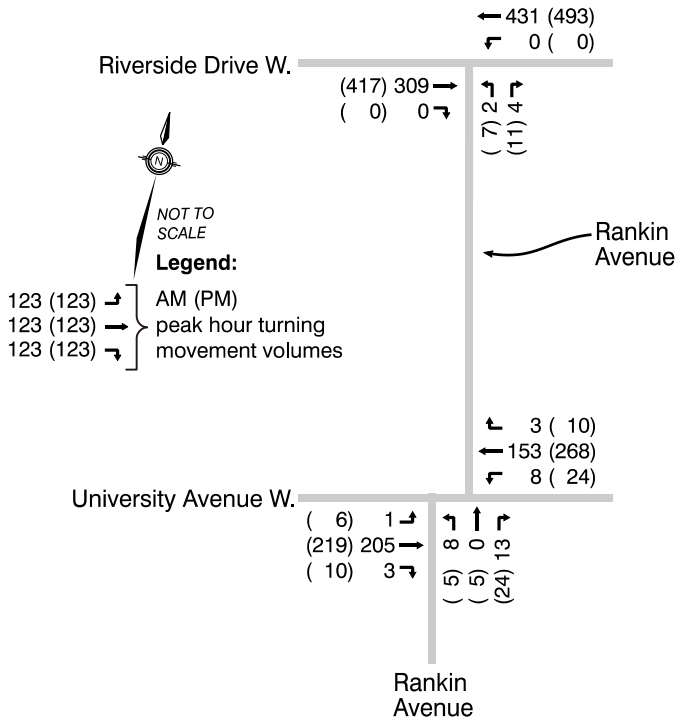
Dominion 5 connects the Windsor International Transit Terminal to St. Clair College, mostly running south along Dominion Avenue. Service operates at 20-minute headways Monday through Friday. On Saturdays the headway is 30 minutes throughout the day with 60-minute headways in the early-morning. On Sundays and holidays the headway is 60 minutes. The closest stop to the subject site is located at Campbell Street and Riverside Drive West.

2.3 Existing Traffic Volumes

Weekday AM and PM peak hour intersection turning movement counts (TMC's) were undertaken at the study area intersections by Horizon Data Services Ltd (HDSL). The traffic data was collected on Wednesday, June 5, 2024 between 7:00 AM and 9:00 AM and 4:00 PM and 6:00 PM. The TMC data can be found in ***Appendix B.***

Figure 4 presents the existing traffic volumes in the study area.

Figure 4: Existing Traffic Volumes



2.4 Existing Pedestrian and Cycling Activity

The volume of pedestrians and cyclists was recorded as part of the traffic counts undertaken by HDSL.

Table 1 documents the number of pedestrian crossings at each intersection during the peak hours.

Table 1: Existing Pedestrian Activity

Intersection	AM peak hour					PM peak hour				
	North leg	South leg	West leg	East leg	Total	North leg	South leg	West leg	East leg	Total
Riverside Drive West and Rankin Avenue	0	5	1	0	**6**	0	7	1	0	**8**
University Avenue West and Rankin Avenue	16	18	4	5	**43**	22	52	20	10	**104**

A low level of pedestrian activity was observed at the Riverside Drive West and Rankin Avenue intersection. A high volume of pedestrian activity was observed at the University Avenue West and Rankin Avenue intersection, particularly during the PM peak hour with a total of 104 pedestrian crossings observed.

Table 2 presents the number of cyclists observed on each intersection approach during the peak hours.

Table 2: Existing Cycling Activity

Intersection	AM peak hour					PM peak hour				
	WB	EB	SB	NB	Total	WB	EB	SB	NB	Total
Riverside Drive West and Rankin Avenue	1	1	0	0	2	0	3	0	0	3
University Avenue West and Rankin Avenue	2	0	1	0	3	2	2	0	0	4

A low level of cycling activity was observed, with a maximum of 4 cyclists observed at University Avenue West and Rankin Avenue during the PM peak hour.

3.0 Future Background Conditions

This section establishes the magnitude of traffic growth under future background conditions (i.e., traffic volumes that are forecasted without the proposed development in place).

Two horizon years have been assessed:

- 2026, corresponding to the anticipated build-out year; and
- 2031, corresponding to five years after the anticipated build-out year.

3.1 Background Traffic Growth

Future background traffic volumes were calculated by applying a background growth rate of 1.0% per year to existing volumes, based on direction from City of Windsor staff. The background growth rate was applied to all movements except for movements turning into or out of the site driveway.

3.2 Background Development Traffic

No significant development applications were identified by City staff on Rankin Avenue between Riverside Drive West and University Avenue West, or on Riverside Drive West between Campbell Avenue and Randolph Avenue. Therefore, no background development traffic was incorporated into the future background volume forecasts.

3.3 Future Background Traffic Volumes

The resulting future background traffic volumes at the 2026 and 2031 horizons are presented in ***Figure 5*** and ***Figure 6***, respectively.

Figure 5: Future Background Traffic Volumes (2026)

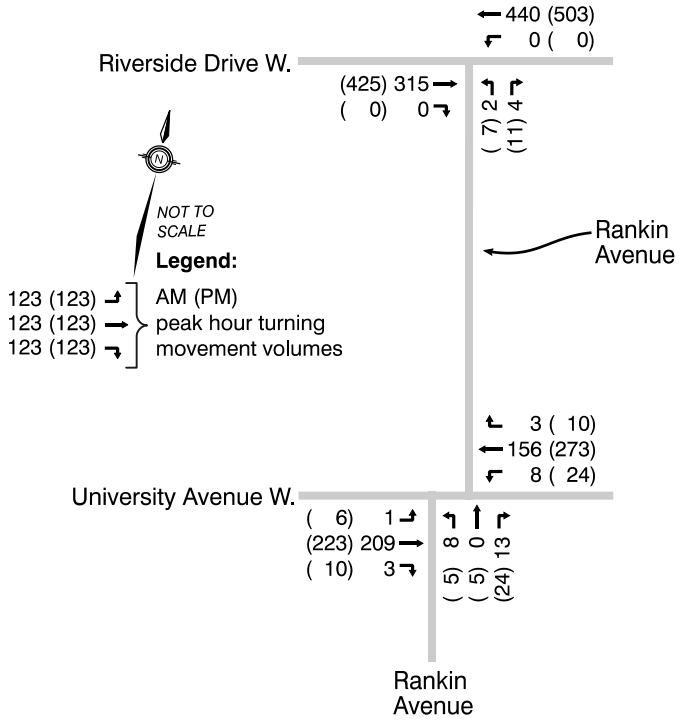
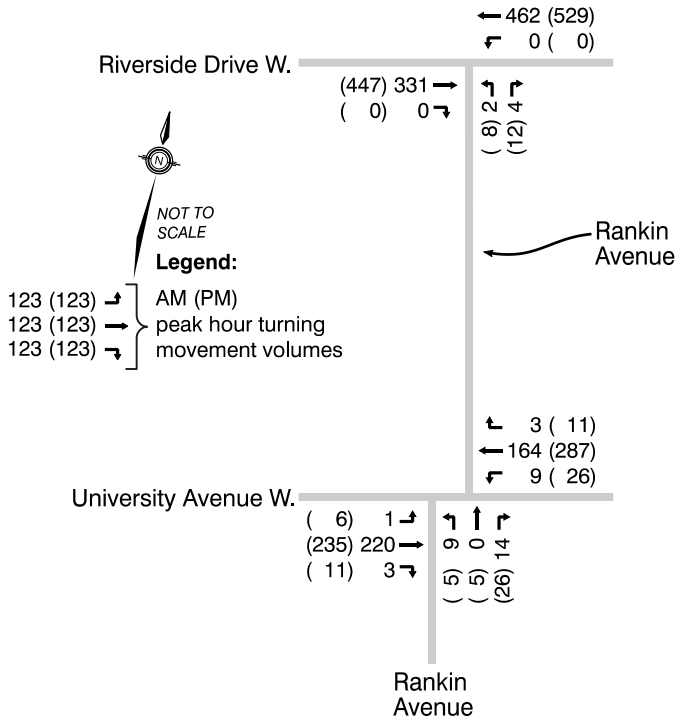


Figure 6: Future Background Traffic Volumes (2031)



4.0 Total Future Traffic Volumes

4.1 Proposed Development

The proposed development consists of a three (3) storey residential building featuring 46 units and a surface parking lot with 12 parking spaces.

One vehicular access is proposed for the site on Rankin Avenue. It is located approximately 45 metres south of Riverside Drive West. Two entrances to the building itself are proposed, with one entrance proposed along Rankin Avenue (main building entrance) and another on the west side of the building (secondary building entrance), accessed via a concrete pathway that connects to Riverside Drive West.

It is understood that the development will be occupied by students (given the close proximity to the University of Windsor).

4.2 Site Trip Generation

Trips generated by the proposed development were estimated based on trip generation rates published by ITE in the *Trip Generation Manual*, 11th edition. Trips were generated based on ITE Land Use Code 225 ("Off-Campus Student Apartment (Low-Rise)"). Each unit in the proposed development is a one-bedroom apartment, which translates to a total of 46 bedrooms. The eastern edge of the University of Windsor (University Avenue West and California Avenue) is approximately 550 metres away from the proposed development.

Table 3 presents the trip generation estimates applied to the subject site.

Table 3: Future Site Trip Generation

Land use / magnitude	AM peak hour					PM peak hour				
	Rate	% in/ out	Total trips	Trips in	Trips out	Rate	% in/ out	Total trips	Trips in	Trips out
Off-Campus Student Apartment (Low-Rise) (46 units)	0.12	36 / 64	6	2	4	0.24	50 / 50	11	6	5

The site is anticipated to generate 6 vehicle trips during the AM peak hour and 11 vehicle trips during the PM peak hour.

4.2.1 Non-Auto Travel

Non-auto trips will also be generated by the site. The subject site is in close proximity to the University of Windsor. As this development will be occupied by students who primarily do not own vehicles, it is

anticipated that the majority of the trips will be made by students walking to/from the University of Windsor, which is approximately a 7-minute walk away. When comparing the number of units to the number of proposed parking spaces, only 26% of the units will have a parking space. It is therefore expected that the development will attract students who don't own vehicles due to the limited number of parking spaces.

Even though the above math would seem to imply that 74% of the units will travel via other modes, the City's May 2019 Active Transportation Master Plan was used as a guide to estimate non-auto trips. The May 2019 AT Master Plan identifies a 2041 target mode share (for active transportation modes) of 22% for mature neighbourhoods. The 22% modal split was added on top of the estimated vehicle trips to derive total person trips for the site.

Table 4 summarizes the assumed modal split for the subject development.

Table 4: Future Site Trip Generation

Land use / magnitude	AM peak hour					PM peak hour				
	Rate	% in/ out	Total trips	Trips in	Trips out	Rate	% in/ out	Total trips	Trips in	Trips out
Total auto trips	0.12	36 / 64	6	2	4	0.24	50 / 50	11	6	5
Modal split	22%		2	1	1	22%		3	2	1
Total person trips			**8**	**3**	**5**			**14**	**8**	**6**

The proposed development is projected to generate 8 total trips (3 inbound and 5 outbound) during the weekday AM peak hour and 14 total trips during the weekday PM peak hour (8 inbound and 6 outbound).

4.3 Site Traffic Distribution

The trip distribution was estimated based on the site's location in the city of Windsor, an estimation of likely complementary external trip generators, the availability and attractiveness of various travel routes, and existing traffic patterns.

To get a better representation of the existing directional distribution, only the intersection of University Avenue West and Rankin Avenue was relied on, despite the north leg being a one way-street. The intersection of Riverside Drive East and Rankin Avenue is limited to eastbound and westbound through movements and northbound right-turn/left-turn movements due to the intersection being a 3-legged intersection (no north leg) and with the south leg being a one-way street. As a result, the following trip distribution was utilized:

- 0% to/from the north;
- 5% to/from the south;

- 47.5% to/from the east; and
- 47.5% to/from the west.

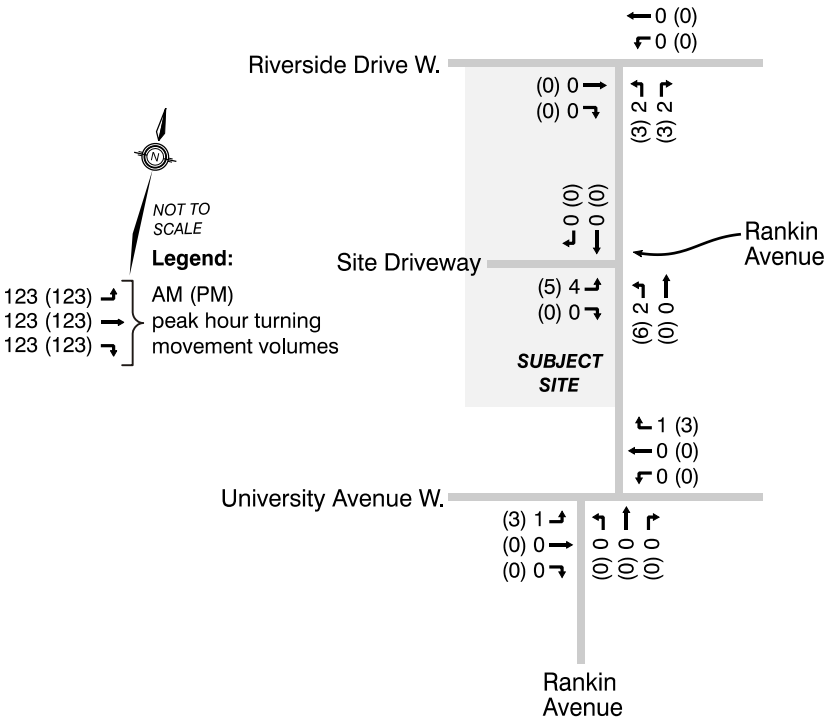
4.4 Site Traffic Assignment

Trips generated by the site were assigned logically based on the available street network.

Since Rankin Avenue is a one-way street at the site location, vehicles heading to the site must arrive from the south using University Avenue West (to head north on Rankin Avenue) and vehicles leaving the site must head north on Rankin Avenue towards Riverside Drive West. The small percentage of vehicle heading south will have to do so by first either heading westbound or eastbound on Riverside Drive East. The trips heading to the south were divided evenly on Riverside Drive West in the east and west direction as various external trip generators south of the site produced similar travel times whether a vehicle travelled eastbound or westbound to ultimately head south.

Figure 7 illustrates the anticipated site traffic volumes. Due to rounding, the volumes are not always balanced in the PM peak hour between the site driveway and the Riverside Drive West and Rankin Avenue intersection.

Figure 7: Site Traffic



4.5 Total Future Traffic Volumes

Total future traffic volumes represent conditions anticipated with the proposed development in place, and are calculated by adding the site traffic volumes to the projected future background traffic volumes. ***Figure 8*** and ***Figure 9*** illustrate the projected total future traffic volumes at the 2026 and 2031 horizons, respectively.

Figure 8: Total Future Traffic Volumes (2026)

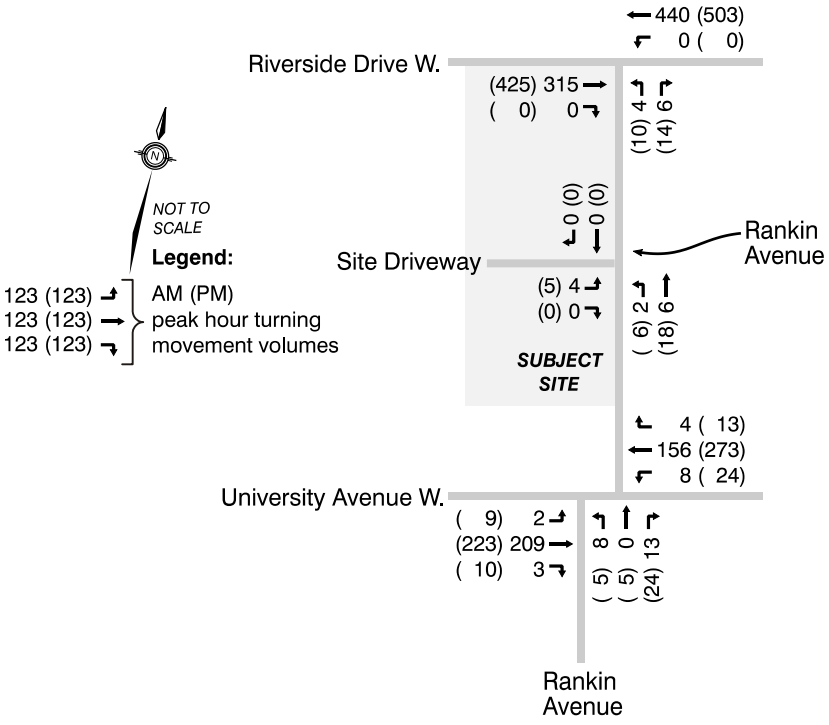
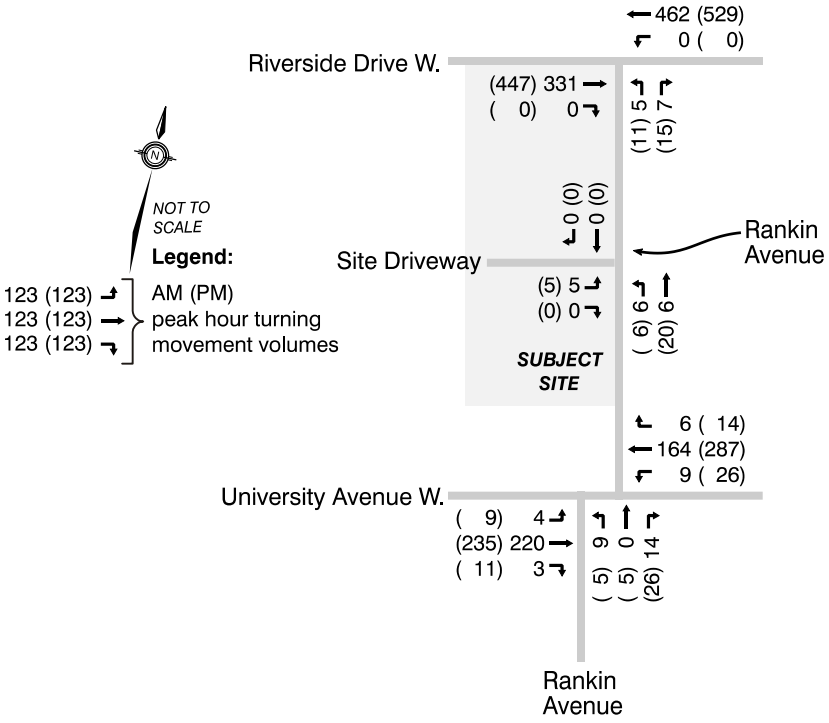


Figure 9: Total Future Traffic Volumes (2031)



5.0 Intersection Operations

Intersection operational analyses were completed for the study area intersections using Trafficware's Synchro software (version 11). The analyses reflect the existing lane configurations at each intersection.

At the unsignalized (stop-controlled) intersections within the study area, the v/c ratio, delay, level of service and 95th percentile queue were noted for any stop-controlled movements. Level of service definitions are provided in ***Appendix C***. Synchro analysis worksheets reports are provided in ***Appendix D***.

At each intersection, critical movements were identified. Critical movements are defined as:

- Any individual movement at an unsignalized intersection operating at LOS F; and
- Any turning movement where the calculated 95th percentile queue exceeds the available storage length.

5.1 Riverside Drive West and Rankin Avenue

Table 5 summarizes the operations at Riverside Drive West and Rankin Avenue.

Table 5: Intersection Operations at Riverside Drive West and Rankin Avenue

Movement	AM peak hour				PM peak hour			
	v/c	LOS	Delay *(s/veh)*	95th %ile queue *(m)*	v/c	LOS	Delay *(s/veh)*	95th %ile queue *(m)*
Existing								
NB left	0.01	C	15.3	0	0.03	C	18.7	1
NB right	0.01	B	10.2	0	0.02	B	11.1	1
Future background (2026)								
NB left	0.01	C	15.6	0	0.03	C	19.1	1
NB right	0.01	B	10.2	0	0.02	B	11.2	1
Total future (2026)								
NB left	0.01	C	15.6	0	0.04	C	19.3	1
NB right	0.01	B	10.2	0	0.03	B	11.2	1
Future background (2031)								
NB left	0.01	C	16.2	0	0.04	C	20.2	1
NB right	0.01	B	10.3	0	0.02	B	11.4	1
Total future (2031)								
NB left	0.02	C	16.3	0	0.05	C	20.4	1
NB right	0.01	B	10.3	0	0.03	B	11.4	1

The northbound left-turn movement currently operates at a reasonable level of service (LOS C) in both the AM and PM peak hour. The northbound right-turn currently operates at a good level of service (LOS B) in both peak hours. The level of service for these movements are not anticipated to changed

significantly, and only minimal changes to queuing and delay are anticipated as a result of background growth and the addition of site traffic. No critical movements are anticipated.

5.2 University Avenue West and Rankin Avenue

Table 6 summarizes the operations at University Avenue West and Rankin Avenue.

Table 6: Intersection Operations at University Avenue West and Rankin Avenue

Movement	AM peak hour				PM peak hour			
	v/c	LOS	Delay *(s/veh)*	95th %ile queue *(m)*	v/c	LOS	Delay *(s/veh)*	95th %ile queue *(m)*
Existing								
NB approach	0.04	B	10.9	1	0.07	B	12.2	2
Future background (2026)								
NB approach	0.04	B	10.9	1	0.07	B	12.3	2
Total future (2026)								
NB approach	0.04	B	11.0	1	0.07	B	12.4	2
Future background (2031)								
NB approach	0.04	B	11.1	1	0.07	B	12.6	2
Total future (2031)								
NB approach	0.04	B	11.2	1	0.07	B	12.5	2

The stop-controlled northbound approach currently operates at LOS B in both the AM and PM peak hours. The level of service is anticipated to be unchanged due to background traffic growth and the addition site traffic, through to the 2031 horizon year. The northbound approach is anticipated to operate well below capacity, and queues are not anticipated to exceed a single vehicle in all horizon years.

5.3 Rankin Avenue at Site Access

Table 7 summarizes the operations at the proposed site access on Rankin Avenue.

At the site driveway, Rankin Avenue is a one-way street with two travel lanes separated by a raised landscaped median island. ***Figure 10*** depicts the lane configuration along Rankin Avenue near the site driveway.

Figure 10: Lane Configuration of Rankin Avenue at the Proposed Site Access

The Synchro software is unable to model the geometry present on Rankin Avenue at the site access point. The intersection of the site driveway and Rankin Avenue could have been conservatively modelled with a single northbound approach lane (shared through/left-turn lane), combining the traffic of both lanes on either side of the median. This approach is unrealistic as it overestimates the delay experienced by a vehicle exiting the site (vehicles turning out of the site will turn into the lane on the left side of the median island, and do not have to wait for vehicles driving on the right side of the median island). To better represent driver behaviour, the northbound approach at the site driveway was modelled as two northbound approach lanes (one shared through/left-turn lane and one northbound through lane). This allows vehicles turning onto Rankin Avenue to head north, the ability to do so regardless of if there is traffic in the northbound through lane (on the right side of the median island).

Table 7: Intersection Operations, Ouellette Avenue at Elliott Street

Movement	AM peak hour				PM peak hour			
	v/c	LOS	Delay *(s/veh)*	95th %ile queue *(m)*	v/c	LOS	Delay *(s/veh)*	95th %ile queue *(m)*
Total future (2026)								
EB left	0.00	A	8.6	0	0.01	A	8.7	0
Total future (2031)								
EB left	0.01	A	8.6	0	0.01	A	8.7	0

The eastbound left at the site driveway to Rankin Avenue is anticipated to operate at an excellent LOS (LOS A) through to the 2031 horizon year.

6.0 Site Plan Review

6.1 Impact on Non-Auto Modes

There are existing sidewalks and bicycle lanes on Riverside Drive West along the site's north frontage, which will not be modified as a result of the proposed development. The development proposal includes the introduction of a concrete walkway that would connect the western edge of the proposed building to the existing pedestrian sidewalk on Riverside Drive West. This would link pedestrians to the building's secondary entrance.

Along Rankin Avenue, a sidewalk currently exists along the site's east frontage. A new curb cut is proposed for vehicular access off this street, with the existing location of the sidewalk on the east frontage to be maintained upon the introduction of the curb cut.

The primary pedestrian desire lines associated with this development will be to the west and south of the development (to get to the University of Windsor). This destination can be reached without requiring pedestrians to cross streets at uncontrolled locations. For pedestrians heading to the east, the stop-controlled northbound approach at Rankin Avenue and Riverside Drive West allows a controlled location for pedestrians to cross. Pedestrians wanting to cross Riverside Drive West to access the Riverfront Trail can do so at a controlled pedestrian crossing located approximately 230 metres east of the Rankin Avenue and Riverside Drive West intersection.

As part of this development, modifications to transit infrastructure are not proposed.

6.2 Parking

The City of Windsor's Zoning By-law (ZBL) 8600 provides regulations and standards for all developments within Windsor. The by-law specifies the following parking requirements for student housing:

- **Required Spaces:** 1 parking space for each 4 beds;
- **Accessible parking spaces:** 1 space for developments with a total parking supply of 1 to 25 spaces;
- **Visitor Parking Spaces:** For a multiple dwelling building with a minimum of 5 units, 15% of parking spaces must be marked as visitor.

Table 8 outlines the parking requirements for the subject site.

Table 8: Parking Requirements

Type of Spaces	Parking Spaces	Required Parking Spaces	Proposed Parking Rate	Parking Spaces Provided
University Student Residence	Based on the number of beds (46 beds)	(1.0 space/unit x (46 beds / 4 beds)) = 11 spaces (11.5 rounded DOWN to 11 spaces)	0.26 spaces/unit	0.26 spaces/unit X 46 units = 12 spaces
Accessible	Based on the total number of parking spaces in area (12 total spaces proposed)	1 Type A Parking Space is Required	-	1 parking space
Visitor	Based on the type of development (Multiple Dwelling with more than 5 units)	15% X 12 spaces = 1 space (1.8 spaces rounded down to 1 space)	-	1 parking space

The total number of parking spaces required for the site based on the City's zoning by-law is approximately 12 parking spaces. The development proposal is envisioning the provision of 12 parking spaces, which meets ZBL minimum parking requirements. Within the 12 proposed parking spaces, one space needs to be signed as a visitor space, and one space must be an accessible parking space (measuring 3.5 metres in width and 5.5 metres in length). Both the visitor space and accessible space are denoted on the development plans.

7.0 Summary

Dillon Consulting has been retained by Agbaba Holdings Corporation (the "client") to undertake a transportation impact study (TIS) which reviews the impact of a proposed residential development in the city of Windsor, Ontario. The proposed residential development is located on the southwest corner of the Riverside Drive West and Rankin Avenue intersection. Given the close proximity to the University of Windsor, the development will be used/occupied by students.

The proposed development consists of a three (3) storey residential building featuring 46 units and a surface parking lot with 12 parking spaces. One vehicular access is proposed on Rankin Avenue for the site. It is located approximately 45 metres south of Riverside Drive West. Two entrances to the building are proposed, with one entrance proposed along Rankin Avenue (main building entrance) and another on the west side of the building (secondary building entrance), accessed via a concrete pathway that connects to Riverside Drive West.

The proposed development is anticipated to generate 8 total person trips during the AM peak hour (3 inbound and 5 outbound) and 14 total person trips during the PM peak hour (8 inbound and 6 outbound). These forecasts reflect an estimated non-auto modal split of 22% for mature neighbourhoods, which is based on 2041 targets outlined in the City of Windsor's 2019 Active Transportation Master Plan.

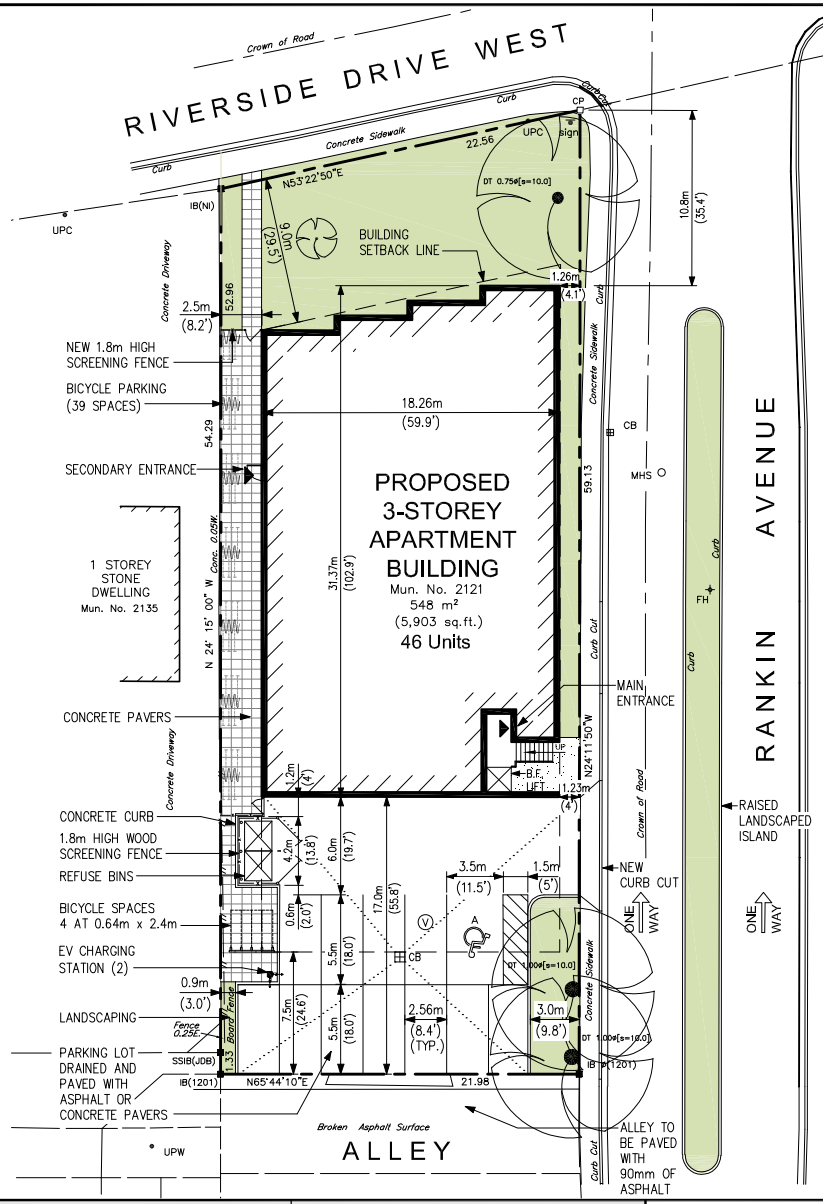
All study area intersections are projected to have acceptable levels of vehicular delay and queuing. All individual vehicle movements operate at LOS C or better. No critical movements have been identified. The proposed site driveway is projected to operate at an excellent level of service (LOS A), during both the AM and PM peak hours through to the 2031 horizon year.

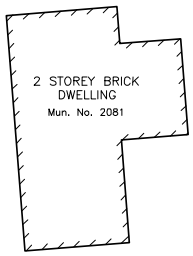
There are existing sidewalks and bicycle lanes on Riverside Drive West along the sites north frontage, which will not be modified as a result of the proposed development. The site plan proposes the introduction of a concrete walkway that would connect the western edge of the proposed building to the existing pedestrian sidewalk on Riverside Drive West. This would link pedestrians to the building's secondary entrance. Along Rankin Avenue, a sidewalk currently exists along the site's east frontage.

The minimum number of parking spaces required for the site as per the City's Zoning By-law is 11 spaces. The subject site proposes 12 parking spaces, which meets the ZBL requirements.

Appendix A

Proposed Site Plan

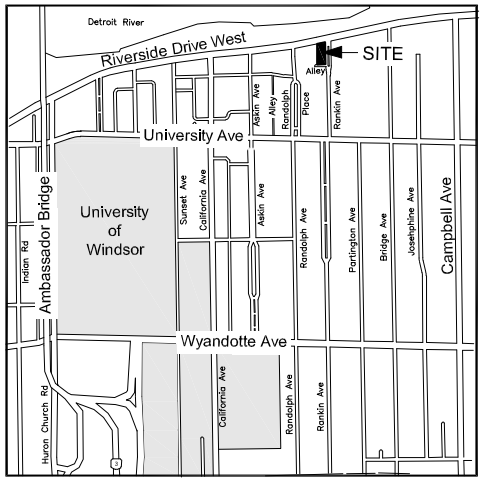




Site Plan

SCALE: 1:300

0 5 10 Meters



Location Map

SCALE: Not to scale

DETAILS OF DEVELOPMENT

ZONING – TO BE DETERMINED	RD2.2 REQUIRED	PROVIDED	COMMENTS	VARIANCE REQUIRED
LOT WIDTH (MINIMUM)	18.0m	21.98m		
LOT AREA (MINIMUM)	540m²	1,247.8m²		
LOT COVERAGE (MAXIMUM)	45%	44%		
BUILDING HEIGHT	9.0m	11.58m		✓
FRONT YARD (MINIMUM)	6.0m	9.0m		
REAR YARD (MINIMUM)	7.5m	17.0m		
SIDE YARD (MINIMUM)	1.8m	1.23m		✓
DWELLING UNITS (MAXIMUM)	4	46		✓
PARKING SPACES = 46x1.25	58	12	1 TYPE 'A' PARKING SPACE AND 1 VISITOR SPACE PROVIDED	✓
LOADING SPACE	1	0		✓
BICYCLE SPACES	2	43		
PARKING SEPARATION (MINIMUM)				
• STREET	3.0m	3.0m		
• INTERIOR LOT/ALLEY (MINUMUM)	0.9m	0.9m		
• HABITABLE WINDOW	4.5m	0m		✓
• ALLEY	0.9m	0m		✓
BUILDING AREA	–	548m² (5,903 sq.ft.)		
GROSS BUILDING AREA	–	1,639m² (17,647 sq.ft.)		

LEGAL DESCRIPTION:

PART OF LOT 1,
REGISTERED PLAN 1163,
In The
CITY OF WINDSOR,
COUNTY OF ESSEX, ONTARIO

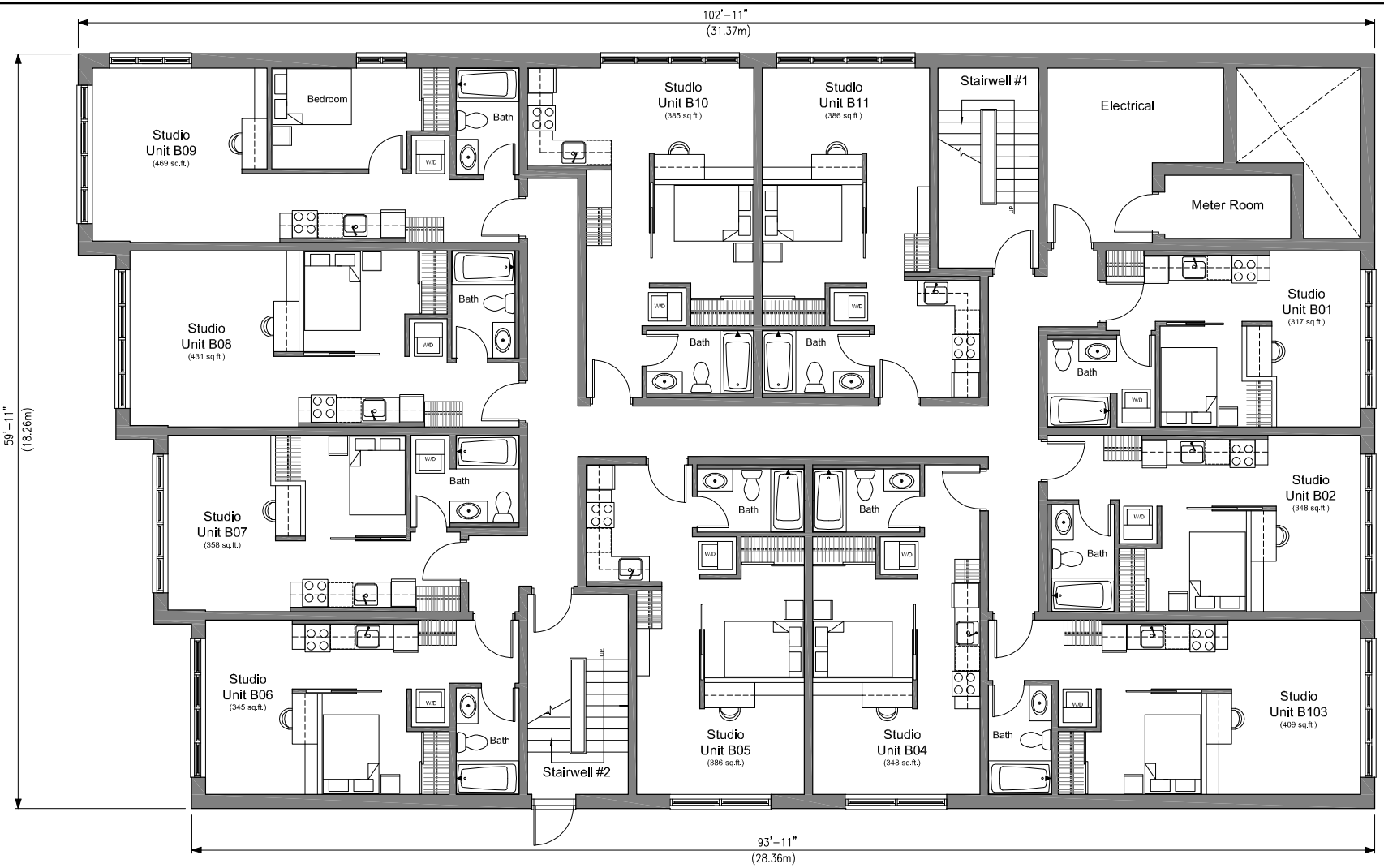
MEO & ASSOCIATES INC.
Architectural & Engineering Consultants
www.meogroup.net

825 Kingsway Drive, Burlington, Ontario, Canada, L7T 3H8
Tel. 905-632-6952; Fax 905-632-8870; mjtskevx@meoassociates.com
3600 Seven Lakes Dr., Suite 200, LaSalle, Ontario, Canada, N9H 0E5
Tel. 519-250-8088; Fax 519-250-8070; rmeo@meoassociates.com

CLIENT: AGBABA HOLDINGS CORPORATION	PROJECT: 2121 RIVERSIDE DRIVE W. APARTMENTS Windsor Ontario	DRAWING TITLE: PRELIMINARY SITE PLAN	DATE: APRIL 17, 2024	PROJECT NUMBER: 4758	SHEET NUMBER: P1
		SCALE: 1:300	ACAD REFERENCE: 4758 –P1– Site Plan	DRAWN BY: I.A.Z.	

ISSUED FOR:

4758 –P1– Site Plan.dwg, (Site Plan) Apr 17, 2024 – 11:47am



Basement Plan

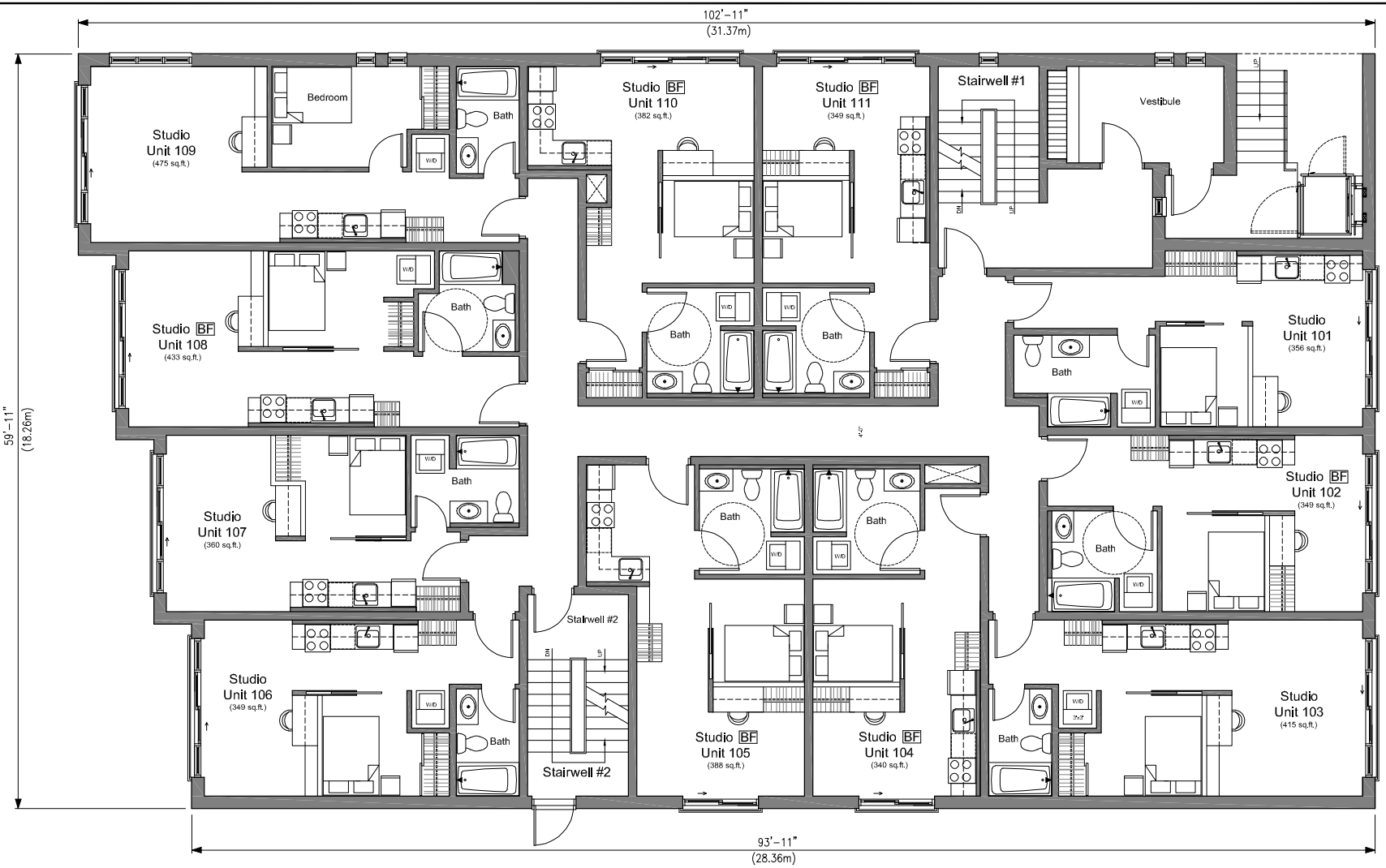
SCALE: 1/8=1'-0"

Basement = 11 Units
AREA = 5,713 sq.ft. (531m²)

0 8' 16'

MEO & ASSOCIATES INC. Architectural & Engineering Consultants www.meogroup.net	825 Kingsway Drive, Burlington, Ontario, Canada, L7T 3H8 Tel. 905-632-6952; Fax 905-632-8870; mptskevk@meoessedates.com 3600 Seven Lakes Dr., Suite 200, LaSalle, Ontario, Canada, N9H 0E5 Tel. 519-250-8088; Fax 519-250-8070; rmeo@meoessecates.com	CLIENT: AGBABA HOLDINGS CORPORATION	PROJECT: 2121 RIVERSIDE DRIVE W. APARTMENTS Windsor Ontario	DRAWING TITLE: BASEMENT PLAN	SCALE: 1/8" = 1'-0"	ACAD REFERENCE: 4758 -P2- Fl Plan	DATE: APRIL 22, 2024 DRAWN BY: I.A.Z.	ISSUED FOR: PROJECT NUMBER: 4758	SHEET NUMBER: P2

4758 -P2- Fl Plan.dwg, (B Plan) Apr 22, 2024 - 9:45am



1st Floor Plan

SCALE: 1/8=1'-0"

1st Floor = 11 Units
AREA = 5,841 sq.ft. (543m²)

0 8' 16'

MEO & ASSOCIATES INC.
Architectural & Engineering Consultants
www.meogroup.net

825 Kingsway Drive, Burlington, Ontario, Canada, L7T 3H8
Tel. 905-632-6952; Fax 905-632-8870; mptiskevk@meoessedates.com

3600 Seven Lakes Dr., Suite 200, LaSalle, Ontario, Canada, N9H 0E5
Tel. 519-250-8088; Fax 519-250-8070; rmeo@meoessecates.com

CLIENT: AGBABA HOLDINGS CORPORATION

PROJECT: 2121 RIVERSIDE DRIVE W. APARTMENTS
Windsor Ontario

DRAWING TITLE: 1st FLOOR PLAN

SCALE: 1/8" = 1'-0"

ACAD REFERENCE: 4758 -P2- Fl Plan

DATE: APRIL 22, 2024

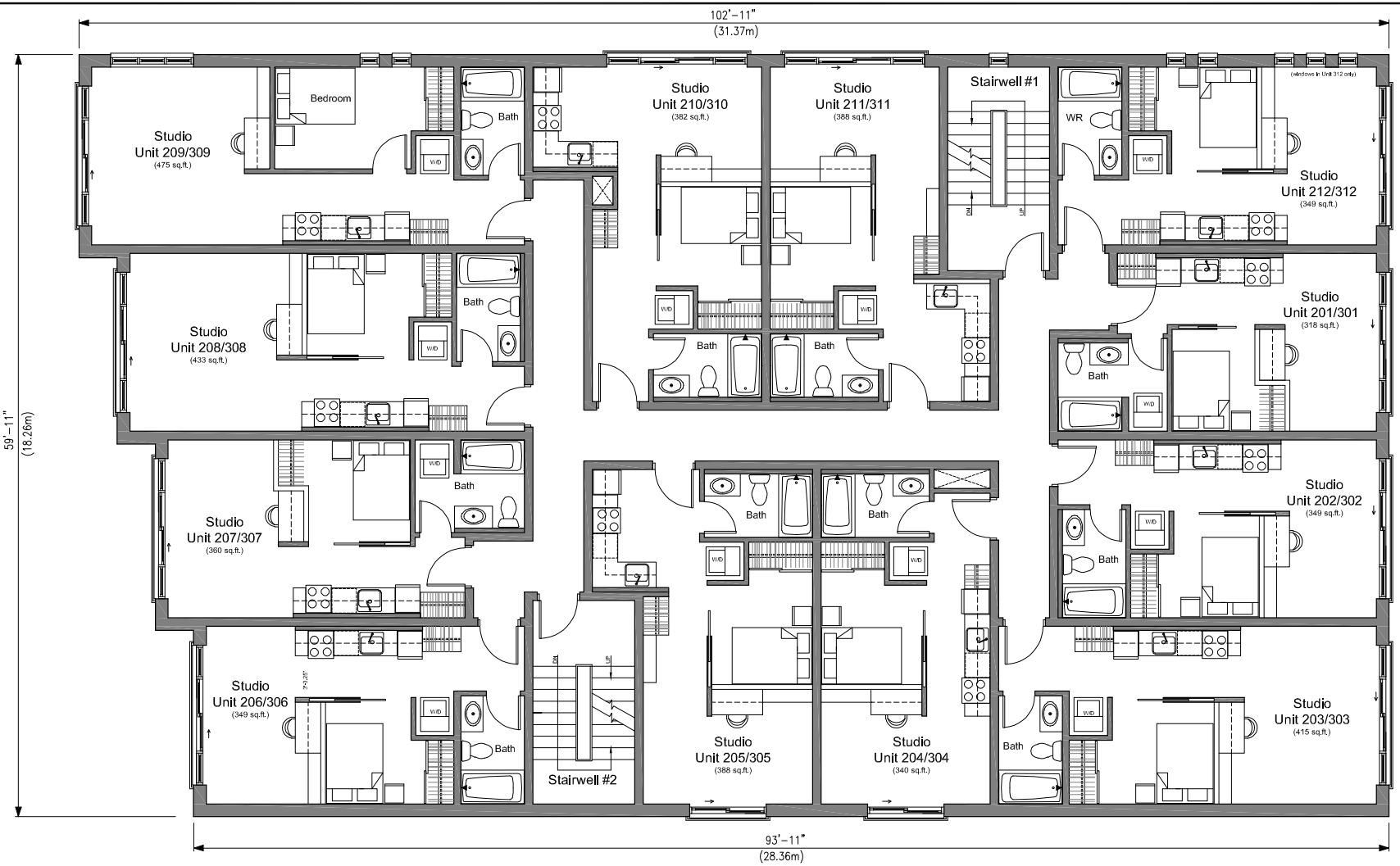
DRAWN BY: I.A.Z.

ISSUED FOR:

PROJECT NUMBER: 4758

SHEET NUMBER: P3

4758 -P2- Fl Plan.dwg, (1st Floor) Apr 22, 2024 - 9:46am



2nd & 3rd Floor Plan

SCALE: 1/8=1'-0"

2nd Floor = 12 Units
3rd Floor = 12 Units
AREA = 5,903 sq.ft. (548m²)

0 8' 16'

ISSUED FOR:

MEO & ASSOCIATES INC. Architectural & Engineering Consultants www.meogroup.net	825 Kingsway Drive, Burlington, Ontario, Canada, L7T 3H8 Tel. 905-632-6952; Fax 905-632-8870; mptskevk@meoessedates.com 3600 Seven Lakes Dr., Suite 200, LaSalle, Ontario, Canada, N9H 0E5 Tel. 519-250-8088; Fax 519-250-8070; rmeo@meoessecates.com	CLIENT: AGBABA HOLDINGS CORPORATION	PROJECT: 2121 RIVERSIDE DRIVE W. APARTMENTS Windsor Ontario	DRAWING TITLE: 2nd & 3rd FLOOR PLAN SCALE: 1/8" = 1'-0" / ACAD REFERENCE: 4758 -P2- Fl Plan	DATE: APRIL 22, 2024 DRAWN BY: I.A.Z.	PROJECT NUMBER: 4758	SHEET NUMBER: P4

4758 -P2- Fl Plan.dwg, (2nd & 3rd Floor) Apr 22, 2024 - 9:46am

Appendix B

Traffic Survey Data

Horizon Data Services Ltd

(416) 840-6619

Your Traffic Count Specialist

File Name : Riverside Drive West at Rankin Avenue
Site Code : 00000000
Start Date : 2024-06-28
Page No : 1

Groups Printed- Cars - Trucks - Heavys - Cyclists

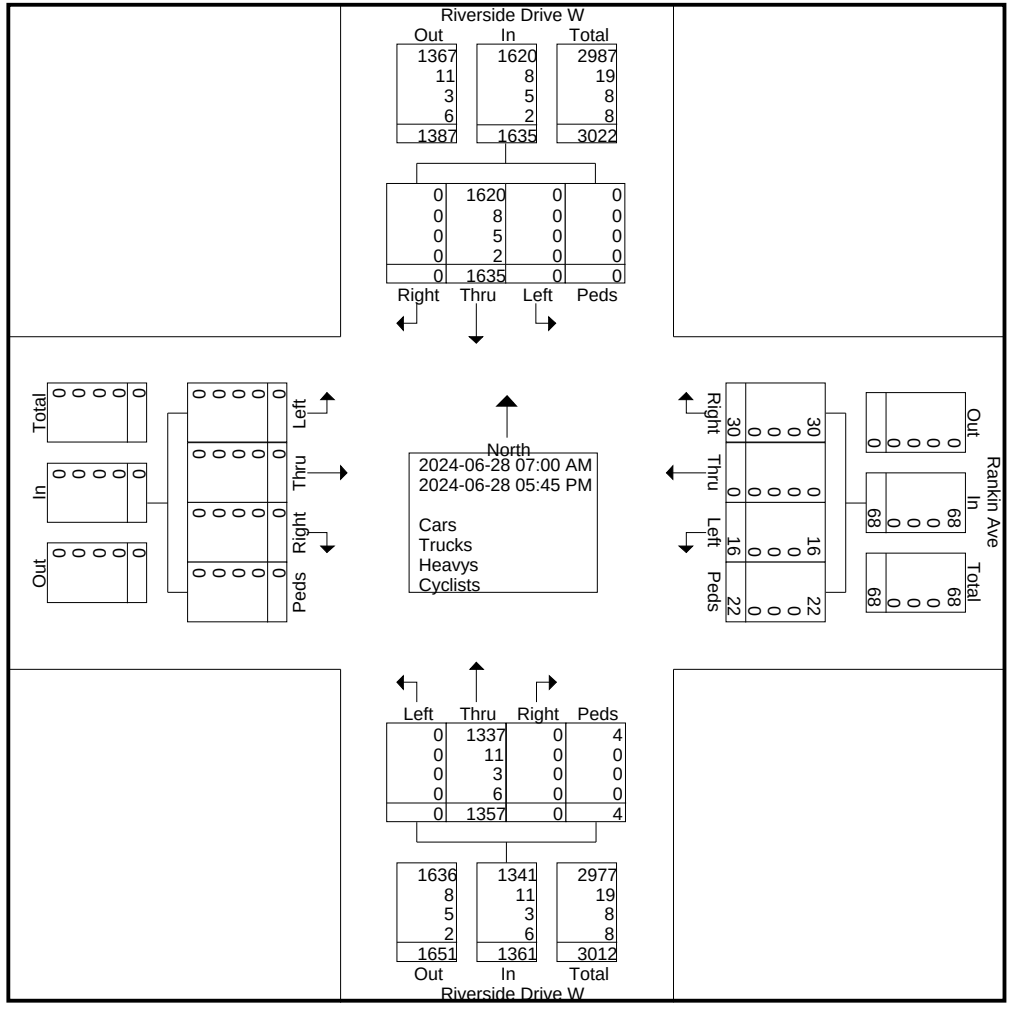
	Riverside Drive W From North					Rankin Ave From East					Riverside Drive W From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	51	0	0	51	2	0	0	2	4	0	42	0	0	42	0	0	0	0	0	97
07:15 AM	0	60	0	0	60	0	0	2	1	3	0	48	0	0	48	0	0	0	0	0	111
07:30 AM	0	64	0	0	64	3	0	0	2	5	0	64	0	1	65	0	0	0	0	0	134
07:45 AM	0	110	0	0	110	1	0	0	0	1	0	70	0	1	71	0	0	0	0	0	182
Total	0	285	0	0	285	6	0	2	5	13	0	224	0	2	226	0	0	0	0	0	524
08:00 AM	0	98	0	0	98	1	0	2	3	6	0	81	0	0	81	0	0	0	0	0	185
08:15 AM	0	115	0	0	115	1	0	0	0	1	0	73	0	0	73	0	0	0	0	0	189
08:30 AM	0	108	0	0	108	1	0	0	2	3	0	85	0	0	85	0	0	0	0	0	196
08:45 AM	0	85	0	0	85	1	0	0	2	3	0	75	0	1	76	0	0	0	0	0	164
Total	0	406	0	0	406	4	0	2	7	13	0	314	0	1	315	0	0	0	0	0	734
04:00 PM	0	147	0	0	147	3	0	1	0	4	0	121	0	0	121	0	0	0	0	0	272
04:15 PM	0	111	0	0	111	2	0	1	6	9	0	85	0	0	85	0	0	0	0	0	205
04:30 PM	0	130	0	0	130	4	0	3	1	8	0	127	0	1	128	0	0	0	0	0	266
04:45 PM	0	105	0	0	105	2	0	2	0	4	0	84	0	0	84	0	0	0	0	0	193
Total	0	493	0	0	493	11	0	7	7	25	0	417	0	1	418	0	0	0	0	0	936
05:00 PM	0	122	0	0	122	3	0	1	0	4	0	101	0	0	101	0	0	0	0	0	227
05:15 PM	0	109	0	0	109	2	0	1	1	4	0	105	0	0	105	0	0	0	0	0	218
05:30 PM	0	112	0	0	112	4	0	1	0	5	0	105	0	0	105	0	0	0	0	0	222
05:45 PM	0	108	0	0	108	0	0	2	2	4	0	91	0	0	91	0	0	0	0	0	203
Total	0	451	0	0	451	9	0	5	3	17	0	402	0	0	402	0	0	0	0	0	870
Grand Total	0	1635	0	0	1635	30	0	16	22	68	0	1357	0	4	1361	0	0	0	0	0	3064
Apprch %	0	100	0	0		44.1	0	23.5	32.4		0	99.7	0	0.3		0	0	0	0		
Total %	0	53.4	0	0	53.4	1	0	0.5	0.7	2.2	0	44.3	0	0.1	44.4	0	0	0	0	0	
Cars	0	1620	0	0	1620	30	0	16	22	68	0	1337	0	4	1341	0	0	0	0	0	3029
% Cars	0	99.1	0	0	99.1	100	0	100	100	100	0	98.5	0	100	98.5	0	0	0	0	0	98.9
Trucks	0	8	0	0	8	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	19
% Trucks	0	0.5	0	0	0.5	0	0	0	0	0	0	0.8	0	0	0.8	0	0	0	0	0	0.6
Heavys	0	5	0	0	5	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	8
% Heavys	0	0.3	0	0	0.3	0	0	0	0	0	0	0.2	0	0	0.2	0	0	0	0	0	0.3
Cyclists	0	2	0	0	2	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	8
% Cyclists	0	0.1	0	0	0.1	0	0	0	0	0	0	0.4	0	0	0.4	0	0	0	0	0	0.3

Horizon Data Services Ltd

(416) 840-6619

Your Traffic Count Specialist

File Name : Riverside Drive West at Rankin Avenue
Site Code : 00000000
Start Date : 2024-06-28
Page No : 2



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Your Traffic Count Specialist

File Name : Riverside Drive West at Rankin Avenue
Site Code : 00000000
Start Date : 2024-06-28

	Riverside Drive W From North					Rankin Ave From East					Riverside Drive W From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	110	0	0	110	**1**	0	0	0	1	0	70	0	**1**	71	0	0	0	0	0	182
08:00 AM	0	98	0	0	98	1	0	**2**	**3**	**6**	0	81	0	0	81	0	0	0	0	0	185
08:15 AM	0	**115**	0	0	**115**	1	0	0	0	1	0	73	0	0	73	0	0	0	0	0	189
08:30 AM	0	108	0	0	108	1	0	0	2	3	0	**85**	0	0	**85**	0	0	0	0	0	**196**
Total Volume	0	431	0	0	431	4	0	2	5	11	0	309	0	1	310	0	0	0	0	0	752
% App. Total	0	100	0	0		36.4	0	18.2	45.5		0	99.7	0	0.3		0	0	0	0		
PHF	.000	.937	.000	.000	.937	1.00	.000	.250	.417	.458	.000	.909	.000	.250	.912	.000	.000	.000	.000	.000	.959
Cars	0	428	0	0	428	4	0	2	5	11	0	301	0	1	302	0	0	0	0	0	741
% Cars	0	99.3	0	0	99.3	100	0	100	100	100	0	97.4	0	100	97.4	0	0	0	0	0	98.5
Trucks	0	1	0	0	1	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	6
% Trucks	0	0.2	0	0	0.2	0	0	0	0	0	0	1.6	0	0	1.6	0	0	0	0	0	0.8
Heavys	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
% Heavys	0	0.2	0	0	0.2	0	0	0	0	0	0	0.6	0	0	0.6	0	0	0	0	0	0.4
Cyclists	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
% Cyclists	0	0.2	0	0	0.2	0	0	0	0	0	0	0.3	0	0	0.3	0	0	0	0	0	0.3

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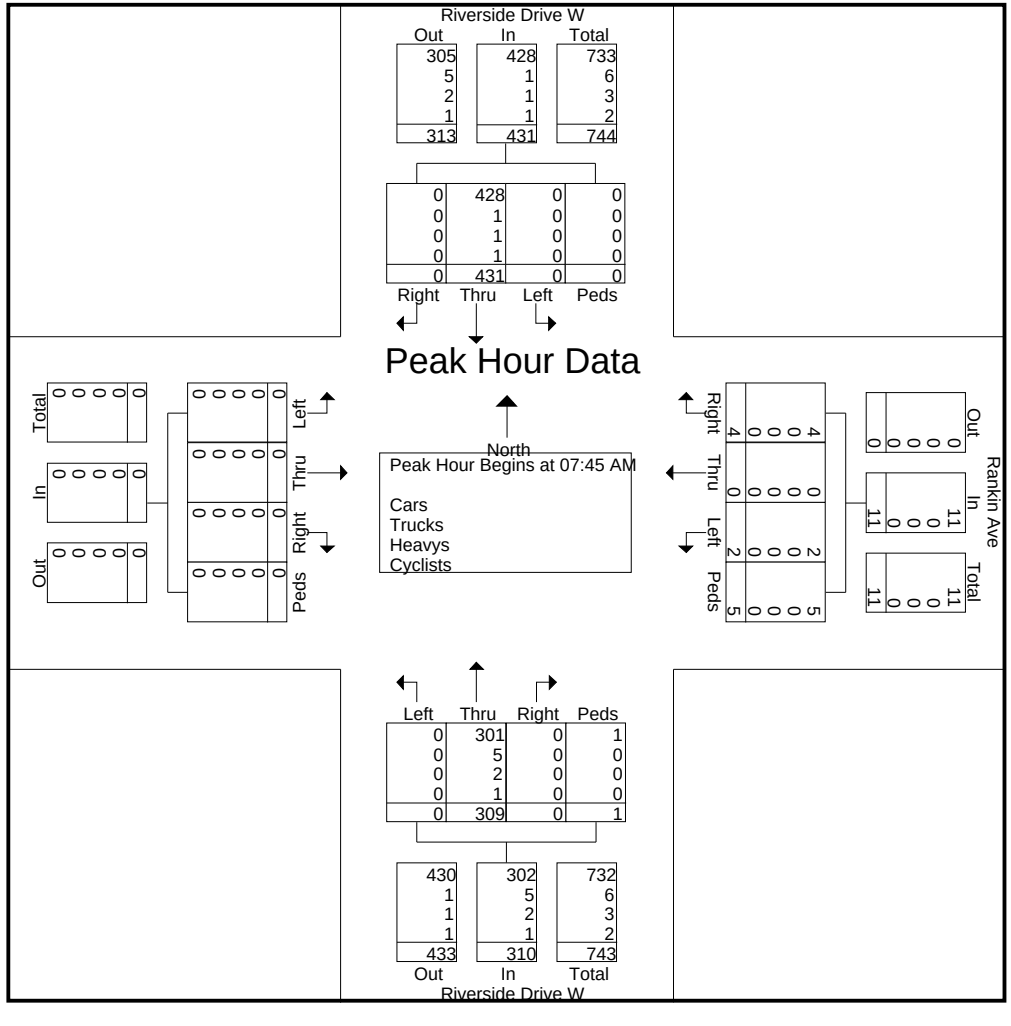
Your Traffic Count Specialist

File Name : Riverside Drive West at Rankin Avenue
Site Code : 00000000
Start Date : 2024-06-28
Page No : 4



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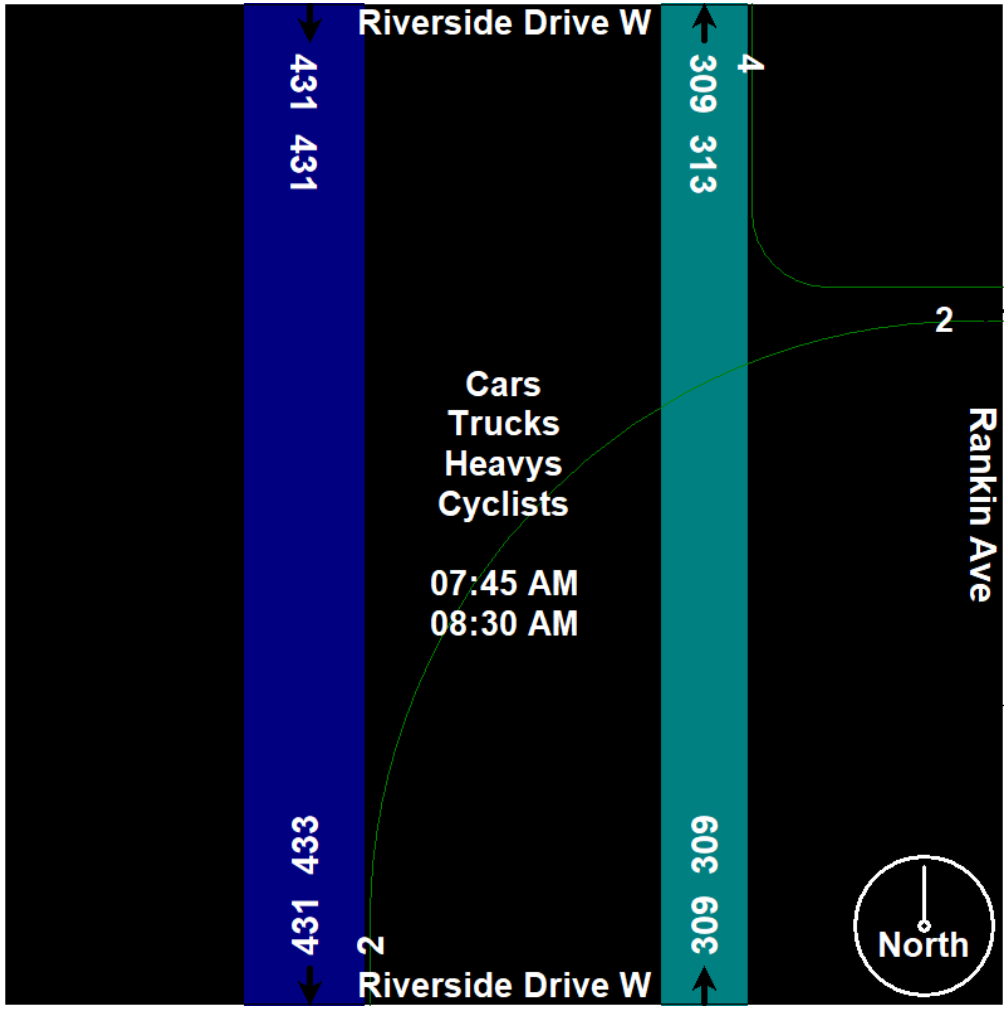
Your Traffic Count Specialist

File Name : Riverside Drive West at Rankin Avenue
Site Code : 00000000
Start Date : 2024-06-28
Page No : 5



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Your Traffic Count Specialist

File Name : Riverside Drive West at Rankin Avenue
Site Code : 00000000
Start Date : 2024-06-28
Page No : 6

	Riverside Drive W From North					Rankin Ave From East					Riverside Drive W From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	**147**	0	0	**147**	3	0	1	0	4	0	121	0	0	121	0	0	0	0	0	**272**
04:15 PM	0	111	0	0	111	2	0	1	**6**	**9**	0	85	0	0	85	0	0	0	0	0	205
04:30 PM	0	130	0	0	130	**4**	0	**3**	1	8	0	**127**	0	**1**	**128**	0	0	0	0	0	266
04:45 PM	0	105	0	0	105	2	0	2	0	4	0	84	0	0	84	0	0	0	0	0	193
Total Volume	0	493	0	0	493	11	0	7	7	25	0	417	0	1	418	0	0	0	0	0	936
% App. Total	0	100	0	0		44	0	28	28		0	99.8	0	0.2		0	0	0	0		
PHF	.000	.838	.000	.000	.838	.688	.000	.583	.292	.694	.000	.821	.000	.250	.816	.000	.000	.000	.000	.000	.860
Cars	0	487	0	0	487	11	0	7	7	25	0	411	0	1	412	0	0	0	0	0	924
% Cars	0	98.8	0	0	98.8	100	0	100	100	100	0	98.6	0	100	98.6	0	0	0	0	0	98.7
Trucks	0	5	0	0	5	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	8
% Trucks	0	1.0	0	0	1.0	0	0	0	0	0	0	0.7	0	0	0.7	0	0	0	0	0	0.9
Heavys	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Heavys	0	0.2	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
Cyclists	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3
% Cyclists	0	0	0	0	0	0	0	0	0	0	0	0.7	0	0	0.7	0	0	0	0	0	0.3

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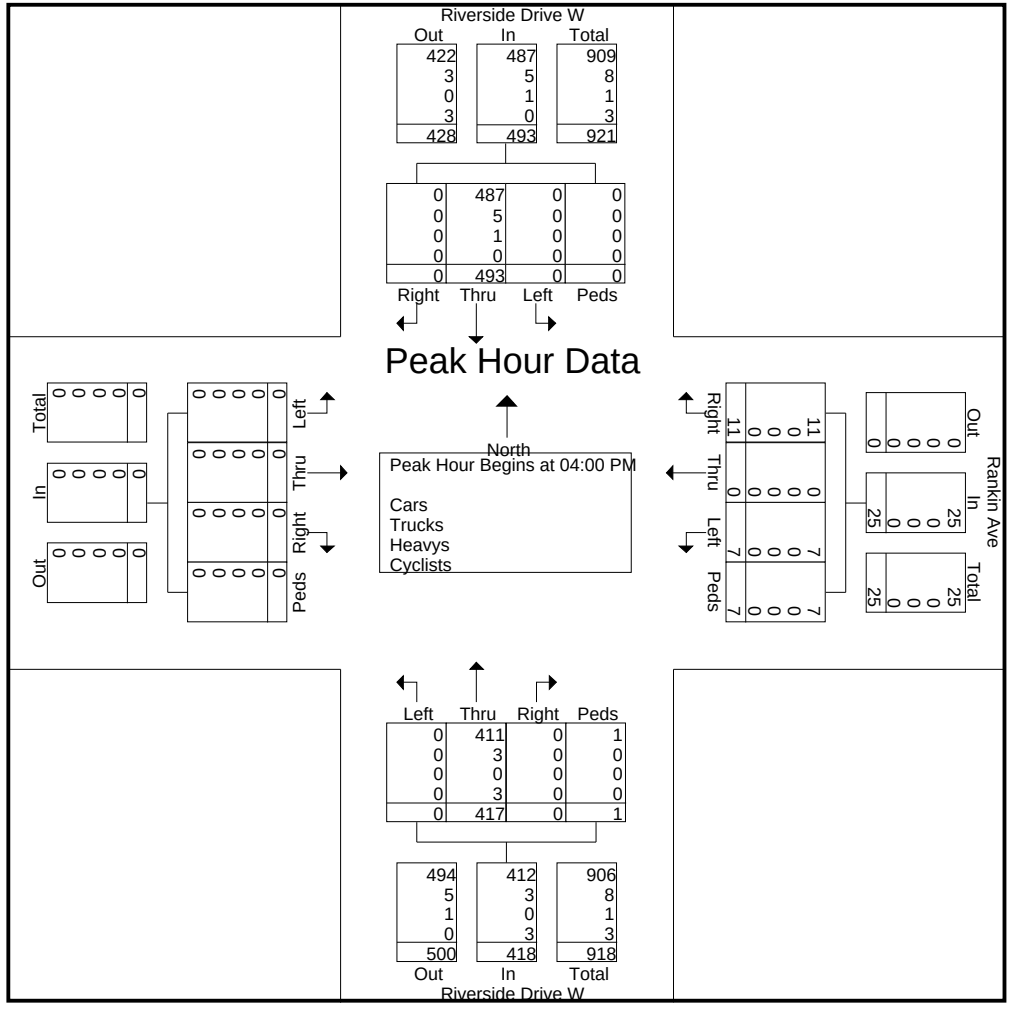
Your Traffic Count Specialist

File Name : Riverside Drive West at Rankin Avenue
Site Code : 00000000
Start Date : 2024-06-28
Page No : 7



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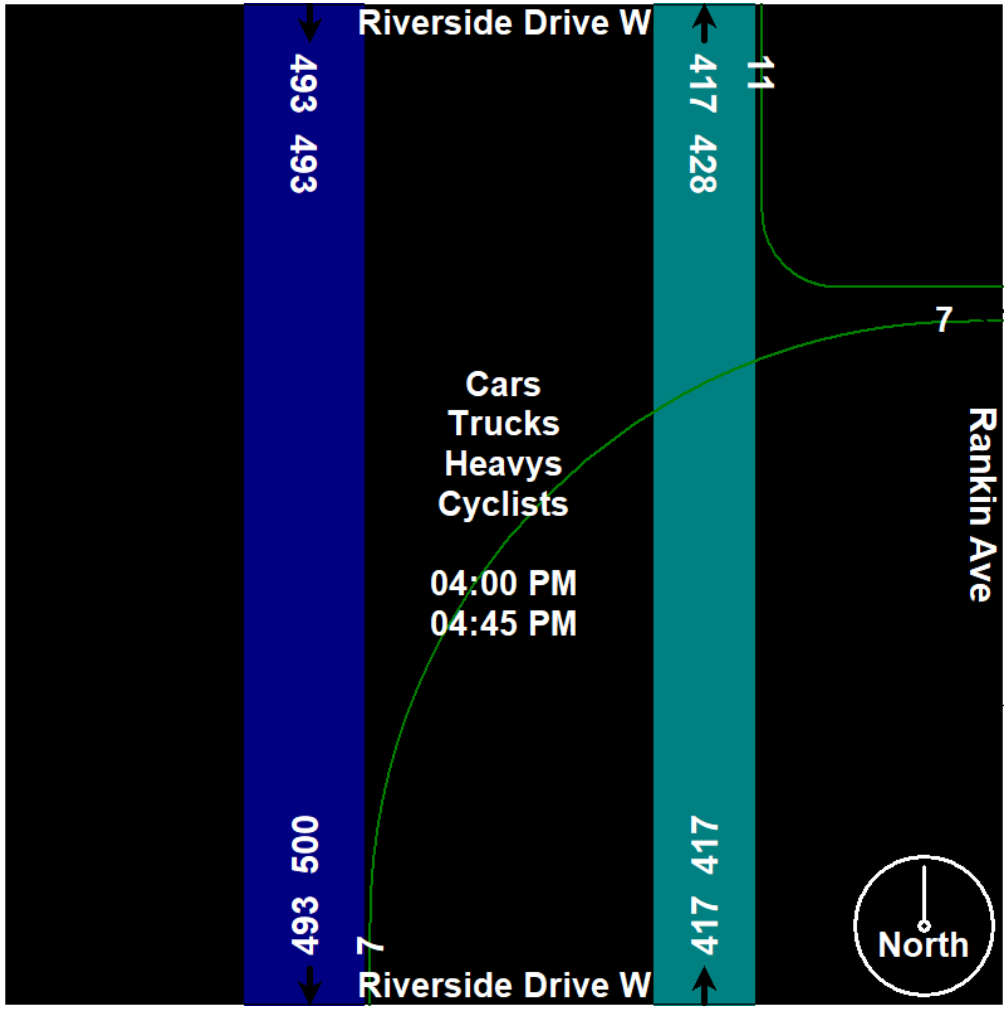
Your Traffic Count Specialist

File Name : Riverside Drive West at Rankin Avenue
Site Code : 00000000
Start Date : 2024-06-28
Page No : 8



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Your Traffic Count Specialist

File Name : University Avenue West at Rankin Avenue
Site Code : 00000000
Start Date : 2024-06-28
Page No : 1

Groups Printed- Cars - Trucks - Heavys - Cyclists

	University Drive W From North					Rankin Ave From East					University Drive W From South					Rankin Ave From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	13	1	4	18	1	0	2	1	4	2	20	1	0	23	1	0	0	2	3	48
07:15 AM	1	28	2	7	38	1	0	0	5	6	0	35	1	2	38	0	0	0	2	2	84
07:30 AM	1	32	4	0	37	2	0	0	2	4	3	44	0	2	49	0	0	0	3	3	93
07:45 AM	0	48	2	1	51	4	0	0	7	11	2	32	0	0	34	0	0	0	1	1	97
Total	2	121	9	12	144	8	0	2	15	25	7	131	2	4	144	1	0	0	8	9	322
08:00 AM	2	44	2	1	49	4	0	2	6	12	1	49	0	0	50	0	0	0	6	6	117
08:15 AM	0	37	2	0	39	3	0	4	3	10	1	48	0	0	49	0	0	0	5	5	103
08:30 AM	1	36	3	0	40	1	0	1	4	6	0	56	0	4	60	0	0	0	3	3	109
08:45 AM	0	36	1	4	41	5	0	1	5	11	1	52	1	0	54	0	0	0	2	2	108
Total	3	153	8	5	169	13	0	8	18	39	3	205	1	4	213	0	0	0	16	16	437
04:00 PM	1	64	5	3	73	6	1	0	21	28	1	50	0	6	57	0	0	0	6	6	164
04:15 PM	1	61	5	3	70	8	3	2	7	20	2	52	3	3	60	0	0	0	7	7	157
04:30 PM	6	66	10	0	82	5	0	0	15	20	6	59	1	7	73	0	0	0	5	5	180
04:45 PM	2	77	4	4	87	5	1	3	9	18	1	58	2	4	65	0	0	0	4	4	174
Total	10	268	24	10	312	24	5	5	52	86	10	219	6	20	255	0	0	0	22	22	675
05:00 PM	2	67	2	3	74	6	1	1	3	11	4	52	0	2	58	0	0	0	9	9	152
05:15 PM	3	62	2	4	71	7	1	2	7	17	5	49	2	2	58	0	0	0	7	7	153
05:30 PM	4	67	3	6	80	8	1	4	2	15	1	66	1	7	75	0	0	0	4	4	174
05:45 PM	1	51	5	3	60	4	1	5	6	16	4	52	0	2	58	0	0	0	2	2	136
Total	10	247	12	16	285	25	4	12	18	59	14	219	3	13	249	0	0	0	22	22	615
Grand Total	25	789	53	43	910	70	9	27	103	209	34	774	12	41	861	1	0	0	68	69	2049
Apprch %	2.7	86.7	5.8	4.7		33.5	4.3	12.9	49.3		3.9	89.9	1.4	4.8		1.4	0	0	98.6		
Total %	1.2	38.5	2.6	2.1	44.4	3.4	0.4	1.3	5	10.2	1.7	37.8	0.6	2	42	0	0	0	3.3	3.4	
Cars	25	753	53	43	874	70	9	25	103	207	33	732	12	41	818	1	0	0	68	69	1968
% Cars	100	95.4	100	100	96	100	100	92.6	100	99	97.1	94.6	100	100	95	100	0	0	100	100	96
Trucks	0	8	0	0	8	0	0	0	0	0	1	7	0	0	8	0	0	0	0	0	16
% Trucks	0	1	0	0	0.9	0	0	0	0	0	2.9	0.9	0	0	0.9	0	0	0	0	0	0.8
Heavys	0	22	0	0	22	0	0	1	0	1	0	30	0	0	30	0	0	0	0	0	53
% Heavys	0	2.8	0	0	2.4	0	0	3.7	0	0.5	0	3.9	0	0	3.5	0	0	0	0	0	2.6
Cyclists	0	6	0	0	6	0	0	1	0	1	0	5	0	0	5	0	0	0	0	0	12
% Cyclists	0	0.8	0	0	0.7	0	0	3.7	0	0.5	0	0.6	0	0	0.6	0	0	0	0	0	0.6

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Start Date : 2024-06-28
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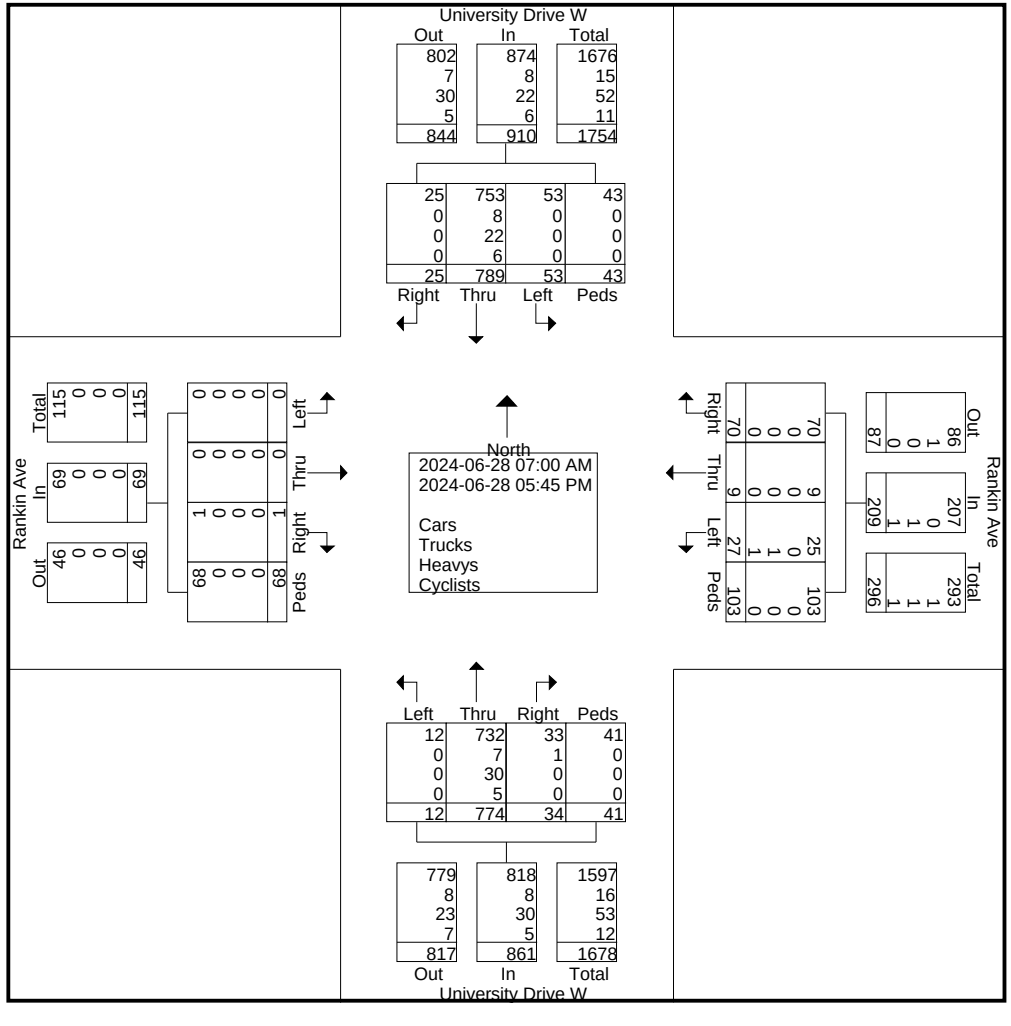

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File Name : University Avenue West at Rankin Avenue
Site Code : 00000000
Start Date : 2024-06-28

	University Drive W From North					Rankin Ave From East					University Drive W From South					Rankin Ave From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	**2**	**44**	2	1	**49**	4	0	2	**6**	**12**	**1**	49	0	0	50	0	0	0	**6**	**6**	**117**
08:15 AM	0	37	2	0	39	3	0	**4**	3	10	1	48	0	0	49	0	0	0	5	5	103
08:30 AM	1	36	**3**	0	40	1	0	1	4	6	0	**56**	0	**4**	**60**	0	0	0	3	3	109
08:45 AM	0	36	1	**4**	41	**5**	0	1	5	11	1	52	**1**	0	54	0	0	0	2	2	108
Total Volume	3	153	8	5	169	13	0	8	18	39	3	205	1	4	213	0	0	0	16	16	437
% App. Total	1.8	90.5	4.7	3		33.3	0	20.5	46.2		1.4	96.2	0.5	1.9		0	0	0	100		
PHF	.375	.869	.667	.313	.862	.650	.000	.500	.750	.813	.750	.915	.250	.250	.888	.000	.000	.000	.667	.667	.934
Cars	3	139	8	5	155	13	0	6	18	37	3	190	1	4	198	0	0	0	16	16	406
% Cars	100	90.8	100	100	91.7	100	0	75.0	100	94.9	100	92.7	100	100	93.0	0	0	0	100	100	92.9
Trucks	0	5	0	0	5	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	12
% Trucks	0	3.3	0	0	3.0	0	0	0	0	0	0	3.4	0	0	3.3	0	0	0	0	0	2.7
Heavys	0	7	0	0	7	0	0	1	0	1	0	8	0	0	8	0	0	0	0	0	16
% Heavys	0	4.6	0	0	4.1	0	0	12.5	0	2.6	0	3.9	0	0	3.8	0	0	0	0	0	3.7
Cyclists	0	2	0	0	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	3
% Cyclists	0	1.3	0	0	1.2	0	0	12.5	0	2.6	0	0	0	0	0	0	0	0	0	0	0.7

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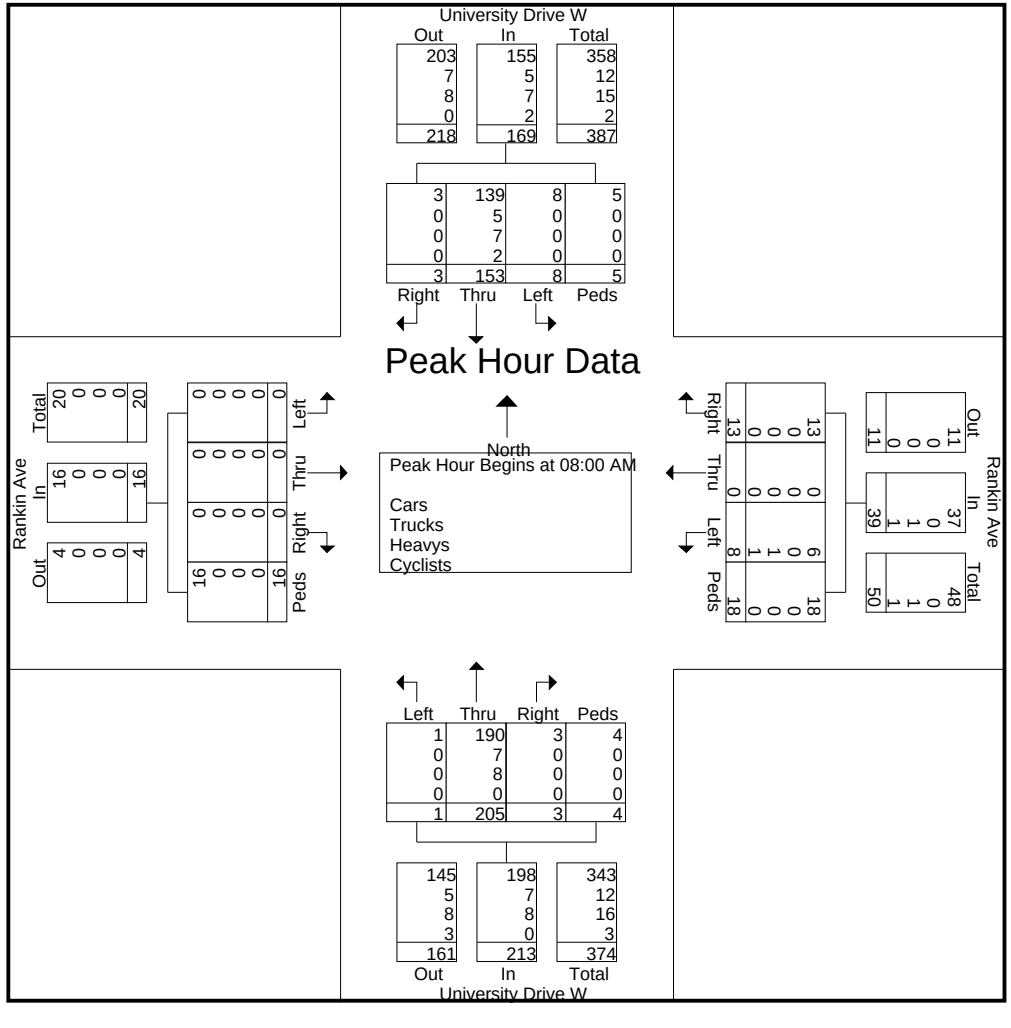

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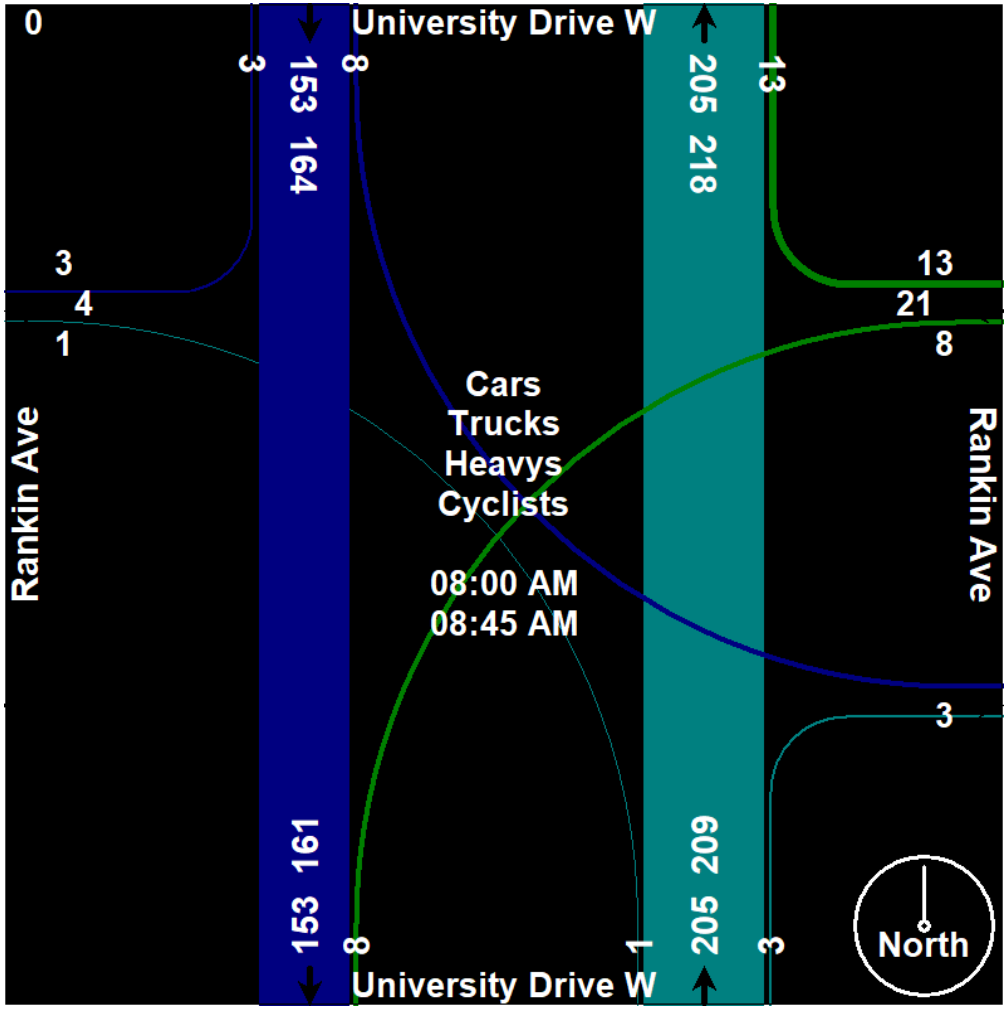

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Site Code : 00000000
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	University Drive W From North					Rankin Ave From East					University Drive W From South					Rankin Ave From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	1	64	5	3	73	6	1	0	**21**	**28**	1	50	0	6	57	0	0	0	6	6	164
04:15 PM	1	61	5	3	70	**8**	**3**	2	7	20	2	52	**3**	3	60	0	0	0	**7**	**7**	157
04:30 PM	**6**	66	**10**	0	82	5	0	0	15	20	**6**	**59**	1	**7**	**73**	0	0	0	5	5	**180**
04:45 PM	2	**77**	4	**4**	**87**	5	1	**3**	9	18	1	58	2	4	65	0	0	0	4	4	174
Total Volume	10	268	24	10	312	24	5	5	52	86	10	219	6	20	255	0	0	0	22	22	675
% App. Total	3.2	85.9	7.7	3.2		27.9	5.8	5.8	60.5		3.9	85.9	2.4	7.8		0	0	0	100		
PHF	.417	.870	.600	.625	.897	.750	.417	.417	.619	.768	.417	.928	.500	.714	.873	.000	.000	.000	.786	.786	.938
Cars	10	258	24	10	302	24	5	5	52	86	10	211	6	20	247	0	0	0	22	22	657
% Cars	100	96.3	100	100	96.8	100	100	100	100	100	100	96.3	100	100	96.9	0	0	0	100	100	97.3
Trucks	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
% Trucks	0	0.7	0	0	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3
Heavys	0	6	0	0	6	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	12
% Heavys	0	2.2	0	0	1.9	0	0	0	0	0	0	2.7	0	0	2.4	0	0	0	0	0	1.8
Cyclists	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4
% Cyclists	0	0.7	0	0	0.6	0	0	0	0	0	0	0.9	0	0	0.8	0	0	0	0	0	0.6

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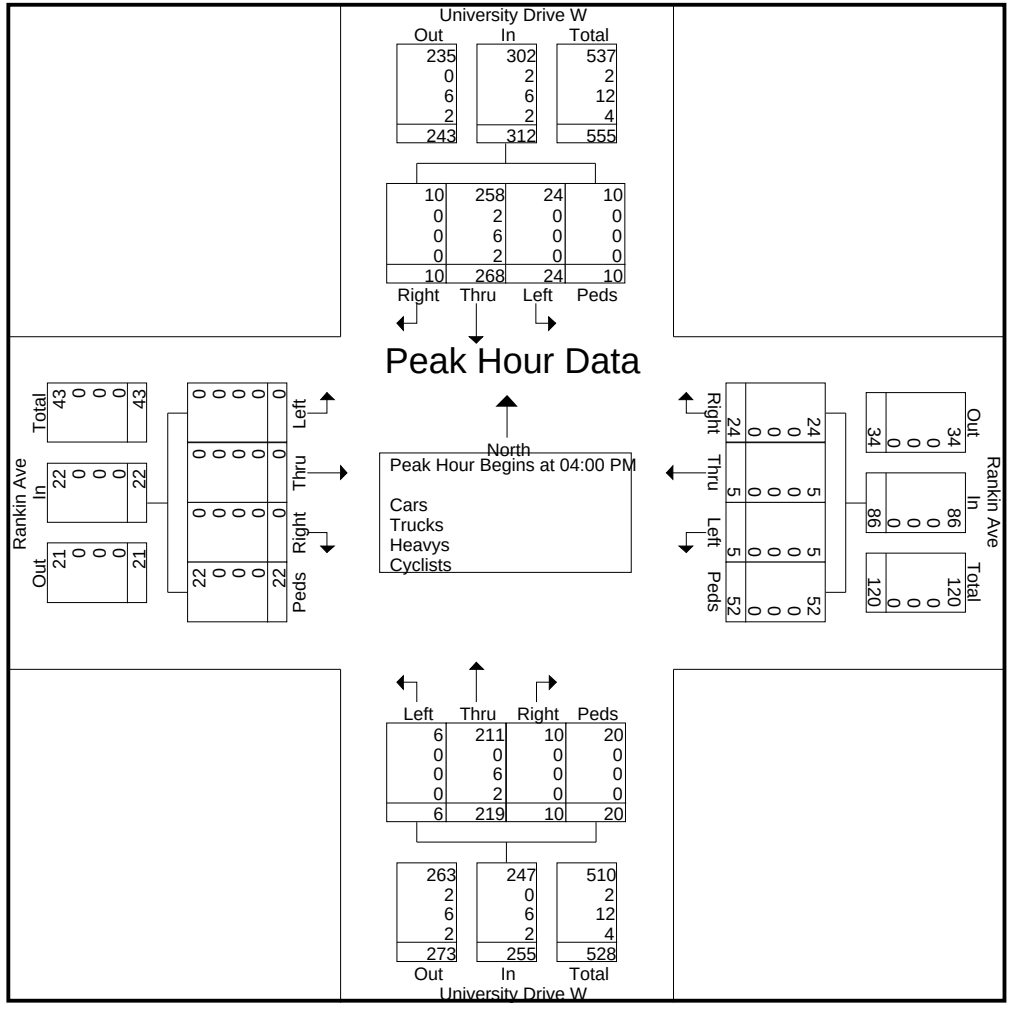

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Site Code : 00000000
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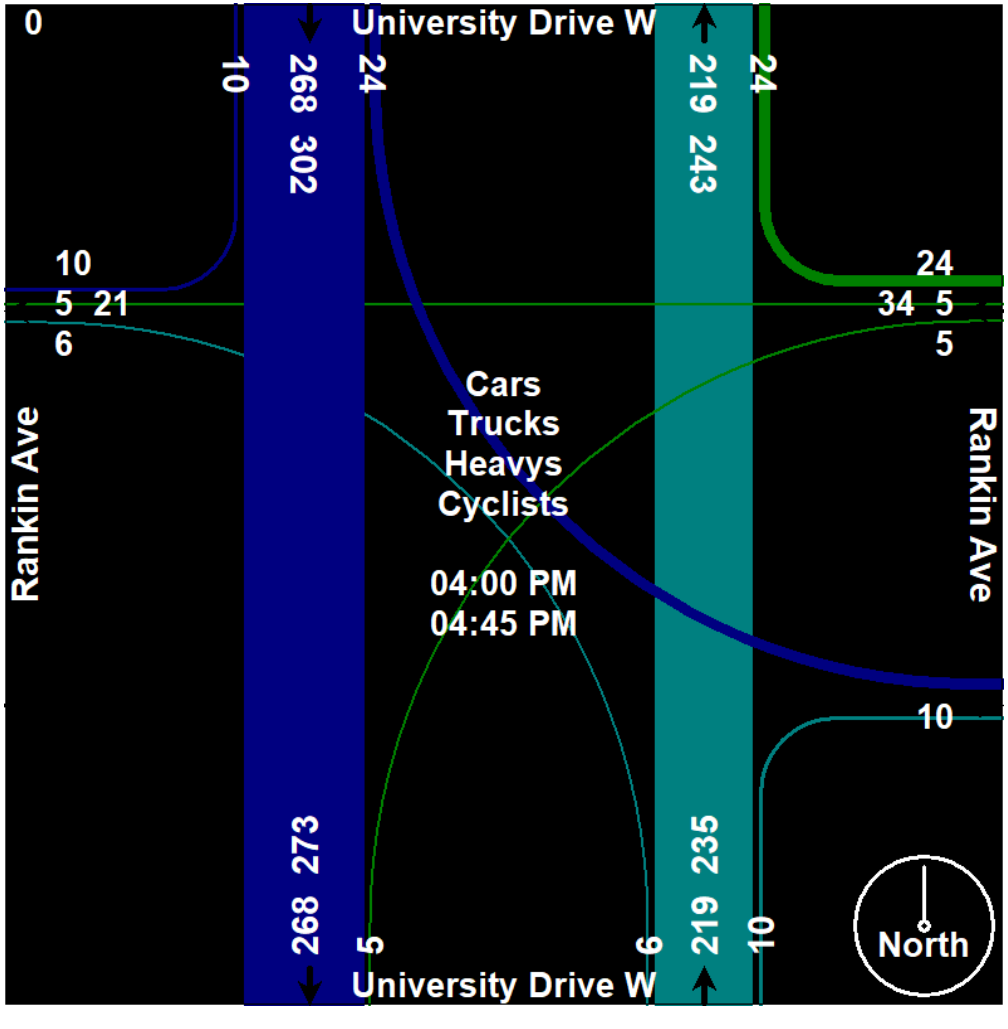


Appendix C

Level of Service Definitions

Highway Capacity Manual 2010

Signalized intersection level of service (LOS) is defined in terms of a weighted average control delay for the entire intersection. Control delay quantifies the increase in travel time that a vehicle experiences due to the traffic signal control as well as provides a surrogate measure for driver discomfort and fuel consumption. Signalized intersection LOS is stated in terms of average control delay per vehicle (in seconds) during a specified time period (e.g., weekday PM peak hour). Control delay is a complex measure based on many variables, including signal phasing and coordination (i.e., progression of movements through the intersection and along the corridor), signal cycle length, and traffic volumes with respect to intersection capacity and resulting queues. Table 1 summarizes the LOS criteria for signalized intersections, as described in the *Highway Capacity Manual 2010* (Transportation Research Board, 2010).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)	General Description
A	≤10	Free Flow
B	>10 – 20	Stable Flow (slight delays)
C	>20 – 35	Stable flow (acceptable delays)
D	>35 – 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 – 80	Unstable flow (intolerable delay)
F[1]	>80	Forced flow (congested and queues fail to clear)

Source: *Highway Capacity Manual 2010*, Transportation Research Board, 2010.

1. If the volume-to-capacity (v/c) ratio for a lane group exceeds 1.0 LOS F is assigned to the individual lane group. LOS for overall approach or intersection is determined solely by the control delay.

Unsignalized intersection LOS criteria can be further reduced into three intersection types: all-way stop, two-way stop, and roundabout control. All-way stop and roundabout control intersection LOS is expressed in terms of the weighted average control delay of the overall intersection or by approach. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns. This approach is because major-street through vehicles are assumed to experience zero delay, a weighted average of all movements results in very low overall average delay, and this calculated low delay could mask deficiencies of minor movements. Table 2 shows LOS criteria for unsignalized intersections.

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)
A	0 – 10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F[1]	>50

Source: *Highway Capacity Manual 2010*, Transportation Research Board, 2010.

1. If the volume-to-capacity (v/c) ratio exceeds 1.0, LOS F is assigned an individual lane group for all unsignalized intersections, or minor street approach at two-way stop-controlled intersections. Overall intersection LOS is determined solely by control delay.

Appendix D

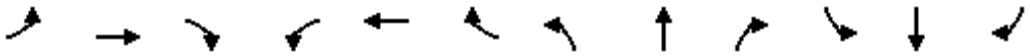
Synchro Analysis Worksheets

DILLON CONSULTING

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	309	0	0	431	2	4
Future Volume (Veh/h)	309	0	0	431	2	4
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)	336	0	0	468	2	4
Pedestrians	1				5	
Lane Width (m)	3.7				3.7	
Walking Speed (m/s)	1.1				1.1	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			341		810	341
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			341		810	341
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		99	99
cM capacity (veh/h)			1223		350	703

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	336	468	2	4
Volume Left	0	0	2	0
Volume Right	0	0	0	4
cSH	1700	1700	350	703
Volume to Capacity	0.20	0.28	0.01	0.01
Queue Length 95th (m)	0.0	0.0	0.1	0.1
Control Delay (s)	0.0	0.0	15.3	10.2
Lane LOS			C	B
Approach Delay (s)	0.0	0.0	11.9	
Approach LOS			B	

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	32.7%	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 (veh/h)	1	205	3	8	153	3	8	0	13	0	0	0
Future Volume (Veh/h)	1	205	3	8	153	3	8	0	13	0	0	0
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)	1	223	3	9	166	3	9	0	14	0	0	0
Pedestrians		4			5			18			16	
Lane Width (m)		3.7			3.7			3.7			0.0	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		0			0			2			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	185			244			434	448	248	447	448	188
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	185			244			434	448	248	447	448	188
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			98	100	98	100	100	100
cM capacity (veh/h)	1402			1311			493	496	778	503	496	856

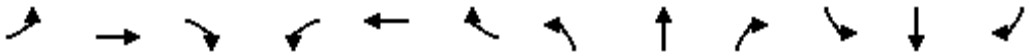
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	227	178	23
Volume Left	1	9	9
Volume Right	3	3	14
cSH	1402	1311	635
Volume to Capacity	0.00	0.01	0.04
Queue Length 95th (m)	0.0	0.2	0.9
Control Delay (s)	0.0	0.4	10.9
Lane LOS	A	A	B
Approach Delay (s)	0.0	0.4	10.9
Approach LOS			B

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	29.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	417	0	0	493	7	11
Future Volume (Veh/h)	417	0	0	493	7	11
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)	453	0	0	536	8	12
Pedestrians	1				7	
Lane Width (m)	3.7				3.7	
Walking Speed (m/s)	1.1				1.1	
Percent Blockage	0				1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			460		997	460
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			460		997	460
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		97	98
cM capacity (veh/h)			1104		271	601

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	453	536	8	12
Volume Left	0	0	8	0
Volume Right	0	0	0	12
cSH	1700	1700	271	601
Volume to Capacity	0.27	0.32	0.03	0.02
Queue Length 95th (m)	0.0	0.0	0.7	0.5
Control Delay (s)	0.0	0.0	18.7	11.1
Lane LOS			C	B
Approach Delay (s)	0.0	0.0	14.1	
Approach LOS			B	

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	35.9%	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 (veh/h)	6	219	10	24	268	10	5	5	24	0	0	0
Future Volume (Veh/h)	6	219	10	24	268	10	5	5	24	0	0	0
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)	7	238	11	26	291	11	5	5	26	0	0	0
Pedestrians		20			10			52			22	
Lane Width (m)		3.7			3.7			3.7			0.0	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		2			1			5			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	324			301			678	686	306	666	686	338
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	324			301			678	686	306	666	686	338
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			98			98	99	96	100	100	100
cM capacity (veh/h)	1247			1207			323	344	695	333	344	694

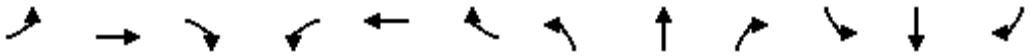
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	256	328	36
Volume Left	7	26	5
Volume Right	11	11	26
cSH	1247	1207	534
Volume to Capacity	0.01	0.02	0.07
Queue Length 95th (m)	0.1	0.5	1.6
Control Delay (s)	0.3	0.8	12.2
Lane LOS	A	A	B
Approach Delay (s)	0.3	0.8	12.2
Approach LOS			B

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	41.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	315	0	0	440	2	4
Future Volume (Veh/h)	315	0	0	440	2	4
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)	342	0	0	478	2	4
Pedestrians	1				5	
Lane Width (m)	3.7				3.7	
Walking Speed (m/s)	1.1				1.1	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			347		826	347
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			347		826	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 %			100		99	99
cM capacity (veh/h)			1217		343	697

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	342	478	2	4
Volume Left	0	0	2	0
Volume Right	0	0	0	4
cSH	1700	1700	343	697
Volume to Capacity	0.20	0.28	0.01	0.01
Queue Length 95th (m)	0.0	0.0	0.1	0.1
Control Delay (s)	0.0	0.0	15.6	10.2
Lane LOS			C	B
Approach Delay (s)	0.0	0.0	12.0	
Approach LOS			B	

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	33.2%	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 (veh/h)	1	209	3	8	156	3	8	0	13	0	0	0
Future Volume (Veh/h)	1	209	3	8	156	3	8	0	13	0	0	0
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)	1	227	3	9	170	3	9	0	14	0	0	0
Pedestrians		4			5			18			16	
Lane Width (m)		3.7			3.7			3.7			0.0	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		0			0			2			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	189			248			442	456	252	455	456	192
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	189			248			442	456	252	455	456	192
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			98	100	98	100	100	100
cM capacity (veh/h)	1397			1306			487	491	774	497	491	852

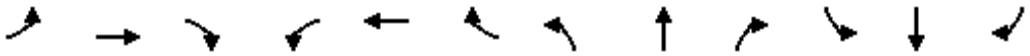
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	231	182	23
Volume Left	1	9	9
Volume Right	3	3	14
cSH	1397	1306	629
Volume to Capacity	0.00	0.01	0.04
Queue Length 95th (m)	0.0	0.2	0.9
Control Delay (s)	0.0	0.4	10.9
Lane LOS	A	A	B
Approach Delay (s)	0.0	0.4	10.9
Approach LOS			B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	29.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	425	0	0	503	7	11
Future Volume (Veh/h)	425	0	0	503	7	11
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)	462	0	0	547	8	12
Pedestrians	1				7	
Lane Width (m)	3.7				3.7	
Walking Speed (m/s)	1.1				1.1	
Percent Blockage	0				1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			469		1017	469
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			469		1017	469
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		97	98
cM capacity (veh/h)			1096		263	594

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	462	547	8	12
Volume Left	0	0	8	0
Volume Right	0	0	0	12
cSH	1700	1700	263	594
Volume to Capacity	0.27	0.32	0.03	0.02
Queue Length 95th (m)	0.0	0.0	0.7	0.5
Control Delay (s)	0.0	0.0	19.1	11.2
Lane LOS			C	B
Approach Delay (s)	0.0	0.0	14.3	
Approach LOS			B	

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	36.5%	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 (veh/h)	6	223	10	24	273	10	5	5	24	0	0	0
Future Volume (Veh/h)	6	223	10	24	273	10	5	5	24	0	0	0
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)	7	242	11	26	297	11	5	5	26	0	0	0
Pedestrians		20			10			52			22	
Lane Width (m)		3.7			3.7			3.7			0.0	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		2			1			5			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	330			305			688	696	310	676	696	344
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	330			305			688	696	310	676	696	344
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			98			98	99	96	100	100	100
cM capacity (veh/h)	1241			1203			318	340	691	328	340	689

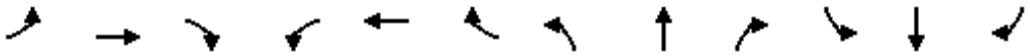
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	260	334	36
Volume Left	7	26	5
Volume Right	11	11	26
cSH	1241	1203	529
Volume to Capacity	0.01	0.02	0.07
Queue Length 95th (m)	0.1	0.5	1.7
Control Delay (s)	0.3	0.8	12.3
Lane LOS	A	A	B
Approach Delay (s)	0.3	0.8	12.3
Approach LOS			B

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	41.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	315	0	0	440	4	6
Future Volume (Veh/h)	315	0	0	440	4	6
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)	342	0	0	478	4	7
Pedestrians	1				5	
Lane Width (m)	3.7				3.7	
Walking Speed (m/s)	1.1				1.1	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			347		826	347
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			347		826	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 %			100		99	99
cM capacity (veh/h)			1217		343	697

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	342	478	4	7
Volume Left	0	0	4	0
Volume Right	0	0	0	7
cSH	1700	1700	343	697
Volume to Capacity	0.20	0.28	0.01	0.01
Queue Length 95th (m)	0.0	0.0	0.3	0.2
Control Delay (s)	0.0	0.0	15.6	10.2
Lane LOS			C	B
Approach Delay (s)	0.0	0.0	12.2	
Approach LOS			B	

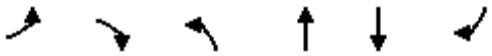
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	33.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	209	3	8	156	4	8	0	13	0	0	0
Future Volume (Veh/h)	2	209	3	8	156	4	8	0	13	0	0	0
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)	2	227	3	9	170	4	9	0	14	0	0	0
Pedestrians		4			5			18			16	
Lane Width (m)		3.7			3.7			3.7			0.0	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		0			0			2			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	190			248			444	458	252	458	458	192
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	190			248			444	458	252	458	458	192
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			98	100	98	100	100	100
cM capacity (veh/h)	1396			1306			485	489	774	495	489	851

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	232	183	23
Volume Left	2	9	9
Volume Right	3	4	14
cSH	1396	1306	628
Volume to Capacity	0.00	0.01	0.04
Queue Length 95th (m)	0.0	0.2	0.9
Control Delay (s)	0.1	0.4	11.0
Lane LOS	A	A	B
Approach Delay (s)	0.1	0.4	11.0
Approach LOS			B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	29.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	0	2	6	0	0
Future Volume (Veh/h)	4	0	2	6	0	0
Sign Control	Stop			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)	4	0	2	7	0	0
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	8	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	8	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1011	1084	1622			

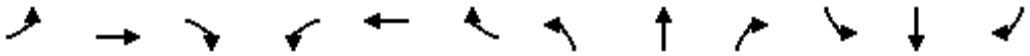
Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	4	4	5
Volume Left	4	2	0
Volume Right	0	0	0
cSH	1011	1622	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	8.6	3.3	0.0
Lane LOS	A	A	
Approach Delay (s)	8.6	1.6	
Approach LOS	A		

Intersection Summary			
Average Delay	3.8		
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)	425	0	0	503	10	14
Future Volume (Veh/h)	425	0	0	503	10	14
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)	462	0	0	547	11	15
Pedestrians	1				7	
Lane Width (m)	3.7				3.7	
Walking Speed (m/s)	1.1				1.1	
Percent Blockage	0				1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			469		1017	469
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			469		1017	469
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		96	97
cM capacity (veh/h)			1096		263	594

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	462	547	11	15
Volume Left	0	0	11	0
Volume Right	0	0	0	15
cSH	1700	1700	263	594
Volume to Capacity	0.27	0.32	0.04	0.03
Queue Length 95th (m)	0.0	0.0	1.0	0.6
Control Delay (s)	0.0	0.0	19.3	11.2
Lane LOS			C	B
Approach Delay (s)	0.0	0.0	14.6	
Approach LOS			B	

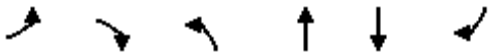
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	36.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	223	10	24	273	13	5	5	24	0	0	0
Future Volume (Veh/h)	9	223	10	24	273	13	5	5	24	0	0	0
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	242	11	26	297	14	5	5	26	0	0	0
Pedestrians		20			10			52			22	
Lane Width (m)		3.7			3.7			3.7			0.0	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		2			1			5			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	333			305			696	704	310	684	703	346
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	333			305			696	704	310	684	703	346
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			98			98	99	96	100	100	100
cM capacity (veh/h)	1238			1203			314	335	691	324	336	688

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	263	337	36
Volume Left	10	26	5
Volume Right	11	14	26
cSH	1238	1203	526
Volume to Capacity	0.01	0.02	0.07
Queue Length 95th (m)	0.2	0.5	1.7
Control Delay (s)	0.4	0.8	12.4
Lane LOS	A	A	B
Approach Delay (s)	0.4	0.8	12.4
Approach LOS			B

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	0	6	18	0	0
Future Volume (Veh/h)	5	0	6	18	0	0
Sign Control	Stop			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)	5	0	7	20	0	0
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	24	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	24	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	984	1084	1622			

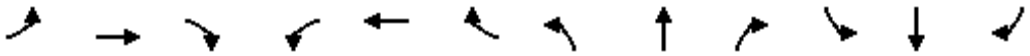
Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	5	14	13
Volume Left	5	7	0
Volume Right	0	0	0
cSH	984	1622	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.1	0.1	0.0
Control Delay (s)	8.7	3.7	0.0
Lane LOS	A	A	
Approach Delay (s)	8.7	1.9	
Approach LOS	A		

Intersection Summary			
Average Delay	2.9		
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)	331	0	0	462	2	4
Future Volume (Veh/h)	331	0	0	462	2	4
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)	360	0	0	502	2	4
Pedestrians	1				5	
Lane Width (m)	3.7				3.7	
Walking Speed (m/s)	1.1				1.1	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			365		868	365
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			365		868	365
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		99	99
cM capacity (veh/h)			1199		324	681

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	360	502	2	4
Volume Left	0	0	2	0
Volume Right	0	0	0	4
cSH	1700	1700	324	681
Volume to Capacity	0.21	0.30	0.01	0.01
Queue Length 95th (m)	0.0	0.0	0.1	0.1
Control Delay (s)	0.0	0.0	16.2	10.3
Lane LOS			C	B
Approach Delay (s)	0.0	0.0	12.3	
Approach LOS			B	

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	34.3%	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 (veh/h)	1	220	3	9	164	3	9	0	14	0	0	0
Future Volume (Veh/h)	1	220	3	9	164	3	9	0	14	0	0	0
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)	1	239	3	10	178	3	10	0	15	0	0	0
Pedestrians		4			5			18			16	
Lane Width (m)		3.7			3.7			3.7			0.0	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		0			0			2			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	197			260			464	478	264	478	478	200
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	197			260			464	478	264	478	478	200
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			98	100	98	100	100	100
cM capacity (veh/h)	1388			1293			470	477	763	479	477	843

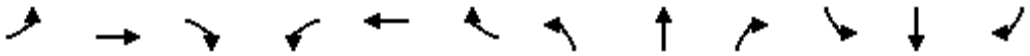
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	243	191	25
Volume Left	1	10	10
Volume Right	3	3	15
cSH	1388	1293	611
Volume to Capacity	0.00	0.01	0.04
Queue Length 95th (m)	0.0	0.2	1.0
Control Delay (s)	0.0	0.5	11.1
Lane LOS	A	A	B
Approach Delay (s)	0.0	0.5	11.1
Approach LOS			B

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	31.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	447	0	0	529	8	12
Future Volume (Veh/h)	447	0	0	529	8	12
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)	486	0	0	575	9	13
Pedestrians	1				7	
Lane Width (m)	3.7				3.7	
Walking Speed (m/s)	1.1				1.1	
Percent Blockage	0				1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			493		1069	493
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			493		1069	493
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		96	98
cM capacity (veh/h)			1074		245	576

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	486	575	9	13
Volume Left	0	0	9	0
Volume Right	0	0	0	13
cSH	1700	1700	245	576
Volume to Capacity	0.29	0.34	0.04	0.02
Queue Length 95th (m)	0.0	0.0	0.9	0.5
Control Delay (s)	0.0	0.0	20.2	11.4
Lane LOS			C	B
Approach Delay (s)	0.0	0.0	15.0	
Approach LOS			C	

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	37.8%	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 (veh/h)	6	235	11	26	287	11	5	5	26	0	0	0
Future Volume (Veh/h)	6	235	11	26	287	11	5	5	26	0	0	0
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)	7	255	12	28	312	12	5	5	28	0	0	0
Pedestrians		20			10			52			22	
Lane Width (m)		3.7			3.7			3.7			0.0	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		2			1			5			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	346			319			721	729	323	712	729	360
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	346			319			721	729	323	712	729	360
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			98			98	98	96	100	100	100
cM capacity (veh/h)	1224			1189			288	324	679	309	324	676

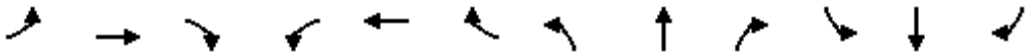
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	274	352	38
Volume Left	7	28	5
Volume Right	12	12	28
cSH	1224	1189	513
Volume to Capacity	0.01	0.02	0.07
Queue Length 95th (m)	0.1	0.5	1.8
Control Delay (s)	0.3	0.9	12.6
Lane LOS	A	A	B
Approach Delay (s)	0.3	0.9	12.6
Approach LOS			B

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	43.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	331	0	0	462	5	7
Future Volume (Veh/h)	331	0	0	462	5	7
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)	360	0	0	502	5	8
Pedestrians	1				5	
Lane Width (m)	3.7				3.7	
Walking Speed (m/s)	1.1				1.1	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			365		868	365
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			365		868	365
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		98	99
cM capacity (veh/h)			1199		324	681

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	360	502	5	8
Volume Left	0	0	5	0
Volume Right	0	0	0	8
cSH	1700	1700	324	681
Volume to Capacity	0.21	0.30	0.02	0.01
Queue Length 95th (m)	0.0	0.0	0.4	0.3
Control Delay (s)	0.0	0.0	16.3	10.3
Lane LOS			C	B
Approach Delay (s)	0.0	0.0	12.6	
Approach LOS			B	

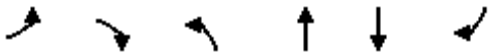
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	220	3	9	164	6	9	0	14	0	0	0
Future Volume (Veh/h)	4	220	3	9	164	6	9	0	14	0	0	0
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)	4	239	3	10	178	7	10	0	15	0	0	0
Pedestrians		4			5			18			16	
Lane Width (m)		3.7			3.7			3.7			0.0	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		0			0			2			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	201			260			472	488	264	486	486	202
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	201			260			472	488	264	486	486	202
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			98	100	98	100	100	100
cM capacity (veh/h)	1383			1293			464	470	763	472	471	841

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	246	195	25
Volume Left	4	10	10
Volume Right	3	7	15
cSH	1383	1293	606
Volume to Capacity	0.00	0.01	0.04
Queue Length 95th (m)	0.1	0.2	1.0
Control Delay (s)	0.1	0.5	11.2
Lane LOS	A	A	B
Approach Delay (s)	0.1	0.5	11.2
Approach LOS			B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	29.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	0	6	6	0	0
Future Volume (Veh/h)	5	0	6	6	0	0
Sign Control	Stop			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)	5	0	7	7	0	0
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	18	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	18	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	993	1084	1622			

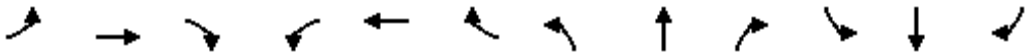
Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	5	9	5
Volume Left	5	7	0
Volume Right	0	0	0
cSH	993	1622	1700
Volume to Capacity	0.01	0.00	0.00
Queue Length 95th (m)	0.1	0.1	0.0
Control Delay (s)	8.6	5.4	0.0
Lane LOS	A	A	
Approach Delay (s)	8.6	3.6	
Approach LOS	A		

Intersection Summary			
Average Delay	4.9		
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)	447	0	0	529	11	15
Future Volume (Veh/h)	447	0	0	529	11	15
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)	486	0	0	575	12	16
Pedestrians	1				7	
Lane Width (m)	3.7				3.7	
Walking Speed (m/s)	1.1				1.1	
Percent Blockage	0				1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			493		1069	493
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			493		1069	493
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		95	97
cM capacity (veh/h)			1074		245	576

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	486	575	12	16
Volume Left	0	0	12	0
Volume Right	0	0	0	16
cSH	1700	1700	245	576
Volume to Capacity	0.29	0.34	0.05	0.03
Queue Length 95th (m)	0.0	0.0	1.2	0.7
Control Delay (s)	0.0	0.0	20.4	11.4
Lane LOS			C	B
Approach Delay (s)	0.0	0.0	15.3	
Approach LOS			C	

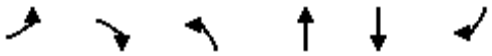
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	37.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	235	11	26	287	14	5	5	26	0	0	0
Future Volume (Veh/h)	9	235	11	26	287	14	5	5	26	0	0	0
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	255	12	28	312	15	5	5	28	0	0	0
Pedestrians		20			10			52			22	
Lane Width (m)		3.7			3.7			3.7			0.0	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		2			1			5			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	349			319			728	738	323	719	736	362
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	349			319			728	738	323	719	736	362
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			98			98	98	96	100	100	100
cM capacity (veh/h)	1221			1189			298	320	679	305	320	674

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	277	355	38
Volume Left	10	28	5
Volume Right	12	15	28
cSH	1221	1189	516
Volume to Capacity	0.01	0.02	0.07
Queue Length 95th (m)	0.2	0.5	1.8
Control Delay (s)	0.4	0.9	12.5
Lane LOS	A	A	B
Approach Delay (s)	0.4	0.9	12.5
Approach LOS			B

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	41.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	0	6	20	0	0
Future Volume (Veh/h)	5	0	6	20	0	0
Sign Control	Stop			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)	5	0	7	22	0	0
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	25	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	25	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	983	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	5	14	15
Volume Left	5	7	0
Volume Right	0	0	0
cSH	983	1622	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.1	0.1	0.0
Control Delay (s)	8.7	3.5	0.0
Lane LOS	A	A	
Approach Delay (s)	8.7	1.8	
Approach LOS	A		

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

LASSALINE
PLANNING CONSULTANTS INC.

REPORT: **URBAN DESIGN BRIEF & HERITAGE IMPACT ANAYLSIS**

MUNICIPALITY: **CITY OF WINDSOR**
MUNICIPAL ADDRESS: 2121 RIVERSIDE DRIVE WEST
DEVELOPMENT: ZONING BYLAW AMENDMENT (ZBA)
DATE: MARCH 31, 2025

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1.0 INTRODUCTION AND PURPOSE

Lassaline Planning Consultants (LPC) has been retained to undertake an Urban Design Brief and Heritage Impact Analysis regarding the feasibility of a site specific Zoning By-law Amendment (ZBA) to support the development of the subject site for a new, low profile, 3 storey residential multi-unit building. Agbaba Holdings Corporation (the 'Applicant') is proposing the redevelopment of the site with a 3 storey 11.7 m (38 ft) height building, 46 residential units in a multi-unit dwelling and 14 parking spaces.

Jackie Lassaline, BA MCIP RPP, Lassaline Planning Consultants has prepared this Urban Design Brief and Heritage Impact Analysis for the proposed redevelopment of 2121 Riverside Drive West (the 'Subject Lands').

This **Urban Design Brief** provides Official Plan policy review under Subsection 8.0 Urban Design policies. The report is based on Meo and Associates Inc design drawings and architectural plans for the proposed development. The policies include the examination of the proposed development in context of the building within the streetscape, the built form, pedestrian access, setbacks and established building lines, building materials, etc.

There are a number of residences on Randolph Pl. and Riverside Drive West identified on the heritage registry or designated through bylaw under the Heritage Act. **Heritage Impact Analysis** places the proposed development in context of the heritage properties and review under Subsection 9 Heritage Conservation of the Official Plan.

The subject lands are designated 'Residential' on Schedule D of the Official Plan. Comprehensive Zoning Bylaw 8600 zones the subject lands as 'Residential District 2.2 (RD2.2)' for the subject lands.

To facilitate the proposed residential development, a site specific Zoning Bylaw Amendment (ZBA) is requested for the proposed 3 storey multiple unit residential building with 46 residential apartment units and 14 parking spaces.

With the neighbourhood zoned ‘Residential District 2.2 (RD2.2)', a zone that permits a multiple dwelling, it is recommended that the property remain under the (RD2.2) zone and site specific provisions be applied to allow for the 46 residential units.

FIGURE 1 – LOCATIONAL MAP – 2121 RIVERSIDE DRIVE WEST

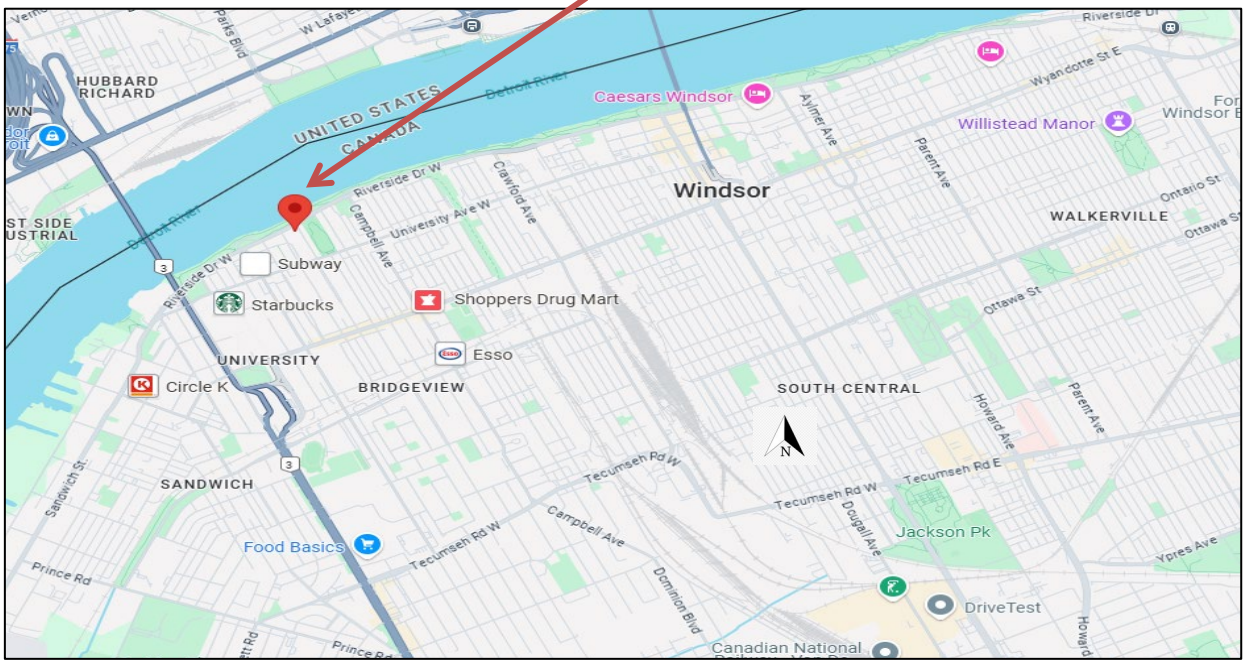
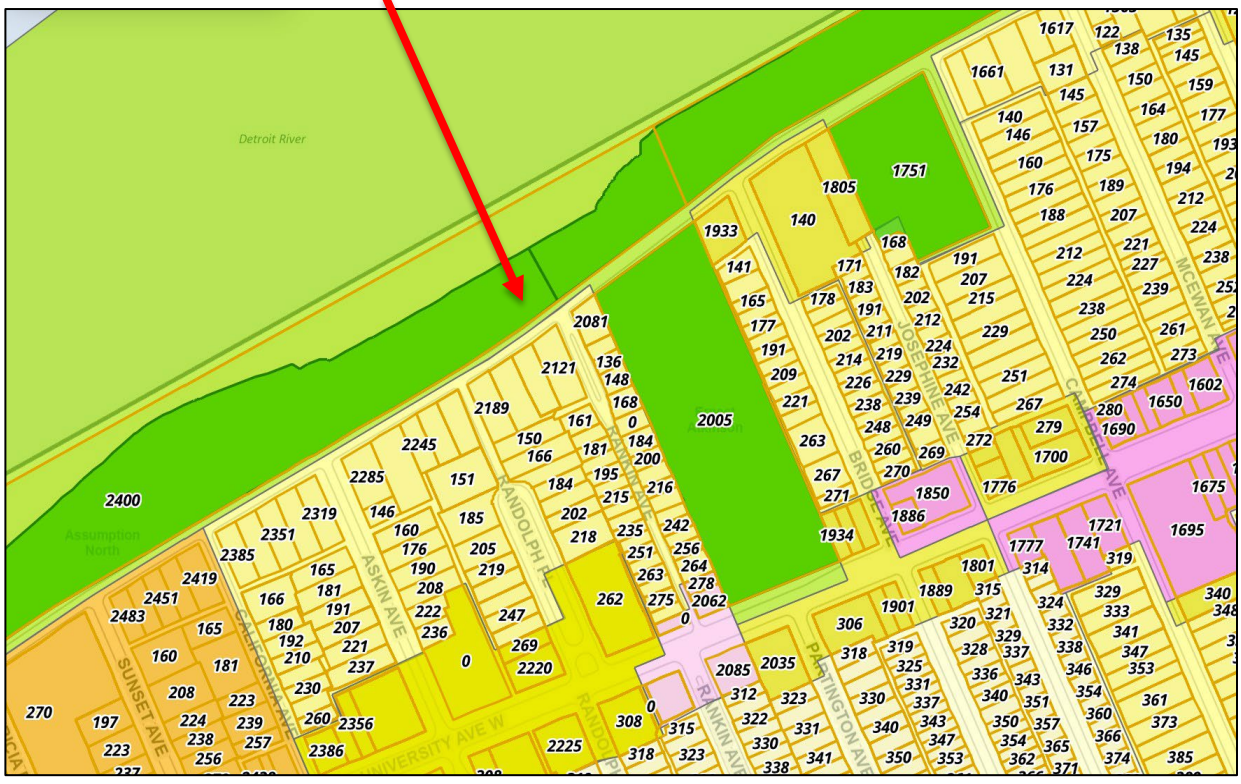


FIGURE 2 – SUBJECT SITE – NEIGHBOURHOOD ZONING



2.0 DEVELOPMENT PROPOSAL

The subject lands known as 2121 Riverside Dr. West is presently designated as 'Residential' on the City of Windsor Official Plan, Schedule 'D' and is zoned as 'Residential District 2.2 (RD2.2)' in the Comprehensive Zoning Bylaw 8600 (CZB) for the City of Windsor.

The OP allows for a Low or Medium Profile Residential building on the site. The Zoning Bylaw Amendment purports to maintain the existing 'Residential District 2.2 (RD2.2)' while applying new provisions to create a site specific 'Residential District 2.2-# (RD2.2#)' with following regulations:

PERMITTED BUILDING AND DENSITY: One multiple dwelling with 46 dwelling units
MINIMUM SIDE YARD: 1.2 m (variance of 0.6 m);
BUILDING HEIGHT: 11.7 m
PARKING SETBACK PROVISIONS
PARKING – 14 spaces provided for student housing

The above provisions being added to the (RD2.2) zone as site specific provisions will allow for the maintenance of a zone that exists for the neighbourhood while making minor adjustments through a ZBA to permit the residential development of a low storey multiple unit dwelling.

Each of the 46 residential units will be rental, studio apartment accommodation with unit areas of 29.5 m2 (317 ft2) to 40 m2 (431 ft2). The units are identified as studio apartments because of the small scale of the units as efficient suites. The studio units are perfect for one person but do not facilitate two people inhabiting the units therefore 46 units refers to 46 residents. These small units are geared towards university grad students who need privacy, quiet and affordable units. The building is considered Purpose Built Student Accommodations (PBSA) and the size of the units reflect the intended units.

As discussed in the urban design subsection below, the 46 units are defined as small units intended to support senior university students or young professionals with quick and easy access to downtown and the university utilizing the Riverfront Trail.

The provision of high quality, rental accomodation will provide alternative housing tenure and style while supporting young professionals or senior university students to afford reasonable, modern accommodations.

As discussed below, the building has been designed by Meo and Associates with a heritage sensitive profile building characteristics that is architecturally appealing, enhancing the vitality of the existing neighbourhood. Colours and materials have been duplicated from existing heritage buildings in the neighbourhood to provide for a compatible and heritage sensitive development. Please refer to elevations below.

2.1 SITE DESIGN

Prepared by Meo and Associates, the following site plan shows the site details of the proposed building at the corner of Riverside Drive West and Rankin Avenue.

The street line of Riverside Drive West has a historically established building line with a unique setback. The site plan shows the proposed building replicates the setback of the existing residences along Riverside Drive West on this block on the south side of Riverside Dr. West that is respectful and consistent with the historically existing building line of 9m - 10m of the existing residences – shown in Figure 3 below.

FIGURE 3 - 2121 RIVERSIDE DRIVE WEST BUILDING SETBACK

Car parking is located at the rear of the building with access from the municipal right of way and the existing alleyway. The building is a visual and physical buffer of the parking area on site from the Riverside Drive West street view. This is critical to ensure emphasis of the street view is for the building, not car parking. In addition, the location provides for a buffering of sound for neighbours from the parking lot.

The west lot line (interior side yard) will have a 6 ft wood fence that will provide for a buffering from the proposed bike parking spaces. Access to the bike parking is from the sidewalk on Riverside Dr West and from Rankin Avenue alley way.

The building can be considered compatible with other similar low and medium profile residential multi unit buildings within the neighbourhood.

2.2 FLOOR PLANS

The building has been designed to provide for small, 1 bedroom residential studio units with 318 ft2 to 450 ft2 apartments. These 46 units have been designed for single occupancy of senior students from the university or young professionals looking for small, reasonably priced rental studio apartments.

FIGURE 4 – 2nd and 3rd FLOOR PLAN

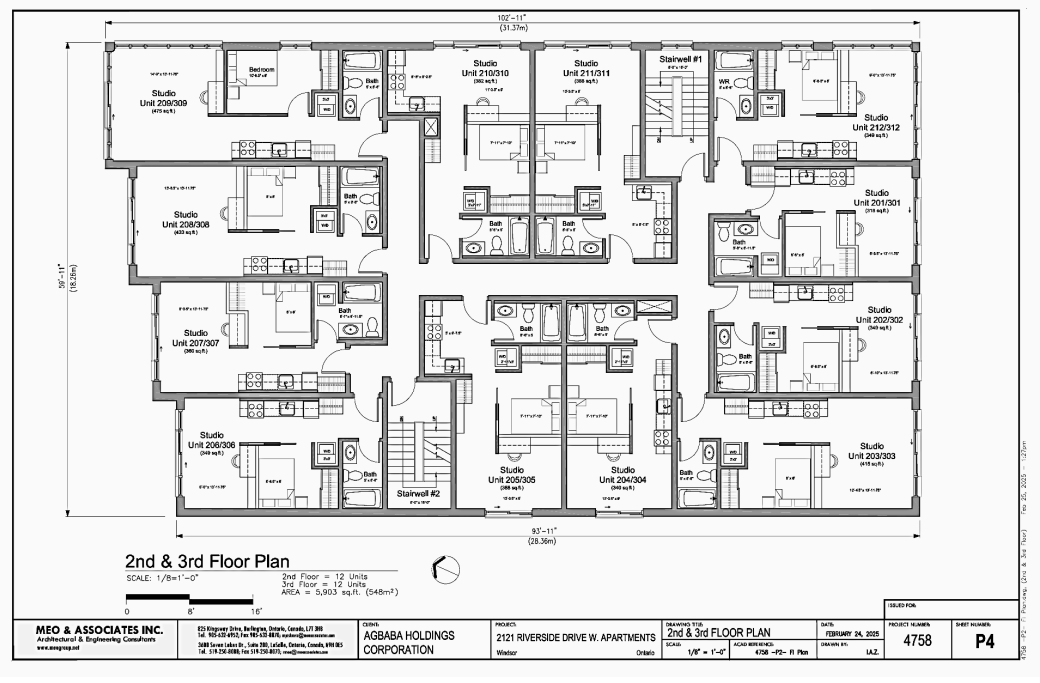


FIGURE 5 – 1st FLOOR PLAN

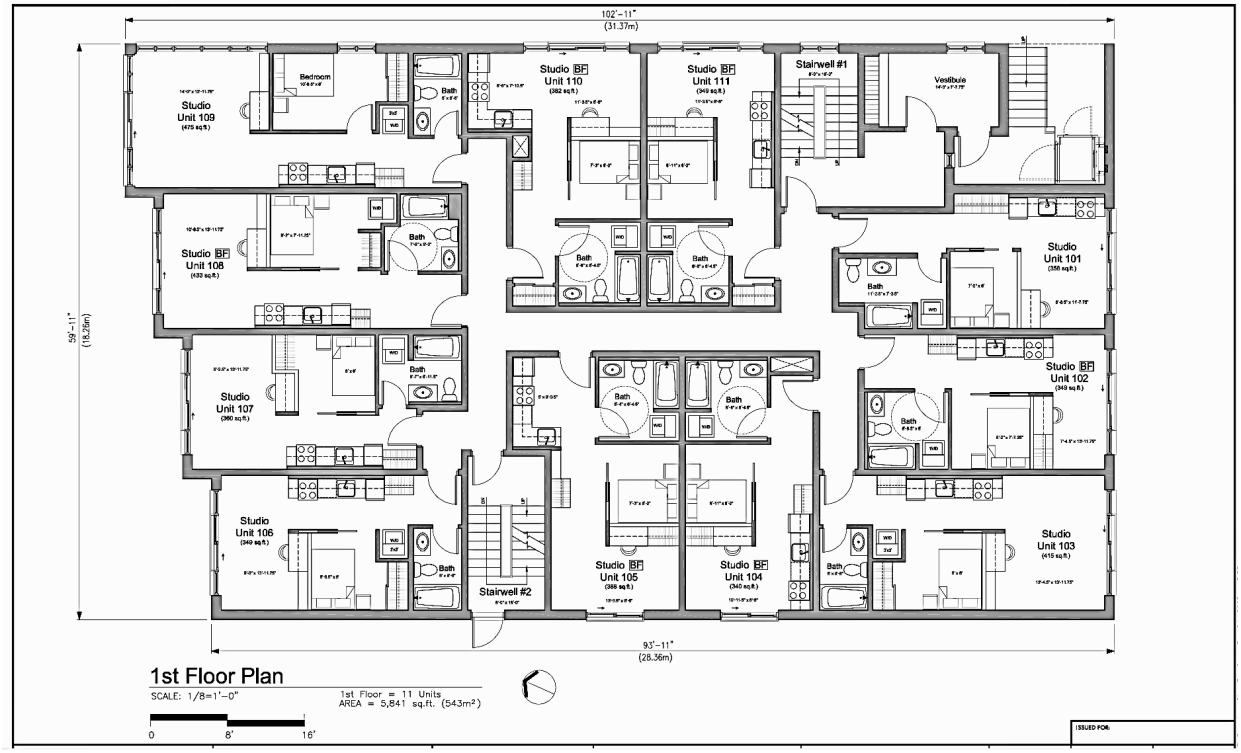


FIGURE 6 – BASEMENT PLAN

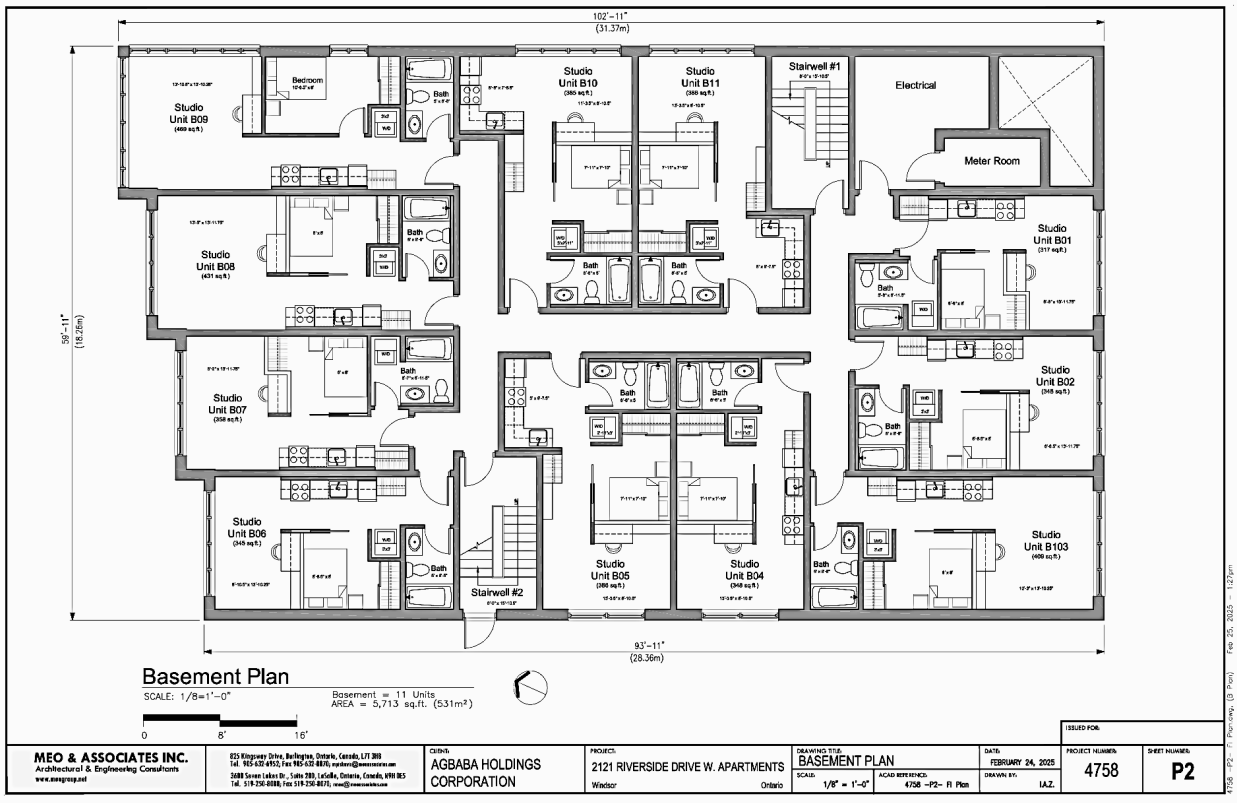
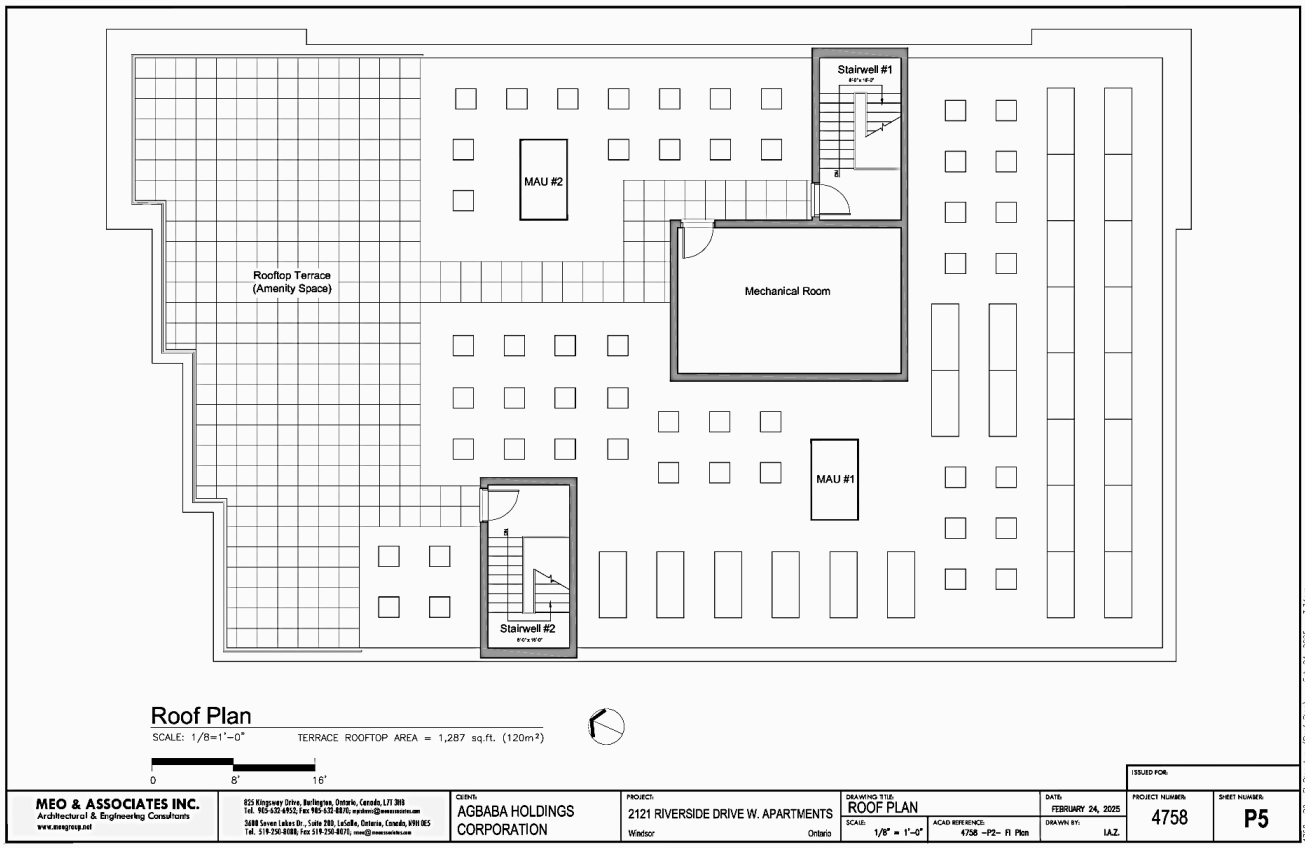


FIGURE 7 ROOF TOP TERRACE PLAN



2.3 SHADOW STUDY

A Shadow Study was completed to visualize the new building and determine if there are any impacts on the neighbourhood. According to Michael Piskovic OAA, Meo and Associates, **letter dated April 10, 2024:**

> "These drawings depict the annual range of shadows, with the longest shadows occurring in December and the shortest in June. Typically, March and September represent average conditions in terms of shadow length.
>
> Regarding the impact on the surrounding single-family houses' rear yards (outdoor living spaces), the following observations can be made:
>
> - **March 21 (Vernal Equinox)**
> - *2135 Riverside Dr. W.*: Minimal shadow is observed at the southeast corner of the house adjacent to the east property line between the hours of 8:00-10:00;
> - *2081 Riverside Dr. W.:* Shadow is cast in the rear yard during the late afternoon at 18:00 hours.
> - **June 21 (Summer Solstice)**
> - *2135 Riverside Dr. W.*: Minimal shadow is observed at the southeast corner of the house adjacent to the east property line during the early morning hours
> - **September 21 (Autumnal Equinox)**
> - *2135 Riverside Dr. W.*: Minimal shadow is observed at the southeast corner of the house adjacent to the east property line during the early morning hours
> - *2081 Riverside Dr. W.:* Shadow is cast in the rear yard during the late afternoon at 18:00 hours
> - *126 and 136 Rankin Ave.*: Shadow is cast in the rear yards during the late afternoon at 18:00 hours
> - **December 21 (Winter Solstice)**
> - *2081 Riverside Dr. W.:* Shadow is cast in the rear yard after 15:00 hours
> - *126 Rankin Ave.*: Shadow is cast in the rear yard after 14:30 hours.
>
> Overall, the shadows generated by the proposed development are anticipated to have minimal impact on the neighbours' rear yards."

3.0 NEIGHBOURHOOD CONTEXT

The subject site is located within a neighbourhood with a mix of residential housing ages, mix of building tenure, mix of heights and densities. The neighbourhood is comprised of a mix of uses that include multiple unit dwelling buildings, commercial uses, major recreational uses, institutional uses, and single detached residences.

The proposed development is situated in an already existing predominately residential neighbourhood with a mix of residential densities. There are also neighbourhood commercial (restaurants, commercial, etc) uses and the Riverside Trail that will facilitate active transportation by foot or bicycle along the municipal trail to the downtown core only a few blocks to the east and the university a few blocks to the west.

There are significant recreation, and active transportation uses within the neighbourhood including the riverfront trails along Detroit River directly across the street of the subject site with a direct link to the University of Windsor only a few blocks to the west and the CBD a few blocks to the east. The waterfront trail provides for safe and quick access to the university for any students.

The majority of the neighbourhood is zoned 'Residential District (RD2.2)'

a) **North -** 'Riverfront Trail' and Sculpture Park

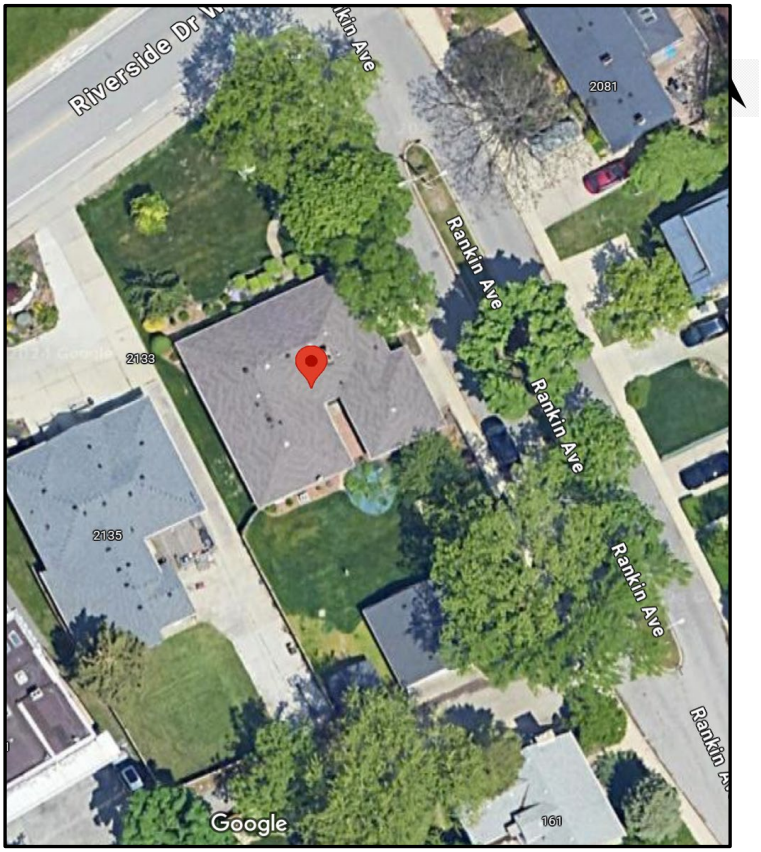
b) **East -** existing residential uses that include 2 storey and 3 storey single detached and multi-unit apartment with high profile (16 storey) residential multi-unit apartments and condos;
- Atkinson Park with a pool, soccer pitches and skating park;

c) **South -** existing uses that include low and medium profile residential multi-unit apartments and condos,

d) **West** - existing residential uses that include 2 storey and 3 storey residential buildings as and single detached residences or residential multi-unit buildings.

FIGURE 8 – NEIGHBOURHOOD AERIAL 2121 RIVERSIDE DRIVE WEST

FIGURE 9 – SITE AERIAL 2121 RIVERSIDE DRIVE WEST



4.0 URBAN DESIGN REVIEW: SECTION 4.0 OP DESIGN CONSIDERATIONS

4.1 Introduction

"The Urban Design Brief should include a written description, plans, elevations, diagrams, and/or photographs to illustrate the design choices of the proposed development and site design. Depending on the scale of the development proposal explain how the applicable design considerations have been addressed:"

4.2 *Street and block pattern (e.g., connectivity, pedestrian access);*

The subject lands are located at the corner of Riverside Drive West and Rankin Avenue in the City of Windsor. The lot is existing as a large residential lot with frontage on Riverside Drive West and exterior side yard frontage and access to Rankin Avenue.

The main floor of the building will have a welcoming entrance fronting on Rankin Ave with the entrance facing the sidewalk with the building oriented close to the sidewalk, supporting the pedestrian.

The lot configuration will not be changing with the new proposed development.

Across Riverside Drive is the City of Windsor Waterfront Trail with the Sculpture Park. To the west of the property is a municipal pool, soccer pitch and parkland.

Within the block near University Ave are commercial restaurants and stores geared for the neighbourhood.

FIGURE 10 – SUBJECT SITE – AERIAL 2121 RIVERSIDE DRIVE WEST

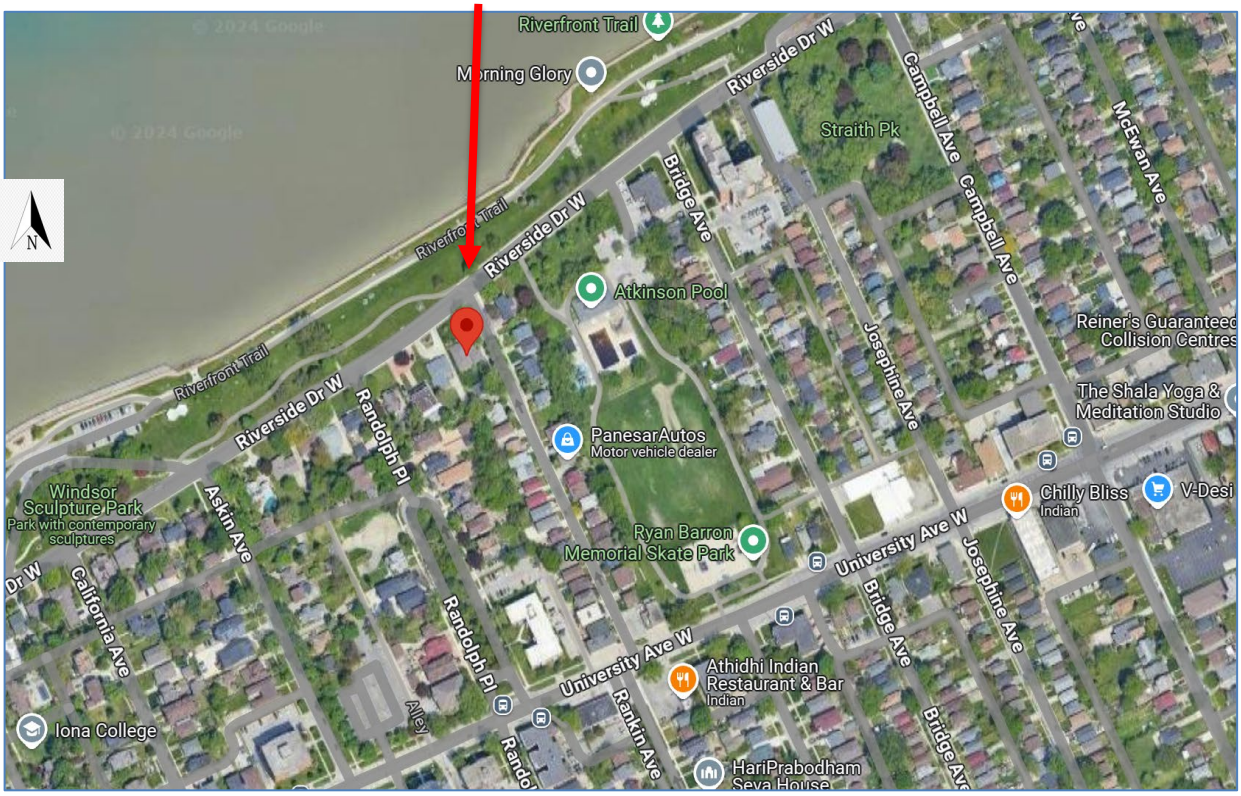


FIGURE 11 – LOOKING NORTH AT RIVERSIDE PARK AND TRAIL

FIGURE 12 – LOOKING EAST ALONG RIVERSIDE DRIVE WEST

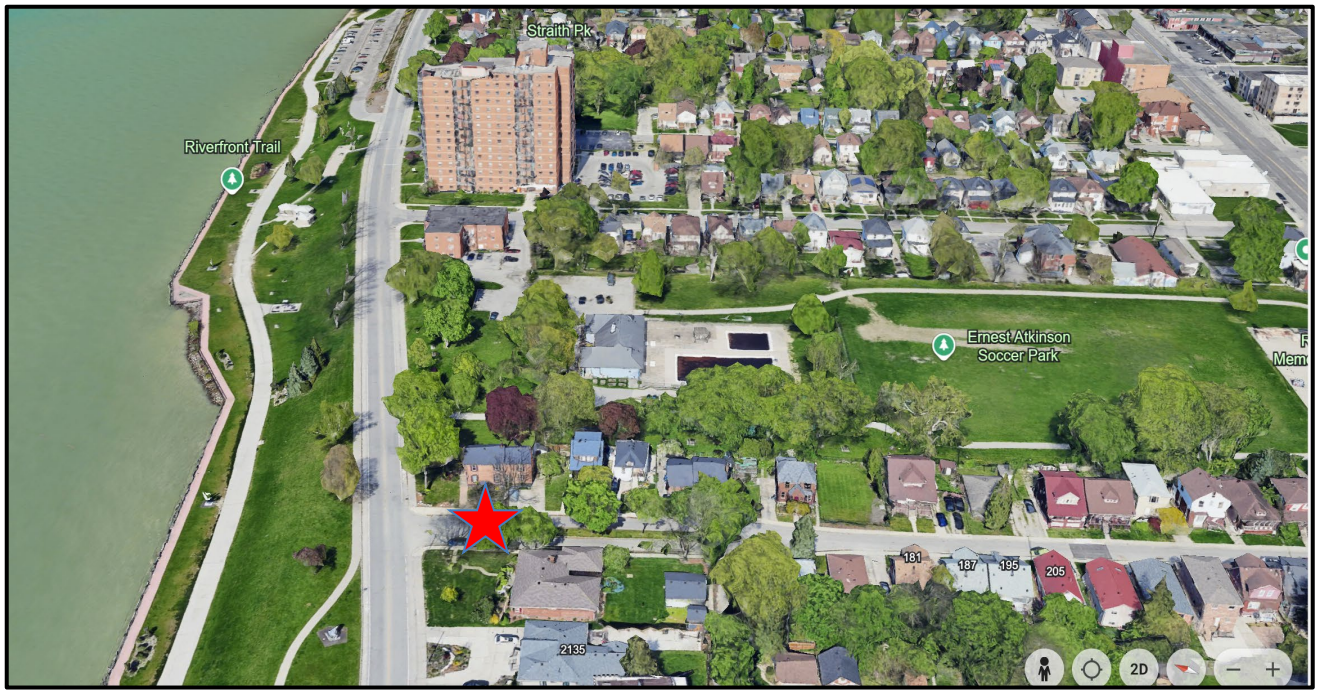
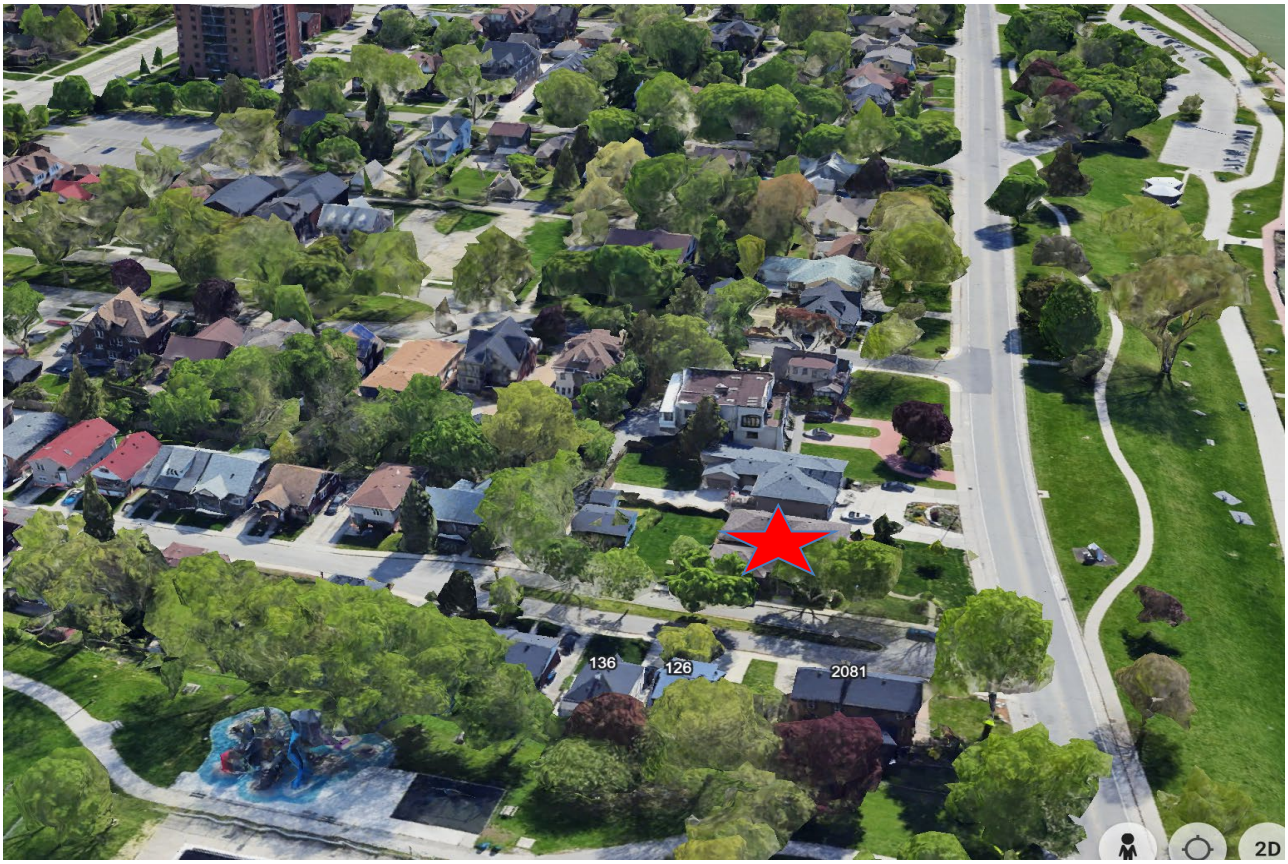


FIGURE 13 – LOOKING SOUTH ON RIVERSIDE DR WEST

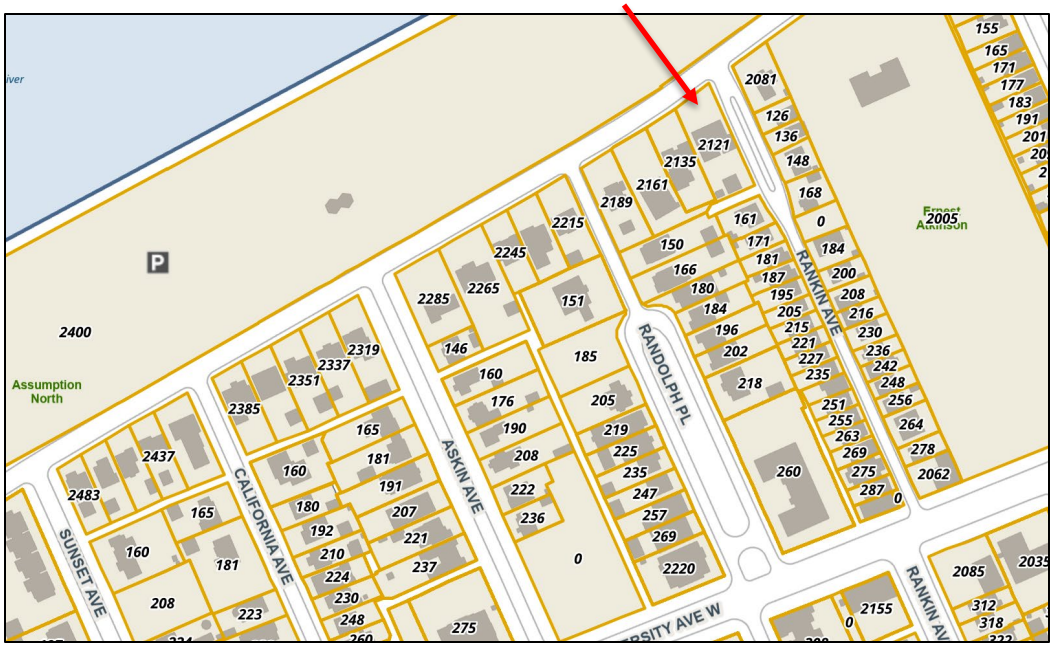
FIGURE 14 – LOOKING WEST ON RIVERSIDE DR WEST



4.3 *Neighbourhood Lot Sizes;*

As shown in Figure 13 below the subject parcel has a lot width of approximately 22 m and a lot area of 1,248 m2, consistent with the large residential lots fronting Riverside Drive in this neighbourhood. The Lot configuration has existed for a number of years, over 90 years according to the age of some of the residential housing within the neighbourhood. There are no changes proposed for the lot configuration through the proposed development.

FIGURE 15 – LOT CONFIGURATION 2121 RIVERSIDE DR W



4.4 *Building orientation and site layout;*

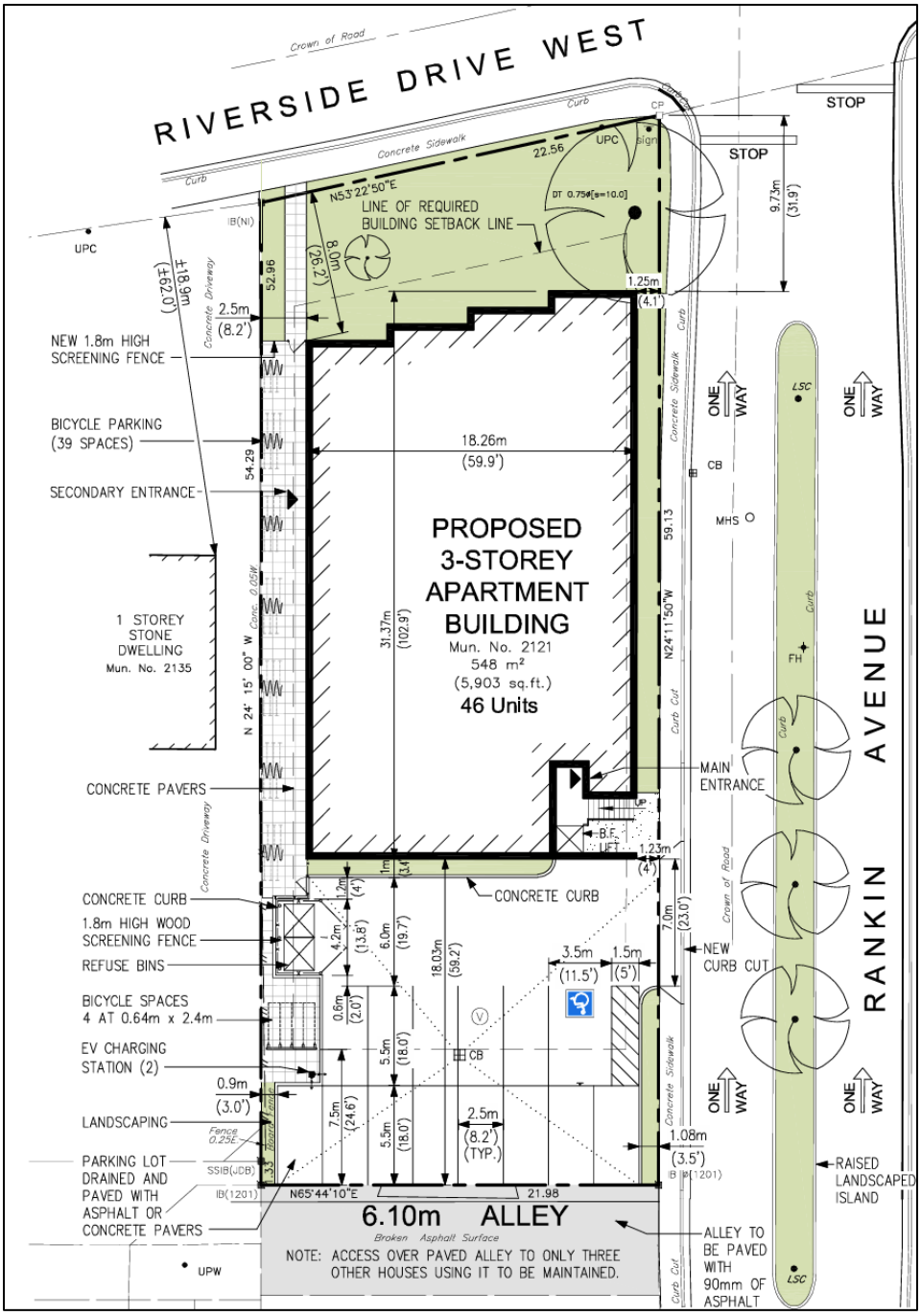
Prepared by Meo and Associates, the following site plan shows the site details of the proposed building at the corner of Riverside Drive West and Rankin Avenue.

The street line of Riverside Drive West has a historically established building line with a unique setback. The site plan shows the proposed building with the front façade replicates the setback of the existing residences along Riverside Drive West on this block on the south side of Riverside Dr. that is respectful and consistent with the historically existing building line. With the proposed building to be located on a property that is on a gentle curve, and to provide for architectural interest, the building front façade has been stepped from 8m to 9m as shown in Figure below.

As evidenced in the site plan below, the front of the building is stepped to provide for both architectural interest of the front façade and respect for the front yard setback to the west of the subject lands. The front façade is stepped back from 8.0m to 9.73m to Riverside Dr. West, consistent with the older residences along Riverside Dr. West. The maintenance of the established building line provides for the protection of the streetscape view as well as the protection of the vista that includes the older established residences.

The front façade of the proposed building is contiguous and provides for a positive street presence. The main entrance into the building is off Rankin Avenue and a secondary entrance near the interior side adjacent to the bike parking lot to the west. The main entrance and secondary entrance locations ensures the continuity of built form of the front façade without interruption.

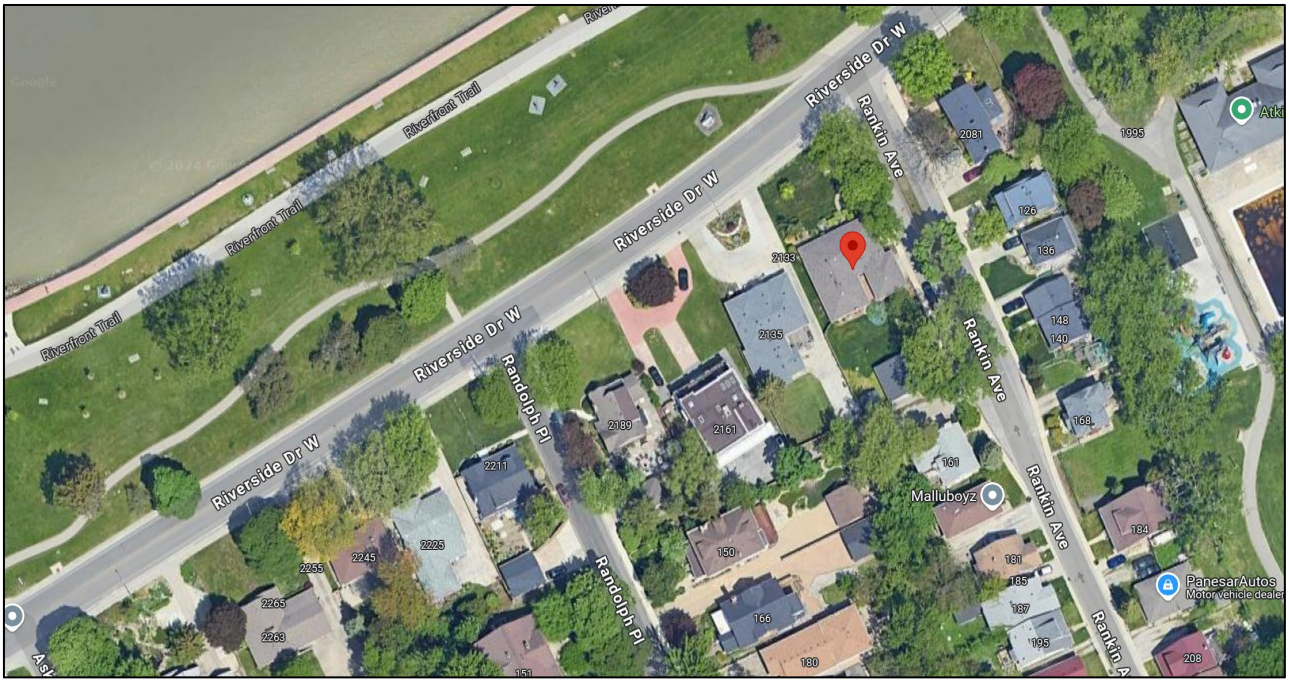
FIGURE 16 – SITE PLAN



4.5 *Built form, height, scale, and massing;*

The proposed 3 storey low profile building will be clustered with other low and medium profile residences buildings located in neighbourhood. The proposed buildings will have a compact residential form that will reduce the consumption of land and make efficient use of energy resources and existing municipal services while providing for modest intensification.

FIGURE 17 – LOOKING WEST ON RIVERSIDE DR. WEST



There are like and similar buildings with multiple storeys and other low and medium profile residential buildings within the immediate neighbourhood making the proposed building comparable and compatible with the neighbourhood.

FIGURE 18 – 2161 AND 2189 RIVERSIDE DR. WEST

The proposed 3 storey building is to be constructed at the approximate height as the Art Deco building that is located 2161 Riverside Drive West and the Tudor Revival at 2189 Riverside Drive West.

The building is located adjacent to other 3 storey profile buildings and two storey buildings, like and similar building profiles providing for compatibility of the proposed building with the neighbourhood. The proposed 3 storey residential multiple dwelling will provide for a mix of housing styles and tenures required for a healthy community.

The housing proposed is considered student housing but will be in private ownership rather than student housing owned by the university. The student housing will provide small, studio apartments for single tenants in new, efficient, affordable accomodation. The housing will provide for alternative, affordable tenure and style to provide for student housing.

The building has been designed for university students and young professionals who do not have a car and want a nice, small apartment in close proximity to municipal transit; trails; the university and the downtown core. The style of housing is considered ‘Purpose Built Student Accommodation (PBSA)’ as small studio apartments with approximately 29 m^2 to 40 m^2 floor area with tenants who typically do not have cars.

As shown below in the provided elevations, the building is divided into distinct vertical layers, with a continuous stone band creating a visual separation between the base and upper façades. The north façade is designed with a stepped form, following the curvature of Riverside Drive and respecting the building setback line, adding visual interest and a dynamic interaction with the streetscape.

FIGURE 19 – FRONT/EAST ELEVATION

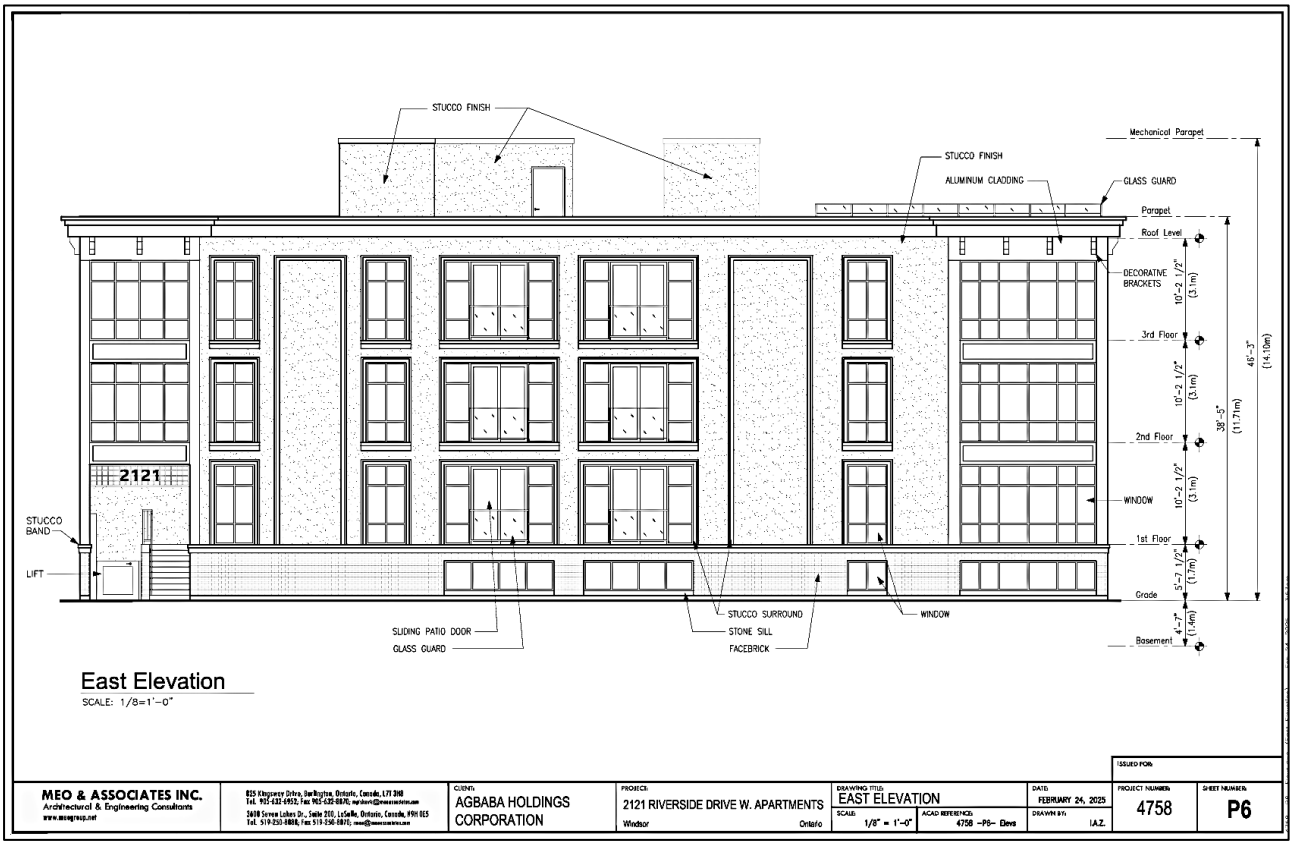


FIGURE 20 – NORTH ELEVATION

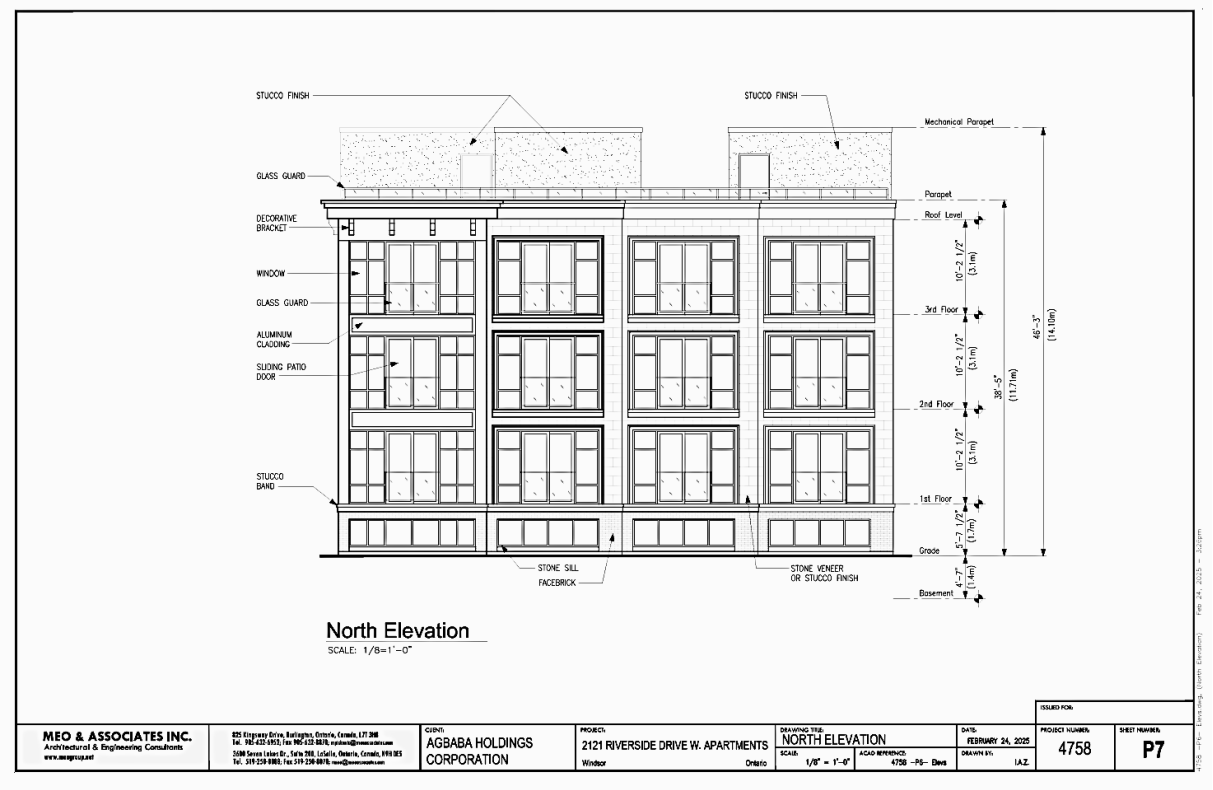


FIGURE 21 – SOUTH ELEVATION

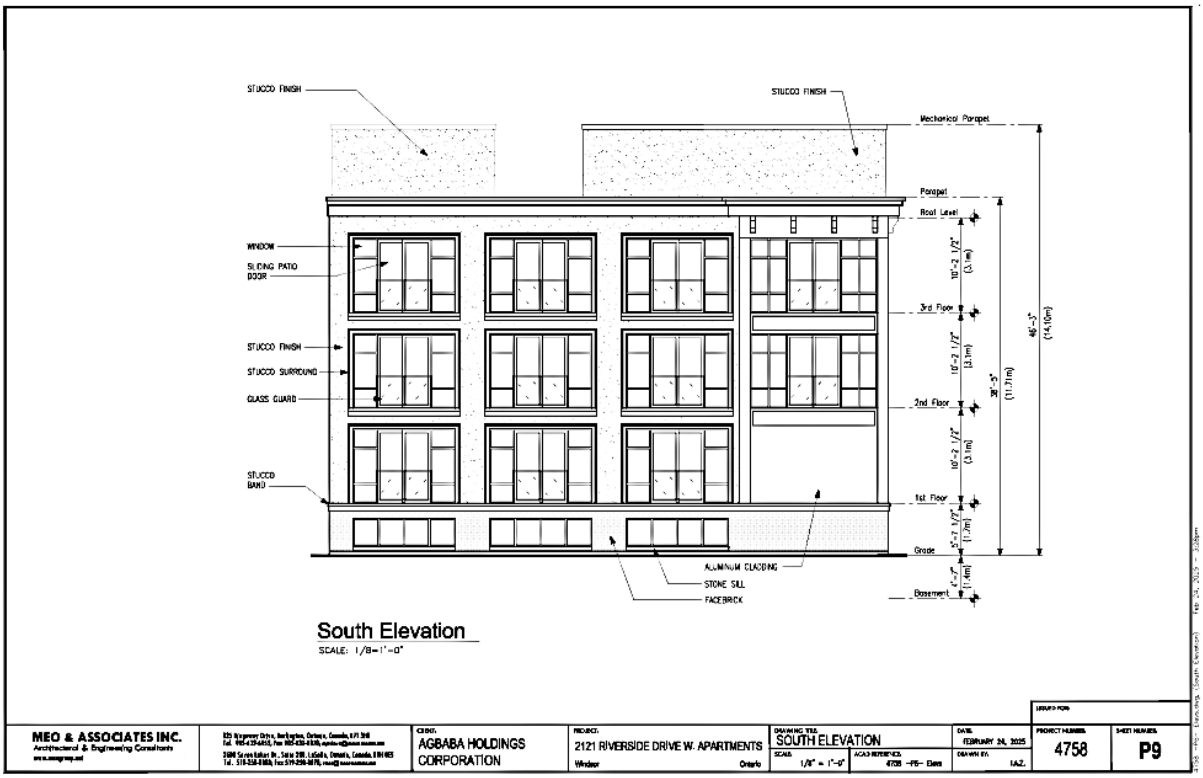
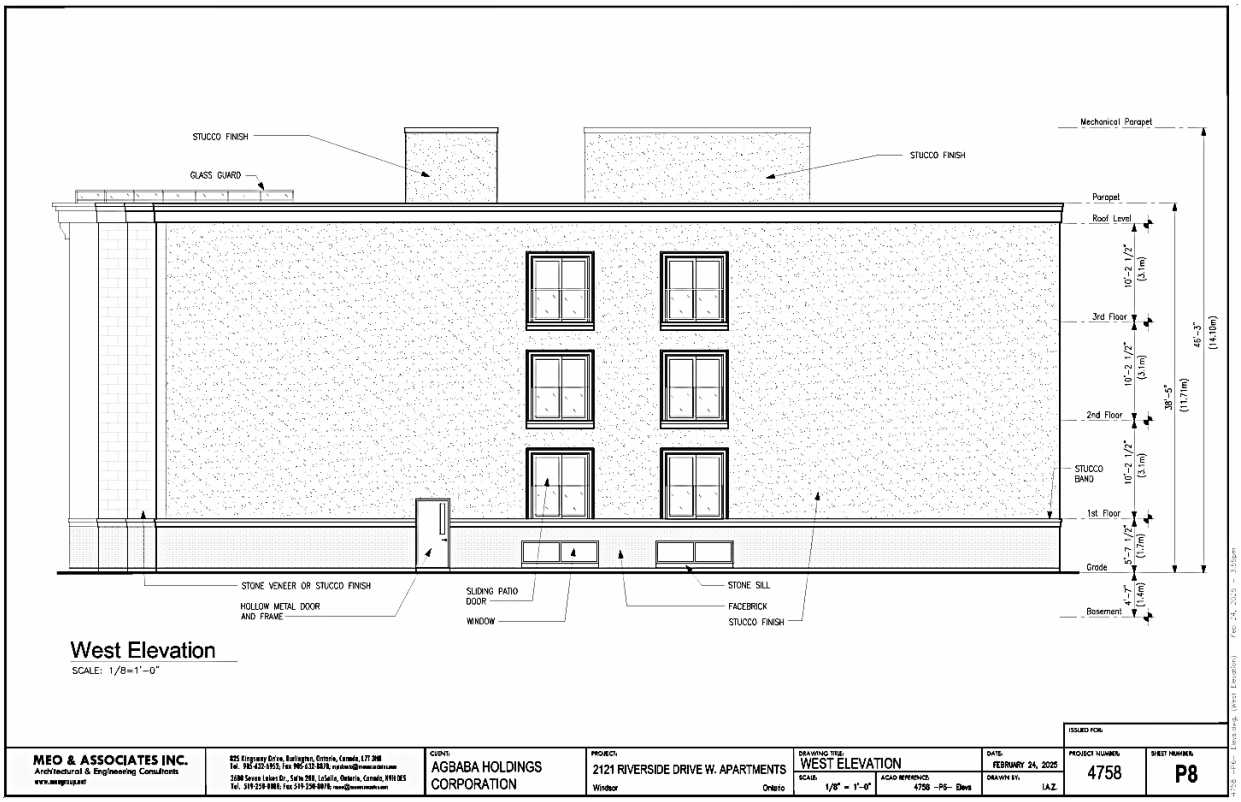


FIGURE 22- WEST ELEVATION



4.6 *Building articulation and detailing;*

The 3 storey, low profile apartment building features a thoughtful design emphasizing its prominent corner location, contributing to the urban streetscape with a visually appealing and contextually responsive structure.

The building is not a mid-block infilling building where it would be seen as disruptive, but rather being located on the corner lot, the building provides a visual gateway or entrance to the neighbourhood.

The articulation is achieved through the use of varying materials and detailed architectural elements outlined below.

FIGURE 23 – SOUTH EAST RENDERING

FIGURE 24 – NORTH WEST RENDERING

FIGURE 25 – NORTH EAST RENDERING

FIGURE 26 – NORTH EAST IMAGE

FIGURE 27 – EAST RENDERING

FIGURE 28 – WEST IMAGE

FIGURE 29 – NORTH RENDERING

FIGURE 30 – NORTH ELEVATION IMAGE

- **Massing and Form**: The building is divided into distinct v/ertical layers, with a continuous stone band creating a visual separation between the base and upper façades. The north façade is designed with a stepped form, following the curvature of Riverside Drive and respecting the building setback line, adding visual interest and a dynamic interaction with the streetscape.

- **Corner Accents and Main Entrance**: Contemporary charcoal aluminum cladding highlights the northeast and southeast corners. The southeast corner, facing Rankin Avenue, houses the main building entrance, adjacent to the south parking area. This entrance is a functional and visually prominent feature, offering a covered entry that protects the stairs and a barrier-free lift, ensuring easy and sheltered access to the first floor, especially in inclement weather. Decorative brackets at the roof cornices add traditional ornamental detailing, reinforcing heritage design principles while integrating modern materials for longevity.

- **Fenestration**: Expansive windows and patio doors provide ample natural light, with sleek black frames adding a linear contrast. Large glazed areas are balanced with solid façade elements for a harmonious aesthetic. Glass guards on balconies enhance transparency and lightness, offering unobstructed views while maintaining safety and functionality.

- **Roof Cornice**: A charcoal metal cornice runs around the perimeter, capping the structure and adding a cohesive element.

- **Stucco Surrounds**: Windows are framed with sandstone-coloured stucco surrounds, adding depth and classic architectural character.

4.7 *Building materials;*

The material palette combines rich, contrasting tones and textures to create a dynamic and attractive building. Colours, materials, and fenestrations have been borrowed from the neighbourhood to design the balanced, beautiful building that is both unique, stylistic and heritage sympathetic.

- **Brick Base**: The dark red brick base is reminiscent of traditional masonry buildings in the area, grounding the building with a warm, durable and historically appropriate presence.

- **Stone Veneer**: Above the brick base, the north façade is clad in light beige sandstone-coloured stone veneer referencing classic stone detailing commonly found in historic structures, adding refinement, texture and contrast.

- **Stucco**: The smooth, neutral-toned stucco finish on three sides of the building above the brick base aligns with historical construction techniques where heavier materials were used at lower levels and lighter materials above. Stucco has long been paired with brick and stone in traditional architecture, ensuring the building integrates seamlessly with the urban context. The stucco finish ensures a lighter visual appearance above the brick base, preventing the building from feeling overly massive while maintaining a refined and cohesive aesthetic.

- **Aluminum Cladding**: Charcoal-coloured aluminum cladding accents the northeast and southeast corners providing a subtle contemporary accent while remaining visually harmonious with the historic-inspired materials.

- **Window and Door Frames**: Sleek black frames on windows and patio doors provide a striking contrast to the lighter materials, enhancing the building's modern aesthetic while still echoing the proportions and rhythm of traditional fenestration in historic buildings.

- **Roof Cornice**: The charcoal metal cornice runs around the perimeter, providing a strong capping element that ties together the façade materials and enhances the building's visual cohesion.

4.8 *Setbacks from adjacent properties and the street;*

Provisions of the (RD2.2) zone front yard regulations allow for a minimum 6 m setback for the new building. This setback however will bring the building forward of the established building line of the existing residences within the neighbourhood and will have a negative impact on the viewscape.

The new, infilling building will be stepped at 8m – 9m from Riverside Dr to allow for consistency with the existing residences along Riverside Drive to the west and to the east of the subject property.

The building will be setback at 1.2m adjacent Rankin Avenue, providing for a pedestrian oriented building. The main entrance accesses the sidewalk directly to Rankin Avenue, providing for walkability.

In accordance with the Site Plan, the interior side yard adjacent the existing residence to the west is proposed at 2.5 m and is in compliance with the bylaw for the 3 storey multi-unit residential building.

FIGURE 31 - 2121 RIVERSIDE DRIVE WEST SETBACK LINE

4.9 *Building step back (if applicable);*

The front façade is stepped to allow for the building on the curve of the road and has been stepped back with a set at 8 m to respect the front yard setback of the established building line.

This will ensure the new, infilling building is visually compliant with the established building line, particularly critical in a neighbourhood with heritage buildings. Maintaining the established building line ensures protection of the heritage viewscape and compatibility of the new building with the existing building form.

4.10 *Building transition to adjacent neighbourhoods;*

The building has been designed as a low profile residence with a compatible built form and massing with the grand residences along Riverside Dr W. The building has been designed with a distinctive building using colour, fenestrations and design elements copied from the neighbourhood designed to be compatible with the residential neighbourhood. Being located on a corner lot Riverside Dr W. with large, distinguished residences transitioning into the Rankin Avenue of modest homes, The proposed building transitions well from the grand residences of Riverside Dr to the adjacent modest homes on Rankin Ave. and Randolph Place behind the building.

4.11 *Heritage considerations (if applicable);*

Please refer to Section 4. below with the Heritage Impact Analysis.

4.12 *Location of parking (surface or underground), driveways, ramps, drop-off areas;*

In accordance with Section 24.20.5 of the CZB, the provision of 14 parking spaces including 12 regular spaces for students, 1 visitor parking space and 1 Barrier Free parking complies with the requirement for 12 parking spaces for student housing such as the proposed multiple unit building.

Provision 24.20.5 in Bylaw 8600 provides for 1 parking space for each 4 beds within PBSA student housing. The building has 46 units that are small, studio units (no bedroom but open space) intended for 1 bed and 1 tenant each room.

The recommended 12 parking spaces recommended by the bylaw for student housing is an appropriate direction for parking by students.

The reduction in parking will support the use of municipal transit, the local trails and the walkable healthy community. The subject site is located just 550m (6-7 minute walk) from the University of Windsor Campus to the west utilizing the multiple trail system of the Riverside Waterfront Trail. As well, the downtown core is located within a 7-10 minute walk to the east.

There will be 14 parking spaces on site with access from the rear alley and Rankin Avenue with parking screened behind the building while supporting the moderate intensification allowed by the comprehensive development of the site.

4.13 *Access to transit;*

Directly across Riverside Dr. from the proposed multi-unit building is the significant waterfront multi-use trail that runs along the waterfront east and west and connects with other trails that proceed north and south within the municipality. The trail is a direct link from the subject property to the University of Windsor to the west and with the downtown commercial area of the city to the east.

The subject property is within a block of the University Ave municipal bus service line.

Tenants will be provided with 43 bike parking spaces with the intent that the residents will use the available trail for transport to the university or to the downtown.

2121 Riverside Drive West has significant access to municipal transit and will support the student use of the municipal trail and bus transit services.

4.14 *Bicycle parking/storage;*

Tenants will be provided with 43 bike parking spaces with the intent that the residents will use the available trail for transport to the university or to the downtown. Should a tenant want a parking space, they can access the municipal parking lots within close proximity to the building.

The bike parking will be behind a 6 ft board fence at the west side of the building. A door on the west side of the building will provide for quick and easy access to the bike parking area.

There will also be a sidewalk connecting the bike parking area and Riverside Dr West supporting the walkable, healthy community.

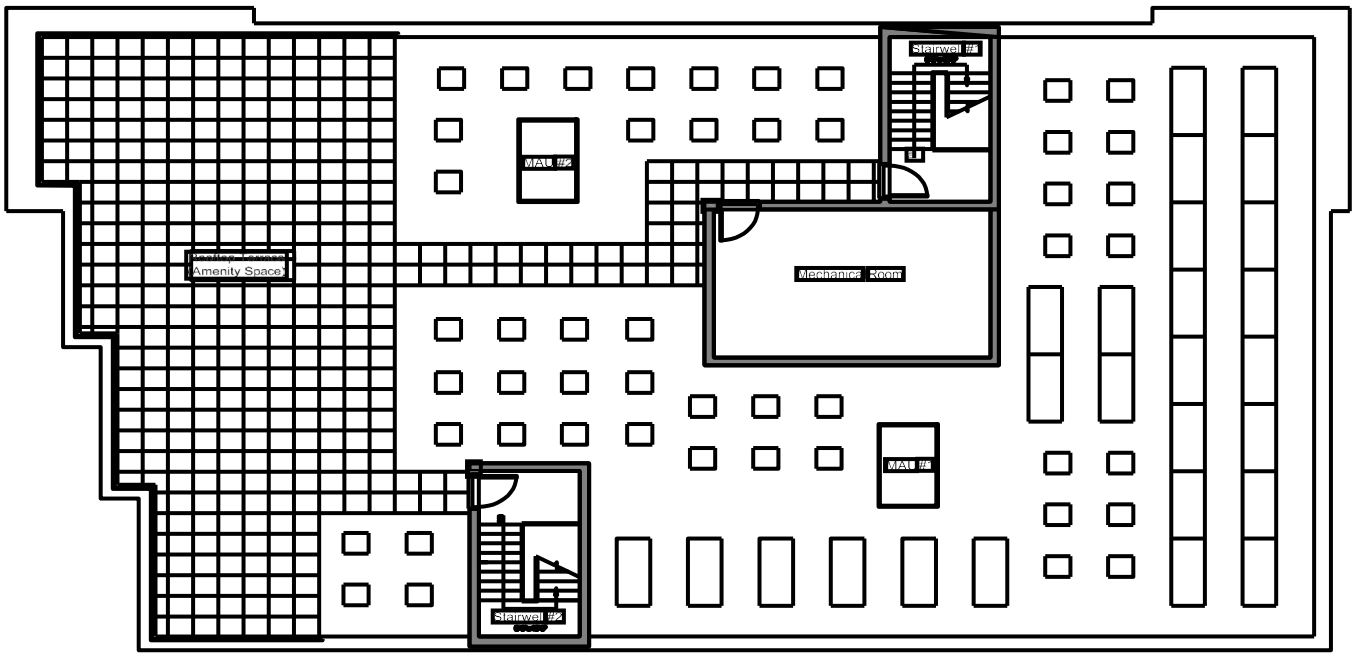
4.15 *Location of servicing, garbage, organics, and recycling storage and collection, and loading areas; and*

The garbage and recycling bins will be located at the west end of the parking access lane and will be fully fenced in with a 1.8m wood-screening fence. Wood gates on the east side of the enclosure will provide access to the bins for tenants and private refuse pickup.

4.16 *On-site landscaping and buffering.*

The front yard of the building will provide for extensive landscaping. There are two mature trees in the front yard that will be retained and preserved to ensure the preservation of the streetscape along Riverside Drive West.

FIGURE 25 ROOF TOP TERRACE PLAN



There will be fencing between the new building and the adjacent land owner. Bike parking will be between the residence and the privacy fence. On the top floor is a garden terrace including landscaping with a gathering place and amenity space available for all the tenants.

5.0 URBAN DESIGN STUDY: SECTION 8.0 OP REVIEW

The following is a design review based on Section 8.0 of the Official Plan policies that direct and govern how the built form and public space are complimentary:

5.1 Section 8.2 Image of Windsor

Though the proposed building is not in a heritage district defined under the Heritage Act, the neighbourhood has some heritage buildings in close proximity to the property. The proposed development enhances the character of the heritage buildings in close proximity. As discussed throughout this report, the proposed building has been designed to be heritage sympathetic in both look and height that is compatible and complementary to neighbourhood buildings.

The building has been designed extensively with a bright and welcoming building for both the residents and for the viewscape and as a gateway building between Riverside Dr. West to Rankin Avenue. The new building has been designed to be a visual asset along the significant Riverside Drive West. Architectural design has been emphasized to provide for an aesthetic quality for the new units with the use of soft tones, complimentary lines and contrasting colours, and windows that provide a vibrancy for the building.

5.2 Section 8.3 Design for People

The entrance to the new building is from Rankin Avenue to minimize noise and impact on adjacent neighbour and the units do not have balconies allowing for privacy of units with the existing residents. The pedestrian access from Rankin Avenue allows for a contiguous front façade and with the building brought closer to Rankin Avenue, the sidewalk on Rankin, and a focused and architecturally welcoming entrance establishes a pedestrian scale.

The building has been setback in compliance with the established building line to compliment the streetscape and view line of Riverside Drive West.

5.3 Section 8.4 Pedestrian Access

There is sidewalk access to the west side of the building with bike racks hidden behind the proposed privacy fence. Services such as significant bike racks, welcoming entrance from Rankin Avenue, pedestrian walkways on the east and west side of the building, and bike trail will provide for quick and easy access to the Riverside Trail system leading to the downtown core or to the University of Windsor. Building design and location of amenities supports and highlights the pedestrian and the biking tenant in support of alternative transportation.

The building has been brought closer to the side yard to allow for an emphasize on pedestrian access from Rankin Avenue. The entrance from Rankin Avenue is highly visible from an aesthetics perspective as well as from a safety perspective

5.4 Section 8.5 Ecological Design

The rental units are small, efficient units that with the modest intensification provides for a high level of energy efficiency.

Parking is provided in compliance with the bylaw for the proposed student accomodation. The rentals will be focused to senior university students with an emphasis is on the walkability and the use of the Riverside Trail to move between the downtown and the University of Windsor.

5.5 Section 8.6 Micro-climate

A shadow study was completed showing that there is very little impact on the neighbourhood due to the 3 storey building. This shows that there will be minimal climate impact on the neighbours with the construction.

5.6 Section 8.7 Built Form

The proposed building is sympathetic to the heritage built form of the neighbourhood. The proposed building displays heritage aspects that support the infilling of the building within the mix of ages and built forms within the neighbourhood.

The design of the building has extensively used windows that establishes a bright built form that will provide for a bright vibrant unit for each of the tenants. The windows help to display the beautiful and complementary colours, bright, built form of the building.

5.7 Section 8.8 Public Space

The roof top amenity space will provide for a quiet gathering space for the tenants.

The amenity space has been incorporated into the design of the building to create a positive outdoor experience for the tenants and to not impose on the neighbours. The elevation of the space is comparable with the arts and crafts building to the west and the building immediately to the west is extensively tree covered and will have privacy with the wood bord fence on the property line.

5.8 Section 8.9 Views and Vistas

With the minimal height of 3 storeys the building will be mimicking the neighbourhood height of other buildings on the street without dominating the neighbourhood.

Maintenance of the two existing street trees will help maintain the streetscape and viewscape of Riverside Drive. The maintenance of the two mature trees, the grass area of the front yard and the consistent front yard depth of a low profile building will ensure the protection of the viewscape and vistas of Riverside Drive West.

The rooftop amenity space has been integrated into the building design to emphasize the vista and view of the Detroit River and the Waterfront Riverside afforded by the location of the building.

5.9 Section 8.10 Art in Public Spaces

There are no opportunities for art in public spaces however, landscaping and site amenities will ensure a high level of visual aesthetics.

5.10 Section 8.11 Streetscape

As noted in this report, the building has been stepped in setback from 8.0m to 9.73m, consistent with the established building line of the existing buildings. Maintaining the established building line ensures that the 1960's bungalow next door to the west, the Arts and Craft residence a few doors down to the west, and the Greek Revival residence on the opposite corner of Rankin Ave. are not hidden and that the heritage elements are complimented and not screened. The established building line ensures a complimentary and vibrant viewscape while the positive designed building supports the streetscape without detracting from the existing buildings.

5.11 Section 8.12 Safety

The design has taken into consideration safe ingress and egress with open entrances and other site characteristics such as eliminating hiding places on the property has used Crime Prevention through Environmental Design principles (CPTED) as a consideration.

5.12 Section 8.13 Lighting

Lighting will be provided to ensure the property is well lit for the pedestrian and the biker to ensure safety.

Lighting treatments will be integrated at Site Plan Control to ensure compliance with Dark Sky policies. A photometric plan will be provided to ensure compliance.

The proposed development will provide for a new, 3 storey multiple dwelling with 46 units along Riverside Drive West. Based on the architectural drawings and the thoughtful proposal that has regard for significant architectural features that respect public space, the pedestrian, the neighbourhood, heritage aspects, it is my professional opinion that this Urban Design Brief demonstrates the conformity and compliance of the proposal with the urban design policies of the Official Plan for the City of Windsor. The conformity supports the ZBA and the ability to bring the high level designed proposal into fruition.

In my professional opinion, the proposed development will be an attractive, pedestrian oriented building that will be an asset to the neighbourhood while providing for needed alternative housing for students or young professionals.

The proposed multi-unit residential complex will promote active, healthy community with the excellent access to active transportation. The site is in close proximity to municipal transit and municipal trail system.

From a planning perspective, it is my professional opinion that the proposed 3 storey, low profile multi-unit residential building is comparable to existing 2 and 3 storey, low and medium profile residential buildings within the neighbourhood and can be considered a compatible use and density with this neighbourhood mix of densities, heights and uses as a healthy community. The proposed development preserves and maintains the views and vistas afforded by the existing Riverside Dr West neighbourhood.

6.0 HERITAGE REVIEW

6.1 Official Plan Policies 10.2.9 c)

*"**Built Heritage Impact Study** - The purpose of a Heritage Impact Study is to identify and evaluate cultural heritage resources and determine if any heritage resources, including listed or designated heritage resources, are impacted by development proposals and the potential need for mitigation measures;"*

SUBJECT PROPERTY HERITAGE PROPERTY

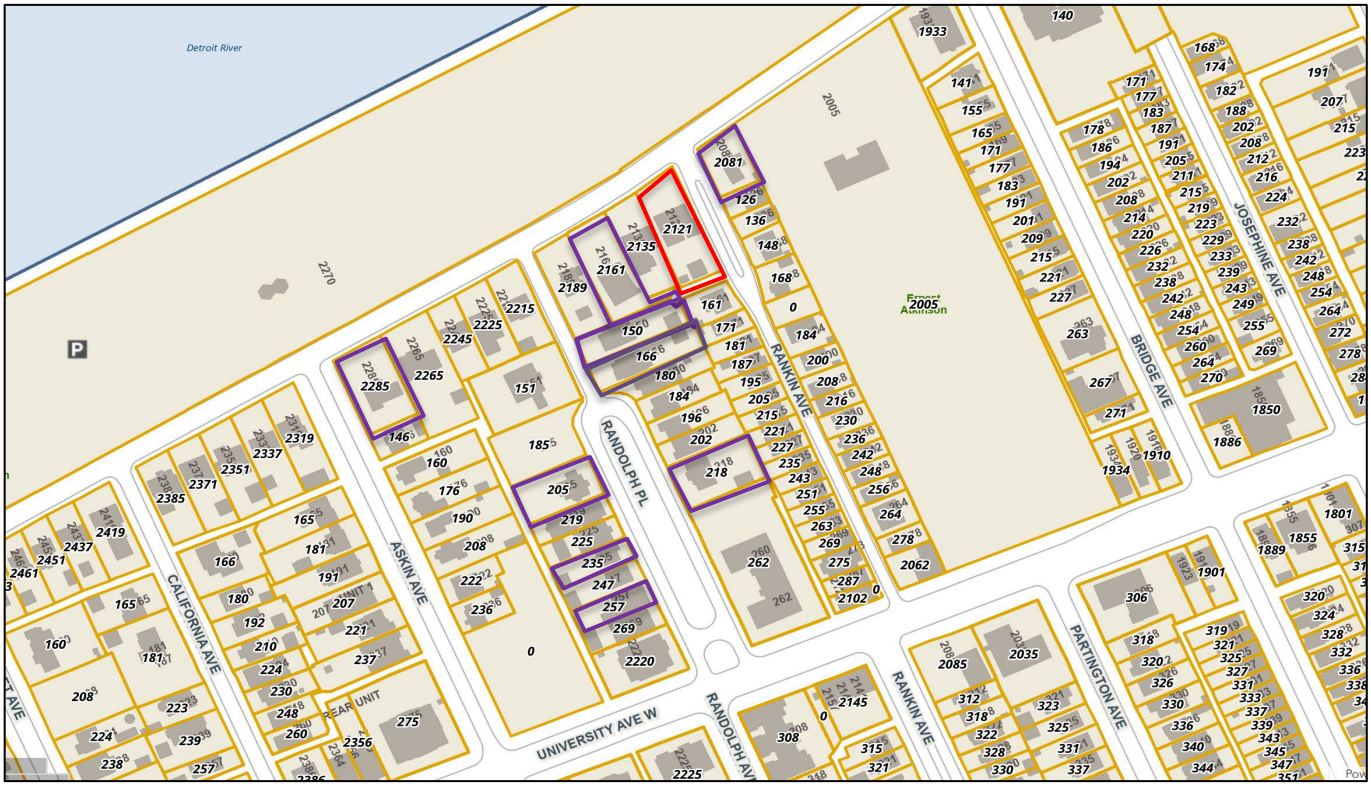


FIGURE 32: LOCATION OF HERITAGE

<u>WINDSOR HERITAGE REGISTRY</u>:

150 Randolph Place – Loikrec-Adelman House – Arts and Crafts.
166 Randolph Place – Alphonse Nestman House – Tudor Revival.
205 Randolph Place – Eugene Baby House – Colonial Revival.
218 Randolph Place – Arts and Crafts.
235 Randolph Place - Denomy House;
257 Randolph Place – Arts and Crafts.
2285 Riverside Dr. W. – Stone Cottage.
2081 Riverside Dr. W. – Cpt. J. Carney House – Greek Revival

PART IV DESIGNATION:

PHOTO 1: 2161 Riverside Dr. W. – Ross-Struthers House – Arts and Crafts

PHOTOS 2 AND 3: 2081 Riverside Dr. W (corner of Rankin Avenue) – Greek Revival

PHOTO 4:

126 Rankin Avenue (Prairie Style)

136 Rankin Avenue (Ontario Cottage)

PHOTO 5:

171 Rankin Avenue (Gothic Revival)

PHOTO 6:
187 Rankin Avenue (Arts and Crafts)

PHOTO 7:
171 Rankin Ave.
(Arts and Crafts)

PHOTO 8: 150 Randolph Pl (Arts and Crafts) and 166 Randolph Pl (Tudor Revival)

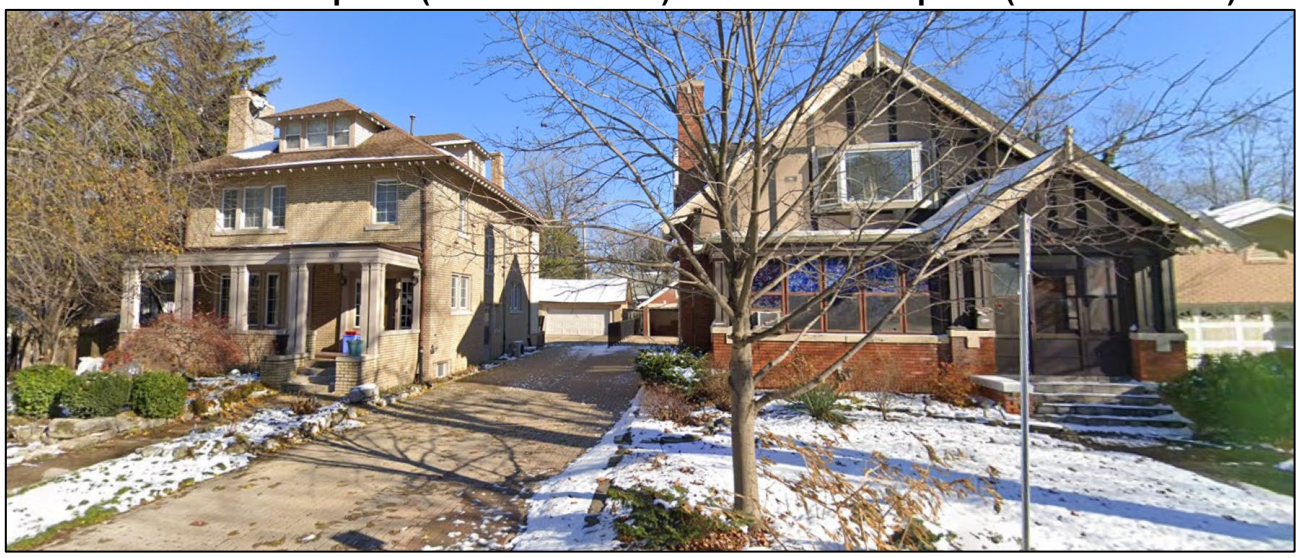


PHOTO 9:
205 Randolph Place
(Arts and Crafts modified)

PHOTO 10:
218 Randolph Place
(Tudor Revival)

PHOTO 11:
235 Randolph Place
(Arts and Crafts)

PHOTO 12: 2285 Riverside Drive West- Arts and Crafts

PHOTO 13: 269 Randolph Place – 3 storey multiple unit building

PHOTO 14: 261 Randolph Place (3 storey multiple-unit building)

PHOTO 15: 260-269 Randolph Place – 4 storey multiple unit building

6.2 *Heritage Resources and Planning Initiatives Section 9.3.7.1 (e)*

"Having regard to the following factors when assessing applications such as zoning amendments, site plan control applications, demolition control and payment-in-lieu, which may impact heritage resources:

(i) Respecting the massing, profile and character of adjacent buildings;
(ii) Approximating the width and established setback pattern of nearby heritage buildings;
(iii) Respecting the yards, gardens, trees and landscaped grounds associated with the heritage properties and districts which contribute to their integrity, identity, and setting;
(iv) Maintaining, enhancing or creating views and vistas of heritage resources; and
(v) Minimizing the impact of shadowing on adjacent heritage properties, particularly on landscaped open spaces and outdoor amenity areas."

The building has been designed by Meo and Associates with a heritage sensitive profile building characteristics that is architecturally appealing, enhancing the vitality of the existing neighbourhood. Colours and materials have been duplicated from existing heritage buildings in the neighbourhood to provide for a compatible and heritage sensitive development. Please refer to elevations below.

FIGURE 33 – FRONT IMAGE

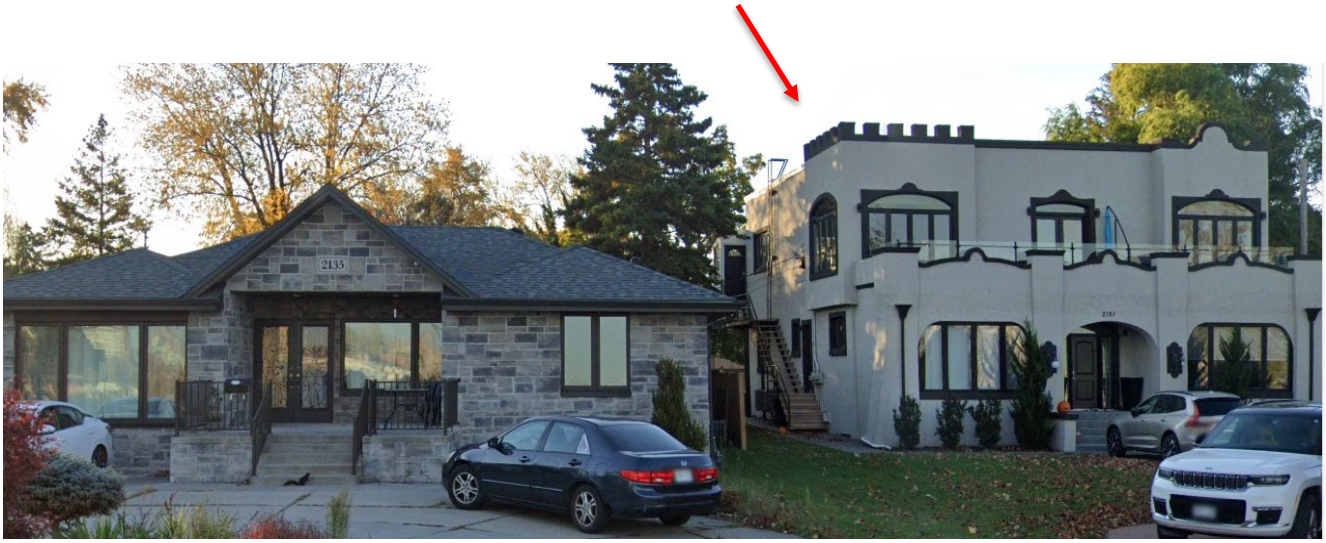
Significantly, the colour palette proposed for the new building has duplicated the colours and materials evident in the heritage designated building at 2161 Riverside Drive with the soft colours and the dark fenestrations as contrast. The building will be very complimentary and sympathetic to 2161 Riverside Dr.

The immediate neighbourhood is comprised of a mix of architectural periods and age of existing housing and styles: arts and crafts, Greek Revival, art deco, mansard Dutch barn, Ontario cottages (modest homes), 1960's bungalow, etc.

There were some Heritage features such as the following that are found in the neighbourhood that have been duplicated for this multiple residence building (see below);

1) banding around base;
2) Complex lights with multiple muntins and mullions;
3) Colour palette was used from the two existing residences adjacent to the property
4) Corbels and decorative roof features.

PHOTO 16 – BUILDING DESIGNATED UNDER HERITAGE ACT



In my professional opinion, the architect has provided a compatible and heritage sensitive building that will be well suited in the mix of heritage styles and periods of the neighbourhood.

7.0 SUMMARY AND CONCLUSIONS

The building and lot design has provided for pedestrian walkways, definition of amenity space on the roof, heritage sensitive, landscaping and other visually appealing aspects of the site resulting in high quality aesthetically appealing buildings and site. In my professional opinion, the proposed ZBA supports a healthy and active lifestyle for its residents by supporting the walking, biking trail system and the transit system of the municipality.

The proposed development will provide for alternative housing and tenure by supporting diversification of the housing market with support of the ZBA that will accommodate alternative style and tenure.

The proposed building will be located at the established building line along Riverside Drive West and with a reduced street line to Rankin Avenue, creating a street presence and welcoming residential building. The building is low profile and compatible and consistent with the neighbourhood. The new building is sensitive and profiles heritage features that provides for compatibility with heritage buildings within the neighbourhood.

There are existing buildings in the neighbourhood of a similar size, scale, and massing to the proposed development. There are also other buildings in the neighbourhood with high profile, medium profile and low profiles. In my professional opinion, the requested 3 storey building is proposed for the appropriate location and will be compatible with the existing neighbourhood.

The proposed development will provide for alternative housing and tenure by supporting diversification of the housing and providing a gentle intensification as a wise use of the lands. The development will support managed appropriate moderate intensification of residential land use.

The building fronts an arterial road of Riverside Drive and significant multi-use trail with high connectivity to other neighbourhoods and to the City Centre and the University of Windsor.

The building is located on a corner lot providing for transition from the high profile buildings on Riverside Drive West, the 3 storey residence at 2081; the 2 storey residence at 2135; and the 3 storey building at 2135 and 2161 Riverside Drive West.

The proposed development will support senior students and young professionals as a small unit with a focus on public transit and supportive of the trail system. The use of alternative and public transit will reduce the use of the personal car and will assist with the impact on climate change.

The proposed building will be designed to be visually appealing and landscaped extensively and can be considered compatible with the existing built residential neighbourhood. The neighbourhood is comprised of a mix of densities, height and height profiles. The height of the proposed building is 3 storeys making the profile low consistent with the adjacent neighbours and neighbourhood.

The proposed low profile, 3 storey building will be located at the established building line along Riverside Dr West and near the street line at Rankin Ave. There are pedestrian entrances on both the west and east sides of the building, which will connect with the paved sidewalks along Rankin Ave and Riverside Dr. West. A bike rack with 43 spaces along the interior of the building will promote cycling and a reduction of parking supports the student housing.

The building is located across the street from the Riverside Drive multi-use trail; is in close walking distance to municipal bus stops; and fronts on a major arterial road.

The proposed 3 storey building will be compatible in size, scale, and massing with the existing neighbourhood.

> *“Compatible development means development that may not necessarily be the same or similar to the existing buildings in the vicinity, but, nonetheless, enhances an established community and coexists with existing development without causing any undue adverse impact on surrounding properties.”*

> *"Compatible Development" is an overarching principle of good planning, applicable throughout the City of Windsor, and its definition needs to be clearly understood, and applied in different ways, in different contexts throughout the City." (Intensification Guidelines, Windsor OP)*

In my professional opinion, the proposed multi-unit building is an attractive and environmentally responsible design that is compatible with the neighbourhood.

In my professional opinion, the proposed ZBA conforms with relevant policies of the Official Plan supporting the proposed heritage sensitive residential development as an infilling development in the existing residential neighbourhood.

The ZBA will support, in my professional opinion, needed alternative housing tenure and style as an infilling development within a mixed residential neighbourhood. In my professional opinion, the requested ZBA will provide a regulatory framework for the proposed building and conforms with the relevant OP policies.

In my professional opinion, the requested site-specific ZBA conforms with the relevant policies of the Official Plan for the City of Windsor and based on the evaluation noted above, the new building and development conforms with relevant policies of the Official Plan for Windsor. The proposed development is consistent with the intent of the OP policies in the support of the establishment of sound, alternative housing in the city.

In my professional opinion, a Zoning Bylaw Amendment (ZBA) is required to change the permissible land use on the site to allow for a low profile residential multi-unit building at 3 storeys with 46 residential units.

The Zoning Bylaw Amendment purports to change the regulatory framework applied to the property from 'Residential District 2.2 (RD2.2)' to a new 'Residential District 2.2-# (RD2.2-#)' site specific zone.

The proposed building will provide for needed, alternative rental housing within walking distance to the downtown core area and to the University of Windsor accessing a municipal trail located in close proximity. The units are small studio units that support the

senior university student looking for a separate residential unit while providing for affordability. The proposed building will have a compact residential form that will reduce the consumption of land and make efficient use of energy resources and existing municipal services while providing for modest intensification.

The proposed building height and density is compatible with the neighbourhood and will create a building style, design and height that is comparable and consistent with both existing and proposed residential apartment buildings in the neighbourhood.

The proposed residential apartment building will promote active, healthy community with the excellent access to commercial uses, institutional uses, numerous sports facilities, outdoor parks, and restaurants. The site is in close proximity to municipal transit and municipal trail system.

The proposed residential multi-unit dwelling building will provide for needed alternative housing supporting diversity in housing in the City. The ZBA will support the City's residential policy initiatives by establishing a 46 unit residential apartment building that will provide alternative housing in Windsor. The ZBA will support the province and municipality's initiative to provide for a residential development promoting a healthy, walkable community.

7.1 GOOD PLANNING

The new development is intended as a low profile residential development providing alternative housing tenure and style for a diverse housing option as an alternative to the single detached residence to the typical single detached residences found in Windsor.

The bylaw exceptions can be considered adjustments to facilitate mainly parking as determined consistent with the bylaw for student housing with 3 visitor parking spaces. The bylaw exceptions are looked at for their impact to the neighbourhood and in my professional opinion, can be considered minor and a positive addition and will not have a negative impact on the neighbourhood as examined through this report.

The proposed low profile, 3 storey (11.7 m) building with gentle density in my professional opinion, is compatible with the mixed residential profiles of the neighbourhood while providing for new, affordable housing for students. The development, in my professional opinion, will result in a positive addition in the established neighbourhood. The proposed new residential building will provide for a compatible development to other high and medium profile residential buildings on adjacent lands; will provide an aesthetically pleasing development; will assist with rejuvenating the neighbourhood; will provide for university students for small unit housing; and will provide for needed alternative residential housing tenure supporting the healthy diversification of housing accommodation in the City of Windsor.

In my professional opinion, the requested ZBA makes sound planning and the necessary amendment is supportable.

7.2 CONCLUSIONS

Given the foregoing analysis and my evaluation of the proposal in relation to the PPS 2020, the City of Windsor Official Plan and the Comprehensive Zoning By-law, in my professional opinion the proposed Zoning By-law Amendment (ZBA) is consistent with polices of the PPS, OP, and regulations found in the Zoning By-law.

In addition, it is my professional opinion that the proposed Zoning By-law Amendment (ZBA) is appropriate and desirable within this policy framework as it will facilitate development of the site while also implementing the proposals included in this Planning Justification Report dated November 28, 2024.

The proposal will comply with the Zoning Bylaw Amendment (ZBA) with the passing of the site specific ZBA by establishing a regulatory framework under the ‘Residential District (RD2.2-#) zone. The ZBA provides a compatible residential rental apartment building and needed residential accommodation supporting a diversity of housing tenures and styles within the municipality and the neighbourhood.

In my professional opinion the requested ZBA:

1) is consistent with the policies of the 2024 Provincial Policy Statements;

2) conforms with the intent of the relevant policies of the City of Windsor Official Plan;

3) maintains the intent of City of Windsor CZB 8600 and when the ZBA is passed, it will establish the regulatory framework required for the development to comply with the CZB;

4) makes sound planning.

I hereby certify that this UDG and Heritage Evaluation report was prepared by Jackie Lassaline RPP MCIP, a Registered Professional Planner within the meaning of the Ontario Professional Planners Institute Act, 1994.

Lassaline Planning Consultants Inc.

Jacqueline Lassaline

Jackie Lassaline BA MCIP RPP
Principal Planner