

University of Alberta West 240 Neighbourhood Area Structure Plan Transportation Impact Assessment

Draft v3

Prepared for

University of Alberta Properties Trust

Date

December 15, 2025

Project No.

03-23-0056

Bunt & Associates acknowledges and respects the Traditional Territories upon which our work spans, and from which we benefit. We are grateful for the unique cultures and histories of Indigenous Peoples that enrich our understanding and connection to the lands we call home. We honour learning, listening, and truth in our journey to reconciliation.

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Written with respect and gratitude for the Traditional Territories upon which we work and live.

This document entitled "University of Alberta West 240 Neighbourhood Area Structure Plan Transportation Impact Assessment, Draft v3" was prepared by Bunt & Associates for the benefit of the University of Alberta Properties Trust in support of a new Neighbourhood Area Structure Plan. The analysis and conclusions/recommendations in the report reflect Bunt & Associates' best professional judgment based on the knowledge and information available to Bunt & Associates at the time of preparation.

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December 15, 2025
03-23-0056

Planning Coordination, Development Services, Urban Planning and Economy
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**Re: U of A West 240 NASP TIA
Land Use Revisions**

The enclosed Transportation Impact Assessment (TIA) was prepared based on a land use concept and statistics provided by B&A Studios on October 28, 2025. Since that time, the land use concept has been refined, resulting in minor variations in land use areas between this TIA and the Neighbourhood Area Structure Plan (NASP). The preparation of NASPs and the associated technical documents is an iterative process; therefore, variations between the NASP and TIA documents is common. The preparation of the Final TIA may include a full update to reflect the final NASP. Alternatively, if the differences remain minor, a confirmation that the recommendations and conclusions outlined in the TIA would not change as a result of the variations may be provided.

Based on the above, please accept the enclosed TIA as complete for the purposes of the second formal circulation.

Yours truly,
Bunt & Associates



Catherine Oberg, P.Eng
Principal

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1. INTRODUCTION

1.1 Background

In 2023, B&A, on behalf of the University of Alberta Property Trust (UAPT), initiated a master plan for the development of the West 240 lands. The master planning process included input from professional planners, urban designers, engineers, and external stakeholders including the City of Edmonton and surrounding residents.

The proposed Neighbourhood Area Structure Plan (NASP) builds on the information compiled during the development of the master plan and provides direction for the development of the lands within the context of the City of Edmonton's planning process.

1.2 Study Objectives

The objectives of the Transportation Impact Assessment (TIA) are to establish the transportation network elements required for all modes to accommodate the proposed land use development within defined operational thresholds. Defining the required transportation network elements allows for the identification of right-of-way requirements as development progresses.

1.3 Study Area

The West 240 lands are bounded by 122 Street to the east, the Whitemud Creek Ravine to the west, the Grandview Heights neighbourhood to the north, and the Lansdowne neighbourhood to the south. Vehicle access to the lands will be from 122 Street with additional active transportation connections to adjacent neighbourhoods.

The study area includes the 122 Street corridor including the 51 Avenue, 62 Avenue, and 63 Avenue intersections, as well as the new arterial/collector and collector/collector intersections serving the plan area.

1.4 Study Methodology

The methodology used in the preparation of this TIA includes the following key components:

- The review of existing conditions in and around the plan area;
- The identification of background traffic volumes associated with the study area;
- The review of land use assumptions identified within the proposed NASP;
- The identification of traffic on the proposed roadway network that is anticipated to be generated by the West 240 lands;
- A review of the arterial/arterial and arterial/collector intersection operations adjacent to the neighbourhood to identify potential future traffic control and intersection geometry;
- A review of the internal collector roadway network to identify future roadway cross-sections and intersection traffic control within the plan area;
- A review of transit operations in the neighbourhood; and
- A review of active transportation routes to and through the neighbourhood.

2. SITE CONTEXT – AREA CONDITIONS

2.1 Site Location

The West 240 lands are located in the southwest inner-city sector of Edmonton, west of the University of Alberta South Campus. The existing lands are predominantly vacant and used for agricultural purposes.

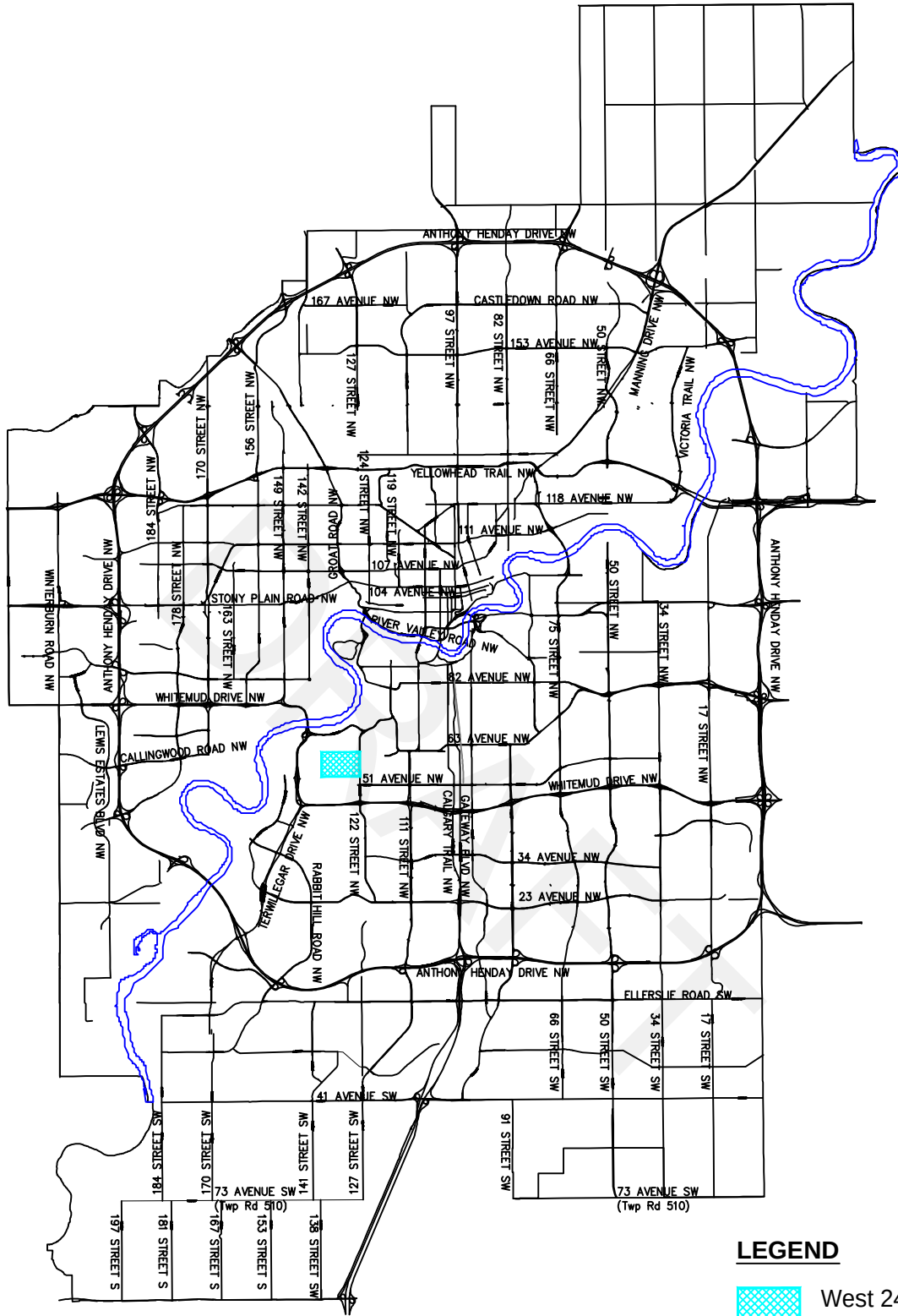
Exhibit 2.1 illustrates the location of the proposed site.

2.2 Existing Transportation System

2.2.1 Roadway Network

The existing network within the study area is illustrated in **Exhibit 2.2** and includes the following roadways:

- **122 Street** is a four-lane divided arterial roadway running north-south along the east boundary of the proposed site. The roadway has a posted speed limit of 60 km/h, and illumination is provided along the corridor. Parking is not permitted along the roadway.
- **51 Avenue** is a four-lane divided arterial roadway east of 122 Street, a four-lane divided collector roadway between 122 Street and 123 Street, and a two-lane collector west of 123 Street. The corridor runs east-west along the south boundary of the University of Alberta Farm lands and connects the major corridors of 122 Street and 111 Street. The roadway has a posted speed limit of 50 km/h east of 122 Street and 40 km/h west of 122 Street. Illumination is provided along the corridor, and parking is permitted along some sections of the corridor.
- **62 Avenue** is a two-lane undivided collector roadway between 122 Street and 129 Street and a local roadway between 129 Street and Grand View Drive. The roadway has a posted speed limit of 40 km/h, and illumination and parking are provided along the corridor.
- **63 Avenue** is a collector roadway between 122 Street and 129 Street and a local roadway between 129 Street and 132 Avenue. Between 122 Street and 123 Street, 63 Avenue is developed to include two eastbound lanes and one westbound lane. The roadway has a posted speed limit of 40 km/h, and illumination is provided along the corridor. On-street parking is permitted on either one or both sides at various points along the corridor west of 123 Street.



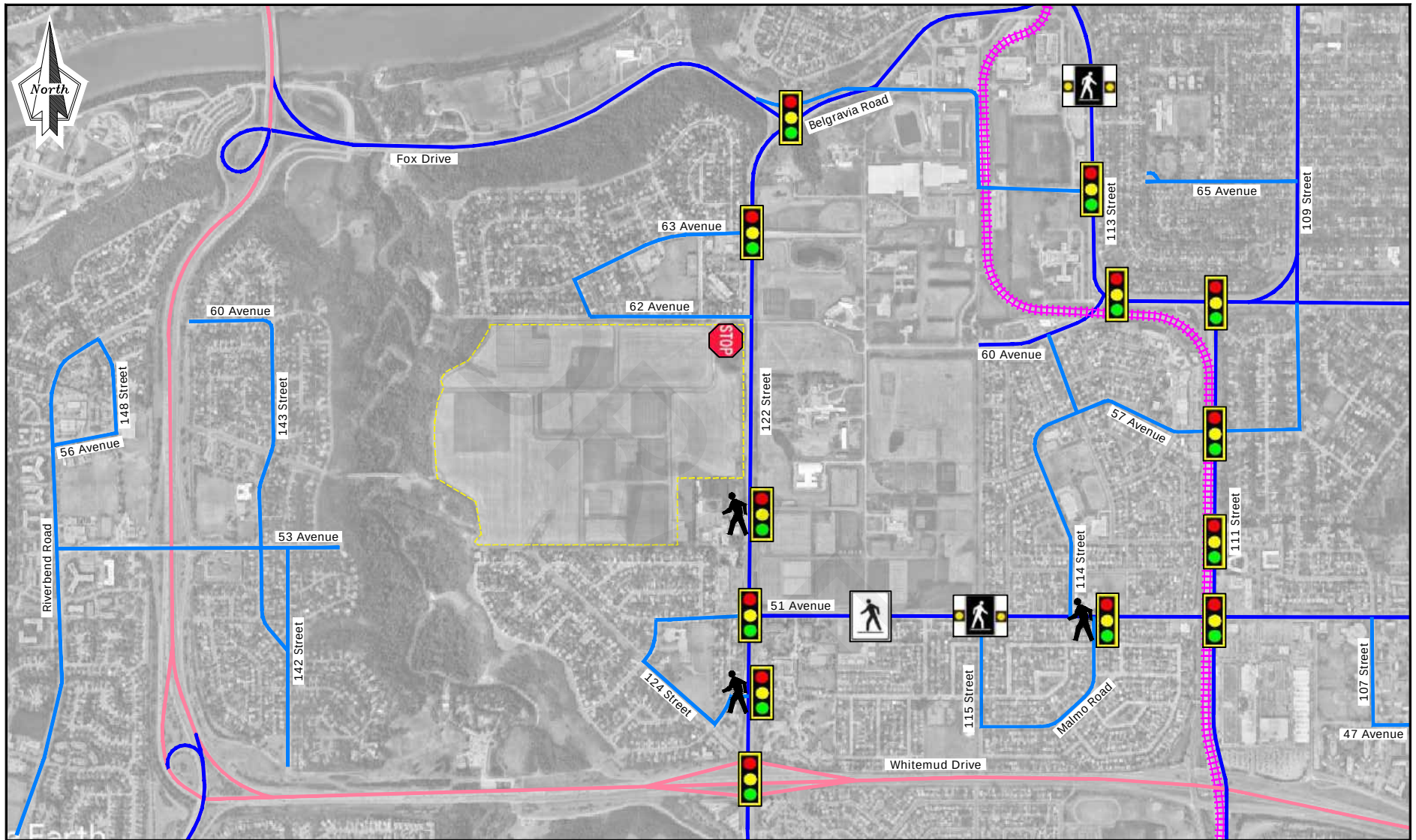
LEGEND

 West 240 NASP

Exhibit 2.1

West 240 NASP Location





LEGEND

- | | | | |
|--|------------------------------------|--|------------|
| | Pedestrian-Actuated Traffic Signal | | Arterial |
| | Traffic Signal | | Collector |
| | Stop Control | | Freeway |
| | Marked Pedestrian Crosswalk | | Study Area |
| | Pedestrian Flasher | | LRT |



Exhibit 2.2

Study Area Roadway Network

2.2.2 Transit Routes

The existing transit network is illustrated in **Exhibit 2.3**. The proposed site is ideally located to take advantage of bus transit and LRT. The South Campus/Fort Edmonton Park Transit Centre and LRT Station is estimated to be within a 1.76 km (24 minutes) walking distance from the northernmost access of the proposed site. Route 702 currently operates along 122 Street, providing transfer opportunities at the South Campus/Fort Edmonton Park Transit Centre and at the 51 Avenue/122 Street intersection. **Table 2.1** summarizes the transit routes that serve bus stops in proximity of the study area.

Table 2.1: Transit Routes

ROUTE NUMBER	DESTINATIONS
4	Lewis Farms – Capilano
31	University – Leger
55	West Edmonton Mall – Meadows
502	Davies – South Campus
702	Southgate – South Campus
703	Leger – South Campus
706	Leger – Southgate
724	Leger – South Campus
725	Southgate – Lendrum
910X	Callingwood – South Campus
930X	Hamptons – South Campus

It should be noted that on-demand transit is also available in the neighbourhoods of Grandview Heights and Lansdowne. This ETS service requires advance booking and connects users to the nearest transit hub. For the neighbourhoods of Grandview Heights and Lansdowne, the nearest transit hub is the South Campus/Fort Edmonton Park Transit Centre and LRT Station. As on-demand transit stops are currently provided along 62 Avenue, transit users from the proposed site will likely be able to use the service as well.

2.2.3 Active Transportation Network

Exhibit 2.4 illustrates the existing cycling network including pedestrian crossings in the study area. As presented, there are an abundance of shared pathways in close proximity to the proposed site that connect to major corridors and transit hubs. This includes shared pathways along 122 Street from 63 Avenue to south of the Whitemud Drive interchange, from 122 Street to the South Campus/Fort Edmonton Park Transit Centre and LRT Station through the University of Alberta South Campus lands, and one that runs parallel to the LRT train tracks. It is noted that active transportation infrastructure is not currently provided along the east side of 122 Street in the vicinity of the site.

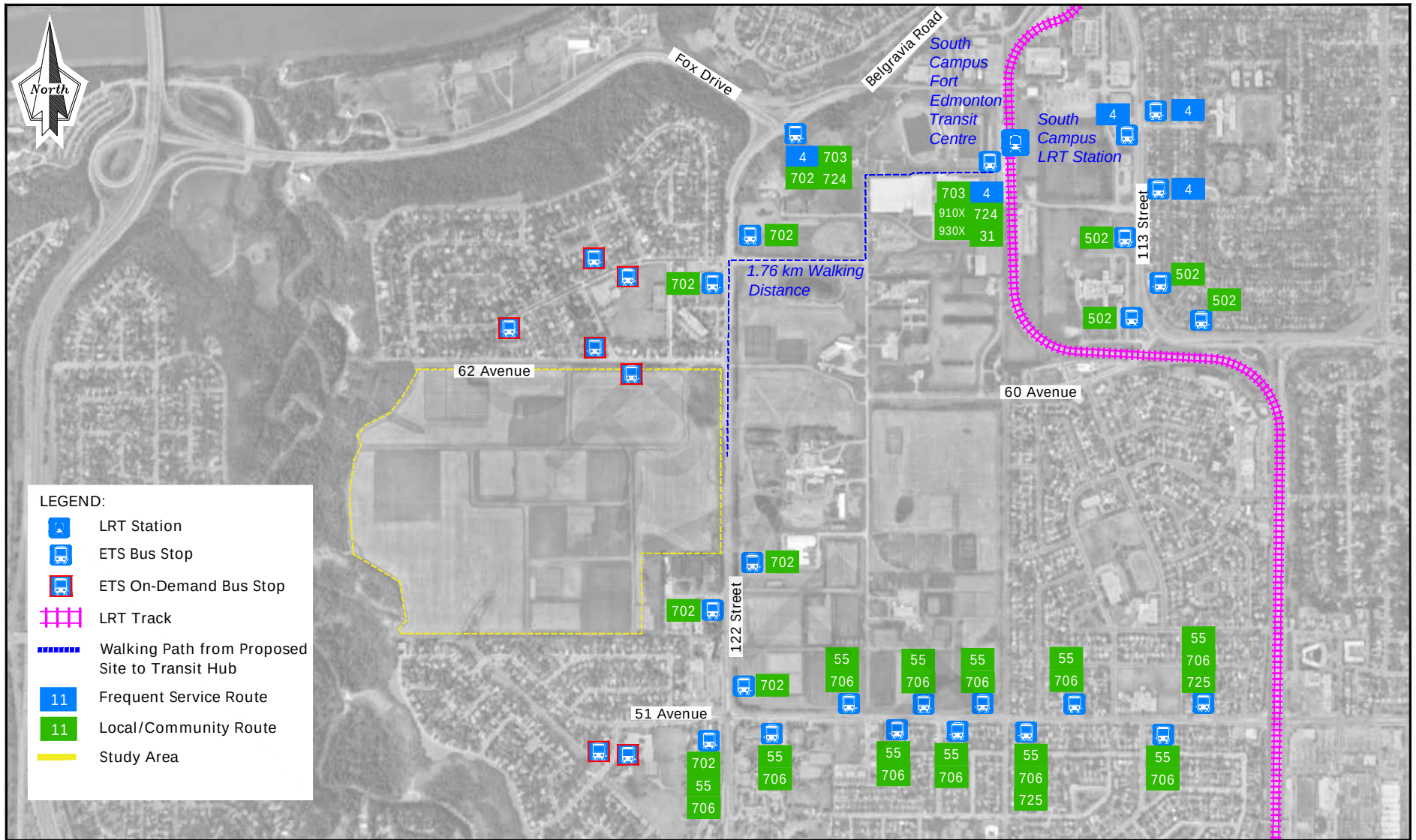


Exhibit 2.3

Study Area Transit Network



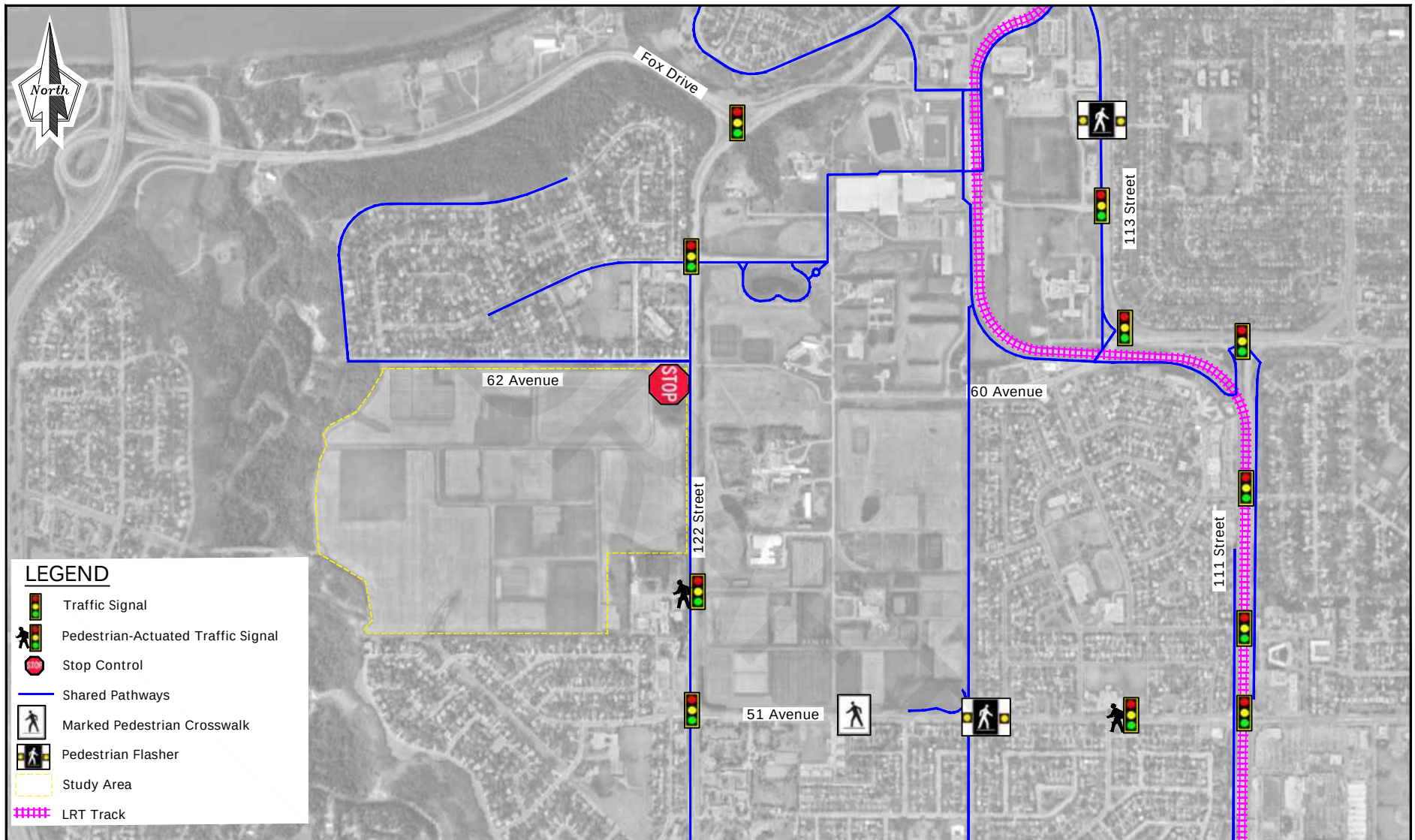


Exhibit 2.4

Study Area Cycling Network



Although not shown on Exhibit 2.4, there are also an abundance of sidewalks to accommodate walking to/from the adjacent communities. This includes sidewalks along both sides of 51 Avenue and along all collector roads in the communities of Grandview Heights and Lansdowne. Pedestrian crossing infrastructure is also provided with pedestrian actuated signals provided at major intersections along 122 Street.

2.2.4 Traffic Volumes

Based on a review of available 2023 traffic volumes from the City of Edmonton's Average Annual Weekday Daily Traffic volumes website, 122 Street carries approximately 11,950 vpd north of 63 Avenue and 14,340 vpd north of 51 Avenue. Daily volumes along 51 Avenue west of 116 Street were in the order of 8,130 vpd in 2023.

To supplement the City's daily volume information, Bunt & Associates completed intersection turning movement counts as follows:

- 63 Avenue and 122 Street – Tuesday, March 18, 2025 – 7AM to 9AM and 3PM to 6PM;
- 62 Avenue and 122 Street – Tuesday, November 19, 2024 – 7AM to 9AM and 4PM to 6PM; and
- 51 Avenue and 122 Street – Tuesday, November 19, 2024 – 7AM to 9AM and 4PM to 6PM.

The existing AM and PM peak hour and daily volumes are illustrated on **Exhibit 2.5**. As the 62 Avenue and 63 Avenue intersections were counted during different months, the volumes have not been balanced to illustrate fluctuations over time. Count summaries are provided in **Appendix A**.

2.3 Future Transportation System

2.3.1 Study Horizon

Development of the lands is anticipated to be completed over the next 15 to 20 years. Based on the potential development horizon, the study will include a 2045 horizon, which is anticipated to generally align with the City of Edmonton's 1.5 million population horizon.

2.3.2 Future Roadway Network

No major enhancements to the roadway network are anticipated in proximity to the study area in the build-out horizon; however, 51 Avenue and 113 Street are identified as secondary corridors in the Edmonton City Plan. Secondary corridors are identified as vibrant streets with more residential character, some commercial clusters, and local destinations for surrounding communities.

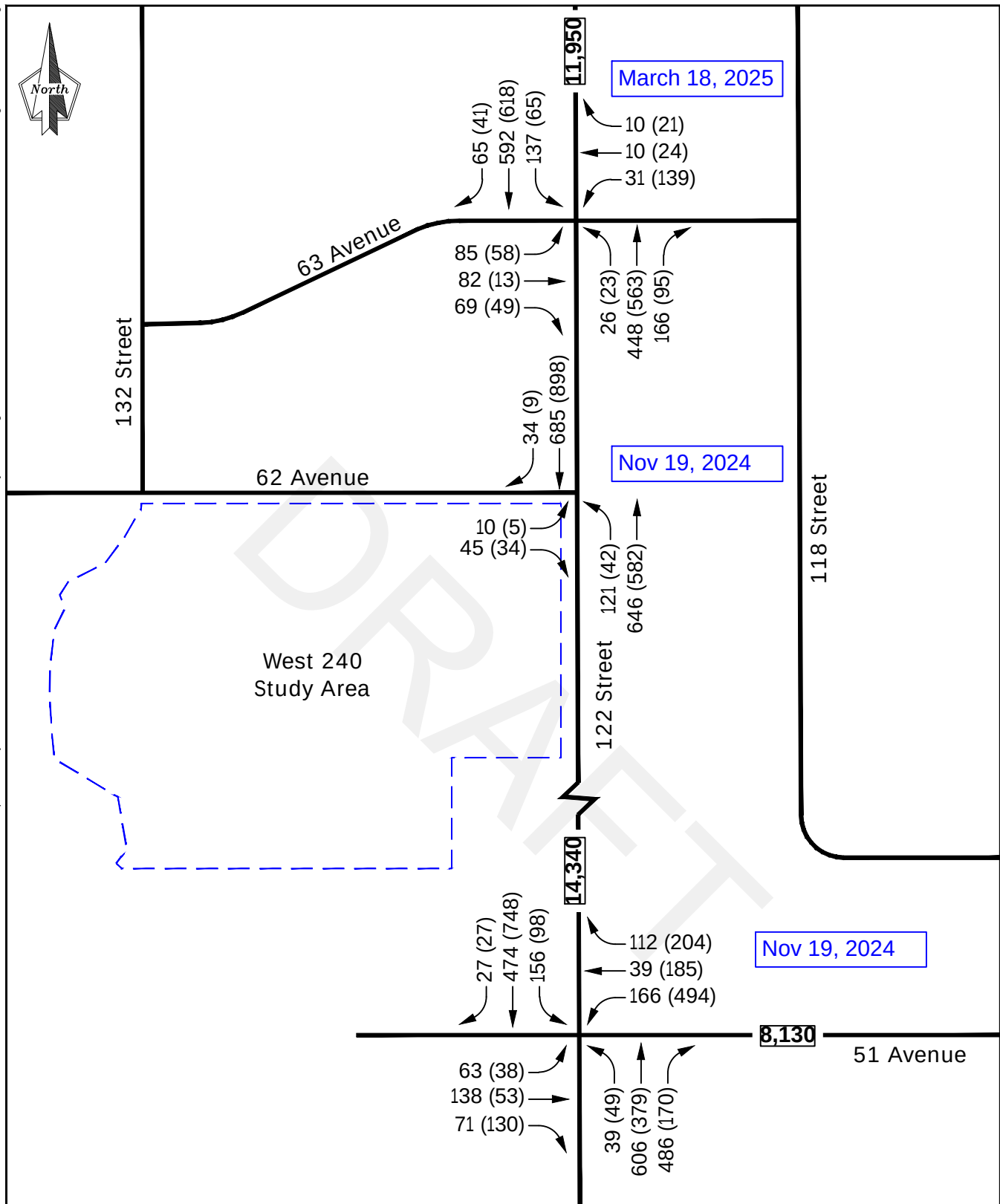


Exhibit 2.5

Existing Traffic Volumes



2.3.3 Active Transportation Network

The Bike Plan was completed by the City of Edmonton in September 2020 and outlines the strategies for the development of a bike network that supports cyclists of all ages and abilities. The Bike Plan acknowledges that while land use factors play an important role in influencing how people travel, vibrant urban places are only possible where a range of transportation options are accessible and comfortable.

The future bicycle infrastructure in the vicinity of the study area identified by The Bike Plan includes 51 Avenue as a future connector route between 122 Street and 50 Street. In addition to the routes identified in the Bike Plan, the City's current standard for arterial roadway construction includes shared pathways on both sides of the roadway.

2.3.4 Transit

The Edmonton Mass Transit Study was prepared as a technical study that informed the development of the City Plan. Based on the Mass Transit study's transit projections for the 1.5 million population horizon, the following transit accommodations are expected to be included:

- A semi-exclusive transit line is expected to run from the University of Alberta to Ambleside while connecting with the South Campus/Fort Edmonton Park Transit Centre and LRT Station. The proposed transit line will allow users to commute to the University and amenities in southwest Edmonton.
- A crosstown rapid transit bus route is expected to run from Meadowlark to Maple. The proposed transit route is anticipated to service stops along 51 Avenue and traverse along 122 Street. It is unclear whether stops along 122 Street will be serviced or not, but this transit line will allow users to commute to major amenities in the west and southeast sides of the city.
- In addition to bus route upgrades, major LRT expansion plans are expected to be completed by the horizon year. The Metro Line is expected to extend to Campbell Road, the Valley Line is expected to be completed between Mill Woods Town Centre and Lewis Farms, and the Capital Line is expected to extend to Heritage Valley. As the proposed site is located near the South Campus/Fort Edmonton Park Transit Centre and LRT Station along the Capital Line, the expanded LRT network will allow transit users to commute to major employment hubs and amenities across the city.

2.3.5 2045 Background Volumes

The City of Edmonton provided information from their 1.5 million population horizon travel model for use in the development of 2045 background volumes. A copy of the City's model information is provided in **Appendix B**.

The City's model volumes were adjusted to remove the traffic associated with the West 240 lands (adjusted model volumes) and compared to the existing measured traffic volumes. The review indicated that the majority of the growth along the corridor as identified in the City's 1.5 million population horizon travel model is anticipated to be generated by the West 240 lands.

Based on the above, the existing measured volumes were used as the basis for determination of the 2045 background traffic volumes at the study area intersections used in the assessment. Traffic associated with the Michener Park development and the redevelopment of Lansdowne Centre was also considered in the development of the background traffic. Finally, the background traffic volumes were compared to the adjusted model volumes to capture any additional growth not accounted for based on site specific projects.

The following outlines the steps used to develop the 2045 AM and PM peak hour background traffic volume estimates based on the available data:

- Existing turning movement volumes were identified for the 51 Avenue/122 Street, 62 Avenue/122 Street, and 63 Avenue/122 Street intersections and volumes were balanced along 122 Street between 56 Avenue and 63 Avenue.
- Full buildout (2050) site generated traffic from the Michener Park Master Plan – Transportation Impact Assessment¹ was added to the 51 Avenue/122 Street intersection. Volumes on the north intersection approach were carried through the other study area intersections along 122 Street. A copy of Exhibit 5.3 – Site Generated Traffic Volumes – Full Site Buildout (2050) is included in **Appendix C**.
- Preliminary site generated traffic volume estimates for the Lansdowne redevelopment project were provided by Paul Chan of Invistec for the 51 Avenue/122 Street intersection and the 122 Street right in/right out/left in access located north of 51 Avenue. The proposed rezoning is still in progress; therefore, final numbers are not currently available; however, the magnitude of site traffic is anticipated to fall within an appropriate order of magnitude based on current information regarding the proposed redevelopment. Volumes on the north access approach were carried through the other study intersections along 122 Street. A copy of the information as provided is included in **Appendix D**.

¹ L. Haskins, P.Eng., M. Huberman, P.Eng., P. Wong, P.Eng., Michener Park Master Plan – Transportation Impact Assessment, Stantec, April 4, 2022.

- The revised volumes based on the above were compared to the City's 2045 model volumes, not including the West 240 lands, to identify any locations where differences in traffic patterns resulted in the potential for lower future link volumes. The majority of the corridor links include volumes in excess of the adjusted model volumes; however, an additional 210 northbound vehicles were added to the 122 Street corridor in the AM peak hour and an additional 105 northbound to eastbound right turn vehicles were added to the 51 Avenue/122 Street intersection in the PM peak hour to address potential gaps. It is noted that while these adjustments were made to reflect location specific variances as compared to the adjusted model volumes, the above methodology resulted in peak hour volumes entering the study area that are more than 1,000 vph higher than the adjusted model volumes.

Daily background volumes were estimated by applying a factor of 5.0 to the sum of the AM and PM peak hour volumes. This factor reflects the comparison of the 2024 AM and PM peak hour volumes on 122 Street north of 51 Avenue to the 2023 daily volumes, rounded up to the nearest 1.0.

Exhibit 2.6 presents the 2045 background traffic volumes assumed for assessment purposes.

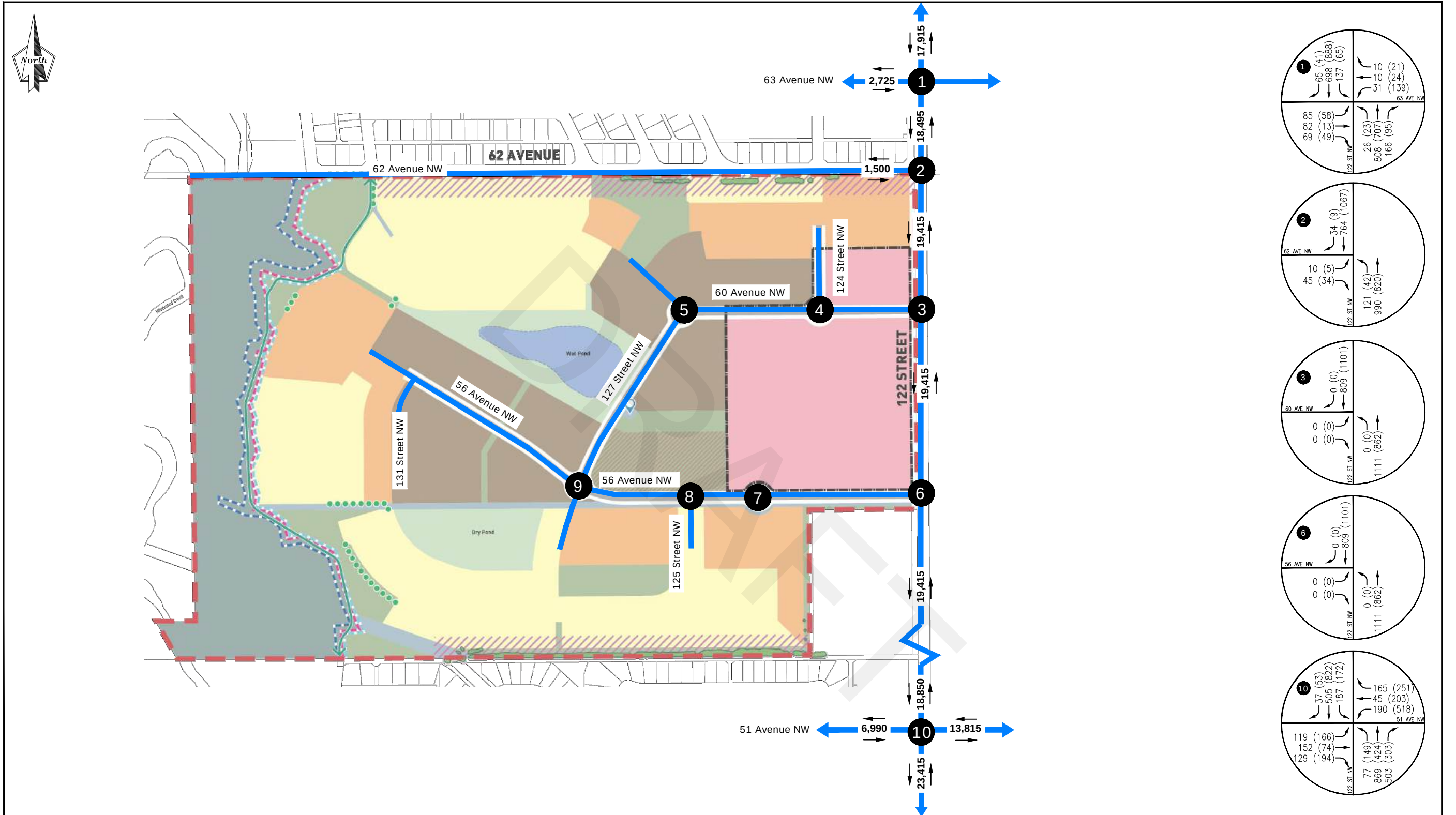


Exhibit 2.6

2045 Background Traffic Volume Estimates



3. PROPOSED NEIGHBOURHOOD DEVELOPMENT

3.1 Land Use Schedule

Exhibit 3.1 illustrates the land use concept for the study area lands, while **Table 3.1** outlines the trip generating land use statistics, including the assumed trip generating parameters based on land use.

Table 3.1: Land Use Statistics (October 28, 2025)

LAND USE	AREA (HA)	DENSITY/FAR	TRIP GENERATING VARIABLE
Joint School Site*	2.16		820 students
Low Density Residential	17.75 ha	25 du/ha	444 units
Medium Density Residential	10.29 ha	45 du/ha	463 units
High Density Residential	11.58 ha	90 du/ha	1,042 units
Mixed Use/Urban Village Flex Area	10.15 ha	175 du/ha for 60% of area	1,066 units 200,000 SF
TOTAL	93.66 HA		820 STUDENTS 3,015 UNITS 200,000 SF COMMERCIAL

*Site is designated as High Density Residential in NASP; however, for the purposes of the TIA, it is assumed to be developed as a joint school site.

3.1.1 Mixed Use

Based on discussions with UAPT and a review of the commercial needs assessment prepared for the study area, it is anticipated that up to 200,000 SF of commercial space could be developed within the mixed-use sites. Of the 200,000 SF of commercial space, it is anticipated that approximately 135,000 SF could be developed as retail uses, with the remaining 65,000 SF being developed as a mix of office and medical/dental uses. The north mixed-use site is anticipated to include approximately 22,500 SF of retail uses, with the remainder of the retail uses, plus the office and medical/dental uses anticipated to be developed within the central mixed-use site. Residential land uses are anticipated to be developed proportionately between the mixed-use sites based on the overall site area.

3.1.2 School

The TIA assumes that a joint school site could be developed on the northeast corner of the 56 Avenue/ 127 Street intersection. Within the NASP documents, the site is shown to be developed as high density residential land uses; however, the development of schools on the site is anticipated to represent the more conservative assumption from a traffic generation perspective. Therefore, for the purposes of this TIA, it is assumed that a Public kindergarten to Grade 6 school with 400 students and a Catholic kindergarten to Grade 9 school with 420 students may be accommodated on the site.



Exhibit 3.1

Proposed West 240 Land Use Concept Plan

LEGEND

- | | | |
|-----------------------------------|-----------------------------------|--|
| — NASP Boundary | — Urban Village | — Public Utility Lot (PUL) |
| — Collector Road | — Compatible Housing Area | — Stormwater Management Facility (Wet & Dry) |
| — Top of Bank Shared Pathway (SP) | — Low Density Residential | — Park (Municipal Reserve) |
| — Top of Bank Road | — Medium Density Residential | — High Density Residential/Potential Joint School Site |
| — Top of Bank Line | — High Density Residential | — Environmental Reserve (ER) |
| — Urban Development Line (UDL) | — Mixed Use Flex Area | |
| — Building Limit Line | — Future Location of Mobility Hub | |
| — Existing Trees To Be Retained | | |



3.2 Internal Roadway Network

The neighbourhood is proposed to be served via two collector roadway connections to 122 Street. The two east-west collectors, 56 Avenue and 60 Avenue, will extend west into the neighbourhood, connecting with 127 Street, a diagonal collector link that will form the western boundary of the community core.

West of 127 Street, 56 Avenue will continue west as a collector roadway, providing access to a number of medium and high-density residential sites. 60 Avenue will terminate at 127 Street, and local roadways will serve residential land uses in the north and northwestern portions of the plan area.

The City of Edmonton is interested in developing a collector link between Grandview Heights and the West 240 neighbourhood to accommodate future bus transit service. UAPT is not currently in support of a collector link; therefore, it has not been included in the land use concept or this TIA. A review of future bus transit routing was completed by CIMA+ and the potential vehicle impacts associated with a link were reviewed by Bunt under separate cover.

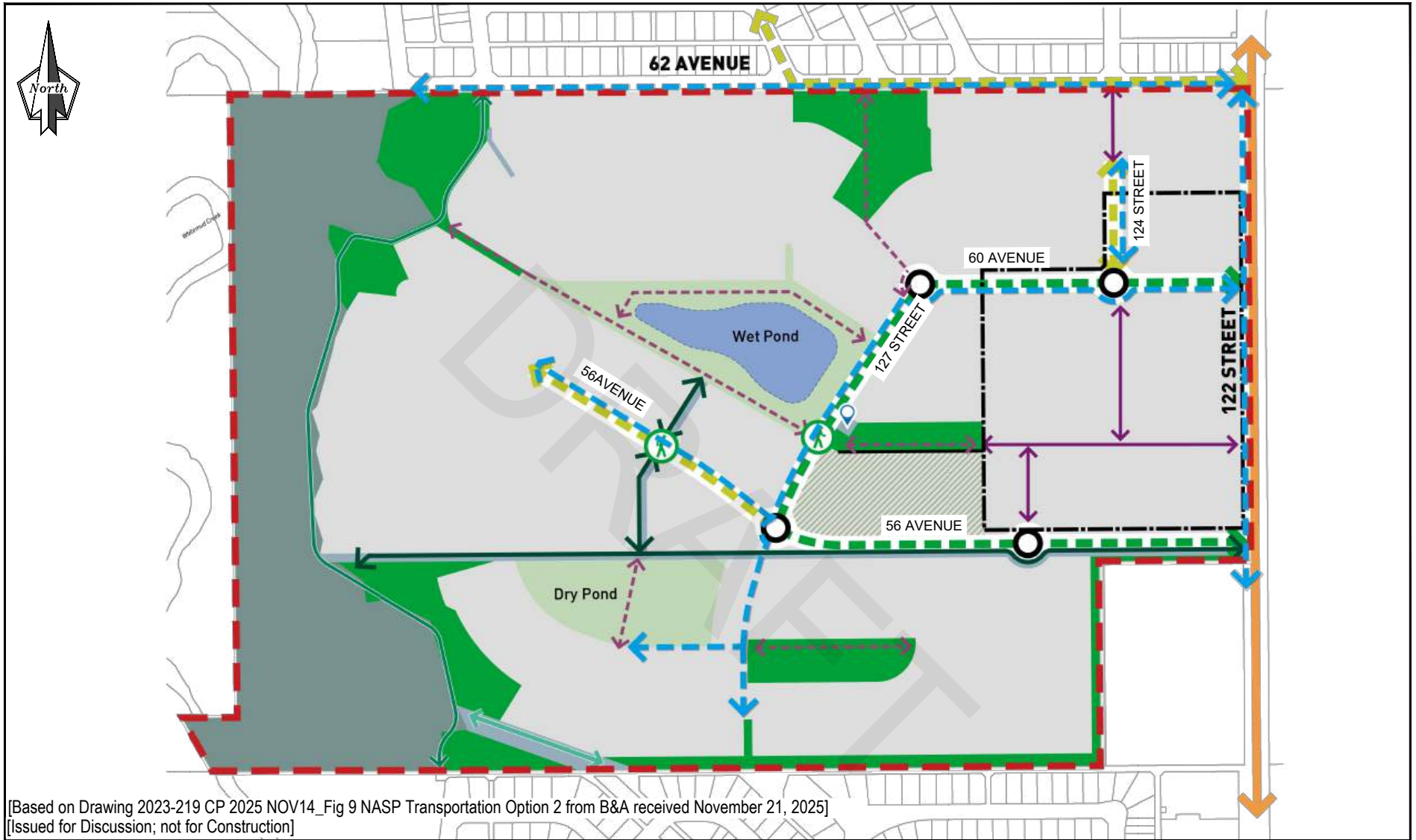
3.3 Mobility Hub

A mobility hub has been identified centrally within the neighbourhood, along 127 Street between 56 Avenue and 60 Avenue. The mobility hub is proposed as a focal point to interconnect transit, active modes, and vehicle modes centrally within the neighbourhood.

3.4 Active Transportation Network

The active transportation network is proposed to include a combination of shared pathways along collector roadways, within public utility lots, within urban greenways, and within parks and open spaces. **Exhibit 3.2** illustrates the proposed active transportation network within the West 240 neighbourhood, including potential midblock pedestrian crossings.

In addition to the proposed network of shared pathways, the network identifies north-south and east-west pedestrian connections through the mixed-use site and a north-south connection through a medium density residential site in the north part of the plan area. The intent of identifying these links is to illustrate planned permeability to/through these sites. At a minimum, these connections will include sidewalk connections and are anticipated to be accommodated through the provision of public access easements. The locations and alignments are illustrative only and will be confirmed as part of future subdivision and development permit applications.



LEGEND

- | | | | |
|--|---|---|---|
| --- NASP Boundary | --- Shared Pathway (SP)
* Within Road ROW | --- Pedestrian Walkway Connection | --- Collector Road |
| --- Mixed-Use Urban Village | --- Shared Pathway Through Open Space*
** Alignments Shown Through Open Spaces are Conceptual. | --- Urban Greenway | --- Collector Road / Transit Route |
| ● Mid-Block Crossing | --- High Density Residential/
Potential Joint School Site | --- Top of Bank Shared Pathway | --- Arterial Road / Transit Route |
| ○ Roundabout | ○ Future Location of Mobility Hub | --- Habitat Greenway | |

Exhibit 3.2

Proposed Active Transportation Network



4. TRAFFIC MODEL DEVELOPMENT

4.1 Trip Generation Rate Assumptions

The trip generation rates used in the assessment include a mix of City of Edmonton trip generation rates as outlined in the City of Edmonton Transportation Impact Assessment Guidelines² and the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition^{3,4}. **Table 4.1** summarizes the trip generation rates used in the assessment.

Table 4.1: Trip Generation Rates

LAND USE	SOURCE	AM PEAK HOUR	PM PEAK HOUR	DAILY
Low Density Residential	CofE Low Density Residential	0.69 trips/du 19% in/81% out	0.79 trips/du 67% in/33% out	7.92 trips/du 50% in/50% out
Medium Density Residential	CofE Row Housing	0.46 trips/du 21% in/79% out	0.58 trips/du 65% in/35% out	6.59 trips/du 50% in/50% out
High Density Residential	CofE Apartment Housing	0.34 trips/du 17% in/83% out	0.40 trips/du 63% in/37% out	5.81 trips/du 50% in/50% out
Mixed Use - Residential	CofE Apartment Housing	0.34 trips/du 17% in/83% out	0.40 trips/du 63% in/37% out	5.81 trips/du 50% in/50% out
Mixed Use North - Commercial	CofE CNC Sites (AM&PM) ITE LUC* 822 - Strip Retail Plaza (<40k) (Daily)	5.62 trips/1,000 SF 55% in/45% out	8.21 trips/1,000 SF 48% in/52% out	54.45 trips/1,000 SF 50% in/50% out
Mixed Use Central - Commercial	ITE LUC* 821 - Shopping Plaza (40-150k) with Supermarket	3.53 trips/1,000 SF 62% in/38% out	8.73 trips/1,000 SF 48% in/52% out	89.52 trips/1,000 SF 50% in/50% out
Mixed Use Office	ITE LUC* 710 - General Office Building	1.52 trips/1,000 SF 88% in/12% out	1.44 trips/1,000 SF 17% in/83% out	10.84 trips/1,000 SF 50% in/50% out
Mixed Use Medical/Dental	ITE LUC* 720 - Medical - Dental Office Building	3.10 trips/1,000 SF 79% in/21% out	3.93 trips/1,000 SF 30% in/70% out	36.00 trips/1,000 SF 50% in/50% out
Catholic K-9 School	ITE LUC* 520 - Elementary ITE LUC* 522 - Middle School/Junior High School	0.71 trips/student 54% in/46% out	0.16 trips/student 47% in/53% out	2.19 trips/student 50% in/50% out
Public K-6 School	ITE LUC* 520 - Elementary	0.74 trips/student 54% in/46% out	0.16 trips/student 46% in/54% out	2.27 trips/student 50% in/50% out

* Land Use Code

² City of Edmonton. 2016. Transportation Impact Assessment Guidelines. Edmonton, AB: City of Edmonton.

³ Institute of Transportation Engineers. 2021. Trip Generation Manual 11th Edition. Washington, DC: Institute of Transportation Engineers.

⁴ ITETripGen Web-based App, Version 4.0.0.421. Institute of Transportation Engineers. July 8, 2024. <https://itetripngen.org/>.

4.1.1 Residential

The trip generation rates for the residential land uses were selected based on the assumed residential density identified for the proposed land uses. For example, the medium density residential uses are assumed to have a density of 45 dwelling units (du)/ha, which generally reflects row housing or town housing styles of development in Edmonton. The high density and mixed-use units are anticipated to be developed within multi-storey apartment residential buildings based on the projected average 90 du/ha and 175 du/ha residential densities, respectively.

4.1.2 Mixed Use - Commercial

The north mixed-use site is anticipated to include neighbourhood scale land uses, which may include a mix of convenience stores, gas bars, fast food restaurants, sit down restaurants, daycares, medical clinics, personal service shops, and other commercial retail units. Therefore, the City of Edmonton measured AM and PM peak hour rates for CNC sites have been identified. The average rate for ITE LUC 822 – Strip Retail Plaza (<40k) has been identified for the daily rate.

The trip rates for the central mixed-use commercial land uses are based on:

- Retail – average (AM peak hour) and fitted curve equations (PM peak hour and daily) for ITE LUC 821 – Shopping Plaza (40-150k) with Supermarket;
- Office – average rates for ITE LUC 710 – General Office Building; and
- Medical-Dental Office – average rates for ITE LUC 720 – Medical -Dental Office Building.

4.1.3 School

The average rates for ITE LUC 520 – Elementary School were used for the Public kindergarten to Grade 6 school. For the Catholic kindergarten to Grade 9 school, the elementary school rates were averaged with ITE LUC 522 – Middle School/Jr. High School.

4.2 Gross Trip Generation

Table 4.2 summarizes the gross trip generation for the West 240 neighbourhood based on the above trip generating land use and trip generation rate assumptions. As shown in Table 4.2, the neighbourhood is anticipated to generate 2,503 two-way gross AM peak hour trips, 2,937 two-way gross PM peak hour trips, and 33,464 two-way gross daily trips.

Table 4.2: Gross Trip Generation

LAND USE	AM PEAK HOUR		PM PEAK HOUR		DAILY	
	In	Out	In	Out	In	Out
Low Density Residential	58	248	235	116	1,758	1,758
Medium Density Residential	45	168	175	94	1,526	1,526
High Density Residential	60	294	263	154	3,027	3,027
Mixed Use - Residential	61	301	269	158	3,097	3,097
Mixed Use - North Site Retail	70	57	89	96	613	613
Mixed Use - Central Site Retail	246	151	471	511	5,036	5,036
Mixed Use - Central Site Office	43	6	8	39	176	176
Mixed Use - Central Site Medical/Dental	80	21	38	89	585	585
Public K-6 School	160	136	29	35	454	454
Catholic K-9 School	161	137	32	36	460	460
Total	984	1,519	1,609	1,328	16,732	16,732
	2,503		2,937		33,464	

4.3 Net Internal and External Trip Generation Estimates

The gross trip generation estimates summarized in Table 4.2 reflect all trips anticipated to access the individual land uses. Within the process used to identify the potential traffic volumes within the neighbourhood and on the adjacent arterial network, a number of factors are applied to determine the potential net new traffic on the network. For example, the trips identified in Table 4.2 for the commercial portions of the mixed-use sites include both primary and non-primary trips, where only primary trips represent new trips on the network.

As well, the gross trips noted in Table 4.2 do not reflect the potential interaction between land uses within the West 240 neighbourhood. Where both the origin and destination of a trip are within the study area, there is the potential to double count the trips. For example, a trip from a residence to commercial uses in the north mixed-use site is generated by both land uses, but ultimately represents only one trip on the network.

4.3.1 Mixed-Use Retail Pass-by Trips

Primary trips have a destination that is the primary purpose of the trip, while pass-by trips represent an intermediate stop along the way from an origin to a primary destination. Based on a review of vehicle pass-by rates from the ITE Trip Generation Handbook⁵, average daily pass-by rates in the order of 40% have been measured at commercial plazas between 40,000 SF and 150,000 SF. However, based on a preliminary review of the existing daily volumes along 122 Street, the use of a 40% pass-by rate could result in a significant portion of existing traffic accessing the mixed-use sites. Therefore, the potential pass-by rates were adjusted to reflect a maximum 10% of existing 122 Street volumes. Based on the review, the following pass-by percentages were used in the assessment:

- MU - Mixed Use - North Site Commercial - 40% pass-by, all time periods
- MU - Mixed Use - Central Site Commercial - 40% AM peak hour, 25% PM peak hour, and 30% daily

The above pass-by percentages were applied to the total vehicle trips estimated for each of the sites. The pass-by trips have been assumed to primarily represent short duration trips; therefore, the inbound and outbound pass-by trips have been balanced to the lower volume for ease of assignment. For example, in the AM peak hour, the Mixed-Use North Site would generate 28 inbound pass-by trips and 23 outbound pass-by trips; however, this has been balanced to 23 inbound and 23 outbound trips in the model.

4.3.2 Internal and External Primary Trips

Trips accessing the non-residential land uses in the West 240 neighbourhood are anticipated to be generated by residential land uses within the West 240 neighbourhood and the surrounding neighbourhoods and/or regions. Populations within the surrounding communities were reviewed to determine the potential split of internal vs external trips and were also subsequently used to determine the potential distribution of traffic on the network.

The review considered the proximity of neighbourhoods to the site as well as potential ease of access to the site. For example, it is anticipated that residents from Lendrum Place would have a higher potential to access the commercial uses within the mixed-use sites as compared to residents within the Brookside neighbourhood. While these two neighbourhoods are within a similar direct distance to the site, residents in Brookside need to cross Whitemud Creek Ravine to access the site. In this example, Lendrum Place residents were assumed to be twice as likely to visit the site as Brookside residents. It is noted that not all neighbourhoods within a 3km to 4km radius of the site were included in the catchment area review. In some instances, the distance to the site, the available routes, and the availability of other commercial sites were assumed to reduce the potential draw to the West 240 non-residential uses such that they would have minimal impact on the overall origin-destination assumptions. Based on the above, 15% of primary non-residential trips (i.e. pass-by trips have been removed) are anticipated to be generated from within the

⁵ Hooper, K. 2017. Trip Generation Handbook: An ITE Recommended Practice, 3rd Edition. Washington, DC: Institute of Transportation Engineers.

West 240 neighbourhood with the remaining 85% being generated by other neighbourhoods within southwest Edmonton.

The internal non-residential trips identified based on the above percentage were assigned to the internal roadway network and were subtracted from the trips generated by the residential land uses. In this way, trips between the different land uses within the area are accounted for on the internal roadway network but are not double counted.

4.3.3 Mode Split

Residential Land Uses

The base trip generation rates are primarily based on data gathered in suburban areas that do not have substantial mode splits to transit and active modes. As the site is centrally located, with access to active modes and transit infrastructure, mode split adjustment factors have been identified. The residential mode split was determined through a review of the City's Origin-Destination City of Edmonton's 2050 Origin and Destination spreadsheets (all modes) and applying the following mode split to transit and active transportation by O-D pair:

- Downtown and University – 90%
- Downtown Fringe – 70%
- NW Inner, NE Inner, SE Inner, SW Inner, West Inner – 40%
- NW Suburb, NE Suburb, SE Suburb, SW Suburb, West Suburb – 20%
- Sherwood Park, St. Albert – 10%
- Adjacent counties – 0%

Applying these mode split assumptions to the origin-destination percentages results in an overall mode split to transit and active modes ranging from 29% to 40% with the remaining 60% to 71% anticipated to reflect auto trips.

In addition to the above, Journey to Work data from the 2021 Federal Census was reviewed for neighbourhoods in the Scona District, located on either side of the Capital Line between Calgary Trail and the North Saskatchewan River Valley/Whitemud Ravine. As shown in **Table 4.3**, between 11.4% and 46.5% of residents within the Scona District neighbourhoods on either side of the Capital Line LRT identified transit, cycling, and walking as their primary mode for their journey to work.

There is a significant variation in the split by mode across the neighbourhoods reviewed. While distance and connectivity to transit and active transportation facilities is anticipated to affect the splits, other variables including neighbourhood demographics, work/school locations/accessibility by alternate modes, and socio-economic factors also play a role. While a detailed review of all of the potential factors was not completed, it is noted that mode splits to transit and alternate modes up to 46.5% are already being achieved in some neighbourhoods, and mode splits in the range of 29% to 40% are anticipated to be achievable in the West 240 based on the mix of housing types, the availability of localized amenities, and the overall access to transit and active transportation infrastructure.

Table 4.3: 2021 Federal Census Information – Journey to Work

NEIGHBOURHOOD	%TRANSIT	%BICYCLE	%WALK	TOTAL
Allendale	7.8%	4.6%	5.5%	17.9%
Belgravia	7.1%	5.6%	17.5%	30.2%
Empire Park	25.8%	2.1%	8.7%	36.6%
Garneau	12.2%	2.3%	32.0%	46.5%
Grandview Heights	7.8%	3.9%	0.0%	11.7%
Lansdowne	7.1%	4.3%	0.0%	11.4%
Lendrum	15.8%	3.2%	2.1%	21.1%
Malmo Plains	15.6%	2.9%	2.9%	21.4%
McKernan	13.6%	2.4%	17.2%	33.2%
Parkallen	13.7%	7.1%	7.1%	27.9%
Pleasantview	17.3%	1.1%	4.4%	22.8%
Queen Alexandra	11.1%	4.2%	17.2%	32.5%
Windsor Park	2.6%	3.8%	20.5%	26.9%
MIN	2.6%	1.1%	0.0%	11.4%
MAX	25.8%	7.1%	32.0%	46.5%
AVERAGE	12.1%	3.7%	10.4%	26.2%

Based on the above, an average residential mode split of 35% to transit and active transportation has been assumed.

Non-Residential Land Uses

Trips to the retail uses are anticipated to have a lower mode split to transit as compared to other land uses; therefore, a mode split percentage has not been applied to external retail trips. However, a 35% mode split to active modes has been assumed for internal trips to account for the fact that short duration trips between residential and retail uses in the neighbourhood can easily be accomplished by walking or cycling.

A mode split to transit and active modes of 35% is assumed for the office and medical/dental land uses. The majority of trips associated with office and medical/dental land uses are employee trips, which are anticipated to have a greater potential for mode shift, as outlined in the journey to work data from the 2021 Federal census.

No additional mode split has been assumed for external school trips as the trip generation rates for schools account for busing activity. However, a 35% mode split has been assumed for internal trips generated by the schools to account for an increase in potential walk trips from the surrounding residential area. **Table 4.4** summarizes the assumed mode splits based on originating land use.

Table 4.4: Mode Split Summary

LAND USE	INTERNAL	EXTERNAL
Residential	~*	35%
Retail	35%	0%
Office	35%	35%
Medical/Dental	35%	35%
School	35%	0%

*Internal trips are assigned based on the non-residential land use

4.3.4 Mixed Use Internal Capture

Although, there is the potential for trips to occur between the different land uses within the central mixed-use site, the potential was reviewed from the neighbourhood perspective as outlined in Section 4.3.2 rather than using the ITE methodology for estimating trip generation for mixed-use developments.

4.3.5 Net Internal and External Trip Generation

Table 4.5 summarizes the application of the above noted factors, resulting in the internal and external vehicle trips that will be assigned to the network. Detailed trip generation calculations are included in **Appendix D** for reference.

Table 4.5: Net Internal and External Trip Generation

TRIP COMPONENT	AM PEAK HOUR		PM PEAK HOUR		DAILY	
	In	Out	In	Out	In	Out
Residential						
Gross Trips	224	1,011	942	522	9,408	9,408
Internal NBHD Trips (All Modes)	62	95	91	75	795	795
External Alternative Modes Trips	57	321	298	157	3,014	3,014
NET EXTERNAL RESIDENTIAL VEHICLE TRIPS	105	595	553	290	5,599	5,599
Non-Residential						
Gross Trips	760	508	667	806	7,324	7,324
External Alternative Modes Trips	43	9	16	45	266	266
Pass-by Trips	83	83	153	153	1,756	1,756
Internal NBHD Alternative Modes Trips	33	22	26	32	278	278
Internal NBHD Vehicle Trips	62	40	49	59	517	517
NET EXTERNAL NON-RESIDENTIAL TRIPS	539	354	423	517	4,507	4,507
Total						
Gross Trips	984	1,519	1,609	1,328	16,732	16,732
External Alternative Modes Trips	100	330	314	202	3,280	3,280
Pass-by Trips	83	83	153	153	1,756	1,756
Internal NBHD Trips (All Modes)	157	157	166	166	1,590	1,590
NET EXTERNAL TRIPS	644	949	976	807	10,106	10,106
	1,593		1,783		20,212	

4.4 Distribution

4.4.1 Internal Neighbourhood Trips

The distribution of internal trips was determined based on a review of the location of non-residential land uses within the plan area in relation to residential land uses. To account for the assumed internal mode splits, it was assumed that residents in close proximity to the non-residential land uses would walk/cycle, while residents located further from the non-residential land uses may drive to the site.

4.4.2 Pass-by Trips

The distribution of pass-by trips was determined based on a review of background volumes on 122 Street and residential site generated volumes along 60 Avenue and 56 Avenue.

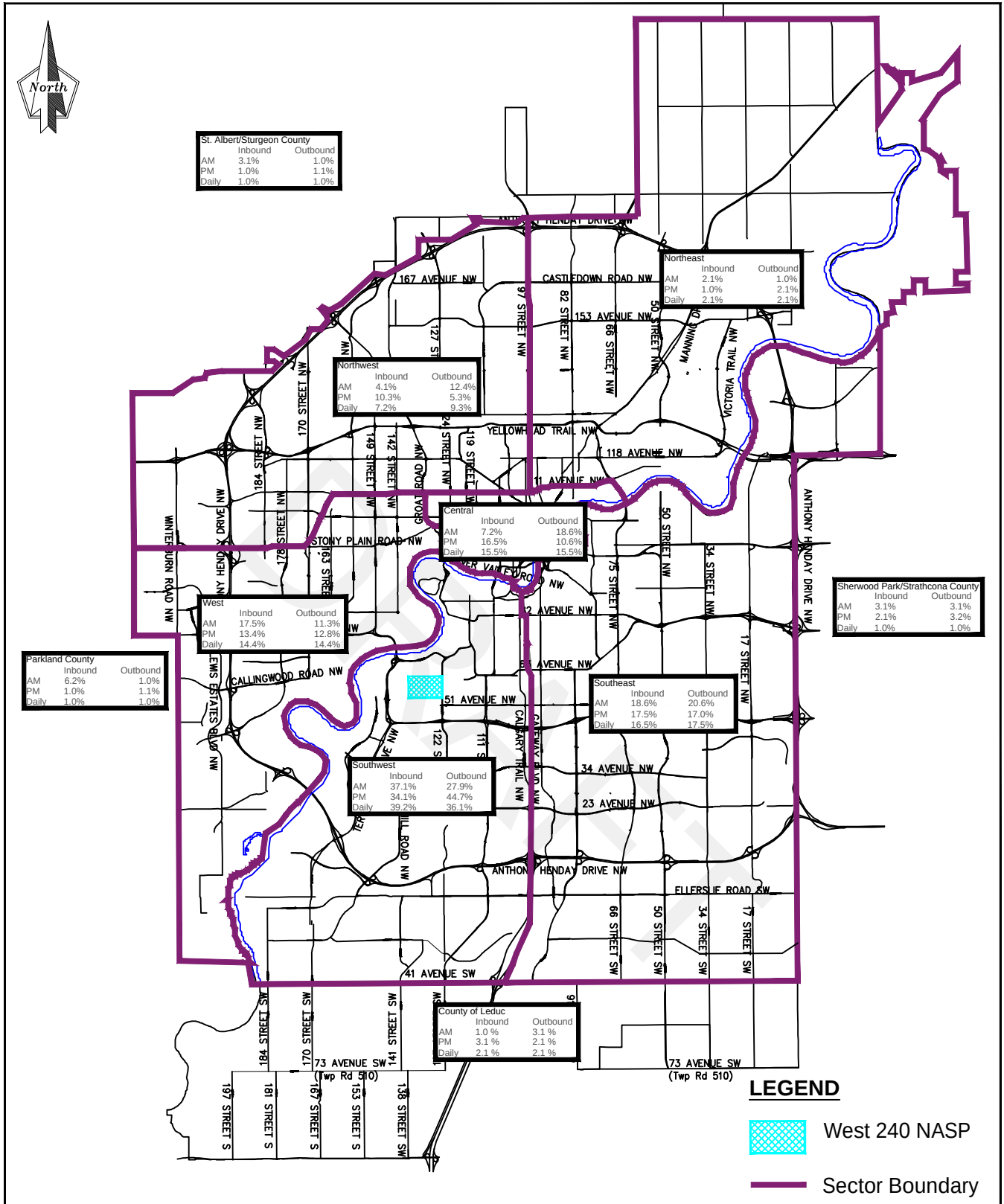


Exhibit 4.1

Residential/Office/Medical Office External Vehicle Distribution



4.4.3 External Trips

The City of Edmonton provided origin-destination information for the study area by mode based on information within their regional travel model. The distribution of the net external vehicle trips generated by the residential, office, and medical/dental land uses is based on the origin-destination information provided for vehicle drivers. A summary of the distribution percentages is shown on **Exhibit 4.1**.

The distribution of retail and school net external vehicle trips was developed based on a review of the catchment areas assumed when determining the percentage of internal vs external trips. **Table 4.6** summarizes the assumed distribution for retail and school external vehicle trips.

Table 4.6: Retail and School Distribution

DIRECTION	DISTRIBUTION
West/Northwest	12.6%
Northeast	16.8%
Southwest	47.1%
Southeast	23.5%
TOTAL	100%

Exhibit 4.2 illustrates the AM and PM peak hour and two-way daily site generated traffic volume estimates. **Exhibit 4.3** illustrates the total traffic volume estimates for use in the assessment.

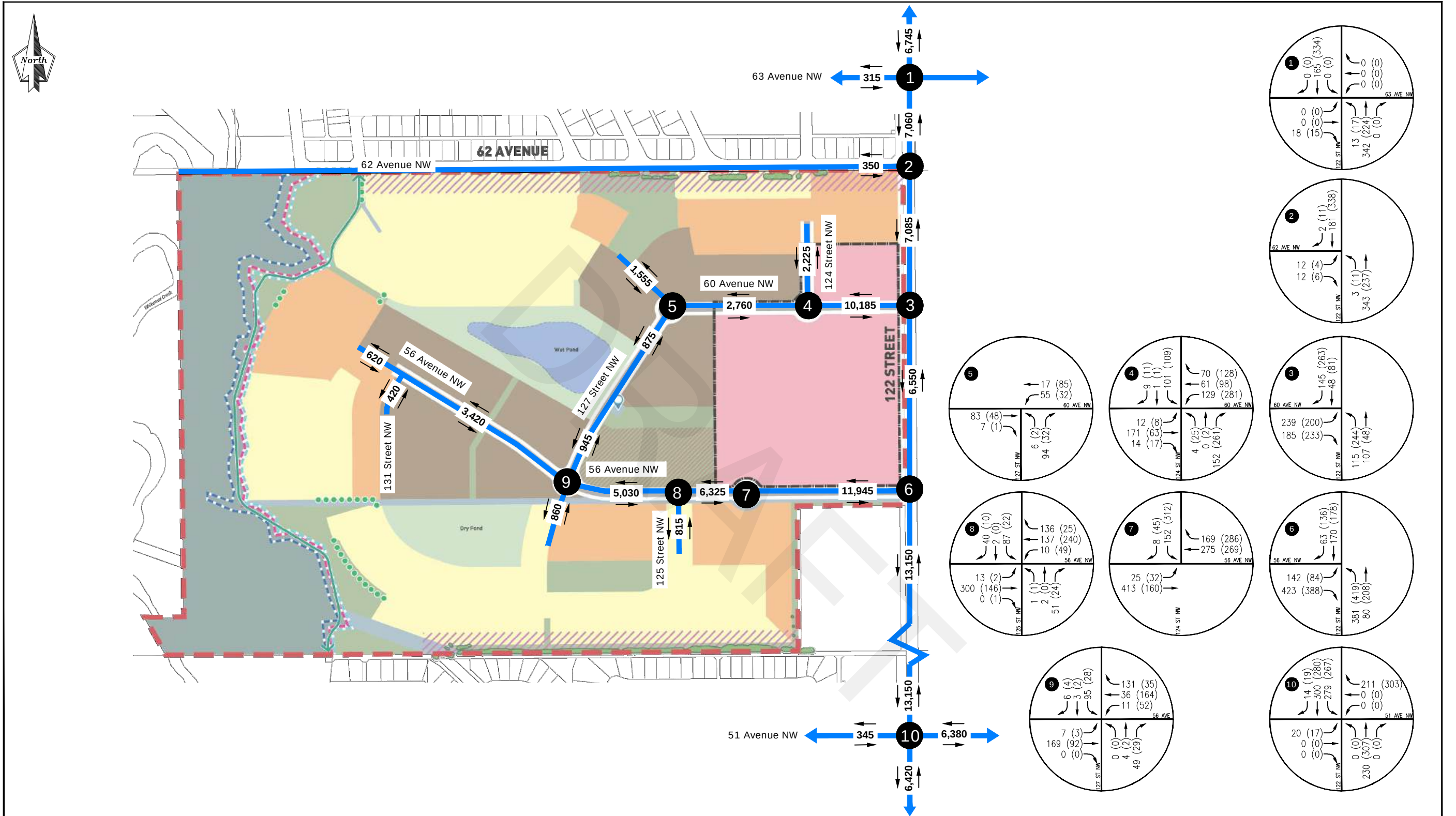


Exhibit 4.2

West 240 NASP Site Generated Traffic Volume Estimates



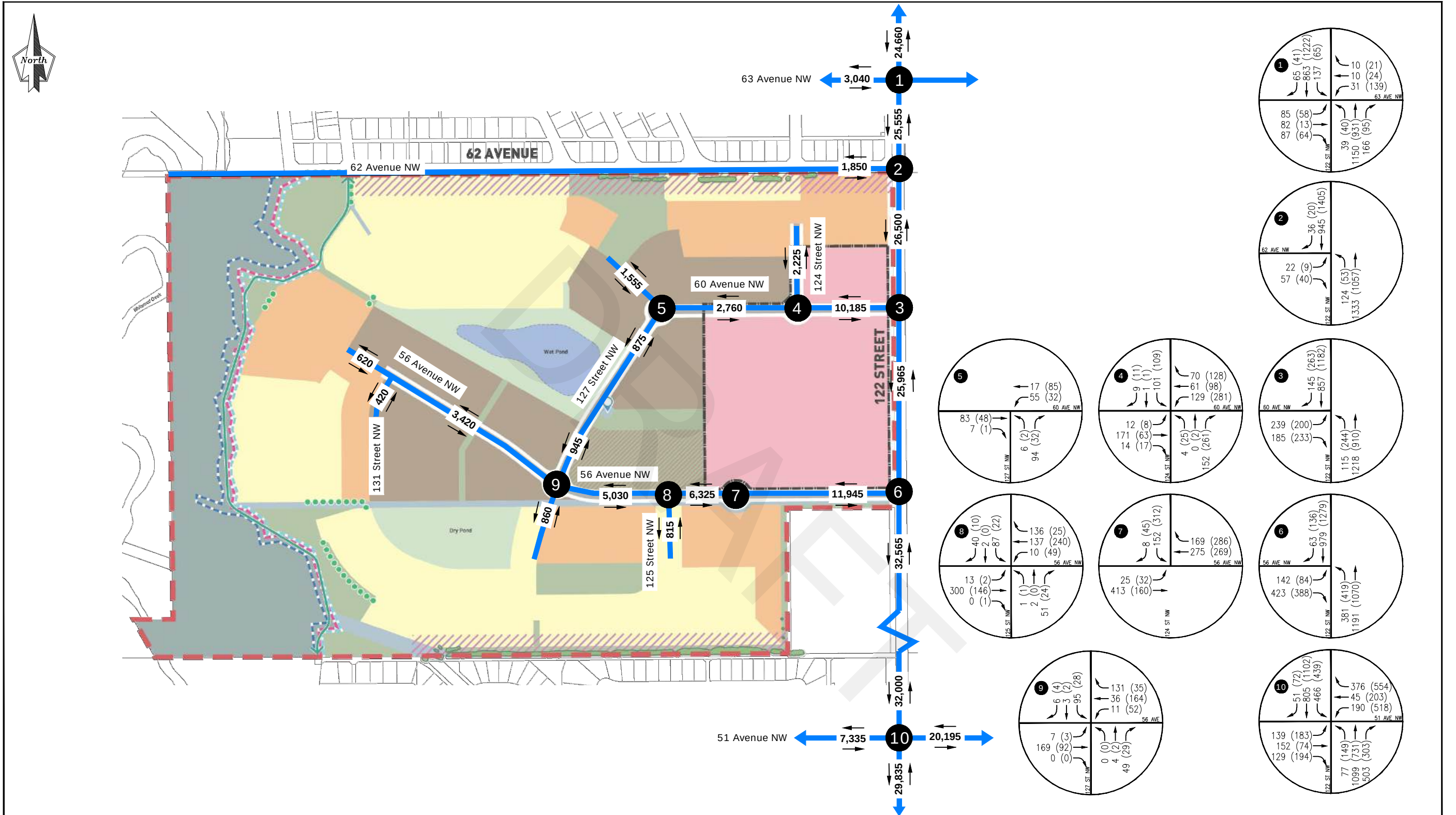


Exhibit 4.3

2045 Total Traffic Volume Estimates

LEGEND:

269 (212) → AM (PM) Peak Hour

13,815 → Two-way Daily Volumes



5. TRANSPORTATION ANALYSIS

5.1 Active Transportation Network Review

The City of Edmonton has adopted The Bike Plan (2020)⁶ and The Bike Plan Implementation Guide (2021)⁷ that outline the desired goals and expectations for the development of active transportation facilities across the City. The Bike Plan identifies six main bike network principles for developing bike networks within the City. While The Bike Plan does not explicitly provide evaluation criteria for each of the principles, Bunt established criteria to evaluate the proposed NSP bike network based on the descriptions provided in The Bike Plan for each principle. The six principles and the established evaluation criteria are outlined in Table 5.1.

Table 5.1: The Bike Plan Network Principles and Evaluation Criteria.

PRINCIPLE	DESCRIPTION/OBJECTIVE
Health and Comfort	The bike network is safe, minimizes stress and anxiety, considers other impacts to health (i.e., noise, vehicle pollution, headlight dazzle, and vehicle spray). Objective – Level of Traffic Stress 1.
Connectivity	The bike network provides a variety of route options for different users, there are opportunities to connect with other modes of transportation, and the network connects people with destinations without gaps or missing links.
Directness	The bike network prioritizes direct routes and minimizes out-of-direction travel where possible.
Network Density	Tier 1 route spacing (400m to 600m) for developing areas with higher density, and mixed-uses and Tier 2 route spacing (800m to 1,000m) for lower density residential uses
Attractiveness	The bike network routes are aesthetically attractive, interesting, or pass-through sociable places.
Integration	The bike network and the routes identified provide added value to the neighbourhood and users from economic, social, and safety perspectives. Routes align with street contexts and are integrated into the road network in a logical manner for all modes of travel.

The active transportation network shown in Exhibit 3.2 aligns with the principles of The Bike Plan as follows.

⁶ City of Edmonton. 2020. The Bike Plan. Edmonton, AB: City of Edmonton.

⁷ City of Edmonton. 2021. The Bike Plan Implementation Guide | 2021 - 2026. Edmonton, AB: City of Edmonton.

5.1.1 Health and Comfort

The proposed bike network features an all ages and abilities network where 100% of the bike facilities proposed are categorized as low stress, LTS 1 as per The Bike Plan which includes shared pathways within road right-of-way and within parks and open spaces. Approximately 3.2km (60%) of the bike network is proposed to be developed out of road right-of-way through parks, along greenways, along stormwater management facilities, along the top of bank, and within utility rights-of-way. An additional 2.1km (40%) is proposed to be developed as a separate shared pathway within road right-of-way or within the pipeline adjacent to road-right-of-way.

5.1.2 Connectivity

As shown in Exhibit 3.2, the proposed active transportation network provides strong east-west and north-south connectivity through the plan area with particular emphasis on connectivity to the proposed mobility hub and potential school site along 127 Street. As well, connections along 60 Avenue and the pipeline corridor along the south side of 56 Avenue provide connections to non-residential lands within the mixed-use area.

In addition to the bicycle facilities identified within the active transportation network, pedestrian walkway connections have been identified between the mobility hub and the mixed-use area as well as from the mixed-use area north to Grandview Heights along 124 Street envisioned as vibrant pedestrian realms that are integrated with site development.

As noted previously, there is currently not a sidewalk provided along the east side of 122 Street in the vicinity of the site. UAPT will work with the City of Edmonton and the University of Alberta to incorporate an active transportation link along the east side of 122 Street between 56 Avenue and 60 Avenue. Opportunities to extend north to 63 Avenue and south to 51 Avenue will also be explored.

5.1.3 Directness

The relatively small scale of the neighbourhood and the overall grid-based network allows for the development of direct connections to and through the plan area. Of particular note is the east-west connection between 122 Street and the top of bank, which will serve residents within the West 240 lands as well as users from outside the neighbourhood. Connections to Grandview Heights to the north and Lansdowne to the south are facilitated along the top of bank and through north-south links that facilitate access to the mobility hub, which is centrally located within the plan area.

5.1.4 Network Density

The neighbourhood encompasses an area that is roughly 1,100m east to west and 800m north to south. Within the plan area two east-west and two north-south active transportation links are proposed in addition to the existing shared pathway along 122 Street. The location and spacing of the routes meet the intent of the overall network density targets.

5.1.5 Attractiveness

The active transportation network provides opportunities for neighbourhood residents to connect to nature, surrounding communities, and existing external bike routes. Furthermore, the network bridges missing links and key connections between the ravine top-of-bank and 122 Street. Strong connections between 122 Street, mixed-use commercial uses, the mobility hub, and top-of-bank pathway are anticipated to be attractive to both residents and visitors for recreational and commuter purposes.

5.1.6 Integration

The all ages and abilities bike network proposed within the West 240 neighbourhood is anticipated to provide excellent value to residents and visitors alike through health advantages, socializing opportunities with connections to gathering places (e.g., mobility hub and mixed-use sites), and strong connections to the unique natural features in this area of the City.

5.1.7 Safe Crossings

The City of Edmonton is developing guidelines for the implementation of safe crossings as part of the Complete Streets Design and Construction Standards updates that will help guide the identification of locations for enhanced crosswalks in Edmonton. Although the guidelines have not been implemented, it is anticipated that they will be in effect as West 240 area moves into the subdivision and design phases.

While updated guidance is not currently available, the inclusion of roundabouts at the collector/collector and key collector/access intersections in the plan area is anticipated to also meet safe crossing criteria. Other locations that are anticipated to require a review of safe crossing criteria include locations where the shared pathway network is anticipated to cross collector roadways and intersections and site accesses adjacent to the school site. At the local road level, opportunities to integrate shared pathway crossings at intersections is recommended. Further review of safe crossing locations for the shared pathway network will occur at the subdivision stage.

5.1.8 Active Transportation Network Evaluation Summary

Based on the above, the proposed active transportation network is anticipated to provide a high level of connectivity within the neighbourhood and meets the network considerations and guidelines outlined in The Bike Plan.

5.2 Transit Walkshed Review

A preliminary review of the plan area was completed to identify areas that may fall out of a 600m walking distance to transit. The review assumed two pairs of stops would be provided centrally within the plan area: one pair along 127 Street in the vicinity of the mobility hub and one pair along 60 Avenue east of 127 Street. The walkshed review did not consider on-demand stops within Grandview Heights or stops along 122 Street.

As shown in **Exhibit 5.1**, approximately 3.11 ha of low-density residential land uses near the top-of-bank may fall outside of the 600m walking distance to transit. At a density of 30 du/ha, this translates to approximately 93 units. In the west, the shared pathway along the pipeline right-of-way will provide a convenient and direct link to these areas; however, the distance between 127 Street and the top of bank alone is 540m, which means this area will be difficult to service within the City's coverage guidelines. Similarly, the northwest units are within a 600m radius of the assumed 60 Avenue stop location; however, even with two convenient routes, the overall distance means this area will also be difficult to service within the City's coverage guidelines. It is noted that this area could potentially be served by the existing on-demand stops within Grandview Heights.

5.3 Vehicle Network

5.3.1 Arterial Roadway Review

The projected daily volumes along the arterial roadways were reviewed to confirm the cross-sections that may be required within the 2045 horizon. The daily volume thresholds from the City of Edmonton's TIA guidelines are summarized in **Table 5.2**.

Table 5.2: Edmonton Arterial Roadway Volume Thresholds

ROADWAY CROSS-SECTION	VOLUME THRESHOLD
Two-Lane Undivided Arterial	up to 12,000 vpd
Four-Lane Undivided Arterial	up to 20,000 vpd
Four-Lane Divided Arterial	up to 40,000 vpd
Six-Lane Divided Arterial	up to 60,000 vpd

The arterials in the vicinity of the West 240 lands were reviewed based on the volume thresholds outlined in Table 5.2 and the 2045 total daily volume projections as summarized in **Table 5.3**. As shown, the existing four-lane divided arterial configurations along 122 Street and 51 Avenue are anticipated to continue to be appropriate based on the 2045 total traffic projections.

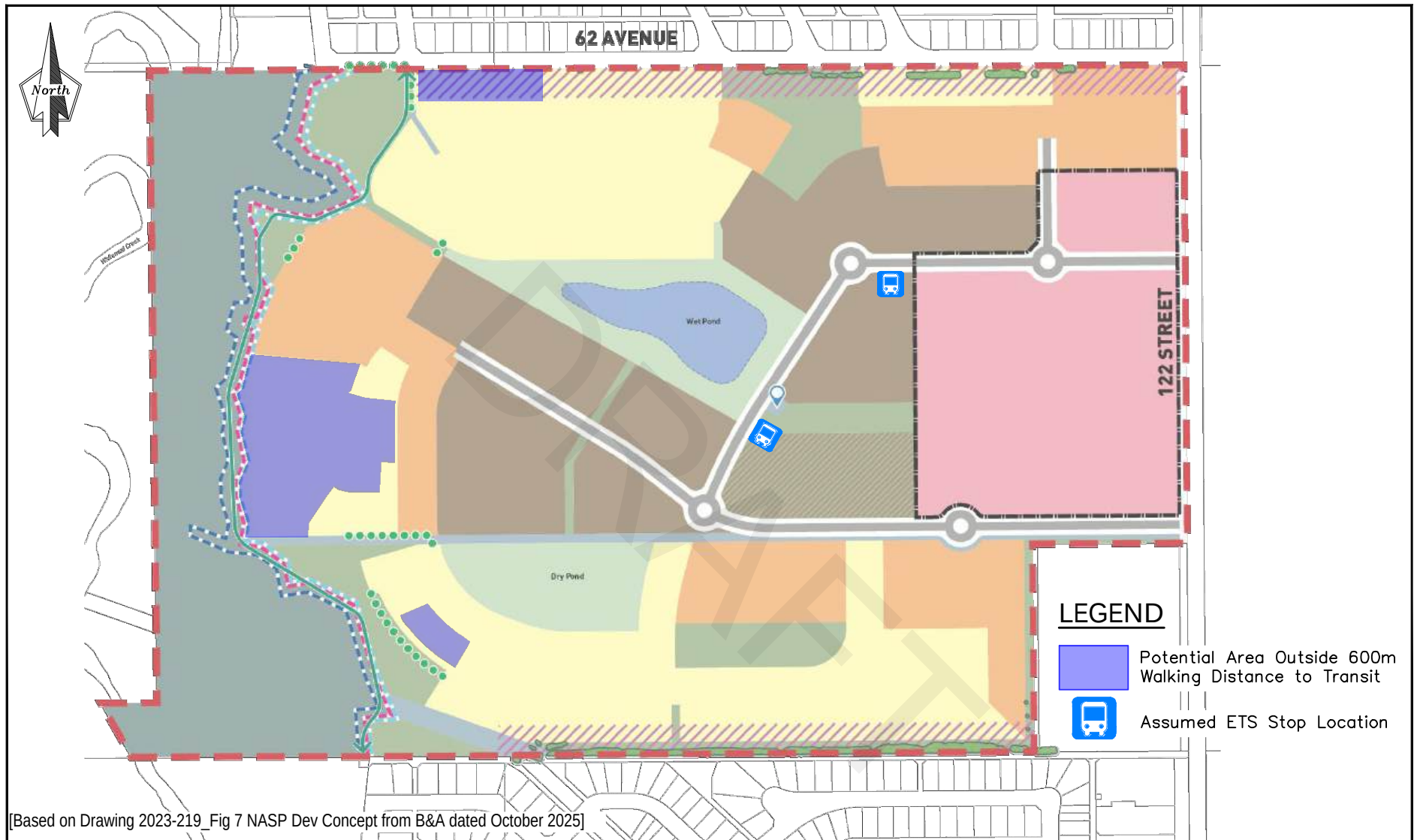


Exhibit 5.1

Potential Area Outside 600m Walk Distance to Transit



Table 5.3: Arterial Road Classifications

ROADWAY SEGMENT	2045 TRAFFIC VOLUME	ROADWAY CLASSIFICATION
122 Street North of 63 Avenue	24,660 vpd	Four-Lane Divided Arterial
122 Street North of 62 Avenue	25,555 vpd	
122 Street North of 60 Avenue	26,500 vpd	
122 Street North of 56 Avenue	25,965 vpd	
122 Street North of 51 Avenue	32,565 vpd	
51 Avenue East of 122 Street	20,195 vpd	

5.3.2 Collector Roadway Review

Residential collector roadways within Edmonton typically accommodate one travel lane and one parking lane in each direction. Parking is often banned on the approaches to arterial roadways and the additional pavement width is re-allocated to travel lanes.

The City of Edmonton's TIA Guidelines identify a typical threshold of 5,000 vpd for two-lane collector roadways, increasing to 10,000 vpd with mitigation measures. A typical four-lane collector roadway threshold is 8,000 vpd, up to 15,000 vpd with mitigation measures.

Based on the 2045 total daily volume projections, 60 Avenue and 56 Avenue are anticipated to carry in the order of 10,185 vpd and 11,945 vpd respectively west of 122 Street. Along 60 Avenue, traffic disperses to 124 Street to the north and the mixed-use site to the south such that daily volumes west of 124 Street are projected to be less than 5,000 vpd.

Along 56 Avenue, the daily volumes are projected to decrease to 6,325 vpd west of the mixed-use site access and then to 5,030 vpd west of a local road/assumed school site access. Based on the adjacent land uses, accesses and intersections along the corridor are anticipated to exceed minimum collector roadway spacing. As well, the provision of roundabouts at the mixed-use site access and the 56 Avenue/127 Street intersection provide additional side street capacity as compared to traditional two-way stop-controlled intersections. Although above the typical threshold of 5,000 vpd, it is anticipated that a standard collector cross-section will be appropriate through this segment.

The remainder of the collector roadway network is projected to accommodate daily volumes less than 5,000 vpd, indicating a standard two-lane collector can provide sufficient capacity.

Details regarding the lane arrangements along 56 Avenue and 60 Avenue between 122 Street and the first intersection/access will be confirmed through the completion of AM and PM peak hour intersection assessments in the following sections.

5.3.3 Local Roadway Review

Local roadways typically accommodate up to 1,000 vpd. On typical 9.0m local roadways, parking is permitted on both sides, which leaves one travel lane down the centre of the roadway for vehicle travel. When opposing vehicles meet along a local roadway, one must pull over to the curb to allow the other to pass. This operation is considered acceptable in low volume situations, but as the volumes increase, two travel lanes (one in each direction) are recommended.

Based on the daily volume projections, daily volumes on the majority of the local roadway network are anticipated to be within the typical 1,000 vpd threshold. 61 Avenue west of 127 Street is projected to exceed this the threshold; however, a roundabout is proposed at the 60 Avenue/61 Avenue/127 Street intersection, which would include two travel lanes on the 61 Avenue approach. The two-lane segment is recommended to extend to the first local roadway intersection, which is assumed to be within 100m of the roundabout.

5.3.4 Intersection Assessments

Intersection Capacity Analysis Assumptions

The intersection capacity assessments were completed using Synchro 11 (signalized), the HCM6 module in Synchro 11 (unsignalized intersections), and Sidra Intersection 10 (roundabouts). The intersection operations are typically rated by two measures. The volume-to-capacity (v/c) ratio describes the extent to which the traffic volumes can be accommodated by the physical capacity of the road configuration and traffic control. A value (measured during the peak hour) less than 0.90 indicates that generally there is sufficient capacity and the projected traffic volumes can be accommodated at the intersection. A value between 0.90 and 1.0 suggests unstable operations may occur and volumes are nearing capacity conditions. A calculated value over 1.0 indicates that traffic volumes are theoretically exceeding capacity. The second measure of performance, Level of Service (LOS), is based on the estimated average delay per vehicle among all traffic passing through the intersection. A low average delay merits a LOS A rating. Average delays greater than 80 seconds per vehicle at a signalized intersection generally produce a LOS F rating, while at unsignalized intersections a LOS F is reached when vehicles experience an average delay greater than 50 seconds.

Although the site is located within a mature area of the City of Edmonton, the City's longer term (30 – 40 years) requirements for greenfield developments of $v/c < 0.95$ and $LOS \leq E$ were identified as the design objective for the assessments. In locations where the assessments identify movements with v/c ratios greater than 0.95 or $LOS \leq E$, the volume per lane, overall lane balance along the corridor, available right-of-way, and the potential impacts to operations, such as the requirement for protected only phasing, were reviewed.

The anticipated 95th percentile queue length has also been included in the following assessment summaries. The queues provided may include a footnote that relates to the ability of the program to estimate the queue accurately. The 'm' footnote indicates that the volume entering the intersection is being metered by an upstream intersection. The Synchro help file also provides the following regarding the '#' footnote:

"The # footnote indicates that the volume for the 95th percentile cycle exceeds capacity. This traffic was simulated for two complete cycles of 95th percentile traffic to account for the effects of spill over between cycles. If the reported $v/c < 1$ for this movement, the methods used represent a valid method for estimating the 95th percentile queue. In practice, 95th percentile queue shown will rarely be exceeded and the queues shown with the # footnote are acceptable for the design of storage bays."

The methodology includes a number of assumptions that relate to the operating conditions present at the intersections. The following assumptions were used in the assessments.

- Saturation Flow Rate – 1,900 vphg
- Minimum Lane Width – 3.6 metres
- Total Lost Time Adjustment Factor– 0.5
- Peak Hour Factor – 1.0, adjusted in the AM peak hour for movements significantly affected by school traffic
- Lane Utilization Factor – 1.0 unless otherwise noted
- %HV – 3%
- Conflicting Peds – as per existing for existing scenarios, 50/hour for future scenarios

The geometry assumed for each intersection is included in the assessment tables. Left turn movements, through movements, and right turn movements are represented by "L", "T", and "R" respectively in the assessment tables, and lanes are separated by a "/". For example, an approach whose geometry is described as LT/R features two lanes: one lane accommodating shared left/through movements and a second lane accommodating right turning movements.

Traffic control information is also included in the assessment tables. Protected only phasing was assumed for all dual left turns and dual right turns are not permitted to operate on red phases. Key signal phasing is identified in the tables, with protected/permitted left turn phasing identified by "Pm+Pt" and protected only left turn phasing identified by "Prot". Permitted and overlapped right turn phasing is identified by "Pm+Ov" and free-flow right turns are denoted by "free".

As per the HCM6 methodology, unsignalized intersection assessment results are reported for critical movements only. As well, the HCM6 95th percentile queue is reported as vehicles; therefore, a distance in metres was calculated assuming an average of 7.5m per vehicle.

The following intersections were included in the assessment. The horizons included in the assessments are also identified. Synchro and Sidra analysis summaries are included in **Appendix F** for reference.

Arterial/Arterial and Arterial/Collector Intersections

- 63 Avenue and 122 Street (existing, 2045 background, and 2045 Total scenarios)
- 62 Avenue and 122 Street (existing, 2045 background, and 2045 Total scenarios)
- 60 Avenue and 122 Street (2045 Total scenarios)
- 56 Avenue and 122 Street (2045 Total scenarios)
- 51 Avenue and 122 Street (existing, 2045 background, and 2045 Total scenarios)

Collector/Collector, Collector/Local, and Collector/Access Intersections

- 60 Avenue and 124 Street/Mixed Use Site Access (2045 Total scenario)
- 60 Avenue and 127 Street (2045 Total scenario)
- 56 Avenue and Mixed-Use Site Access (2045 Total scenario)
- 56 Avenue and 125 Street (2045 Total scenario)
- 56 Avenue and 127 Street (2045 Total scenario)

63 Avenue and 122 Street

The 63 Avenue/122 Street intersection is an existing signalized intersection with the following geometry:

- **West Approach** – one left turn bay, one shared through/right lane;
- **East Approach** – one left turn bay, one shared left/through lane, one right turn bay;
- **South Approach** – one left turn bay, two through lanes, one right turn bay; and
- **North Approach** – two left turn bays, one through lane, one shared through/right lane.

Tables 5.4 and 5.5 summarize the results of the AM and PM peak hour assessments respectively for the existing, 2045 Background, and 2045 total traffic scenarios.

The intersection is anticipated to operate as an actuated/uncoordinated signal under the existing and 2045 background traffic scenarios. With the addition of two new signalized accesses to 122 Street, it is anticipated that the signals will be coordinated along 122 Street between 51 Avenue and 63 Avenue. The cycle length was updated for both the AM and PM peak hours to match updated cycle lengths assumed at the 51 Avenue/122 Street intersection, allowing for coordination to occur. The increases in delays for minor street movements and the southbound protected left turn can be attributed to the increase in cycle length as well as the addition of through traffic along 122 Street.

As shown in the tables, the intersection is anticipated to continue to operate within the established level of service parameters. No geometry modifications are anticipated to be required at the 63 Avenue/122 Street to accommodate the development of the West 240 neighbourhood.

Table 5.4: 63 Avenue and 122 Street – AM Peak Hour

DIRECTION	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND		
MOVEMENT	L	T	R	L	T	R	L	T	R	L	T	R
2024 Existing - Actuated/Uncoordinated (100s cycle, SB Prot L)												
Geometry	L/TR			L/LT/R			L/T/T/R			L/L/T/TR		
Volume (vph)	85	82	69	31	10	10	26	448	166	137	592	65
v/c	0.34	0.48		0.10	0.08	0.02	0.13	0.60	0.30	0.30	0.34	
Delay (s)	22.9	16.6		20.0	19.4	0.1	18.9	21.1	5.3	27.7	8.5	
LOS	C	B		B	B	A	B	C	A	C	A	
95 th Queue (m)	23	35		8	6	0	9	45	13	21	43	
Intersection Delay:						15.5	Intersection LOS:					B
2045 Background - Actuated/Uncoordinated (100s cycle, SB Prot L)												
Geometry	L/TR			L/LT/R			L/T/T/R			L/L/T/TR		
Volume (vph)	85	82	69	31	10	10	26	808	166	137	698	65
v/c	0.37	0.51		0.11	0.08	0.03	0.13	0.69	0.29	0.31	0.38	
Delay (s)	25.4	18.4		21.7	21.0	0.1	18.5	22.1	4.9	29.9	8.6	
LOS	C	B		C	C	A	B	C	A	C	A	
95 th Queue (m)	24	36		9	6	0	9	79	13	22	51	
Intersection Delay:						16.5	Intersection LOS:					B
2045 Total - Actuated/Coordinated (120s cycle, SB Prot L)												
Geometry	L/TR			L/LT/R			L/T/T/R			L/L/T/TR		
Volume (vph)	85	82	87	31	10	10	39	1150	166	137	863	65
v/c	0.49	0.74		0.26	0.12	0.03	0.12	0.53	0.18	0.50	0.35	
Delay (s)	50.6	44.1		46.8	39.2	0.2	9.3	9.3	0.8	58.4	7.5	
LOS	D	D		D	D	A	A	A	A	E	A	
95 th Queue (m)	35	63		13	9	0	m6	51	2	28	62	
Intersection Delay:						15.8	Intersection LOS:					B

Table 5.5: 63 Avenue and 122 Street – PM Peak Hour

DIRECTION	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND		
MOVEMENT	L	T	R	L	T	R	L	T	R	L	T	R
2024 Existing – Actuated/Uncoordinated (100s cycle, SB Prot L)												
Geometry	L/TR			L/LT/R			L/T/T/R			L/L/T/TR		
Volume (vph)	58	13	49	139	24	21	23	563	95	65	618	41
v/c	0.20	0.16		0.28	0.28	0.05	0.13	0.63	0.22	0.16	0.35	
Delay (s)	20.4	9.2		21.7	21.5	0.2	18.0	20.8	5.3	27.2	8.6	
LOS	C	A		C	C	A	B	C	A	C	A	
95 th Queue (m)	16	10		21	20	0	9	58	9	12	45	
Intersection Delay:						15.0	Intersection LOS:					B
2045 Background – Actuated/Uncoordinated (100s cycle, SB Prot L)												
Geometry	L/TR			L/LT/R			L/T/T/R			L/L/T/TR		
Volume (vph)	58	13	49	139	24	21	23	707	95	65	888	41
v/c	0.21	0.16		0.29	0.29	0.05	0.17	0.65	0.22	0.16	0.49	
Delay (s)	21.1	9.4		22.4	22.2	0.2	19.1	20.9	5.3	27.8	9.8	
LOS	C	A		C	C	A	B	C	A	C	A	
95 th Queue (m)	16	10		21	20	0	9	67	9	12	68	
Intersection Delay:						15.0	Intersection LOS:					C
2045 Total – Actuated/Coordinated (120s cycle, SB Prot L)												
Geometry	L/TR			L/LT/R			L/T/T/R			L/L/T/TR		
Volume (vph)	58	13	64	139	24	21	40	931	95	65	1222	41
v/c	0.31	0.27		0.44	0.43	0.07	0.19	0.41	0.12	0.31	0.48	
Delay (s)	46.1	14.4		50.5	50.0	0.5	10.0	8.0	0.6	57.2	8.2	
LOS	D	B		D	D	A	B	A	A	E	A	
95 th Queue (m)	24	15		32	31	0	9	54	2	16	97	
Intersection Delay:						12.6	Intersection LOS:					B

62 Avenue and 122 Street

The 62 Avenue/122 Street intersection is an existing unsignalized T-intersection with the following geometry:

- **West Approach** – one shared left/right lane;
- **South Approach** – one left turn bay, two through lanes; and
- **North Approach** – one through lane, one shared through/right lane.

Tables 5.6 and 5.7 summarize the results of the AM and PM peak hour assessments, respectively.

Table 5.6: 62 Avenue and 122 Street – AM Peak Hour

DIRECTION	EASTBOUND		NORTHBOUND		SOUTHBOUND	
MOVEMENT	L	R	L	T	T	R
2024 Existing – Unsignalized (EB Stop)						
Geometry	LR		L/T/T		T/TR	
Volume (vph)	10	45	121	646	685	34
v/c	0.21		0.20			
Delay (s)	21.6		10.4			
LOS	C		B			
95 th Queue (m)	6		5			
Intersection Delay:		1.8	Intersection LOS:		A	
2045 Background– Unsignalized (EB Stop)						
Geometry	LR		L/T/T		T/TR	
Volume (vph)	10	45	121	990	764	34
v/c	0.34		0.23			
Delay (s)	36.8		11.3			
LOS	E		B			
95 th Queue (m)	11		7			
Intersection Delay		1.9	Intersection LOS:		A	
2045 Total – Unsignalized (EB Stop)						
Geometry	LR		L/T/T		T/TR	
Volume (vph)	22	57	124	1333	945	36
v/c	1.02		0.28			
Delay (s)	>120		13.2			
LOS	F		B			
95 th Queue (m)	42		9			
Intersection Delay:		7.1	Intersection LOS:		A	

As shown in Table 5.6, the eastbound movements are anticipated to reach capacity under the total traffic scenario during the AM peak hour. During the AM peak hour, the new West 240 residents may opt to utilize the 60 Avenue signalized access to 122 Street rather than the unsignalized 62 Avenue/122 Street intersection. Overall, less than 15 left turning vehicles were projected to be added in the AM peak hour, and this magnitude of traffic could be accommodated at other signalized access points.

Table 5.7: 62 Avenue and 122 Street – PM Peak Hour

DIRECTION	EASTBOUND		NORTHBOUND		SOUTHBOUND	
MOVEMENT	L	R	L	T	T	R
2024 Existing – Unsignalized (EB Stop)						
Geometry	LR		L/T/T		T/TR	
Volume (vph)	5	34	42	582	898	9
v/c	0.13		0.09			
Delay (s)	18.8		11.7			
LOS	C		B			
95 th Queue (m)	3		2			
Intersection Delay:		0.8	Intersection LOS:		A	
2045 Background– Unsignalized (EB Stop)						
Geometry	LR		L/T/T		T/TR	
Volume (vph)	5	34	42	820	1067	9
v/c	0.17		0.10			
Delay (s)	23.9		12.2			
LOS	C		B			
95” Queue (m)	5		2			
Intersection Delay		0.8	Intersection LOS:		A	
2045 Total – Unsignalized (EB Stop)						
Geometry	LR		L/T/T		T/TR	
Volume (vph)	9	40	53	1057	1405	20
v/c	0.47		0.18			
Delay (s)	67.2		15.8			
LOS	F		C			
95 th Queue (m)	16		5			
Intersection Delay:		1.7	Intersection LOS:		A	

As shown in Table 5.7, delays are also projected to increase for the eastbound movements in the PM peak hour; however, to a lesser extent than in the AM peak hour. As noted, alternate signalized access is available to access 122 Street and the re-distribution of less than 10 vehicles per hour to alternate signalized intersections is not anticipated to impact the network.

60 Avenue and 122 Street

The 60 Avenue/122 Street intersection represents a new arterial/collector intersection on the network, which will provide access to the proposed West 240 development. Based on the existing geometry along the corridor, the following geometry was assumed in the traffic assessment:

- **West Approach** – one left turn bay, one right turn lane;
- **South Approach** – one left turn bay, two through lanes; and
- **North Approach** – two through lanes, one right turn bay.

The intersection is anticipated to be signalized. As shown in Table 5.8, the intersection is anticipated to operate at acceptable levels of service in the AM and PM peak hours under the 2045 total traffic scenario. The longer delays and LOS E projected for the eastbound left turn movements reflect the use of vehicle actuation for the movement.

Table 5.8: 60 Avenue and 122 Street

DIRECTION	EASTBOUND		NORTHBOUND		SOUTHBOUND	
MOVEMENT	L	R	L	T	T	R
AM Peak Hour - 2045 Total – Actuated/Coordinated (120s cycle, NB Pm+Pt L)						
Geometry	L/R		L/T/T		T/T/R	
Volume (vph)	239	185	115	1218	857	145
v/c	0.81	0.47	0.26	0.48	0.40	0.23
Delay (s)	63.1	8.3	4.6	4.4	12.3	2.4
LOS	E	A	A	A	B	A
95 th Queue (m)	86	17	9	33	51	2
Intersection Delay:		12.6	Intersection LOS:		B	
PM Peak Hour - 2045 Total– Actuated/Coordinated (120s cycle, NB Pm+Pt L)						
Geometry	L/R		L/T/T		T/T/R	
Volume (vph)	200	233	244	910	1182	263
v/c	0.75	0.56	0.55	0.34	0.57	0.33
Delay (s)	65.4	10.7	20.4	2.6	15.1	3.8
LOS	E	B	C	A	B	A
95 th Queue (m)	70	22	40	12	74	14
Intersection Delay		13.8	Intersection LOS:		B	

56 Avenue and 122 Street

The 56 Avenue/122 Street intersection is also proposed as a new arterial/collector intersection on the network to provide access to the West 240 neighbourhood. The following geometry was assumed in the traffic assessment:

- **West Approach** – one left turn bay, one right turn lane;
- **South Approach** – one left turn bay, two through lanes; and
- **North Approach** – two through lanes, one right turn bay.

The intersection is anticipated to be signalized. As shown in **Table 5.9**, the intersection is anticipated to operate at acceptable levels of service in the AM and PM peak hours under the 2045 total traffic scenario.

Table 5.9: 59 Avenue and 122 Street

DIRECTION	EASTBOUND		NORTHBOUND		SOUTHBOUND	
MOVEMENT	L	R	L	T	T	R
AM Peak Hour - 2045 Total - Actuated/Coordinated (120s cycle, NB Pm+Pt L)						
Geometry	L/R		L/T/T		T/T/R	
Volume (vph)	142	423	381	1191	979	63
v/c	0.61	0.89	0.81	0.45	0.76	0.19
Delay (s)	53.8	24.0	20.7	3.1	28.8	5.2
LOS	D	C	C	A	C	A
95 th Queue (m)	50	18	70	58	77	4
Intersection Delay:		18.7	Intersection LOS:		B	
PM Peak Hour - 2045 Total - Actuated/Coordinated (120s cycle, NB Pm+Pt L)						
Geometry	L/R		L/T/T		T/T/R	
Volume (vph)	84	388	419	1070	1279	136
v/c	0.45	0.83	0.71	0.37	0.73	0.21
Delay (s)	54.9	23.7	21.2	1.7	20.4	5.3
LOS	D	C	C	A	C	A
95 th Queue (m)	32	43	m#43	16	123	13
Intersection Delay		15.2	Intersection LOS:		B	

51 Avenue and 122 Street

The 51 Avenue/122 Street intersection is an existing signalized intersection with the following geometry:

- ***West Approach*** – one left turn bay, one through lane, one shared through/right lane;
- ***East Approach*** – one left turn bay, one shared through/right lane (right turn channelized);
- ***South Approach*** – one left turn bay, one through lane, one shared through/right lane (right turn channelized); and
- ***North Approach*** – one left turn bay, two through lanes, one right turn bay.

As noted above, the east and south right turns are channelized and include some upstream storage for turning vehicles; therefore, they were coded as separate right turn bays in Synchro.

Tables 5.10 and 5.11 summarize the results of the assessments for the AM and PM peak hours, respectively. As shown in the tables, the intersection is anticipated to operate at acceptable levels of service in the 2045 horizon with the addition of the West 240 neighbourhood. The signal timings were modified with the addition of background and/or site generated traffic in the 2045 total traffic scenario; however, no geometric improvements were identified as being required to accommodate the projected demands. It is noted that the southbound left turn queue may spill out of the available bay during peak periods, which may result in a lane imbalance for southbound through vehicles; however, it is not anticipated to result in the southbound movements being over capacity during peak hours.

Table 5.10: 51 Avenue and 122 Street – AM Peak Hour

DIRECTION	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND		
MOVEMENT	L	T	R	L	T	R	L	T	R	L	T	R
2024 Existing – Actuated/Uncoordinated (100s cycle cycle)												
Geometry	L/T/TR			L/T/R			L/T/T/R			L/T/T/R		
Volume (vph)	63	138	71	166	39	112	39	606	486	156	474	27
v/c	0.13	0.19		0.62	0.12	0.19	0.18	0.47	0.64	0.57	0.37	0.07
Delay (s)	12.1	8.6		21.6	11.7	3.5	13.6	14.1	9.5	23.3	13.1	5.1
LOS	B	A		C	B	A	B	B	A	C	B	A
95 th Queue (m)	12	11		32	8	7	9	39	44	32	30	4
Intersection Delay:						12.9	Intersection LOS:					B
2045 Background – Actuated/Uncoordinated (100s cycle)												
Geometry	L/T/TR			L/T/R			L/T/T/R			L/T/T/R		
Volume (vph)	119	152	129	190	45	165	77	869	503	187	505	37
v/c	0.33	0.27		0.65	0.09	0.29	0.20	0.51	0.51	0.73	0.29	0.06
Delay (s)	23.8	11.7		34.1	20.6	9.8	10.6	11.5	4.8	30.7	9.8	3.5
LOS	C	B		C	C	A	B	B	A	C	A	A
95 th Queue (m)	35	21		59	15	23	15	59	30	50	32	4
Intersection Delay:						13.2	Intersection LOS:					B
2045 Total – Actuated/Coordinated (120s cycle, SB & WB Pm+Pt L)												
Geometry	L/T/TR			L/T/R			L/T/T/R			L/T/T/R		
Volume (vph)	139	152	129	190	45	376	77	1099	503	466	805	51
v/c	0.77	0.48		0.83	0.10	0.55	0.31	0.78	0.66	0.91	0.33	0.06
Delay (s)	75.9	27.1		68.1	34.7	6.7	33.7	38.7	26.3	50.9	3.3	0.1
LOS	E	C		E	C	A	C	D	C	D	A	A
95 th Queue (m)	55	29		#68	18	24	30	#168	119	#142	19	m0
Intersection Delay:						29.7	Intersection LOS:					C

Table 5.11: 51 Avenue and 122 Street – PM Peak Hour

DIRECTION	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND		
MOVEMENT	L	T	R	L	T	R	L	T	R	L	T	R
2024 Existing – Actuated/Uncoordinated (80s cycle cycle)												
Geometry	L/T/TR			L/T/R			L/T/T/R			L/T/T/R		
Volume (vph)	38	53	130	494	185	204	49	379	170	98	748	27
v/c	0.09	0.12		0.88	0.22	0.21	0.40	0.33	0.27	0.35	0.74	0.05
Delay (s)	11.6	7.6		37.4	12.0	2.7	28.7	18.2	3.9	20.9	25.0	3.7
LOS	B	A		D	B	A	C	B	A	C	C	A
95 th Queue (m)	9	10		#136	33	11	15	29	12	23	65	3
Intersection Delay:						20.5	Intersection LOS:					C
2045 Background – Actuated/Uncoordinated (120s cycle, EB, WB, NB, SB Pm+Pt L)												
Geometry	L/T/TR			L/T/R			L/T/T/R			L/T/T/R		
Volume (vph)	166	74	194	518	203	251	149	424	303	172	822	53
v/c	0.45	0.42		0.82	0.36	0.37	0.65	0.46	0.51	0.43	0.81	0.11
Delay (s)	22.7	15.0		32.2	30.6	6.5	36.0	35.5	13.9	23.5	41.2	0.5
LOS	C	B		C	C	A	D	D	B	C	D	A
95 th Queue (m)	38	20		#144	62	22	#45	62	44	43	116	0
Intersection Delay:						28.5	Intersection LOS:					C
2045 Total – Actuated/Coordinated (120s cycle, EB, WB, NB, SB Pm+Pt L)												
Geometry	L/T/TR			L/T/R			L/T/T/R			L/T/T/R		
Volume (vph)	183	74	194	518	203	554	149	731	303	439	1102	72
v/c	0.58	0.56		0.95	0.45	0.70	0.67	0.80	0.55	0.93	0.76	0.12
Delay (s)	33.2	22.4		59.5	42.1	10.5	39.2	51.2	22.3	43.8	21.5	1.2
LOS	C	C		E	D	B	D	D	C	D	C	A
95 th Queue (m)	44	23		#157	66	47	#51	#137	62	#142	164	m2
Intersection Delay:						33.2	Intersection LOS:					C

60 Avenue and 124 Street/Mixed-Use Site Access

The 60 Avenue/124 Street intersection is proposed to be developed as a single lane roundabout. As shown in Table 5.12, the intersection is anticipated to operate at excellent levels of service upon full build out of the neighbourhood. The roundabout is proposed to be located approximately 140m west of 122 Street; therefore, the roundabout is not anticipated to impact or be impacted by operations at the 60 Avenue/122 Street intersection.

Table 5.12: 60 Avenue and 124 Street/Mixed-Use Site

DIRECTION	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND		
MOVEMENT	L	T	R	L	T	R	L	T	R	L	T	R
AM Peak Hour - 2045 Total - Roundabout												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	12	171	14	129	61	70	4	0	152	101	1	9
v/c	0.28			0.22			0.19			0.13		
Delay (s)	3.3			3.3			4.2			6.5		
LOS	A			A			A			A		
95 th Queue (m)	11			10			8			5		
Intersection Delay:						3.9	Intersection LOS:					A
PM Peak Hour - 2045 Total - Roundabout												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	8	63	17	281	98	128	25	2	261	109	1	11
v/c	0.11			0.38			0.29			0.15		
Delay (s)	4.3			3.9			3.3			7.9		
LOS	A			A			A			A		
95 th Queue (m)	4			20			13			6		
Intersection Delay:						4.3	Intersection LOS:					A

60 Avenue and 127 Street

The 60 Avenue/127 Street intersection is planned to be developed as a three-legged single lane roundabout. As shown in **Table 5.13**, the intersection is anticipated to operate at excellent levels of service as a roundabout in the 2045 horizon.

Table 5.13: 60 Avenue and 127 Street

DIRECTION	EASTBOUND		WESTBOUND		NORTHBOUND	
MOVEMENT	T	R	L	T	L	R
AM Peak Hour - 2045 Total – Roundabout						
Geometry	TR		LT		LR	
Volume (vph)	83	7	55	17	6	94
v/c	0.09		0.08		0.15	
Delay (s)	4.9		4.8		2.3	
LOS	A		A		A	
95 th Queue (m)	3		3		6	
Intersection Delay:		3.7	Intersection LOS:		A	
PM Peak Hour - 2045 Total – Roundabout						
Geometry	TR		LT		LR	
Volume (vph)	48	1	32	85	2	32
v/c	0.04		0.08		0.03	
Delay (s)	4.9		2.3		2.1	
LOS	A		A		A	
95 th Queue (m)	1		3		1	
Intersection Delay		2.9	Intersection LOS:		A	

56 Avenue Mixed-Use Site Access

The 56 Avenue mixed-use site access intersection is proposed to be developed as a single lane roundabout. As shown in **Table 5.14**, the intersection is anticipated to operate at excellent levels of service in the 2045 horizon. The intersection is anticipated to be located about 230m west of 122 Street. Based on the projected queues at the 56 Avenue/122 Street intersection and at the 56 Avenue Mixed-Use site access, the access is not anticipated to impact or be impacted by operations at the 56 Avenue/122 Street intersection.

Table 5.14: 56 Avenue Mixed-Use Site Access

DIRECTION	EASTBOUND		WESTBOUND		SOUTHBOUND	
MOVEMENT	L	T	T	R	L	R
AM Peak Hour - 2045 Total – Roundabout						
Geometry	LT		TR		LR	
Volume (vph)	25	413	275	169	152	8
v/c	0.55		0.47		0.22	
Delay (s)	2.9		1.5		8.9	
LOS	A		A		A	
95 th Queue (m)	34		30		9	
Intersection Delay:		2.9	Intersection LOS:		A	
PM Peak Hour - 2045 Total – Roundabout						
Geometry	LT		TR		LR	
Volume (vph)	32	160	269	286	312	45
v/c	0.23		0.41		0.40	
Delay (s)	4.2		1.7		7.3	
LOS	A		A		A	
95 th Queue (m)	10		24		18	
Intersection Delay		3.9	Intersection LOS:		A	

56 Avenue and 125 Street

The 56 Avenue/125 Street intersection is anticipated to be developed as an unsignalized four-legged intersection that provides access to one of the schools to the north and residential land uses to the south. The intersection is assumed to have one lane on each approach and operate with north-south stop control. As shown in **Table 5.15**, the southbound movements are anticipated to operate at LOS F; although, sufficient capacity is available for the movement. The AM peak hour assessment is based on the peak of the peak, where peak hour adjustment factors were applied for movements anticipated to be affected by school traffic. As shown in the assessment, southbound movements exiting the school site are anticipated to experience delays, which is common for peak school operations. It is noted that the school site includes one access to 56 Avenue (Public K-6) and one access to 127 Street (Catholic K-9). This is anticipated to provide a conservative approach, as school sites typically include more than one access point. As well, any on-street drop off/pick up activity would not utilize the site access points.

As a roundabout is provided at the 56 Avenue/127 Street intersection, exiting school traffic could also complete the southbound right turn (or utilize on-street curbside loading) followed by a U-turn movement at 127 Street. As shown in **Table 5.15**, the intersection would operate very well during the AM peak hour if exiting vehicles reroute to utilize the roundabout. The assessment of the 56 Avenue/127 Street intersection includes the addition of the U-turn traffic.

Table 5.15: 56 Avenue and 125 Street

DIRECTION	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND		
MOVEMENT	L	T	R	L	T	R	L	T	R	L	T	R
AM Peak Hour 2045 Total - Unsignalized (N/S Stop)												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	13	300	0	10	137	136	1	2	51	87	2	40
v/c	0.03			0.01			0.10			0.88		
Delay (s)	8.6			8.2			12.3			65.2		
LOS	A			A			B			F		
95 th Queue (m)	1			0			2			59		
Intersection Delay:						14.4	Intersection LOS:					B
AM Peak Hour 2045 Total - Unsignalized (N/S Stop) - SB L rerouted as SB R												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	13	387	0	10	137	136	1	2	51	0	2	127
v/c	0.01			0.01			0.09			0.17		
Delay (s)	7.9			8.2			11.7			10.5		
LOS	A			A			B			B		
95 th Queue (m)	0			0			2			5		
Intersection Delay:						2.5	Intersection LOS:					A
PM Peak Hour 2045 Total - Unsignalized (N/S Stop)												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	2	146	1	49	240	25	1	0	24	22	0	10
v/c	0.00			0.04			0.03			0.07		
Delay (s)	7.8			7.7			9.5			12.9		
LOS	A			A			A			B		
95 th Queue (m)	0			1			1			2		
Intersection Delay:						2.0	Intersection LOS:					A

56 Avenue and 127 Street

The 56 Avenue/127 Street intersection is planned as a single lane roundabout. AM peak hour assessments were completed both with and without school U-turn traffic. For the U-turn option, in addition to the public school traffic noted above, an assumption regarding the potential for southbound to northbound U-turns associated with the catholic school was also included. As shown in **Table 5.16**, the intersection is anticipated to operate at excellent levels of service as a single lane roundabout.

Table 5.16: 56 Avenue and 127 Street

DIRECTION	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND				
MOVEMENT	L	T	R	L	T	R	L	T	R	L	T	R		
AM Peak Hour 2045 Total - Roundabout														
Geometry	LTR			LTR			LTR			LTR				
Volume (vph)	7	169	0	11	36	131	0	4	49	95	3	6		
v/c	0.19			0.22			0.07			0.16				
Delay (s)	2.8			1.8			3.9			5.5				
LOS	A			A			A			A				
95 th Queue (m)	7			9			2			6				
Intersection Delay:						3.2	Intersection LOS:					A		
AM Peak Hour 2045 Total - Roundabout - with U-turns														
Geometry	LTR			ULTR				LTR			ULTR			
Volume (vph)	7	169	0	87	11	36	131	0	4	49	53	95	3	6
v/c	0.25			0.42				0.09			0.31			
Delay (s)	4.9			5.9				6.1			8.8			
LOS	A			A				A			A			
95 th Queue (m)	10			22				3			14			
Intersection Delay:						6.6	Intersection LOS:					A		
PM Peak Hour 2045 Total - Roundabout														
Geometry	LTR			LTR			LTR			LTR				
Volume (vph)	3	92	0	52	164	35	0	2	29	28	2	4		
v/c	0.09			0.17			0.03			0.04				
Delay (s)	1.8			2.2			2.4			6.0				
LOS	A			A			A			A				
95 th Queue (m)	3			7			1			1				
Intersection Delay:						2.4	Intersection LOS:					A		

5.3.5 Recommended Network

Exhibit 5.2 illustrates the recommended roadway network geometry and traffic control based on the above noted vehicle evaluations. The following summarizes the recommended vehicle network components as well as the transit and active transportation components for the internal network.

60 Avenue

60 Avenue will be developed as a collector roadway that accommodates pedestrians, bicycles, transit, and vehicles. The City of Edmonton is in the process of updating their Complete Streets Design and Construction Standards. As part of the update, it is understood that collector roadway cross-sections may be updated to include a sidewalk on one side and a shared pathway on the other. With this update, the City's standard cross-sections are anticipated to appropriately accommodate all travel modes and would be implemented along 60 Avenue at a minimum.

From a vehicle perspective, two eastbound lanes (one left turn bay, one right turn lane) and one westbound lane are required on the west approach of the 60 Avenue/122 Street intersection. On-street parking is not typically included on collector roadway approaches to arterial roadways to minimize right-of-way requirements. Based on the intersection assessments, approximately 86m of storage space should be provided for eastbound left turns before the roadway transitions to two travel lanes (one eastbound, one westbound). The 60 Avenue/124 Street and the 60 Avenue/127 Street intersections are planned as single lane roundabouts which should also include marked crosswalks on each approach and appropriate design elements to accommodate bicycles.

56 Avenue

56 Avenue will also be planned as a collector roadway as per City design standards; however, the shared pathway is proposed to be incorporated into the Public Utility Lot that runs along the south side of 56 Avenue between 122 Street and 127 Street rather than be developed within road right-of-way. A sidewalk would continue to be provided on the north side of the roadway.

From a vehicle perspective, three lanes are proposed to be developed on the west approach of the 56 Avenue/122 Street intersection. Based on the assessments completed, a minimum of 50m of storage should be provided for eastbound left turns at 122 Street before transitioning to two lanes. Single lane roundabouts are proposed at the mixed-use site access and at 127 Street and should include marked crosswalks on each approach and appropriate design elements to accommodate bicycles. Other site accesses/local road intersections along the corridor should be developed as unsignalized intersections with stop control on the north and south approaches.

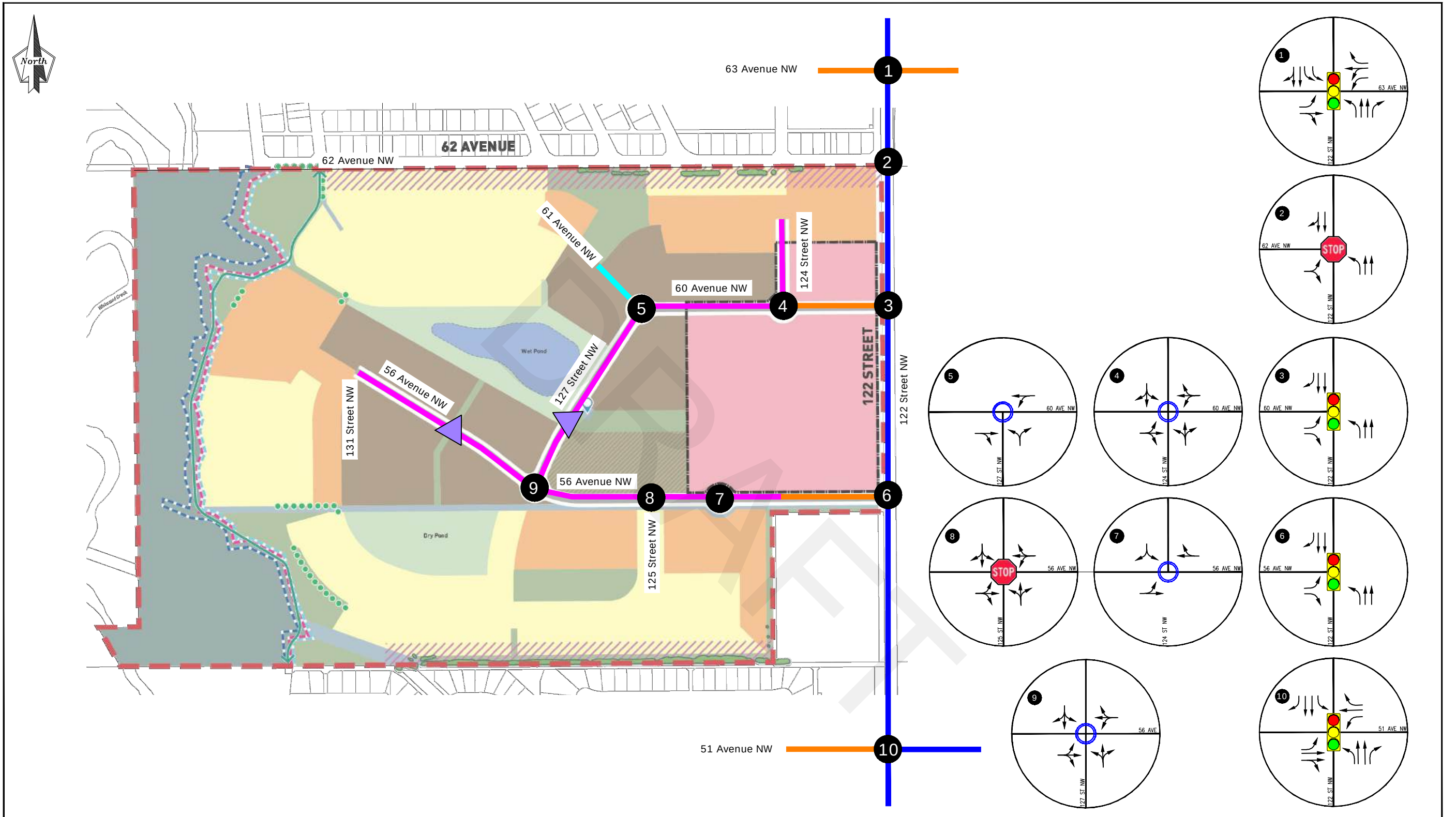


Exhibit 5.2

Recommended Roadway Network Geometry and Traffic Control

Legend:

- Signalized
- Two-Way Stop Control
- Roundabout
- Potential Midblock Crossing

- Right Turn
- Left Turn
- Through
- Shared Left/Through
- Shared Through/Right
- Shared Left/Right
- Shared Left/Through/Right

- 4-Lane Divided Arterial
- 2-Lane Collector with EB Left Turn Bay at 122 Street
- 2-Lane Collector
- 2-Lane Local



West of 127 Street, 56 Avenue will continue as a collector roadway to approximately 131 Street. An active transportation crossing has been identified where a north-south shared pathway proposes to intersect with 56 Avenue, potentially as a midblock crossing. This crossing should be developed to minimize pedestrian crossing distance, include appropriate pedestrian control based on the Transportation Association of Canada's (TAC) Pedestrian Crossing Control Guide or City of Edmonton design standards, and include provisions for crossride markings to alert drivers to crossing cyclists.

127 Street

127 Street will be developed as a collector roadway between 60 Avenue and 56 Avenue. An active transportation crossing is planned where the east-west shared pathway between the wet pond and the park cross 127 Street. This crossing should be developed to minimize pedestrian crossing distance, include appropriate pedestrian control based on the TAC Pedestrian Crossing Control Guide or City of Edmonton design standards, and include provisions for crossride markings to alert drivers to crossing cyclists.

From a vehicle perspective, single lane roundabouts are proposed at 60 Avenue and 56 Avenue, and a single lane in each direction can be accommodated between the roundabouts.

124 Street

124 Street will be developed as a collector roadway to City of Edmonton standards, which is anticipated to include a shared pathway, for approximately 140m north of 60 Avenue. At this point, the roadway will either connect to a local roadway or terminate as a cul-de-sac. A pedestrian connection is proposed to be provided between the north end of the collector and 62 Avenue through a public access easement through a Medium Density Residential site.

5.3.6 Access Management

The location and design of site accesses within the West 240 neighbourhood should meet City of Edmonton Access Management Guidelines. This includes the development of school site accesses as outlined in the guidelines.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Study Synopsis

6.1.1 Land Use Concept

This TIA was prepared to confirm the transportation network required to support the development of the West 240 neighbourhood. The review was based on the following trip generating land use assumptions:

- 3,015 residential units, projected to accommodate 6,334 people;
- 200,000 SF of non-residential uses, including 135,000 SF of retail uses, 32,500 SF of office uses, and 32,500 SF of medical/dental uses, developed within the mixed-use areas; and
- A 420-student elementary/Jr. High school and a 400-student elementary school.

The neighbourhood will be accessed via two new signalized intersections to 122 Street that will be designed to accommodate pedestrians, bicycles, transit, and vehicles.

6.1.2 Traffic Generation

The study area is projected to generate a total of 2,503 gross two-way AM peak hour trips, 2,937 gross two-way PM peak hour trips, and 33,464 gross two-way daily trips. Vehicle trips external to the neighbourhood are anticipated to be in the order of 1,593 two-way AM peak hour trips, 1,783 two-way PM peak hour trips, and 20,212 two-way daily trips.

6.2 Conclusions

Based on the assessments completed, the two new arterial/collector intersections planned along 122 Street can accommodate the traffic anticipated to be generated by the development of the West 240 neighbourhood. The location and configuration of the internal collector roadway network appropriately supports the neighbourhood development, particularly the more dense development located in the eastern portion of the plan area. The mobility hub has also been located to maximize the number of residential units and non-residential uses located within 600m. The vehicle and transit networks are supported by an active modes network that includes over 5km of facilities within the top of bank, parks, around stormwater management facilities, along utility rights-of-way, and within road rights-of-way with strong connections to the mobility hub and mixed-use sites.

6.3 Recommendations

Based on the assessments completed, the following recommendations are advanced:

- The 60 Avenue/122 Street and 56 Avenue/122 Street intersections should be signal controlled.
- The 60 Avenue/122 Street and 56 Avenue/122 Street intersections should include a left turn bay and a right turn lane on the west approach and include the development of left and right turn bays along 122 Street.
- Single lane roundabouts are recommended at the 60 Avenue/124 Street, 60 Avenue/127 Street, 56 Avenue mixed-use site access, and 56 Avenue/127 Street intersections.
- Bus stops should be provided in the vicinity of the mobility hub located on 127 Street north of 56 Avenue.
- The design of active transportation crossings at intersections should consider both pedestrian and bicycles in the intersection design and follow TAC's Pedestrian Crossing Control Guide and City of Edmonton standards.
- The location and design of site-specific access should meet City of Edmonton Access Management Guidelines.

DRAFT

APPENDIX A

Count Summaries

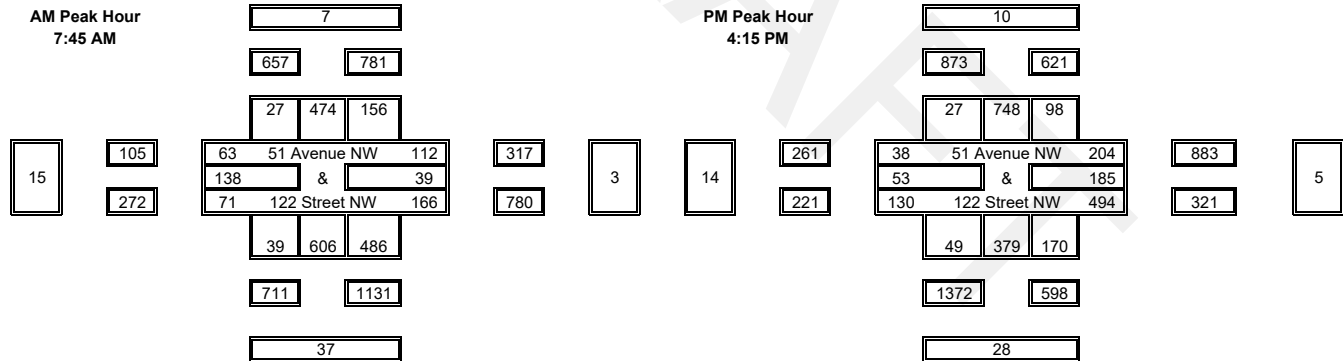
Project No. 03-23-0056 U of A West 240 NSP
 Location 51 Avenue and 122 Street
 Date 11/19/2024
 Weather Clear
 Surveyor Miovision

Street	51 Avenue NW												122 Street NW												Total	Hourly Totals
Direction	Eastbound						Westbound						Northbound						Southbound							
Movement	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right			
Start Time	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV		
7:00 AM	11	0	5	0	3	0	9	3	3	0	11	0	7	0	162	4	26	2	21	0	39	1	1	0	308	
7:15 AM	6	0	8	0	4	0	8	2	4	0	14	0	5	0	189	2	66	1	19	0	38	1	2	0	369	
7:30 AM	14	1	22	0	8	0	12	1	4	0	23	0	11	0	147	4	97	5	33	1	96	0	1	0	480	
7:45 AM	12	0	18	0	16	0	13	2	5	3	25	1	6	0	154	1	115	8	46	1	128	2	8	0	564	1721
8:00 AM	18	0	40	2	6	0	28	2	4	0	24	1	8	0	132	5	112	8	41	2	120	2	4	0	559	1972
8:15 AM	11	1	45	0	17	0	52	8	19	1	32	2	14	0	142	3	127	3	35	1	111	2	9	0	635	2238
8:30 AM	21	0	32	1	31	1	59	2	7	0	26	1	10	1	167	2	107	6	28	2	104	5	6	0	619	2377
8:45 AM	9	1	17	1	8	1	23	3	6	1	20	1	12	1	125	2	55	4	41	1	57	0	3	0	392	2205
4:00 PM	12	0	9	0	20	0	110	3	19	0	46	0	15	0	94	2	40	2	26	0	159	1	3	0	561	
4:15 PM	9	0	11	0	30	0	134	2	38	1	44	0	13	0	102	1	45	3	17	0	179	2	6	0	637	
4:30 PM	13	0	17	0	29	0	110	3	51	0	45	1	10	0	95	2	44	2	27	0	213	5	6	0	673	
4:45 PM	8	0	8	0	39	1	125	2	67	0	53	1	14	0	72	1	38	2	29	0	171	5	5	0	641	2512
5:00 PM	8	0	17	0	31	0	116	2	28	0	60	0	12	0	103	3	34	2	25	0	170	3	10	0	624	2575
5:15 PM	9	1	8	0	22	0	122	1	33	0	60	2	8	0	98	0	30	2	17	1	165	2	8	0	589	2527
5:30 PM	8	0	17	0	19	0	117	4	24	0	76	1	11	0	100	2	33	2	25	0	158	3	10	0	610	2464
5:45 PM	6	0	12	0	12	0	101	1	13	0	45	1	16	0	139	1	43	1	26	0	167	2	5	0	591	2414
AM Peak Hour Total	63		138		71		166		39		112		39		606		486		156		474		27		2377	TRUE
% HV	2%		2%		1%		8%		10%		4%		3%		2%		5%		4%		2%		0%			
PHF	1.31		0.77		1.04		0.69		0.49		0.82		0.70		1.04		0.93		1.08		1.05		0.75		0.94	
PM Peak Hour Total	38		53		130		494		185		204		49		379		170		98		748		27		2575	TRUE
% HV	0%		0%		1%		2%		1%		1%		0%		2%		5%		0%		2%		0%			
PHF	0.73		0.78		1.12		1.09		0.91		1.11		1.23		0.98		0.92		0.91		0.86		1.13		0.96	

Pedestrians			
East Approach	West Approach	North Approach	South Approach
N/S	N/S	E/W	E/W
0	3	1	0
3	4	1	1
0	2	1	1
2	2	1	3
1	5	3	8
0	6	1	13
0	2	2	13
5	0	1	0
2	7	3	2
4	3	4	10
0	1	1	8
0	3	0	8
1	7	5	2
2	5	3	9
3	1	0	3
2	2	0	0

3	15	7	37
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5	14	10	28
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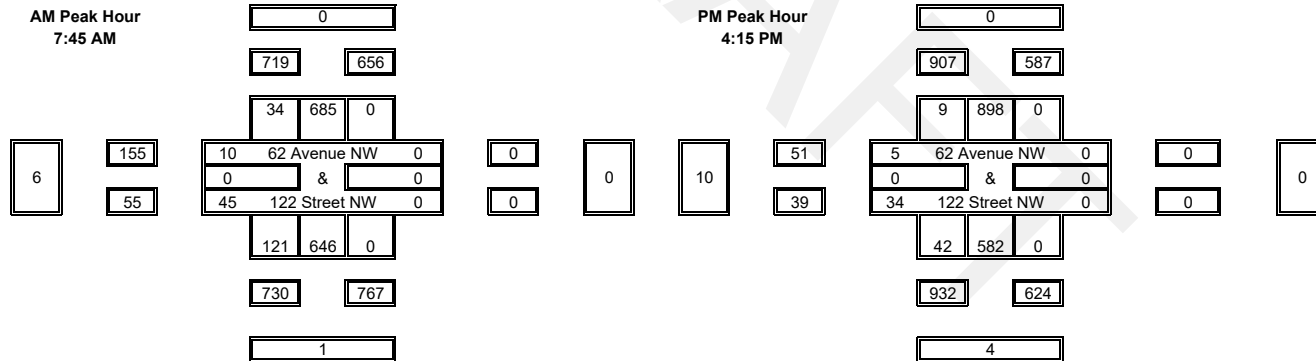
Project No. 03-23-0056 U of A West 240 NSP
 Location 62 Avenue and 122 Street
 Date 11/19/2024
 Weather Clear
 Surveyor Miovision

Street	62 Avenue NW												122 Street NW												Total	Hourly Totals
Direction	Eastbound						Westbound						Northbound						Southbound							
Movement	Left		Thru	Right		Left		Thru	Right		Left		Thru	Right		Left		Thru	Right							
Start Time	Car	HV	Car		Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV						
7:00 AM	1	0			6	1							7	0	176	5			58	0	1	0	255			
7:15 AM	0	0			2	0							7	0	197	2			64	1	0	0	273			
7:30 AM	2	0			10	0							5	0	166	4			125	2	1	0	315			
7:45 AM	0	0			5	1							22	0	172	2			179	2	2	0	385	1228		
8:00 AM	4	1			14	0							32	0	132	4			183	6	12	1	389	1362		
8:15 AM	3	0			8	1							41	1	138	5			172	5	16	0	390	1479		
8:30 AM	2	0			15	1							25	0	189	4			133	5	3	0	377	1541		
8:45 AM	3	0			8	0							3	1	150	3			108	1	1	1	279	1435		
4:00 PM	0	0			6	0							13	0	146	3			188	1	1	0	358			
4:15 PM	0	0			9	0							10	1	144	1			221	2	5	0	393			
4:30 PM	0	0			6	2							12	2	144	2			261	5	3	0	437			
4:45 PM	2	0			5	1							5	0	132	1			219	4	1	0	370	1558		
5:00 PM	3	0			10	1							12	0	154	4			185	1	0	0	370	1570		
5:15 PM	4	0			6	0							8	0	163	2			179	4	2	0	368	1545		
5:30 PM	1	0			7	0							10	0	146	4			196	3	3	0	370	1478		
5:45 PM	0	0			4	0							9	0	206	3			188	2	0	0	412	1520		
AM Peak Hour Total	10		0		45		0		0		0		121		646		0		685		34		1541	TRUE		
% HV	10%		#DIV/0!		7%		#DIV/0!		#DIV/0!		#DIV/0!		1%		2%		#DIV/0!		#DIV/0!		3%		3%			
PHF	0.83		#DIV/0!		1.25		#DIV/0!		#DIV/0!		#DIV/0!		0.72		1.13		#DIV/0!		#DIV/0!		0.97		0.53	0.99		
PM Peak Hour Total	5		0		34		0		0		0		42		582		0		898		9		1570	TRUE		
% HV	0%		#DIV/0!		12%		#DIV/0!		#DIV/0!		#DIV/0!		7%		1%		#DIV/0!		#DIV/0!		1%		0%			
PHF	#DIV/0!		#DIV/0!		1.06		#DIV/0!		#DIV/0!		#DIV/0!		0.75		1.00		#DIV/0!		#DIV/0!		0.84		0.75	0.90		

Pedestrians			
East Approach	West Approach	North Approach	South Approach
N/S	N/S	E/W	E/W
	2	0	0
	2	0	0
	2	0	0
	1	0	0
	2	0	1
	2	0	0
	1	0	0
	4	0	0
	1	0	0
	3	0	0
	1	0	0
	1	0	4
	5	0	0
	2	0	0
	0	0	0
	2	0	0

0	6	0	1
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0	10	0	4
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Project No. 03-23-0056 U of A West 240
Location 63 Avenue and 122 Street
Date 18-Mar-2025
Weather Clear
Surveyor Miovision

Street	63 Avenue												122 Street												Total	Hourly Totals
Direction	Eastbound						Westbound						Northbound						Southbound							
Movement	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right			
Start Time	Car	HV	Car		Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV		
7:00	7	0	4	1	7	0	3	3	0	0	1	0	5	0	150	2	10	0	4	0	44	1	5	0	247	
7:15	9	0	4	1	1	0	5	0	3	0	0	0	9	0	144	4	33	0	13	0	109	3	1	0	339	
7:30	8	0	8	0	5	0	4	1	0	0	5	0	5	0	114	3	36	0	29	0	184	3	5	1	411	
7:45	8	1	7	0	9	0	3	2	0	0	4	0	3	0	99	3	51	0	19	0	171	4	12	0	396	1393
8:00	20	2	23	1	10	0	12	1	1	1	0	0	9	1	83	8	45	0	34	0	170	6	16	0	443	1589
8:15	28	0	31	0	18	0	4	1	4	0	4	0	10	1	101	1	33	1	47	0	132	1	21	0	438	1688
8:30	26	0	17	3	31	1	7	1	3	1	2	0	2	0	150	3	36	0	36	1	105	3	16	0	444	1721
8:45	9	0	4	0	11	0	9	0	1	0	2	0	10	0	97	6	33	0	29	0	91	5	8	0	315	1640
15:00	12	1	3	0	21	1	16	1	3	0	3	0	8	0	117	9	5	0	4	0	106	3	16	0	329	
15:15	44	1	7	1	43	0	17	0	5	1	1	0	7	1	141	4	10	0	5	0	127	4	19	1	439	
15:30	21	1	5	0	17	0	25	0	5	0	10	0	7	0	126	5	11	1	32	0	134	1	12	0	413	
15:45	15	0	0	0	16	0	24	0	6	1	8	0	11	0	117	2	30	0	23	0	155	1	13	0	422	1603
16:00	12	1	6	0	12	0	44	2	3	0	4	0	5	0	130	3	28	0	19	0	125	1	4	0	399	1673
16:15	14	0	3	0	12	0	32	0	5	2	5	0	7	0	161	2	27	1	18	0	148	4	16	0	457	1691
16:30	13	0	1	0	9	0	32	0	5	0	5	0	3	0	139	3	18	1	20	0	168	1	12	0	430	1708
16:45	18	0	3	0	16	0	29	0	8	1	7	0	8	0	124	1	20	0	8	0	169	2	9	0	423	1709
17:00	3	0	3	0	11	0	22	0	4	1	13	0	6	0	113	4	25	0	8	0	143	1	12	0	369	1679
17:15	8	0	1	0	9	0	24	0	1	1	9	0	10	0	135	0	13	0	6	0	167	2	16	0	402	1624
17:30	9	0	2	0	2	0	16	0	3	1	5	0	6	0	116	3	13	0	11	0	147	0	15	0	349	1543
17:45	11	0	2	0	9	0	15	0	6	0	4	0	9	0	130	1	9	0	7	0	122	4	14	0	343	1463

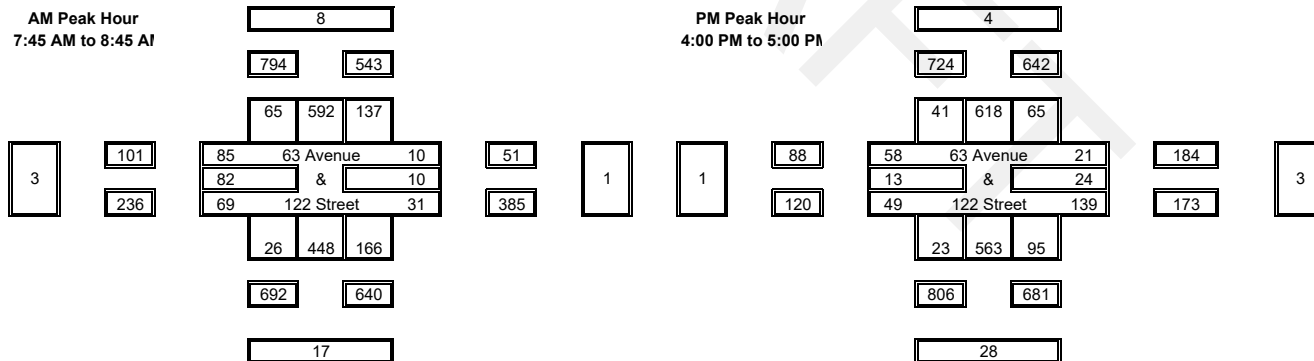
AM Peak Hour Total	85	82	69	31	10	10	26	448	166	137	592	65	1721	TRUE
% HV	4%	5%	1%	16%	20%	0%	3%	1%	2%	0%	0%	0%		
PHF	0.82	1.03	0.54	0.97	0.63	1.25	3.25	0.73	1.15	0.93	1.37	1.02	0.97	

PM Peak Hour Total	58	13	49	139	24	21	23	563	95	65	618	41	1709	TRUE
% HV	2%	0%	0%	1%	13%	0%	0%	2%	2%	0%	1%	0%		
PHF	1.04	1.08	1.02	1.09	0.86	1.05	0.82	0.86	0.85	0.90	1.02	0.64	0.93	

Pedestrians			
East Approach	West Approach	North Approach	South Approach
N/S	N/S	E/W	E/W
0	0	3	3
0	0	1	5
0	0	0	4
0	0	0	7
0	0	1	4
1	1	5	4
0	2	2	2
1	0	1	2
2	0	0	3
2	4	6	10
0	0	1	6
2	0	1	5
0	0	1	6
0	0	0	11
2	1	2	6
1	0	1	5
0	0	1	3
0	2	1	5
1	0	3	3
1	0	3	9

1	3	8	17
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3	1	4	28
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DRAFT

APPENDIX B

City of Edmonton Model Package

Urban Planning and Economy
Department Strategy Section

City of Edmonton
8th Floor, Edmonton Tower
10111 104 Avenue NW
Edmonton, AB T5J 0J4

edmonton.ca



1.5 M Population Horizon Edmonton Travel Model Standard Package and Origin (O)-Destination (D) Travel Distribution for West 240 Area

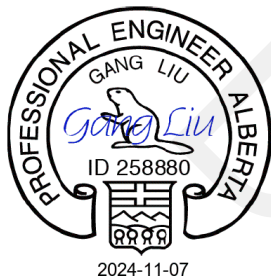
Urban Systems Assessment (USA)

VER	Date	Revision Summary
01	2024-10-21	1st version
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Engineering
Prepared by



Gang Liu, P.Eng.
Project Engineer

Engineering
Prepared by

Rajib Sikder, P.Eng
Project Engineer

Engineering
Authenticated by

Peter Xin, P.Eng
Senior Engineer

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Validated by

Arun Bhowmick, P.Eng
General Supervisor

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Background

In response to the request from the Planning Coordination Section under Urban Planning & Economy Department (UPE) for a TIA study to support the West 240 Neighbourhood Area Structure Plan (NASP) on the University of Alberta farm land west of 122 Street, the Urban Systems Assessments (USA) Unit under the Department Strategy Section of UPE has prepared this information package including an origin-destination (O-D) trip distribution pattern and a standard modeling package from the 1.5 million city population horizon travel demand models.

Figure 1 shows the study area that is bounded by 122 Street to the east, Whitemud Creek Ravine to the west, Grandview Heights neighborhood to the north, and Lansdowne neighborhood to the south. The USA Unit utilized the 1.5 M population horizon Regional Travel Model (RTM) and Dynameq Traffic Assignment (DTA) to prepare this information package.



Figure 1: West 240 Study Area (Highlighted with Orange Shades)

Analysis Approach

The Edmonton Regional Travel Model (RTM) is a travel demand modeling platform designed to simulate travel activities occurring within the Edmonton metro region. Based on the household composition, the socioeconomic and demographic characteristics, and the travel mode choices available across the Edmonton region, the RTM estimates expected travel activities and simulates travel-related decisions for every household and individual household members regarding Why to travel (i.e., travel purpose)?, Where to travel (i.e., destinations)?, When to travel (i.e., time of the

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day)?, and How to travel (i.e., travel modes)? It is used as a primary “Corporate” tool for alternative scenario analysis and evaluations to inform infrastructure planning and decision-making related to changes in transportation networks, investment, and transportation-related policies.

Using new and emerging modeling techniques, a Dynamic Traffic Assignment (DTA) model captures the relationship between dynamic route choice behaviors (path and start time) and transportation network characteristics. With detailed lane configuration and intersection traffic control (e.g. signal timing plans for signalized intersections) input, DTA models are able to quantify traffic congestion and queue spill-back delays, and thus can provide more reliable traffic flow and performance measures at the link and intersection levels.

Spatial Context

The RTM uses various spatial levels for modeling purposes, from the smallest level, Traffic Analysis Zone (TAZ) to larger levels, such as Traffic District and Traffic Sector. For example, the RTM has 1,781 TAZs and 60 traffic districts for the entire Edmonton Census Metropolitan Area. Typically traffic O-D tables are provided at larger spatial levels, like Traffic District level to achieve more reasonable and reliable results. Given that the proposed development area is contained within a single TAZ 319, this development area was aggregated with two other adjacent zones, zone 307 representing Grandview Heights and zone 308 representing Lansdowne to create a temporary new Traffic District 301 as shown in figure 2. Therefore, the traffic O-D table attached herewith represents Auto, Auto passenger, transit, bike, and walk trips to/from District 301, not only the trips to/from the proposed development site.

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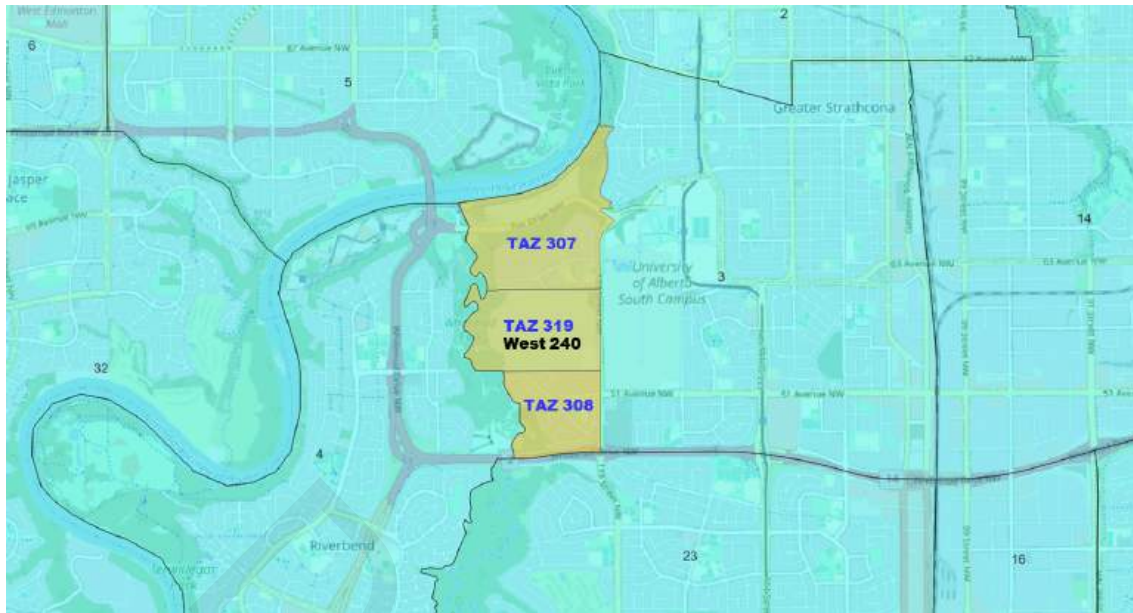


Figure 2: New District 301 to represent West 240 Study Area (Highlighted with Orange Shades)

Information Provided

Based on the study scope, the travel O-D information by Auto modes, Auto passenger, transit, bike, and walk from/to District 301 where the study area is located to/from other 60 districts within the Edmonton CMA is tabulated. The requested model information has been processed and is listed below:

- Traffic District Boundary Map
- Auto and Transit O-D % Matrix during the Weekday, AM Peak hour (7 to 8 AM) and PM Peak hour (4:30 to 5:30 PM)
- Active modes O-D % Matrix during the Weekday
- Zonal Land Use Assumptions (Population and Employment Jobs)
- Transportation Network Assumptions (Roadway Number of Lanes and Posted Speed Limits)
- Link AM & PM Peak Hour Vehicle Flow
- Link AM & PM Peak Hour Level of Service (LOS)

Initial Findings

- Belgravia Road, Fox Drive, and 114 St & 72 Ave will operate at capacity along the peak directions during the AM and PM peak periods. Due to the generated traffic demand from

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the West 240 development, some peak directional through traffic along 122 Street from the south of the West 240 is expected to divert to adjacent roadways including 111 Street, Calgary Trail/Gateway Boulevard, etc.

- Due to high eastbound traffic demand at Belgravia Road and 114 Street during the AM Peak period, severe congestion and long queues spilling back to 122 Street are expected. Some traffic may divert to the Lendrum neighborhood roads as short-cutting routes.

Analysis Assumptions

The following model input assumptions and notes should be reviewed and understood before using this info package.

- Growth assumptions for the City of Edmonton at 1.5M city population horizon were based on the City Plan interim growth target. The population and residential units distribution at the neighborhood level is based on the GeoDemographic Population Projection (GPP) March 2022 series. According to the Fall 2020 Forecast series from the Office of Chief Economist, the City of Edmonton will likely reach the 1.5M population threshold by 2045. For the Region area, land use growth target assumptions for each municipality in the region are based on the accepted Edmonton Metropolitan Region Board (EMRB's) Population and Employment Projections 2014 to 2044 - High Scenario. The transportation network in this horizon including roadways and transit networks was circulated/reviewed/accepted by all the municipalities during the course of the 2045 Integrated Region Transportation Master Plan (IRTMP) study. More recently, the network was further updated per Alberta Transportation's directions on regional highways.
- The link LOS was estimated based on the 2010 Highway Capacity Manual (HCM) where the speed ratio (operating speed/free flow speed) is used for Urban Streets and the density is used for Freeway Segments.
- The signal timing plans at some intersections in the 1.5M DTA models were manually adjusted to achieve better model outputs based on our engineering judgment.
- It is important to notice that the DTA models utilize zone centroids and zone feed connectors to assign traffic on the network. Therefore, traffic volume projections are highly dependent on zone sizes and zone connector (access) locations. In some cases, this may result in a concentration of traffic on one particular road, rather than being distributed among all possible access points. Additionally, it is worth noting that not all local roads are included in the DTA network, which could lead to over- or underestimated traffic volumes for some roads.

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Limitations

- The travel behavior in the current version of the RTM is based on the 2015 Edmonton Household Travel Survey. Therefore, the information contained in this package reflects pre-COVID trends for commuting and non-commuting travel. Changes in post-pandemic travel behavior, such as changes in commuting patterns due to hybrid work have not been incorporated into the above analysis.
- According to the Spring 2024 Demographic and Economic forecast from the Office of Chief Economist, the Edmonton region has experienced the largest year-over-year population growth in the last two years, with this trend expected to continue in the near future. Consequently, the City is projected to reach the 1.5 million population mark by approximately 2036-2037, much earlier than previously anticipated (i.e., around 2045). An updated version of the GPP series has been recently released. Following the RTM and DTA Base Year models update, the growth projection series in the 1.5 million horizon will be updated over the next few months. Therefore, the information provided herewith may be subject to change as updated 2023 base year and 1.5M models and analysis become available.

Attachments

- Attachment 1 - 1.5M (2045) Edmonton RTM Model Traffic Origin-Destination Table by Traffic District_West 240 Neighborhood
- Attachment 2 - 1.5M (2045) Edmonton RTM Population Projection by TAZ_West 240 Neighborhood
- Attachment 3 - 1.5M (2045) Edmonton RTM Employment Projection by TAZ_West 240 Neighborhood
- Attachment 4 - 1.5M (2045) Edmonton DTA Model Link Number of Lanes_West 240 Neighborhood
- Attachment 5 - 1.5M (2045) Edmonton DTA Model Link Posted Speed Limits_West 240 Neighborhood
- Attachment 6 - 1.5M (2045) Edmonton DTA Model AM Peak Hour Link Volume_West 240 Neighborhood
- Attachment 7 - 1.5M (2045) Edmonton DTA Model PM Peak Hour Link Volume_West 240 Neighborhood

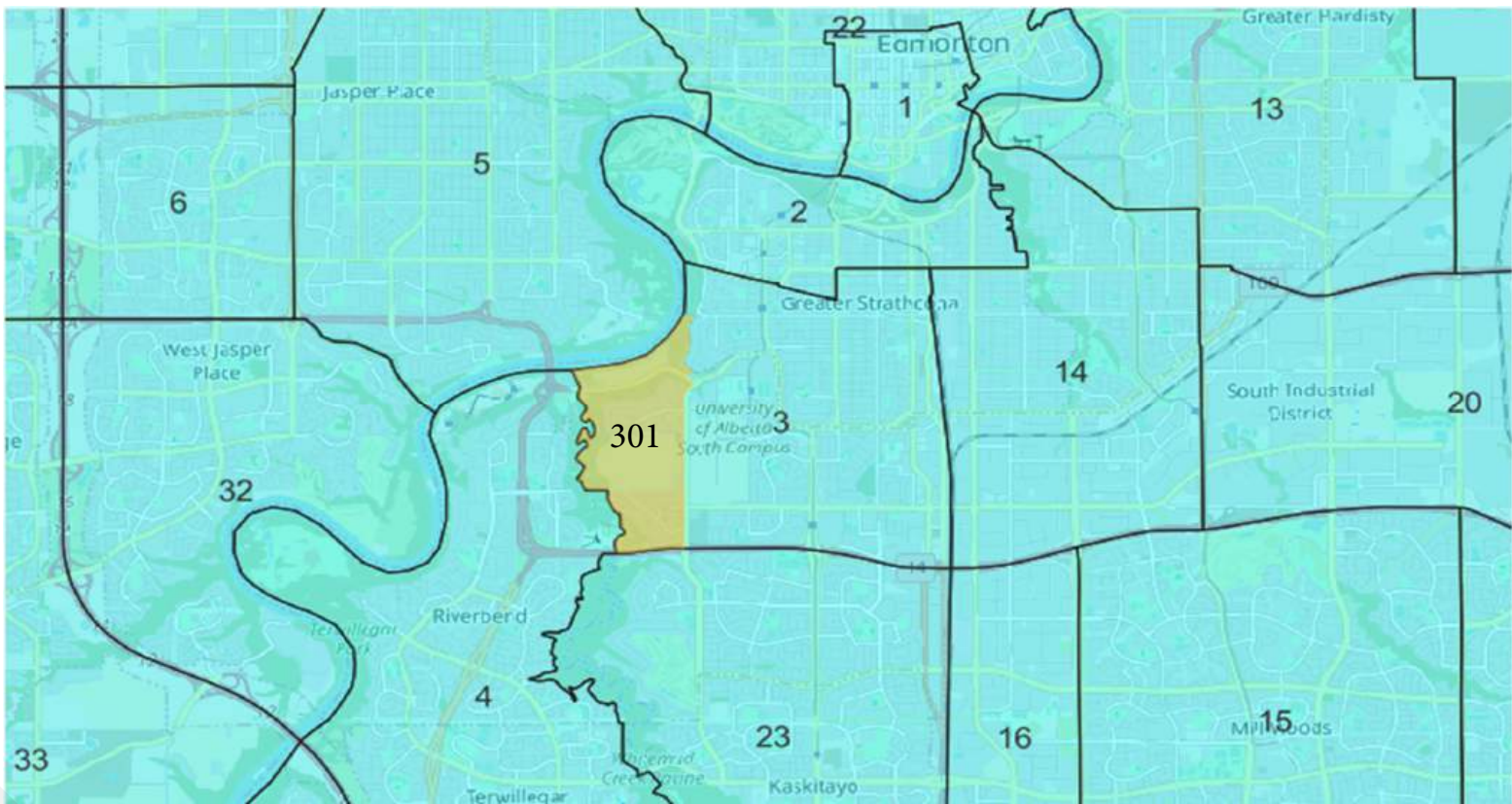
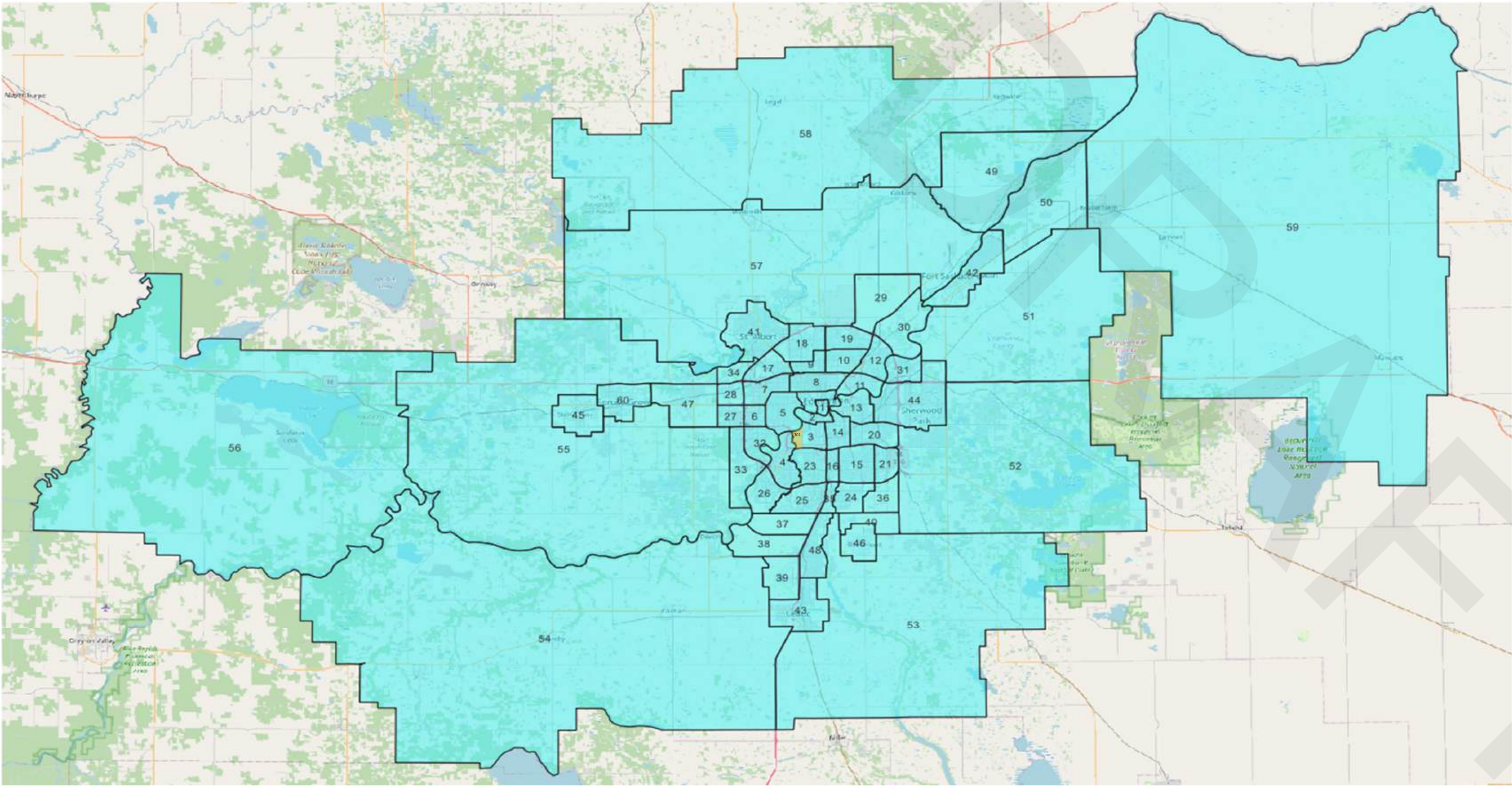
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- Attachment 8 - 1.5M (2045) Edmonton DTA Model AM Peak Hour Link LOS_West 240 Neighborhood
- Attachment 9 - 1.5M (2045) Edmonton DTA Model PM Peak Hour Link LOS_West 240 Neighborhood

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Attachment 1: 1.5M (2045) Edmonton RTM Model Traffic Origin-Destination Table by Traffic District_West 240 Neighborhood



Attachment 1: 1.5M (2045) Edmonton RTM Model Traffic Origin-Destination Table by Traffic District_West 240 Neighborhood

1.5 M Population Horizon RTM Percent Origin Destination Matrix by District (Study Area Located within West 240)

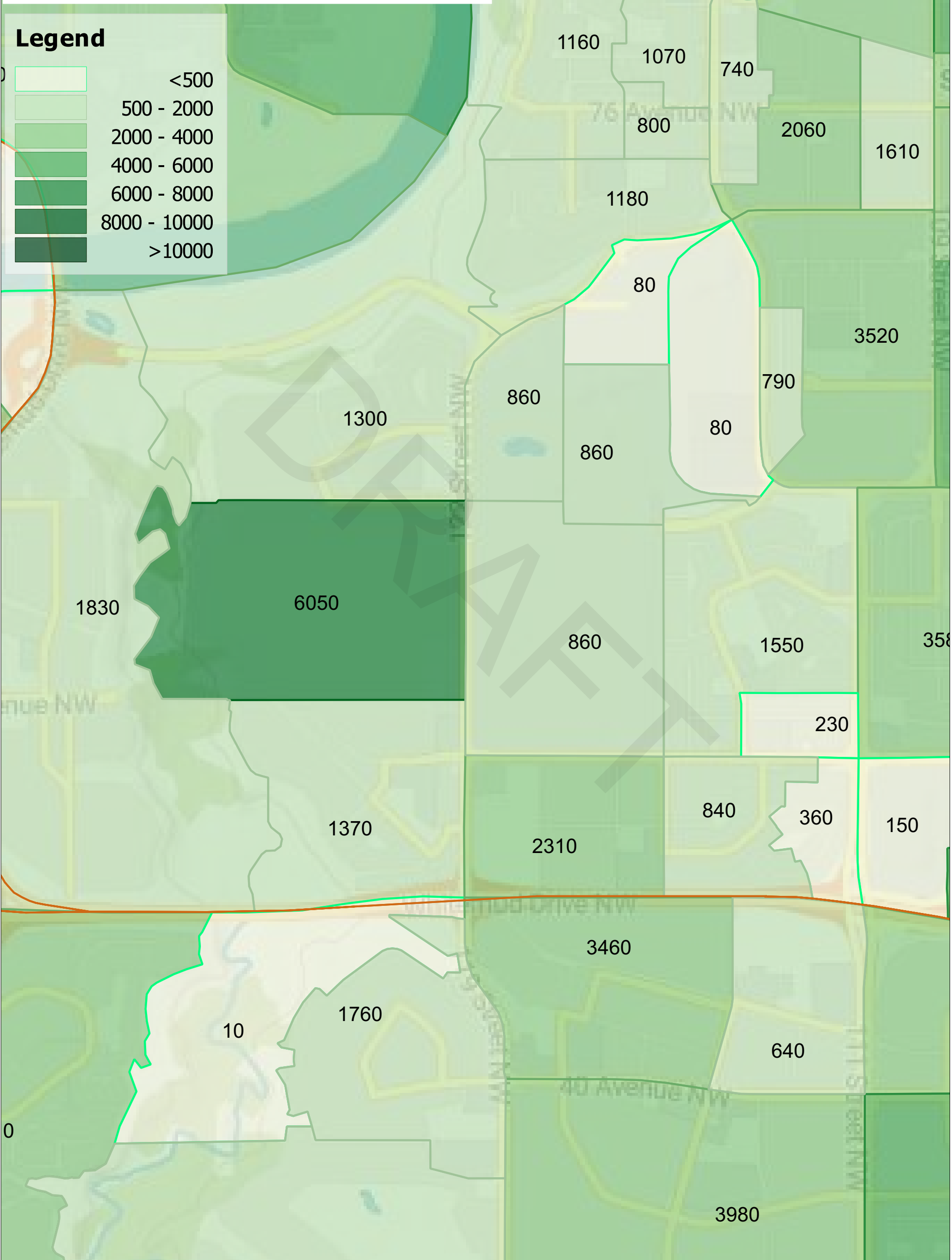
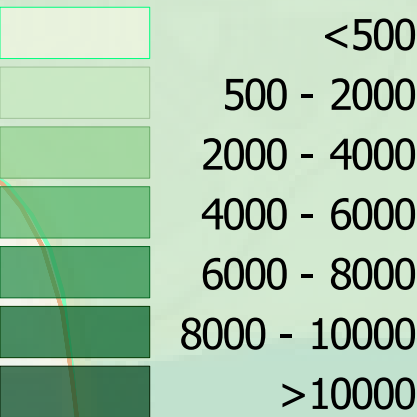
[illegible][illegible][illegible][illegible][illegible]

Total Population by Transportation Zone (City)



City Plan Population Horizon: 1.5 Million
Edmonton Regional Travel Model

Legend



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StreetMap contributors

Total Employment by Transportation Zone (City)

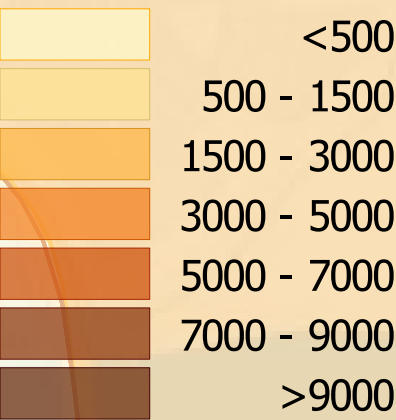
15370



Edmonton

City Plan Population Horizon: 1.5 Million
Edmonton Regional Travel Model

Legend



120

80

410

1330

520

50

310

120

250

770

760

470

40

450

1830

1060

280

510

1090

610

66

80

330

750

80

50

2920

380

190

300

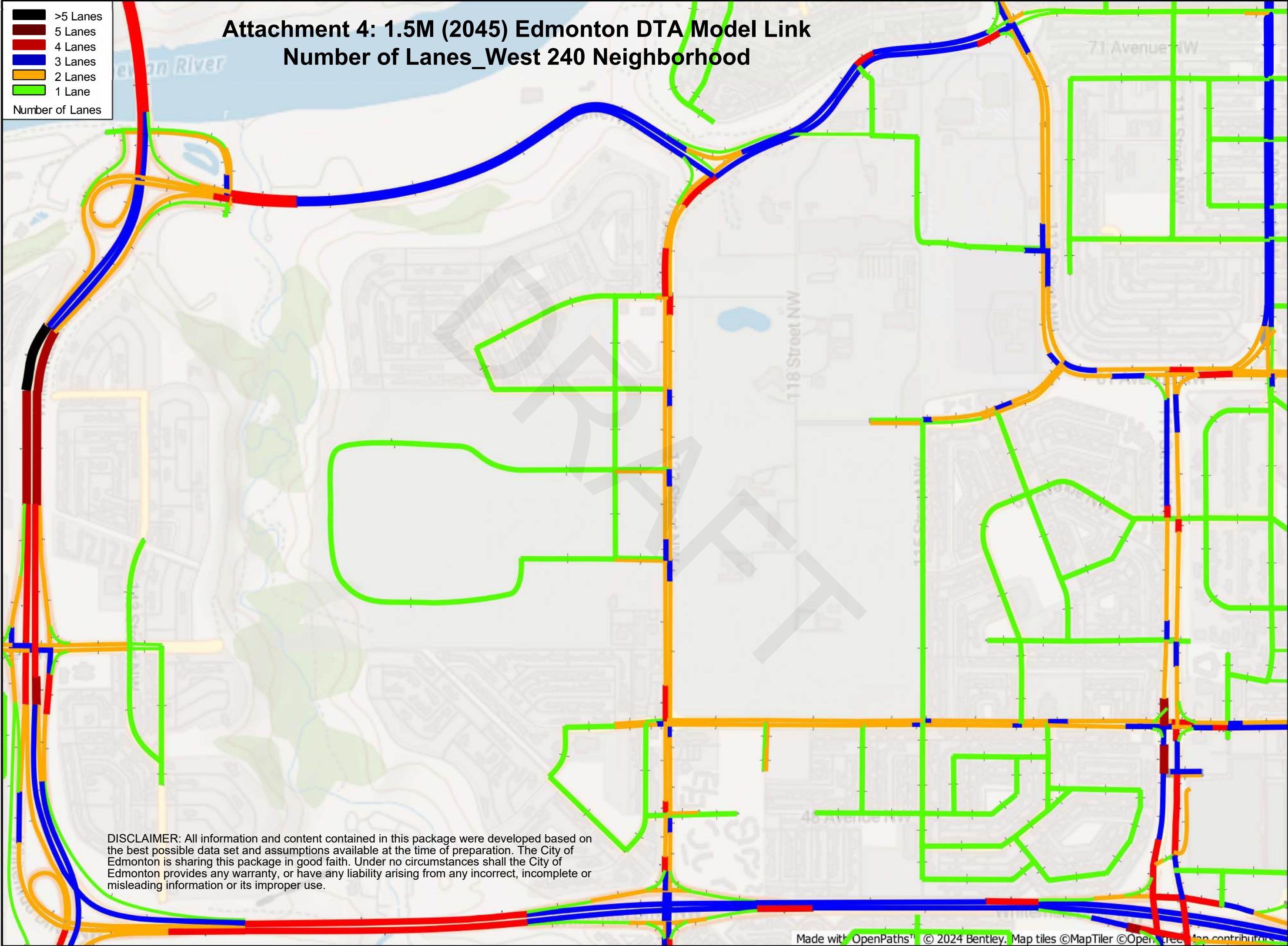
360

590

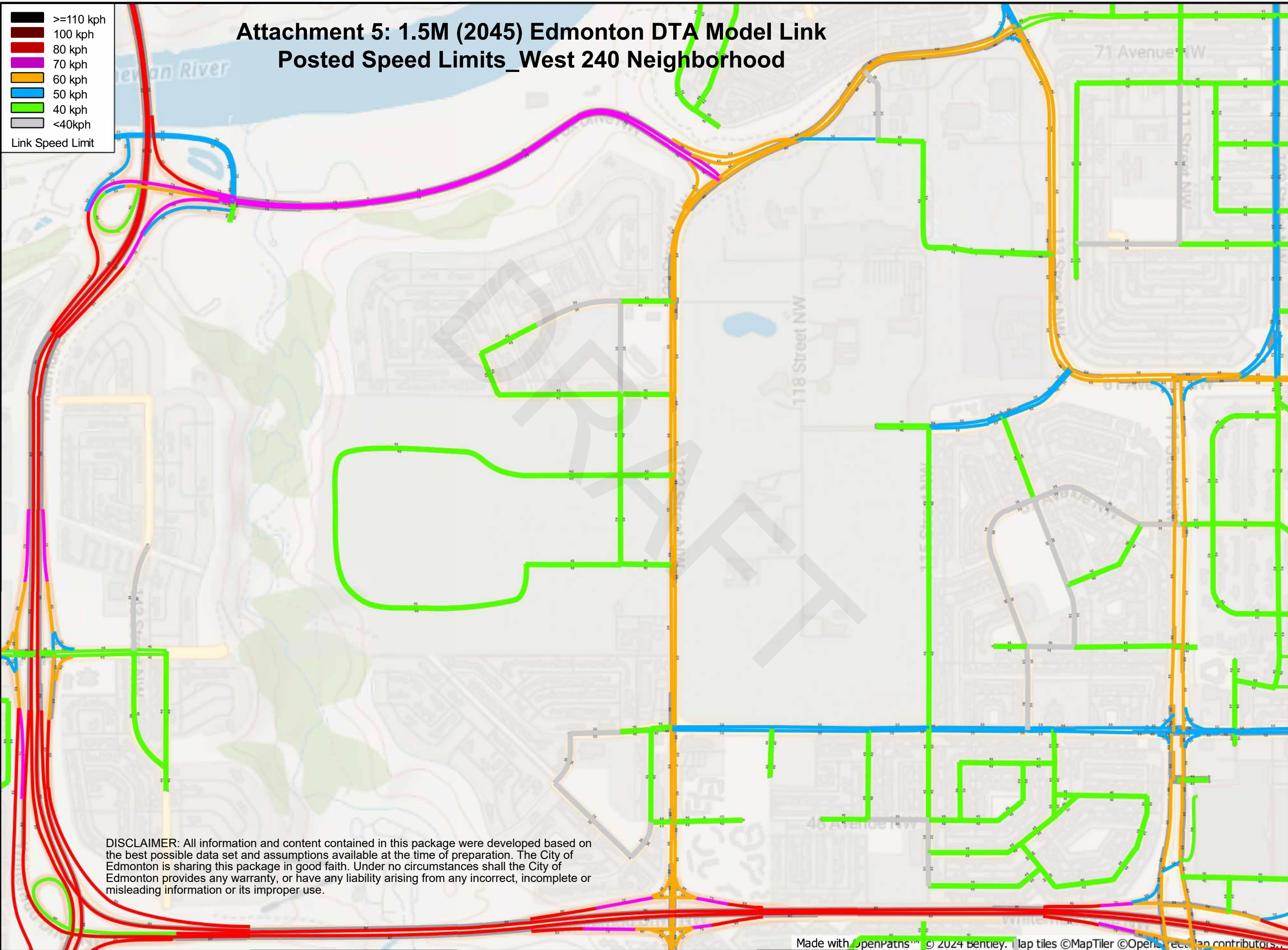
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StreetMap contributors

Attachment 4: 1.5M (2045) Edmonton DTA Model Link
Number of Lanes_West 240 Neighborhood

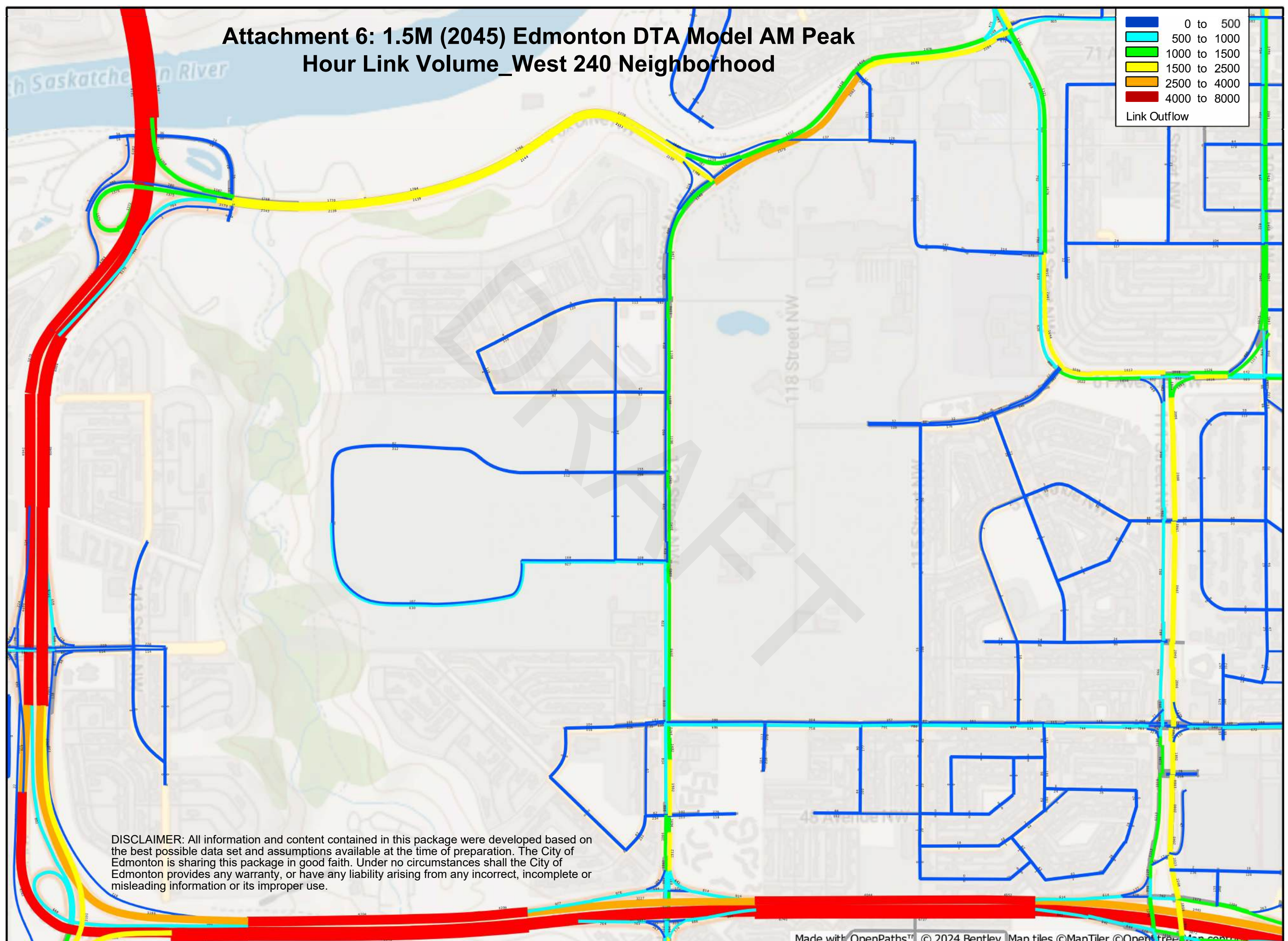
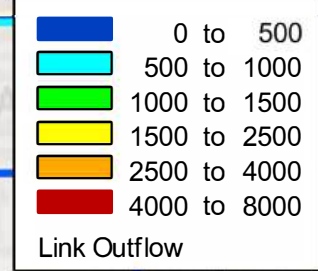


Attachment 5: 1.5M (2045) Edmonton DTA Model Link Posted Speed Limits_West 240 Neighborhood



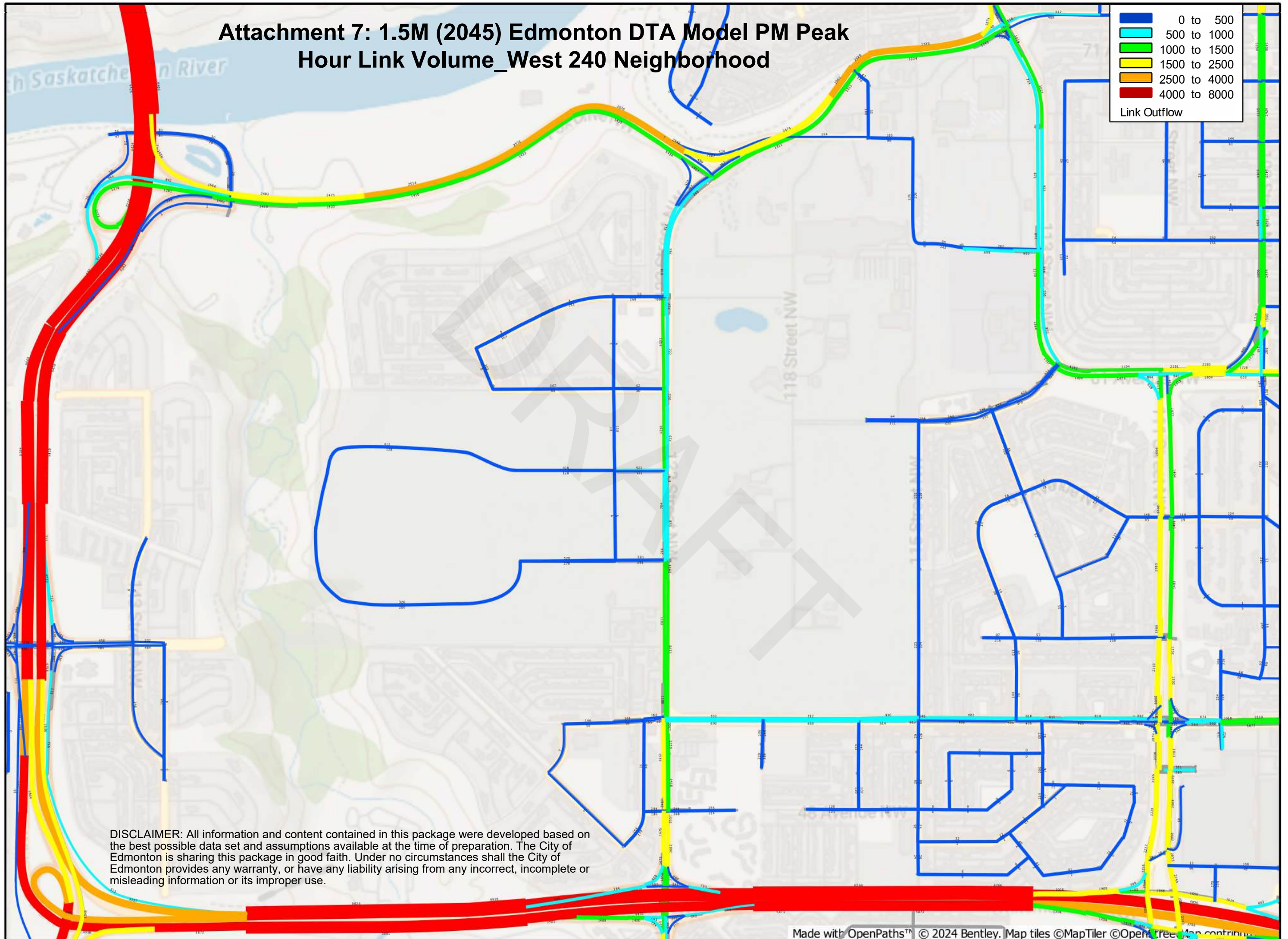
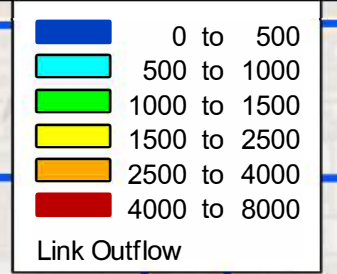
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Attachment 6: 1.5M (2045) Edmonton DTA Model AM Peak Hour Link Volume_West 240 Neighborhood



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Attachment 7: 1.5M (2045) Edmonton DTA Model PM Peak Hour Link Volume_West 240 Neighborhood



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LOS F

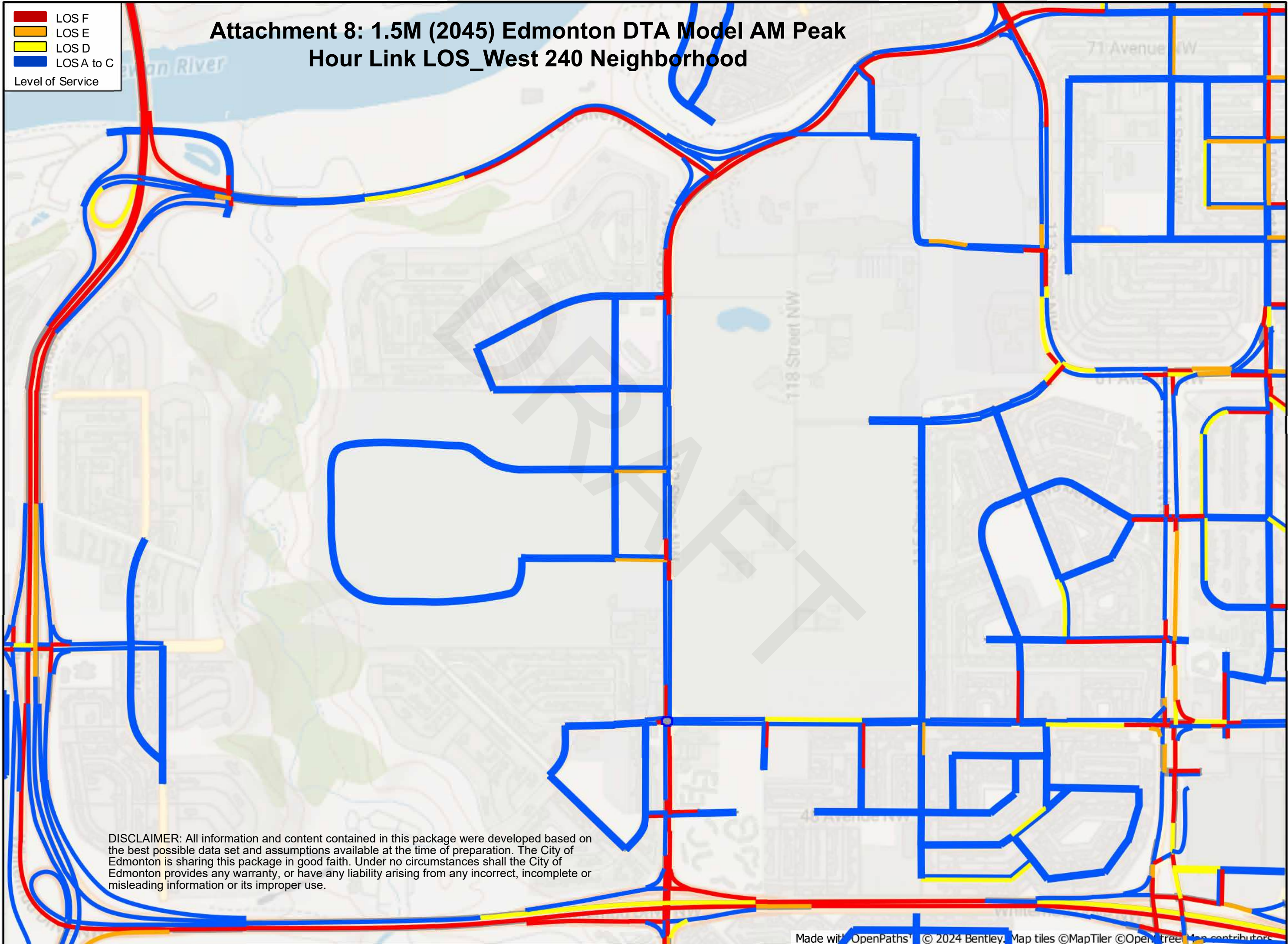
LOS E

LOS D

LOS A to C

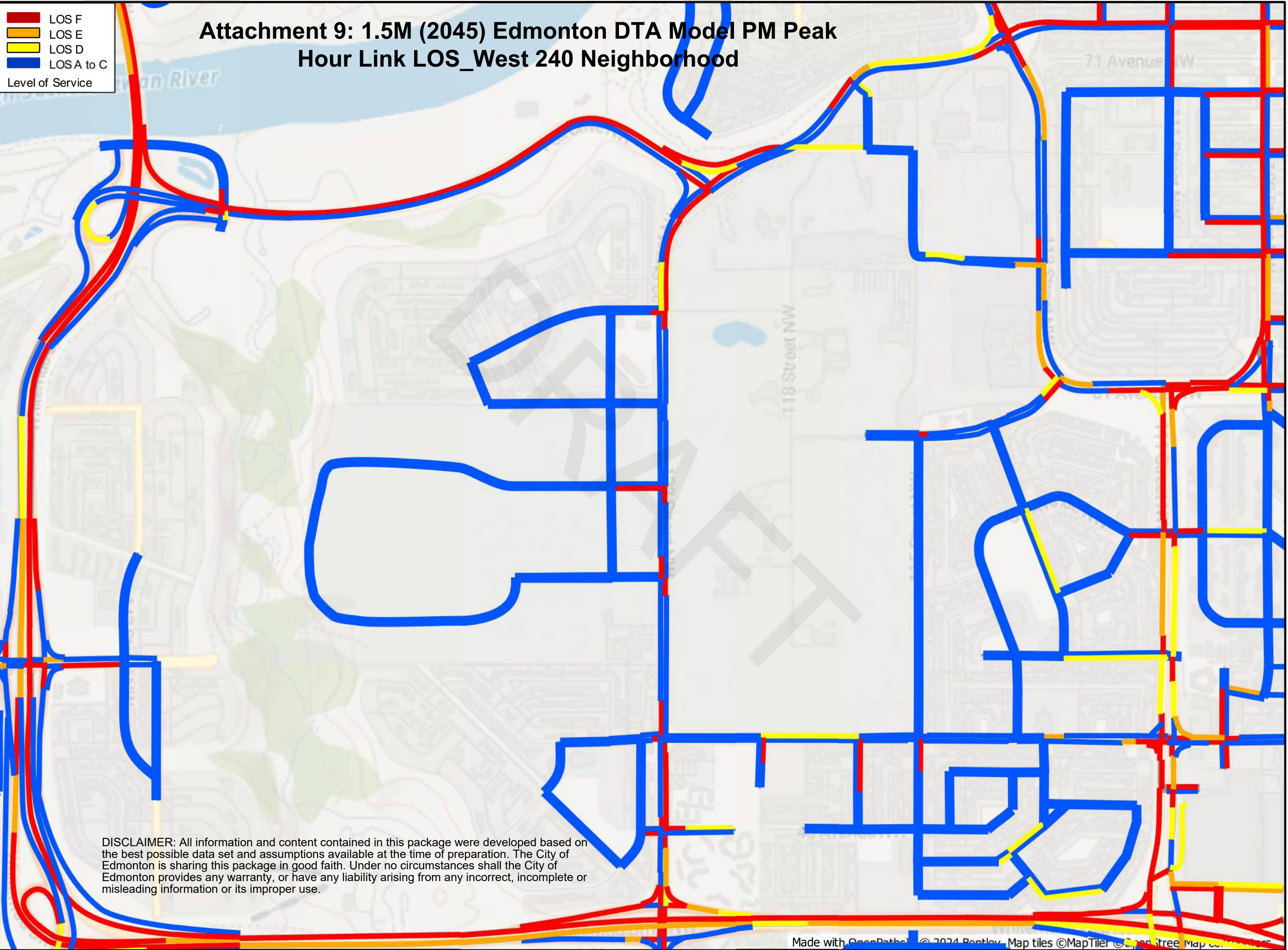
Level of Service

Attachment 8: 1.5M (2045) Edmonton DTA Model AM Peak Hour Link LOS_West 240 Neighborhood



LOS F
LOS E
LOS D
LOSA to C
Level of Service

Attachment 9: 1.5M (2045) Edmonton DTA Model PM Peak Hour Link LOS_West 240 Neighborhood



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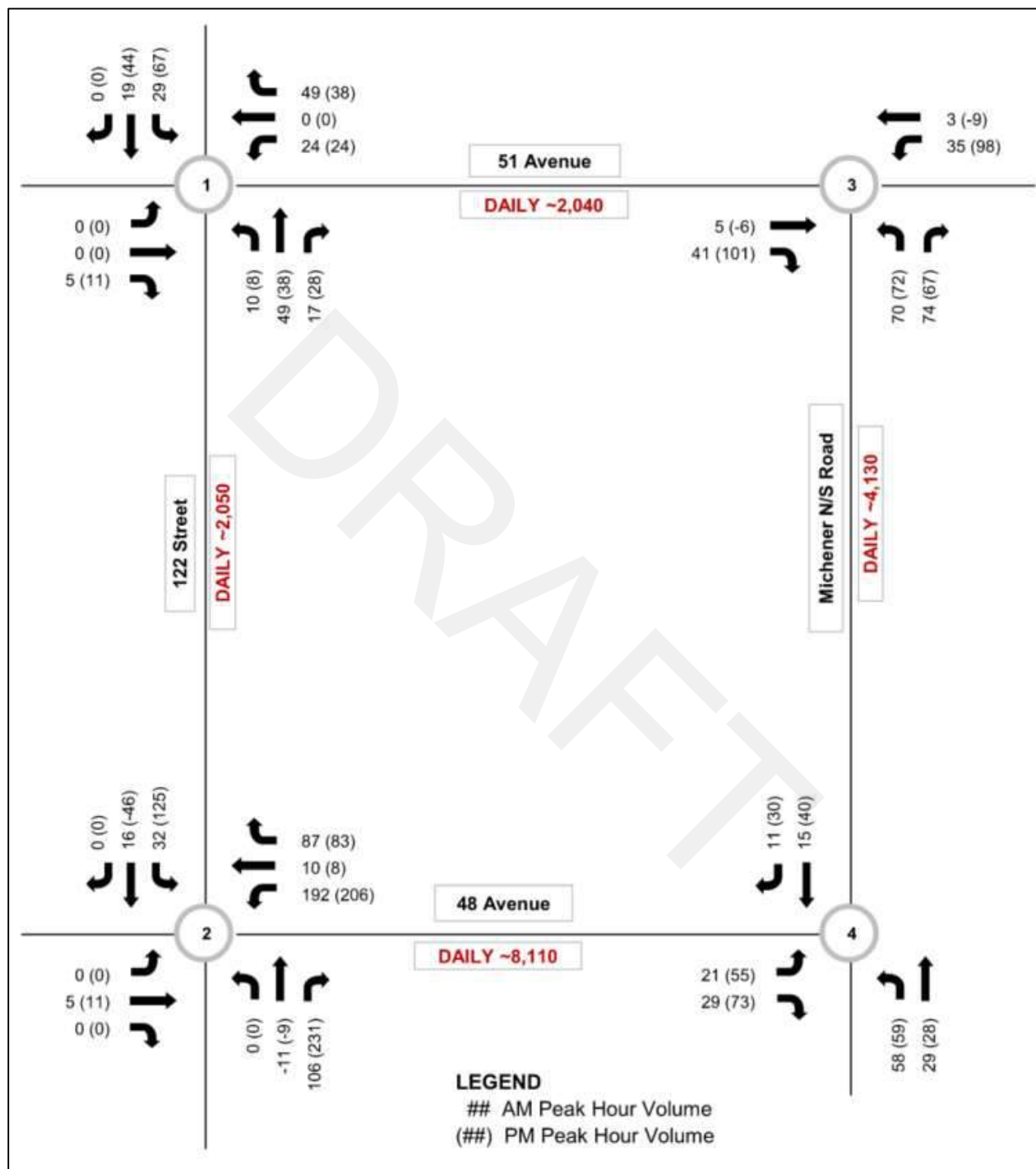
APPENDIX C

Michener Park Site Generated Volumes

MICHENER PARK MASTER PLAN – TRANSPORTATION IMPACT ASSESSMENT

Site Generated Traffic

Figure 5.3 – Site-Generated Traffic Volumes – Full Site Buildout (2050)



DRAFT

APPENDIX D

Lansdowne Centre Redevelopment Site Traffic

From: [Paul Chan](#)
To: [Catherine Oberg](#); [Lori-Lynn Gregoire](#)
Cc: [Sara Sherman <ssherman@bastudios.ca>](#); [Devon Mackie](#); [Dave Onishenko](#); [Bhavya Mistry](#); [Darren Wong](#)
Subject: RE: Lansdowne TIA - West240 Traffic
Date: Wednesday, March 19, 2025 12:39:43 PM
Attachments: [image005.png](#)
[image006.png](#)
[image007.png](#)
[image008.png](#)
[image009.png](#)
[image010.png](#)
[image001.png](#)
[image002.png](#)

Good morning **Catherine**

Thanks for the West240 development volumes.

The following 2 sets of traffic volumes are the Net Development Traffic Volumes (not including the pass-by Trips) and the Pass-By Trips for the Lansdowne Site – AM (PM) Peak Hour Volumes

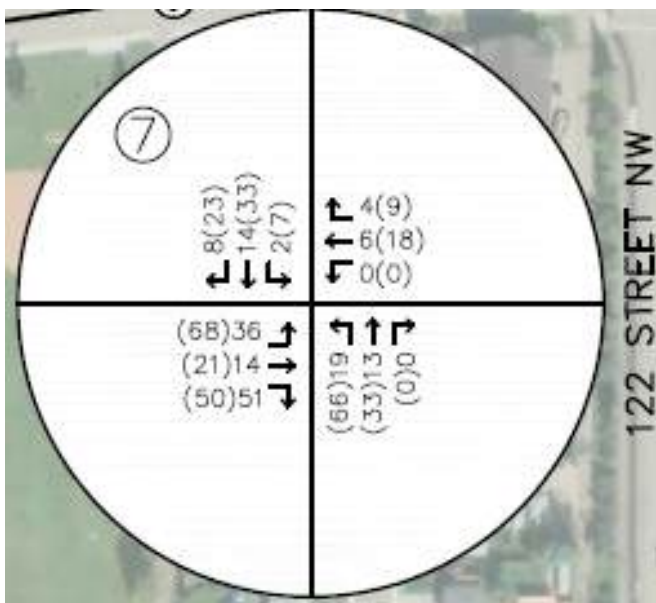
- (1) at the **51 Ave / 122 St intersection** (Intersection # 7),
- (2) the northmost site access on 122 Street (Access # 1).

The 2 sets of traffic volumes will need to be added to come up with the combined effect of the Development Trips including the pass-by trips.

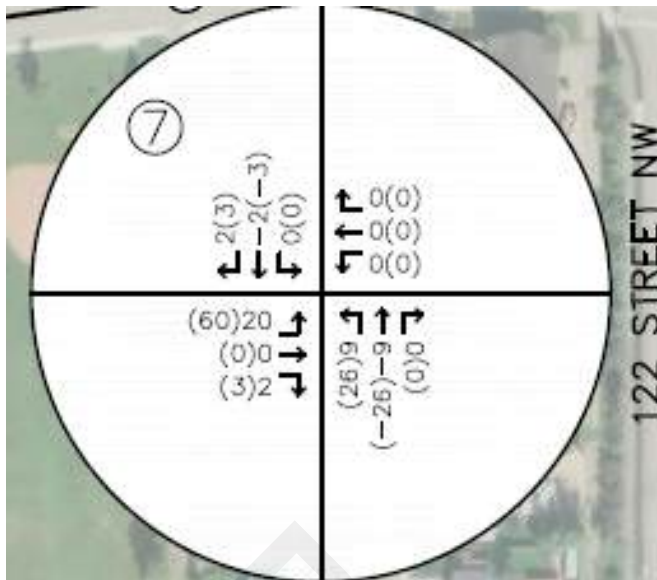
The Lansdowne site is estimated to be fully developed in 5 years.

1. ***Turning Movement Volumes at 51 Ave / 122 St intersection
(Intersection # 7)***

- Dev trips (volumes shown do not include pass-by trips)



- Pass-by trips:



2. **Turning Movement Volumes at the northmost site access on 122 Street of the Lansdowne Site (Site Access # 1, a RI/RO/LI access)**

- a. Please note that Site Access # 1 at the north end of the Lansdowne site is a RI/RO/LI access. Therefore, pass-by trips from NB traffic on 122 Street can only return back to 122 St NB via 51 Ave even though they can enter the site via either 51 Ave or Site Access # 1 (Left-Out is not permitted at Site Access # 1)

- Dev trips (volumes shown do not include pass-by trips)



- Pass-by trips:



If you have any questions or require any clarification, please contact me.

Regards

Paul Chan, P.Eng.
780-965-0005

From: Catherine Oberg <coberg@bunteng.com>

Sent: March 17, 2025 12:04 PM

To: Paul Chan <paul.chan@investec.ca>; Lori-Lynn Gregoire <lgregoire@uapt.ca>

Cc: Sara Sherman <ssherman@bastudios.ca> <ssherman@bastudios.ca>; Devon Mackie <Devon.Mackie@investec.ca>; Dave Onishenko <dave@claritydevelopment.ca>; Bhavya Mistry <bhavya@claritydevelopment.ca>

Subject: RE: Lansdowne TIA - West240 Traffic

Hi Paul,

25% would provide a conservative estimate of 5 year site development of the West 240 lands.

Catherine
587-416-0909

From: Paul Chan <paul.chan@investec.ca>

Sent: Monday, March 17, 2025 11:15 AM

To: Catherine Oberg <coberg@bunteng.com>; Lori-Lynn Gregoire <lgregoire@uapt.ca>

Cc: Sara Sherman <ssherman@bastudios.ca> <ssherman@bastudios.ca>; Devon Mackie <Devon.Mackie@investec.ca>; Dave Onishenko <dave@claritydevelopment.ca>; Bhavya Mistry <bhavya@claritydevelopment.ca>

Subject: RE: Lansdowne TIA - West240 Traffic

DRAFT

APPENDIX E

Trip Generation

UAPT West 240 NASP TIA
30-Sep-2025
B&A September 26, 2025 Land Use Concept
ITE 11th Edition

Land Use			AM Peak Hour					PM Peak Hour					Daily				
Residential	Units		Rate	In		Out		Rate	In		Out		Rate	In		Out	
Low Density Residential	444	du	0.69	19%	58	81%	248	0.79	67%	235	33%	116	7.92	50%	1,758	50%	1,758
Medium Density Residential	463	du	0.46	21%	45	79%	168	0.58	65%	175	35%	94	6.59	50%	1,526	50%	1,526
High Density	1042	du	0.34	17%	60	83%	294	0.40	63%	263	37%	154	5.81	50%	3,027	50%	3,027
MU - North	141	du	0.34	17%	8	83%	40	0.40	63%	36	37%	21	5.81	50%	410	50%	410
MU - Central	925	du	0.34	17%	53	83%	261	0.40	63%	233	37%	137	5.81	50%	2,687	50%	2,687
Total Residential	3,015			224		1,011			942		522			9,408		9,408	
				1,235		1,464			18,816								
Non-Residential																	
Catholic K-9	420	students	0.71	54%	161	46%	137	0.16	47%	32	53%	36	2.19	50%	460	50%	460
Public K-6	400	students	0.74	54%	160	46%	136	0.16	46%	29	54%	35	2.27	50%	454	50%	454
MU - Mixed Use North	22.50	1,000 SF	5.62	55%	70	45%	57	8.21	48%	89	52%	96	54.45	50%	613	50%	613
MU Mixed Use Central Retail	112.50	1,000 SF	3.53	62%	246	38%	151	8.73	48%	471	52%	511	89.52	50%	5,036	50%	5,036
MU Mixed Use Central Office	32.50	1,000 SF	1.52	88%	43	12%	6	1.44	17%	8	83%	39	10.84	50%	176	50%	176
MU Mixed Use Central Medical-Dental Office	32.50	1,000 SF	3.10	79%	80	21%	21	3.93	30%	38	70%	89	36.00	50%	585	50%	585
Total Non-Residential				760		508			667		806			7,324		7,324	
				1,268		1,473			14,648								
Total				984		1,519			1,609		1,328			16,732		16,732	
				2,503		2,937			33,464								

Residential Land Use (ITE LUC)	Intensity / Factor	AM Peak Hour		PM Peak Hour		Daily	
		In	Out	In	Out	In	Out
Low Density Residential		58	248	235	116	1,758	1,758
Internal Neighbourhood Trips (All Modes)	From Non-Res	16	23	23	17	149	149
External Mode Split	35%	15	79	74	35	563	563
Net External Trips		27	146	138	65	1,046	1,046
Medium Density Residential		45	168	175	94	1,526	1,526
Internal Neighbourhood Trips (All Modes)	From Non-Res	13	16	17	13	129	129
External Mode Split	35%	11	53	55	28	489	489
Net External Trips		21	99	103	52	908	908
High Density		60	294	263	154	3,027	3,027
Internal Neighbourhood Trips (All Modes)	From Non-Res	17	28	25	22	256	256
External Mode Split	35%	15	93	83	46	970	970
Net External Trips		28	173	154	86	1,801	1,801
MU - North		8	40	36	21	410	410
Internal Neighbourhood Trips (All Modes)	From Non-Res	2	4	3	3	35	35
External Mode Split	35%	2	13	11	6	131	131
Net External Trips		4	24	21	12	244	244
MU - Central		53	261	233	137	2,687	2,687
Internal Neighbourhood Trips (All Modes)	From Non-Res	15	25	23	20	227	227
External Mode Split	35%	13	83	74	41	861	861
Net External Trips		25	154	137	76	1,599	1,599
Total Gross Trips		224	1,011	942	522	9,408	9,408
Total Neighbourhood Trips		62	95	91	75	795	795
Total External Alternate Modes		57	321	298	157	3,014	3,014
Total Net External Vehicle Trips		105	595	553	291	5,598	5,598

*Any discrepancies between the above numbers and tables within the TIA reflect rounding.

Non-Residential Land Use (ITE LUC)	Intensity / Factor	AM Peak Hour		PM Peak Hour		Daily	
		In	Out	In	Out	In	Out
Catholic K-9		161	137	32	36	460	460
External Alt Modes	0%	0	0	0	0	0	0
Pass-by	0%	0	0	0	0	0	0
Internal Neighbourhood Trips (All Modes)	15%	24	21	5	5	69	69
Alt Modes	35%	8	7	2	2	24	24
Vehicles	65%	16	13	3	4	45	45
Net External Trips		137	116	27	31	391	391
Public K-6		160	136	29	35	454	454
External Alt Modes	0%	0	0	0	0	0	0
Pass-by	0%	0	0	0	0	0	0
Internal Neighbourhood Trips (All Modes)	15%	24	20	4	5	68	68
Alt Modes	35%	8	7	2	2	24	24
Vehicles	65%	16	13	3	3	44	44
Net External Trips		136	116	25	30	386	386
MU - Mixed Use North		70	57	89	96	613	613
External Alt Modes	0%	0	0	0	0	0	0
Pass-by	40%	23	23	36	36	245	245
Internal Neighbourhood Trips (All Modes)	15%	7	5	8	9	55	55
Alt Modes	35%	2	2	3	3	19	19
Vehicles	65%	5	3	5	6	36	36
Net External Trips		40	29	45	51	313	313
MU Mixed Use Central Retail		246	151	471	511	5,036	5,036
External Alt Modes	0%	0	0	0	0	0	0
Pass-by	40%/25%/30%	60	60	118	118	1,511	1,511
Internal Neighbourhood Trips (All Modes)	15%	28	14	53	59	529	529
Alt Modes	35%	10	5	19	21	185	185
Vehicles	65%	18	9	34	38	344	344
Net External Trips		158	77	300	334	2,996	2,996
MU Mixed Use Central Office		43	6	8	39	176	176
External Alt Modes	35%	15	2	3	14	62	62
Pass-by	0%	0	0	0	0	0	0
Internal Neighbourhood Trips (All Modes)	15%	4	1	1	4	17	17
Alt Modes	35%	1	0	0	1	6	6
Vehicles	65%	3	0	1	2	11	11
Net External Trips		24	3	4	22	97	97
MU Mixed Use Central Medical-Dental Office		80	21	38	89	585	585
External Alt Modes	35%	28	7	13	31	205	205
Pass-by	0%	0	0	0	0	0	0
Internal Neighbourhood Trips (All Modes)	15%	8	2	4	9	57	57
Alt Modes	35%	3	1	1	3	20	20
Vehicles	65%	5	1	2	6	37	37
Net External Trips		44	12	21	49	323	323
Gross Trips		760	508	667	806	7,324	7,324
External Alt Modes		43	9	16	45	266	266
Pass-by		83	83	153	153	1,756	1,756
Internal Neighbourhood Trips (All Modes)		95	62	75	91	795	795
Alt Modes		33	22	26	32	278	278
Vehicles		62	40	49	59	517	517
Total Net External Trips		539	353	423	517	4,506	4,506

*Any discrepancies between the above numbers and tables within the TIA reflect rounding.

Totals	AM Peak Hour		PM Peak Hour		Daily	
	In	Out	In	Out	In	Out
Gross Trips	984	1,519	1,609	1,328	16,732	16,732
External Alt Modes	100	330	314	201	3,281	3,281
Pass-by	83	83	153	153	1,756	1,756
Total Internal Trips	157	157	166	166	1,590	1,590
Total Net External Vehicle Trips	644	948	976	807	10,105	10,105

*Any discrepancies between the above numbers and tables within the TIA reflect rounding.

DRAFT

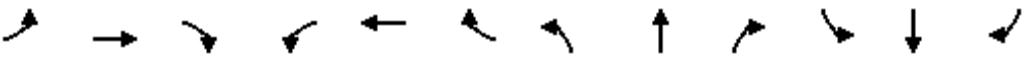
APPENDIX F

Synchro and Sidra Printouts

13: 122 Street & 63 Avenue
2024 Existing

AM Peak
12/12/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	82	69	31	10	10	26	448	166	137	592	65
Future Volume (vph)	85	82	69	31	10	10	26	448	166	137	592	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	75.0		75.0	100.0		100.0	110.0		0.0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1827	1655	0	1638	1574	1568	1759	3689	1568	3689	3657	0
Flt Permitted	0.741			0.626	0.859		0.415					
Satd. Flow (perm)	1343	1655	0	1013	1371	1537	729	3689	1548	3687	3657	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		80				98			166		21	
Link Speed (k/h)		40			40			60			60	
Link Distance (m)		145.8			174.6			299.0			148.8	
Travel Time (s)		13.1			15.7			17.9			8.9	
Confl. Peds. (#/hr)	8		17	17		8	3		1	1		3
Peak Hour Factor	0.82	1.00	0.54	0.97	0.63	1.00	1.00	0.73	1.00	0.93	1.00	1.00
Heavy Vehicles (%)	4%	5%	1%	16%	20%	3%	8%	3%	3%	3%	2%	3%
Shared Lane Traffic (%)				28%								
Lane Group Flow (vph)	104	210	0	23	25	10	26	614	166	147	657	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Prot	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2		2			
Detector Phase	4	4		8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	17.0	17.0		17.0	17.0	17.0	48.0	48.0	48.0	16.0	64.0	
Total Split (s)	36.0	36.0		36.0	36.0	36.0	48.0	48.0	48.0	16.0	64.0	
Total Split (%)	36.0%	36.0%		36.0%	36.0%	36.0%	48.0%	48.0%	48.0%	16.0%	64.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Total Lost Time (s)	6.5	6.5		6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min	Min	Min	Min	Min	Min	Min	
Act Effct Green (s)	13.1	13.1		13.1	13.1	13.1	15.8	15.8	15.8	7.7	30.4	
Actuated g/C Ratio	0.23	0.23		0.23	0.23	0.23	0.28	0.28	0.28	0.13	0.53	
v/c Ratio	0.34	0.48		0.10	0.08	0.02	0.13	0.60	0.30	0.30	0.34	
Control Delay	22.9	16.6		20.0	19.4	0.1	18.9	21.1	5.3	27.7	8.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	22.9	16.6		20.0	19.4	0.1	18.9	21.1	5.3	27.7	8.5	
LOS	C	B		B	B	A	B	C	A	C	A	
Approach Delay		18.7			16.3			17.7			12.0	
Approach LOS		B			B			B			B	
90th %ile Green (s)	30.0	30.0		30.0	30.0	30.0	30.0	30.0	30.0	10.0	46.0	
90th %ile Term Code	Ped	Ped		Ped	Ped	Ped	Ped	Ped	Ped	Max	Hold	
70th %ile Green (s)	11.9	11.9		11.9	11.9	11.9	16.9	16.9	16.9	8.4	31.3	
70th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Gap	Gap	Gap	Gap	Hold	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
50th %ile Green (s)	10.0	10.0		10.0	10.0	10.0	14.8	14.8	14.8	7.6	28.4	
50th %ile Term Code	Min	Min		Min	Min	Min	Gap	Gap	Gap	Gap	Hold	
30th %ile Green (s)	10.0	10.0		10.0	10.0	10.0	12.0	12.0	12.0	7.0	25.0	
30th %ile Term Code	Min	Min		Min	Min	Min	Gap	Gap	Gap	Min	Hold	
10th %ile Green (s)	10.0	10.0		10.0	10.0	10.0	10.3	10.3	10.3	7.0	23.3	
10th %ile Term Code	Min	Min		Min	Min	Min	Gap	Gap	Gap	Min	Hold	
Queue Length 50th (m)	8.7	10.9		1.8	2.0	0.0	1.8	24.6	0.0	6.3	14.1	
Queue Length 95th (m)	23.2	34.5		8.3	5.9	0.0	9.3	45.1	13.3	21.4	42.6	
Internal Link Dist (m)	121.8			150.6			275.0			124.8		
Turn Bay Length (m)	30.0			75.0		75.0	100.0		100.0	110.0		
Base Capacity (vph)	734	940		553	749	885	560	2837	1229	649	3405	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.14	0.22		0.04	0.03	0.01	0.05	0.22	0.14	0.23	0.19	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 57.2

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 15.5

Intersection LOS: B

Intersection Capacity Utilization 60.9%

ICU Level of Service B

Analysis Period (min) 15

90th %ile Actuated Cycle: 88

70th %ile Actuated Cycle: 55.2

50th %ile Actuated Cycle: 50.4

30th %ile Actuated Cycle: 47

10th %ile Actuated Cycle: 45.3

Splits and Phases: 13: 122 Street & 63 Avenue



13: 122 Street & 63 Avenue
2045 Background

AM Peak
12/12/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	82	69	31	10	10	26	808	166	137	698	65
Future Volume (vph)	85	82	69	31	10	10	26	808	166	137	698	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	75.0		75.0	100.0		100.0	110.0		0.0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1827	1602	0	1638	1574	1568	1759	3689	1568	3689	3610	0
Flt Permitted	0.741			0.626	0.859		0.376					
Satd. Flow (perm)	1288	1602	0	989	1359	1472	642	3689	1472	3589	3610	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		80				98			166			17
Link Speed (k/h)		40			40			60			60	
Link Distance (m)		145.8			174.6			299.0			148.8	
Travel Time (s)		13.1			15.7			17.9			8.9	
Confl. Peds. (#/hr)	50		50	50		50	50		50	50		50
Peak Hour Factor	0.82	1.00	0.54	0.97	0.63	1.00	1.00	1.00	1.00	0.93	1.00	1.00
Heavy Vehicles (%)	4%	5%	3%	16%	20%	3%	8%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)				28%								
Lane Group Flow (vph)	104	210	0	23	25	10	26	808	166	147	763	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Prot	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2		2			
Detector Phase	4	4		8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	17.0	17.0		17.0	17.0	17.0	48.0	48.0	48.0	16.0	64.0	
Total Split (s)	36.0	36.0		36.0	36.0	36.0	48.0	48.0	48.0	16.0	64.0	
Total Split (%)	36.0%	36.0%		36.0%	36.0%	36.0%	48.0%	48.0%	48.0%	16.0%	64.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Total Lost Time (s)	6.5	6.5		6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min	Min	Min	Min	Min	Min	Min	
Act Effct Green (s)	13.4	13.4		13.4	13.4	13.4	19.4	19.4	19.4	7.8	34.0	
Actuated g/C Ratio	0.22	0.22		0.22	0.22	0.22	0.32	0.32	0.32	0.13	0.56	
v/c Ratio	0.37	0.51		0.11	0.08	0.03	0.13	0.69	0.29	0.31	0.38	
Control Delay	25.4	18.4		21.7	21.0	0.1	18.5	22.1	4.9	29.9	8.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	25.4	18.4		21.7	21.0	0.1	18.5	22.1	4.9	29.9	8.6	
LOS	C	B		C	C	A	B	C	A	C	A	
Approach Delay		20.8			17.7			19.2			12.1	
Approach LOS		C			B			B			B	
90th %ile Green (s)	30.0	30.0		30.0	30.0	30.0	31.8	31.8	31.8	10.0	47.8	
90th %ile Term Code	Ped	Ped		Ped	Ped	Ped	Gap	Gap	Gap	Max	Hold	
70th %ile Green (s)	13.0	13.0		13.0	13.0	13.0	22.1	22.1	22.1	8.7	36.8	
70th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Gap	Gap	Gap	Gap	Hold	

13: 122 Street & 63 Avenue
2045 Background

AM Peak
12/12/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
50th %ile Green (s)	10.5	10.5		10.5	10.5	10.5	19.2	19.2	19.2	7.8	33.0	
50th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Gap	Gap	Gap	Gap	Hold	
30th %ile Green (s)	10.0	10.0		10.0	10.0	10.0	15.8	15.8	15.8	7.0	28.8	
30th %ile Term Code	Min	Min		Min	Min	Min	Gap	Gap	Gap	Min	Hold	
10th %ile Green (s)	10.0	10.0		10.0	10.0	10.0	12.6	12.6	12.6	7.0	25.6	
10th %ile Term Code	Min	Min		Min	Min	Min	Gap	Gap	Gap	Min	Hold	
Queue Length 50th (m)	9.9	12.4		2.1	2.2	0.0	1.9	35.4	0.0	7.2	17.8	
Queue Length 95th (m)	24.0	35.8		8.6	6.1	0.0	9.3	79.3	13.1	21.7	50.9	
Internal Link Dist (m)		121.8			150.6			275.0			124.8	
Turn Bay Length (m)	30.0			75.0		75.0	100.0		100.0	110.0		
Base Capacity (vph)	653	852		501	689	795	458	2634	1098	603	3301	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.16	0.25		0.05	0.04	0.01	0.06	0.31	0.15	0.24	0.23	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 61.1

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 16.5

Intersection LOS: B

Intersection Capacity Utilization 84.8%

ICU Level of Service E

Analysis Period (min) 15

90th %ile Actuated Cycle: 89.8

70th %ile Actuated Cycle: 61.8

50th %ile Actuated Cycle: 55.5

30th %ile Actuated Cycle: 50.8

10th %ile Actuated Cycle: 47.6

Splits and Phases: 13: 122 Street & 63 Avenue



13: 122 Street & 63 Avenue
2045 Total

AM Peak
12/12/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	82	87	31	10	10	39	1150	166	137	863	65
Future Volume (vph)	85	82	87	31	10	10	39	1150	166	137	863	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	75.0		75.0	100.0		100.0	110.0		0.0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1827	1574	0	1638	1574	1568	1759	3689	1568	3689	3619	0
Flt Permitted	0.741			0.335	0.793		0.322					
Satd. Flow (perm)	1275	1574	0	528	1254	1457	551	3689	1457	3615	3619	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		78				82			166		14	
Link Speed (k/h)		40			40			60			60	
Link Distance (m)		145.8			174.6			299.0			148.8	
Travel Time (s)		13.1			15.7			17.9			8.9	
Confl. Peds. (#/hr)	50		50	50		50	50		50	50		50
Peak Hour Factor	0.82	1.00	0.54	0.97	0.63	1.00	1.00	1.00	1.00	0.93	1.00	1.00
Heavy Vehicles (%)	4%	5%	3%	16%	20%	3%	8%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)				28%								
Lane Group Flow (vph)	104	243	0	23	25	10	39	1150	166	147	928	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Prot	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2		2			
Detector Phase	4	4		8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	17.0	17.0		17.0	17.0	17.0	48.0	48.0	48.0	16.0	64.0	
Total Split (s)	36.0	36.0		36.0	36.0	36.0	68.0	68.0	68.0	16.0	84.0	
Total Split (%)	30.0%	30.0%		30.0%	30.0%	30.0%	56.7%	56.7%	56.7%	13.3%	70.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Total Lost Time (s)	6.5	6.5		6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min	Min	C-Min	C-Min	C-Min	Min	C-Min	
Act Effct Green (s)	20.2	20.2		20.2	20.2	20.2	70.7	70.7	70.7	9.6	86.8	
Actuated g/C Ratio	0.17	0.17		0.17	0.17	0.17	0.59	0.59	0.59	0.08	0.72	
v/c Ratio	0.49	0.74		0.26	0.12	0.03	0.12	0.53	0.18	0.50	0.35	
Control Delay	50.6	44.1		46.8	39.2	0.2	9.3	9.3	0.8	58.4	7.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	50.6	44.1		46.8	39.2	0.2	9.3	9.3	0.8	58.4	7.5	
LOS	D	D		D	D	A	A	A	A	E	A	
Approach Delay		46.0			35.5			8.2			14.4	
Approach LOS		D			D			A			B	
90th %ile Green (s)	30.0	30.0		30.0	30.0	30.0	59.2	59.2	59.2	12.8	78.0	
90th %ile Term Code	Ped	Ped		Ped	Ped	Ped	Coord	Coord	Coord	Gap	Coord	
70th %ile Green (s)	30.0	30.0		30.0	30.0	30.0	60.8	60.8	60.8	11.2	78.0	
70th %ile Term Code	Ped	Ped		Ped	Ped	Ped	Coord	Coord	Coord	Gap	Coord	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
50th %ile Green (s)	18.5	18.5		18.5	18.5	18.5	73.4	73.4	73.4	10.1	89.5	
50th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Coord	Coord	Coord	Gap	Coord	
30th %ile Green (s)	15.0	15.0		15.0	15.0	15.0	78.0	78.0	78.0	9.0	93.0	
30th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Coord	Coord	Coord	Gap	Coord	
10th %ile Green (s)	10.0	10.0		10.0	10.0	10.0	84.6	84.6	84.6	7.4	98.0	
10th %ile Term Code	Min	Min		Min	Min	Min	Coord	Coord	Coord	Gap	Coord	
Queue Length 50th (m)	24.2	40.4		5.1	5.4	0.0	2.7	40.5	0.7	17.7	34.1	
Queue Length 95th (m)	34.6	62.9		12.5	8.6	0.0	m5.9	50.9	1.6	27.7	61.7	
Internal Link Dist (m)		121.8			150.6			275.0			124.8	
Turn Bay Length (m)	30.0			75.0		75.0	100.0		100.0	110.0		
Base Capacity (vph)	313	445		129	308	420	328	2198	935	317	2621	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.33	0.55		0.18	0.08	0.02	0.12	0.52	0.18	0.46	0.35	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 100 (83%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 15.8

Intersection LOS: B

Intersection Capacity Utilization 92.4%

ICU Level of Service F

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 13: 122 Street & 63 Avenue



13: 122 Street & 63 Avenue
2024 Existing

PM Peak
12/12/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	13	49	139	24	21	23	563	95	65	618	41
Future Volume (vph)	58	13	49	139	24	21	23	563	95	65	618	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	75.0		75.0	100.0		100.0	110.0		0.0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1845	1574	0	1845	1730	1568	1845	3689	1568	3689	3630	0
Flt Permitted	0.702			0.717	0.761		0.406					
Satd. Flow (perm)	1290	1574	0	1289	1337	1543	748	3689	1545	3682	3630	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49				98			112		20	
Link Speed (k/h)		40			40			60			60	
Link Distance (m)		145.8			174.6			299.0			148.8	
Travel Time (s)		13.1			15.7			17.9			8.9	
Confl. Peds. (#/hr)	4		28	28		4	1		3	3		1
Peak Hour Factor	1.00	1.00	1.00	1.00	0.86	1.00	0.82	0.86	0.85	0.90	1.00	0.64
Heavy Vehicles (%)	3%	3%	3%	3%	13%	3%	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)				41%								
Lane Group Flow (vph)	58	62	0	82	85	21	28	655	112	72	682	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Prot	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2		2			
Detector Phase	4	4		8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	17.0	17.0		17.0	17.0	17.0	48.0	48.0	48.0	16.0	64.0	
Total Split (s)	36.0	36.0		36.0	36.0	36.0	48.0	48.0	48.0	16.0	64.0	
Total Split (%)	36.0%	36.0%		36.0%	36.0%	36.0%	48.0%	48.0%	48.0%	16.0%	64.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Total Lost Time (s)	6.5	6.5		6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min	Min	Min	Min	Min	Min	Min	
Act Effct Green (s)	12.7	12.7		12.7	12.7	12.7	15.9	15.9	15.9	7.1	29.9	
Actuated g/C Ratio	0.23	0.23		0.23	0.23	0.23	0.28	0.28	0.28	0.13	0.53	
v/c Ratio	0.20	0.16		0.28	0.28	0.05	0.13	0.63	0.22	0.16	0.35	
Control Delay	20.4	9.2		21.7	21.5	0.2	18.0	20.8	5.3	27.2	8.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	20.4	9.2		21.7	21.5	0.2	18.0	20.8	5.3	27.2	8.6	
LOS	C	A		C	C	A	B	C	A	C	A	
Approach Delay		14.6			19.2			18.5			10.3	
Approach LOS		B			B			B			B	
90th %ile Green (s)	30.0	30.0		30.0	30.0	30.0	30.0	30.0	30.0	8.6	44.6	
90th %ile Term Code	Ped	Ped		Ped	Ped	Ped	Ped	Ped	Ped	Gap	Hold	
70th %ile Green (s)	10.2	10.2		10.2	10.2	10.2	16.6	16.6	16.6	7.0	29.6	
70th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Gap	Gap	Gap	Min	Hold	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
50th %ile Green (s)	10.0	10.0		10.0	10.0	10.0	14.7	14.7	14.7	7.0	27.7	
50th %ile Term Code	Min	Min		Min	Min	Min	Gap	Gap	Gap	Min	Hold	
30th %ile Green (s)	10.0	10.0		10.0	10.0	10.0	12.4	12.4	12.4	7.0	25.4	
30th %ile Term Code	Min	Min		Min	Min	Min	Gap	Gap	Gap	Min	Hold	
10th %ile Green (s)	10.0	10.0		10.0	10.0	10.0	10.8	10.8	10.8	7.0	23.8	
10th %ile Term Code	Min	Min		Min	Min	Min	Gap	Gap	Gap	Min	Hold	
Queue Length 50th (m)	4.6	1.0		6.7	6.9	0.0	1.9	26.1	0.0	3.0	14.9	
Queue Length 95th (m)	15.8	9.8		20.7	20.2	0.0	8.6	57.7	9.3	12.2	44.7	
Internal Link Dist (m)	121.8			150.6			275.0			124.8		
Turn Bay Length (m)	30.0			75.0		75.0	100.0		100.0	110.0		
Base Capacity (vph)	714	894		714	740	898	582	2875	1228	658	3387	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.08	0.07		0.11	0.11	0.02	0.05	0.23	0.09	0.11	0.20	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 56.3

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 15.0

Intersection LOS: B

Intersection Capacity Utilization 61.6%

ICU Level of Service B

Analysis Period (min) 15

90th %ile Actuated Cycle: 86.6

70th %ile Actuated Cycle: 51.8

50th %ile Actuated Cycle: 49.7

30th %ile Actuated Cycle: 47.4

10th %ile Actuated Cycle: 45.8

Splits and Phases: 13: 122 Street & 63 Avenue



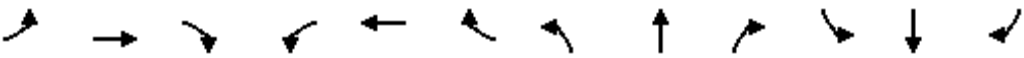
13: 122 Street & 63 Avenue
2045 Background

PM Peak
12/12/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	13	49	139	24	21	23	707	95	65	888	41
Future Volume (vph)	58	13	49	139	24	21	23	707	95	65	888	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	75.0		75.0	100.0		100.0	110.0		0.0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1845	1547	0	1845	1730	1568	1845	3689	1568	3689	3627	0
Flt Permitted	0.702			0.717	0.761		0.315					
Satd. Flow (perm)	1237	1547	0	1262	1318	1472	568	3689	1472	3574	3627	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49				98			112		13	
Link Speed (k/h)		40			40			60			60	
Link Distance (m)		145.8			174.6			299.0			148.8	
Travel Time (s)		13.1			15.7			17.9			8.9	
Confl. Peds. (#/hr)	50		50	50		50	50		50	50		50
Peak Hour Factor	1.00	1.00	1.00	1.00	0.86	1.00	0.82	1.00	0.85	0.90	1.00	0.64
Heavy Vehicles (%)	3%	3%	3%	3%	13%	3%	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)				41%								
Lane Group Flow (vph)	58	62	0	82	85	21	28	707	112	72	952	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Prot	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2		2			
Detector Phase	4	4		8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	17.0	17.0		17.0	17.0	17.0	48.0	48.0	48.0	16.0	64.0	
Total Split (s)	36.0	36.0		36.0	36.0	36.0	48.0	48.0	48.0	16.0	64.0	
Total Split (%)	36.0%	36.0%		36.0%	36.0%	36.0%	48.0%	48.0%	48.0%	16.0%	64.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Total Lost Time (s)	6.5	6.5		6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min	Min	Min	Min	Min	Min	Min	
Act Effct Green (s)	12.7	12.7		12.7	12.7	12.7	17.0	17.0	17.0	7.0	30.9	
Actuated g/C Ratio	0.22	0.22		0.22	0.22	0.22	0.30	0.30	0.30	0.12	0.54	
v/c Ratio	0.21	0.16		0.29	0.29	0.05	0.17	0.65	0.22	0.16	0.49	
Control Delay	21.1	9.4		22.4	22.2	0.2	19.1	20.9	5.3	27.8	9.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	21.1	9.4		22.4	22.2	0.2	19.1	20.9	5.3	27.8	9.8	
LOS	C	A		C	C	A	B	C	A	C	A	
Approach Delay		15.0			19.8			18.8			11.0	
Approach LOS		B			B			B			B	
90th %ile Green (s)	30.0	30.0		30.0	30.0	30.0	30.0	30.0	30.0	8.6	44.6	
90th %ile Term Code	Ped	Ped		Ped	Ped	Ped	Ped	Ped	Ped	Gap	Hold	
70th %ile Green (s)	10.5	10.5		10.5	10.5	10.5	18.6	18.6	18.6	7.0	31.6	
70th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Gap	Gap	Gap	Min	Hold	

13: 122 Street & 63 Avenue
2045 Background

PM Peak
12/12/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
50th %ile Green (s)	10.0	10.0		10.0	10.0	10.0	15.5	15.5	15.5	7.0	28.5	
50th %ile Term Code	Min	Min		Min	Min	Min	Gap	Gap	Gap	Min	Hold	
30th %ile Green (s)	10.0	10.0		10.0	10.0	10.0	14.1	14.1	14.1	7.0	27.1	
30th %ile Term Code	Min	Min		Min	Min	Min	Gap	Gap	Gap	Min	Hold	
10th %ile Green (s)	10.0	10.0		10.0	10.0	10.0	11.4	11.4	11.4	7.0	24.4	
10th %ile Term Code	Min	Min		Min	Min	Min	Gap	Gap	Gap	Min	Hold	
Queue Length 50th (m)	4.7	1.0		6.8	7.1	0.0	1.9	28.7	0.0	3.1	23.2	
Queue Length 95th (m)	15.8	9.9		20.8	20.3	0.0	8.9	66.6	9.4	12.2	67.5	
Internal Link Dist (m)		121.8			150.6			275.0			124.8	
Turn Bay Length (m)	30.0			75.0		75.0	100.0		100.0	110.0		
Base Capacity (vph)	669	860		683	713	841	432	2809	1147	642	3384	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.09	0.07		0.12	0.12	0.02	0.06	0.25	0.10	0.11	0.28	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 57.3

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 15.0

Intersection LOS: B

Intersection Capacity Utilization 83.9%

ICU Level of Service E

Analysis Period (min) 15

90th %ile Actuated Cycle: 86.6

70th %ile Actuated Cycle: 54.1

50th %ile Actuated Cycle: 50.5

30th %ile Actuated Cycle: 49.1

10th %ile Actuated Cycle: 46.4

Splits and Phases: 13: 122 Street & 63 Avenue



13: 122 Street & 63 Avenue
2045 Total

PM Peak
12/12/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	13	64	139	24	21	40	931	95	65	1222	41
Future Volume (vph)	58	13	64	139	24	21	40	931	95	65	1222	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	75.0		75.0	100.0		100.0	110.0		0.0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1845	1519	0	1845	1730	1568	1845	3689	1568	3689	3642	0
Flt Permitted	0.702			0.707	0.752		0.230					
Satd. Flow (perm)	1226	1519	0	1234	1296	1457	417	3689	1457	3588	3642	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		64				82			112		9	
Link Speed (k/h)		40			40			60			60	
Link Distance (m)		145.8			174.6			299.0			148.8	
Travel Time (s)		13.1			15.7			17.9			8.9	
Confl. Peds. (#/hr)	50		50	50		50	50		50	50		50
Peak Hour Factor	1.00	1.00	1.00	1.00	0.86	1.00	0.82	1.00	0.85	0.90	1.00	0.64
Heavy Vehicles (%)	3%	3%	3%	3%	13%	3%	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)				41%								
Lane Group Flow (vph)	58	77	0	82	85	21	49	931	112	72	1286	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Prot	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2		2			
Detector Phase	4	4		8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	17.0	17.0		17.0	17.0	17.0	48.0	48.0	48.0	16.0	64.0	
Total Split (s)	36.0	36.0		36.0	36.0	36.0	68.0	68.0	68.0	16.0	84.0	
Total Split (%)	30.0%	30.0%		30.0%	30.0%	30.0%	56.7%	56.7%	56.7%	13.3%	70.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Total Lost Time (s)	6.5	6.5		6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min	Min	C-Min	C-Min	C-Min	Min	C-Min	
Act Effect Green (s)	18.3	18.3		18.3	18.3	18.3	74.7	74.7	74.7	7.5	88.7	
Actuated g/C Ratio	0.15	0.15		0.15	0.15	0.15	0.62	0.62	0.62	0.06	0.74	
v/c Ratio	0.31	0.27		0.44	0.43	0.07	0.19	0.41	0.12	0.31	0.48	
Control Delay	46.1	14.4		50.5	50.0	0.5	10.0	8.0	0.6	57.2	8.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	46.1	14.4		50.5	50.0	0.5	10.0	8.0	0.6	57.2	8.2	
LOS	D	B		D	D	A	A	A	A	E	A	
Approach Delay		28.0			44.7			7.3			10.8	
Approach LOS		C			D			A			B	
90th %ile Green (s)	30.0	30.0		30.0	30.0	30.0	62.4	62.4	62.4	9.6	78.0	
90th %ile Term Code	Ped	Ped		Ped	Ped	Ped	Coord	Coord	Coord	Gap	Coord	
70th %ile Green (s)	30.0	30.0		30.0	30.0	30.0	63.5	63.5	63.5	8.5	78.0	
70th %ile Term Code	Ped	Ped		Ped	Ped	Ped	Coord	Coord	Coord	Gap	Coord	

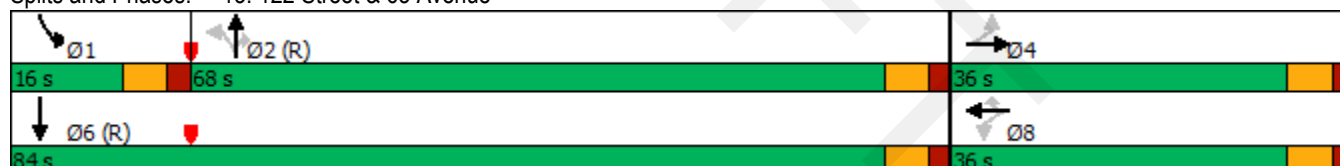
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
50th %ile Green (s)	13.3	13.3		13.3	13.3	13.3	81.0	81.0	81.0	7.7	94.7	
50th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord	Coord	Gap	Coord	
30th %ile Green (s)	10.8	10.8		10.8	10.8	10.8	84.2	84.2	84.2	7.0	97.2	
30th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord	Coord	Min	Coord	
10th %ile Green (s)	10.0	10.0		10.0	10.0	10.0	85.0	85.0	85.0	7.0	98.0	
10th %ile Term Code	Min	Min		Min	Min	Min	Coord	Coord	Coord	Min	Coord	
Queue Length 50th (m)	13.7	3.0		19.8	20.5	0.0	2.4	23.7	0.1	8.7	43.4	
Queue Length 95th (m)	23.6	15.0		31.6	30.5	0.0	8.9	53.9	1.6	16.1	96.8	
Internal Link Dist (m)		121.8			150.6			275.0			124.8	
Turn Bay Length (m)	30.0			75.0		75.0	100.0		100.0	110.0		
Base Capacity (vph)	301	421		303	318	420	259	2296	949	292	2693	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.19	0.18		0.27	0.27	0.05	0.19	0.41	0.12	0.25	0.48	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 85 (71%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.48
 Intersection Signal Delay: 12.6
 Intersection Capacity Utilization 85.7%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service E

Splits and Phases: 13: 122 Street & 63 Avenue



Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	45	121	646	685	34
Future Vol, veh/h	10	45	121	646	685	34
Conflicting Peds, #/hr	10	10	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	100	72	100	97	53
Heavy Vehicles, %	10	7	0	3	3	3
Mvmt Flow	12	45	168	646	706	64
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1417	405	780	0	-	0
Stage 1	748	-	-	-	-	-
Stage 2	669	-	-	-	-	-
Critical Hdwy	7	7.04	4.1	-	-	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.6	3.37	2.2	-	-	-
Pot Cap-1 Maneuver	119	581	846	-	-	-
Stage 1	408	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	93	569	837	-	-	-
Mov Cap-2 Maneuver	93	-	-	-	-	-
Stage 1	323	-	-	-	-	-
Stage 2	446	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	21.6	2.1		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	837	-	273	-	-	
HCM Lane V/C Ratio	0.201	-	0.209	-	-	
HCM Control Delay (s)	10.4	-	21.6	-	-	
HCM Lane LOS	B	-	C	-	-	
HCM 95th %tile Q(veh)	0.7	-	0.8	-	-	

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	45	121	990	764	34
Future Vol, veh/h	10	45	121	990	764	34
Conflicting Peds, #/hr	50	50	50	0	0	50
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	100	72	100	100	53
Heavy Vehicles, %	10	7	0	3	3	3
Mvmt Flow	12	45	168	990	764	64
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1727	514	878	0	-	0
Stage 1	846	-	-	-	-	-
Stage 2	881	-	-	-	-	-
Critical Hdwy	7	7.04	4.1	-	-	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.6	3.37	2.2	-	-	-
Pot Cap-1 Maneuver	73	493	778	-	-	-
Stage 1	362	-	-	-	-	-
Stage 2	346	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	51	444	738	-	-	-
Mov Cap-2 Maneuver	51	-	-	-	-	-
Stage 1	265	-	-	-	-	-
Stage 2	328	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	36.8	1.6		0		
HCM LOS	E					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	738	-	169	-	-	
HCM Lane V/C Ratio	0.228	-	0.338	-	-	
HCM Control Delay (s)	11.3	-	36.8	-	-	
HCM Lane LOS	B	-	E	-	-	
HCM 95th %tile Q(veh)	0.9	-	1.4	-	-	

Intersection						
Int Delay, s/veh	7.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	57	124	1333	945	36
Future Vol, veh/h	22	57	124	1333	945	36
Conflicting Peds, #/hr	50	50	50	0	0	50
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	100	72	100	100	53
Heavy Vehicles, %	7	7	3	3	3	3
Mvmt Flow	24	57	172	1333	945	68
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2090	607	1063	0	-	0
Stage 1	1029	-	-	-	-	-
Stage 2	1061	-	-	-	-	-
Critical Hdwy	6.94	7.04	4.16	-	-	-
Critical Hdwy Stg 1	5.94	-	-	-	-	-
Critical Hdwy Stg 2	5.94	-	-	-	-	-
Follow-up Hdwy	3.57	3.37	2.23	-	-	-
Pot Cap-1 Maneuver	43	427	645	-	-	-
Stage 1	295	-	-	-	-	-
Stage 2	283	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	28	385	612	-	-	-
Mov Cap-2 Maneuver	28	-	-	-	-	-
Stage 1	201	-	-	-	-	-
Stage 2	269	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	197.7	1.5		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	612	-	80	-	-	
HCM Lane V/C Ratio	0.281	-	1.018	-	-	
HCM Control Delay (s)	13.2	-	197.7	-	-	
HCM Lane LOS	B	-	F	-	-	
HCM 95th %tile Q(veh)	1.2	-	5.6	-	-	

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	34	42	582	898	9
Future Vol, veh/h	5	34	42	582	898	9
Conflicting Peds, #/hr	10	14	14	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	75	100	84	75
Heavy Vehicles, %	3	12	7	3	3	3
Mvmt Flow	5	34	56	582	1069	12
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1502	569	1095	0	-	0
Stage 1	1089	-	-	-	-	-
Stage 2	413	-	-	-	-	-
Critical Hdwy	6.86	7.14	4.24	-	-	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.42	2.27	-	-	-
Pot Cap-1 Maneuver	111	441	605	-	-	-
Stage 1	282	-	-	-	-	-
Stage 2	633	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	98	429	596	-	-	-
Mov Cap-2 Maneuver	98	-	-	-	-	-
Stage 1	252	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	18.8	1		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	596	-	299	-	-	
HCM Lane V/C Ratio	0.094	-	0.13	-	-	
HCM Control Delay (s)	11.7	-	18.8	-	-	
HCM Lane LOS	B	-	C	-	-	
HCM 95th %tile Q(veh)	0.3	-	0.4	-	-	

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	34	42	820	1067	9
Future Vol, veh/h	5	34	42	820	1067	9
Conflicting Peds, #/hr	50	50	50	0	0	50
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	75	100	100	75
Heavy Vehicles, %	3	12	7	3	3	3
Mvmt Flow	5	34	56	820	1067	12
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1695	640	1129	0	-	0
Stage 1	1123	-	-	-	-	-
Stage 2	572	-	-	-	-	-
Critical Hdwy	6.86	7.14	4.24	-	-	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.42	2.27	-	-	-
Pot Cap-1 Maneuver	83	395	586	-	-	-
Stage 1	270	-	-	-	-	-
Stage 2	525	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	67	356	556	-	-	-
Mov Cap-2 Maneuver	67	-	-	-	-	-
Stage 1	230	-	-	-	-	-
Stage 2	498	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	23.9	0.8		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	556	-	229	-	-	
HCM Lane V/C Ratio	0.101	-	0.17	-	-	
HCM Control Delay (s)	12.2	-	23.9	-	-	
HCM Lane LOS	B	-	C	-	-	
HCM 95th %tile Q(veh)	0.3	-	0.6	-	-	

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑↑	↑↑	
Traffic Vol, veh/h	9	40	53	1057	1405	20
Future Vol, veh/h	9	40	53	1057	1405	20
Conflicting Peds, #/hr	50	50	50	0	0	50
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	75	100	100	75
Heavy Vehicles, %	3	12	7	3	3	3
Mvmt Flow	9	40	71	1057	1405	27
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2190	816	1482	0	-	0
Stage 1	1469	-	-	-	-	-
Stage 2	721	-	-	-	-	-
Critical Hdwy	6.86	7.14	4.24	-	-	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.42	2.27	-	-	-
Pot Cap-1 Maneuver	38	300	426	-	-	-
Stage 1	176	-	-	-	-	-
Stage 2	440	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	28	270	404	-	-	-
Mov Cap-2 Maneuver	28	-	-	-	-	-
Stage 1	138	-	-	-	-	-
Stage 2	418	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	67.2	1		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	404	-	104	-	-	
HCM Lane V/C Ratio	0.175	-	0.471	-	-	
HCM Control Delay (s)	15.8	-	67.2	-	-	
HCM Lane LOS	C	-	F	-	-	
HCM 95th %tile Q(veh)	0.6	-	2.1	-	-	

3: 122 Street & 60 Avenue
2045 Total

AM Peak
12/12/2025

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	239	185	115	1218	857	145
Future Volume (vph)	239	185	115	1218	857	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0	0.0	70.0			50.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		7.5			
Satd. Flow (prot)	1845	1568	1845	3689	3689	1568
Flt Permitted			0.280			
Satd. Flow (perm)	1660	1375	517	3689	3689	1259
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		213				172
Link Speed (k/h)	40			60	60	
Link Distance (m)	173.4			425.0	145.0	
Travel Time (s)	15.6			25.5	8.7	
Confl. Peds. (#/hr)	50	50	50			50
Confl. Bikes (#/hr)		20				20
Peak Hour Factor	0.87	0.87	1.00	1.00	1.00	0.77
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	275	213	115	1218	857	188
Turn Type	Perm	Perm	pm+pt	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	11.0	24.0	24.0	24.0
Total Split (s)	40.0	40.0	20.0	80.0	60.0	60.0
Total Split (%)	33.3%	33.3%	16.7%	66.7%	50.0%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.5	0.5	1.0	0.5	0.5	0.5
Total Lost Time (s)	6.5	6.5	5.0	6.5	6.5	6.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	24.6	24.6	83.9	82.4	70.3	70.3
Actuated g/C Ratio	0.20	0.20	0.70	0.69	0.59	0.59
v/c Ratio	0.81	0.47	0.26	0.48	0.40	0.23
Control Delay	63.1	8.3	4.6	4.4	12.3	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.1	8.3	4.6	4.4	12.3	2.4
LOS	E	A	A	A	B	A
Approach Delay	39.2			4.4	10.5	
Approach LOS	D			A	B	
90th %ile Green (s)	33.1	33.1	10.5	74.9	60.4	60.4
90th %ile Term Code	Gap	Gap	Gap	Coord	Coord	Coord
70th %ile Green (s)	28.6	28.6	8.9	79.4	66.5	66.5



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
70th %ile Term Code	Gap	Gap	Gap	Coord	Coord	Coord
50th %ile Green (s)	25.2	25.2	7.9	82.8	70.9	70.9
50th %ile Term Code	Gap	Gap	Gap	Coord	Coord	Coord
30th %ile Green (s)	21.8	21.8	7.0	86.2	75.2	75.2
30th %ile Term Code	Gap	Gap	Gap	Coord	Coord	Coord
10th %ile Green (s)	16.9	16.9	6.1	91.1	81.0	81.0
10th %ile Term Code	Gap	Gap	Gap	Coord	Coord	Coord
Queue Length 50th (m)	65.4	0.0	4.6	26.6	62.8	5.3
Queue Length 95th (m)	85.8	16.6	8.5	33.1	51.0	1.9
Internal Link Dist (m)	149.4			401.0	121.0	
Turn Bay Length (m)	50.0		70.0			50.0
Base Capacity (vph)	463	537	527	2532	2161	808
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.40	0.22	0.48	0.40	0.23

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 94 (78%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 12.6

Intersection LOS: B

Intersection Capacity Utilization 59.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: 122 Street & 60 Avenue



3: 122 Street & 60 Avenue
2045 Total

PM Peak
12/12/2025

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	200	233	244	910	1182	263
Future Volume (vph)	200	233	244	910	1182	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0	0.0	70.0			50.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		7.5			
Satd. Flow (prot)	1845	1568	1845	3689	3689	1568
Flt Permitted			0.189			
Satd. Flow (perm)	1660	1371	349	3689	3689	1261
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		233				189
Link Speed (k/h)	40			60	60	
Link Distance (m)	173.4			425.0	145.0	
Travel Time (s)	15.6			25.5	8.7	
Confl. Peds. (#/hr)	50	50	50			50
Confl. Bikes (#/hr)		20				20
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	200	233	244	910	1182	263
Turn Type	Perm	Perm	pm+pt	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	11.0	24.0	24.0	24.0
Total Split (s)	35.0	35.0	20.0	85.0	65.0	65.0
Total Split (%)	29.2%	29.2%	16.7%	70.8%	54.2%	54.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.5	0.5	1.0	0.5	0.5	0.5
Total Lost Time (s)	6.5	6.5	5.0	6.5	6.5	6.5
Lead/Lag			Lag		Lead	Lead
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Act Effect Green (s)	19.2	19.2	89.3	87.8	67.8	67.8
Actuated g/C Ratio	0.16	0.16	0.74	0.73	0.56	0.56
v/c Ratio	0.75	0.56	0.55	0.34	0.57	0.33
Control Delay	65.4	10.7	20.4	2.6	15.1	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.4	10.7	20.4	2.6	15.1	3.8
LOS	E	B	C	A	B	A
Approach Delay	36.0			6.4	13.1	
Approach LOS	D			A	B	
90th %ile Green (s)	26.7	26.7	16.0	81.3	61.3	61.3
90th %ile Term Code	Gap	Gap	Max	Coord	Coord	Coord
70th %ile Green (s)	22.6	22.6	16.0	85.4	65.4	65.4



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
70th %ile Term Code	Gap	Gap	Hold	Coord	Coord	Coord
50th %ile Green (s)	19.7	19.7	16.0	88.3	68.3	68.3
50th %ile Term Code	Gap	Gap	Hold	Coord	Coord	Coord
30th %ile Green (s)	16.8	16.8	16.0	91.2	71.2	71.2
30th %ile Term Code	Gap	Gap	Hold	Coord	Coord	Coord
10th %ile Green (s)	12.6	12.6	16.0	95.4	75.4	75.4
10th %ile Term Code	Gap	Gap	Hold	Coord	Coord	Coord
Queue Length 50th (m)	47.9	0.0	17.1	19.5	99.2	1.9
Queue Length 95th (m)	69.7	22.0	39.5	12.3	73.8	14.2
Internal Link Dist (m)	149.4			401.0	121.0	
Turn Bay Length (m)	50.0		70.0			50.0
Base Capacity (vph)	394	503	446	2699	2085	794
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.46	0.55	0.34	0.57	0.33

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 51 (43%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 13.8

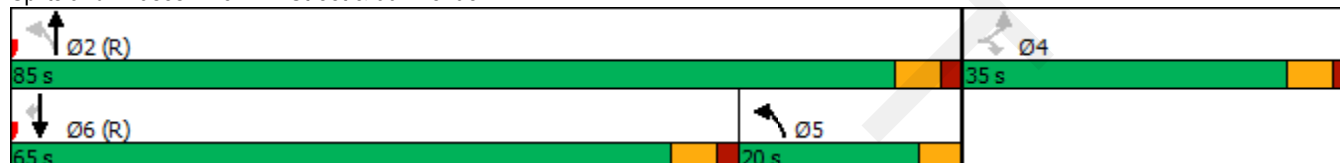
Intersection LOS: B

Intersection Capacity Utilization 75.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: 122 Street & 60 Avenue



4: 122 Street & 56 Avenue
2045 Total

AM Peak
12/12/2025

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	142	423	381	1191	979	63
Future Volume (vph)	142	423	381	1191	979	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0	0.0	70.0			0.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		7.5			
Satd. Flow (prot)	1845	1568	1845	3689	3689	1568
Flt Permitted			0.123			
Satd. Flow (perm)	1660	1375	227	3689	3689	1250
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		489				92
Link Speed (k/h)	40			60	60	
Link Distance (m)	170.4			480.6	425.0	
Travel Time (s)	15.3			28.8	25.5	
Confl. Peds. (#/hr)	50	50	50			50
Confl. Bikes (#/hr)		20				20
Peak Hour Factor	0.85	0.75	0.66	1.00	1.00	0.68
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	167	564	577	1191	979	93
Turn Type	Perm	Perm	pm+pt	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	11.0	24.0	24.0	24.0
Total Split (s)	40.0	40.0	35.0	80.0	45.0	45.0
Total Split (%)	33.3%	33.3%	29.2%	66.7%	37.5%	37.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.5	0.5	1.0	0.5	0.5	0.5
Total Lost Time (s)	6.5	6.5	5.0	6.5	6.5	6.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	20.0	20.0	88.5	87.0	41.6	41.6
Actuated g/C Ratio	0.17	0.17	0.74	0.72	0.35	0.35
v/c Ratio	0.61	0.89	0.81	0.45	0.76	0.19
Control Delay	53.8	24.0	20.7	3.1	28.8	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.8	24.0	20.7	3.1	28.8	5.2
LOS	D	C	C	A	C	A
Approach Delay	30.8			8.8	26.7	
Approach LOS	C			A	C	
90th %ile Green (s)	34.0	34.0	31.0	74.0	39.0	39.0
90th %ile Term Code	Max	Max	Max	Coord	Coord	Coord
70th %ile Green (s)	25.5	25.5	39.5	82.5	39.0	39.0



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
70th %ile Term Code	Gap	Gap	Max	Coord	Coord	Coord
50th %ile Green (s)	17.4	17.4	43.1	90.6	43.5	43.5
50th %ile Term Code	Gap	Gap	Gap	Coord	Coord	Coord
30th %ile Green (s)	14.8	14.8	44.1	93.2	45.1	45.1
30th %ile Term Code	Gap	Gap	Gap	Coord	Coord	Coord
10th %ile Green (s)	10.9	10.9	49.0	97.1	44.1	44.1
10th %ile Term Code	Gap	Gap	Gap	Coord	Coord	Coord
Queue Length 50th (m)	40.1	17.1	21.7	10.5	48.7	0.0
Queue Length 95th (m)	50.4	18.3	70.2	58.2	76.5	4.1
Internal Link Dist (m)	146.4			456.6	401.0	
Turn Bay Length (m)	50.0		70.0			
Base Capacity (vph)	463	736	711	2673	1280	493
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.77	0.81	0.45	0.76	0.19

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 95 (79%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 18.7

Intersection LOS: B

Intersection Capacity Utilization 76.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 4: 122 Street & 56 Avenue



4: 122 Street & 56 Avenue
2045 Total

PM Peak
12/12/2025

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	84	388	419	1070	1279	136
Future Volume (vph)	84	388	419	1070	1279	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0	0.0	70.0			0.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		7.5			
Satd. Flow (prot)	1845	1568	1845	3689	3689	1568
Flt Permitted			0.105			
Satd. Flow (perm)	1660	1375	194	3689	3689	1256
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		349				116
Link Speed (k/h)	40			60	60	
Link Distance (m)	170.4			480.6	425.0	
Travel Time (s)	15.3			28.8	25.5	
Confl. Peds. (#/hr)	50	50	50			50
Confl. Bikes (#/hr)		20				20
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	84	388	419	1070	1279	136
Turn Type	Perm	Perm	pm+pt	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	11.0	24.0	24.0	24.0
Total Split (s)	40.0	40.0	26.0	80.0	54.0	54.0
Total Split (%)	33.3%	33.3%	21.7%	66.7%	45.0%	45.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.5	0.5	1.0	0.5	0.5	0.5
Total Lost Time (s)	6.5	6.5	5.0	6.5	6.5	6.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	13.6	13.6	94.9	93.4	56.7	56.7
Actuated g/C Ratio	0.11	0.11	0.79	0.78	0.47	0.47
v/c Ratio	0.45	0.83	0.71	0.37	0.73	0.21
Control Delay	54.9	23.7	21.2	1.7	20.4	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.9	23.7	21.2	1.7	20.4	5.3
LOS	D	C	C	A	C	A
Approach Delay	29.2			7.2	19.0	
Approach LOS	C			A	B	
90th %ile Green (s)	26.0	26.0	30.0	82.0	48.0	48.0
90th %ile Term Code	Gap	Gap	Max	Coord	Coord	Coord
70th %ile Green (s)	16.6	16.6	33.3	91.4	54.1	54.1



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
70th %ile Term Code	Gap	Gap	Gap	Coord	Coord	Coord
50th %ile Green (s)	11.4	11.4	32.2	96.6	60.4	60.4
50th %ile Term Code	Gap	Gap	Gap	Coord	Coord	Coord
30th %ile Green (s)	9.6	9.6	32.5	98.4	61.9	61.9
30th %ile Term Code	Gap	Gap	Gap	Coord	Coord	Coord
10th %ile Green (s)	6.9	6.9	35.4	101.1	61.7	61.7
10th %ile Term Code	Gap	Gap	Gap	Coord	Coord	Coord
Queue Length 50th (m)	20.3	9.2	29.7	8.4	44.6	0.4
Queue Length 95th (m)	32.4	42.6	m#43.1	15.7	122.9	12.7
Internal Link Dist (m)	146.4			456.6	401.0	
Turn Bay Length (m)	50.0		70.0			
Base Capacity (vph)	463	635	589	2871	1743	655
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.61	0.71	0.37	0.73	0.21

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 60 (50%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 15.2

Intersection LOS: B

Intersection Capacity Utilization 86.6%

ICU Level of Service E

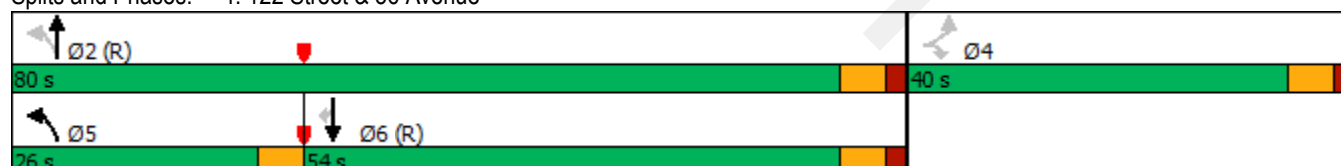
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: 122 Street & 56 Avenue



5: 122 Street & 51 Avenue
2024 Existing

AM Peak
12/12/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	138	71	166	39	112	39	606	486	156	474	27
Future Volume (vph)	63	138	71	166	39	112	39	606	486	156	474	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	0.0		30.0	65.0		25.0	45.0		110.0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1845	3474	0	1759	1727	1827	1845	3689	1810	1827	3689	1568
Flt Permitted	0.706			0.604			0.492			0.435		
Satd. Flow (perm)	1289	3474	0	1032	1727	1778	899	3689	1755	789	3689	1503
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		64				140			318			36
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		79.5			1615.6			527.3			480.6	
Travel Time (s)		5.7			116.3			31.6			28.8	
Confl. Peds. (#/hr)	10		37	37		10	10		15	15		10
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	1.00	0.77	1.00	0.70	0.50	0.80	0.70	1.00	0.93	1.00	1.00	0.75
Heavy Vehicles (%)	3%	3%	3%	8%	10%	4%	3%	3%	5%	4%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	250	0	237	78	140	56	606	523	156	474	36
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	4	4		8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.0	28.0		28.0	28.0	28.0	35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	33.0	33.0		33.0	33.0	33.0	67.0	67.0	67.0	67.0	67.0	67.0
Total Split (%)	33.0%	33.0%		33.0%	33.0%	33.0%	67.0%	67.0%	67.0%	67.0%	67.0%	67.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total Lost Time (s)	6.5	6.5		6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effect Green (s)	18.3	18.3		18.3	18.3	18.3	17.0	17.0	17.0	17.0	17.0	17.0
Actuated g/C Ratio	0.37	0.37		0.37	0.37	0.37	0.35	0.35	0.35	0.35	0.35	0.35
v/c Ratio	0.13	0.19		0.62	0.12	0.19	0.18	0.47	0.64	0.57	0.37	0.07
Control Delay	12.1	8.6		21.6	11.7	3.5	13.6	14.1	9.5	23.3	13.1	5.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.1	8.6		21.6	11.7	3.5	13.6	14.1	9.5	23.3	13.1	5.1
LOS	B	A		C	B	A	B	B	A	C	B	A
Approach Delay		9.3			14.4			12.0			15.1	
Approach LOS		A			B			B			B	
90th %ile Green (s)	27.0	27.0		27.0	27.0	27.0	27.6	27.6	27.6	27.6	27.6	27.6
90th %ile Term Code	Ped	Ped		Max	Max	Max	Hold	Hold	Hold	Gap	Gap	Gap
70th %ile Green (s)	21.5	21.5		21.5	21.5	21.5	20.5	20.5	20.5	20.5	20.5	20.5

5: 122 Street & 51 Avenue
2024 Existing

AM Peak
12/12/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
70th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold	Gap	Gap	Gap
50th %ile Green (s)	18.7	18.7		18.7	18.7	18.7	16.6	16.6	16.6	16.6	16.6	16.6
50th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	15.6	15.6		15.6	15.6	15.6	14.2	14.2	14.2	14.2	14.2	14.2
30th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	12.3	12.3		12.3	12.3	12.3	10.7	10.7	10.7	10.7	10.7	10.7
10th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Gap	Gap	Gap	Hold	Hold	Hold
Queue Length 50th (m)	3.4	5.0		15.8	4.2	0.0	3.4	20.3	13.0	10.9	15.2	0.0
Queue Length 95th (m)	12.2	11.3		31.5	7.5	6.9	8.7	38.8	43.7	31.6	30.1	3.5
Internal Link Dist (m)		55.5			1591.6			503.3			456.6	
Turn Bay Length (m)	20.0					30.0	65.0		25.0	45.0		110.0
Base Capacity (vph)	732	2000		586	980	1070	882	3621	1729	774	3621	1476
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.13		0.40	0.08	0.13	0.06	0.17	0.30	0.20	0.13	0.02

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 48.9

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 12.9

Intersection LOS: B

Intersection Capacity Utilization 76.9%

ICU Level of Service D

Analysis Period (min) 15

90th %ile Actuated Cycle: 66.6

70th %ile Actuated Cycle: 54

50th %ile Actuated Cycle: 47.3

30th %ile Actuated Cycle: 41.8

10th %ile Actuated Cycle: 35

Splits and Phases: 5: 122 Street & 51 Avenue

 Ø2	 Ø4
67 s	33 s
 Ø6	 Ø8
67 s	33 s

5: 122 Street & 51 Avenue
2045 Background

AM Peak
12/12/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	152	129	190	45	165	77	869	503	187	505	37
Future Volume (vph)	119	152	129	190	45	165	77	869	503	187	505	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	0.0		30.0	65.0		25.0	45.0		110.0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1845	3330	0	1845	1845	1845	1845	3689	1845	1845	3689	1568
Flt Permitted	0.728			0.587			0.478			0.304		
Satd. Flow (perm)	1273	3330	0	1042	1845	1722	842	3689	1722	553	3689	1394
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		129				118			364			37
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		79.5			1615.6			527.3			480.6	
Travel Time (s)		5.7			116.3			31.6			28.8	
Confl. Peds. (#/hr)	50		50	50		50	50		50	50		50
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	119	281	0	190	45	165	77	869	503	187	505	37
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	4	4		8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.0	28.0		28.0	28.0	28.0	35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	36.0	36.0		36.0	36.0	36.0	64.0	64.0	64.0	64.0	64.0	64.0
Total Split (%)	36.0%	36.0%		36.0%	36.0%	36.0%	64.0%	64.0%	64.0%	64.0%	64.0%	64.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total Lost Time (s)	6.5	6.5		6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	16.8	16.8		16.8	16.8	16.8	27.7	27.7	27.7	27.7	27.7	27.7
Actuated g/C Ratio	0.28	0.28		0.28	0.28	0.28	0.47	0.47	0.47	0.47	0.47	0.47
v/c Ratio	0.33	0.27		0.65	0.09	0.29	0.20	0.51	0.51	0.73	0.29	0.06
Control Delay	23.8	11.7		34.1	20.6	9.8	10.6	11.5	4.8	30.7	9.8	3.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.8	11.7		34.1	20.6	9.8	10.6	11.5	4.8	30.7	9.8	3.5
LOS	C	B		C	C	A	B	B	A	C	A	A
Approach Delay		15.3			22.5			9.2			14.8	
Approach LOS		B			C			A			B	
90th %ile Green (s)	30.0	30.0		30.0	30.0	30.0	58.0	58.0	58.0	58.0	58.0	58.0
90th %ile Term Code	Hold	Hold		Max	Max	Max	Hold	Hold	Hold	Max	Max	Max
70th %ile Green (s)	20.9	20.9		20.9	20.9	20.9	36.3	36.3	36.3	36.3	36.3	36.3
70th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold	Gap	Gap	Gap

5: 122 Street & 51 Avenue
2045 Background

AM Peak
12/12/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
50th %ile Green (s)	15.3	15.3		15.3	15.3	15.3	25.4	25.4	25.4	25.4	25.4	25.4
50th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold	Gap	Gap	Gap
30th %ile Green (s)	11.4	11.4		11.4	11.4	11.4	16.9	16.9	16.9	16.9	16.9	16.9
30th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Gap
10th %ile Green (s)	10.0	10.0		10.0	10.0	10.0	13.0	13.0	13.0	13.0	13.0	13.0
10th %ile Term Code	Min	Min		Min	Min	Min	Gap	Gap	Gap	Hold	Hold	Hold
Queue Length 50th (m)	9.3	5.6		16.5	3.3	3.4	4.1	27.5	7.3	13.7	14.2	0.0
Queue Length 95th (m)	34.9	21.2		58.5	15.2	22.7	14.6	59.1	29.9	49.5	32.2	4.2
Internal Link Dist (m)		55.5			1591.6			503.3			456.6	
Turn Bay Length (m)	20.0					30.0	65.0		25.0	45.0		110.0
Base Capacity (vph)	726	1957		595	1053	1034	742	3251	1560	487	3251	1233
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.14		0.32	0.04	0.16	0.10	0.27	0.32	0.38	0.16	0.03

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 59.4

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 13.2

Intersection LOS: B

Intersection Capacity Utilization 86.7%

ICU Level of Service E

Analysis Period (min) 15

90th %ile Actuated Cycle: 100

70th %ile Actuated Cycle: 69.2

50th %ile Actuated Cycle: 52.7

30th %ile Actuated Cycle: 40.3

10th %ile Actuated Cycle: 35

Splits and Phases: 5: 122 Street & 51 Avenue



5: 122 Street & 51 Avenue
2045 Total

AM Peak
12/12/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	152	129	190	45	376	77	1099	503	466	805	51
Future Volume (vph)	139	152	129	190	45	376	77	1099	503	466	805	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	0.0		30.0	65.0		25.0	45.0		110.0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1845	3313	0	1845	1845	1845	1845	3689	1845	1845	3689	1568
Flt Permitted	0.728			0.392			0.362			0.106		
Satd. Flow (perm)	1259	3313	0	695	1845	1702	644	3689	1702	196	3689	1366
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		129				376			169			64
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		79.5			1615.6			527.3			480.6	
Travel Time (s)		5.7			116.3			31.6			28.8	
Confl. Peds. (#/hr)	50		50	50		50	50		50	50		50
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	281	0	190	45	376	77	1099	503	466	805	51
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	4	4		3	8	8	2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	28.0	28.0		11.0	28.0	28.0	35.0	35.0	35.0	11.0	35.0	35.0
Total Split (s)	28.0	28.0		11.0	39.0	39.0	46.0	46.0	46.0	35.0	81.0	81.0
Total Split (%)	23.3%	23.3%		9.2%	32.5%	32.5%	38.3%	38.3%	38.3%	29.2%	67.5%	67.5%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0
Lost Time Adjust (s)	0.5	0.5		1.0	0.5	0.5	0.5	0.5	0.5	1.0	0.5	0.5
Total Lost Time (s)	6.5	6.5		5.0	6.5	6.5	6.5	6.5	6.5	5.0	6.5	6.5
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	C-Max	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	17.2	17.2		29.7	28.2	28.2	46.1	46.1	46.1	80.3	78.8	78.8
Actuated g/C Ratio	0.14	0.14		0.25	0.24	0.24	0.38	0.38	0.38	0.67	0.66	0.66
v/c Ratio	0.77	0.48		0.83	0.10	0.55	0.31	0.78	0.66	0.91	0.33	0.06
Control Delay	75.9	27.1		68.1	34.7	6.7	33.7	38.7	26.3	50.9	3.3	0.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.9	27.1		68.1	34.7	6.7	33.7	38.7	26.3	50.9	3.3	0.1
LOS	E	C		E	C	A	C	D	C	D	A	A
Approach Delay		43.3			27.9			34.7			20.0	
Approach LOS		D			C			C			B	
90th %ile Green (s)	22.0	22.0		7.0	33.0	33.0	40.0	40.0	40.0	31.0	75.0	75.0
90th %ile Term Code	Ped	Ped		Max	Hold	Hold	Coord	Coord	Coord	Max	Coord	Coord
70th %ile Green (s)	22.0	22.0		7.0	33.0	33.0	40.0	40.0	40.0	31.0	75.0	75.0
70th %ile Term Code	Ped	Ped		Max	Hold	Hold	Coord	Coord	Coord	Max	Coord	Coord

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
50th %ile Green (s)	18.4	18.4		7.0	29.4	29.4	42.1	42.1	42.1	32.5	78.6	78.6
50th %ile Term Code	Gap	Gap		Max	Hold	Hold	Coord	Coord	Coord	Gap	Coord	Coord
30th %ile Green (s)	15.3	15.3		7.0	26.3	26.3	49.7	49.7	49.7	28.0	81.7	81.7
30th %ile Term Code	Gap	Gap		Max	Hold	Hold	Coord	Coord	Coord	Gap	Coord	Coord
10th %ile Green (s)	10.7	10.7		7.0	21.7	21.7	61.0	61.0	61.0	21.3	86.3	86.3
10th %ile Term Code	Gap	Gap		Max	Hold	Hold	Coord	Coord	Coord	Gap	Coord	Coord
Queue Length 50th (m)	33.4	17.0		39.3	8.7	0.0	14.1	125.9	73.1	41.6	11.0	0.0
Queue Length 95th (m)	55.1	29.3		#67.8	18.2	23.7	29.6	#167.8	119.4	#142.2	19.0	m0.0
Internal Link Dist (m)		55.5			1591.6			503.3			456.6	
Turn Bay Length (m)	20.0					30.0	65.0		25.0	45.0		110.0
Base Capacity (vph)	225	699		229	499	735	247	1415	757	547	2423	919
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.40		0.83	0.09	0.51	0.31	0.78	0.66	0.85	0.33	0.06

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 26 (22%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 29.7

Intersection LOS: C

Intersection Capacity Utilization 106.1%

ICU Level of Service G

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: 122 Street & 51 Avenue

 Ø1	 Ø2 (R)	 Ø3	 Ø4
35 s	46 s	11 s	28 s
 Ø6 (R)		 Ø8	
81 s		39 s	

5: 122 Street & 51 Avenue
2024 Existing

PM Peak
12/12/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	53	130	494	185	204	49	379	170	98	748	27
Future Volume (vph)	38	53	130	494	185	204	49	379	170	98	748	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	0.0		30.0	65.0		25.0	45.0		110.0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1845	3243	0	1845	1845	1845	1845	3689	1810	1845	3689	1568
Flt Permitted	0.630			0.633			0.209			0.533		
Satd. Flow (perm)	1154	3243	0	1146	1845	1802	384	3689	1761	976	3689	1507
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		64				204			185			41
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		79.5			1615.6			527.3			480.6	
Travel Time (s)		5.7			116.3			31.6			28.8	
Confl. Peds. (#/hr)	10		28	28		10	10		14	14		10
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.73	0.78	1.00	1.00	0.91	1.00	1.00	0.98	0.92	0.91	0.86	1.00
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	5%	3%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	198	0	494	203	204	49	387	185	108	870	27
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	4	4		8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.0	28.0		28.0	28.0	28.0	35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	50.0%	50.0%		50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total Lost Time (s)	6.5	6.5		6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	33.7	33.7		33.7	33.7	33.7	21.7	21.7	21.7	21.7	21.7	21.7
Actuated g/C Ratio	0.49	0.49		0.49	0.49	0.49	0.32	0.32	0.32	0.32	0.32	0.32
v/c Ratio	0.09	0.12		0.88	0.22	0.21	0.40	0.33	0.27	0.35	0.74	0.05
Control Delay	11.6	7.6		37.4	12.0	2.7	28.7	18.2	3.9	20.9	25.0	3.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.6	7.6		37.4	12.0	2.7	28.7	18.2	3.9	20.9	25.0	3.7
LOS	B	A		D	B	A	C	B	A	C	C	A
Approach Delay		8.4			23.8			14.8			24.0	
Approach LOS		A			C			B			C	
90th %ile Green (s)	34.0	34.0		34.0	34.0	34.0	30.7	30.7	30.7	30.7	30.7	30.7
90th %ile Term Code	Hold	Hold		Max	Max	Max	Hold	Hold	Hold	Gap	Gap	Gap
70th %ile Green (s)	34.0	34.0		34.0	34.0	34.0	24.8	24.8	24.8	24.8	24.8	24.8

5: 122 Street & 51 Avenue
2024 Existing

PM Peak
12/12/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
70th %ile Term Code	Hold	Hold		Max	Max	Max	Hold	Hold	Hold	Gap	Gap	Gap
50th %ile Green (s)	34.0	34.0		34.0	34.0	34.0	22.4	22.4	22.4	22.4	22.4	22.4
50th %ile Term Code	Hold	Hold		Max	Max	Max	Hold	Hold	Hold	Gap	Gap	Gap
30th %ile Green (s)	34.0	34.0		34.0	34.0	34.0	19.2	19.2	19.2	19.2	19.2	19.2
30th %ile Term Code	Hold	Hold		Max	Max	Max	Hold	Hold	Hold	Gap	Gap	Gap
10th %ile Green (s)	34.0	34.0		34.0	34.0	34.0	15.2	15.2	15.2	15.2	15.2	15.2
10th %ile Term Code	Hold	Hold		Max	Max	Max	Hold	Hold	Hold	Gap	Gap	Gap
Queue Length 50th (m)	3.5	4.5		55.8	14.7	0.0	5.1	19.4	0.0	10.9	51.3	0.0
Queue Length 95th (m)	8.8	9.5		#135.7	33.0	11.1	14.8	29.0	11.5	23.1	64.7	3.3
Internal Link Dist (m)		55.5			1591.6			503.3			456.6	
Turn Bay Length (m)	20.0					30.0	65.0		25.0	45.0		110.0
Base Capacity (vph)	568	1628		564	907	990	189	1815	960	480	1815	762
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.12		0.88	0.22	0.21	0.26	0.21	0.19	0.23	0.48	0.04

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 68.5

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 20.5

Intersection LOS: C

Intersection Capacity Utilization 95.5%

ICU Level of Service F

Analysis Period (min) 15

90th %ile Actuated Cycle: 76.7

70th %ile Actuated Cycle: 70.8

50th %ile Actuated Cycle: 68.4

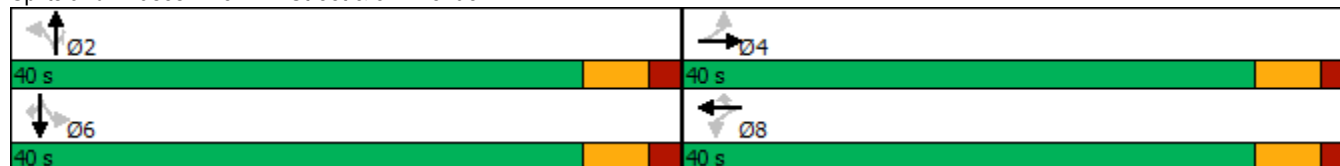
30th %ile Actuated Cycle: 65.2

10th %ile Actuated Cycle: 61.2

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: 122 Street & 51 Avenue



5: 122 Street & 51 Avenue
2045 Background

PM Peak
12/12/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	74	194	518	203	251	149	424	303	172	822	53
Future Volume (vph)	166	74	194	518	203	251	149	424	303	172	822	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	0.0		30.0	65.0		25.0	45.0		110.0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1845	3103	0	1845	1845	1845	1845	3689	1845	1845	3689	1568
Flt Permitted	0.630			0.437			0.183			0.397		
Satd. Flow (perm)	1104	3103	0	774	1845	1702	326	3689	1702	711	3689	1366
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		189				234			222			136
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		79.5			1615.6			527.3			480.6	
Travel Time (s)		5.7			116.3			31.6			28.8	
Confl. Peds. (#/hr)	50		50	50		50	50		50	50		50
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	166	268	0	518	203	251	149	424	303	172	822	53
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.0	28.0		11.0	28.0	28.0	11.0	35.0	35.0	11.0	35.0	35.0
Total Split (s)	20.0	23.0		33.0	36.0	36.0	13.0	31.0	31.0	33.0	51.0	51.0
Total Split (%)	16.7%	19.2%		27.5%	30.0%	30.0%	10.8%	25.8%	25.8%	27.5%	42.5%	42.5%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0
Lost Time Adjust (s)	1.0	0.5		1.0	0.5	0.5	1.0	0.5	0.5	1.0	0.5	0.5
Total Lost Time (s)	5.0	6.5		5.0	6.5	6.5	5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Min		None	Min	Min	None	Min	Min	None	Min	Min
Act Effect Green (s)	26.9	15.4		47.4	30.8	30.8	34.4	25.0	25.0	39.4	27.8	27.8
Actuated g/C Ratio	0.27	0.15		0.47	0.31	0.31	0.34	0.25	0.25	0.39	0.28	0.28
v/c Ratio	0.45	0.42		0.82	0.36	0.37	0.65	0.46	0.51	0.43	0.81	0.11
Control Delay	22.7	15.0		32.2	30.6	6.5	36.0	35.5	13.9	23.5	41.2	0.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.7	15.0		32.2	30.6	6.5	36.0	35.5	13.9	23.5	41.2	0.5
LOS	C	B		C	C	A	D	D	B	C	D	A
Approach Delay		18.0			25.2			28.1			36.2	
Approach LOS		B			C			C			D	
90th %ile Green (s)	15.3	27.0		29.0	40.7	40.7	9.0	32.7	32.7	17.3	41.0	41.0
90th %ile Term Code	Gap	Ped		Max	Hold	Hold	Max	Hold	Hold	Gap	Gap	Gap
70th %ile Green (s)	12.4	27.0		29.0	43.6	43.6	9.0	30.3	30.3	14.6	35.9	35.9
70th %ile Term Code	Gap	Ped		Max	Hold	Hold	Max	Hold	Hold	Gap	Gap	Gap

5: 122 Street & 51 Avenue
2045 Background

PM Peak
12/12/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
50th %ile Green (s)	10.7	10.0		29.0	28.3	28.3	9.0	24.7	24.7	11.0	26.7	26.7
50th %ile Term Code	Gap	Min		Max	Hold	Hold	Max	Hold	Hold	Gap	Gap	Gap
30th %ile Green (s)	9.3	10.0		24.5	25.2	25.2	9.0	22.8	22.8	9.4	23.2	23.2
30th %ile Term Code	Gap	Min		Gap	Hold	Hold	Max	Hold	Hold	Gap	Gap	Gap
10th %ile Green (s)	7.4	10.0		18.5	21.1	21.1	7.4	17.4	17.4	7.5	17.5	17.5
10th %ile Term Code	Gap	Min		Gap	Hold	Hold	Gap	Hold	Hold	Gap	Gap	Gap
Queue Length 50th (m)	18.1	7.1		71.5	30.9	2.3	17.3	34.3	12.2	20.3	73.5	0.0
Queue Length 95th (m)	38.1	20.1		#143.5	62.3	22.3	#44.8	62.4	44.4	43.3	115.8	0.0
Internal Link Dist (m)		55.5			1591.6			503.3			456.6	
Turn Bay Length (m)	20.0					30.0	65.0		25.0	45.0		110.0
Base Capacity (vph)	474	782		677	637	741	239	1016	629	630	1704	704
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.34		0.77	0.32	0.34	0.62	0.42	0.48	0.27	0.48	0.08

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 100.3

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 28.5

Intersection LOS: C

Intersection Capacity Utilization 99.2%

ICU Level of Service F

Analysis Period (min) 15

90th %ile Actuated Cycle: 126

70th %ile Actuated Cycle: 120.9

50th %ile Actuated Cycle: 94.7

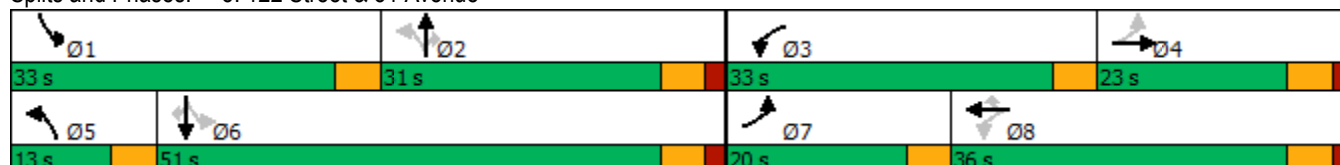
30th %ile Actuated Cycle: 86.7

10th %ile Actuated Cycle: 73.4

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: 122 Street & 51 Avenue



5: 122 Street & 51 Avenue
2045 Total

PM Peak
12/12/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	183	74	194	518	203	554	149	731	303	439	1102	72
Future Volume (vph)	183	74	194	518	203	554	149	731	303	439	1102	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	0.0		30.0	65.0		25.0	45.0		110.0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1845	3103	0	1845	1845	1845	1845	3689	1845	1845	3689	1568
Flt Permitted	0.630			0.341			0.193			0.145		
Satd. Flow (perm)	1104	3103	0	604	1845	1702	349	3689	1702	264	3689	1366
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		176				503			173			136
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		79.5			1615.6			527.3			480.6	
Travel Time (s)		5.7			116.3			31.6			28.8	
Confl. Peds. (#/hr)	50		50	50		50	50		50	50		50
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	183	268	0	518	203	554	149	731	303	439	1102	72
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.0	28.0		11.0	28.0	28.0	11.0	35.0	35.0	11.0	35.0	35.0
Total Split (s)	22.0	23.0		35.0	36.0	36.0	13.0	29.0	29.0	33.0	49.0	49.0
Total Split (%)	18.3%	19.2%		29.2%	30.0%	30.0%	10.8%	24.2%	24.2%	27.5%	40.8%	40.8%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0
Lost Time Adjust (s)	1.0	0.5		1.0	0.5	0.5	1.0	0.5	0.5	1.0	0.5	0.5
Total Lost Time (s)	5.0	6.5		5.0	6.5	6.5	5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Min		None	Min	Min	None	C-Min	C-Min	None	C-Min	C-Min
Act Effect Green (s)	26.1	12.3		48.0	29.2	29.2	39.9	29.8	29.8	62.0	47.0	47.0
Actuated g/C Ratio	0.22	0.10		0.40	0.24	0.24	0.33	0.25	0.25	0.52	0.39	0.39
v/c Ratio	0.58	0.56		0.95	0.45	0.70	0.67	0.80	0.55	0.93	0.76	0.12
Control Delay	33.2	22.4		59.5	42.1	10.5	39.2	51.2	22.3	43.8	21.5	1.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.2	22.4		59.5	42.1	10.5	39.2	51.2	22.3	43.8	21.5	1.2
LOS	C	C		E	D	B	D	D	C	D	C	A
Approach Delay		26.8			35.4			42.3			26.6	
Approach LOS		C			D			D			C	
90th %ile Green (s)	17.3	17.0		31.0	30.7	30.7	9.0	23.0	23.0	29.0	43.0	43.0
90th %ile Term Code	Gap	Ped		Max	Hold	Hold	Max	Coord	Coord	Max	Coord	Coord
70th %ile Green (s)	14.6	17.0		31.0	33.4	33.4	9.0	23.0	23.0	29.0	43.0	43.0
70th %ile Term Code	Gap	Ped		Max	Hold	Hold	Max	Coord	Coord	Max	Coord	Coord

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
50th %ile Green (s)	13.6	10.0		31.0	27.4	27.4	11.4	29.0	29.0	30.0	47.6	47.6
50th %ile Term Code	Gap	Min		Max	Hold	Hold	Gap	Coord	Coord	Gap	Coord	Coord
30th %ile Green (s)	11.7	10.0		31.0	29.3	29.3	10.1	33.4	33.4	25.6	48.9	48.9
30th %ile Term Code	Gap	Min		Max	Hold	Hold	Gap	Coord	Coord	Gap	Coord	Coord
10th %ile Green (s)	9.4	10.0		26.9	27.5	27.5	8.3	43.2	43.2	19.9	54.8	54.8
10th %ile Term Code	Gap	Min		Gap	Hold	Hold	Gap	Coord	Coord	Gap	Coord	Coord
Queue Length 50th (m)	30.7	11.0		108.8	44.2	10.2	18.0	86.6	27.3	56.4	128.8	0.5
Queue Length 95th (m)	43.8	23.1		#156.7	66.2	47.0	#51.2	#137.2	61.8	#142.1	164.0	m1.7
Internal Link Dist (m)		55.5			1591.6			503.3			456.6	
Turn Bay Length (m)	20.0					30.0	65.0		25.0	45.0		110.0
Base Capacity (vph)	388	578		551	466	805	224	916	553	507	1443	617
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.46		0.94	0.44	0.69	0.67	0.80	0.55	0.87	0.76	0.12

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 4 (3%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 33.2

Intersection LOS: C

Intersection Capacity Utilization 115.0%

ICU Level of Service H

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: 122 Street & 51 Avenue

 Ø1	 Ø2 (R)	 Ø3	 Ø4
33 s	29 s	35 s	23 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
13 s	49 s	22 s	36 s

SITE LAYOUT

 **Site: [4A] 60 Ave and 124 St/Mixed Use Access 2045 Total - AM**
(General)

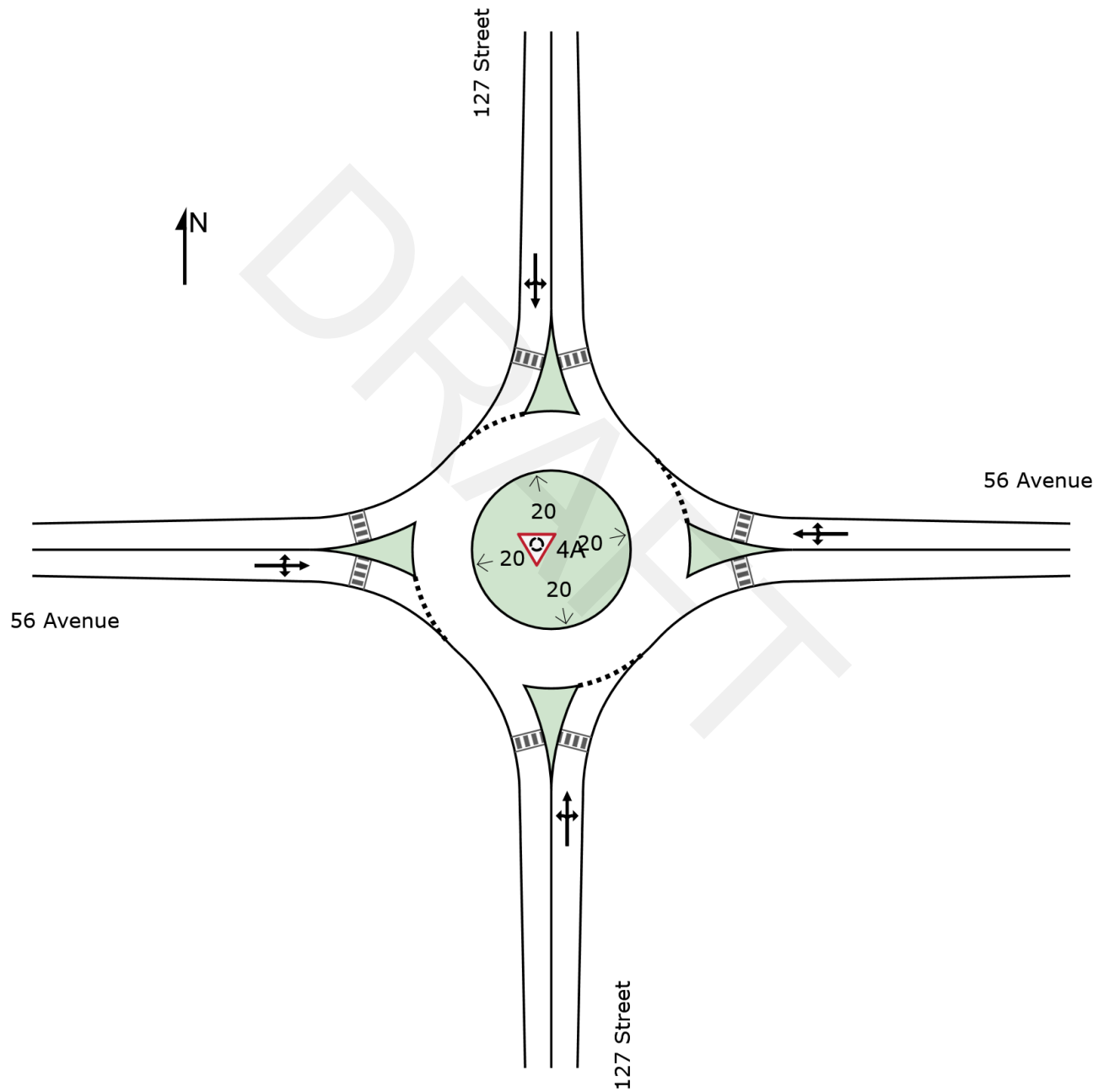
New Site

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



LANE SUMMARY

 **Site: [4A] 60 Ave and 124 St/Mixed Use Access 2045 Total - AM**
(General)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

New Site

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h	HV] %	[Total veh/h	HV] %	veh/h	v/c	%	sec		[Veh	Dist] m		m	%	%
West: 56 Avenue															
Lane 1 ^d	269	3.0	269	3.0	970	0.277	100	3.3	LOS A	1.6	11.3	Full	100	0.0	0.0
Approach	269	3.0	269	3.0		0.277		3.3	LOS A	1.6	11.3				
East: 56 Avenue															
Lane 1 ^d	313	3.0	313	3.0	1418	0.221	100	3.3	LOS A	1.3	9.6	Full	100	0.0	0.0
Approach	313	3.0	313	3.0		0.221		3.3	LOS A	1.3	9.6				
North: 127 Street															
Lane 1 ^d	122	3.0	122	3.0	973	0.125	100	6.5	LOS A	0.6	4.5	Full	100	0.0	0.0
Approach	122	3.0	122	3.0		0.125		6.5	LOS A	0.6	4.5				
South: 127 Street															
Lane 1 ^d	165	3.0	165	3.0	863	0.191	100	4.2	LOS A	1.0	7.5	Full	100	0.0	0.0
Approach	165	3.0	165	3.0		0.191		4.2	LOS A	1.0	7.5				
All Vehicles	869	3.0	869	3.0		0.277		3.9	LOS A	1.6	11.3				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
West: 56 Avenue											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From W						Cap. veh/h	v/c	%	%	No.	
To Exit:	N	E	S								
Lane 1	17	237	15	269	3.0	970	0.277	100	NA	NA	

Approach	17	237	15	269	3.0		0.277				
East: 56 Avenue											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From E						Cap.	Satn	Util.	SL	Ov.	Lane
To Exit:	S	W	N			veh/h	v/c	%	%	%	No.
Lane 1	136	103	74	313	3.0	1418	0.221	100	NA	NA	
Approach	136	103	74	313	3.0		0.221				
North: 127 Street											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From N						Cap.	Satn	Util.	SL	Ov.	Lane
To Exit:	E	S	W			veh/h	v/c	%	%	%	No.
Lane 1	106	1	14	122	3.0	973	0.125	100	NA	NA	
Approach	106	1	14	122	3.0		0.125				
South: 127 Street											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From S						Cap.	Satn	Util.	SL	Ov.	Lane
To Exit:	W	N	E			veh/h	v/c	%	%	%	No.
Lane 1	4	1	160	165	3.0	863	0.191	100	NA	NA	
Approach	4	1	160	165	3.0		0.191				
Total %HV Deg.Satn (v/c)											
All Vehicles	869	3.0		0.277							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis

Exit Lane Number	Short Lane Length	Percent Opng in Lane	Opposing Flow Rate	Critical Gap	Follow-up Headway	Lane Capacity Flow Rate	Deg. Satn	Min. Delay	Merge Delay	Merge Queue [Veh	Merge Queue Dist]
	m	% veh/h	pcu/h	sec	sec	veh/h	v/c	sec	sec		m
There are no Exit Short Lanes for Merge Analysis at this Site.											

Variable Demand Analysis

	Initial Queued Demand	Residual Queued Demand	Time for Residual Demand to Clear	Duration of Oversatn
	veh	veh	sec	sec
West: 56 Avenue				
Lane 1	0.0	0.0	0.0	0.0
East: 56 Avenue				
Lane 1	0.0	0.0	0.0	0.0
North: 127 Street				
Lane 1	0.0	0.0	0.0	0.0
South: 127 Street				
Lane 1	0.0	0.0	0.0	0.0

LANE SUMMARY

 **Site: [4B] 60 Ave and 124 St/Mixed Use Access 2045 Total - PM**
(General)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

New Site

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Lane Use and Performance															
	Demand Flows Arrival Flows				Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	%						veh/h	v/c				
West: 56 Avenue															
Lane 1 ^d	93	3.0	93	3.0	842	0.110	100	4.3	LOS A	0.6	4.0	Full	100	0.0	0.0
Approach	93	3.0	93	3.0		0.110		4.3	LOS A	0.6	4.0				
East: 56 Avenue															
Lane 1 ^d	534	3.0	534	3.0	1397	0.382	100	3.9	LOS A	2.8	19.9	Full	100	0.0	0.0
Approach	534	3.0	534	3.0		0.382		3.9	LOS A	2.8	19.9				
North: 127 Street															
Lane 1 ^d	127	3.0	127	3.0	830	0.154	100	7.9	LOS A	0.8	5.7	Full	100	0.0	0.0
Approach	127	3.0	127	3.0		0.154		7.9	LOS A	0.8	5.7				
South: 127 Street															
Lane 1 ^d	303	3.0	303	3.0	1032	0.294	100	3.3	LOS A	1.8	12.7	Full	100	0.0	0.0
Approach	303	3.0	303	3.0		0.294		3.3	LOS A	1.8	12.7				
All Vehicles	1057	3.0	1057	3.0		0.382		4.3	LOS A	2.8	19.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
West: 56 Avenue											
Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.	
From W To Exit:	N	E	S								
Lane 1	8	66	18	93	3.0	842	0.110	100	NA	NA	

Approach	8	66	18	93	3.0		0.110				
East: 56 Avenue											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From E						Cap.	Satn	Util.	SL	Ov.	Lane
To Exit:	S	W	N			veh/h	v/c	%	%	%	No.
Lane 1	296	103	135	534	3.0	1397	0.382	100	NA	NA	
Approach	296	103	135	534	3.0		0.382				
North: 127 Street											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From N						Cap.	Satn	Util.	SL	Ov.	Lane
To Exit:	E	S	W			veh/h	v/c	%	%	%	No.
Lane 1	115	1	12	127	3.0	830	0.154	100	NA	NA	
Approach	115	1	12	127	3.0		0.154				
South: 127 Street											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From S						Cap.	Satn	Util.	SL	Ov.	Lane
To Exit:	W	N	E			veh/h	v/c	%	%	%	No.
Lane 1	26	2	275	303	3.0	1032	0.294	100	NA	NA	
Approach	26	2	275	303	3.0		0.294				
Total %HV Deg.Satn (v/c)											
All Vehicles	1057	3.0		0.382							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis

Exit Lane Number	Short Lane Length	Percent Opng in Lane	Opposing Flow Rate	Critical Gap	Follow-up Headway	Lane Capacity Flow Rate	Deg. Satn	Min. Delay	Merge Delay	Merge Queue [Veh	Merge Queue Dist]
	m	% veh/h	pcu/h	sec	sec	veh/h	v/c	sec	sec		m
There are no Exit Short Lanes for Merge Analysis at this Site.											

Variable Demand Analysis

	Initial Queued Demand	Residual Queued Demand	Time for Residual Demand to Clear	Duration of Oversatn
	veh	veh	sec	sec
West: 56 Avenue				
Lane 1	0.0	0.0	0.0	0.0
East: 56 Avenue				
Lane 1	0.0	0.0	0.0	0.0
North: 127 Street				
Lane 1	0.0	0.0	0.0	0.0
South: 127 Street				
Lane 1	0.0	0.0	0.0	0.0

SITE LAYOUT

 Site: [5A] 60 Ave and 127 St 2045 Total - AM (General)

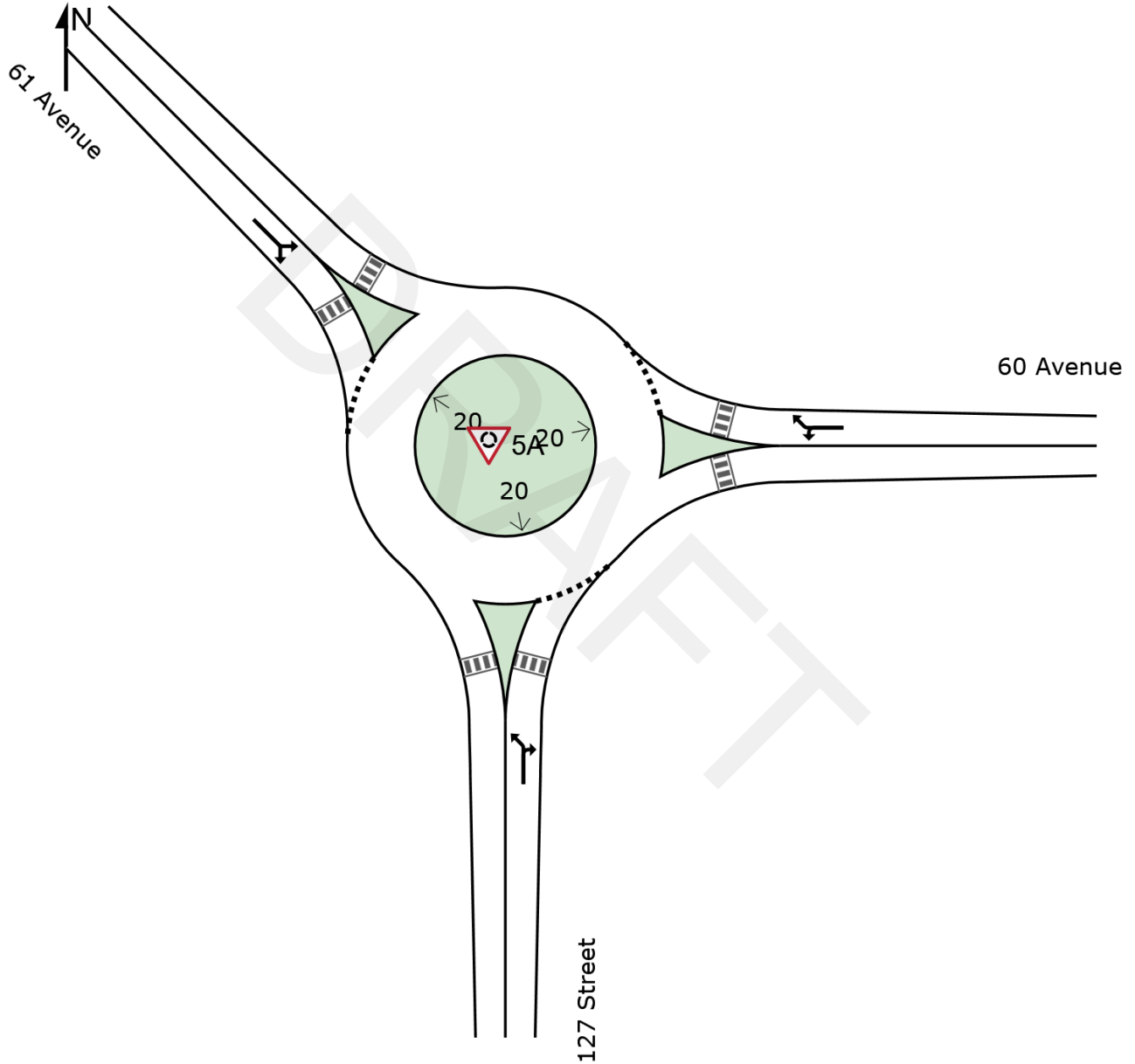
New Site

Site Category: (None)

Roundabout

Site Scenario: 1 | 2045 Total Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



LANE SUMMARY



Site: [5A] 60 Ave and 127 St 2045 Total - AM (General)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

New Site

Site Category: (None)

Roundabout

Site Scenario: 1 | 2045 Total Volumes

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
NorthWest: 61 Avenue															
Lane 1 ^d	101	3.0	101	3.0	1109	0.091	100	4.9	LOS A	0.4	3.1	Full	100	0.0	0.0
Approach	101	3.0	101	3.0		0.091		4.9	LOS A	0.4	3.1				
East: 60 Avenue															
Lane 1 ^d	122	3.0	122	3.0	1470	0.083	100	4.8	LOS A	0.4	3.1	Full	100	0.0	0.0
Approach	122	3.0	122	3.0		0.083		4.8	LOS A	0.4	3.1				
South: 127 Street															
Lane 1 ^d	171	3.0	171	3.0	1160	0.148	100	2.3	LOS A	0.8	5.6	Full	100	0.0	0.0
Approach	171	3.0	171	3.0		0.148		2.3	LOS A	0.8	5.6				
All Vehicles	394	3.0	394	3.0		0.148		3.7	LOS A	0.8	5.6				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)										
NorthWest: 61 Avenue										
Mov.	L1	R1	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From NW					Cap. veh/h	v/c	%	%	No.	
To Exit:	E	S								
Lane 1	87	14	101	3.0	1109	0.091	100	NA	NA	
Approach	87	14	101	3.0		0.091				
East: 60 Avenue										
Mov.	L2	R1	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From E					Cap. veh/h	v/c	%	%	No.	
To Exit:	S	NW								

Lane 1	104	18	122	3.0	1470	0.083	100	NA	NA
Approach	104	18	122	3.0		0.083			
South: 127 Street									
Mov.	L1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From S					Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	NW	E			veh/h	v/c	%	%	No.
Lane 1	6	165	171	3.0	1160	0.148	100	NA	NA
Approach	6	165	171	3.0		0.148			
Total %HV Deg.Satn (v/c)									
All Vehicles	394	3.0		0.148					

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis													
	Exit Lane Number	Short Lane Length	Percent Opng in Lane	Opposing Flow Rate	Critical Gap	Follow-up Headway	Lane Capacity Flow Rate	Deg. Satn	Min. Delay	Merge Delay	Merge [Veh	Queue Dist]	
		m	% veh/h	pcu/h	sec	sec	veh/h	v/c	sec	sec		m	
There are no Exit Short Lanes for Merge Analysis at this Site.													

Variable Demand Analysis				
	Initial Queued Demand	Residual Queued Demand	Time for Residual Demand to Clear	Duration of Oversatn
	veh	veh	sec	sec
NorthWest: 61 Avenue				
Lane 1	0.0	0.0	0.0	0.0
East: 60 Avenue				
Lane 1	0.0	0.0	0.0	0.0
South: 127 Street				
Lane 1	0.0	0.0	0.0	0.0

LANE SUMMARY



Site: [5B] 60 Ave and 127 St 2045 Total - PM (General)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

New Site

Site Category: (None)

Roundabout

Site Scenario: 1 | 2045 Total Volumes

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h	HV] %	[Total veh/h	HV] %	veh/h	v/c	%	sec		[Veh	Dist] m		m	%	%
NorthWest: 61 Avenue															
Lane 1 ^d	52	3.0	52	3.0	1211	0.043	100	4.9	LOS A	0.2	1.4	Full	100	0.0	0.0
Approach	52	3.0	52	3.0		0.043		4.9	LOS A	0.2	1.4				
East: 60 Avenue															
Lane 1 ^d	123	3.0	123	3.0	1566	0.079	100	2.3	LOS A	0.4	2.8	Full	100	0.0	0.0
Approach	123	3.0	123	3.0		0.079		2.3	LOS A	0.4	2.8				
South: 127 Street															
Lane 1 ^d	36	3.0	36	3.0	1167	0.031	100	2.1	LOS A	0.1	1.0	Full	100	0.0	0.0
Approach	36	3.0	36	3.0		0.031		2.1	LOS A	0.1	1.0				
All Vehicles	211	3.0	211	3.0		0.079		2.9	LOS A	0.4	2.8				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)										
NorthWest: 61 Avenue										
Mov.	L1	R1	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From NW					Cap. veh/h	v/c	%	%	No.	
To Exit:	E	S								
Lane 1	51	1	52	3.0	1211	0.043	100	NA	NA	
Approach	51	1	52	3.0		0.043				
East: 60 Avenue										
Mov.	L2	R1	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From E					Cap. veh/h	v/c	%	%	No.	
To Exit:	S	NW								

Lane 1	34	89	123	3.0	1566	0.079	100	NA	NA
Approach	34	89	123	3.0		0.079			
South: 127 Street									
Mov.	L1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From S					Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	NW	E			veh/h	v/c	%	%	No.
Lane 1	2	34	36	3.0	1167	0.031	100	NA	NA
Approach	2	34	36	3.0		0.031			
Total %HV Deg.Satn (v/c)									
All Vehicles	211	3.0		0.079					

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis													
	Exit Lane Number	Short Lane Length	Percent Opng in Lane	Opposing Flow Rate	Critical Gap	Follow-up Headway	Lane Capacity Flow Rate	Deg. Satn	Min. Delay	Merge Delay	Merge Queue [Veh	Queue Dist]	
		m	% veh/h	pcu/h	sec	sec	veh/h	v/c	sec	sec		m	
There are no Exit Short Lanes for Merge Analysis at this Site.													

Variable Demand Analysis				
	Initial Queued Demand	Residual Queued Demand	Time for Residual Demand to Clear	Duration of Oversatn
	veh	veh	sec	sec
NorthWest: 61 Avenue				
Lane 1	0.0	0.0	0.0	0.0
East: 60 Avenue				
Lane 1	0.0	0.0	0.0	0.0
South: 127 Street				
Lane 1	0.0	0.0	0.0	0.0

SITE LAYOUT

 **Site: [7A] 56 Ave and Mixed Use Access 2045 Total - AM**
(General)

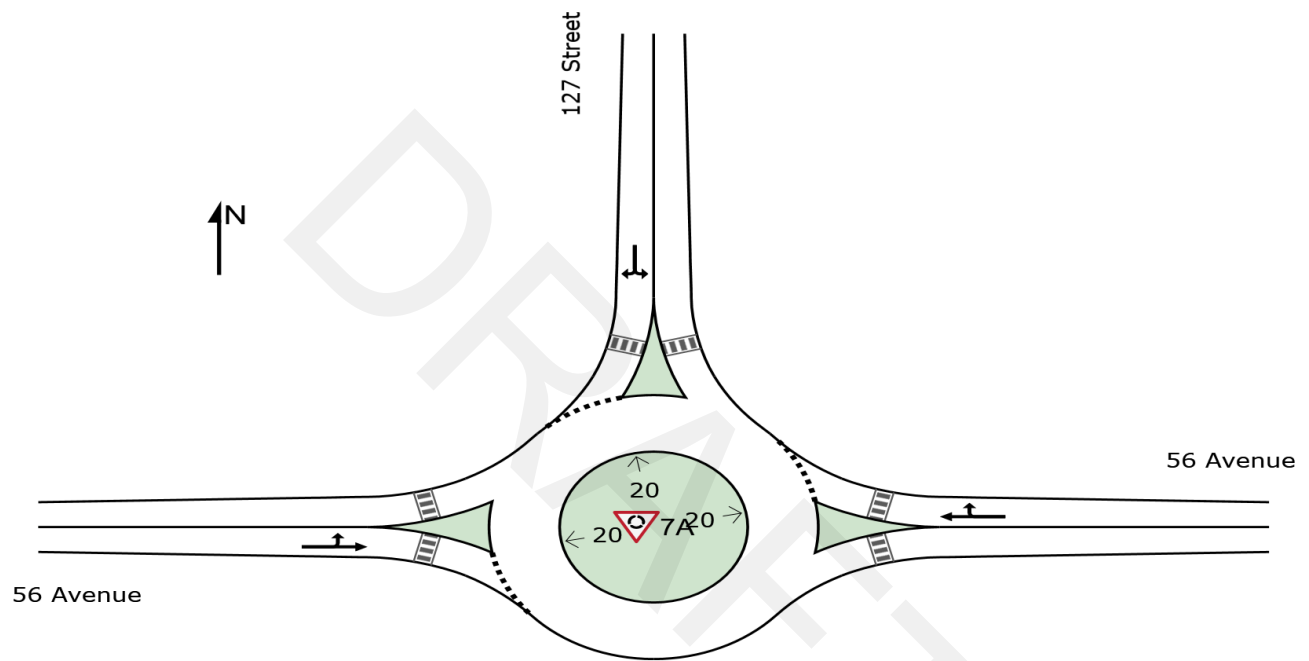
New Site

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Project: O:\Dept NAB\Projects\2023\03230056 - U of A West 240 NSP\4.0 Analysis & Design\SIDRA\251117_Roundabouts.sipx

LANE SUMMARY

 **Site: [7A] 56 Ave and Mixed Use Access 2045 Total - AM**
(General)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

New Site
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h	HV] %	[Total veh/h	HV] %	veh/h	v/c	%	sec		[Veh	Dist] m		m	%	%
West: 56 Avenue															
Lane 1 ^d	608	3.0	608	3.0	1113	0.546	100	2.9	LOS A	4.7	34.0	Full	100	0.0	0.0
Approach	608	3.0	608	3.0		0.546		2.9	LOS A	4.7	34.0				
East: 56 Avenue															
Lane 1 ^d	687	3.0	687	3.0	1463	0.470	100	1.5	LOS A	4.2	30.0	Full	100	0.0	0.0
Approach	687	3.0	687	3.0		0.470		1.5	LOS A	4.2	30.0				
North: 127 Street															
Lane 1 ^d	168	3.0	168	3.0	773	0.218	100	8.9	LOS A	1.2	8.6	Full	100	0.0	0.0
Approach	168	3.0	168	3.0		0.218		8.9	LOS A	1.2	8.6				
All Vehicles	1464	3.0	1464	3.0		0.546		2.9	LOS A	4.7	34.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)										
West: 56 Avenue										
Mov.	L2	T1	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From W					Cap. veh/h	v/c	%	Ov. %	No.	
To Exit:	N	E								
Lane 1	26	582	608	3.0	1113	0.546	100	NA	NA	
Approach	26	582	608	3.0		0.546				
East: 56 Avenue										
Mov.	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From E					Cap. veh/h	v/c	%	Ov. %	No.	

To Exit:	W	N			veh/h	v/c	%	%	No.
Lane 1	509	178	687	3.0	1463	0.470	100	NA	NA
Approach	509	178	687	3.0		0.470			
North: 127 Street									
Mov.	L2	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane
From N					Cap. veh/h	v/c	%	%	No.
To Exit:	E	W							
Lane 1	160	8	168	3.0	773	0.218	100	NA	NA
Approach	160	8	168	3.0		0.218			
Total %HV Deg.Satn (v/c)									
All Vehicles	1464	3.0		0.546					

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis													
	Exit Lane Number	Short Lane Length	Percent Opng in Lane	Opposing Flow Rate	Critical Gap	Follow-up Headway	Lane Capacity	Deg. Satn	Min. Delay	Merge Delay	Merge Queue [Veh	Dist]	
		m	% veh/h	pcu/h	sec	sec	veh/h	v/c	sec	sec		m	
There are no Exit Short Lanes for Merge Analysis at this Site.													

Variable Demand Analysis				
	Initial Queued Demand	Residual Queued Demand	Time for Residual Demand to Clear	Duration of Oversatn
	veh	veh	sec	sec
West: 56 Avenue				
Lane 1	0.0	0.0	0.0	0.0
East: 56 Avenue				
Lane 1	0.0	0.0	0.0	0.0
North: 127 Street				
Lane 1	0.0	0.0	0.0	0.0

LANE SUMMARY

 **Site: [7B] 56 Ave and Mixed Use Access 2045 Total - PM**
(General)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

New Site
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Lane Use and Performance															
	Demand Flows Arrival Flows				Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h	HV] %	[Total veh/h	HV] %	veh/h	v/c	%	sec		[Veh	Dist] m		m	%	%
West: 56 Avenue															
Lane 1 ^d	202	3.0	202	3.0	871	0.232	100	4.2	LOS A	1.4	9.7	Full	100	0.0	0.0
Approach	202	3.0	202	3.0		0.232		4.2	LOS A	1.4	9.7				
East: 56 Avenue															
Lane 1 ^d	584	3.0	584	3.0	1415	0.413	100	1.7	LOS A	3.3	24.0	Full	100	0.0	0.0
Approach	584	3.0	584	3.0		0.413		1.7	LOS A	3.3	24.0				
North: 127 Street															
Lane 1 ^d	376	3.0	376	3.0	943	0.398	100	7.3	LOS A	2.5	18.2	Full	100	0.0	0.0
Approach	376	3.0	376	3.0		0.398		7.3	LOS A	2.5	18.2				
All Vehicles	1162	3.0	1162	3.0		0.413		3.9	LOS A	3.3	24.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)										
West: 56 Avenue										
Mov.	L2	T1	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From W					Cap. veh/h	v/c	%	Ov. %	No.	
To Exit:	N	E								
Lane 1	34	168	202	3.0	871	0.232	100	NA	NA	
Approach	34	168	202	3.0		0.232				
East: 56 Avenue										
Mov.	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From E					Cap.					

To Exit:	W	N			veh/h	v/c	%	%	No.
Lane 1	283	301	584	3.0	1415	0.413	100	NA	NA
Approach	283	301	584	3.0		0.413			
North: 127 Street									
Mov.	L2	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane
From N					Cap. veh/h	v/c	%	%	No.
To Exit:	E	W							
Lane 1	328	47	376	3.0	943	0.398	100	NA	NA
Approach	328	47	376	3.0		0.398			
Total %HV Deg.Satn (v/c)									
All Vehicles	1162	3.0		0.413					

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis													
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Lane Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	Merge Queue [Veh	Dist] m
There are no Exit Short Lanes for Merge Analysis at this Site.													

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
West: 56 Avenue				
Lane 1	0.0	0.0	0.0	0.0
East: 56 Avenue				
Lane 1	0.0	0.0	0.0	0.0
North: 127 Street				
Lane 1	0.0	0.0	0.0	0.0

Intersection												
Int Delay, s/veh	14.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	300	0	10	137	136	1	2	51	87	2	40
Future Vol, veh/h	13	300	0	10	137	136	1	2	51	87	2	40
Conflicting Peds, #/hr	10	0	10	10	0	10	10	0	10	10	0	10
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	79	100	100	59	50	100	50	100	50	50	50
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	26	380	0	10	232	272	1	4	51	174	4	80
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	514	0	0	390	0	0	882	976	400	868	840	388
Stage 1	-	-	-	-	-	-	442	442	-	398	398	-
Stage 2	-	-	-	-	-	-	440	534	-	470	442	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1046	-	-	1163	-	-	266	250	648	272	300	658
Stage 1	-	-	-	-	-	-	592	575	-	626	601	-
Stage 2	-	-	-	-	-	-	594	523	-	572	575	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1035	-	-	1151	-	-	218	234	635	234	281	645
Mov Cap-2 Maneuver	-	-	-	-	-	-	218	234	-	234	281	-
Stage 1	-	-	-	-	-	-	567	551	-	600	587	-
Stage 2	-	-	-	-	-	-	505	511	-	500	551	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	0.5		0.2		12.3		65.2					
HCM LOS					B		F					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	549	1035	-	-	1151	-	-	293				
HCM Lane V/C Ratio	0.102	0.025	-	-	0.009	-	-	0.881				
HCM Control Delay (s)	12.3	8.6	0	-	8.2	0	-	65.2				
HCM Lane LOS	B	A	A	-	A	A	-	F				
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	7.9				

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	387	0	10	137	136	1	2	51	0	2	127
Future Vol, veh/h	13	387	0	10	137	136	1	2	51	0	2	127
Conflicting Peds, #/hr	10	0	10	10	0	10	10	0	10	10	0	10
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	13	387	0	10	137	136	1	2	51	0	2	127
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	283	0	0	397	0	0	723	726	407	685	658	225
Stage 1	-	-	-	-	-	-	423	423	-	235	235	-
Stage 2	-	-	-	-	-	-	300	303	-	450	423	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1274	-	-	1156	-	-	340	350	642	361	383	812
Stage 1	-	-	-	-	-	-	607	586	-	766	709	-
Stage 2	-	-	-	-	-	-	707	662	-	587	586	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1261	-	-	1144	-	-	274	335	629	318	367	796
Mov Cap-2 Maneuver	-	-	-	-	-	-	274	335	-	318	367	-
Stage 1	-	-	-	-	-	-	593	573	-	748	695	-
Stage 2	-	-	-	-	-	-	581	649	-	525	573	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.3			11.7			10.5		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	595	1261	-	-	1144	-	-	782				
HCM Lane V/C Ratio	0.091	0.01	-	-	0.009	-	-	0.165				
HCM Control Delay (s)	11.7	7.9	0	-	8.2	0	-	10.5				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.6				

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	146	1	49	240	25	1	0	24	22	0	10
Future Vol, veh/h	2	146	1	49	240	25	1	0	24	22	0	10
Conflicting Peds, #/hr	10	0	10	10	0	10	10	0	10	10	0	10
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	2	146	1	49	240	25	1	0	24	22	0	10
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	275	0	0	157	0	0	527	534	167	534	522	273
Stage 1	-	-	-	-	-	-	161	161	-	361	361	-
Stage 2	-	-	-	-	-	-	366	373	-	173	161	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1282	-	-	1417	-	-	460	451	875	455	458	763
Stage 1	-	-	-	-	-	-	839	763	-	655	624	-
Stage 2	-	-	-	-	-	-	651	617	-	827	763	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1269	-	-	1403	-	-	430	423	857	419	430	748
Mov Cap-2 Maneuver	-	-	-	-	-	-	430	423	-	419	430	-
Stage 1	-	-	-	-	-	-	829	754	-	647	592	-
Stage 2	-	-	-	-	-	-	610	586	-	794	754	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			1.2			9.5			12.9		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	824	1269	-	-	1403	-	-	486				
HCM Lane V/C Ratio	0.03	0.002	-	-	0.035	-	-	0.066				
HCM Control Delay (s)	9.5	7.8	0	-	7.7	0	-	12.9				
HCM Lane LOS	A	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.2				

SITE LAYOUT

 Site: [9A] 56 Ave and 127 St 2045 Total - AM (General)

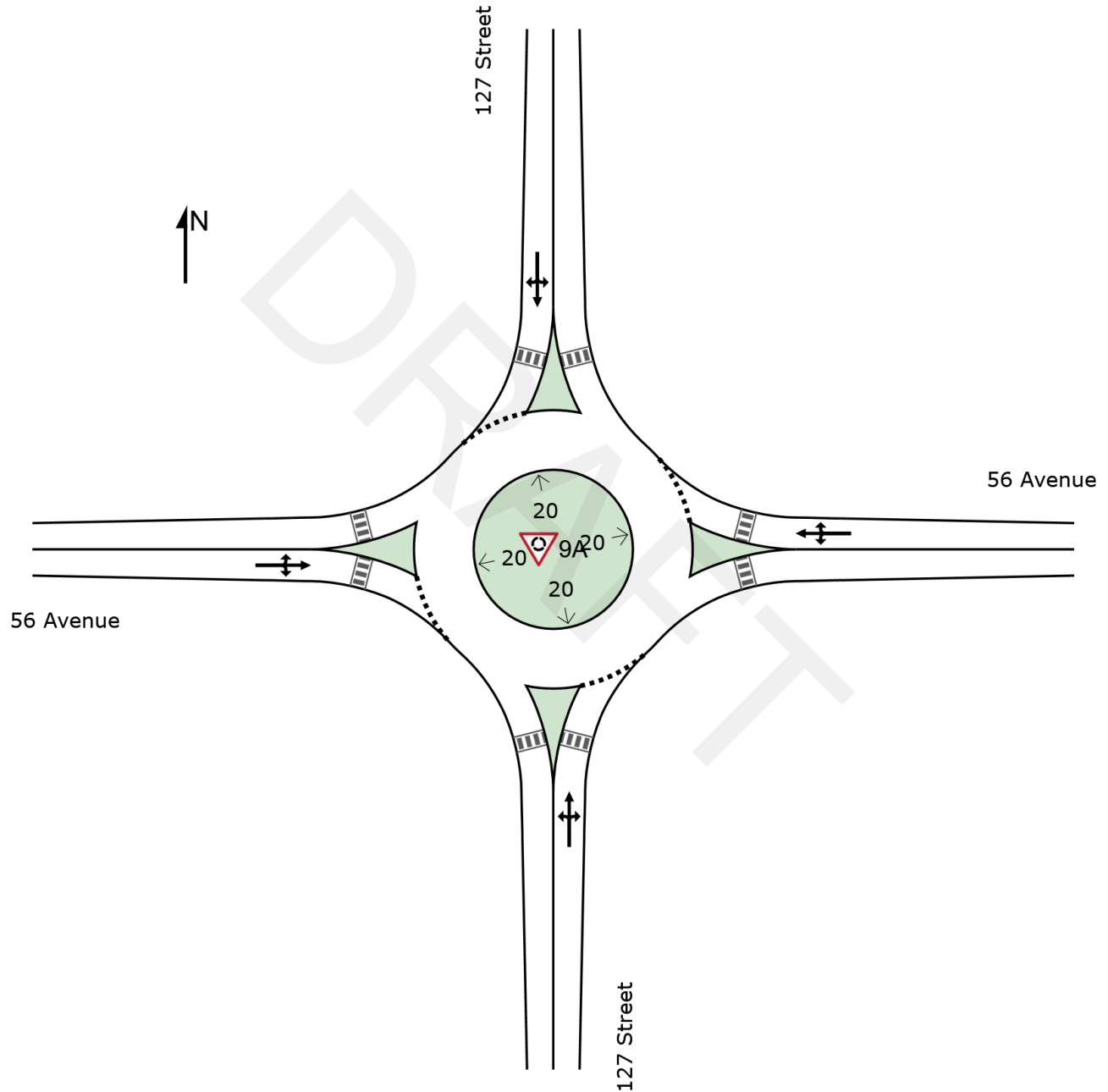
56 Ave and 127 St 2045 Total - AM

Site Category: Future Conditions 1

Roundabout

Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



LANE SUMMARY



Site: [9A] 56 Ave and 127 St 2045 Total - AM (General)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

56 Ave and 127 St 2045 Total - AM

Site Category: Future Conditions 1

Roundabout

Site Scenario: 1 | Local Volumes

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h	HV] %	[Total veh/h	HV] %	veh/h	v/c	%	sec		[Veh	Dist] m		m	%	%
West: 56 Avenue															
Lane 1 ^d	191	3.0	191	3.0	1008	0.190	100	2.8	LOS A	1.0	7.2	Full	100	0.0	0.0
Approach	191	3.0	191	3.0		0.190		2.8	LOS A	1.0	7.2				
East: 56 Avenue															
Lane 1 ^d	314	3.0	314	3.0	1430	0.220	100	1.8	LOS A	1.3	9.2	Full	100	0.0	0.0
Approach	314	3.0	314	3.0		0.220		1.8	LOS A	1.3	9.2				
North: 127 Street															
Lane 1 ^d	199	3.0	199	3.0	1258	0.158	100	5.5	LOS A	0.8	5.9	Full	100	0.0	0.0
Approach	199	3.0	199	3.0		0.158		5.5	LOS A	0.8	5.9				
South: 127 Street															
Lane 1 ^d	58	3.0	58	3.0	865	0.067	100	3.9	LOS A	0.3	2.4	Full	100	0.0	0.0
Approach	58	3.0	58	3.0		0.067		3.9	LOS A	0.3	2.4				
All Vehicles	762	3.0	762	3.0		0.220		3.2	LOS A	1.3	9.2				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
West: 56 Avenue											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From W						Cap. veh/h	v/c	%	%	No.	
To Exit:	N	E	S								
Lane 1	12	178	1	191	3.0	1008	0.190	100	NA	NA	
Approach	12	178	1	191	3.0		0.190				

East: 56 Avenue											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From E						Cap.	Satn	Util.	SL	Ov.	Lane
To Exit:	S	W	N			veh/h	v/c	%	%	No.	
Lane 1	12	40	262	314	3.0	1430	0.220	100	NA	NA	
Approach	12	40	262	314	3.0		0.220				
North: 127 Street											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From N						Cap.	Satn	Util.	SL	Ov.	Lane
To Exit:	E	S	W			veh/h	v/c	%	%	No.	
Lane 1	183	5	11	199	3.0	1258	0.158	100	NA	NA	
Approach	183	5	11	199	3.0		0.158				
South: 127 Street											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From S						Cap.	Satn	Util.	SL	Ov.	Lane
To Exit:	W	N	E			veh/h	v/c	%	%	No.	
Lane 1	1	7	50	58	3.0	865	0.067	100	NA	NA	
Approach	1	7	50	58	3.0		0.067				
Total %HV Deg.Satn (v/c)											
All Vehicles	762	3.0		0.220							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis

Exit Lane Number	Short Lane Length m	Percent Opng in Lane % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	Merge Queue [Veh]	Queue Dist m
There are no Exit Short Lanes for Merge Analysis at this Site.											

Variable Demand Analysis

	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
West: 56 Avenue				
Lane 1	0.0	0.0	0.0	0.0
East: 56 Avenue				
Lane 1	0.0	0.0	0.0	0.0
North: 127 Street				
Lane 1	0.0	0.0	0.0	0.0
South: 127 Street				
Lane 1	0.0	0.0	0.0	0.0

LANE SUMMARY



Site: [9B] 56 Ave and 127 St 2045 Total - PM (General)

Output produced by SIDRA INTERSECTION Version: 10.0.6.236

56 Ave and 127 St 2045 Total - PM

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h	HV] %	[Total veh/h	HV] %	veh/h	v/c	%	sec		[Veh	Dist] m		m	%	%
West: 56 Avenue															
Lane 1 ^d	101	3.0	101	3.0	1128	0.090	100	1.8	LOS A	0.4	3.1	Full	100	0.0	0.0
Approach	101	3.0	101	3.0		0.090		1.8	LOS A	0.4	3.1				
East: 56 Avenue															
Lane 1 ^d	264	3.0	264	3.0	1536	0.172	100	2.2	LOS A	0.9	6.7	Full	100	0.0	0.0
Approach	264	3.0	264	3.0		0.172		2.2	LOS A	0.9	6.7				
North: 127 Street															
Lane 1 ^d	36	3.0	36	3.0	990	0.036	100	6.0	LOS A	0.2	1.2	Full	100	0.0	0.0
Approach	36	3.0	36	3.0		0.036		6.0	LOS A	0.2	1.2				
South: 127 Street															
Lane 1 ^d	34	3.0	34	3.0	1076	0.031	100	2.4	LOS A	0.1	1.1	Full	100	0.0	0.0
Approach	34	3.0	34	3.0		0.031		2.4	LOS A	0.1	1.1				
All Vehicles	435	3.0	435	3.0		0.172		2.4	LOS A	0.9	6.7				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
West: 56 Avenue											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From W						Cap. veh/h	v/c	%	%	No.	
To Exit:	N	E	S								
Lane 1	3	97	1	101	3.0	1128	0.090	100	NA	NA	
Approach	3	97	1	101	3.0		0.090				

East: 56 Avenue											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From E						Cap.	Satn	Util.	SL	Ov.	Lane
To Exit:	S	W	N			veh/h	v/c	%	%	No.	
Lane 1	55	173	37	264	3.0	1536	0.172	100	NA	NA	
Approach	55	173	37	264	3.0		0.172				
North: 127 Street											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From N						Cap.	Satn	Util.	SL	Ov.	Lane
To Exit:	E	S	W			veh/h	v/c	%	%	No.	
Lane 1	29	2	4	36	3.0	990	0.036	100	NA	NA	
Approach	29	2	4	36	3.0		0.036				
South: 127 Street											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From S						Cap.	Satn	Util.	SL	Ov.	Lane
To Exit:	W	N	E			veh/h	v/c	%	%	No.	
Lane 1	1	2	31	34	3.0	1076	0.031	100	NA	NA	
Approach	1	2	31	34	3.0		0.031				
Total %HV Deg.Satn (v/c)											
All Vehicles	435	3.0		0.172							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis

Exit Lane Number	Short Lane Length m	Percent Opng in Lane % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	Merge Queue [Veh]	Queue Dist m
There are no Exit Short Lanes for Merge Analysis at this Site.											

Variable Demand Analysis

	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
West: 56 Avenue				
Lane 1	0.0	0.0	0.0	0.0
East: 56 Avenue				
Lane 1	0.0	0.0	0.0	0.0
North: 127 Street				
Lane 1	0.0	0.0	0.0	0.0
South: 127 Street				
Lane 1	0.0	0.0	0.0	0.0

SITE LAYOUT

 **Site: [9A (2)] 56 Ave and 127 St 2045 Total wUturns - AM**
(General)

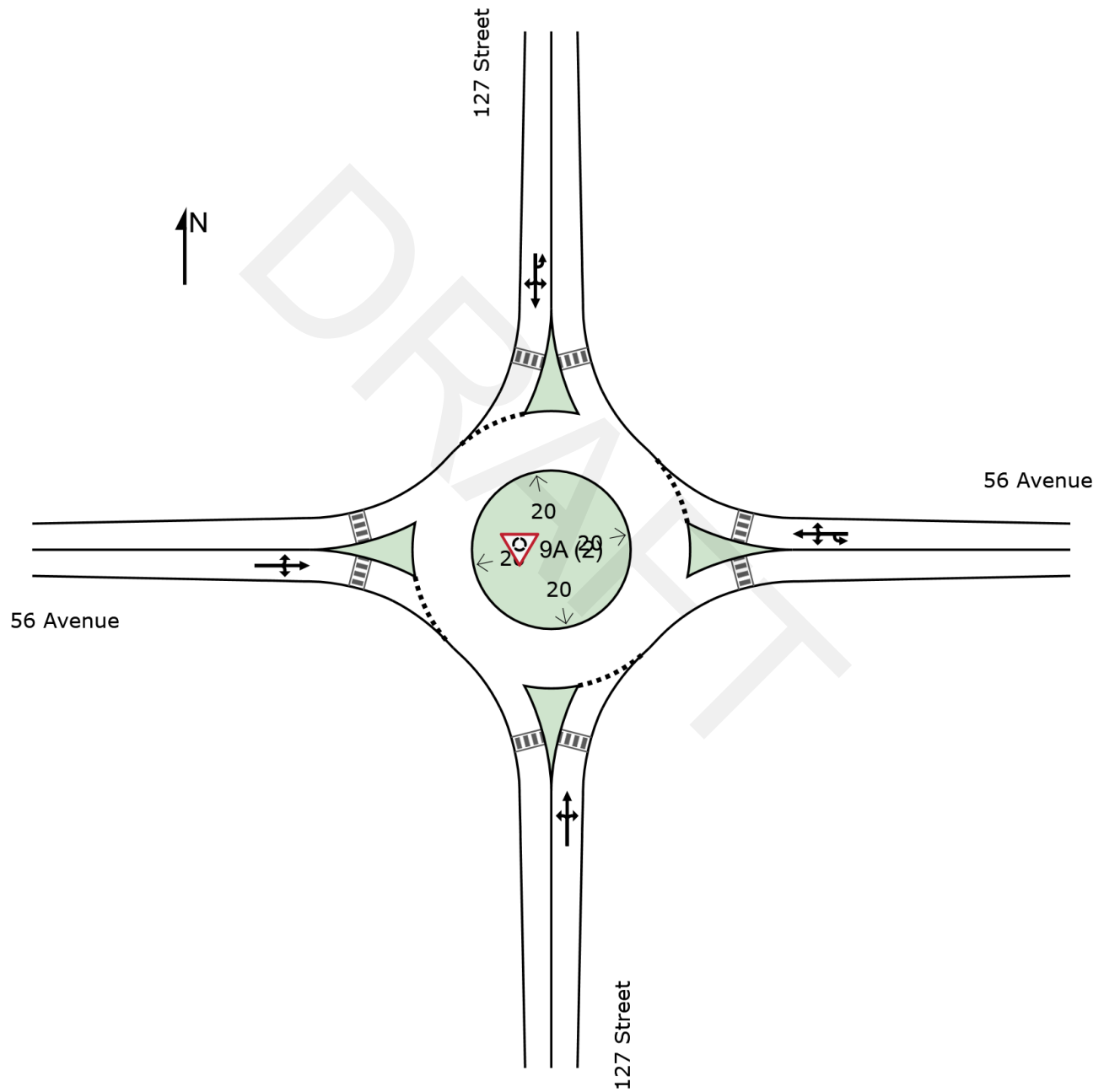
56 Ave and 127 St 2045 Total - AM

Site Category: Future Conditions 1

Roundabout

Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



LANE SUMMARY

 **Site: [9A (2)] 56 Ave and 127 St 2045 Total wUturns - AM**
(General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

56 Ave and 127 St 2045 Total - AM
Site Category: Future Conditions 1
Roundabout
Site Scenario: 1 | Local Volumes

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h	HV] %	[Total veh/h	HV] %	veh/h	v/c	%	sec		[Veh	Dist] m		m	%	%
West: 56 Avenue															
Lane 1 ^d	191	3.0	191	3.0	780	0.245	100	4.9	LOS A	1.4	10.0	Full	100	0.0	0.0
Approach	191	3.0	191	3.0		0.245		4.9	LOS A	1.4	10.0				
East: 56 Avenue															
Lane 1 ^d	488	3.0	488	3.0	1163	0.420	100	5.9	LOS A	3.0	21.9	Full	100	0.0	0.0
Approach	488	3.0	488	3.0		0.420		5.9	LOS A	3.0	21.9				
North: 127 Street															
Lane 1 ^d	305	3.0	305	3.0	980	0.311	100	8.8	LOS A	1.9	13.8	Full	100	0.0	0.0
Approach	305	3.0	305	3.0		0.311		8.8	LOS A	1.9	13.8				
South: 127 Street															
Lane 1 ^d	58	3.0	58	3.0	677	0.086	100	6.1	LOS A	0.5	3.2	Full	100	0.0	0.0
Approach	58	3.0	58	3.0		0.086		6.1	LOS A	0.5	3.2				
All Vehicles	1042	3.0	1042	3.0		0.420		6.6	LOS A	3.0	21.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
West: 56 Avenue											
Mov.	L2	T1	R2	Total	%HV						
From W						Cap.	Deg.	Lane	Prob.	Ov.	
To Exit:	N	E	S			veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.	
Lane 1	12	178	1	191	3.0	780	0.245	100	NA	NA	

Approach	12	178	1	191	3.0		0.245					
East: 56 Avenue												
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From E							Cap.	Satn	Util.	SL	Ov.	Lane
To Exit:	E	S	W	N			veh/h	v/c	%	%	No.	
Lane 1	174	12	40	262	488	3.0	1163	0.420	100	NA	NA	
Approach	174	12	40	262	488	3.0		0.420				
North: 127 Street												
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From N							Cap.	Satn	Util.	SL	Ov.	Lane
To Exit:	N	E	S	W			veh/h	v/c	%	%	No.	
Lane 1	106	183	5	11	305	3.0	980	0.311	100	NA	NA	
Approach	106	183	5	11	305	3.0		0.311				
South: 127 Street												
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.		
From S							Cap.	Satn	Util.	SL	Ov.	Lane
To Exit:	W	N	E				veh/h	v/c	%	%	No.	
Lane 1	1	7	50	58	3.0		677	0.086	100	NA	NA	
Approach	1	7	50	58	3.0			0.086				
Total %HV Deg.Satn (v/c)												
All Vehicles	1042	3.0		0.420								

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis

Exit Lane Number	Short Lane Length m	Percent Opng in Lane % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	Merge Queue [Veh Dist]
There are no Exit Short Lanes for Merge Analysis at this Site.										

Variable Demand Analysis

	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
West: 56 Avenue				
Lane 1	0.0	0.0	0.0	0.0
East: 56 Avenue				
Lane 1	0.0	0.0	0.0	0.0
North: 127 Street				
Lane 1	0.0	0.0	0.0	0.0
South: 127 Street				
Lane 1	0.0	0.0	0.0	0.0