

Huberman Transportation Consultants Inc.

17623 57 Avenue
Edmonton, Alberta, T6M 1E1

Mixed-Use Development

11630-11638 87 Avenue NW
LDA24 - 0200

Mobility Assessment

Final Report, Version 3.0

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Westrich Pacific Corp.

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Corporate Authorization

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CONSULTANTS INC.	
RM SIGNATURE:	<i>Mark Huberman</i>
RM APEGA ID #:	<i># 28833</i>
DATE:	<i>JULY 3, 2025</i>
PERMIT NUMBER: P015103	
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)	

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1. INTRODUCTION

1.1 Preamble

The City of Edmonton continues to plan for the future. The City Plan designates the University area (including the development site) as one of six Major Nodes within the City. A Major Node is described as a 'large-scale urban centre that serves multiple districts and is typically anchored by public institutions and significant employment centers' which support a higher density and wide mix of land uses.

On behalf of Westrich Pacific Corp. (Westrich), Green Space Alliance is in the process of advancing an application (LDA24-0200) to rezone one commercial lot and two single-family lots located in the east-central sector of the Windsor Park Neighbourhood. The proposed development is located in the northeast corner of 117 Street and 87 Avenue, generally across the street from the University of Alberta's North Campus.

Rezoning approval will allow Westrich to proceed with a development permit application for an 88m high mixed-use building, including 4,017 m² (43,238 ft²) of ground and second-floor podium commercial floor area and between 270 and 285 residential units on the south sector.

The maximum building height within the north project area has been established at 16m, which could allow for a four or five-storey building. The site is currently bordered by a paved north-south alley to the east, 87 Avenue to the south, and 117 Street to the west. An east-west alley runs through the site between 117 Street and the North-South alley. This alley will be relocated to the northern boundary of the project. Access to an underground parking garage accommodating about 350 stalls will be from the North-South alley that connects 87 Avenue and 89 Avenue. The blended residential parking rate is planned to be about 1.0 stalls per unit.

The site context and adjacent roadway network are illustrated in **Exhibit 1.1**.

Exhibit 1.1: Site Context



1.2 Study Need and Purpose

Based on discussions with the City of Edmonton, the need to complete a Traffic Impact Assessment (referred to as a Mobility Assessment for this study) was identified in support of the Rezoning Application. The Mobility Assessment, completed at a rezoning level of assessment, investigates the potential rezoning impacts on area transportation infrastructure. The Mobility Assessment builds on historical traffic reports and studies completed for other residential and mixed-use residential development constructed, being constructed, and approved in the Windsor Park neighbourhood.

Completion of the mobility assessment:

- Provides the City of Edmonton with a basis on which to assess the transportation implications associated with the proposed rezoning on existing and future land use and transportation infrastructure;
- Provides a rational basis on which to evaluate if the type and scale of the development is appropriate for this particular development area and what improvements may be necessary, on and/or off the site, to provide for safe and efficient pedestrian, bicycle, and traffic flow;
- Identifies and addresses transportation-related issues that may be of concern to neighbouring residents and property owners; and
- Provides a basis for identifying roadway, intersection, transit, pedestrian, and bicycle-related strategies that can be considered at more detailed levels of planning (i.e., Development Permit stage).

The transportation framework was generally premised on increasing transportation choices for resident population user groups and supporting active transportation modes.

1.3 Setting the Stage

Transportation accommodation for all user groups generated by the development requires an integrated, balanced, and coordinated transportation mobility plan. Understanding the demands placed on the area's transportation infrastructure represents an important dimension in assessing overall development impacts.

The need to identify an overarching management plan for active modes, transit, traffic circulation, site and loading access, parking access, and drop-off access—a plan that recognizes all modes of transportation—will allow for a holistic transportation plan to be developed at the Development Permit stage of application. This plan should acknowledge and recognize other development-related activities within the immediate area. The project site is within walking distance of the University of Alberta, the University LRT Station, and the University of Alberta Hospital precinct, which will allow all population user groups to take full advantage of alternate mode accessibility.

Developing a transportation mobility plan framework and identifying complementary Transportation Demand Management (TDM) strategies at the rezoning stage of the planning process will ensure that area roadways can perform satisfactorily, that parking accommodation and access facilities and routes are strategically located and appropriately sized, that the overall transportation system is designed to current geometric roadway standards, and that the overall plan responds to City, landowner and community desires and expectations.

1.4 Project Understanding and Scope

The City of Edmonton requested a review of the transportation-related aspects of the rezoning application to gain a better understanding of the potential development impacts on the area's transportation infrastructure and to consider the cumulative development-related traffic impacts along the block.

Based on a review of the Pre-Application Meeting Minutes and City comments received upon review of a Scoping Document, the Mobility Assessment includes information on the following:

- Existing and future area transportation networks, including alternative modes networks;
- A qualitative and quantitative commentary on existing traffic volumes and operations on the study area roadways, including the following intersections:
 - 116 Street/87 Avenue
 - 116 Street/89 Avenue
 - 117 Street/87 Avenue
 - 117 Street/89 Avenue
 - 87 Avenue/North-south Alley (between 116 and 117 Street)
 - 89 Avenue/North-south Alley (between 116 and 117 Street)
 - 117 Street/East-west Alley (north of 116 Street)
 - 118 Street/87 Avenue
- Current vehicular, pedestrian, or bicycle operational challenges on study roadways;
- Multi-modal (i.e., walking, cycling, transit, and driving) trip generation for the proposed development during the AM and PM peak hours based on City trip generation rates and industry best practices in consideration of the development's location and possible TDM measures;
- Identify the cumulative traffic impacts of the development, considering recent developments in the vicinity of this block;
- A qualitative and quantitative commentary of potential development impacts on future traffic operations at study intersections, roadways, and alley intersections, including recommendations for potential pedestrian crossing or traffic control improvements.
- Describe existing on-street parking and review site-generated parking requirements and proposed supply;
- Comment on the area residential parking program and the possible development impact on the program and on-street parking supply;
- Comment on the existing alley conditions and safety (width, surface condition, utility locations, etc.) and estimated traffic volume along the alley and identify any mitigation measures as required;
- Comment on waste truck, loading, and emergency vehicle accommodations and any potential conflict with other modes;
- Identify potential TDM measures that could be considered to encourage residents to use alternative travel modes;
- Investigate potential opportunities to improve the attractiveness and sustainability of transit /pedestrian/cyclist experiences and operations (gap identification, missing transit pads, 'first-mile, last-mile' pedestrian connectivity between the site and the University Station (e.g., 116 Street NW/89 Avenue NW, etc.), if and where applicable to enhance alternate mode opportunities including intersection improvements); and
- Site access operations and access design elements, including swept path analysis for waste management vehicles and/or loading vehicles.

In addition to the above, it is noted that pedestrian signals were recently installed at the intersection of 117 Street and 87 Avenue. This traffic control improvement was on the City's Traffic Safety list for upgrades to pedestrian crossing infrastructure.

1.5 Study Goals and Objectives

The development of a sustainable all-modes plan framework adjacent to the plan area to service levels of development as may be contemplated represents the central focus of the assignment. The mobility assessment evaluates the impacts associated with a contemplated residential development on the immediately adjacent roadway and alley system.

Transportation improvements and strategies required to accommodate site-generated traffic on area roadways, adjacent alleys, and intersections are identified. Although ensuring ease of access to and from the development by passenger cars is important, roadways and intersections in the area are built out, and opportunities to expand these facilities are limited. The transportation plan acknowledges any constraints identified and ensures that traffic, parking, pedestrian, and bicycle accommodation represent acceptable levels of service based on City Level of Service criteria.

The traffic management plan reflects current realities and future trends, to the extent that they can be anticipated. In this context, the primary goals of the transportation mobility plan include:

- Supporting and augmenting the existing active modes network to assist neighborhood and community-building and to provide access to transit and active modes of transportation;
- Encouraging walking and cycling as safe and attractive ways to move from the development site to the City's pedestrian and bicycle network for people of all ages and abilities;
- Providing attractive and convenient access to transit for trips within the city and region;
- Managing vehicular travel through a careful examination of on-site parking;
- Ensuring emergency vehicle access; and
- Preserving neighbourhood livability by reducing the negative impacts of vehicle traffic.

1.6 Study Methodology

The study methodology employed represents a combination of multi-modal plan development along with traditional traffic impact analysis. The study follows the City of Edmonton's TIA guidelines with an additional emphasis on pedestrian, bicycle, and transit access. In addition to reviewing the potential impacts on the adjacent City-owned transportation infrastructure, the study considers the transportation interface between the site and the adjacent community.

The methodology recognizes and acknowledges that continued growth within the Windsor Park Neighbourhood cannot be evaluated solely on its impact on road capacity and intersection operations. The methodology acknowledges that key roadways in this sector of the neighbourhood represent major travel corridors. For these reasons, transportation impact studies must identify program and infrastructure requirements and improvements necessary to promote the use of the active mode network.

The methodology de-emphasizes the project site and its immediate environment as the primary scale of analysis. The methodology benefits by considering the area at large and takes an area-wide approach with attention to the urban context of the development site. At this larger scale, there is a better ability to understand the various elements that work together to shape travel demand, including but not limited to multi-modal transportation infrastructure and services, and how mixed-use residential can be integrated into this larger neighbourhood context.

The assessment was completed using the following methodology:

- An examination of the development area with respect to existing conditions;
- An examination of the proposed future roadway network adjacent to the development area and forecast traffic conditions (preliminary analysis);
- Estimating future vehicular trip patterns generated to and from the development area based on the land use schedule provided;
- Distributing and assigning the projected vehicular demands on adjacent corridors based on the proposed access management strategy and the relative location of trip origins and destinations;
- Estimating roadway and alley volumes within the general study area (including future known development initiatives) to identify roadway requirements, identify possible roadway capacity restrictions, and assess the overall traffic impacts of the development area; and
- Review ancillary transportation-related items such as transit, pedestrian and bicycle accommodation (and possible enhancements), and waste management.

Two analysis horizons (AM and PM peak hours) were selected in this study, including:

- Existing Conditions (2024); and
- Site Full Buildout Horizon (assumed 2028).

In regard to the above, construction and occupancy of the mixed-use building is planned to occur between 2026 and 2028/2029. For this assessment, 2028 was selected as the horizon year.

1.7 Area of Significant Traffic Influence

The area of significant traffic influence has been identified as the block bounded by 116 Street, 117 Street, 87 Avenue, and 89 Avenue, including the alley accesses onto 117 Street, 87 Avenue, and 89 Avenue. The 118 Street and 87 Avenue intersection was also selected for study due to its proximity to the site. The following intersections were selected for qualitative and quantitative analysis:

- 116 Street/87 Avenue
- 116 Street/89 Avenue
- 117 Street/87 Avenue
- 117 Street/89 Avenue
- 87 Avenue/North-south Alley (between 116 and 117 Street)
- 89 Avenue/North-south Alley (between 116 and 117 Street)
- 117 Street/East-west Alley (north of 116 Street)
- 118 Street/87 Avenue

The above-noted study intersections are identified in **Exhibit 1.2**.

1.9 Report Organization

In addition to this introductory section, this report contains 7 chapters. A summary of existing and future area conditions, including a review of roadway, parking, transit, bicycle facilities pedestrian movements is included in **Chapter Two**. This background information helped inform the preparation of the mobility assessment.

Chapter Three reviews a number of the key land use and mobility characteristics associated with the development parcel and preliminary information regarding the multi-unit building being considered upon rezoning approval. **Chapter Four** includes commentary on the projected traffic characteristics associated with the development parcels, while **Chapter Five** includes the traffic assessment. Several candidate Transportation Demand Management strategies are presented in **Chapter Six**, while **Chapter Seven** includes a summary of the public engagement program. Finally, **Chapter Eight** presents a summary of the report findings.

2. PRE-DEVELOPMENT CONDITIONS

2.1 Preface

The review of existing conditions includes a qualitative assessment of the level of service provided for several multi-modal transport options, including transit, walking, cycling, vehicular traffic activity, and parking. These modes were reviewed in terms of existing conditions near the subject development site and, where required, were reviewed from a more neighbourhood context (to review overall neighbourhood connectivity). The baseline data provides a foundation for assessing and integrating active mode movements, traffic, and parking accommodations associated with the redevelopment.

2.2 Existing and Future Adjacent Land Use

Residential land use development in the Windsor Park Neighbourhood is predominantly comprised of single-family dwellings. While Windsor Park is primarily a low-density residential community, with the majority of properties governed by an (RS) Small Scale Residential Zone. The southeastern corner of the community has begun to densify with more intense forms of development, including multi-unit housing ranging from 4 to 11 storeys.

The development parcels are currently occupied by the Windsor Park Shopping Centre, which consists of single-storey low-intensity commercial land uses and single-family houses. The site has access to 87 Avenue and 117 Street. These two driveway accesses will be closed with the redevelopment of the properties.

The development block also includes several single-family homes as well as The Church of Jesus Christ of Latter-day Saints, located at the corner of 87 Avenue and 116 Street. Access to the religious assembly is available from 116 Street and the north-south alley between 116 Street and 117 Street.

The Windsor House multi-unit located at 8709 118 Street (DC2.1163) was recently constructed and is currently being tenanted. Access to the underground parking garage is planned from the existing East-West alley that connects 117 Street and 118 Street. A new multi-unit development (Windsor Park I, located on the east side of 118 Street opposite Windsor Park School), the zoning which was approved by City Council in early 2024, is currently under construction.

A multi-unit development was constructed (The Bentley, 11710 87 Avenue) in the NW quadrant of 87 Avenue and 117 Street. Access to the Bentley's underground parking garage is also from the existing East-West alley (commercial alley standard) that connects 117 Street and 118 Street. A new multi-unit development (Windsor Park II), approved by City Council in 2024, is proposed for the west side of 116 Street south of 89 Avenue. Traffic associated with the full development of Windsor House was derived from the TIA completed for Windsor Terrace (Windsor House), while the Bentley traffic was captured in the traffic count program.

The Windsor Park Elementary School, Community League, and ice rink are located on the west side of 118 Street, and St. George's Anglican Church is located across 87 Avenue to the south of the development. The Church of Jesus Christ is located on the north side of 87 Avenue between 116 Street and the North-South Alley.

It is clear by the number of planned and approved multi-unit developments in this sector of the Windsor Park Neighbourhood that the historical travel patterns and mobility characteristics, and profiles exhibited by this area of the neighbourhood will also change.

The University of Alberta's North Campus is located east of the Windsor Park neighbourhood (east of 116 Street) and includes major destinations such as the Northern Alberta Jubilee Auditorium and the University of Alberta Hospital Campus. Varsity Field and a surface parking lot are located on the east side of 116 Street between 87 Avenue and 89 Avenue. The Human Ecology Building and Stadium Car Park are located in the northeast quadrant of the 116 Street and 89 Avenue intersection. Immediately south of the building (across 87 Avenue) is Lister Hall, a student housing complex run by the University of Alberta, consisting of four 10 to 12-storey towers. The North Saskatchewan River valley is located to the north and west of Windsor Park.

2.3 Adjacent Roadway Network

The development parcel is ideally located to take advantage of a strong roadway network. The transportation context of the study area (in the Windsor Park Neighbourhood) is generally represented by a standard grid of streets with pedestrian facilities typically provided on both sides of the roadway.

A field reconnaissance of the site and its surroundings was conducted to establish a database of the existing conditions. Several roadways and alleys are likely to be used as vehicular routes to the development parcel.

87 Avenue

- A four-lane undivided arterial roadway between 116 Street and 118 Street;
- East of 116 Street, a left turn lane has been introduced to accommodate westbound to southbound left turns into the Lister Hall complex;
- An east-west service road is located on the south side of 87 Avenue west of 117 Street;
- The intersection of 87 Avenue and 116 Street is traffic signal controlled;
- A pedestrian signal is located on 87 Avenue at 118 Street (west approach);
- Parking is not permitted along 87 Avenue.

89 Avenue

- Is a local roadway and is about 7.5m wide;
- Operates as a one-way eastbound corridor;
- Includes painted bike lanes on both sides, including a westbound bike lane on the north side; and
- The intersection of 89 Avenue is stop sign-controlled at 116 Street (as is the east approach of the intersection).

116 Street

- Is a collector roadway with a three-lane cross-section (1 lane NB / 2 lane SB) between 87 Avenue and 89 Avenue and a two-lane cross-section north of 89 Avenue;
- Has painted bike lanes on both sides of 116 Street;
- Parking is not permitted on 116 Street; and
- The intersection is traffic signal-controlled at 87 Avenue.

117 Street

- Is a local 2-lane roadway between 87 Avenue and 89 Avenue;
- No parking is permitted on the west curb
- East curb parking is controlled by a Residential Permit Parking program.

North-South Alley (between 116 Street and 117 Street)

- The alley represents the east edge of the development parcel and is a 6m wide paved alley between 87 Avenue and the East-West Alley on the north site boundary;
- The North-South Alley is designated as an AL-R facility;
- The pavement structure from 87 Avenue to the south of the East-West Alley is 50 mm of asphalt and 150 mm of concrete. This structure extends the full width of the alley right of way (the East-West alley behind the commercial building also has been constructed with 50 mm of asphalt and 150 mm of concrete);
- The alley generally appears to be constructed from south of the Church south property line to 89 Avenue as a 4m wide residential alley;
- The intersections of the North-South Alley and 87 Avenue and the North-South Alley and 89 Avenue are uncontrolled;
- There are about 15 single-family homes on the block bounded by 117 Street to the west and 116 Street to the east that take access to the alley; and
- Power poles are located on the west side of the alley.

East-West Alley (north side of the commercial parcel)

- The alley represents an upgraded alley;
- The alley is hard surfaced from the south edge of the commercial building to the north alley property line; and
- There are utility poles located on the south side of the alley.

Appendix A includes a series of existing roadways, intersections, and alley photographs.

Table 2.1 summarizes the general operating characteristics of each street.

Table 2.1: Existing Roadway Characteristics Adjacent to Site

Roadway	Classification	Cross-Section		Posted Speed	Facilities			
		Lanes	Median		Parking	Bike Route	Bike Lanes	Bus Stops
116 Street (between 87 Avenue and 89 Avenue)	Collector	3	No	40 km/h	No	Yes	Yes	No
116 Street (between 89 Avenue and 91 Avenue)	Collector	2	No	40 km/h	No	Yes	Yes	Yes
117 Street (north of 87 Avenue)	Local	2	No	40 km/h	On-street	No	No	No
87 Avenue	Arterial	4	No	50 km/h	No	Yes	No	Yes
89 Avenue	Local	1	No	40 km/h	No	Yes	Yes	No
North-South Alley	Alley	2	No	20 km/h	No	No	No	No

2.4 Parking Characteristics

Parking on 116 Street between 87 Avenue and 89 Avenue and on 87 Avenue between 114 Street and 118 Street is restricted. Parking is not permitted on 117 Street between 87 Avenue and the East-West alley. Resident-only parking (UA-4 Zone) is available on the east curb of 117 Street north of the alley, while parking is not permitted on the west curb. There are also several off-street university parking lots in the vicinity of the development parcel, including Stadium Car Park. Parking is not permitted on either side of 89 Avenue.

2.5 Pedestrian Accommodation



A grid network forms the majority of the road network in this area of Windsor Park, which provides for high pedestrian connectivity. The network includes a high number of intersections and shorter links between intersections, including pedestrian connections. The proposed development site is well located to take advantage of pedestrian corridors located in the vicinity of the development parcel. Sidewalks are generally provided on both sides of streets and avenues near the development parcel.

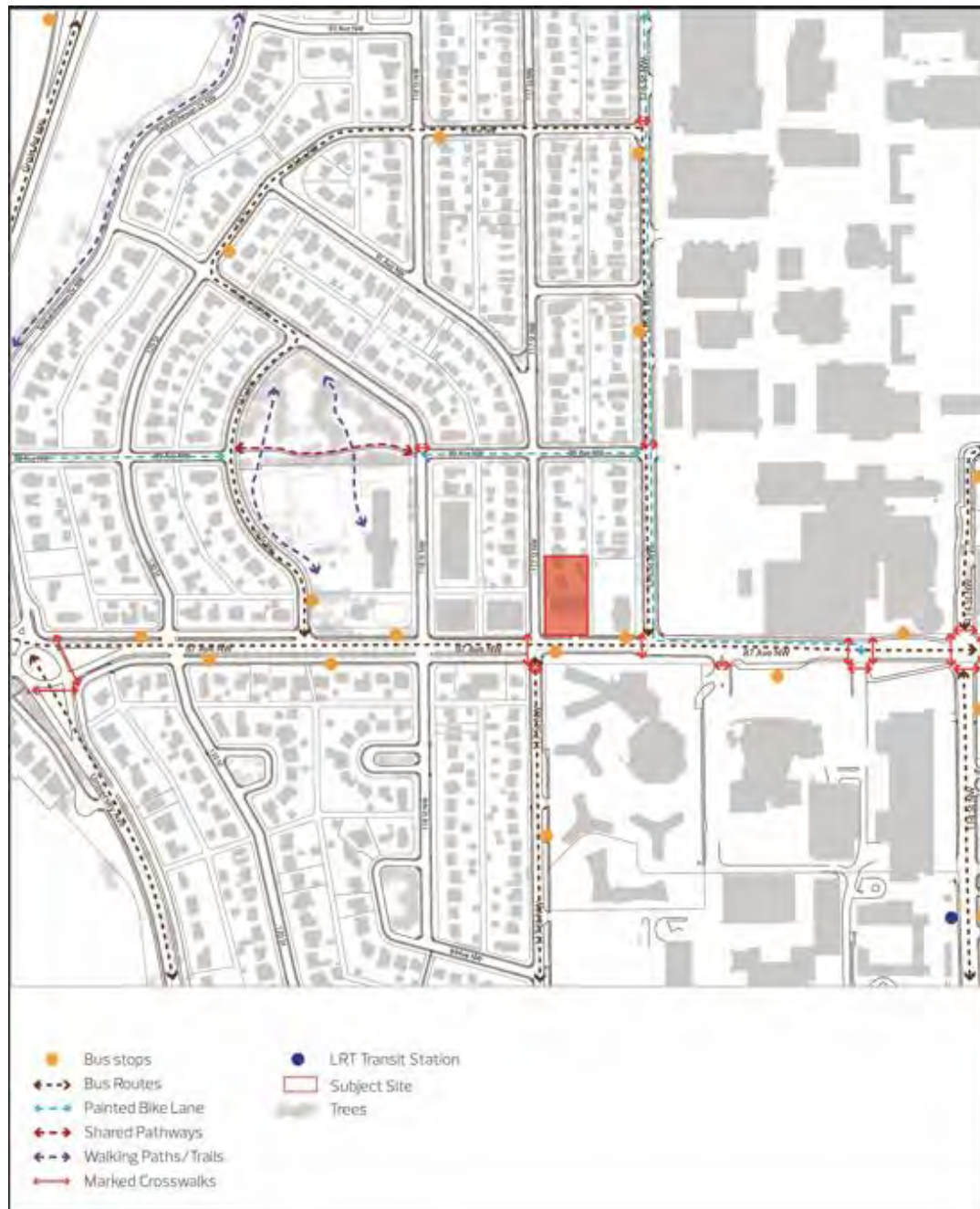
- Sidewalks are provided along the north and south curbs of 87 Avenue. The existing 87 Avenue north side sidewalk is about 2.4m wide. The sidewalk exhibits areas of disrepair as evidenced by several asphalt patches that have been employed to restore the sidewalk.
- Curb ramps are provided at all of the corners of 87 Avenue and 116 Street, 116 Street and 89 Avenue, and 117 Street and 87 Avenue;
- The intersection of 89 Avenue is stop sign-controlled at 116 Street;
- A painted crosswalk is located on the west approach of the 117 Street and 87 Avenue intersection.
- There is a pedestrian-actuated flasher on the north approach of the 116 Street and 89 Avenue intersection;
- A pedestrian-actuated signalized crosswalk is located on the west approach of the 87 Avenue and 118 Street intersection;
- The City recently installed a Pedestrian Signal on 87 Avenue at 117 Street; and
- Painted crosswalks are located on all approaches of the 87 Avenue and 116 Street intersection.

Commercial land uses are located within easy walking distance of the subject parcel, including the newly constructed commercial area at Windsor House (118 Street and 87 Avenue). The grid network of streets in the development area provides ample pedestrian connections throughout the area and neighbourhood.

The redevelopment site is classified as “Somewhat Walkable” with a 65-point score out of 100 using the website Walk Score, indicating that some errands can be accomplished on foot. The existing commercial area on the development site will be replaced with podium commercial land uses, which will increase the site’s commercial square footage. Overall, the development site is located within proximity to an array of everyday amenities (banks, convenience stores, etc.), which makes walking an attractive and realistic travel mode for future residents.

Exhibit 2.1 illustrates the basic pedestrian routes in the vicinity of the development parcel (Source: Green Space Alliance, Urban Design Brief, 118 Street DC2 Rezoning, August 2022).

Exhibit 2.1: Pedestrian Routes



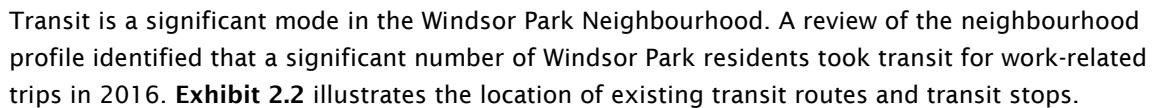
2.6 Bicycle Facilities



The City of Edmonton is moving to implement a network of bicycle lanes around the city, a key part of its Bicycle Transportation Master Plan. The study area is generally well-connected for cyclists. Based on a review of the City of Edmonton Bicycle Route Map, several existing bicycle routes in the area include:

- There are painted bicycle lanes for eastbound and westbound bicycle movements on 89 Avenue between 118 Street and 116 Street;
- 116 Street north of 87 Avenue has a marked on-street bike route;

- ## 2.7 Transit



The map displays the Windsor Park area with various streets and transit infrastructure. Key streets include Windsor Rd NW, 89 Ave NW, 91 Ave NW, 92 Ave NW, 87 Ave NW, 86 Ave NW, 85 Ave NW, 84 Ave NW, 83 Ave NW, 82 Ave NW, 81 Ave NW, 80 Ave NW, 79 Ave NW, 78 Ave NW, 77 Ave NW, 76 Ave NW, 75 Ave NW, 74 Ave NW, 73 Ave NW, 72 Ave NW, 71 Ave NW, 70 Ave NW, 69 Ave NW, 68 Ave NW, 67 Ave NW, 66 Ave NW, 65 Ave NW, 64 Ave NW, 63 Ave NW, 62 Ave NW, 61 Ave NW, 60 Ave NW, 59 Ave NW, 58 Ave NW, 57 Ave NW, 56 Ave NW, 55 Ave NW, 54 Ave NW, 53 Ave NW, 52 Ave NW, 51 Ave NW, 50 Ave NW, 49 Ave NW, 48 Ave NW, 47 Ave NW, 46 Ave NW, 45 Ave NW, 44 Ave NW, 43 Ave NW, 42 Ave NW, 41 Ave NW, 40 Ave NW, 39 Ave NW, 38 Ave NW, 37 Ave NW, 36 Ave NW, 35 Ave NW, 34 Ave NW, 33 Ave NW, 32 Ave NW, 31 Ave NW, 30 Ave NW, 29 Ave NW, 28 Ave NW, 27 Ave NW, 26 Ave NW, 25 Ave NW, 24 Ave NW, 23 Ave NW, 22 Ave NW, 21 Ave NW, 20 Ave NW, 19 Ave NW, 18 Ave NW, 17 Ave NW, 16 Ave NW, 15 Ave NW, 14 Ave NW, 13 Ave NW, 12 Ave NW, 11 Ave NW, 10 Ave NW, 9 Ave NW, 8 Ave NW, 7 Ave NW, 6 Ave NW, 5 Ave NW, 4 Ave NW, 3 Ave NW, 2 Ave NW, 1 Ave NW. Windsor Park is located in the center of the map. A legend in the bottom right corner indicates that a blue bus icon represents a TRANSIT STOP and a dashed blue line represents a TRANSIT ROUTE. The map shows several transit stops and a transit route that runs along the northern and eastern edges of the park area.

The development site is served by routes 51, 726, and 902, Strathcona County Transit Route 414, and St. Albert Route 203. The two closest transit stops to the development include Stop 2666, located on the south side of 87 Avenue east of 117 Street, and Stop 2851, located on the north side of 87 Avenue west of 116 Street. There are multiple other transit stops located further west on 87 Avenue and further north on 116 Street. Transit stops 2967 and 2666 do not have any bus pads or shelters.

The project site is within 100m walking distance to bus stops on 87 Avenue NW and 116 Street. The site is approximately 800m walking distance to the University LRT Station/Transit Centre. A range of ETS transit services are available from the LRT Station and Transit Centre. There are multiple transit stops within a 300m distance of the development site.

Mass transit bus routes are anticipated to operate from the University Transit Centre as part of the future mass transit network associated with the 1.25 million population scenario of The City Plan. The proposed alignment and routing of mass transit bus routes is under review and yet to be finalized at this time. The continued development of LRT will continue to be a major mode-split catalyst.

To leverage this public investment in transit infrastructure and to support increased transit ridership, the design of the multi-unit building will prioritize the needs of pedestrians and cyclists as potential transit users. It is anticipated that the mode split to transit will increase over time with the expansion of the City's Mass Transit Network.

The development site is classified as "Good Transit" with a 70-point score out of 100 using the website Walk Score¹, indicating that there are many transit options available in the area, including the LRT. The development parcel is approximately 800m from the University LRT Stop on 89 Avenue and 112 Street and about 650-700m from the Health Sciences/Jubilee Stop located on 114 Street south of 87 Avenue.

2.8 Existing Traffic Movements

Several intersection turning movement counts have been completed between 2022 and 2024 in the area of the subject development parcel. **Exhibit 2.3** presents an illustration of the traffic count locations and the time frames associated with the traffic counts.

Exhibit 2.3: Traffic Count Locations and Dates



Although the eight traffic counts were not recorded at the same time, the traffic count program assumed for assessment purposes represents a robust traffic count program. Other than the 118 Street and 87 Avenue traffic count, which was undertaken to capture Windsor Park School traffic, the remaining seven (7) traffic counts were completed while the University of Alberta was in Fall Session or at the end of the Spring Session.

As the counts were not all conducted on the same date, traffic volumes were balanced based on the most recent counts (2024). The traffic counts were also compared to historical City of Edmonton traffic counts and historical Average Annual Daily Traffic Counts for accuracy and consistency.

The number of counts and the time frames associated with the traffic count program are considered to reflect and be representative of existing traffic conditions during typical University operations.

Further to the above, it is noted that traffic movements on 87 Avenue were increased by 1% per annum to reflect a more conservative estimate of background traffic at Opening Day (the day when the mixed-use building is constructed and occupied). In addition, the background traffic assumed for assessment purposes included the development of Windsor Park 1, Windsor House, and the Bentley Condominium Building based on a review of their respective Traffic Impact Assessments. The development of the background traffic model is described in Section 4.3.

The AM and PM volumes recorded at the study intersections are summarized in **Exhibit 2.3** and **Exhibit 2.4**, while **Appendix B** includes reproductions of the intersection turning movement counts.

Exhibit 2.3: AM Peak Hour Traffic Volumes

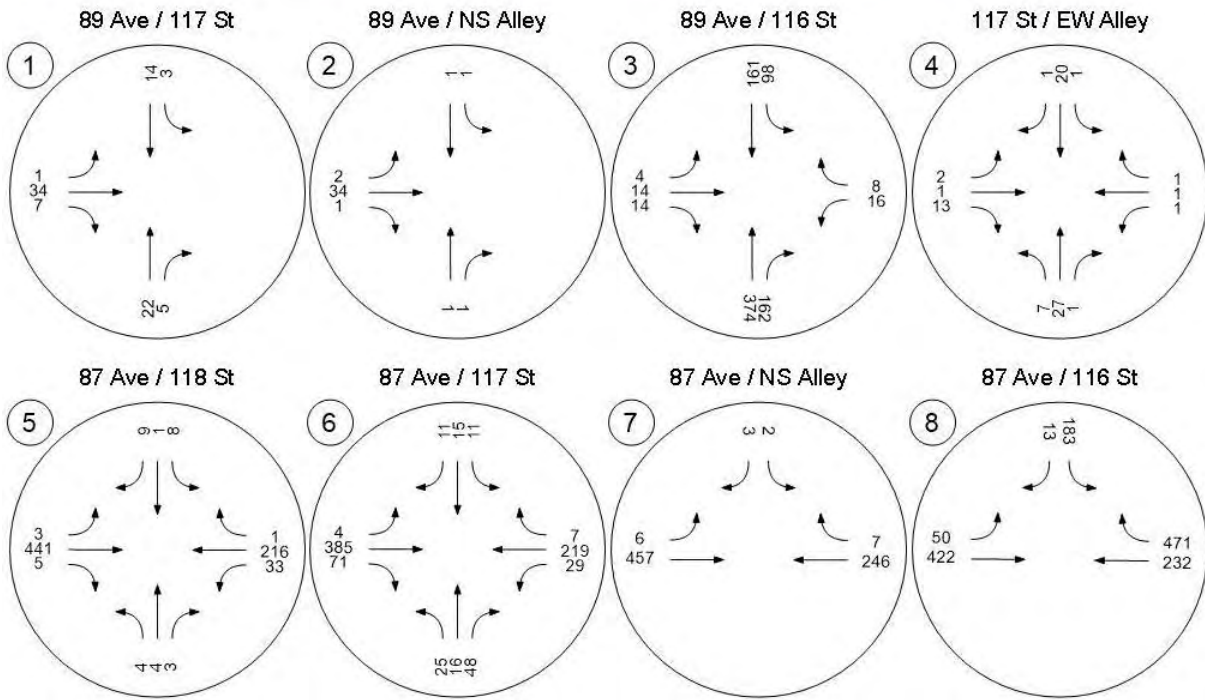
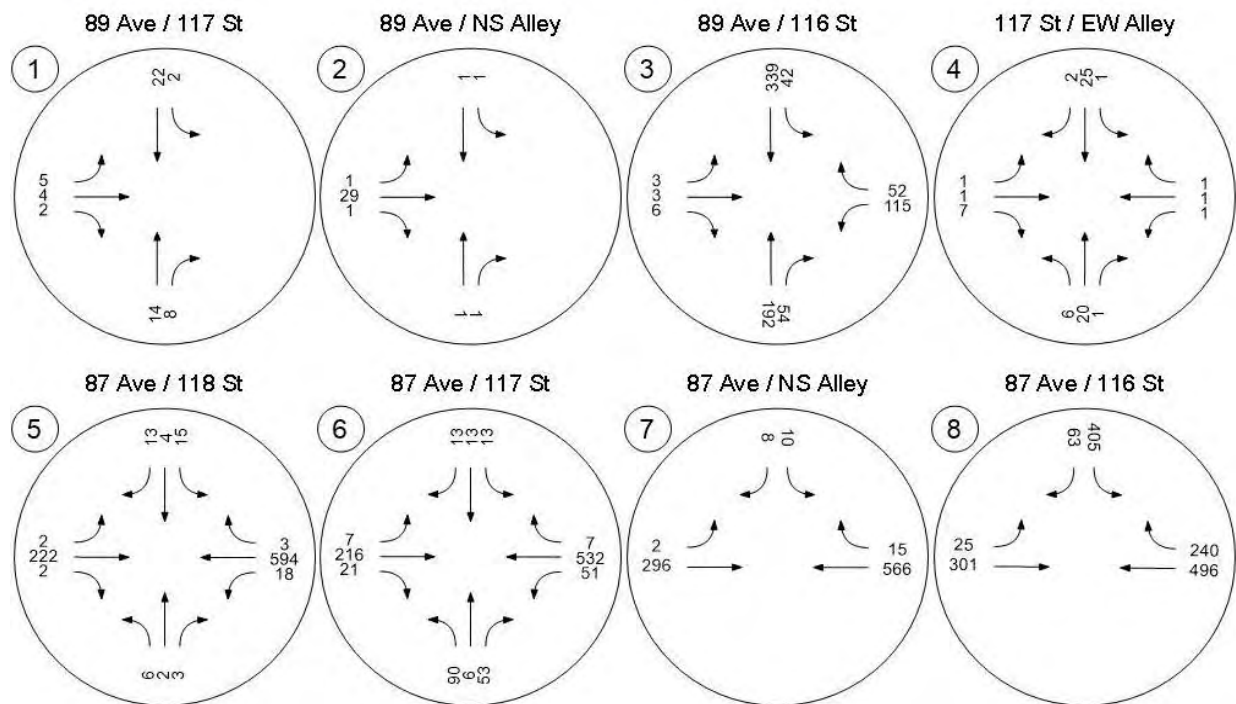


Exhibit 2.4: PM Peak Hour Traffic Volumes



89 Avenue west of 116 Street was recorded as accommodating 58 westbound movements notwithstanding that 89 Avenue is a one-way westbound roadway. Of the 58 daily westbound movements recorded on 89 Avenue west of 116 Street, only 4 movements over the 24 hours were vehicles. The remaining movements were bicycles using the westbound bicycle lane. The 4 vehicles recorded heading westbound were likely shortcutting to gain access into the north-south alleys west of 116 Street or negotiating an incorrect manoeuvre.

Similarly, not all of the vehicle movement on the North-South Alley north of 87 Avenue are passenger vehicles. It is noted that although there is no access from the North-South Alley to the adjacent commercial site, there is an access from the North-South Alley into the Church of Jesus Christ of Latter-Day Saints, which is likely the current generator of a percentage of the traffic on the north segment of the North-South Alley.

The ability to move through the Church's surface parking lot between 116 Street, the North-South Alley, and 117 Street is acknowledged. Notwithstanding the ability for southbound 116 Street vehicles to bypass the 116 Street/87 Avenue intersection by short-cutting through the Church's parking lot, this route is somewhat circuitous and not very practical. In addition, the new East-West Alley will not connect to the East-West Alley west of 117 Street, which should discourage shortcutting movements.

The results of the traffic operational assessments completed for existing conditions and total traffic conditions have identified that the southbound right turn at 116 Street and 87 Avenue will operate at very acceptable levels of service. This finding suggests that the queue of right-turning vehicles (about 4 to 5 cars) is relatively short and that there would be no significant benefit to short-cutting through the church parking lot.

In addition to the above, the church parking lot is a privately controlled development parcel. Any concerns with short-cutting is a management issue on a privately owned property outside of Westrich's control.

Table 2.2 presents a summary of daily traffic movements on key area roadways and alleys. The movements presented in Table 2.2 include all movement types, including vehicles, buses, bicycles on the road, E-Scooters, and trucks.

Table 2.2: Daily Traffic Volumes (Vehicles, Trucks, Buses, Bicycles, and E-Scooters) By Roadway Link

Roadway Link	EB	WB	Total	NB	SB	Total
87 Avenue East of 116 Street	8,323	8,844	17,167			
87 Avenue West of 116 Street	5,008	5,196	10,204			
87 Avenue East of 117 Street	5,022	5,065	10,087			
87 Avenue West of 117 Street	3,998	4,660	8,658			
87 Avenue West of 118 Street	3,664	3,678	7,342			
North-South Alley North of 87 Avenue				261	158	419
North-South Alley South of 89 Avenue				12	6	18
East-West Alley East of 117 Street	4	6	10			
116 Street North of 87 Avenue				4,584	4,239	8,823
116 Street South of 89 Avenue				4,357	4,066	8,423
116 Street North of 89 Avenue				3,617	3,819	7,436
89 Avenue East of 116 Street	1,919	1,222	3,141			
89 Avenue West of 116 Street	260	58	316			
89 Avenue West of the North-South Alley	265	75	340			
117 Street North of 87 Avenue				497	530	1,027
117 Street South of 89 Avenue				339	246	585

2.9 Pedestrian Movements

There are significant pedestrian volumes in the study area, due primarily to the proximity of the University of Alberta (see **Table 2.3** for peak hour and daily pedestrian volumes). The largest number of pedestrian crossings occurs at the 116 Street intersection, as pedestrians travel to/from the University campus. The highest individual crossing volume occurs on the east leg of 116 Street / 87 Avenue, as students travel between the campus and the Lister Hall residence on the south side of 87 Avenue.

Table 2.3: Existing AM and PM Peak Hour Pedestrian Crossing Counts

AM Peak Hour					
	N	S	E	W	Total
116 Street / 87 Avenue	29	N/A	121	65	215
116 Street / 89 Avenue	63	5	119	42	231
117 Street and 87 Avenue	11	6	13	0	30
North-South Alley / 87 Avenue	23	N/A	1	0	24
North-South Alley / 89 Avenue	19	4	1	1	25
PM Peak Hour					
	N	S	E	W	Total
116 Street / 87 Avenue	52	N/A	90	61	203
116 Street / 89 Avenue	79	4	81	40	204
117 Street and 87 Avenue	23	2	28	0	53
North-South Alley / 87 Avenue	36	N/A	1	0	37
North-South Alley / 89 Avenue	30	15	0	0	45
Daily					
116 Street / 87 Avenue	670	708	1,351	1,012	3,741
116 Street / 89 Avenue	850	74	927	387	2,238
117 Street and 87 Avenue	180	67	424	11	682
North-South Alley / 87 Avenue	644	N/A	17	52	713
North-South Alley / 89 Avenue	398	113	16	11	538

2.10 Existing Traffic Operations

Existing traffic operations are analyzed in **Section 5.3**.

2.11 Bicycle and E-Scooters

The intersections of 87 Avenue and 116 Street and 117 Street and 87 Avenue are also well used by cyclists and E-Scooters. **Table 2.4** and **Table 2.5** summarize the pedestrian and E-Scooter movements at the 87 Avenue and 116 Street and 117 Street and 87 Avenue intersections between 7:00 AM and 7:00 PM.

At both intersections, bicycle and E-Scooter movements outside of these 12 hours were relatively light.

Table 2.4: 87 Avenue and 116 Street Pedestrian and E-Scooter Movements

From	To	7:00 AM TO 8:00 AM	8:00 AM TO 9:00 AM	9:00 AM TO 10:00 AM	10:00 AM TO 11:00 AM	11:00 AM TO NOON	NOON TO 1:00 PM	1:00 PM TO 2:00 PM	2:00 PM TO 3:00 PM	3:00 PM TO 4:00 PM	4:00 PM TO 5:00 PM	5:00 PM TO 6:00 PM	6:00 PM TO 7:00 PM	Total
NE CORNER	SE Corner			1			2		1	1		2		7
	NW Corner						1				1	2		4
NW CORNER	SW Corner	3	1	1		1	1	1		2	2	6		18
	NE Corner						1			1				2
SE CORNER	NE Corner		1	2	1	1	2		1			2	3	13
	SW Corner	1	1	1								2	1	6
SW CORNER	NW Corner	1		1				1		2	1			6
	SE Corner	1	2	1			1			1		5	1	12

Table 2.5: 117 Street and 87 Avenue Pedestrian and E-Scooter Movements

From	To	7:00 AM TO 8:00 AM	8:00 AM TO 9:00 AM	9:00 AM TO 10:00 AM	10:00 AM TO 11:00 AM	11:00 AM TO NOON	NOON TO 1:00 PM	1:00 PM TO 2:00 PM	2:00 PM TO 3:00 PM	3:00 PM TO 4:00 PM	4:00 PM TO 5:00 PM	5:00 PM TO 6:00 PM	6:00 PM TO 7:00 PM	Total
NE CORNER	SE Corner	4	4		12	8	11	20	9	11	15	13	17	124
	NW Corner		2	2	8	5	9	11	4	7	9	9	3	69
NW CORNER	SW Corner								1					1
	NE Corner	1	9	7	8		5	11	5		6	14		66
SE CORNER	NE Corner	9	9		7	5	5	9	14	11	16	15	12	112
	SW Corner		3	2		4	3	3	2	1	1	2	6	27
SW CORNER	NW Corner							2						2
	SE Corner	1	3	3					1		1			9

3. PROPOSED DEVELOPMENT

3.1 Site Location and Zoning

The proposed mixed-use development is located on the northeast corner of 87 Avenue and 117 Street in the Windsor Park neighborhood, immediately west of the University of Alberta's North Campus. The building will displace an existing low-intensity commercial building and two single-family lots. The municipal addresses of the parcels that will combine to accommodate the mixed-use building include:

- 116630 to 11638 87 Avenue;
- 8715 117 Street; and
- 8719 117 Street.

The developments along 87 Avenue are currently zoned as CN (Neighbourhood Commercial) parcels, while the two residential properties are zoned as RS (Small Scale Residential Zone). The development site is located over 400m from the University LRT Stop and is not subject to Transit Oriented Development Guidelines.

The proposed rezoning application includes two zones. The north side lots, plus the future closed east-west alley, are planned to be rezoned as MUN – Neighbourhood Mixed Use with a maximum height of 16m. This area of the development is planned to include commercial land uses within a two-story podium. The south lots (excluding the east-west alley) are proposed to be zoned as MU -Mixed Use Zone with a maximum height of 88m (the number of storeys will be determined at the development permit stage of application). This area of the development will include podium commercial and retail land uses and a residential tower. As the MU Zone can be tailored to meet the needs of the development, the following modifiers are proposed: cf, f11, and 88h.

3.2 Description of Proposed Development

The proposed development is best characterized as a mixed-use commercial/residential development. Retail and commercial land uses are planned for the ground and second floors. A small pocket of surface parking located in the northeast quadrant of the development is planned to support podium retail and commercial land uses. A total of about 4,017 m² (43,238 ft²) of commercial floor area will be developed in a single development phase:

- About 4,017 m² (43,238 ft²) of retail/commercial space (on the ground and second floors);
- About 240 to 300 residential units; and
- Approximately 300 to 350 below-grade parking spaces and about 18 surface parking stalls

For this study, a residential unit count of 270 units was selected for assessment purposes as it represented the best and most up-to-date information available at the time of the report's preparation. In late December 2024, a residential unit count of 285 units was considered. This possible change in residential density is further discussed in Section 4.1.

Although not designated as a Transit Oriented Development area, the area of the Windsor Park Neighbourhood within which the new multi-unit building is planned has many of the locational and land use attributes associated with Transit Oriented developments. The proposed development increases local efficiencies that integrate walking, cycling, and public transport for better accessibility. The development should afford an accessible and safe living environment in the community.

The development block is located across from the University of Alberta's North Campus, about 800m away from the University LRT Stop and Transit Centre, and about 650 to 700m away from the Health Sciences/Jubilee LRT Stop. The development site is well served by surface transit routes and LRT. Ease of pedestrian access to transit and LRT, the greater University of Alberta North Campus area, and the University of Alberta Hospital Campus will assist in encouraging transit ridership and walk trips.

Exhibit 3.1 presents an illustrative ground plan (Source: J + S Architect). This plan should be considered preliminary at this time.

Exhibit 3.1: Proposed Site Plan (Ground Floor)



Exhibit 3.2 presents a reproduction of an illustrative rendering of the Windsor Park Mixed-Use Building. It is noted that the rendering represents a conceptual illustration of a possible design.

Exhibit 3.2: Artist Rendering of the Planned Windsor Park Mixed-Use Building



The existing East-West Alley is a low-volume alley corridor that is somewhat compromised from a traffic operational perspective by utility poles and is not pedestrian-friendly. The existing East-West alley will be relocated to the north boundary of the development site, and a new 6m East-West Alley will be constructed. The relocation of the East-West alley to the north site boundary will allow for a more welcoming and appropriate/friendly pedestrian/bicycle multi-use corridor to be developed, a corridor that will not be influenced by utility poles. Access to the underground parking garage accommodating about 350 parking stalls is planned to be developed from the paved north-south alley located on the east side of the development parcel. Access to the surface parking lot is planned to be taken from the new East-West Alley.

In regard to the above, it is acknowledged that the introduction of a new East-West Alley on the north side of the project site may impact existing vegetation located within the existing 117 Street east boulevard. There are several mature trees located within the 117 Street east boulevard in the vicinity of the new East-West Alley. A more definitive review of the new East-West Alley's location relative to existing boulevard trees should be undertaken to determine if any trees need to be removed or protected during construction.

3.3 East-West Alley Realignment

The existing east-west alley runs through the center of the proposed development site. The developer is proposing to relocate the alley to run along the northern property frontage. The new East-West Alley will be constructed as a 6m commercial alley meeting Complete Streets Guidelines. The existing power poles that run adjacent to the east-west alley are expected to be removed, and the power lines buried as part of the development. The relocation of the east-west alley to the north property line will create two T-intersections on 117 Street. The relocation of the East-West Alley to the north site boundary as a shared vehicle, pedestrian, and bicycle facility is considered an appropriate design consideration.

Exhibit 3.3 and Exhibit 3.4 illustrate examples of how a shared-use alley can be designed and constructed to accommodate pedestrians, bicycles, and vehicles.

Exhibit 3.3: Example of a Shared Use Alley (Stony Plain, Alberta)



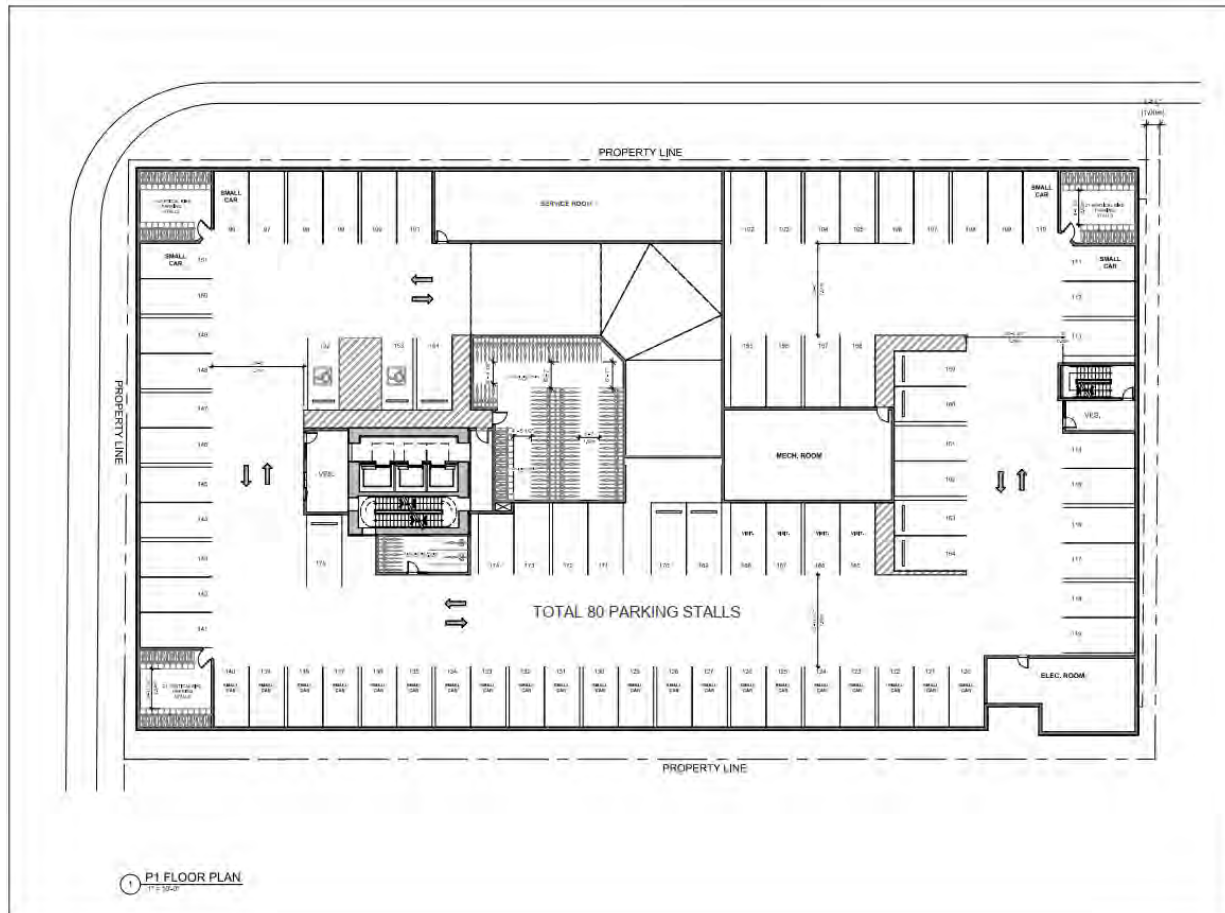
Exhibit 3.4: Example of a Shared Use Alley (Green Alley NACTO Manual)



3.4 On-Site Parking Supply

Based on a review of available rezoning-level parking plans, a below-grade parking garage is planned to include approximately 300 to 350 stalls (It is noted that the number of stalls is independent of the trip generation rate). This magnitude of parking translates into a blended (resident and commercial) parking ratio of about 1.0 spaces per unit (based on 285 residential units). Providing an appropriate on-site parking supply for tenant visitors and commercial visitors will result in fewer visitors looking for parking spaces within the Windsor Park Neighbourhood. **Exhibit 3.5** presents an illustration of a preliminary Level 1 parking garage plan.

Exhibit 3.5: Proposed Site Plan (Second Floor - Podium)



A convenient surface parking lot option will be provided in the northeast quadrant of the development is planned to support commercial and retail land uses on the ground floor and in the podium. It is anticipated that about 18 surface parking spaces may be developed for retail and commercial patrons. These conveniently located parking spaces will reduce the potential for on-street parking for quick, high-turnover parking needs.

These parking spaces represent convenient parking stalls for short-term, high-turnover commercial parking activity. These surface stalls are easily accessed from the North-South or the East-West Alley, mitigating congestion in either the North-South or East-West Alleys.

The parking supply being considered at this time has been based on a review of parking activity and parking demands at other mixed-use residential buildings recently constructed by Westrich as opposed to artificial market pressures (i.e., mandated parking requirements). Providing a minimum but marketable amount of parking will assist in promoting increased transit use and other alternative transportation modes.

The area within which the multi-unit building is located is within a Residential Permit Parking Area (UA-4). Although existing single-family residents are currently eligible for parking passes, multi-unit building residents will not be eligible for on-street parking permits. To acknowledge that the development site is located in an area where curbside parking is regulated through a Residential Permit Parking zone, to mitigate on-street resident parking, the need to operate a flexible parking management program within the parking garage has been identified. Given the location of this particular development, an appropriate off-street parking supply has been developed while encouraging and promoting the use of alternative modes.

It is also understood that the City continues to explore and consider modifications to the existing Residential Permit Parking Program.

3.5 Parking Garage Access

As shown in the Preliminary Site Plan (Exhibit 3.1), a single site access located on the east side of the residential building will connect to the underground parking garage. This access will form a T-intersection with the North-South alley. It is recommended that stop sign control on this site access be implemented. All site-generated traffic using the parking garage will enter or leave the site via this access via the North-South Alley and the East-West Alley from 87 Avenue, 117 Street, or 89 Avenue (heading eastbound only).

3.6 Pedestrian Accommodation

Given the site's location within easy walking distance of commercial establishments (including on the building's ground floor), the University, and the University Hospital Campus, a primary focus of the development plan is to maintain appropriate pedestrian circulation to, from and around the site and to promote pedestrian activity on 116 Street and 117 Street. Pedestrian connections to adjacent roadways will be provided.

No additional vehicular sidewalk crossings are proposed (the existing East-West Alley crossing on the east side of 117 Street will be replaced by a new north-south pedestrian crossing at the new East-West Alley). Appropriate traffic control signs and paintline markings will be used as required to provide a safe environment for pedestrians to cross the new East-West Alley in a north-south direction. Appropriate traffic control signs and paintline markings will be used as required to facilitate the east-west movements of pedestrians across the North-South Alley on 87 Avenue.

The North-South Alley between the new East-West Alley and 87 Avenue is planned to be developed as a wide mixed-use multi-modal corridor.

The existing sidewalk along 117 Street (and along 87 Street) will be maintained and connected to the development at the street level. Safe, continuous, and clearly defined pedestrian routes will be provided, and pedestrian/vehicle conflict areas have been kept to a minimum.

As mentioned previously, the existing sidewalk on the north side of 87 Avenue between 116 Street and 117 Street is in poor condition. Given the location of the new mixed-use development on 87 Avenue and in consideration of the Windsor Park II multi-unit building on 116 Street north of 89 Avenue, it is recommended that the 87 Avenue north side sidewalk be reconstructed between 116 Street and 117 Street, including a new transit pad.

3.7 Bicycle Accommodation

Easily accessible and appropriate bicycle accommodation will be provided for both residents and visitors. The development will provide a bicycle stall complement that achieves or exceeds Edmonton Zoning Bylaw 20001 requirements. At a minimum, bicycle parking will be provided at 1.0 spaces per unit.

Secure bicycle storage/stalls will likely be located within the underground parking garage. Visitor bicycle parking spaces will be located near the main building entrances. Visitor bicycle parking stall requirements will be reconfirmed at the Development Permit stage of the application.

At this time, there are no plans to provide a separate entrance into the building for bicycles. Given that bicycle parking will be provided in the underground parking garage, the parkade access ramp will be shared by vehicles and bicycles, and bicycles will be permitted on the parkade drive aisles.

A bicycle wash, repair, and maintenance station may be provided within the building for residents only. Additional details on bicycle accommodation and supply will be provided with the Development Permit Application. Area bicycle routes and facilities will facilitate the use of bicycles as a primary transportation mode.

3.8 Service Vehicle Loading and Waste Management

Service vehicle loading and waste management operations will occur on the east side of the building. The North-South Alley will provide the access route for service and waste management vehicles.

The site plan features a service vehicle loading area on the east side of the building, which meets the City of Edmonton's loading space requirements. An area for waste management will be located at the rear of the building. It is anticipated that these two service vehicle areas will be appropriately designed and configured at the Development Permit stage of application to ensure acceptance from Waste Management and Transportation.

The location of the loading and unloading space and the waste management area should not compromise vehicle, pedestrian, or bicycle movements within the alley. The location of the waste management rooms is sufficiently set back from the alley to allow waste management vehicles to angle towards the building for pick-up purposes. The utility poles in the existing East-West Alley are expected to be removed when the building footprint displaces the East-West Alley. A more detailed Waste Management Plan will be developed at more detailed levels of planning (i.e., the Development Permit Application stage).

4. SITE AND ADJACENT DEVELOPMENT GENERATED TRAFFIC

4.1 Site Trip Generation

The development is anticipated to generate person trips by various modes, including auto, bicycle, transit, and pedestrians. Concerning auto trips, AM, PM peak hours, and daily trip generation rates for the development were applied based on the accepted City of Edmonton rates for medium-density residential developments (City rates for daily commercial trips are not available; therefore, the appropriate ITE rate was used for daily commercial trip generation). The trip generation rates applied are summarized in **Table 4.1**.

Table 4.1: Site Trip Generation Rates

Land Use	Source	AM Peak Hour	PM Peak Hour	Daily
High-Density Residential Apartment Housing)	City of Edmonton	0.34 trips/du; 17% in, 83% out	0.40 trips/du 63% in, 37 % out	5.81 trips/du 50% in, 50% out
CNC Commercial	City of Edmonton	5.62 trips/1000 ft ² ; 55% in, 45% out	$(425.54\ln(x)-1140.3)/x$ / 1000 ft ² 48% in, 52% out	N/A
Strip Plaza Commercial	ITE LUC 822	N/A	N/A	54.45 trips /1,000 ft ²

Table 4.2 summarizes the gross trip generation associated with the proposed development based on 270 Residential Units and 43,238 sq. ft. of commercial space.

Table 4.2: Gross Trip Generation Estimates (Unadjusted)

Land Use	AM Peak Hour			PM Peak Hour			Daily		
	Total	In	Out	Total	In	out	Total	in	out
Residential	92	16	76	108	68	40	1,569	784	784
Commercial	243	134	109	463	222	241	2,354	1,177	1,177
Total	335	149	186	571	290	281	3,923	1,962	1,962

The base trip generation estimates summarized in Table 4.2 reflect all trips anticipated if there were no significant influence from other factors such as the location of the plan area to downtown Edmonton and the availability of transit and alternative mode accommodation in the vicinity of the plan area. As such, the trip generation totals summarized in **Table 4.2** should be adjusted to reflect an increase in mode split to alternative transportation modes (transit, walking, cycling).

Regarding the above, an incremental increase in the number of units from 270 to 285 units translates into an increased AM and PM peak hour count of 6 and 7 two-way vehicle trips, respectively. This possible increase in traffic movements will not change the key study findings.

Based on information contained within the 2016 Municipal Census, about 38% of residents within the Windsor Park neighbourhood use transit, walk, ride their bike, or use other non-auto modes to get to work (calculated excluding 'no response'). The City of Edmonton trip generation rates summarized in Table 4.1 were collected in primarily suburban areas with limited access to transit. It is anticipated that the rates summarized would reflect areas with a mode split to transit, walking, and cycling in the order of 5% to 10%. Additionally, as the site is located on the border of the University and consists of apartment units, it is anticipated that the development will contain a higher proportion of student residents compared to the neighbourhood at large. Students are more likely to forgo car usage in favor of alternative transportation modes; therefore, a higher mode share is anticipated for the development.

For this assessment, a mode split adjustment factor of 55% was applied to the gross trip generation rates to better reflect the 2016 census mode split to alternative modes (estimated to be about 38%), geographical context, and anticipated resident type. **Table 4.3** summarizes the net auto trip generation for the proposed residential development.

An internal trip generation analysis was not conducted for the development. Trips within the development would likely be included in the 55% mode split factor discussed above; therefore, an additional trip reduction due to internal trip generation was not considered appropriate. A pass-by trip analysis was also not considered for the development, as the ultimate commercial use is not known, and the pass-by rate varies depending on the ultimate land use. It is anticipated that most of the pass-by trips would be generated by residents either leaving the neighbourhood or returning home,

Table 4.3: Net Trip Generation Estimates (adjusted for mode split)

Land Use	AM Peak Hour			PM Peak Hour			Daily		
	Total	In	Out	Total	In	Out	Total	In	Out
Gross Trips	335	149	186	571	290	281	3,923	1,962	1,962
Non-Auto Mode Split	184	82	102	314	160	154	2,158	1,079	1,079
Net Trips	151	67	83	257	131	126	1,765	883	883

The mode split adjustment factor assumed is also in line with recently completed and approved traffic reviews completed for mixed-use developments in the west Oliver Neighbourhood located on the 124 Street corridor near the West Valley Line LRT corridor (Casia Mixed Use Building, the Mercury Block and the Cobalt Mixed-Use Buildings) that likely have similar locational attributes to robust transit routes.

Under the build-out scenario, the development could generate in the order of about 151 vehicle trips during the AM peak hour, 257 vehicle trips during the PM peak hour, and about 1,765 daily vehicle trips.

4.2 Trip Distribution and Assignment

The distribution of trips was based on the City's 2030 Origin-Destination spreadsheets as these Origin-Destination estimates were considered to represent the appropriate distribution of trips to and from this area of the City. The net residential trips were assigned to the roadway network based on the location of access and the adjacent roadway network. The AM and PM peak hour site trip assignment to area intersections is illustrated in **Exhibit 4.1 and Exhibit 4.2**.

As presented, site-generated trips have been assigned to several routes to/from the development site, including 116 Street, the North-South Alley, 87 Avenue, and 89 Avenue. Traffic approaching the site from 87 Avenue is anticipated to use the north-south alley to access the site. Traffic approaching from the west on 89 Avenue will directly access the north-south alley. Traffic approaching from the north via 116 Street will continue past the site to 87 Avenue and access the north-south alley from the south.

Traffic leaving the site to travel east will use the north-south alley to access 87 Avenue or head north to 89 Avenue and then south on 116 Street to 87 Avenue, to use the traffic signal to turn left onto 87 Avenue. Traffic leaving the site to travel west may use either the north-south alley to access 87 Avenue or will use the east-west alley to access 87 Avenue via 117 Street. Site traffic heading north will use 89 Avenue to access 116 Street to turn north.

Exhibit 4.1: Site Traffic Assignment – AM Peak Hour

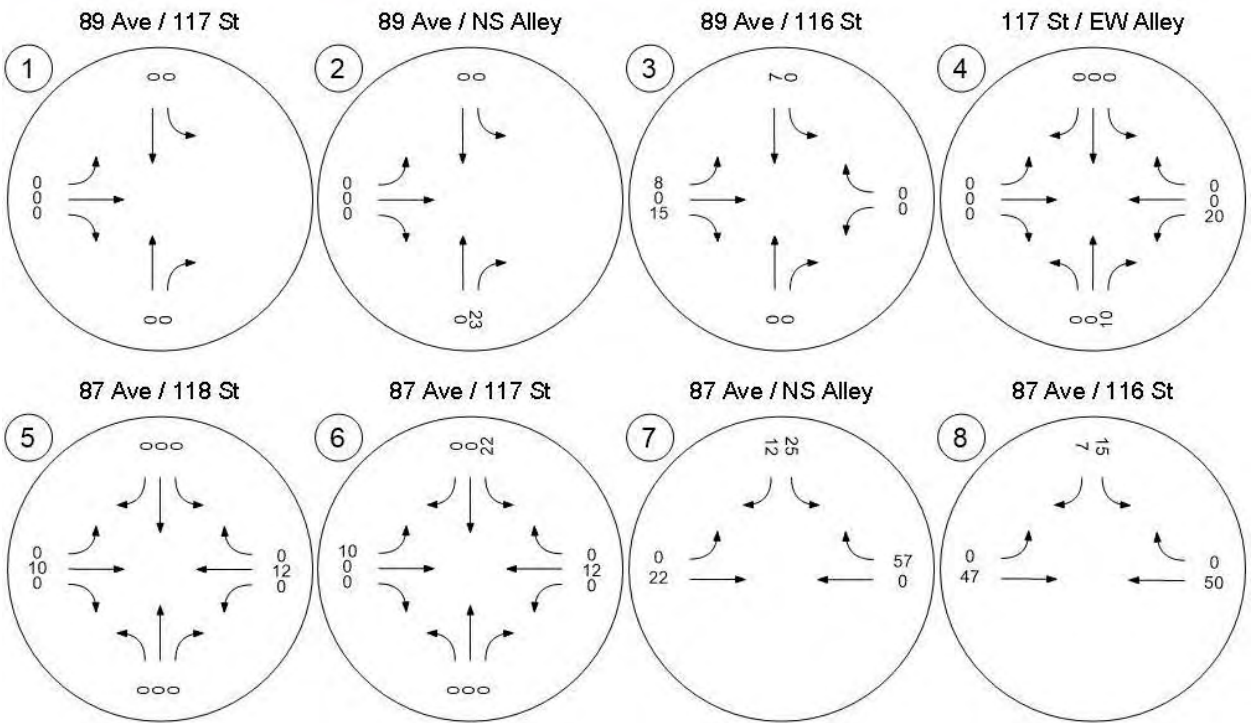
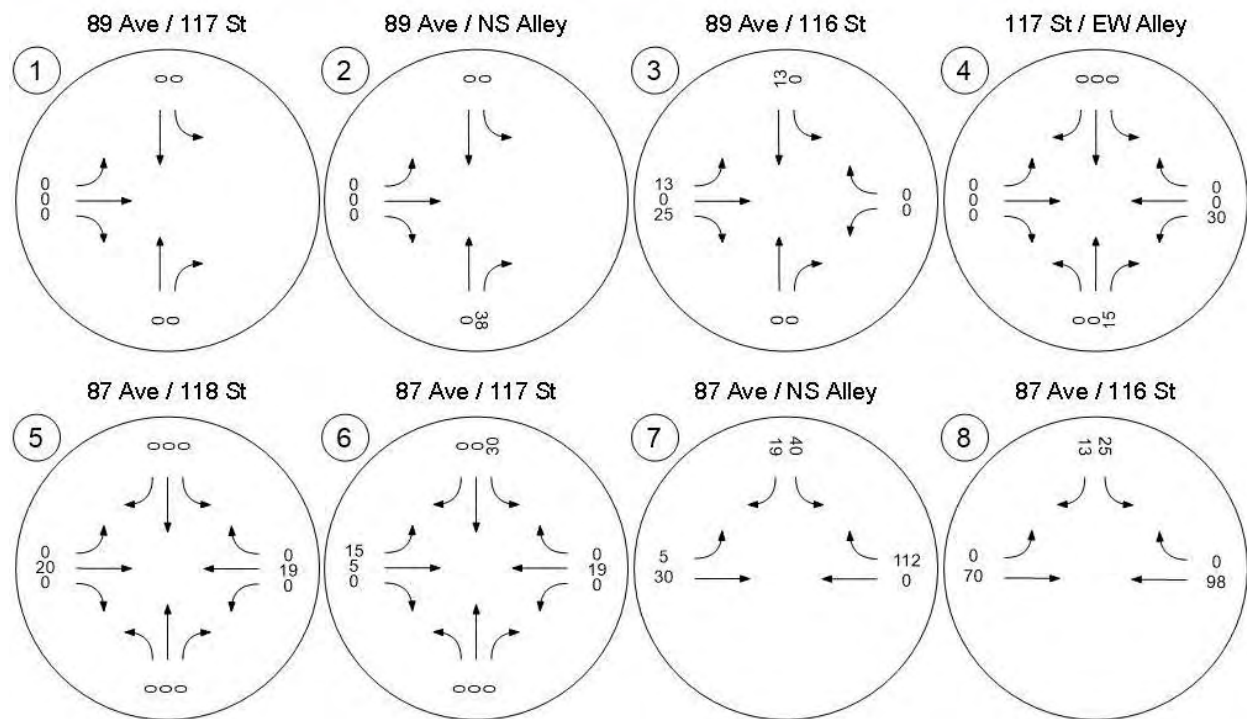


Exhibit 4.2: Site Traffic Assignment – PM Peak Hour


4.3 Background Traffic

Background traffic is the component of traffic on the adjacent streets that would be present regardless of any development of the subject site. A general growth rate is normally applied to the existing traffic to reflect the ongoing growth caused by new developments and general population increases in the area. However, the proposed redevelopment site is located in a well-established neighbourhood.

As there is not a significant number of vacant parcels in the area, future development is anticipated to be the result of redevelopment activities.

The City of Edmonton's Average Annual Weekday Traffic Report was reviewed to identify whether significant growth has been experienced along 87 Avenue in recent years. As shown in **Table 4.5**, the historical data suggest that no significant, consistent increase in traffic volume on the 87 Avenue corridor west of 116 Street has been

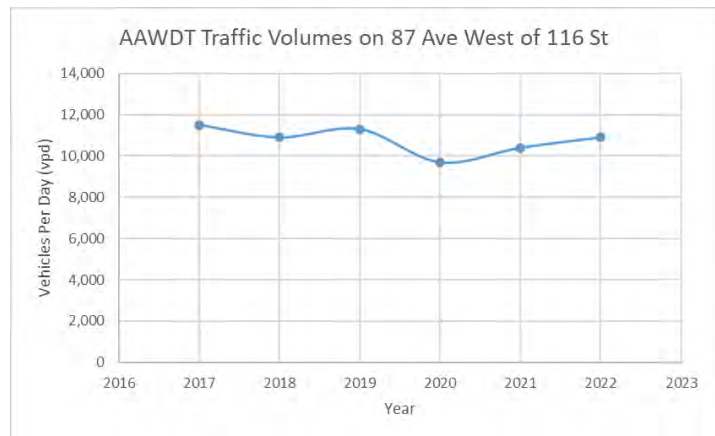


Table 4.5: Historic AAWDT Volumes

Roadway Link	2017	2018	2019	2020	2021	2022	2023
87 Avenue West of 116 Street	11,500	10,900	11,300	9,700	10,400	10,900	Not Available
87 Avenue East of 116 Street	18,800	17,900	18,500	15,800	17,000	17,700	19,028
87 Avenue West of 118 Street	9,000	8,600	8,900	7,600	8,200	8,600	7,873
116 Street North of 87 Avenue	8,700	8,300	8,600	7,400	8,000	8,400	9,030

Between 2017 and 2022, volumes on 87 Avenue west of 116 Street had an average annual growth rate of -1.0%, meaning that the volumes on 87 Avenue decreased by an average of 1% during that period. Between 2017 and 2023, volumes on 87 Avenue east of 116 Street grew 0.2% annually, while volumes on 87 Avenue west of 118 Street decreased by 0.7% annually. Notwithstanding, a nominal growth rate of 1% per year was applied to the existing eastbound and westbound through volumes on 87 Avenue.

As the development is located within a mature community, traffic growth on the local and collector roadways within the 2028 to 2030 horizon years in the vicinity of the site is anticipated to be limited to traffic generated by the proposed development as well as the development of the nearby Windsor Park I, Windsor Park II, and Windsor Terrace developments.

Therefore, in addition to the nominal growth assumed for 87 Avenue eastbound and westbound through movements, traffic estimated to be generated by the Windsor Park I currently under construction (based on HTCI's 2022, Mobility Assessment) and Windsor House developments (based on Bunt's 2015 TIA and 2021 TIA update) and the Windsor Park 2 development (based on HTC's 2024 TIA) was added to the study intersections to generate 2028 background traffic volumes. The traffic associated with the Bentley Condominium was also included. **Exhibit 4.3** presents an illustration of the relative location of the aforementioned developments.

Regarding the above, if the development is constructed between 2028 and 2030, a year or two of increased background traffic growth will not alter the study findings from a traffic operational perspective.

Exhibit 4.4 and **Exhibit 4.5** present the AM and PM Peak Hour 2028 background traffic estimates.

Exhibit 4.3: Future Multi-Unit Developments



Exhibit 4.4: 2028 Background Traffic Estimate - AM Peak Hour

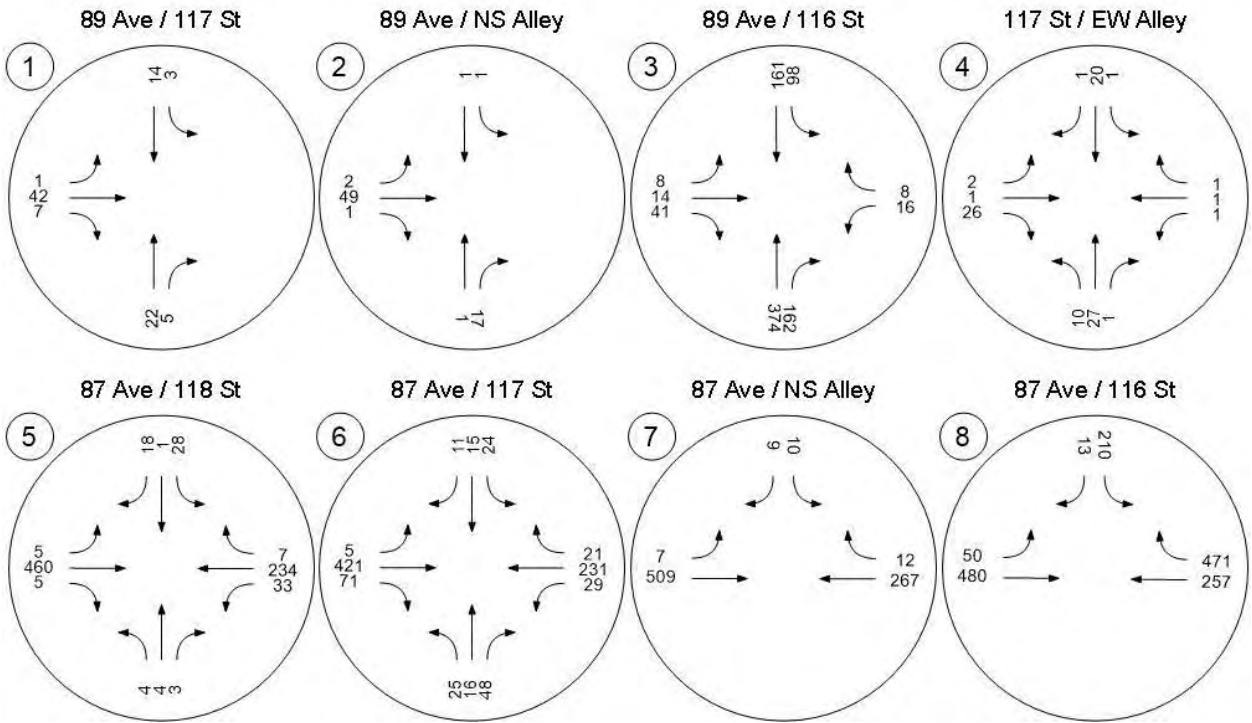
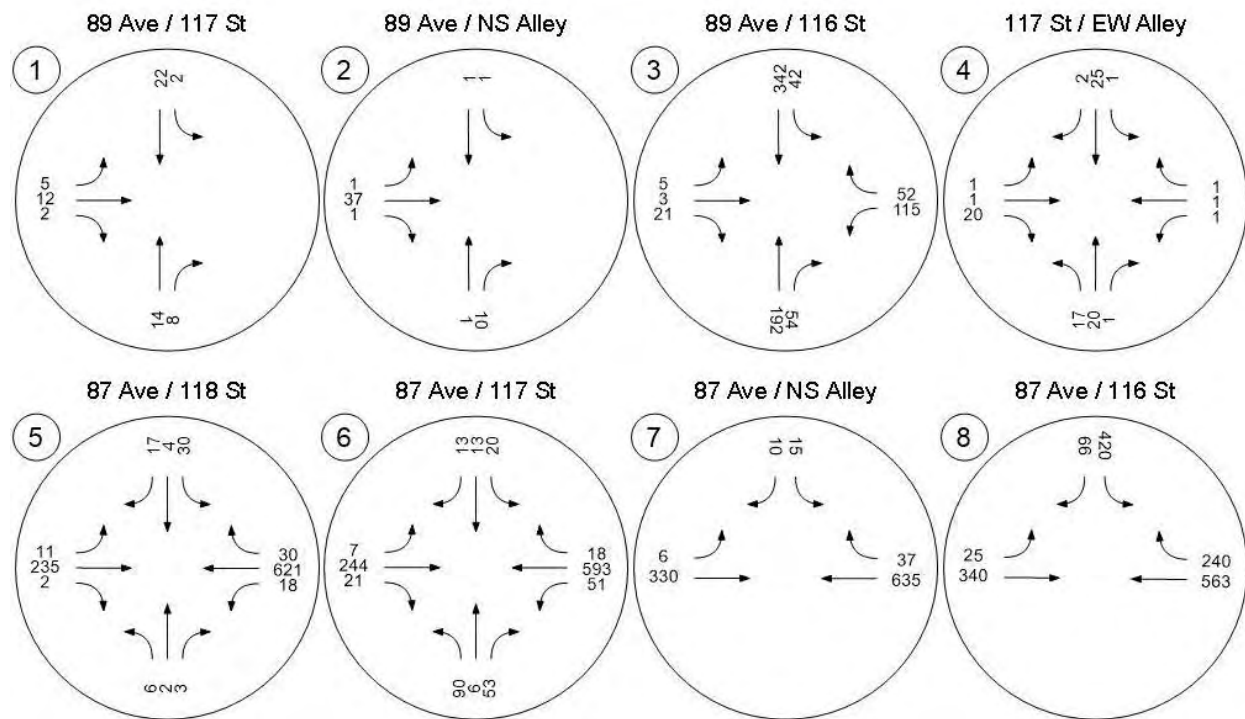


Exhibit 4.5: 2028 Background Traffic Estimate – PM Peak Hour


4.4 Total Traffic Volumes

The site-generated traffic volumes were superimposed on the background traffic volumes to determine the total traffic volumes at the study intersections for use in the 2028 horizon year assessment. **Exhibits 4.6 and 4.6** illustrate AM and PM peak hour total traffic volume estimates. Note that for the post-development horizon, the east-west alley east of 117 Street has been relocated to the north site boundary (as discussed in Section 3.3) and no longer connects to the existing alley west of 117 Street.

Exhibit 4.6: 2028 Total Traffic Estimate – AM Peak Hour

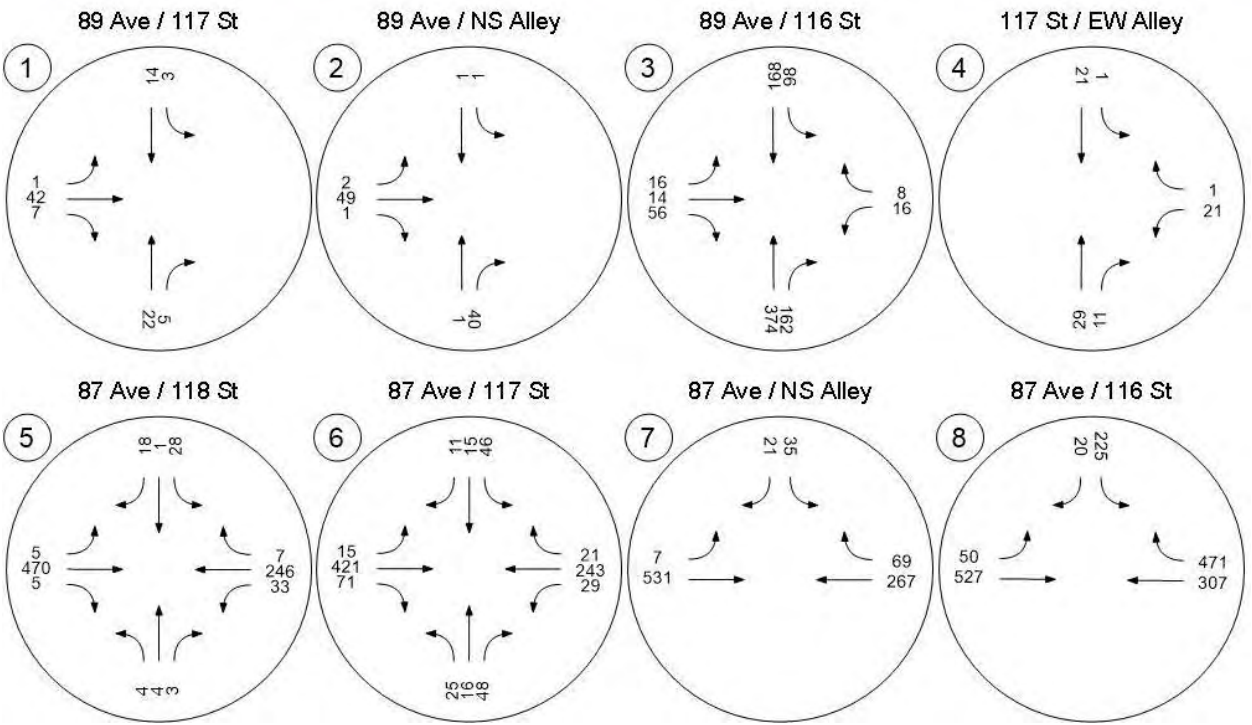
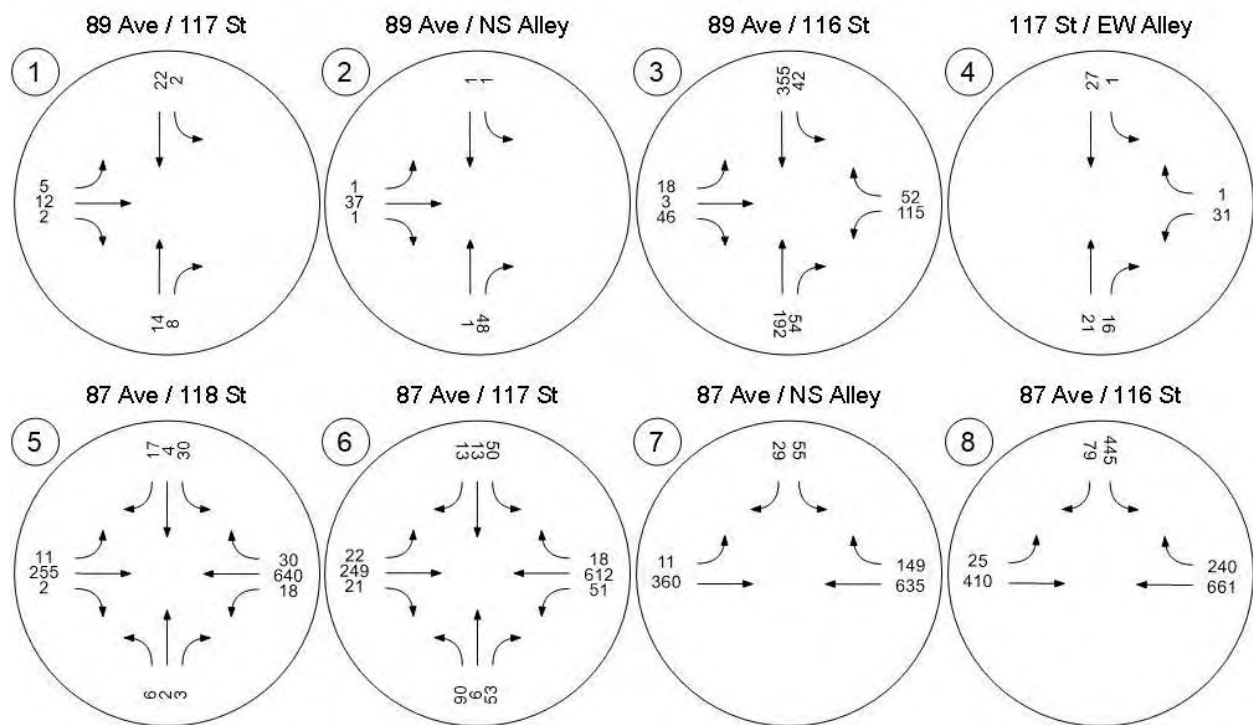


Exhibit 4.7: 2028 Total Traffic Estimate – PM Peak Hour



5. Traffic Review

5.1 Qualitative Traffic Review of Area Intersection Operations

Exhibit 4.1 and **Exhibit 4.2** presented what is believed to represent a realistic traffic assignment from the parking garage to the adjacent roadway network, as the assignment acknowledges available roadways and intersections in the study area. As illustrated, the assignment of the site-generated trips to the abutting roadway network reflects a traffic condition that is within typical roadway capacity thresholds at any one particular intersection based on the roadway network infrastructure. The development is generating 257 peak hour trips; The highest volume assignments occur on 87 Avenue, with 112 vehicles assigned to the westbound right turn at 87 Avenue and the North-South Alley intersection, and 98 vehicles assigned to the westbound through movement at 87 Avenue and 116 Street intersection. Given that 87 Avenue (a four-lane arterial road) currently sees volumes in the order of 1,000 (?) two-way vehicle movements in both the AM and PM Peak Hours, the increase in traffic activity generated by the new development is within the roadway's capacity.

Given the location of the parking garage access, all site traffic will travel through one of the North-South Alley / 89 Avenue, North-South Alley / 87 Avenue, or East-West Alley / 117 Street intersections. These intersections are currently uncontrolled; it is recommended that two-way stop sign control be implemented at each alley intersection, with stop signs on the minor (alley) approaches.

5.2 Analysis Assumptions

The capacity analysis was completed using Synchro 11.0 analysis software. 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, while a large delay merits a LOS F (a LOS F is reached when vehicles experience an average delay greater than 50 seconds at an unsignalized intersection and a delay greater than 80 seconds at a signalized intersection).

As per the HCM 2010 methodology, assessment results for the unsignalized intersection assessed are reported for critical movements only. The following assumptions were used in the analysis:

- Saturation Flow Rate – 1,900 vehicles per hour (vph)
- Peak Hour Factor and %HV – as per existing count information

Existing intersection geometry has been assumed for the study intersections (based on existing geometry), except the 117 Street and East-West Alley intersection, which has been assumed to be relocated to the north site boundary under 2028 post-development conditions (as discussed in Section 3.3). The assumed intersection geometry is as follows:

- 116 Street and 87 Avenue:
 - West Approach – one shared left / through lane, one through lane;
 - East Approach – one through lane, one shared through / right lane; and
 - South Approach – one left turn lane, one shared left /right lane.
- 116 Street and 89 Avenue:

- o West Approach – one left turn lane, one right turn lane;
 - o East Approach – one shared left / through / right lane;
 - o South Approach – one shared through / right lane; and
 - o North Approach – one shared left / through lane.
- 117 Street and 87 Avenue:
 - o West Approach – one shared left / through lane, one shared through / right lane;
 - o East Approach – one shared left / through lane, one shared through / right lane;
 - o North Approach – one shared left / through / right lane; and
 - o South Approach – one shared left / through / right lane.
- 117 Street and 89 Avenue:
 - o West Approach – one shared left / through / right lane;
 - o South Approach – one shared through / right lane; and
 - o North Approach – one shared left / through lane.
- 118 Street and 87 Avenue:
 - o West Approach – one shared left / through lane, one shared through / right lane;
 - o East Approach – one shared left / through lane, one shared through / right lane;
 - o North Approach – one shared left / through / right lane; and
 - o South Approach – one shared left / through / right lane.
- 117 Street and East-West Alley (2023 existing / 2028 background conditions):
 - o West Approach – one shared left / through / right lane;
 - o East Approach – one shared left / through / right lane;
 - o North Approach – one shared left / through / right lane; and
 - o South Approach – one shared left / through / right lane.
- 117 Street and East-West Alley (2028 post-development conditions):
 - o East Approach – one shared left/right lane;
 - o North Approach – one shared left / through lane; and
 - o South Approach – one shared through / right lane.
- North-South Alley and 87 Avenue:
 - o West Approach – one shared left/through lane, one through lane;
 - o East Approach – one through lane, one shared through/right lane; and
 - o South Approach – one shared left /right lane.
- North-South Alley and 89 Avenue:
 - o West Approach – one shared left / through / right lane;
 - o South Approach – one shared through / right lane; and
 - o North Approach – one shared left / through lane.

The signalized 87 Avenue / 116 Street intersection was analyzed using existing signal timing provided by the City of Edmonton. The Alley intersections are uncontrolled; however, they function similarly to two-way stop-controlled intersections with stop control on the alley. The alley intersections were therefore modeled as two-way stop-controlled intersections with stop control on the alley.

5.3 Existing (2023) Traffic Operational Assessment

Existing AM and PM traffic volumes (see **Exhibits 2.3** and **2.4**) were analyzed in Synchro to determine the existing conditions at the study intersections. **Table 5.1** summarizes the intersection operations under AM and PM peak hour 2028 background traffic conditions.

The 87 Avenue / 116 Street intersection operates well under existing conditions, with all movements at LOS A/B during both peak hours. At the stop-controlled 89 Avenue / 116 Street intersection, the westbound left turn operates at LOS D during both peak hours (an approximate 30-second delay in the AM and PM peak hours), with the remaining movements at LOS C or better.

The 87 Avenue/117 Street and 89 Avenue/117 Street intersections operate well under existing conditions. All movements at 87 Avenue / 117 Street are at LOS C or better during both peak hours, and all movements at 89 Avenue/117 Street are at LOS A during both peak hours.

The 87 Avenue/118 Street intersection operates well, with all movements at LOS C or better during both peak periods.

The Alley intersections at 87 Avenue, 89 Avenue, and 117 Street all operate well with overall LOS A, and all movements are at LOS A/B or better during both peak hours.

Table 5.1a: Existing (2023) Conditions Analysis Summary
117 STREET / 89 AVENUE

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND			
Movement	L	T	R	L	T	R	L	T	R	L	T	R	
AM Peak Hour - 2024 Existing Conditions - Unsignalized													
Geometry	LTR						TR			LT			
Volume (vph)	1	34	7					22	5	3	14		
v/c	0.04						0.00			0.00			
Delay (s)	9						0			1			
LOS	A						A			A			
95th Queue (m)	14						0			1			
INTERSECTION DELAY (s):						5			INTERSECTION LOS:				A

	PM Peak Hour – 2024 Existing Conditions – Unsignalized												
Geometry	LTR						TR			LT			
Volume (vph)	5	4	2				14	8		2	22		
v/c	0.01						0.00			0.00			
Delay (s)	9						0			1			
LOS	A						A			A			
95th Queue (m)	10						0			0			
INTERSECTION DELAY (s):						2		INTERSECTION LOS: A					

89 AVENUE / NORTH-SOUTH ALLEY

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND			
Movement	L	T	R	L	T	R	L	T	R	L	T	R	
AM Peak Hour - 2024 Existing Conditions - Unsignalized													
Geometry	LTR						TR			LT			
Volume (vph)	2	34	1					1	1	1	1		
v/c	0.00						0.00			0.00			
Delay (s)	0						9			9			
LOS	A						A			A			
95th Queue (m)	0						4			5			
INTERSECTION DELAY (s):						1			INTERSECTION LOS:				A

	PM Peak Hour - 2024 Existing Conditions - Unsignalized												
Geometry	LTR						TR		LT				
Volume (vph)	1	29	1					1	1	1	1		
v/c	0.00							0.00		0.00			
Delay (s)	0							9		9			
LOS	A							A		A			
95th Queue (m)	0							4		4			
INTERSECTION DELAY (s):						1	INTERSECTION LOS:						A

116 STREET / 89 AVENUE

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND			
Movement	L	T	R	L	T	R	L	T	R	L	T	R	
AM Peak Hour - 2024 Existing Conditions - Unsignalized													
Geometry	LTR			L/ R			TR			LT			
Volume (vph)	4	14	14	16		8		374	162	98	161		
v/c	0.13			0.11		0.02		0.00			0.13		
Delay (s)	20			31		14		0			4		
LOS	C			D		B		A			A		
95th Queue (m)	13			11		9		23			32		
INTERSECTION DELAY (s):						3	INTERSECTION LOS:						A

	PM Peak Hour - 2024 Existing Conditions - Unsignalized												
Geometry	LTR			L / R			TR			LT			
Volume (vph)	3	3	6	115		52		192	54	42	339		
v/c	0.04			0.46		0.10		0.00		0.04			
Delay (s)	15			29		12		0		1			
LOS	C			D		B		A		A			
95th Queue (m)	9			24		16		9		17			
INTERSECTION DELAY (s):						6	INTERSECTION LOS:						A

Table 5.1b: Existing (2023) Conditions Analysis Summary (continued)**117 STREET / EAST-WEST ALLEY**

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
	AM Peak Hour - 2024 Existing Conditions - Unsignalized											
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	2	1	13	1	1	1	7	27	1	1	20	1
v/c	0.02			0.00			0.01			0.00		
Delay (s)	9			9			2			0		
LOS	A			A			A			A		
95th Queue (m)	11			34			34			0		
INTERSECTION DELAY (s):						3			INTERSECTION LOS: A			

	PM Peak Hour - 2024 Existing Conditions - Unsignalized											
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	1	1	7	1	1	1	6	20	1	1	25	2
v/c	0.01			0.00			0.00			0.00		
Delay (s)	9			9			2			0		
LOS	A			A			A			A		
95th Queue (m)	41			34			34			0		
INTERSECTION DELAY (s):						2			INTERSECTION LOS: A			

118 STREET / 87 AVENUE

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
AM Peak Hour - 2024 Existing Conditions - Unsignalized												
Geometry	LT / TR			LT / TR			LTR			LTR		
Volume (vph)	3	441	5	33	216	1	4	4	3	8	1	9
v/c	0.00			0.03			0.03			0.04		
Delay (s)	0			1			15			12		
LOS	A			A			C			B		
95th Queue (m)	0			11			10			11		
INTERSECTION DELAY (s):						1			INTERSECTION LOS: A			

	PM Peak Hour - 2024 Existing Conditions - Unsignalized											
Geometry	LT / TR			LT / TR			LTR			LTR		
Volume (vph)	2	222	2	18	594	3	6	2	3	15	4	13
v/c	0.00			0.02			0.03			0.10		
Delay (s)	0			0			14			17		
LOS	A			A			B			C		
95th Queue (m)	3			6			10			14		
INTERSECTION DELAY (s):						1	INTERSECTION LOS: A					

117 STREET / 87 AVENUE

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND			
Movement	L	T	R	L	T	R	L	T	R	L	T	R	
	AM Peak Hour - 2024 Existing Conditions - Unsignalized												
Geometry	LT / TR			LT / TR			LTR			LTR			
Volume (vph)	4	385	71	29	219	7	25	16	48	11	15	11	
v/c	0.00			0.03			0.21			0.10			
Delay (s)	0			1			15			15			
LOS	A			A			B			B			
95th Queue (m)	4			9			18			13			
INTERSECTION DELAY (s):						3			INTERSECTION LOS:				A

	PM Peak Hour - 2024 Existing Conditions - Unsignalized											
Geometry	LT / TR			LT / TR			LTR			LTR		
Volume (vph)	7	216	21	51	532	7	90	6	53	13	13	13
v/c	0.01			0.04			0.41			0.14		
Delay (s)	0			1			21			19		
LOS	A			A			C			C		
95th Queue (m)	7			13			26			15		
INTERSECTION DELAY (s):						4	INTERSECTION LOS: A					

Table 5.1c: Existing (2023) Conditions Analysis Summary (continued)**87 AVENUE / NORTH-SOUTH ALLEY**

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND			
Movement	L	T	R	L	T	R	L	T	R	L	T	R	
AM Peak Hour - 2024 Existing Conditions - Unsignalized													
Geometry	LT / T			T / TR						LR			
Volume (vph)	6	457			246	7				2		3	
v/c	0.01			0.00						0.01			
Delay (s)	0			0						11			
LOS	A			A						B			
95th Queue (m)	26			1			6			6			
INTERSECTION DELAY (s):						0			INTERSECTION LOS:				A

	PM Peak Hour - 2024 Existing Conditions - Unsignalized												
Geometry	LT / T			T / TR						LR			
Volume (vph)	2	296			566	15				10		8	
v/c	0.00				0.00					0.05			
Delay (s)	0				0					15			
LOS	A				A					B			
95th Queue (m)	7.2				3.6					11.7			
INTERSECTION DELAY (s):						0	INTERSECTION LOS:						A

116 STREET / 87 AVENUE

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND			
Movement	L	T	R	L	T	R	L	T	R	L	T	R	
AM Peak Hour - 2024 Existing Conditions - Signalized													
Geometry	LT / T			T / TR						L / LR			
Volume (vph)	50	422			232	471				183		13	
v/c	0.40			0.46						0.16			
Delay (s)	11			4						11			
LOS	B			A						B			
95th Queue (m)	45			83						28			
INTERSECTION DELAY (s):						7	INTERSECTION LOS:						A

	PM Peak Hour - 2024 Existing Conditions - Signalized												
Geometry	LT / T			T / TR						L / LR			
Volume (vph)	25	301			496	240				405		63	
v/c	0.28				0.58					0.34			
Delay (s)	12				14					11			
LOS	B				B					B			
95th Queue (m)	43				67					57			
INTERSECTION DELAY (s):						13	INTERSECTION LOS:						B

5.4 Opening Day (2028) Background Traffic Operational Assessment

The 2028 background AM and PM traffic volumes (see **Exhibit 4.3 and 4.4**) were analyzed in Synchro to determine the opening day background conditions at the study intersections. **Tables 5.2a, 5.2b, and 5.2c** summarize the intersection operations under AM and PM peak hour 2028 background traffic conditions.

All study intersections operate well under 2028 background conditions, with all intersections at overall LOS A/B during both peak hours.

At the signalized 87 Avenue/116 Street intersection, all movements are at LOS A/B during both peak hours. During the AM peak, the eastbound queue occasionally extends back past the North-South Alley intersection; however, the queue clears sufficiently at each cycle to allow traffic to turn left into or out of the alley without significant delay.

At the 87 Avenue /117 Street and 87 Avenue/118 Street intersections, all movements are at LOS C or better during both peak hours, with the movements on the major road (87 Avenue) operating at LOS A.

Table 5.2a: Opening Day (2028) Background Conditions Analysis Summary**117 STREET / 89 AVENUE**

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND			
Movement	L	T	R	L	T	R	L	T	R	L	T	R	
AM Peak Hour - 2028 Background Conditions - Unsignalized													
Geometry	LTR						TR			LT			
Volume (vph)	1	42	7				22			5	3	14	
v/c	0.05						0.00			0.00			
Delay (s)	9						0			1			
LOS	A						A			A			
95th Queue (m)	14						0			0			
INTERSECTION DELAY (s):						5			INTERSECTION LOS:				A

	PM Peak Hour - 2028 Background Conditions - Unsignalized										
Geometry	LTR						TR		LT		
Volume (vph)	5	12	2				14	8	2	22	
v/c	0.02						0.00		0.00		
Delay (s)	9						0		1		
LOS	A						A		A		
95th Queue (m)	12						0		0		
				INTERSECTION DELAY (s): 3				INTERSECTION LOS: A			

89 AVENUE / NORTH-SOUTH ALLEY

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND				
Movement	L	T	R	L	T	R	L	T	R	L	T	R		
AM Peak Hour - 2028 Background Conditions - Unsignalized														
Geometry	LTR						TR			LT				
Volume (vph)	2	49	1							1	17			
v/c	0.00									0.02				
Delay (s)	0									9				
LOS	A									A				
95th Queue (m)	0									4				
INTERSECTION DELAY (s):						3			INTERSECTION LOS: A					

	PM Peak Hour - 2028 Background Conditions - Unsignalized											
Geometry	LTR						TR			LT		
Volume (vph)	1	37	1				1	10	1	1		
v/c	0.00						0.01			0.00		
Delay (s)	0						9			10		
LOS	A						A			A		
95th Queue (m)	0						9			4		
INTERSECTION DELAY (s):						2		INTERSECTION LOS:				A

116 STREET / 89 AVENUE

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND			
Movement	L	T	R	L	T	R	L	T	R	L	T	R	
	AM Peak Hour - 2028 Background Conditions - Unsignalized												
Geometry	LTR			L / R			TR			LT			
Volume (vph)	8	14	41	16		8		374	162	98	161		
v/c	0.18			0.12		0.02		0.00		0.13			
Delay (s)	17			33		14		0		4			
LOS	C			D		B		A		A			
95th Queue (m)	15			12		8		22		30			
INTERSECTION DELAY (s):						3	INTERSECTION LOS:						A

	PM Peak Hour - 2028 Background Conditions - Unsignalized												
Geometry	LTR			L / R			TR		LT				
Volume (vph)	5	3	21	115		52		192	54	42	342		
v/c	0.07			0.48		0.10		0.00		0.04			
Delay (s)	14			31		12		0		1			
LOS	B			D		B		A		A			
95th Queue (m)	11			24		16		10		20			
INTERSECTION DELAY (s):						6	INTERSECTION LOS:						A

Table 5.2b: Opening Day (2028) Background Conditions Analysis Summary (continued)
117 STREET / EAST-WEST ALLEY

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
AM Peak Hour - 2028 Background Conditions - Unsignalized												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	2	1	26	1	1	1	10	27	1	1	20	1
v/c	0.03			0.00			0.01			0.00		
Delay (s)	9			9			2			0		
LOS	A			A			A			A		
95th Queue (m)	14			4			1			0		
INTERSECTION DELAY (s):						4			INTERSECTION LOS: A			

	PM Peak Hour - 2028 Background Conditions - Unsignalized													
Geometry	LTR			LTR			LTR			LTR				
Volume (vph)	1	1	20	1	1	1	17	20	1	1	25	2		
v/c	0.02			0.00			0.01			0.00				
Delay (s)	9			9			3			0				
LOS	A			A			A			A				
95th Queue (m)	12			4			3			0				
INTERSECTION DELAY (s): 4													INTERSECTION LOS: A	

118 STREET / 87 AVENUE

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND			
Movement	L	T	R	L	T	R	L	T	R	L	T	R	
AM Peak Hour - 2028 Background Conditions - Unsignalized													
Geometry	LT / TR			LT / TR			LTR			LTR			
Volume (vph)	5	460	5	33	234	7	4	4	3	28	1	18	
v/c	0.00			0.03			0.03			0.11			
Delay (s)	0			1			16			14			
LOS	A			A			C			B			
95th Queue (m)	4			10			10			16			
INTERSECTION DELAY (s):						1	INTERSECTION LOS:						A

	PM Peak Hour - 2028 Background Conditions - Unsignalized												
Geometry	LT / TR			LT / TR			LTR			LTR			
Volume (vph)	11	235	2	18	621	30	6	2	3	30	4	17	
v/c	0.01			0.02			0.03			0.19			
Delay (s)	1			0			16			20			
LOS	A			A			C			C			
95th Queue (m)	7			7			10			19			
INTERSECTION DELAY (s):						2	INTERSECTION LOS:						A

117 STREET / 87 AVENUE

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND			
Movement	L	T	R	L	T	R	L	T	R	L	T	R	
	AM Peak Hour - 2028 Background Conditions - Unsignalized												
Geometry	LT / TR			LT / TR			LTR			LTR			
Volume (vph)	5	421	71	29	231	21	25	16	48	24	15	11	
v/c	0.00			0.03			0.22			0.14			
Delay (s)	0			1			15			16			
LOS	A			A			C			C			
95th Queue (m)	9			14			20			16			
INTERSECTION DELAY (s):						3	INTERSECTION LOS:						A

	PM Peak Hour - 2028 Background Conditions - Unsignalized												
Geometry	LT / TR			LT / TR			LTR			LTR			
Volume (vph)	7	244	21	51	593	18	90	6	53	20	13	13	
v/c	0.01			0.04			0.46			0.20			
Delay (s)	0			1			24			23			
LOS	A			A			C			C			
95th Queue (m)	6			13			28			16			
INTERSECTION DELAY (s):						5	INTERSECTION LOS:						A

Table 5.2c: Opening Day (2028) Background Conditions Analysis Summary (continued)**87 AVENUE / NORTH-SOUTH ALLEY**

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
AM Peak Hour - 2028 Background Conditions - Unsignalized												
Geometry	LT / T			T / TR						LR		
Volume (vph)	7	509			267	12				10		9
v/c	0.01						0.00			0.04		
Delay (s)	0						0			12		
LOS	A						A			B		
95th Queue (m)	42						0			12		
INTERSECTION DELAY (s):						0						
INTERSECTION LOS:						A						

	PM Peak Hour - 2028 Background Conditions - Unsignalized											
Geometry	LT / T			T / TR						LR		
Volume (vph)	6	330			635	37				15		10
v/c	0.01				0.00					0.08		
Delay (s)	0				0					17		
LOS	A				A					C		
95th Queue (m)	12				2					13		
INTERSECTION DELAY (s): 1												
INTERSECTION LOS: A												

116 STREET / 87 AVENUE

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND				
Movement	L	T	R	L	T	R	L	T	R	L	T	R		
	AM Peak Hour - 2028 Background Conditions - Signalized													
Geometry	LT / T			T / TR						L / LR				
Volume (vph)	50	480			257	471				210		13		
v/c	0.44									0.18				
Delay (s)	11									11				
LOS	B									B				
95th Queue (m)	54									28				
INTERSECTION DELAY (s):						8			INTERSECTION LOS: A					

	PM Peak Hour - 2028 Background Conditions - Signalized											
Geometry	LT / T			T / TR						L / LR		
Volume (vph)	25	340			563	240				420		66
v/c	0.31				0.63					0.36		
Delay (s)	13				15					12		
LOS	B				B					B		
95th Queue (m)	49				84					56		
INTERSECTION DELAY (s):						14		INTERSECTION LOS: B				

At the 89 Avenue/116 Street intersection, the westbound left turn operates at LOS D during both peak hours, with the remaining movements at LOS C or better.

At the 89 Avenue/117 Street Intersection, all movements are at LOS A in the AM and PM peak hours.

At the 87 Avenue/North-South Alley intersection, all movements are at LOS C or better during both peak hours. At the remaining alley intersections (89 Avenue/North-South Alley and 117 Street/East-West Alley), all movements are at LOS A in both peak hours.

5.5 Opening Day (2028) Total Traffic Operational Assessment

The 2028 total traffic AM and PM traffic volumes (see **Exhibit 4.5 and 4.6**) were analyzed in Synchro to determine the opening post-development conditions at study intersections to assess the impact of site traffic on study intersections. **Table 5.3a, Table 5.3b, and Table 5.3c** summarize the intersection operations under AM and PM peak hour 2028 total traffic conditions.

Table 5.3a: Opening Day (2028) Total Traffic Conditions Analysis Summary
117 STREET / 89 AVENUE

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND				
Movement	L	T	R	L	T	R	L	T	R	L	T	R		
	AM Peak Hour – 2028 Post Development Conditions - Unsignalized													
Geometry	LTR						TR			LT				
Volume (vph)	1	42	7					22	5		3	14		
v/c	0.05						0.00			0.00				
Delay (s)	9						0			1				
LOS	A						A			A				
95th Queue (m)	15						0			0				
INTERSECTION DELAY (s):						5			INTERSECTION LOS: A					

	PM Peak Hour – 2028 Post Development Conditions - Unsignalized											
Geometry	LTR						TR		LT			
Volume (vph)	5	12	2				14	8	2	22		
v/c	0.02						0.00		0.00			
Delay (s)	9						0		1			
LOS	A						A		A			
95th Queue (m)	12						0		1			
INTERSECTION DELAY (s): 3												INTERSECTION LOS: A

89 AVENUE / NORTH-SOUTH ALLEY

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND			
Movement	L	T	R	L	T	R	L	T	R	L	T	R	
AM Peak Hour - 2028 Post Development Conditions - Unsignalized													
Geometry	LTR						TR			LT			
Volume (vph)	2	49	1					1	40		1		
v/c	0.00						0.05			0.00			
Delay (s)	0						9			9			
LOS	A						A			A			
95th Queue (m)	0						15			3			
INTERSECTION DELAY (s):						4			INTERSECTION LOS:				A

	PM Peak Hour - 2028 Post Development Conditions - Unsignalized											
Geometry	LTR						TR		LT			
Volume (vph)	1	37	1				1	48	1	1		
v/c	0.00						0.05		0.00			
Delay (s)	0						9		10			
LOS	A						A		A			
95th Queue (m)	0						14		4			
INTERSECTION DELAY (s): 5												INTERSECTION LOS: A

116 STREET / 89 AVENUE

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND			
Movement	L	T	R	L	T	R	L	T	R	L	T	R	
	AM Peak Hour – 2028 Post Development Conditions - Unsignalized												
Geometry	LTR			L/R			TR			LT			
Volume (vph)	16	14	56	16		8		374	162	98	168		
v/c	0.24			0.12		0.02		0.00			0.13		
Delay (s)	17			34		14		0			4		
LOS	C			D		B		A			A		
95th Queue (m)	17			12		9		20			33		
INTERSECTION DELAY (s):						3	INTERSECTION LOS:						A

	PM Peak Hour - 2028 Post Development Conditions - Unsignalized											
Geometry	LTR			L/R			TR			LT		
Volume (vph)	18	3	46	115		52		192	54	42	355	
v/c	0.18			0.53		0.10		0.00		0.04		
Delay (s)	16			36		12		0		1		
LOS	B			E		B		A		A		
95th Queue (m)	15			24		16		9		25		
INTERSECTION DELAY (s):						7	INTERSECTION LOS: A					

Table 5.3b: Opening Day (2028) Total Traffic Conditions Analysis Summary (continued)**117 STREET / EAST-WEST ALLEY**

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND			
Movement	L	T	R	L	T	R	L	T	R	L	T	R	
	AM Peak Hour – 2028 Post Development Conditions - Unsignalized												
Geometry				LR			TR			LT			
Volume (vph)				21		1		29	11	1	21		
v/c				0.03			0.00			0.00			
Delay (s)				9			0			0			
LOS				A			A			A			
95th Queue (m)				12			0			0			
INTERSECTION DELAY (s):						2	INTERSECTION LOS:						A

	PM Peak Hour - 2028 Post Development Conditions - Unsignalized												
Geometry				LR			TR			LT			
Volume (vph)				31		1		21	16	1	27		
v/c				0.04				0.00		0.00			
Delay (s)				9				0		0			
LOS				A				A		A			
95th Queue (m)				14				0		0			
				INTERSECTION DELAY (s):				3		INTERSECTION LOS: A			

118 STREET / 87 AVENUE

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND			
Movement	L	T	R	L	T	R	L	T	R	L	T	R	
	AM Peak Hour - 2028 Post Development Conditions - Unsignalized												
Geometry	LT / TR			LT / TR			LTR			LTR			
Volume (vph)	5	470	5	33	246	7	4	4	3	28	1	18	
v/c	0.00			0.03			0.04			0.11			
Delay (s)	0			1			16			14			
LOS	A			A			C			B			
95th Queue (m)	3			12			10			15			
INTERSECTION DELAY (s):						1	INTERSECTION LOS:						A

	PM Peak Hour – 2028 Post Development Conditions – Unsignalized											
Geometry	LT / TR			LT / TR			LTR			LTR		
Volume (vph)	11	255	2	18	640	30	6	2	3	30	4	17
v/c	0.01			0.02			0.04			0.20		
Delay (s)	1			0			16			21		
LOS	A			A			C			C		
95th Queue (m)	10			5			11			17		
INTERSECTION DELAY (s): 2												
INTERSECTION LOS: A												

117 STREET / 87 AVENUE

EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND				
Movement	L	T	R	L	T	R	L	T	R	L	T	R	
	AM Peak Hour - 2028 Post Development Conditions - Unsignalized												
Geometry	LT / TR			LT / TR			LTR			LTR			
Volume (vph)	15	421	71	29	243	21	25	16	48	46	15	11	
v/c	0.01			0.03			0.23			0.23			
Delay (s)	0			1			16			19			
LOS	A			A			C			C			
95th Queue (m)	25			13			14			23			
INTERSECTION DELAY (s):						3	INTERSECTION LOS:						A

	PM Peak Hour - 2028 Post Development Conditions - Unsignalized												
Geometry	LT / TR			LT / TR			LTR			LTR			
Volume (vph)	22	249	21	51	612	18	90	6	53	50	13	13	
v/c	0.03			0.04			0.51			0.41			
Delay (s)	1			1			27			35			
LOS	A			A			D			D			
95th Queue (m)	13			13			29			21			
INTERSECTION DELAY (s):						6	INTERSECTION LOS:						A

Table 5.3c: Opening Day (2028) Total Traffic Conditions Analysis Summary (continued)**87 AVENUE / NORTH-SOUTH ALLEY**

ST AVENUE / NORTH-SOUTH ALLEY													
	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND			
Movement	L	T	R	L	T	R	L	T	R	L	T	R	
	AM Peak Hour = 2028 Post Development Conditions = Unsignalized												
Geometry	LT / T			T / TR						LR			
Volume (vph)	7	531			267	69				35		21	
v/c	0.01			0.00						0.13			
Delay (s)	0			0						14			
LOS	A			A						B			
95th Queue (m)	49			4						21			
INTERSECTION DELAY (s):						1	INTERSECTION LOS:						A

	PM Peak Hour - 2028 Post Development Conditions - Unsignalized											
Geometry	LT / T			T / TR						LR		
Volume (vph)	11	360			635	149				55		29
v/c	0.02				0.00					0.34		
Delay (s)	0				0					25		
LOS	A				A					C		
95th Queue (m)	19				6					20		
INTERSECTION DELAY (s): 2 INTERSECTION LOS: A												

116 STREET / 87 AVENUE

110 STREET / 97 AVENUE

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND				
Movement	L	T	R	L	T	R	L	T	R	L	T	R		
	AM Peak Hour - 2028 Post Development Conditions - Signalized													
Geometry	LT / T			T / TR						L / LR				
Volume (vph)	50	527			307	471				225		20		
v/c	0.47			0.55						0.20				
Delay (s)	11			6						12				
LOS	B			A						B				
95th Queue (m)	59			115						29				
INTERSECTION DELAY (s):						9			INTERSECTION LOS: A					

	PM Peak Hour - 2028 Post Development Conditions - Signalized											
Geometry	LT / T			T / TR						L / LR		
Volume (vph)	25	410			661	240				445	79	
v/c	0.36				0.68					0.40		
Delay (s)	12				16					14		
LOS	B				B					B		
95th Queue (m)	52				98					65		
INTERSECTION DELAY (s):						14	INTERSECTION LOS: B					

Under 2028 post-development conditions, all study intersections continue to operate with overall Levels of Service of LOS A/B during both peak hours.

At the signalized 87 Avenue/116 Street intersection, all movements are at LOS A/B during both peak hours. As under background conditions, during the AM peak, the eastbound queue occasionally extends back past the North-South Alley intersection; however, the queue clears sufficiently at each cycle to allow traffic to turn left into or out of the alley without significant delay.

At the 87 Avenue/117 Street intersection, with the addition of site traffic, the north- and southbound movement drops to LOS D (from LOS C under background conditions) during the PM peak hour. These movements remain at LOS C during the AM peak hour, and the east- and westbound movements on the major road (87 Avenue) operate at LOS A in both peak hours.

Although the Level of Service drops from Level of Service C-Satisfactory (2028 Background Conditions) to Level of Service D - D-Tolerable (Total Traffic), the City of Edmonton considers Level of Service D traffic operations during peak hours of traffic activity as acceptable operations.

Based on a review of the City's TIA Guidelines, current operational standards for intersections within the City of Edmonton for greenfield TIAs (Deviation from these requirements may be permitted for analysis in support of development on a case-by-case basis) are as follows:

- Short-Term (10 – 15 years) Operations: $v/c < 0.85$, $LOS \leq D$
- Longer-Term (30 – 40 years) Operations: $v/c < 0.95$, $LOS \leq E$

As it is recognized that the proposed mixed-use development is representative of a mature, high-density redevelopment initiative, the City's TIA Guidelines do assist in supporting Level of Service D traffic operations during peak hour operations.

At the 87 Avenue/118 Street intersection, all movements are at LOS C or better during both peak periods.

The 89 Avenue/116 Street intersection represents a major pedestrian route and a major egress/ingress route to Stadium Parkade. 89 Avenue east of 116 Street is a private roadway. The westbound left turn (westbound to southbound) drops to LOS E (from LOS D under background conditions) during the PM peak hour, due to a delay increase of 5 seconds. The westbound left turn remains at LOS D in the AM peak hour, and the remaining movements are at LOS C or better. At this time, upgrading the level of traffic control from a pedestrian-actuated signal to a full traffic signal on account of the proposed high-density mixed-use development on 87 Avenue and 117 Street has not been identified.

At the 89 Avenue/117 Street Intersection, all movements are at LOS A in the AM and PM peak hours.

At the 87 Avenue/North-South Alley intersection, all movements are at LOS C or better during both peak hours. At the remaining alley intersections (89 Avenue North-South Alley and 117 Street/East-West Alley), all movements are at LOS A in both peak hours.

5.6 Future Alley Operations

As mentioned previously, the City of Edmonton does not have a prescribed daily volume threshold for alleys and lanes. However, based on HTCI engineering experience and judgement, daily volume thresholds of between 1,000 and 1,500 two-way trips have been assumed to represent alley operations in traffic impact assessment reports for mixed-use development in high-density urban areas.

Within Downtown Edmonton, in Main Street areas and in mature neighbourhoods, alleys are used to provide site access to the adjacent roadway network to reduce the number of vehicle/pedestrian conflict points in high pedestrian areas. As a result, alleys are often projected to accommodate more traffic than historically measured. A range of 1,000 to 1,500 two-way trips reflects the potential magnitude of traffic that can be served, assuming one travel lane for two-way operation. Alley traffic volumes are often influenced by the presence of utility poles and waste management bins. As alley volumes increase, the potential for vehicles to meet in the alley increases, resulting in a greater need for spaces where vehicles can pass one another.

In comparison, Edmonton's local roadway standards typically include a 9.0m wide carriageway, which allows parking on one or both sides of the street. Parking opportunities reduce the 9.0m carriageway to about 6m, assuming parking on one side of the roadway, and less than 6m if parking is permitted on both sides of the roadway. These dimensions are similar to commercial alley cross-sections. Based on a review of the City's TIA Guidelines, local roadway thresholds in Edmonton have been identified to be "up to about 1,000 daily trips".

As discussed above, HTCI engineering experience and judgement suggest that roadway thresholds of 1,000 to 1,500 two-way vehicles per day are considered an appropriate threshold for alley operations. In some cases, local roadway volumes have been projected to accommodate about 2,000 daily vehicles.

Traffic activity on the North-South Alley between 87 Avenue and 89 Avenue and the new East-West Alley between 117 Street and the North-South Alley will increase on account of the cumulative traffic impacts associated with the new development. All site trips generated by the development will use the alleys for access, as the proposed parking garage access is from the North-South alley.

In this regard, based on a review of the Scona District Plan, it is noted that the Scona Plan identifies three Priority Growth Areas in the District: the 109 Street Secondary Corridor, University-Garneau Major Node, and Whyte Avenue Primary Corridor/99 Street Secondary Corridor. The Windsor Park 6 development is located in the University-Garneau Major Node Area and is consistent with the intent of the Scona Plan regarding the intensification of the development parcel. The Primary Growth Areas are the portions of Nodes and Corridors that are expected to experience more residential and commercial development (compared to other locations in redeveloping areas) as Edmonton grows to a population of 1.25 million residents. As a result, it is anticipated that the City acknowledges that with increased density, traffic movements on local roadways and alleys will potentially increase above historical traffic levels.

5.6.1 North-South Alley

Based on the 2023 traffic counts, daily volumes on the north (residential) and south (commercial) components of the North-South Alley are 37 vpd and 419 vpd, respectively. With the addition of traffic from the Windsor Park II multi-unit development (116 Street south of 89 Avenue), the 2028 background alley volumes are expected to be about 610 vpd and 760 vpd for the north (residential) and south (commercial) segments, respectively. The higher volume on the south section (near 87 Avenue) is due to vehicles accessing the commercial land use and the church, which are both located on 87 Avenue at the south end of the alley, where the alley is built to a commercial alley standard. The remaining North-South alley and the East-West alley accommodate residential traffic only and are built to a residential alley standard. The existing daily volume on the East-West alley is low and is not expected to change substantially under 2028 background conditions.

The Windsor Park 6 development, assuming a reduced commercial floor area, is expected to generate a conservative estimate of about 1,200 daily vehicle trips, all of which will use the alley system for access. It is estimated that about 55% of the site traffic (670 vehicles) will use the southern portion of the North-South alley to access 87 Avenue, while about 20% of the traffic (245 vehicles) might use the east-west alley. The remaining site traffic (305 vehicles) is expected to use the north section of the North-South alley. Therefore, the south (commercial) portion of the North-South Alley, although unlikely, could possibly generate a post-development daily volume of approximately 1,430 vpd (including background traffic). This level of traffic activity is in line with traffic volumes associated with local roadway and enhanced alley operations, particularly local roadway operations approaching collector/arterial intersections.

The north portion of the North-South alley will have a post-development daily volume of about 925 vpd, and the East-West alley will have a post-development daily volume of 245 vpd; both volumes being less than a local two-way roadway traffic volume threshold.

To acknowledge and mitigate the level of daily traffic movements in the North-South Alley, the alley carriageway will be widened by 1.0m to the west to allow for a minimum 7.0m wide carriageway to be constructed. This will allow for two 3.5m wide lanes to be constructed. This cross-section simulates the carriageway width of a local roadway standard. As mentioned in Chapter 3.0, the North-South Alley between 87 Avenue and the new East-West Alley will be developed as a multi-modal facility.

In addition, the North-South Alley will be upgraded to a commercial alley standard from the new East-West alley to 89 Avenue.

At this time, the utility poles located on the North-South Alley between the new East-West Alley and 89 Avenue are anticipated to remain. Westrich may want to consider relocating the utility poles in the North-South alley along the east side of the building to further enhance North-South operations for all modes of transport.

The alley intersections at 87 Avenue, 89 Avenue, and 117 Street are uncontrolled; however, these accesses operate as stop-controlled intersections. It is recommended that a two-way stop control (with stop control on the alley) be implemented to formalize the intersection control.

5.6.2 New East-West Alley

A new East-West alley is planned to be constructed on the north side of the development parcel. This alley should be constructed as a 6.0m commercial alley and designed as a shared pedestrian, bicycle, and vehicle friendly facility accommodating all modes of transport. No utility poles are expected to be required along the East-West Alley.

6. PEDESTRIAN, BICYCLE, AND TRANSIT MOBILITY ASSESSMENT

6.1 Introduction

The construction of the Windsor Park 6 Mixed-Use building in the Windsor Park Neighbourhood represents a strategic development initiative. The transportation plan prepared for the new building should build upon the policies and goals enshrined in City Plan through the development of a sustainable, vibrant, well-designed, and easily accessible building. The locational attributes associated with the development parcel will allow for a sustainable, multi-modal traffic and parking program to be developed that supports key City of Edmonton strategic goals and policies.

6.2 Sustainability Concepts

Redevelopment of the subject parcels represents an excellent opportunity for the owners and operators of the project to consider and implement, where feasible, components and elements associated with sustainable development and to provide leadership in implementing policies to ensure sustainable future growth. The residential density in the mid-rise building is conducive to supporting transit as a major transportation mode.

To ensure that the project will be operated sustainably, the traffic and parking plan should consider synergies that can be developed between various user groups. The relative location of the project to existing development activity, retail and commercial areas, employment opportunities, and transit will continue to allow for transit and walk trip opportunities, which should reduce reliance on the automobile as the primary means of transportation. From an urban design and parking planning perspective, the development of a sustainable mixed-use development has the following advantages:

- reduces site-generated traffic and parking demands as a result of land use synergies,
- allows people to walk to their destinations: and;
- allows for a more compact development to facilitate pedestrian movement activity.

6.3 Site Infrastructure Elements

Several site/building features will facilitate access by sustainable transportation modes. These features can directly influence the intensity and level of use of alternative transportation modes.

6.3.1 Urban Form

The mixed-use building is planned to be oriented towards 87 Avenue. Providing ease of access to the area's pedestrian infrastructure provides for excellent connectivity to transit, pedestrian, and bicycle routes. The residential densities in the building are conducive to supporting transit and alternate modes as major transportation modes. The overall site design attempts to minimize conflict points between vehicles, pedestrians, and bicycles, and appropriate sight distances have been provided in the overall site design.

6.3.2 Parking Supply

An oversupply of off-street parking is not being provided. An oversupply of parking could promote increased auto use and represent an inefficient use of space and financial resources. The parking supply should be based on projected parking demands as opposed to artificial market pressures. Providing an appropriate supply of off-street parking will assist in promoting increased transit use and other alternative transportation modes.

To encourage and promote the use of alternative modes and to minimize on-site parking, Westrich has prepared a parking program and is considering a corresponding Transportation Demand Management (TDM) program that results in a resident parking rate of about 0.74 spaces per unit assuming that about 50 stalls are allocated as commercial/visitor parking stalls. This parking program is based on Westrich's marketing reviews and their own project experience, including projects that are located close to alternative mode facilities, including bicycle facilities and high-speed transit.

Given the context of the development, parking provision has been minimized, and the use of alternative transportation modes is being encouraged.

6.4 Pedestrian Accommodation Considerations

87 Avenue and 116 Street are characterized by a high degree of walkability. The street network in this sector of the Windsor Park Neighbourhood is generally organized in a grid structure that facilitates walking trips by providing high connectivity between destinations and reducing travel distances. Sidewalks are available on both sides of streets and Avenues in the project vicinity.

As part of the Building Great Neighbourhoods program, the City constructed several pedestrian improvements in the Windsor Park area to the west of the project site, including:

- A sidewalk on the north and south 87 Avenue Service Roads, linking Saskatchewan Drive to 120 Street;
- A sidewalk on the south side of the 87 Avenue Service Road, linking 117 Street to 118 Street; and
- An asphalt shared-use path through Windsor Park, linking 118 Street to 119 Street;

At that time, the City identified that the levels of pedestrian control at intersections were appropriate for the level of activity.

The existing pedestrian infrastructure near the site is robust. There are sidewalks along both sides of 87 Avenue, 116 Street, and 117 Streets. There are signalized crosswalks across 87 Avenue at 118 Street (Pedestrian signal), 117 Street (Pedestrian signal), and across 116 Street (Pedestrian Flasher), and crosswalks across all three legs of the signalized 87 Avenue/116 Street intersection. No additional pedestrian infrastructure improvements are recommended.

It is recognized that 87 Avenue is deemed a Pedestrian Priority Area (Source: City Plan) with opportunities to connect with the River Valley. In response, no new driveway accesses to 87 Avenue are proposed, therefore, no new pedestrian conflicts are introduced along the adjacent roadway. Pedestrian ramps are provided at all intersections in the vicinity of the site.

A review of the physical characteristics of the 87 Avenue sidewalk between 116 Street and 117 Street was undertaken in a preliminary fashion. The existing sidewalk on the north side of 87 Avenue is in poor condition. Given the significant increase in non-auto trips that could use this pedestrian corridor, it is recommended that the north 87 Avenue sidewalk be reconstructed between 116 Street and 117 Street with finer details to be reviewed (i.e., accommodating the transit pad and shelter) at the Development Permit stage.

6.5 Transit Considerations

The site is well located to take advantage of the area's existing and future LRT and mass transit routes. The site is within walking distance of the Health Sciences/Jubilee LRT Stop. Multiple routes are available to transit stops near the site, and all required pedestrian crossings can be completed at locations with either full traffic control or with a pedestrian light or flasher.

Existing and future transit routes along 87 Avenue will provide excellent transit access for the proposed development. Given the level of transit service already provided in the vicinity of the proposed development, no changes to transit routing or frequency are proposed.

In upgrading the north 87 Avenue sidewalk between 116 and 117 Streets, consideration should be given to ensuring that an appropriately sized transit shelter and pad (Transit Stop 2851) are provided to enhance the transit level of service. The transit pad for Transit Stop 2666 (87 Avenue eastbound) should also be reviewed and enhanced as required to facilitate the anticipated mode split to transit.

6.6 Bicycle Accommodation

Easily accessible and appropriate bicycle accommodation will be provided. Secured bicycle facilities will be located on-site. The supply of bicycle parking spaces will be based on the final land use schedule and will achieve or exceed current Zoning Bylaw regulations.

Painted on-street bicycle lanes on 116 Street will facilitate the use of bicycles as a primary transportation mode. These facilities provide connections to Downtown and the North Saskatchewan River Valley.

The 89 Avenue corridor is part of the City's Bike Network. 89 Avenue is a one-way eastbound roadway from 118 Street to 116 Street for vehicles but accommodates two-way bicycle movements. 117 Street, eastbound traffic is controlled by a yield sign while north-south traffic on 117 Street is free flow.



To better accommodate bicycle traffic movements on 89 Avenue, consideration could be given to controlling 117 Street north-south traffic movements (yield or top control) and allowing bicycle traffic to flow through this intersection.

6.7 Transportation Demand Management

6.7.1 General

The effective application of Transportation Demand Management (TDM) measures is considered a cost-effective means to reduce the need for additional roadway and parking infrastructure. TDM strategies and objectives can complement and reinforce other policies, such as the use of alternative modes of transportation and non-auto modal split targets. The implementation of TDM measures can enhance the livability of the development area by controlling the number of vehicles through a reduction in the number of parking spaces.

At the appropriate time (Development Permit Application), a TDM plan is recommended to be developed and implemented for prospective residents to enhance their ability to travel, to as great a degree as possible, without the use of an automobile, thereby reducing the need for residents to own a car.

To build upon the site's location and accessibility and to enhance the site's ability to promote alternative travel modes, it is highly encouraged that Westrich Pacific Corp. consider the implementation of a TDM plan. This will promote and direct prospective residents to pursue traveling without the use of a car, which ultimately will lead to reduced vehicle ownership for the building. The effective application of TDM measures is considered a cost-effective means to reduce the need for additional parking infrastructure. TDM strategies and objectives can complement and reinforce other policies, such as the use of alternative modes and non-auto modal split targets. The implementation of TDM measures can enhance the livability of the development area by controlling the number of vehicles through a reduction in parking spaces.

Local City characteristics play an important role in determining the status, image, and acceptability of different types of travel behaviour. The private automobile has social and cultural attributes that go well beyond its role as a transportation mode. For TDM strategies to be effective, the strategies must recognize and acknowledge local City of Edmonton cultural factors.

A TDM plan is recommended to be developed and implemented for prospective residents to enhance their ability to travel, to as great a degree as possible, without the use of an automobile, thereby reducing the need for residents to own a car. TDM strategies can be divided into two categories.

- Pre-occupancy: things that need to be done during the design and construction of the development, and
- Post-occupancy: things that can be done once people are using the development.

Pre-occupancy actions are critical because they are most likely to determine how attractive, convenient, and safe alternative travel modes will be once the site is occupied. Before a site is occupied, it can be designed to be convenient and safe for pedestrians and cyclists, and vehicle parking can be provided to meet but not exceed demand.

Based on a review of the site plan, the Windsor Park development offers an environment where convenient transportation options are available for area residents, including excellent public transit, pedestrian, and bicycle networks, which provide a connection to the University of Alberta as well as a wide range of employment, retail, activity centres, and amenities located nearby. These factors combine to allow for a reduced need for residents to own a private vehicle and are strongly supportive of the development of a building with a reduced residential parking supply.

To promote sustainable modes of travel, a TDM plan is recommended for the development. Some examples of TDM components are provided in the following section, where the development will engage to maximize prospective residents' abilities to take advantage of the non-automotive travel opportunities offered.

6.7.2 TDM Strategies

Upon the development of the Windsor Park 6 Mixed-use building, to encourage and support lifestyle adjustments to achieve better sustainability, to achieve an increased non-auto modal split, and to reduce single occupancy travel, Westrich will consider developing site-specific TDM programs for their tenants or advising their tenants of possible TDM measures that address specific parking and transportation initiatives associated with the daily transportation needs of building residents, employees, and visitors.

1. Car-Share Opportunities

The Windsor Park 6 Mixed-Use development is located within the Communauto catchment area. While Communauto FLEX vehicles may use available on-street parking in the area, the proposed development will promote the use of Car-Share opportunities available in the neighbourhood. At the rezoning level of assessment, designated car share stalls are not being considered.

2. Bike Wash and Repair Station

Taking advantage of the proximity of bicycle facilities in the area, Westrich will consider installing a Bike Wash and Repair Station. The location of bicycle parking within the building and/or parkade structure, and the ease of access to the bicycle parking areas, should be considered at the building design phase.

3. Shared Bicycle Program

Notwithstanding that the operation of an on-site bike share program in high-density mixed-use or strictly residential developments in Edmonton is unknown, Westrich could consider the implementation of a bicycle share program for residents (at a minimal fee). A bicycle share program would increase access to bicycles for tenants (for residents of all ages and abilities). The implementation of a bicycle share program would remove possible barriers related to bicycle ownership, concerns about theft, and maintenance requirements.

4. Cargo Bikes

The new Zoning Bylaw 20001 uses Inclusive Bike Parking to capture cargo bikes, bikes with trailers, etc. As previously determined, a minimum of 10% of short-term bike parking and a minimum of 10% of long-term (secure) bike parking must accommodate Inclusive bicycle parking. The use of cargo bikes provides a convenient opportunity for residents to use a bicycle for trips that would typically be done by car.

5. Marketing Materials and Transportation Information

With the amount of alternative transportation infrastructure available, the proximity of commercial, institutional, recreation, and entertainment, and the availability of car and scooter share services, the Windsor Park 6 Mixed-Use building is well situated to attract people who want to live a car-free lifestyle. To help facilitate this transition, Westrich may wish to provide marketing materials and transportation information to residents as one possible TDM strategy. The marketing material oriented to new residents should stress the attractiveness and ease of alternative travel modes.

Marketing materials could include simple messages about cost savings and health benefits associated with the use of more sustainable transport modes, along with practical information about local transit services, walking and cycling routes to key locations, bicycle shops in the area, and car-sharing services.

A TDM program, which will be more fully developed at the Development Permit stage of application, will provide equal and balanced opportunities for residents to choose what alternate mode of transportation best suits their needs from a range of transportation modes. The TDM program encourages the use of transit and other alternative modes to help achieve long-term City plan goals and supports the bicycle parking variance being requested.

The implementation of a TDM program containing the aforementioned strategies would represent a robust plan to provide equal and balanced opportunities for residents to choose what alternate mode of transportation best suits their needs from a range of transportation modes. The TDM program would encourage the use of transit and other alternative modes to help achieve long-term City plan goals.

7. LESSONS LEARNED

7.1 Public Engagement

As part of the Rezoning Application process, Green Space Alliance completed an engagement program with Windsor Park residents. In addition, the City of Edmonton posted the proposed development on the Engage Edmonton website.

Community League and resident feedback regarding the transportation aspects of the redevelopment project included the following:

- Keep the parkade entrance where it is, as close as possible to 87 Avenue to discourage more traffic in the interior of the neighbourhood;
- Area residents described the types of land uses they would prefer to see occupy the commercial floor area, and community residents identified that the projected level of traffic movements in the north-south alley was considered high;
- Residents expressed concerns about the validity of the TIA findings. In their opinion, trip generation estimates based on current traffic counts don't reflect the actual full traffic once all buildings are occupied. The concern is that new residents have just started moving into the new 11-storey Windsor House building (87 Ave/118 St). In addition, Westrich's Windsor Heights (WP1), currently under construction, won't be completed until 2026, and Westrich's mid-rise on 116 Street is still in the design stage. Residents would like to see the actual cumulative impact of these new developments based on traffic counts, not estimates.
- Residents had concerns about shifting the east-west alley further north, related to the District Plans and potentially expanding the University-Garneau Primary Node further into the interior of the neighbourhood. Aside from this issue, the alley relocation concept is acceptable to residents if there is certainty about the built form and uses of the development on the north lots. In this regard, it has been determined that moving the alley and developing the north properties as commercial will not change the boundary of the major node.
- Residents were generally supportive of constructing a new east-west alley on the north side of the development, but the alley should be designed and constructed as a pedestrian-friendly walkway with landscaping to mitigate neighbourhood shortcutting;
- Residents wanted the entire north-south alley between 87 Avenue and 89 Avenue to be constructed to a commercial alley standard;
- Residents wanted to have the sidewalk along the north side of 87 Avenue be rebuilt from 116 Street to the alley to the east of Windsor House, not just in front of the new development on the Windsor Park Shopping Centre site; and
- Residents were generally supportive with a parking stall index of about 1 stall per unit, but were mixed on the location of the parking garage access.

7.2 Response to Community Feedback

In response to the community feedback received, particularly community concerns related to the magnitude of traffic movements in the North-South Alley, Westridge adjusted the redevelopment's land use schedule.

Subsequent to the completion of the technical assessment presented in Chapter 5.0 (based on a commercial floor area of 4,017m²) and additional community engagement, Westrich reduced the commercial floor area in the building from 4,017m² (43,238 ft²) to 2,317m² (24,943 ft²), a gross floor reduction of about 1,700m² of commercial floor area. This reduction in commercial floor area represents a reduction in commercial floor area of about 42%. Most of the reduction in the commercial floor area results from the elimination of the commercial floor area which covered the surface parking in the northeast quadrant of the building. A total of 18 surface parking spaces are planned to be provided to accommodate high turnover parking movements.

In addition to the above, in response to resident concerns about the future background traffic estimates, it is noted that full build-out of all area developments was assumed for assessment purposes.

7.3 Commercial Site Generated Traffic Sensitivity Assessment

Table 7.1 summarizes the anticipated trip-making activity associated with the reduction in the commercial floor area of about 42% (from 4,017m² to 2,317m²), while maintaining a mode split of about 55%.

Table 7.1: Change in Commercial Trips

Land Use	AM Peak Hour			PM Peak Hour			Daily		
	Total	In	Out	Total	In	out	Total	in	out
Original Gross Commercial Trips	243	134	109	463	222	241	2,354	1,177	1,177
New Gross Commercial Trips	141	78	63	269	129	140	1,365	682	683
Original Net Commercial Trips	134	74	60	255	122	133	1,295	647	648
New Net Commercial Trips	78	43	35	148	71	77	751	375	376
Difference	56	31	25	107	51	56	544	272	272

As presented in Table 7.1, a reduction in the commercial floor area of about 42% is expected to reduce the total AM Peak Hour trips by about 56 trips and the PM Peak Hour trips by about 107 trips. On a daily basis, the planned reduction in commercial floor area is expected to reduce daily traffic volumes by about 544 trips. It is expected that a reduction in the commercial floor area of about 42% will significantly reduce AM, PM and Daily traffic movements in the north-south Alley.

7.4 Broader Area-Wide Traffic Impacts

One of the concerns raised by the Windsor Park Community was the broader impact of development-related traffic on neighbourhood portal roadways such as 87 Avenue east of 116 Street, 116 Street south of 89 Avenue, and 87 Avenue west of 118 Street.

In an effort to respond to this concern in a measured way, **Table 7.2** presents a summary of the estimated peak hour site-generated traffic movements on the aforementioned roadway segments, while **Exhibit 7.1** illustrates a comparison of the background and site traffic on the portal roadways. It is noted that the site-generated traffic volumes presented in Table 7.2 are based on the revised commercial floor area (2,317m²) as opposed to the initially considered commercial floor area (4,017m²).

Table 7.2: Area Wide Site Traffic Impacts – Peak Hour

Location	AM Peak Hour			PM Peak Hour		
	2028 Background (vph)	Site Trips (vph)	Volume Increase (%)	2028 Background (vph)	Site Trips (vph)	Volume Increase (%)
87 Avenue East of 116 Street	1,418	78 (113)	6% (8%)	1,563	114 (193)	7% (12%)
87 Avenue West of 118 Street	726	15 (23)	3% (3%)	892	23 (39)	3% (4%)
116 Street North of 89 Avenue	649	10 (15)	2% (2%)	633	15 (26)	2% (4%)

Note 1: Site traffic and percent increases based on the original commercial floor area of 4,017m² are high; highlighted in red

For comparison purposes, Table 7.2 also includes the site-generated trip and their percent increase in background traffic based on the initial commercial floor area of 4,017m². As highlighted, the reduction in the commercial floor area generally reduces the site traffic impact on portal roadways by between 1% and 4%.

Exhibit 7.1: Comparison of 2028 Background and Site Traffic



As presented in Table 7.2, the magnitude of site-generated traffic as a percentage of 2028 traffic volumes on 87 Avenue east of 116 Street in the AM and PM peak hours is projected to be about 6% and 7%, respectively. On 87 Avenue west of 118 Street, site traffic as a percentage of 2028 background volumes is about 3% in the AM and PM peak hours. On 116 Street north of 89 Avenue, site traffic as a percentage of 2028 background volumes is about 2% in the AM and PM peak hours.

Based on the above and acknowledging the fluctuations in traffic on a daily, weekly, and monthly basis, it has been determined that the site-generated traffic associated with the completion of the Windsor Park 6 mixed-used development will represent a very small percentage of total traffic movements on key neighbourhood area roadways west and north of the development. East of the development, although site traffic is 6-7% of peak hour traffic, there is ample capacity on the 4-lane 87 Avenue to accommodate the additional traffic. This finding would suggest that the daily site-generated traffic associated with the Windsor Park mixed-use building will not affect area roadway operations in any significant way, as traffic volumes on 87 Avenue and 116 Street remain within thresholds for four-lane roadways and two-lane collectors, respectively.

7.5 East-West Alley Closure

Due to the extended timelines required by the Real Estate Branch to finalize the East-West alley closure, Westrich has decided to proceed with the rezoning application by splitting the application. Westrich intends to continue with the rezoning of the primary parcels independently and will maintain the alley closure as a separate, future process. The project retains strong policy alignment and urban design merit with or without the alley closure component, and the findings of this technical analysis continue to be valid.

It is noted that if the road closure application does not proceed and the site is developed with the existing alley in place, the requirements for access, alley upgrades, utility pole relocations, etc. will be reviewed in further detail at the development permit stage.

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 Study Synopsis

Green Space Alliance, on behalf of Westrich Pacific Corp. is seeking City approval to rezone one commercial lot and three residential lots in the Windsor Park Neighbourhood.

The proposed rezoning application includes two zones. The north side lots, plus the future closed east-west alley, are planned to be rezoned as MUN – Neighbourhood Mixed Use. The south lots (excluding the east-west alley) are proposed to be zoned as MU -Mixed Use Zone. As the MU Zone can be tailored to meet the needs of the development, the following modifiers are proposed: MU, f11, and 88h.

The proposed rezoning is being pursued to accommodate a mixed-use development consisting of a 30-storey 270-unit residential tower with about 2,317m² (24,943 ft²). of podium commercial on the ground and second floors. Notwithstanding the planned commercial floor area, the assessment documented in this analysis was based on an original commercial floor area of 43,328 ft². The development site is located on the northeast corner of the 117 Street and 87 Avenue intersection.

To assess the transportation impacts associated with the rezoning application, the City of Edmonton requested that the transportation review include the possible traffic impacts associated with the proposed rezoning application.

8.2 Development of the Recommended Traffic and Parking Plan

The development of the overall traffic and parking plan for the development parcel represents an integrated transportation plan. The transportation plan builds upon and leverages existing and future transportation systems planned for this sector of the Windsor Park Neighbourhood.

To ensure that the overall transportation and parking program is developed to accommodate both the needs and requirements of the new building and considers the area of significant traffic and parking influence, the following elements were considered (at a rezoning level of assessment) in the development of the overall transportation plan:

- Traffic accommodation needs, including access to the underground parking garage;
- Parking accommodation;
- Pedestrians and bicycle access; and
- Service vehicle requirements.

8.3 Key Study Findings

The City of Edmonton should continue to be mindful of evolving mobility choices, technology, and consumer preferences, and their potential implications for vehicle ownership and travel demands, particularly for developments located near high-speed transit. The City should continue to look for opportunities to undertake and support City Building goals and overarching city policies related to land use intensification, the development of more efficient and friendly neighbourhoods, and increased use of alternative travel modes.

The transportation plan will provide a system that balances the various modes of transportation—pedestrians, private vehicles, transit, and bicycles—in a manner that strengthens the overall area's transportation system, appropriate to the objectives of City Plan.

Based on the traffic and parking analysis completed, it has been determined that:

- The adjacent neighbourhood roadway network is capable of providing safe and convenient access for vehicles associated with the redevelopment of the site as a mixed-use multi-unit building at acceptable levels of traffic service while the existing transportation infrastructure is anticipated to provide high levels of pedestrian, and cyclist and transit accessibility and appropriate vehicle access to the site;
- Area traffic movements over the last several years have been generally stable. The traffic assessment uses a conservative background growth component, and the results of the traffic operational assessments achieve City of Edmonton guidelines and standards;
- The relative location of the development to existing and future residential development activity, retail and commercial areas, employment opportunities, the immediately adjacent bicycle infrastructure, and transit will continue to allow for transit, bicycle, and walk-trip opportunities, which should reduce the reliability of the automobile as the primary means of transportation;
- The south portion of the North-South Alley could generate a post-development daily volume of approximately 1,430 vpd (including background traffic). Based on HTCI engineering experience and judgement, thresholds of 1,000 to 1,500 vpd are typically appropriate for local roads and enhanced alleys. Notwithstanding that the post-development level of traffic activity in the south portion of the alley is slightly higher than typical alley traffic volume thresholds, it is anticipated that this level of traffic activity can be accommodated appropriately (based on an expanded alley cross-section). The north portion of the North-South alley will have a post-development daily volume of about 925 vpd, and the East-West alley will have a post-development daily volume of 245 vpd; both volumes are within the typical commercial alley thresholds;
- To mitigate and acknowledge the level of daily traffic movements in the North-South Alley, the alley carriageway will be widened by 1.0m to the west to allow for a 7.0m wide carriageway to be constructed between the new East-West Alley and 87 Avenue. This will allow for two 3.5m wide lanes to be constructed. The analysis did not identify the need to widen the North-South Alley between the new East-West Alley and 89 Avenue;
- In addition, the North-South Alley will be upgraded to a commercial alley standard from the new East-West alley to 89 Avenue.
- The utility poles in the North-South alley do not need to be relocated or removed between the new East-West Alley and 89 Avenue, as they should not interfere with traffic operations. The power poles in the East-West alley are anticipated to be relocated/removed when the alley is realigned to the north property boundary and redeveloped as a pedestrian-friendly multi-use corridor;
- It is recognized that 87 Avenue is deemed a Pedestrian Priority Area (Source: City Plan) with opportunities to connect with the River Valley. In response, no new driveway accesses to 87 Avenue are proposed, therefore, no new pedestrian conflicts are introduced along the adjacent roadway. Pedestrian ramps are provided at all intersections in the vicinity of the site;
- City Traffic Operations should review the merits and benefits of allowing free flow movements on 89 Avenue by modifying the traffic control on 117 Street at 89 Avenue;

- The magnitude of site-generated traffic as a percentage of 2028 traffic volumes on 87 Avenue east of 116 Street in the AM and PM peak hours is projected to be about 6% and 7%, respectively. On 87 Avenue west of 118 Street, site traffic as a percentage of 2028 background volumes is about 3% in the AM and PM peak hours. On 116 Street north of 89 Avenue, site traffic as a percentage of 2028 background volumes is about 2% in the AM and PM peak hours;
- Based on the above and acknowledging the fluctuations in traffic on a daily, weekly, and monthly basis, it has been determined that the site-generated traffic associated with the completion of the Windsor Park 6 mixed-use development will represent a very small percentage of total traffic movements on key neighbourhood area roadways;
- To acknowledge changes and modifications to building footprints and land use schedules that could occur as a result of more detailed planning and design exercises, supplemental mobility evaluations should be completed at the Development Permit stage of planning to assist in determining roadway/bicycle interfaces, etc. that may be required and the extent of these requirements; and
- If the road closure application does not proceed and the site is developed with the existing alley in place, that requirements for access, alley upgrades, utility pole relocations, etc. will be reviewed in further detail at the development permit stage.

8.4 Study Recommendations

The mobility review has concluded that the proposed redistricting can be accommodated from a traffic accommodation and operational perspective and should not create any adverse traffic or safety issues for any road user groups within the plan area. **The development should not unduly interfere with or affect area traffic or intersection characteristics, and the level of traffic activity projected to be generated by the development can be accommodated.**

In response to public engagement issues identified, to enhance pedestrian accommodation and safety, and to mitigate the impacts of the mixed-use multi-unit building, the following recommendations are advanced:

- Install a stop sign on the north approach of the North-South Alley and 87 Avenue;
- Install a stop sign on the south approach of the North-South Alley and 89 Avenue;
- Install a stop sign on the east approach of the new East-West Alley and 117 Street.
- Install a yield sign on the west approach of the new East-West Alley and the North-South Alley (North-South Alley operates as a free-flow facility);
- Construct the new East-West Alley as a pedestrian-friendly multi-use/multi-mode facility accommodating vehicles, pedestrians, and bicycles in line with Shared Alleys in the Complete Streets standards;
- Widen the North-South Alley carriageway between the new East-West Alley and 87 Avenue by 1.0m to the west to allow for a 7.0m wide carriageway with two 3.5m wide lanes to be constructed;
- Upgrade the North-South Alley to a commercial alley standard from the new East-West alley to 89 Avenue;
- Relocate or bury the existing power poles in the East-West alley when the alley is realigned to the north property boundary and redeveloped as a pedestrian-friendly multi-use corridor;

- Reconstruct the 87 Avenue north-side sidewalk between 116 Street and 117 Street (including a new transit pad);
- The following Transportation Demand Management strategies could be considered by Westrich during the site design stage of planning:
 - o Provide additional bicycle parking above the minimum City requirements;
 - o Include a bike wash and maintenance area for bicycles; and
 - o Implement a resident bike share program.
- To mitigate the traffic impacts associated with the construction of the new apartment building on the University of Alberta operations, consideration could be given to establishing specific times for construction staging and concrete pouring through discussions with the Neighbourhood and the University;
- The owner will be required to remove any existing accesses from the subject parcel to 117 Street and 87 Avenue in conjunction with development construction;
- To enhance pedestrian movements and access to the transit zone, the 87 Avenue north side sidewalk should be reconstructed between 116 Street and 117 Street.

APPENDIX A

PRE-DEVELOPMENT ROADWAY ILLUSTRATIONS



Looking South towards 87
Avenue on the North-South
Alley from the East-West
Alley



Looking West at the East-
West Commercial Alley
from the North-South Alley



Looking North at the
North-South Alley from
the East-West Commercial
Alley



Looking east at East-West
Alley from 117 Street



Looking south from 89 Avenue at
the North-South Alley



Looking south along the North-
South Alley



Looking east along 89 Avenue at
116 Street



Looking west on 89 Avenue from
east of 116 Street



Looking west on 89 Avenue from
the North-South Alley



Looking North on 118 Street at 87
Avenue



Looking east on 89 Avenue towards 116 Street

APPENDIX B

EXISTING TRAFFIC COUNTS

DIRECTIONAL TRAFFIC COUNT SUMMARY

HIGHWAY: REFERENCE NO.: INTERSECTION OF: 87 AVENUE & 117 STREET, EDMONTON
LATITUDE (degrees): LONGITUDE (degrees): LEGAL DESCRIPTION:
DAY & DATE OF COUNT: THURSDAY, APRIL 04, 2024 COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

INTERVAL	APPROACHING INTERSECTION																				TOTALS
	FROM THE EAST ON 87 AVENUE										FROM THE WEST ON 87 AVENUE										
	LEFT				THROUGH				RIGHT		LEFT				THROUGH				RIGHT		
MIDNIGHT - 0:15	2				15	1					1				5		1				25
0:15 - 0:30	4				2	1			2					1		2		1			14
0:30 - 0:45					2									1							3
0:45 - 1:00					3										5			2			10
1:00 - 1:15	3				4			1							2						10
1:15 - 1:30	3				7			1	1						1						13
1:30 - 1:45	1				1				1						1		1				6
1:45 - 2:00	1				10				1						2			1			15
2:00 - 2:15					2										1			1			4
2:15 - 2:30	2				1										2						5
2:30 - 2:45	1				3										4						8
2:45 - 3:00					1	1															2
3:00 - 3:15	3				2			1							1		1				8
3:15 - 3:30					3			1							3			1			8
3:30 - 3:45	3														3						6
3:45 - 4:00								2							1						3
4:00 - 4:15	1				1			1							1			1			5
4:15 - 4:30					1										1						2
4:30 - 4:45					3										4			1			8
4:45 - 5:00					5										2						7
5:00 - 5:15	1				2										4						7
5:15 - 5:30					5				1						11						17
5:30 - 5:45	2				4	2									7		1	1			17
5:45 - 6:00	2				10				1			1			17	2		2			35
6:00 - 6:15	2				8	2									19			2			33
6:15 - 6:30	3				23										28	3		6			63
6:30 - 6:45	2				19	2									87	3		6			119
6:45 - 7:00	5				29	1	1					1			64	3	1	10			115
7:00 - 7:15	8				38	3									67	2	3	9			130
7:15 - 7:30	6				53	2						1			84	4		17			167
7:30 - 7:45	7				51	1			1			1			96	5		23			185
7:45 - 8:00	11				40	4	1		1			2			100	5		25			189
8:00 - 8:15	8				59	5			4			1			87	6		12			182
8:15 - 8:30	3				53	5			1						77	7	2	11			159
8:30 - 8:45	10				30	3			3			3			69	8	3	7			136
8:45 - 9:00	4			1	35	9			4			5			73	3	2	7			143
9:00 - 9:15	13				29	5			2			2			77	6	5	1			140
9:15 - 9:30	7				36	4	3	1	3			2			63	4	1	4			128
9:30 - 9:45	8			1	39	1	4		1			1			44	5	3	4			111
9:45 - 10:00	7				32	3	3		4			2			38	3	1				93
10:00 - 10:15	7			1	35	3	2		2						40	2	1	3			96
10:15 - 10:30	9			1	35	1	2		2			2			44	1					97
10:30 - 10:45	7				40	1	1		1			2			48	7	2	4			114
10:45 - 11:00	11				43	4			2			3			49	2	1	5			120
11:00 - 11:15	8			1	49	4	2		3			1			52	2	1	1	1		125
11:15 - 11:30	7			1	37	1						2			39	1	3	1		1	93
11:30 - 11:45	11			1	54	1			2			2			43	5	3	4			126
11:45 - 12:00 PM	12				51	3	2					4			46	4	3	1			126
12:00 - 12:15	3				37	2			2						50	4		7			105
12:15 - 12:30	7				58	2			1			2			47	1	1	3		1	123
12:30 - 12:45	5				41	1	1		1		1	2			49	6		2			109
12:45 - 1:00	13				33	3	2		5			3			55	3		2			119
1:00 - 1:15	10				60	2	1		3			2			35	3		3		1	120
1:15 - 1:30	6			1	34	2			3		1	1			39	1	1	2			92
1:30 - 1:45	5				44	2			5			2			47	2	4	2			113
1:45 - 2:00	13			1	57	2	1		2			2			54	3	3	3			141
2:00 - 2:15	14				67	5	2		1			3			34	4		2			132
2:15 - 2:30	10				70	2	3		3			1			46	4	1	2			142
2:30 - 2:45	7				76	2	1		3			4			40	6	1	4			144
2:45 - 3:00	10			1	70	4	1								43	4	1	5			139
3:00 - 3:15	13				85	5	1		4						42	3		4			157
3:15 - 3:30	16				126	3	1	1	2			2			69	2		6			228
3:30 - 3:45	12				138	2	2		2			2			46	4	1	9			218
3:45 - 4:00	8				142	1	3		2						43	5		4			208
4:00 - 4:15	14			1	138	4	1		1			2	1		41	5		2			210
4:15 - 4:30	5				131	4	1		2			1			49	4		4			201
4:30 - 4:45	11				106	4			2			1			55	1		4			184
4:45 - 5:00	11				96	4			2			6			83	6		3			211
5:00 - 5:15	9	1			120	2			5	1		2			59	1	1	2			203
5:15 - 5:30	9	1			85	3			3			3			59	4		5			172
5:30 - 5:45	5	1			61	3	1		3			4			48	4		2			132
5:45 - 6:00	3				69	1	1		4			1			45	1		1			126
6:00 - 6:15	10				50	3			3			2			63	4		2			137
6:15 - 6:30	9				51	1	2		1			2			82	2	1	5			156
6:30 - 6:45	10				48	3			4						79	2	1	3			150
6:45 - 7:00	6	1			51				4						52	2	1	6			123
7:00 - 7:15	2				57	3				2		1			21		2	1			89
7:15 - 7:30	11				53	2			5			3			30	3		3			110
7:30 - 7:45	3				47	1	2		2	1					21	1		5			83
7:45 - 8:00	7				50	1	1		5			2			32	2		3			103
8:00 - 8:15	5				44	1	1		1						20			3			75
8:15 - 8:30	6				38	1			2			1			19	3		1			71
8:30 - 8:45	6				31	2	1		5			1			19	1	2				68
8:45 - 9:00	3				23	1			3			1			17	2					50
9:00 - 9:15	3				23	1	1		4			1			17	2					52
9:15 - 9:30	3				40	1			2			2			23	2	1	1	1		76
9:30 - 9:45	13				107	2	1		2												

LOCATION DIAGRAM ENCLOSED (Y/N): NO
WEATHER CONDITIONS: CLEAR, SUNNY
RECORDER(S): MIOVISION CAMERAS - TROY PEACOCK
COMMENTS:

VEHICLE CLASSES
A: LIGHT VEHICLES
B: BICYCLES ON ROAD
C: BUSES
D: SINGLE UNIT TRUCKS
E: ARTICULATED TRUCKS

DIRECTIONAL TRAFFIC COUNT SUMMARY

HIGHWAY: REFERENCE NO.: INTERSECTION OF: 87 AVENUE & 117 STREET, EDMONTON
LATITUDE (degrees): LONGITUDE (degrees): LEGAL DESCRIPTION:
DAY & DATE OF COUNT: THURSDAY, APRIL 04, 2024 COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

INTERVAL	APPROACHING INTERSECTION																				TOTALS	GRAND TOTALS									
	FROM THE NORTH ON 117 STREET										FROM THE SOUTH ON 117 STREET																				
	LEFT					THROUGH					RIGHT					LEFT							THROUGH					RIGHT			
MIDNIGHT - 0:15						1										1									3	28					
0:15 - 0:30	3															1									1	6	20				
0:30 - 0:45																												3			
0:45 - 1:00						1																			2	5	15				
1:00 - 1:15																									5	5	15				
1:15 - 1:30																1									3	5	18				
1:30 - 1:45																									1	5	11				
1:45 - 2:00																									4	3	18				
2:00 - 2:15						1																			3	1	5				
2:15 - 2:30																									1	1	6				
2:30 - 2:45																1										1	9				
2:45 - 3:00																												2			
3:00 - 3:15																1									1	3	11				
3:15 - 3:30																											1	9			
3:30 - 3:45																1									1	3	9				
3:45 - 4:00																											1	4			
4:00 - 4:15																												5			
4:15 - 4:30																												2			
4:30 - 4:45	1					1																			1	3	11				
4:45 - 5:00				1												1										3	10				
5:00 - 5:15							1																		2	3	10				
5:15 - 5:30																												17			
5:30 - 5:45	1															1										3	20				
5:45 - 6:00	2					1																			2	5	40				
6:00 - 6:15	1					1										2									2	6	39				
6:15 - 6:30																									1	1	2	65			
6:30 - 6:45	1																								3	12	131				
6:45 - 7:00	1					2										1									5	1	14	129			
7:00 - 7:15	1															2									4		11	141			
7:15 - 7:30	2					1	1									1									7	16	183				
7:30 - 7:45	2					4										1									8	18	203				
7:45 - 8:00	4					3																			18	33	222				
8:00 - 8:15	2					5										7									9	1	36	218			
8:15 - 8:30	3					3										4	1	1							10		39	198			
8:30 - 8:45	2					3										2									8		31	167			
8:45 - 9:00	7					1										2									3	3	31	174			
9:00 - 9:15	1															2									7	1	25	165			
9:15 - 9:30						1										2									12		22	168			
9:30 - 9:45	2					2										3									5	4	1	2	40	166	
9:45 - 10:00	1					6										5									4	1	2	24	135		
10:00 - 10:15	1					2										3									4	1		8	33	126	
10:15 - 10:30	1					2										2		1	1						4			8	23	119	
10:30 - 10:45	2					1										4									1			14	24	121	
10:45 - 11:00	2					2										2									8			8	23	137	
11:00 - 11:15	4					3										4									8			19	36	156	
11:00 - 11:15	4					9										1									8	1		1	30	155	
11:15 - 11:30	3					6										5									10			8	33	126	
11:30 - 11:45	4															3									7			10	20	146	
11:45-12:00 PM	6	1				2										4									2			11	32	158	
12:00 - 12:15	3					2										5									2			7	28	133	
12:15 - 12:30	2					4										7									8			10	33	156	
12:30 - 12:45	2					3										4									14			14	28	137	
12:45 - 1:00	1					3										2									10			1	26	145	
1:00 - 1:15	4					4										3									7			2	29	149	
1:15 - 1:30	2					4										4									7			1	23	115	
1:30 - 1:45	1					4										2									14			1	2	31	144
1:45 - 2:00	3					1										4									16			2	34	175	
2:00 - 2:15	9					2										3									7				29	161	
2:15 - 2:30	3					1										9									13			1	34	176	
2:30 - 2:45	3					3										11									9				33	177	
2:45 - 3:00	2					4										5									11				35	174	
3:00 - 3:15	3					4	2									3									14	1			43	200	
3:15 - 3:30	6					4	1									2									13				48	276	
3:30 - 3:45	4					3										4									12				38	256	
3:45 - 4:00	1					1										5									10				49	257	
4:00 - 4:15	2					4										2									18				53	263	
4:15 - 4:30	2					1	1									19									15			1	43	244	
4:30 - 4:45	1					7										3									13	1		1	42	226	
4:45 - 5:00	1					3	1									4									20				42	253	

LOCATION DIAGRAM ENCLOSED (Y / N): NO
WEATHER CONDITIONS: CLEAR, SUNNY
RECORDER(S): MIOVISION CAMERAS - TROY PEACOCK
COMMENTS:

VEHICLE CLASSES
A: LIGHT VEHICLES
B: BICYCLES ON ROAD
C: BUSES
D: SINGLE UNIT TRUCKS
E: ARTICULATED TRUCKS

TURNING MOVEMENT SUMMARY DIAGRAM

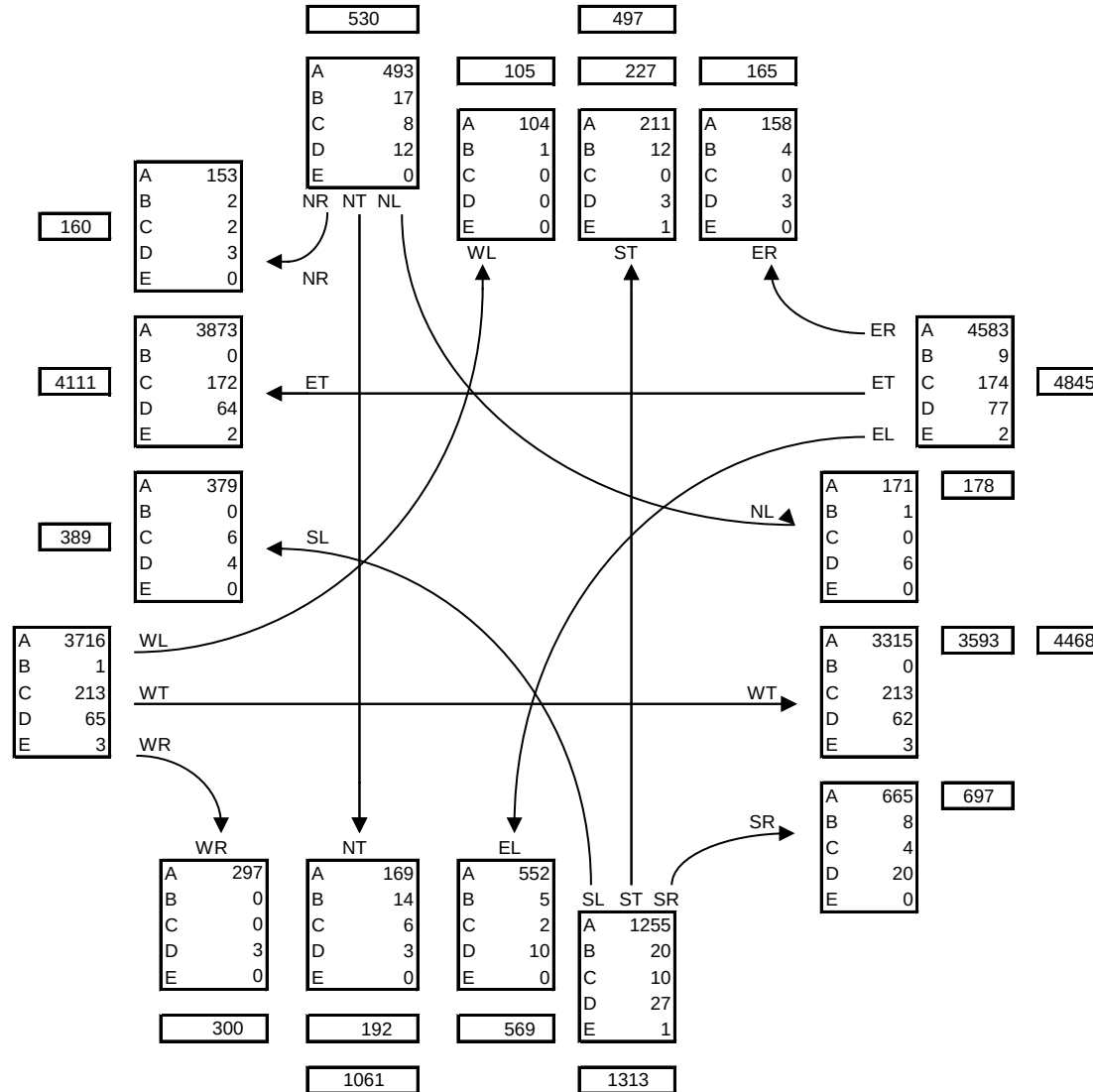
INTERSECTION OF: 87 AVENUE & 117 STREET, EDMONTON

DAY & DATE OF COUNT: THURSDAY, APRIL 04, 2024

COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

OBSERVED 24 HOURS TRAFFIC VOLUMES

WEST ON 87 AVENUE		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	8121	93.80
B: BICYCLES ON ROAD	3	0.03
C: BUSES	393	4.54
D: SINGLE UNIT TRUCKS	136	1.57
E: ARTICULATED TRUCKS	5	0.06
TOTAL	8658	



TURNING MOVEMENT ABBREVIATIONS

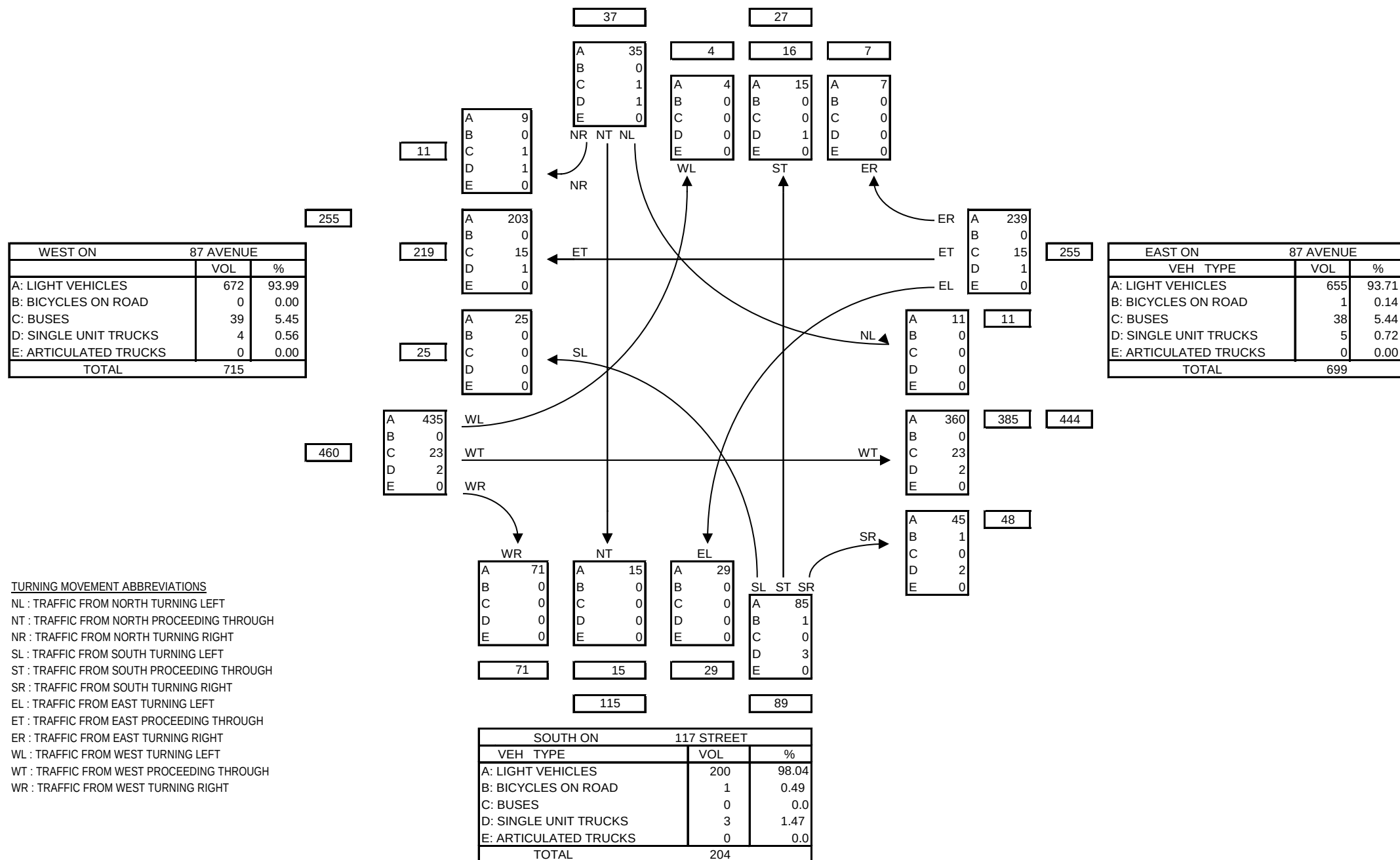
NL : TRAFFIC FROM NORTH TURNING LEFT
 NT : TRAFFIC FROM NORTH PROCEEDING THROUGH
 NR : TRAFFIC FROM NORTH TURNING RIGHT
 SL : TRAFFIC FROM SOUTH TURNING LEFT
 ST : TRAFFIC FROM SOUTH PROCEEDING THROUGH
 SR : TRAFFIC FROM SOUTH TURNING RIGHT
 EL : TRAFFIC FROM EAST TURNING LEFT
 ET : TRAFFIC FROM EAST PROCEEDING THROUGH
 ER : TRAFFIC FROM EAST TURNING RIGHT
 WL : TRAFFIC FROM WEST TURNING LEFT
 WT : TRAFFIC FROM WEST PROCEEDING THROUGH
 WR : TRAFFIC FROM WEST TURNING RIGHT

TURNING MOVEMENT SUMMARY DIAGRAM

INTERSECTION OF: 87 AVENUE & 117 STREET, EDMONTON

DAY & DATE OF COUNT: THURSDAY, APRIL 04, 2024

OBSERVED AM PEAK HOUR TRAFFIC VOLUMES (7:30 - 8:30)

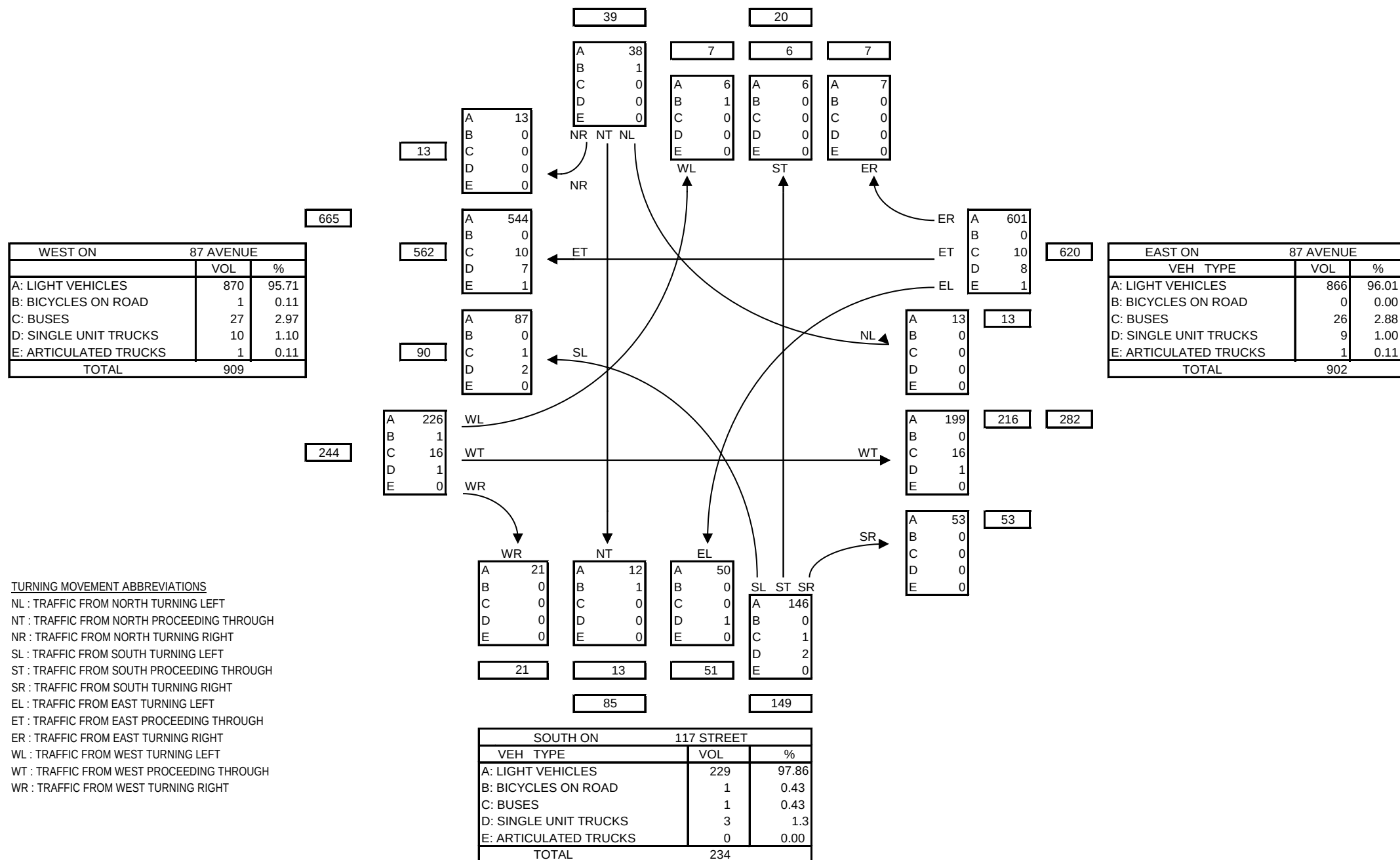


TURNING MOVEMENT SUMMARY DIAGRAM

INTERSECTION OF: 87 AVENUE & 117 STREET, EDMONTON

DAY & DATE OF COUNT: THURSDAY, APRIL 04, 2024

OBSERVED PM PEAK HOUR TRAFFIC VOLUMES (3:15 - 4:15)



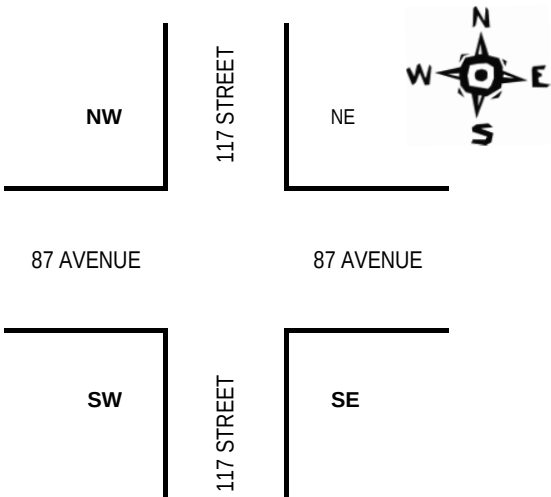
DIRECTIONAL PEDESTRIAN COUNT SUMMARY

LOCATION: 87 AVENUE & 117 STREET, EDMONTON

DATE: THURSDAY, APRIL 04, 2024

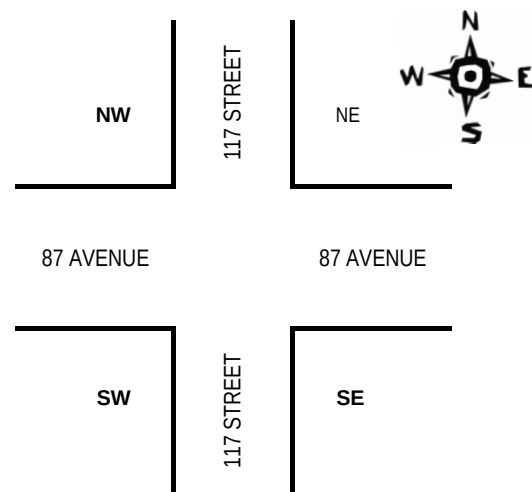
COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

PEDESTRIAN CROSSING		INTERVAL																								SUB- TOTAL
		MIDNIGHT TO 1:00AM	1:00 AM TO 2:00 AM	2:00 AM TO 3:00 AM	3:00 AM TO 4:00 AM	4:00 AM TO 5:00 AM	5:00 AM TO 6:00AM	6:00 AM TO 7:00 AM	7:00 AM TO 8:00 AM	8:00 AM TO 9:00 AM	9:00 AM TO 10:00 AM	10:00 AM TO 11:00 AM	11:00 AM TO NOON	NOON TO 1:00PM	1:00PM TO 2:00 PM	2:00 PM TO 3:00 PM	3:00 PM TO 4:00 PM	4:00 PM TO 5:00 PM	5:00 PM TO 6:00 PM	6:00 PM TO 7:00 PM	7:00 PM TO 8:00 PM	8:00 PM TO 9:00 PM	9:00 PM TO 10:00 PM	10:00 PM TO 11:00 PM	11:00 PM TO MIDNIGHT	
NE CORNER	SE CORNER	15	15	5	1		1	1	4	4		12	8	11	20	9	11	15	13	17	12	14	20	13	8	229
	NW CORNER	1	3					1		2	2	8	5	9	11	4	7	9	9	3	9	4	6	2		95
NW CORNER	SW CORNER							1								1					1	2	1			6
	NE CORNER		3				1		1	9	7	8		5	11	5		6	14		2	9	2	2		85
SE CORNER	NE CORNER	11	15	4			1	2	9	9		7	5	5	9	14	11	16	15	12	12	14	9	3	12	195
	SW CORNER	3		3						3	2		4	3	3	2	1	1	2	6	3	4	14	1	1	56
SW CORNER	NW CORNER		1					1							2						1					5
	SE CORNER							1	1	3	3					1		1				1				11
TOTAL PEDESTRIANS																										682



BICYCLES ON SIDEWALK

LOCATION: 87 AVENUE & 117 STREET, EDMONTON														DATE: THURSDAY, APRIL 04, 2024													
COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)																											
PEDESTRIAN CROSSING FROM TO		INTERVAL																						SUB- TOTAL			
		MIDNIGHT TO 1:00AM	1:00 AM TO 2:00 AM	2:00 AM TO 3:00 AM	3:00 AM TO 4:00 AM	4:00 AM TO 5:00 AM	5:00 AM TO 6:00AM	6:00 AM TO 7:00 AM	7:00 AM TO 8:00 AM	8:00 AM TO 9:00 AM	9:00 AM TO 10:00 AM	10:00 AM TO 11:00 AM	11:00 AM TO NOON	NOON TO 1:00PM	1:00PM TO 2:00 PM	2:00 PM TO 3:00 PM	3:00 PM TO 4:00 PM	4:00 PM TO 5:00 PM	5:00 PM TO 6:00 PM	6:00 PM TO 7:00 PM	7:00 PM TO 8:00 PM	8:00 PM TO 9:00 PM	9:00 PM TO 10:00 PM		10:00 PM TO 11:00 PM	11:00 PM TO MIDNIGHT	
NE CORNER	SE CORNER																1		1			1			3		
	NW CORNER																			2					2		
NW CORNER	SW CORNER																										
	NE CORNER																					1			1		
SE CORNER	NE CORNER								1			1	3			1		2			1				9		
	SW CORNER								1								1					2			4		
SW CORNER	NW CORNER											1													1		
	SE CORNER								1	1						1	1								4		
TOTAL BICYCLES ON SIDEWALK																						24					



DIRECTIONAL TRAFFIC COUNT SUMMARY

HIGHWAY: REFERENCE NO.: INTERSECTION OF: 87 AVENUE & 116 STREET, EDMONTON
LATITUDE (degrees): 53.522955 LONGITUDE (degrees): -113.530670 LEGAL DESCRIPTION:
DAY & DATE OF COUNT: THURSDAY, SEPTEMBER 28, 2023 COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

	APPROACHING INTERSECTION																									
INTERVAL	FROM THE EAST ON 87 AVENUE												FROM THE WEST ON 87 AVENUE												TOTALS	
	LEFT				THROUGH				RIGHT				LEFT				THROUGH				RIGHT					
MIDNIGHT - 0:15					7	2							4						5							18
0:15 - 0:30					8	1							1						1	2						13
0:30 - 0:45					7								2						4							13
0:45 - 1:00					11								1						5							17
1:00 - 1:15					8		1						2			1			4		1	1				18
1:15 - 1:30					5		1						3						3							12
1:30 - 1:45					6								1						2							9
1:45 - 2:00					3								2						1							6
2:00 - 2:15					3											1			3							7
2:15 - 2:30							1						3						2							6
2:30 - 2:45					6		1						1						2		1					11
2:45 - 3:00					1								1						3							5
3:00 - 3:15					2								1						2							5
3:15 - 3:30					1								4						1							6
3:30 - 3:45																			1							1
3:45 - 4:00					2								2						2							6
4:00 - 4:15																			2		1					3
4:15 - 4:30													2						2		1					5
4:30 - 4:45													1						5							6
4:45 - 5:00							2						2						5		1	1				11
5:00 - 5:15					2								1						7							10
5:15 - 5:30					5			1					3						17		1					27
5:30 - 5:45					10	2	1						9						22		1	1				46
5:45 - 6:00					6								10				2		31		3	1				53
6:00 - 6:15					9	2	2						16		1			1	34		1	2				68
6:15 - 6:30					22								19		2			3	75		3	3				127
6:30 - 6:45					31	3	1						26		1		1	1	115		6					185
6:45 - 7:00					45	1	2						49					5	146		3	2				253
7:00 - 7:15					50	3	1						79		1			5	80		2	1				222
7:15 - 7:30					51	1	2						117		1			5	106		5	4				292
7:30 - 7:45					50	2							129		4			15	109		6	2				318
7:45 - 8:00					47	5	4						123		1		1	16	111		4	2				315
8:00 - 8:15					68	1							91		1	2	1	10	82		2	4				264
8:15 - 8:30					63	2	1						98		2			8	92		6	1				275
8:30 - 8:45					47	6	2						121		1			10	96		8	4				301
8:45 - 9:00					53	6	4						141		2			11	80		6	6				309
9:00 - 9:15					38	5	1						134		2			14	78		6	3				283
9:15 - 9:30					51	3							99		1	1		9	75		6					245
9:30 - 9:45					46	1	1						77			1		5	63		3	1				198
9:45 - 10:00					56	3	1						58		5	1		6	48		6	3				187
10:00 - 10:15					28	2	4						65			1		6	61		1					169
10:15 - 10:30					39	1	3						75		1	3		10	63		2	3				202
10:30 - 10:45					53	2	1						80					7	78		4	6				233
10:45 - 11:00					53	2	3						99		1		1	3	59		4	1				239
11:00 - 11:15					65	4	3						65		1			5	43		1	2				189
11:15 - 11:30					54		3						51		1	2		6	45		2	1				165
11:30 - 11:45					48	2	1						59		2			2	69		3	3				189
11:45 - 12:00 PM					59	3	3						60		1			1	68		4					203
12:00 - 12:15					65	3	1						60					10	37			1				177
12:15 - 12:30					64	1	1						70		2			4	67		3	2				215
12:30 - 12:45					68	4							66		2			6	61		5					212
12:45 - 1:00					65	3	1						55		1	1		7	54		2	2				191
1:00 - 1:15					63	4							48		1			6	52			2				180
1:15 - 1:30					51								66					5	44		3					169
1:30 - 1:45					58	2	1						75		1	1		11	63		2					214
1:45 - 2:00					70	2	2						65		2			13	49		3					206
2:00 - 2:15					85	3	3						56		1			12	61		5	4				231
2:15 - 2:30					68	3	3						46		2	1		3	54		5	2				187
2:30 - 2:45					74	2	2						51					10	56		4	1				200
2:45 - 3:00					95	3							49		1			8	60		6	1				223
3:00 - 3:15					89	4							44		4	1		3	58		3	1				207
3:15 - 3:30					113	3	1						59		1	1		1	57		2	1				239
3:30 - 3:45					129	4	4	2					53				1	2	57		1	1				255
3:45 - 4:00					140	5	4						71		1	3	1	6	78		5	1				315
4:00 - 4:15					130	4	2						57				1	4	53		3	2				256
4:15 - 4:30					115	4	1	1					59					3	63		3	2				251
4:30 - 4:45					118	2		1					73			1	1	6	83		4	1				289
4:45 - 5:00					110	4	2						50		1	1		8	85		3					264
5:00 - 5:15					110	1		1					58				1	7	83		3	1				265
5:15 - 5:30					109	5	1						55					4	78		3					255
5:30 - 5:45					92	2							56		1			6	59		2					218
5:45 - 6:00					77	2							62					6	65		3					215
6:00 - 6:15					63	1	3	1					63		1			5	52		2					191
6:15 - 6:30					55	2	2						46					6	56		5					172
6:30 - 6:45					61	3							54		</											

DIRECTIONAL TRAFFIC COUNT SUMMARY

HIGHWAY: REFERENCE NO.: INTERSECTION OF: 87 AVENUE & 116 STREET, EDMONTON
LATITUDE (degrees): 53.522955 **LONGITUDE (degrees):** -113.530670 **LEGAL DESCRIPTION:**
DAY & DATE OF COUNT: THURSDAY, SEPTEMBER 28, 2023 **COUNT DURATION:** 24 HOURS (MIDNIGHT TO MIDNIGHT)

INTERVAL	APPROACHING INTERSECTION															TOTALS	GRAND TOTALS															
	FROM THE NORTH ON 116 STREET					FROM THE SOUTH ON WALKWAY																										
	LEFT	THROUGH	RIGHT	LEFT	THROUGH	RIGHT	LEFT	THROUGH	RIGHT	LEFT	THROUGH	RIGHT	LEFT	THROUGH	RIGHT																	
MIDNIGHT - 0:15	10					2										12	30															
0:15 - 0:30	3															3	16															
0:30 - 0:45	9							1							1	11	24															
0:45 - 1:00	2							1								4	21															
1:00 - 1:15	5															5	23															
1:15 - 1:30	3					1										4	16															
1:30 - 1:45																	9															
1:45 - 2:00																	6															
2:00 - 2:15																	7															
2:15 - 2:30	1															1	7															
2:30 - 2:45	6															6	17															
2:45 - 3:00						1										1	6															
3:00 - 3:15	1															1	6															
3:15 - 3:30																	6															
3:30 - 3:45	1					1										2	3															
3:45 - 4:00																	6															
4:00 - 4:15	1															1	4															
4:15 - 4:30																	5															
4:30 - 4:45	1															1	7															
4:45 - 5:00																	11															
5:00 - 5:15																	10															
5:15 - 5:30	4					1										5	32															
5:30 - 5:45	3															3	49															
5:45 - 6:00	3							1							1	5	58															
6:00 - 6:15	2	1														3	71															
6:15 - 6:30	9	1				1										11	138															
6:30 - 6:45	24					4										28	213															
6:45 - 7:00	27		1			2										30	283															
7:00 - 7:15	18	1				1		1								21	243															
7:15 - 7:30	32	1				1		1								35	327															
7:30 - 7:45	40	3	1			4										48	366															
7:45 - 8:00	56	1				5		1							1	64	379															
8:00 - 8:15	48	1				1	1	2								52	316															
8:15 - 8:30	26					5		1							1	32	307															
8:30 - 8:45	28	2	1			1	1	2								35	336															
8:45 - 9:00	32	1	2			2		1								38	347															
9:00 - 9:15	44	1	1			4		1	1							51	334															
9:15 - 9:30	49	1				8										58	303															
9:30 - 9:45	41	2	1			7										51	249															
9:45 - 10:00	23	1			1	2										27	214															
10:00 - 10:15	36	2	2			3	1									44	213															
10:15 - 10:30	29	2				5		1								37	239															
10:30 - 10:45	36	1	2			5		1								45	278															
10:45 - 11:00	59	1	4			10									1	75	314															
11:00 - 11:15	51	2	1			7		1							2	66	255															
11:15 - 11:30	41					7									1	49	214															
11:30 - 11:45	29	1				2									1	33	222															
11:45-12:00 PM	33	2				10										45	248															
12:00 - 12:15	32					8										40	217															
12:15 - 12:30	65	2	1	1		14		1							1	85	300															
12:30 - 12:45	104					10										115	327															
12:45 - 1:00	38	1	1			6			1							47	238															
1:00 - 1:15	48	2	1			2	1								1	56	236															
1:15 - 1:30	49	1	1			6			1							58	227															
1:30 - 1:45	62					10									1	73	287															
1:45 - 2:00	81	1	2	1		8		1								94	300															
2:00 - 2:15	107	1	1			13	1									123	354															
2:15 - 2:30	62	1	1	1		9										74	261															
2:30 - 2:45	58	1	2	2		10		1								74	274															
2:45 - 3:00	60	1				1			1							63	286															
3:00 - 3:15	78					16										94	301															
3:15 - 3:30	84	1	3			14		1								103	342															
3:30 - 3:45	118	2	2			27	1									150	405															
3:45 - 4:00	80					17										97	412															
4:00 - 4:15	72	2	1			22										97	353															
4:15 - 4:30	86	1	2			8			1							98	349															
4:30 - 4:45	105	1				14										121	410															
4:45 - 5:00	81			1		21		1							1	105	369															
5:00 - 5:15	120	1				20										141	406															
5:15 - 5:30	93		3			6			1							103	358															
5:30 - 5:45	74					7										81	299															
5:45 - 6:00	75					6			1							82	297															
6:00 - 6:15	97		1			8										107	298															
6:15 - 6:30	76					6			1							83	255															
6:30 - 6:45	69					4			1							74	262															
6:45 - 7:00	65					7										72	242															
7:00 - 7:15	61					4										65	233															
7:15 - 7:30	57					4										61	299															
7:30 - 7:45	43		1			4									1	51	229															
7:45 - 8:00	59					2										61	211															
8:00 - 8:15	40					5										45	164															
8:15 - 8:30	57					4				1					1	63	181															
8:30 - 8:45	59					8										67	184															
8:45 - 9:00	34					3			1						1	39	150															
9:00 - 9:15	35					5										40	119															
9:15 - 9:30	31					1										32	109															
9:30 - 9:45	40					3										43	133															
9:45 - 10:00	20					1										21	79															
10:00 - 10:15	15															15	61															
10:15 - 10:30	19															19	64															
10:30 - 10:45	11			1		1										13	59															
10:45 - 11:00	30					6			1							37	178															
11:00 - 11:15	16					1										17	95															
11:15 - 11:30	4					3										7	51															
11:30 - 11:45	4					1										5	26															
11:45-MIDNIGHT	3															4	32															
VEH CLASS	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E		
TOTALS	3643	23	54	16						7	460	6	11	14	5						1	11									4258	18110
	NL					NT					NR					SL					ST					SR						

LOCATION DIAGRAM ENCLOSED (Y / N): NO
 WEATHER CONDITIONS: MOSTLY SUNNY, LIGHT RAIN AFTER 7:00 PM
 RECORDER(S): MOVISION CAMERAS - TROY PEACOCK
 COMMENTS: BICYCLES AND E-SCOOTERS WERE MONITORED AS IF THERE WAS A SOUTH LEG (*AFFECTS NT/EL/WR/SL/ST/SR). BROADWAY SHOW AT JUBILEE AUDITORIUM AT NIGHT MAY HAVE IMPACTED TRAFFIC VOLUMES

VEHICLE CLASSES
 A: LIGHT VEHICLES B: BUSES C: TRUCKS
 D: BICYCLES ON ROAD E: E-SCOOTERS

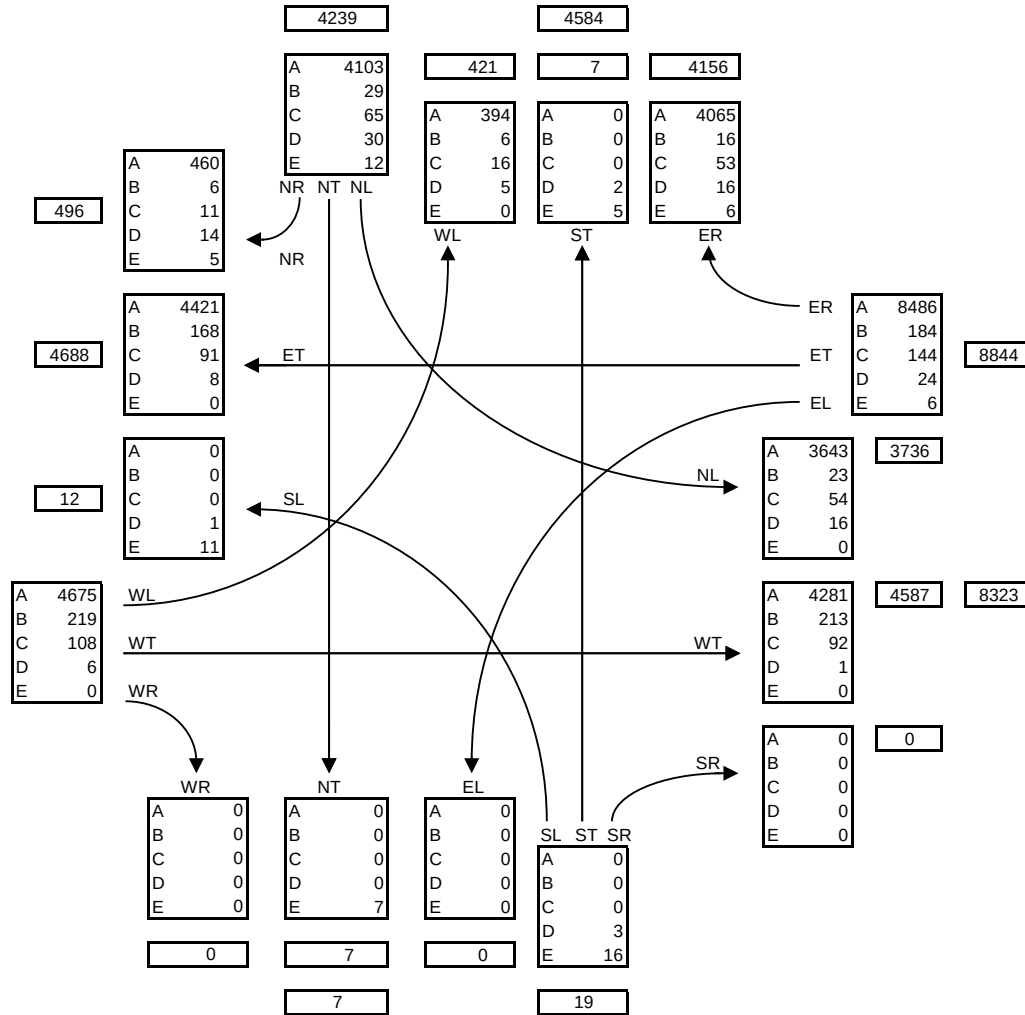
TURNING MOVEMENT SUMMARY DIAGRAM

INTERSECTION OF: 87 AVENUE & 116 STREET, EDMONTON

DAY & DATE OF COUNT: THURSDAY, SEPTEMBER 28, 2023
COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

OBSERVED 24 HOURS TRAFFIC VOLUMES

WEST ON 87 AVENUE		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	9556	93.65
B: BUSES	393	3.85
C: TRUCKS	210	2.06
D: BICYCLES ON ROAD	29	0.28
E: E-SCOOTERS	16	0.16
TOTAL	10204	



TURNING MOVEMENT ABBREVIATIONS

NL : TRAFFIC FROM NORTH TURNING LEFT
NT : TRAFFIC FROM NORTH PROCEEDING THROUGH
NR : TRAFFIC FROM NORTH TURNING RIGHT
SL : TRAFFIC FROM SOUTH TURNING LEFT
ST : TRAFFIC FROM SOUTH PROCEEDING THROUGH
SR : TRAFFIC FROM SOUTH TURNING RIGHT
EL : TRAFFIC FROM EAST TURNING LEFT
ET : TRAFFIC FROM EAST PROCEEDING THROUGH
ER : TRAFFIC FROM EAST TURNING RIGHT
WL : TRAFFIC FROM WEST TURNING LEFT
WT : TRAFFIC FROM WEST PROCEEDING THROUGH
WR : TRAFFIC FROM WEST TURNING RIGHT

SOUTH ON WALKWAY		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	0	0.00
B: BUSES	0	0.00
C: TRUCKS	0	0.00
D: BICYCLES ON ROAD	3	11.54
E: E-SCOOTERS	23	88.46
TOTAL	26	

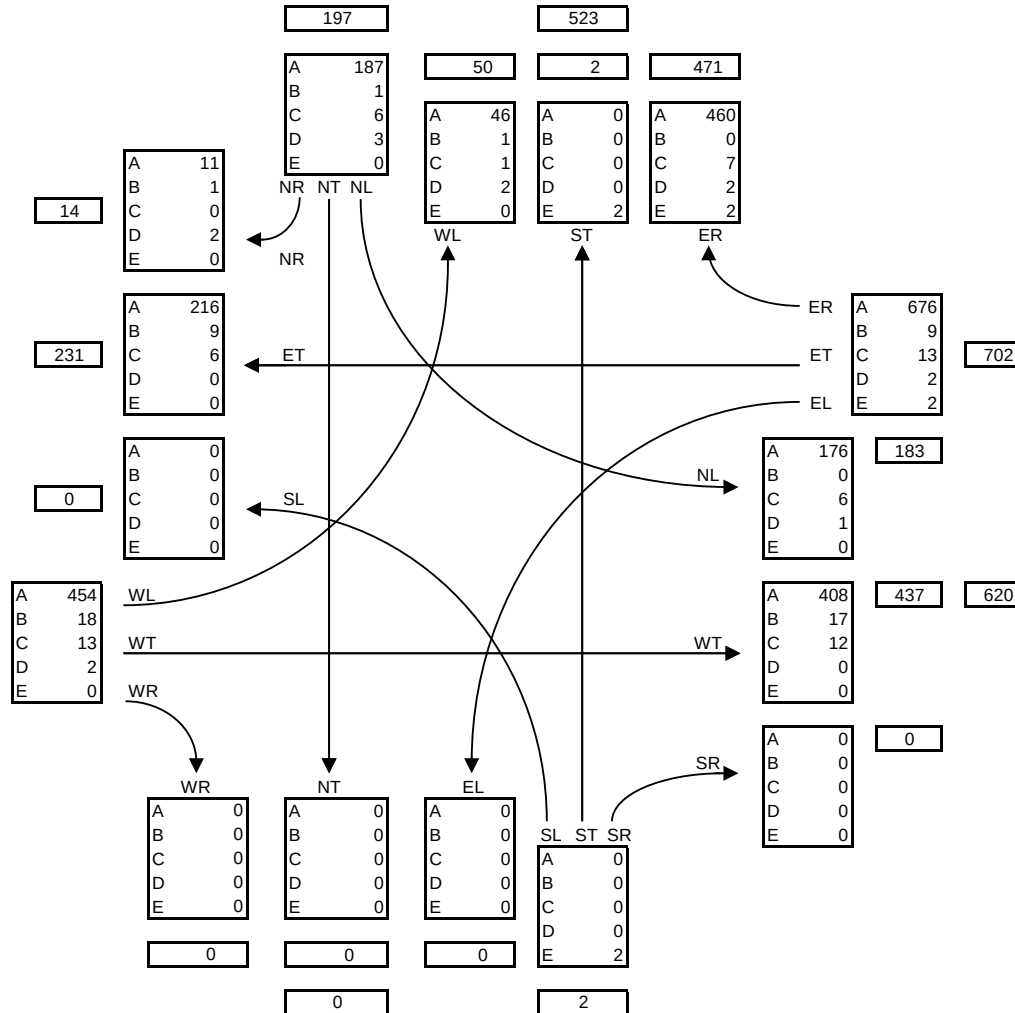
TURNING MOVEMENT SUMMARY DIAGRAM

INTERSECTION OF: 87 AVENUE & 116 STREET, EDMONTON

DAY & DATE OF COUNT: THURSDAY, SEPTEMBER 28, 2023

OBSERVED AM PEAK HOUR TRAFFIC VOLUMES (7:15 - 8:15)

WEST ON 87 AVENUE		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	681	93.03
B: BUSES	28	3.83
C: TRUCKS	19	2.60
D: BICYCLES ON ROAD	4	0.55
E: E-SCOOTERS	0	0.00
TOTAL	732	



TURNING MOVEMENT ABBREVIATIONS

NL : TRAFFIC FROM NORTH TURNING LEFT
 NT : TRAFFIC FROM NORTH PROCEEDING THROUGH
 NR : TRAFFIC FROM NORTH TURNING RIGHT
 SL : TRAFFIC FROM SOUTH TURNING LEFT
 ST : TRAFFIC FROM SOUTH PROCEEDING THROUGH
 SR : TRAFFIC FROM SOUTH TURNING RIGHT
 EL : TRAFFIC FROM EAST TURNING LEFT
 ET : TRAFFIC FROM EAST PROCEEDING THROUGH
 ER : TRAFFIC FROM EAST TURNING RIGHT
 WL : TRAFFIC FROM WEST TURNING LEFT
 WT : TRAFFIC FROM WEST PROCEEDING THROUGH
 WR : TRAFFIC FROM WEST TURNING RIGHT

SOUTH ON WALKWAY		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	0	0.00
B: BUSES	0	0.00
C: TRUCKS	0	0.0
D: BICYCLES ON ROAD	0	0.00
E: E-SCOOTERS	2	100.0
TOTAL	2	

EAST ON 87 AVENUE		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	1260	95.31
B: BUSES	26	1.97
C: TRUCKS	31	2.34
D: BICYCLES ON ROAD	3	0.23
E: E-SCOOTERS	2	0.15
TOTAL	1322	

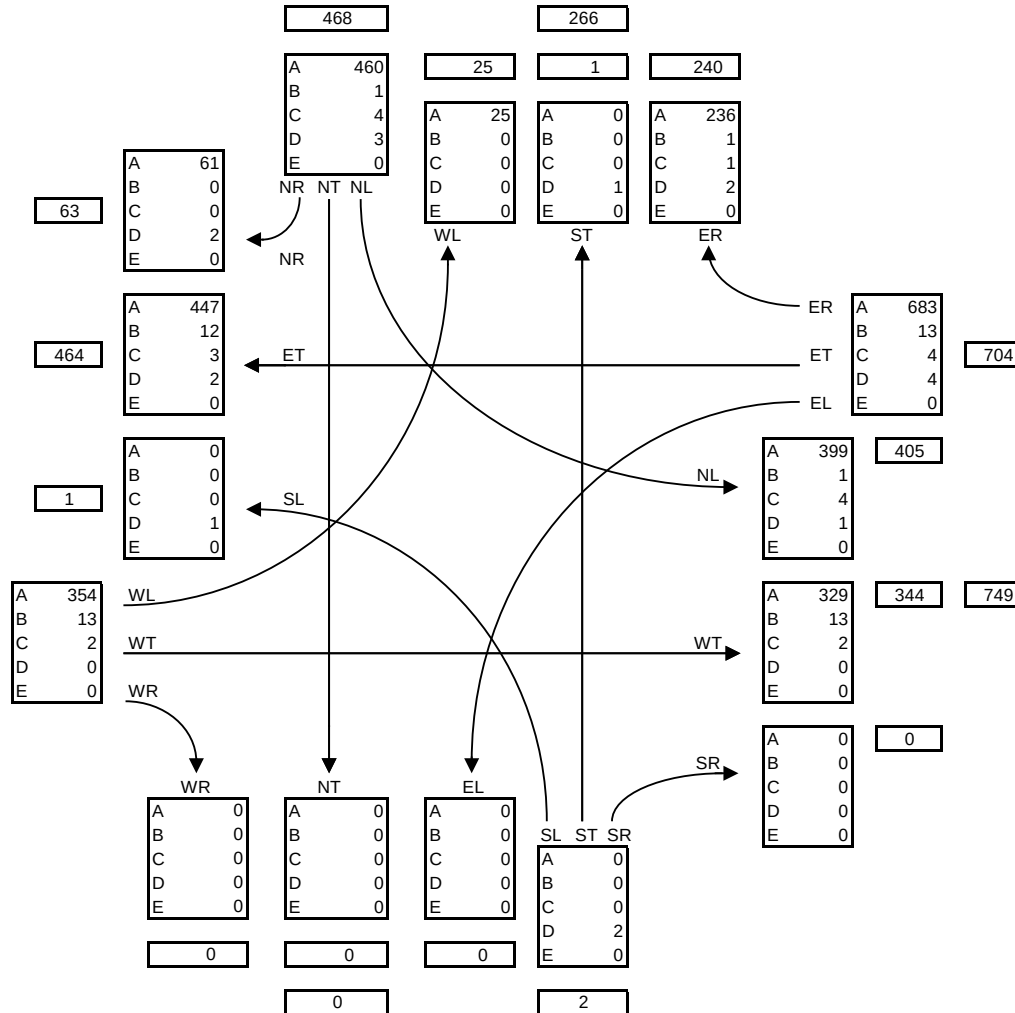
TURNING MOVEMENT SUMMARY DIAGRAM

INTERSECTION OF: 87 AVENUE & 116 STREET, EDMONTON

DAY & DATE OF COUNT: THURSDAY, SEPTEMBER 28, 2023

OBSERVED PM PEAK HOUR TRAFFIC VOLUMES (4:30 - 5:30)

WEST ON 87 AVENUE		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	862	96.10
B: BUSES	25	2.79
C: TRUCKS	5	0.56
D: BICYCLES ON ROAD	5	0.56
E: E-SCOOTERS	0	0.00
TOTAL	897	



TURNING MOVEMENT ABBREVIATIONS

NL : TRAFFIC FROM NORTH TURNING LEFT
 NT : TRAFFIC FROM NORTH PROCEEDING THROUGH
 NR : TRAFFIC FROM NORTH TURNING RIGHT
 SL : TRAFFIC FROM SOUTH TURNING LEFT
 ST : TRAFFIC FROM SOUTH PROCEEDING THROUGH
 SR : TRAFFIC FROM SOUTH TURNING RIGHT
 EL : TRAFFIC FROM EAST TURNING LEFT
 ET : TRAFFIC FROM EAST PROCEEDING THROUGH
 ER : TRAFFIC FROM EAST TURNING RIGHT
 WL : TRAFFIC FROM WEST TURNING LEFT
 WT : TRAFFIC FROM WEST PROCEEDING THROUGH
 WR : TRAFFIC FROM WEST TURNING RIGHT

SOUTH ON WALKWAY		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	0	0.00
B: BUSES	0	0.00
C: TRUCKS	0	0.00
D: BICYCLES ON ROAD	2	100.0
E: E-SCOOTERS	0	0.00
TOTAL	2	

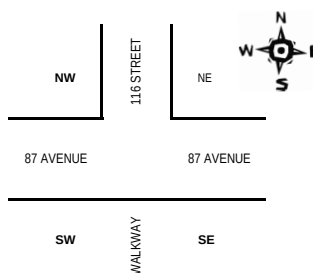
DIRECTIONAL PEDESTRIAN COUNT SUMMARY

LOCATION: 87 AVENUE & 116 STREET, EDMONTON

DATE: THURSDAY, SEPTEMBER 28, 2023

COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

PEDESTRIAN CROSSING		INTERVAL																								SUB- TOTAL
		MIDNIGHT TO 1:00AM	1:00 AM TO 2:00 AM	2:00 AM TO 3:00 AM	3:00 AM TO 4:00 AM	4:00 AM TO 5:00 AM	5:00 AM TO 6:00AM	6:00 AM TO 7:00 AM	7:00 AM TO 8:00 AM	8:00 AM TO 9:00 AM	9:00 AM TO 10:00 AM	10:00 AM TO 11:00 AM	11:00 AM TO NOON	NOON TO 1:00PM	1:00PM TO 2:00 PM	2:00 PM TO 3:00 PM	3:00 PM TO 4:00 PM	4:00 PM TO 5:00 PM	5:00 PM TO 6:00 PM	6:00 PM TO 7:00 PM	7:00 PM TO 8:00 PM	8:00 PM TO 9:00 PM	9:00 PM TO 10:00 PM	10:00 PM TO 11:00 PM	11:00 PM TO MIDNIGHT	
FROM	TO																									
NE CORNER	SE CORNER	6	3		2			1	6	9	35	83	38	76	58	57	65	68	64	42	61	19	9	6	1	709
	NW CORNER	8	3					1	10	4	22	18	21	35	35	44	51	31	34	31	20	21	20	10	10	429
NW CORNER	SW CORNER	16	6	1	1	1	6	7	10	1	31	27	27	39	41	34	55	35	42	27	34	19	31	18	25	534
	NE CORNER	1	1				9	8	19	16	9	10	8	32	16	13	9	21	10	11	25	8	3	5	7	241
SE CORNER	NE CORNER		3				2		115	17	50	53	26	92	89	55	26	22	26	11	2	14	11	25	3	642
	SW CORNER	18	4	1	3	1	6	10	10	7	3	5	20	26	27	31	27	31	25	45	8	12	3	15	11	349
SW CORNER	NW CORNER	20	5	1	2	2	7	9	55	15	15	24	17	28	36	33	25	26	19	35	11	6	16	35	36	478
	SE CORNER	4	7	1	2		10	2	20	22	33	22	13	37	27	25	31	19	22	19	18	10	4	4	7	359
TOTAL PEDESTRIANS																									3741	



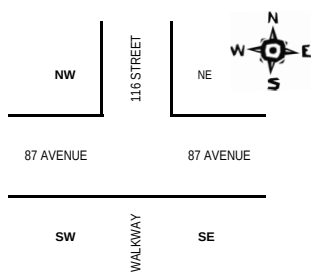
BICYCLES AND E-SCOOTERS ON SIDEWALK

LOCATION: 87 AVENUE & 116 STREET, EDMONTON

DATE: THURSDAY, SEPTEMBER 28, 2023

COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

PEDESTRIAN CROSSING		INTERVAL																								SUB-TOTAL
FROM	TO	MIDNIGHT TO 1:00AM	1:00 AM TO 2:00 AM	2:00 AM TO 3:00 AM	3:00 AM TO 4:00 AM	4:00 AM TO 5:00 AM	5:00 AM TO 6:00AM	6:00 AM TO 7:00 AM	7:00 AM TO 8:00 AM	8:00 AM TO 9:00 AM	9:00 AM TO 10:00 AM	10:00 AM TO 11:00 AM	11:00 AM TO NOON	NOON TO 1:00PM	1:00PM TO 2:00 PM	2:00 PM TO 3:00 PM	3:00 PM TO 4:00 PM	4:00 PM TO 5:00 PM	5:00 PM TO 6:00 PM	6:00 PM TO 7:00 PM	7:00 PM TO 8:00 PM	8:00 PM TO 9:00 PM	9:00 PM TO 10:00 PM	10:00 PM TO 11:00 PM	11:00 PM TO MIDNIGHT	
NE CORNER	SE CORNER										1			2		1	1		2							7
	NW CORNER												1					1	2			1				5
NW CORNER	SW CORNER								3	1	1		1	1			2	2	6							18
	NE CORNER												1				1									2
SE CORNER	NE CORNER									1	2	1	1	2		1			2	3						13
	SW CORNER								1	1	1								2	1						6
SW CORNER	NW CORNER								1		1				1		2	1								6
	SE CORNER								1	2	1			1			1		5	1						12
TOTAL BICYCLES AND E-SCOOTERS ON SIDEWALK																										69



DIRECTIONAL TRAFFIC COUNT SUMMARY

HIGHWAY: REFERENCE NO.: INTERSECTION OF: 87 AVE & ALLEY W. OF 116 ST, EDMONTON
LATITUDE (degrees): 53.522955 **LONGITUDE (degrees):** -113.530665 **LEGAL DESCRIPTION:**
DAY & DATE OF COUNT: THURSDAY, SEPTEMBER 28, 2023 **COUNT DURATION:** 24 HOURS (MIDNIGHT TO MIDNIGHT)

	APPROACHING INTERSECTION																								
	FROM THE EAST ON 87 AVENUE												FROM THE WEST ON 87 AVENUE												
INTERVAL	LEFT				THROUGH				RIGHT				LEFT				THROUGH				RIGHT				TOTALS
MIDNIGHT - 0:15					10	1	1									5									17
0:15 - 0:30					8	1										2	2								13
0:30 - 0:45					7											3									10
0:45 - 1:00					10											4									14
1:00 - 1:15					8		1									4		1	1						15
1:15 - 1:30					6		1									3									10
1:30 - 1:45					5						1					2									8
1:45 - 2:00					3											1									4
2:00 - 2:15					3											4									7
2:15 - 2:30							1									2									3
2:30 - 2:45					6											2		1							9
2:45 - 3:00					1						1					3									5
3:00 - 3:15					2											2									4
3:15 - 3:30					1											1									2
3:30 - 3:45					1											1									2
3:45 - 4:00					2											2									4
4:00 - 4:15																2		1							3
4:15 - 4:30																2		1							3
4:30 - 4:45																5									5
4:45 - 5:00							1									5		1	1						8
5:00 - 5:15					2											7									9
5:15 - 5:30					6											17		1							25
5:30 - 5:45					8	2					2		1			21		1	1						36
5:45 - 6:00					6											31		3	1						41
6:00 - 6:15					8	1	3				1					36		1	3						53
6:15 - 6:30					23											77		3	3						106
6:30 - 6:45					30	3	1				4					117		6	1						162
6:45 - 7:00					43	1	2				2					154		4	2						208
7:00 - 7:15					48	3	1				3					84		2							141
7:15 - 7:30					49	1	2				6			1		111		10							180
7:30 - 7:45					55	2					1			1		123		5	3	1					192
7:45 - 8:00					53	5	3				1			1		128		4	2						198
8:00 - 8:15					65	3					4			1		93		3	4						173
8:15 - 8:30					68	2	2				1			1		100		7	3						184
8:30 - 8:45					46	7	4				2			1		106		8	7	1					182
8:45 - 9:00					53	6	3				3			2		90		6	6						169
9:00 - 9:15					38	5	1				4		1	4		91		6	3						154
9:15 - 9:30					56	3					1			1		85		6							152
9:30 - 9:45					53	1	1				1			1		73		3							133
9:45 - 10:00					56	3	1				2					52		6	5						125
10:00 - 10:15					31	3	3				2		1			67		2	3						112
10:15 - 10:30					41	1	4				3			1		69		2	4						125
10:30 - 10:45					56	2	2				2		1			83		4	7						161
10:45 - 11:00					59	2	3				5					72		3	2	1					148
11:00 - 11:15					66	5	2				7			1		48		1	1						131
11:15 - 11:30					59		3				2			2		53		2	1						122
11:30 - 11:45					47	2	1				4					65		3	2						124
11:45 - 12:00 PM					67	3	3				2					69		4							148
12:00 - 12:15					74	2	1				1					48		1							127
12:15 - 12:30					75	1	2				3			1		77		3	2						164
12:30 - 12:45					75	4					6		1	1		68		6	1						162
12:45 - 1:00					67	3	1				5			2		61		2	2						143
1:00 - 1:15					63	5					4					56		1	5	1					135
1:15 - 1:30					55						2					48		3	1						109
1:30 - 1:45					66	2	1				3					77		2							151
1:45 - 2:00					73	2	2				4		1			57		4							143
2:00 - 2:15					92	4	3				5			1		71		5	4						185
2:15 - 2:30					73	3	3				6			1		57		4	3						150
2:30 - 2:45					80	2	3				3					62		5	1						156
2:45 - 3:00					94	3		1			3					69		5	1						176
3:00 - 3:15					107	3		1			5					61		3	1						181
3:15 - 3:30					121	3	1				11			1		62		2	1						202
3:30 - 3:45					150	3	3				7		2			60		2	1						228
3:45 - 4:00					155	4	5				4					77		5	1						251
4:00 - 4:15					149	4	1				4		1		2	56		3	2						222
4:15 - 4:30					119	4	2	2			4					67		3	2						203
4:30 - 4:45					131	2		2			3					89		4	2						233
4:45 - 5:00					128	4	2	1			3					95		3							236
5:00 - 5:15					130	1		1			4					82		3	1						222
5:15 - 5:30					115	5		1			3					81		3							208
5:30 - 5:45					98	2					1			1		66		2							170
5:45 - 6:00					80	2		1			2					71		3							159
6:00 - 6:15					73	2	2	1						1		59		2							140
6:15 - 6:30					54	2	3	1								61		5							126
6:30 - 6:45					65	3	1	1						2		74		3							149
6:45 - 7:00					55						1			1		54		2		1					114
7:00 - 7:15					52	3					2					67									125
7:15 - 7:30					74						4			1		110		3							192
7:30 - 7:45					65	3					3			1		63		1	2						

DIRECTIONAL TRAFFIC COUNT SUMMARY

HIGHWAY: **REFERENCE NO.:** **INTERSECTION OF:** 87 AVE & ALLEY W. OF 116 ST, EDMONTON
LATITUDE (degrees): 53.522955 **LONGITUDE (degrees):** -113.530665 **LEGAL DESCRIPTION:**
DAY & DATE OF COUNT: THURSDAY, SEPTEMBER 28, 2023 **COUNT DURATION:** 24 HOURS (MIDNIGHT TO MIDNIGHT)

INTERVAL	APPROACHING INTERSECTION															TOTALS	GRAND TOTALS															
	FROM THE NORTH ON ALLEY					FROM THE SOUTH ON																										
	LEFT		THROUGH		RIGHT	LEFT		THROUGH			RIGHT																					
MIDNIGHT - 0:15						1											1	18														
0:15 - 0:30																		13														
0:30 - 0:45																		10														
0:45 - 1:00																		14														
1:00 - 1:15	1																1	16														
1:15 - 1:30																		10														
1:30 - 1:45																		8														
1:45 - 2:00																		4														
2:00 - 2:15																		7														
2:15 - 2:30																		3														
2:30 - 2:45																		9														
2:45 - 3:00																		5														
3:00 - 3:15																		4														
3:15 - 3:30																		2														
3:30 - 3:45																		2														
3:45 - 4:00																		4														
4:00 - 4:15																		3														
4:15 - 4:30																		3														
4:30 - 4:45																		5														
4:45 - 5:00																		8														
5:00 - 5:15																		9														
5:15 - 5:30																		25														
5:30 - 5:45	1																1	37														
5:45 - 6:00	1																1	42														
6:00 - 6:15																		53														
6:15 - 6:30	1																1	107														
6:30 - 6:45	1																1	163														
6:45 - 7:00																		208														
7:00 - 7:15						1											1	142														
7:15 - 7:30	1					1											2	182														
7:30 - 7:45	2																2	194														
7:45 - 8:00						1											1	199														
8:00 - 8:15						2											2	175														
8:15 - 8:30																		184														
8:30 - 8:45						1											1	183														
8:45 - 9:00																		169														
9:00 - 9:15																		154														
9:15 - 9:30	1																1	153														
9:30 - 9:45	1																1	134														
9:45 - 10:00	2																2	127														
10:00 - 10:15	1																1	113														
10:15 - 10:30	3																3	128														
10:30 - 10:45	2					1											3	164														
10:45 - 11:00						1											1	149														
11:00 - 11:15	2					1											3	134														
11:15 - 11:30						1											1	123														
11:30 - 11:45	4					3											7	131														
11:45-12:00 PM	2					2											4	152														
12:00 - 12:15						1											1	128														
12:15 - 12:30	1					1											2	166														
12:30 - 12:45	1																1	163														
12:45 - 1:00	4					2											6	149														
1:00 - 1:15	1					1											2	137														
1:15 - 1:30						1											1	110														
1:30 - 1:45	3					1											4	155														
1:45 - 2:00	1					1											2	145														
2:00 - 2:15	4																4	189														
2:15 - 2:30	2																2	152														
2:30 - 2:45	4					1											5	161														
2:45 - 3:00						2											2	178														
3:00 - 3:15	1					1											2	183														
3:15 - 3:30																		202														
3:30 - 3:45	3					3											6	234														
3:45 - 4:00	4					1											5	256														
4:00 - 4:15	3					1											4	226														
4:15 - 4:30	1					4											5	208														
4:30 - 4:45	2					2											4	237														
4:45 - 5:00	2					1											3	239														
5:00 - 5:15	3					3											6	228														
5:15 - 5:30	2					3											5	213														
5:30 - 5:45																		170														
5:45 - 6:00																		159														
6:00 - 6:15	1																1	141														
6:15 - 6:30						1											1	127														
6:30 - 6:45						1											1	150														
6:45 - 7:00						1											1	115														
7:00 - 7:15	1																1	126														
7:15 - 7:30	1																1	193														
7:30 - 7:45	3																3	141														
7:45 - 8:00	1					1											2	109														
8:00 - 8:15	2					1											3	90														
8:15 - 8:30	1					1											2	91														
8:30 - 8:45						5											11	99														
8:45 - 9:00	4																4	83														
9:00 - 9:15						1											1	62														
9:15 - 9:30	2					1											3	61														
9:30 - 9:45						1											1	77														
9:45 - 10:00																		44														
10:00 - 10:15																		42														
10:15 - 10:30	1					1	1										3	41														
10:30 - 10:45																		39														
10:45 - 11:00	1																1	127														
11:00 - 11:15	1					1											2	75														
11:15 - 11:30	1																1	46														
11:30 - 11:45																		20														
11:45-MIDNIGHT	1																1	26														
VEH CLASS	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	TOTALS	GRAND TOTALS
TOTALS	95										62					1															158	10395
	NL					NT					NR					SL					ST					SR						

LOCATION DIAGRAM ENCLOSED (Y / N): NO
 WEATHER CONDITIONS: MOSTLY SUNNY, LIGHT RAIN AFTER 7:00 PM
 RECORDER(S): MOVISION CAMERAS - TROY PEACOCK
 COMMENTS: BROADWAY SHOW AT JUBILEE AUDITORIUM AT NIGHT MAY HAVE IMPACTED TRAFFIC VOLUMES

VEHICLE CLASSES
 A: LIGHT VEHICLES B: BUSES C: TRUCKS
 D: BICYCLES ON ROAD E: E-SCOOTERS

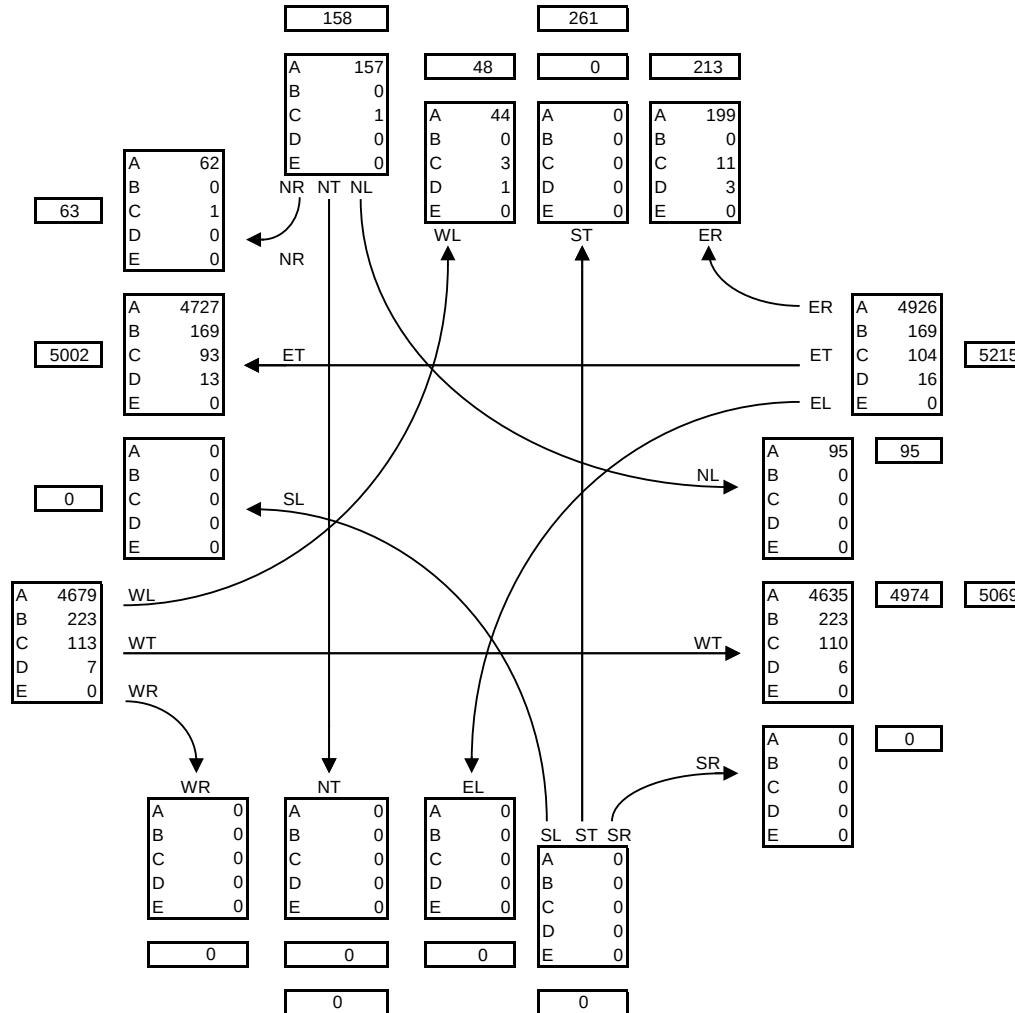
TURNING MOVEMENT SUMMARY DIAGRAM

INTERSECTION OF: 87 AVE & ALLEY W. OF 116 ST, EDMONTON

DAY & DATE OF COUNT: THURSDAY, SEPTEMBER 28, 2023
COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

OBSERVED 24 HOURS TRAFFIC VOLUMES

WEST ON 87 AVENUE		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	9468	93.86
B: BUSES	392	3.89
C: TRUCKS	207	2.05
D: BICYCLES ON ROAD	20	0.20
E: E-SCOOTERS	0	0.00
TOTAL	10087	



TURNING MOVEMENT ABBREVIATIONS

NL : TRAFFIC FROM NORTH TURNING LEFT
NT : TRAFFIC FROM NORTH PROCEEDING THROUGH
NR : TRAFFIC FROM NORTH TURNING RIGHT
SL : TRAFFIC FROM SOUTH TURNING LEFT
ST : TRAFFIC FROM SOUTH PROCEEDING THROUGH
SR : TRAFFIC FROM SOUTH TURNING RIGHT
EL : TRAFFIC FROM EAST TURNING LEFT
ET : TRAFFIC FROM EAST PROCEEDING THROUGH
ER : TRAFFIC FROM EAST TURNING RIGHT
WL : TRAFFIC FROM WEST TURNING LEFT
WT : TRAFFIC FROM WEST PROCEEDING THROUGH
WR : TRAFFIC FROM WEST TURNING RIGHT

SOUTH ON		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	0	0.00
B: BUSES	0	0.00
C: TRUCKS	0	0.00
D: BICYCLES ON ROAD	0	0.00
E: E-SCOOTERS	0	0.00
TOTAL	0	

EAST ON 87 AVENUE		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	9656	93.89
B: BUSES	392	3.81
C: TRUCKS	214	2.08
D: BICYCLES ON ROAD	22	0.21
E: E-SCOOTERS	0	0.00
TOTAL	10284	

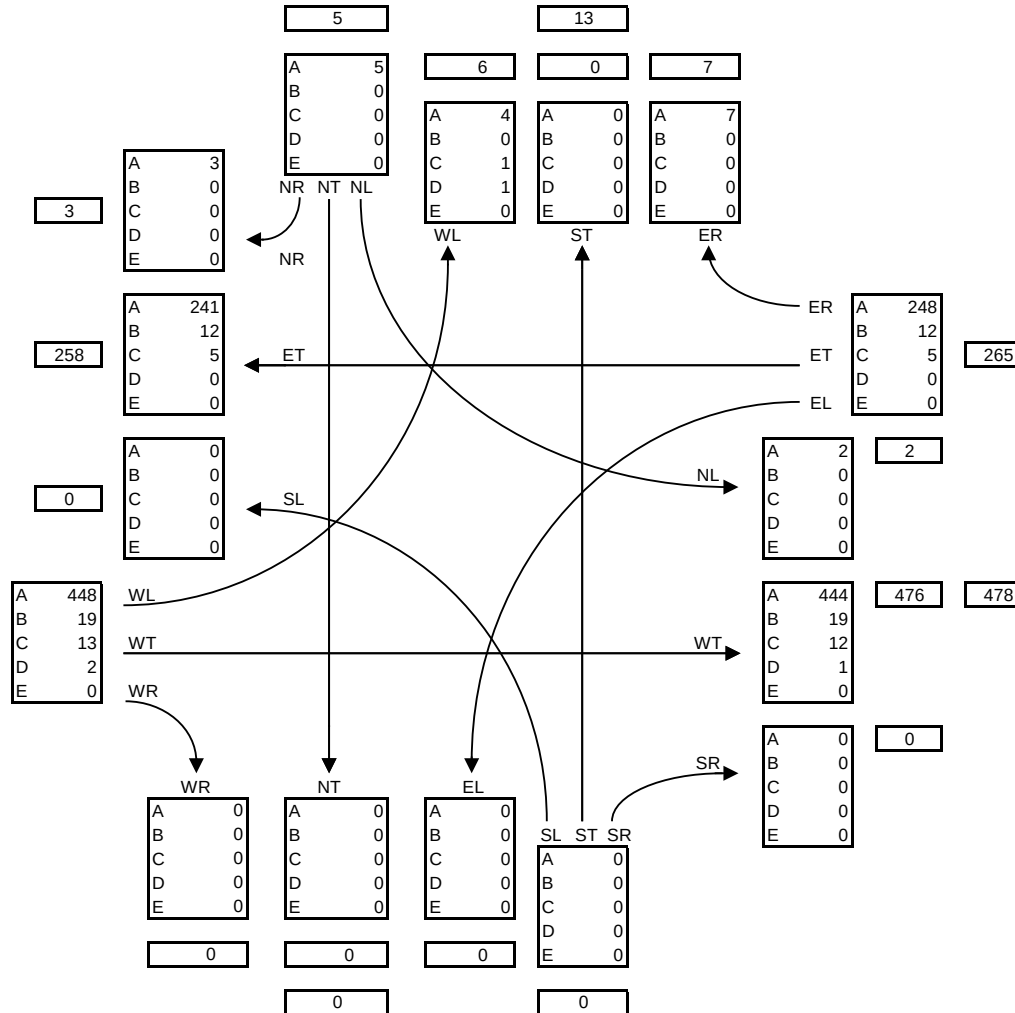
TURNING MOVEMENT SUMMARY DIAGRAM

INTERSECTION OF: 87 AVE & ALLEY W. OF 116 ST, EDMONTON

DAY & DATE OF COUNT: THURSDAY, SEPTEMBER 28, 2023

OBSERVED AM PEAK HOUR TRAFFIC VOLUMES (7:30 - 8:30)

WEST ON 87 AVENUE		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	692	93.14
B: BUSES	31	4.17
C: TRUCKS	18	2.42
D: BICYCLES ON ROAD	2	0.27
E: E-SCOOTERS	0	0.00
TOTAL	743	



TURNING MOVEMENT ABBREVIATIONS

NL : TRAFFIC FROM NORTH TURNING LEFT
 NT : TRAFFIC FROM NORTH PROCEEDING THROUGH
 NR : TRAFFIC FROM NORTH TURNING RIGHT
 SL : TRAFFIC FROM SOUTH TURNING LEFT
 ST : TRAFFIC FROM SOUTH PROCEEDING THROUGH
 SR : TRAFFIC FROM SOUTH TURNING RIGHT
 EL : TRAFFIC FROM EAST TURNING LEFT
 ET : TRAFFIC FROM EAST PROCEEDING THROUGH
 ER : TRAFFIC FROM EAST TURNING RIGHT
 WL : TRAFFIC FROM WEST TURNING LEFT
 WT : TRAFFIC FROM WEST PROCEEDING THROUGH
 WR : TRAFFIC FROM WEST TURNING RIGHT

SOUTH ON		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	0	0.00
B: BUSES	0	0.00
C: TRUCKS	0	0.00
D: BICYCLES ON ROAD	0	0.00
E: E-SCOOTERS	0	0.00
TOTAL	0	

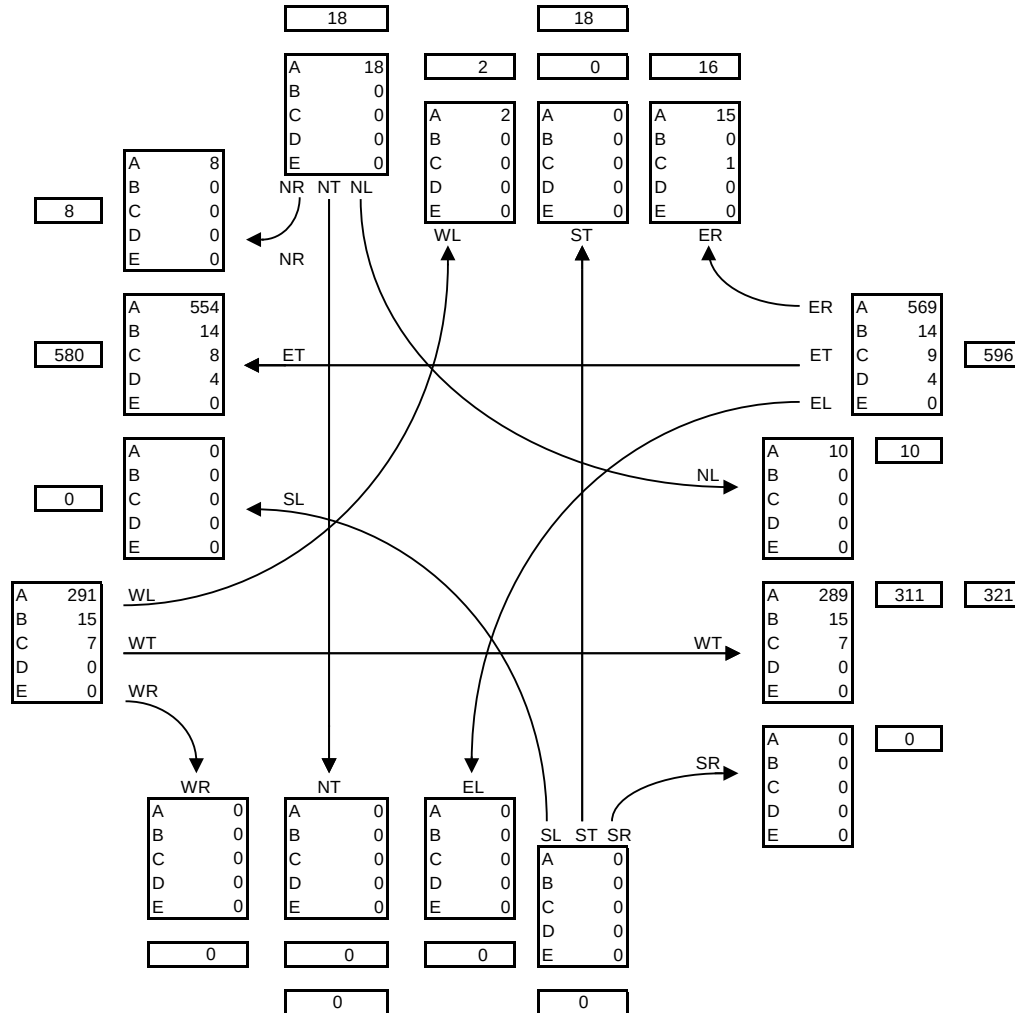
TURNING MOVEMENT SUMMARY DIAGRAM

INTERSECTION OF: 87 AVE & ALLEY W. OF 116 ST, EDMONTON

DAY & DATE OF COUNT: THURSDAY, SEPTEMBER 28, 2023

OBSERVED PM PEAK HOUR TRAFFIC VOLUMES (3:45 - 4:45)

WEST ON 87 AVENUE		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	853	94.67
B: BUSES	29	3.22
C: TRUCKS	15	1.66
D: BICYCLES ON ROAD	4	0.44
E: E-SCOOTERS	0	0.00
TOTAL	901	



TURNING MOVEMENT ABBREVIATIONS

NL : TRAFFIC FROM NORTH TURNING LEFT
 NT : TRAFFIC FROM NORTH PROCEEDING THROUGH
 NR : TRAFFIC FROM NORTH TURNING RIGHT
 SL : TRAFFIC FROM SOUTH TURNING LEFT
 ST : TRAFFIC FROM SOUTH PROCEEDING THROUGH
 SR : TRAFFIC FROM SOUTH TURNING RIGHT
 EL : TRAFFIC FROM EAST TURNING LEFT
 ET : TRAFFIC FROM EAST PROCEEDING THROUGH
 ER : TRAFFIC FROM EAST TURNING RIGHT
 WL : TRAFFIC FROM WEST TURNING LEFT
 WT : TRAFFIC FROM WEST PROCEEDING THROUGH
 WR : TRAFFIC FROM WEST TURNING RIGHT

SOUTH ON		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	0	0.00
B: BUSES	0	0.00
C: TRUCKS	0	0.00
D: BICYCLES ON ROAD	0	0.00
E: E-SCOOTERS	0	0.00
TOTAL	0	

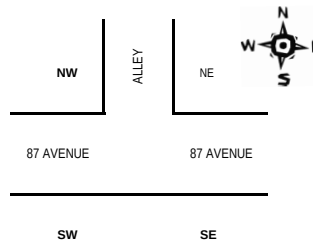
DIRECTIONAL PEDESTRIAN COUNT SUMMARY

LOCATION: 87 AVE & ALLEY W. OF 116 ST, EDMONTON

DATE: THURSDAY, SEPTEMBER 28, 2023

COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

PEDESTRIAN CROSSING		INTERVAL																								SUB- TOTAL
		MIDNIGHT TO 1:00AM	1:00 AM TO 2:00 AM	2:00 AM TO 3:00 AM	3:00 AM TO 4:00 AM	4:00 AM TO 5:00 AM	5:00 AM TO 6:00AM	6:00 AM TO 7:00 AM	7:00 AM TO 8:00 AM	8:00 AM TO 9:00 AM	9:00 AM TO 10:00 AM	10:00 AM TO 11:00 AM	11:00 AM TO NOON	NOON TO 1:00PM	1:00PM TO 2:00 PM	2:00 PM TO 3:00 PM	3:00 PM TO 4:00 PM	4:00 PM TO 5:00 PM	5:00 PM TO 6:00 PM	6:00 PM TO 7:00 PM	7:00 PM TO 8:00 PM	8:00 PM TO 9:00 PM	9:00 PM TO 10:00 PM	10:00 PM TO 11:00 PM	11:00 PM TO MIDNIGHT	
NE CORNER	SE CORNER	10																							4	14
	NW CORNER	17	8		3	2	6	17	11	7	8	11	11	34	9	13	13	22	28	31	13	12	12	26	38	352
NW CORNER	SW CORNER	4	3									1						1	1	5	3			2	1	21
	NE CORNER	25	6		2	1	12	8	12	7	8	9	8	25	6	10	20	14	18	12	28	6	8	16	31	292
SE CORNER	NE CORNER								1			1				1										3
	SW CORNER																									
SW CORNER	NW CORNER	6	2				2	3							1	1	3	1	3		5			1	3	31
	SE CORNER																									
TOTAL PEDESTRIANS																								713		



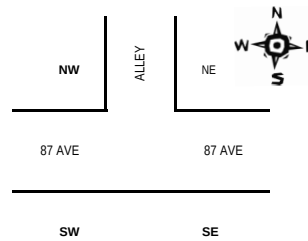
BICYCLES AND E-SCOOTERS ON SIDEWALK

LOCATION: 87 AVE & ALLEY W. OF 116 ST, EDMONTON

DATE: THURSDAY, SEPTEMBER 28, 2023

COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

PEDESTRIAN CROSSING		INTERVAL																								SUB-TOTAL
FROM	TO	MIDNIGHT TO 1:00AM	1:00 AM TO 2:00 AM	2:00 AM TO 3:00 AM	3:00 AM TO 4:00 AM	4:00 AM TO 5:00 AM	5:00 AM TO 6:00AM	6:00 AM TO 7:00 AM	7:00 AM TO 8:00 AM	8:00 AM TO 9:00 AM	9:00 AM TO 10:00 AM	10:00 AM TO 11:00 AM	11:00 AM TO NOON	NOON TO 1:00PM	1:00PM TO 2:00 PM	2:00 PM TO 3:00 PM	3:00 PM TO 4:00 PM	4:00 PM TO 5:00 PM	5:00 PM TO 6:00 PM	6:00 PM TO 7:00 PM	7:00 PM TO 8:00 PM	8:00 PM TO 9:00 PM	9:00 PM TO 10:00 PM	10:00 PM TO 11:00 PM	11:00 PM TO MIDNIGHT	
NE CORNER	SE CORNER																									
	NW CORNER													1			2	1	1	1	1					7
NW CORNER	SW CORNER																									
	NE CORNER						1			1				1			1									4
SE CORNER	NE CORNER																									
	SW CORNER																									
SW CORNER	NW CORNER																									
	SE CORNER																									
TOTAL BICYCLES AND E-SCOOTERS ON SIDEWALK																										11





Bunt & Associates - Edmonton
10339 124 St NW #500

Edmonton, Alberta, Canada T5N 3W1
(780) 732-5373 coberg@bunteng.com

Count Name: 87 Avenue & 118 Street

Site Code:

Start Date: 2015/04/15

Page No: 1

Turning Movement Data

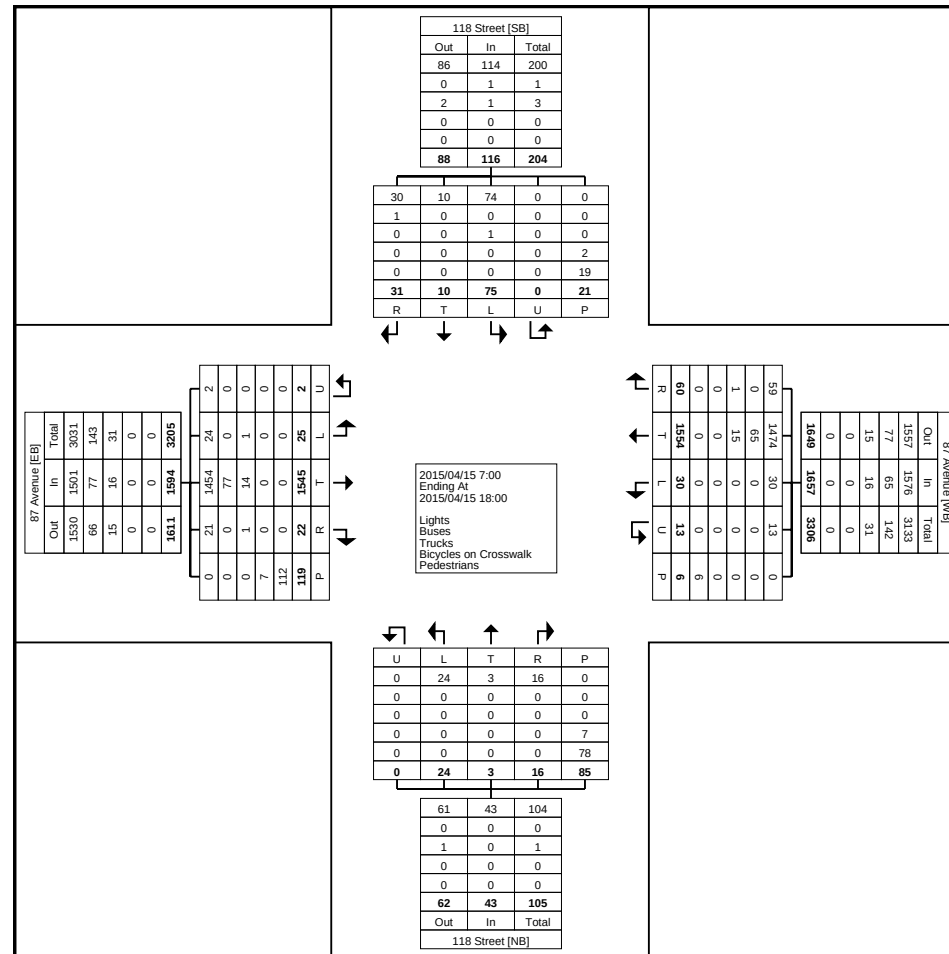
Start Time	87 Avenue Eastbound						87 Avenue Westbound						118 Street Northbound						118 Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00	0	78	3	1	1	82	2	46	4	1	1	53	0	0	2	0	0	2	0	0	0	0	0	0	137
7:15	3	116	0	0	1	119	0	73	3	0	0	76	1	0	0	0	0	1	1	1	1	0	1	3	199
7:30	2	130	0	0	5	132	1	68	1	1	2	71	1	0	0	0	0	1	2	1	0	0	0	3	207
7:45	0	128	2	0	5	130	2	59	3	0	0	64	1	0	1	0	0	2	1	0	0	0	2	1	197
Hourly Total	5	452	5	1	12	463	5	246	11	2	3	264	3	0	3	0	0	6	4	2	1	0	3	7	740
8:00	2	104	0	0	1	106	0	58	3	0	0	61	0	0	2	0	2	2	2	0	2	0	0	4	173
8:15	1	125	1	0	4	127	2	56	8	0	0	66	2	0	1	0	7	3	1	0	3	0	0	4	200
8:30	3	82	2	0	37	87	0	64	6	0	2	70	0	0	1	0	23	1	10	0	0	0	1	10	168
8:45	4	98	3	0	3	105	0	70	5	0	1	75	2	0	0	0	1	2	15	1	9	0	1	25	207
Hourly Total	10	409	6	0	45	425	2	248	22	0	3	272	4	0	4	0	33	8	28	1	14	0	2	43	748
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16:00	2	85	1	0	1	88	1	206	4	0	0	211	7	0	1	0	1	8	5	0	4	0	1	9	316
16:15	0	70	1	0	43	71	1	198	0	1	0	200	1	0	1	0	43	2	8	1	2	0	2	11	284
16:30	1	85	0	0	6	86	3	142	6	1	0	152	2	0	0	0	2	2	5	2	2	0	0	9	249
16:45	2	90	2	1	2	95	7	127	6	4	0	144	0	0	3	0	1	3	4	1	1	0	1	6	248
Hourly Total	5	330	4	1	52	340	12	673	16	6	0	707	10	0	5	0	47	15	22	4	9	0	4	35	1097
17:00	2	81	2	0	3	85	5	119	2	3	0	129	4	1	0	0	1	5	8	1	3	0	4	12	231
17:15	0	102	3	0	6	105	3	110	5	1	0	119	2	0	0	0	3	2	5	1	1	0	2	7	233
17:30	0	93	2	0	0	95	2	86	3	1	0	92	0	1	3	0	1	4	7	1	2	0	0	10	201
17:45	3	78	0	0	1	81	1	72	1	0	0	74	1	1	1	0	0	3	1	0	1	0	6	2	160
Hourly Total	5	354	7	0	10	366	11	387	11	5	0	414	7	3	4	0	5	14	21	3	7	0	12	31	825
Grand Total	25	1545	22	2	119	1594	30	1554	60	13	6	1657	24	3	16	0	85	43	75	10	31	0	21	116	3410
Approach %	1.6	96.9	1.4	0.1	-	-	1.8	93.8	3.6	0.8	-	-	55.8	7.0	37.2	0.0	-	-	64.7	8.6	26.7	0.0	-	-	-
Total %	0.7	45.3	0.6	0.1	-	46.7	0.9	45.6	1.8	0.4	-	48.6	0.7	0.1	0.5	0.0	-	1.3	2.2	0.3	0.9	0.0	-	3.4	-
Lights	24	1454	21	2	-	1501	30	1474	59	13	-	1576	24	3	16	0	-	43	74	10	30	0	-	114	3234
% Lights	96.0	94.1	95.5	100.0	-	94.2	100.0	94.9	98.3	100.0	-	95.1	100.0	100.0	100.0	-	-	100.0	98.7	100.0	96.8	-	-	98.3	94.8
Buses	0	77	0	0	-	77	0	65	0	0	-	65	0	0	0	0	-	0	0	0	1	0	-	1	143
% Buses	0.0	5.0	0.0	0.0	-	4.8	0.0	4.2	0.0	0.0	-	3.9	0.0	0.0	0.0	-	-	0.0	0.0	0.0	3.2	-	-	0.9	4.2
Trucks	1	14	1	0	-	16	0	15	1	0	-	16	0	0	0	0	-	0	1	0	0	0	-	1	33
% Trucks	4.0	0.9	4.5	0.0	-	1.0	0.0	1.0	1.7	0.0	-	1.0	0.0	0.0	0.0	-	-	0.0	1.3	0.0	0.0	-	-	0.9	1.0
Bicycles on Crosswalk	-	-	-	-	7	-	-	-	-	-	0	-	-	-	-	-	7	-	-	-	-	-	2	-	-
% Bicycles on Crosswalk	-	-	-	-	5.9	-	-	-	-	-	0.0	-	-	-	-	-	8.2	-	-	-	-	-	9.5	-	-
Pedestrians	-	-	-	-	112	-	-	-	-	-	6	-	-	-	-	-	78	-	-	-	-	-	19	-	-
% Pedestrians	-	-	-	-	94.1	-	-	-	-	-	100.0	-	-	-	-	-	91.8	-	-	-	-	-	90.5	-	-



Bunt & Associates - Edmonton
10339 124 St NW #500

Edmonton, Alberta, Canada T5N 3W1
(780) 732-5373 coberg@bunteng.com

Count Name: 87 Avenue & 118 Street
Site Code:
Start Date: 2015/04/15
Page No: 2



Turning Movement Data Plot



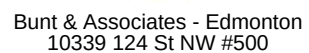
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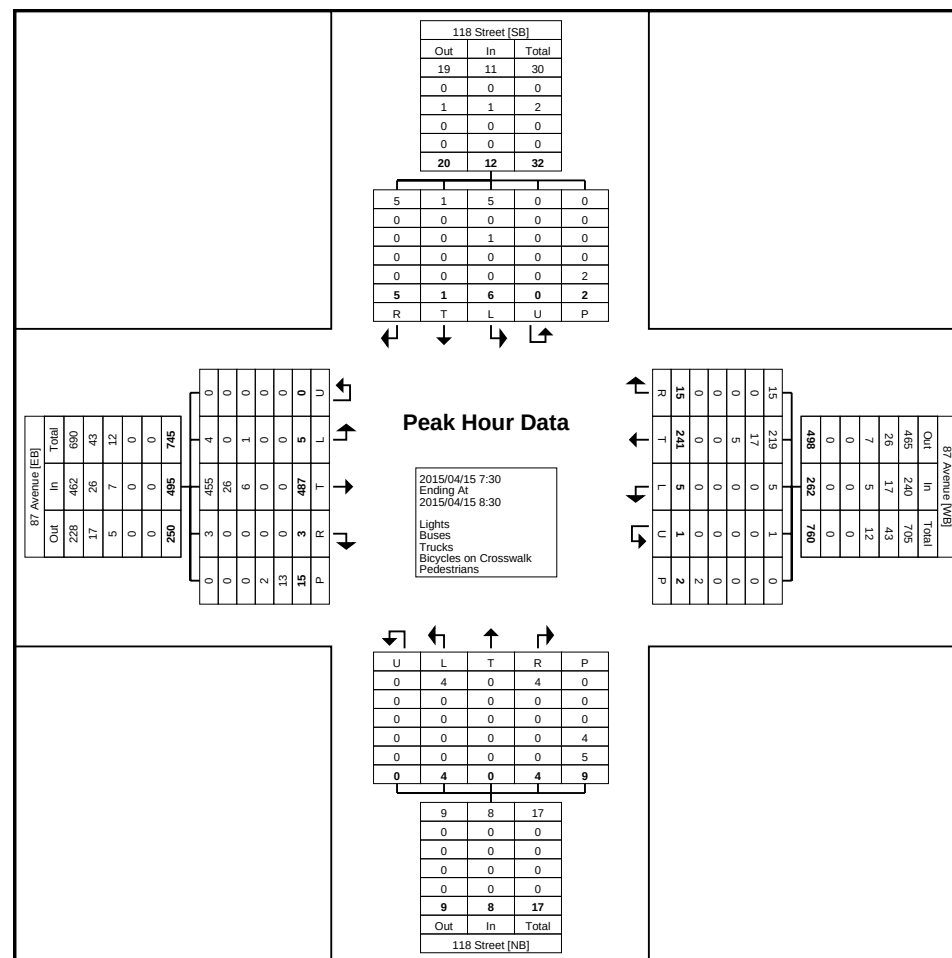
Count Name: 87 Avenue & 118 Street
Site Code:
Start Date: 2015/04/15
Page No: 3

Turning Movement Peak Hour Data (7:30)

Start Time	87 Avenue Eastbound						87 Avenue Westbound						118 Street Northbound						118 Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:30	2	130	0	0	5	132	1	68	1	1	2	71	1	0	0	0	0	1	2	1	0	0	0	3	207
7:45	0	128	2	0	5	130	2	59	3	0	0	64	1	0	1	0	0	2	1	0	0	0	2	1	197
8:00	2	104	0	0	1	106	0	58	3	0	0	61	0	0	2	0	2	2	2	0	2	0	0	4	173
8:15	1	125	1	0	4	127	2	56	8	0	0	66	2	0	1	0	7	3	1	0	3	0	0	4	200
Total	5	487	3	0	15	495	5	241	15	1	2	262	4	0	4	0	9	8	6	1	5	0	2	12	777
Approach %	1.0	98.4	0.6	0.0	-	-	1.9	92.0	5.7	0.4	-	-	50.0	0.0	50.0	0.0	-	-	50.0	8.3	41.7	0.0	-	-	-
Total %	0.6	62.7	0.4	0.0	-	63.7	0.6	31.0	1.9	0.1	-	33.7	0.5	0.0	0.5	0.0	-	1.0	0.8	0.1	0.6	0.0	-	1.5	-
PHF	0.625	0.937	0.375	0.000	-	0.938	0.625	0.886	0.469	0.250	-	0.923	0.500	0.000	0.500	0.000	-	0.667	0.750	0.250	0.417	0.000	-	0.750	0.938
Lights	4	455	3	0	-	462	5	219	15	1	-	240	4	0	4	0	-	8	5	1	5	0	-	11	721
% Lights	80.0	93.4	100.0	-	-	93.3	100.0	90.9	100.0	100.0	-	91.6	100.0	-	100.0	-	-	100.0	83.3	100.0	100.0	-	-	91.7	92.8
Buses	0	26	0	0	-	26	0	17	0	0	-	17	0	0	0	0	-	0	0	0	0	0	-	0	43
% Buses	0.0	5.3	0.0	-	-	5.3	0.0	7.1	0.0	0.0	-	6.5	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	5.5
Trucks	1	6	0	0	-	7	0	5	0	0	-	5	0	0	0	0	-	0	1	0	0	0	-	1	13
% Trucks	20.0	1.2	0.0	-	-	1.4	0.0	2.1	0.0	0.0	-	1.9	0.0	-	0.0	-	-	0.0	16.7	0.0	0.0	-	-	8.3	1.7
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	13.3	-	-	-	-	-	0.0	-	-	-	-	-	44.4	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	13	-	-	-	-	-	2	-	-	-	-	-	5	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	86.7	-	-	-	-	-	100.0	-	-	-	-	-	55.6	-	-	-	-	-	100.0	-	-



Count Name: 87 Avenue & 118 Street
Site Code:
Start Date: 2015/04/15
Page No: 4





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Count Name: 87 Avenue & 118 Street
Site Code:
Start Date: 2015/04/15
Page No: 5

Turning Movement Peak Hour Data (16:00)

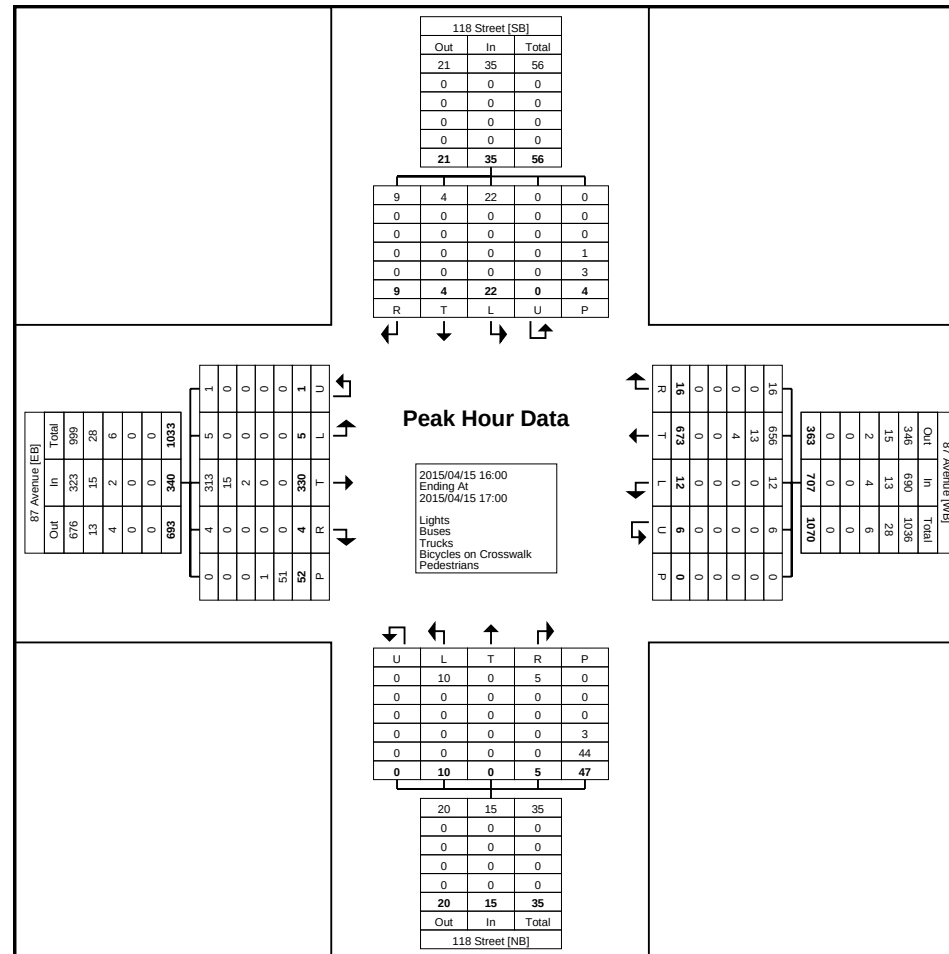
Start Time	87 Avenue Eastbound						87 Avenue Westbound						118 Street Northbound						118 Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
16:00	2	85	1	0	1	88	1	206	4	0	0	211	7	0	1	0	1	8	5	0	4	0	1	9	316
16:15	0	70	1	0	43	71	1	198	0	1	0	200	1	0	1	0	43	2	8	1	2	0	2	11	284
16:30	1	85	0	0	6	86	3	142	6	1	0	152	2	0	0	0	2	2	5	2	2	0	0	9	249
16:45	2	90	2	1	2	95	7	127	6	4	0	144	0	0	3	0	1	3	4	1	1	0	1	6	248
Total	5	330	4	1	52	340	12	673	16	6	0	707	10	0	5	0	47	15	22	4	9	0	4	35	1097
Approach %	1.5	97.1	1.2	0.3	-	-	1.7	95.2	2.3	0.8	-	-	66.7	0.0	33.3	0.0	-	-	62.9	11.4	25.7	0.0	-	-	-
Total %	0.5	30.1	0.4	0.1	-	31.0	1.1	61.3	1.5	0.5	-	64.4	0.9	0.0	0.5	0.0	-	1.4	2.0	0.4	0.8	0.0	-	3.2	-
PHF	0.625	0.917	0.500	0.250	-	0.895	0.429	0.817	0.667	0.375	-	0.838	0.357	0.000	0.417	0.000	-	0.469	0.688	0.500	0.563	0.000	-	0.795	0.868
Lights	5	313	4	1	-	323	12	656	16	6	-	690	10	0	5	0	-	15	22	4	9	0	-	35	1063
% Lights	100.0	94.8	100.0	100.0	-	95.0	100.0	97.5	100.0	100.0	-	97.6	100.0	-	100.0	-	-	100.0	100.0	100.0	100.0	-	-	100.0	96.9
Buses	0	15	0	0	-	15	0	13	0	0	-	13	0	0	0	0	-	0	0	0	0	0	-	0	28
% Buses	0.0	4.5	0.0	0.0	-	4.4	0.0	1.9	0.0	0.0	-	1.8	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	2.6
Trucks	0	2	0	0	-	2	0	4	0	0	-	4	0	0	0	0	-	0	0	0	0	0	-	0	6
% Trucks	0.0	0.6	0.0	0.0	-	0.6	0.0	0.6	0.0	0.0	-	0.6	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.5
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	-	6.4	-	-	-	-	-	25.0	-	-
Pedestrians	-	-	-	-	51	-	-	-	-	-	0	-	-	-	-	-	44	-	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	98.1	-	-	-	-	-	-	-	-	-	-	-	93.6	-	-	-	-	-	75.0	-	-



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Count Name: 87 Avenue & 118 Street
Site Code:
Start Date: 2015/04/15
Page No: 6



Turning Movement Peak Hour Data Plot (16:00)



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Count Name: 87 Avenue & 118 Street
Site Code:
Start Date: 2015/04/15
Page No: 7

DIRECTIONAL TRAFFIC COUNT SUMMARY

HIGHWAY: REFERENCE NO.: INTERSECTION OF: 89 AVENUE & 117 STREET, EDMONTON
LATITUDE (degrees): LONGITUDE (degrees): LEGAL DESCRIPTION:
DAY & DATE OF COUNT: THURSDAY, APRIL 04, 2024 COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

INTERVAL	APPROACHING INTERSECTION																				TOTALS										
	FROM THE EAST ON 89 AVENUE										FROM THE WEST ON 89 AVENUE																				
	LEFT					THROUGH					RIGHT					LEFT						THROUGH					RIGHT				
MIDNIGHT - 0:15																															
0:15 - 0:30																															
0:30 - 0:45																															
0:45 - 1:00	1																										1				
1:00 - 1:15																											1				
1:15 - 1:30																															
1:30 - 1:45	1																										1				
1:45 - 2:00																															
2:00 - 2:15																															
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10:30 - 10:45																															
10:45 - 11:00																															
11:00 - 11:15																															
11:15 - 11:30																															
11:30 - 11:45																															
11:45 - MIDNIGHT																															
VEH CLASS	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E						
TOTALS	2	4				1	11				1	1				25	3				59	9	1	3			153				
	EL					ET					ER					WL					WT					WR					

DIRECTIONAL TRAFFIC COUNT SUMMARY

HIGHWAY: REFERENCE NO.: INTERSECTION OF: 89 AVENUE & 117 STREET, EDMONTON
 LATITUDE (degrees): LONGITUDE (degrees): LEGAL DESCRIPTION:
 DAY & DATE OF COUNT: THURSDAY, APRIL 04, 2024 COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

INTERVAL	APPROACHING INTERSECTION																				TOTALS	GRAND TOTALS							
	FROM THE NORTH ON 117 STREET										FROM THE SOUTH ON 117 STREET																		
	LEFT					THROUGH					RIGHT					LEFT							THROUGH					RIGHT	
MIDNIGHT - 0:15						1																			2	2			
0:15 - 0:30																										2	2		
0:30 - 0:45																											1		
0:45 - 1:00																								1		1	2		
1:00 - 1:15																													
1:15 - 1:30																										1	1		
1:30 - 1:45	1																									1	2		
1:45 - 2:00																								1		2	2		
2:00 - 2:15																													
2:15 - 2:30																													
2:30 - 2:45																													
2:45 - 3:00																													
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3:30 - 3:45																													
3:45 - 4:00																													
4:00 - 4:15																													
4:15 - 4:30																													
4:30 - 4:45						1																			1		1		
4:45 - 5:00																													
5:00 - 5:15																1									1		1		
5:15 - 5:30																1									1		1		
5:30 - 5:45																													
5:45 - 6:00						2										1									3		3		
6:00 - 6:15						2																			2		2		
6:15 - 6:30																1									1		1		
6:30 - 6:45						1																			1		1		
6:45 - 7:00						1										1									2		3		
7:00 - 7:15							1									2									3		5		
7:15 - 7:30						2																			2		2		
7:30 - 7:45		1				3										5									9		12		
7:45 - 8:00						4										7								1	12		12		
8:00 - 8:15	2	1				5										6								3	18		22		
8:15 - 8:30						4										3	2							1	11		25		
8:30 - 8:45	1					1										6	2							3	1		14	21	
8:45 - 9:00						4										7	1							1			13	14	
9:00 - 9:15	2															3								3			8	10	
9:15 - 9:30						2										12											14	15	
9:30 - 9:45	1					4										5	1							1			12	14	
9:45 - 10:00						3										3											9	12	
10:00 - 10:15	1					1										1								2			5	5	
10:15 - 10:30						1										4											7	9	
10:30 - 10:45	2					1										9								1			14	16	
10:45 - 11:00	2															8								3			13	15	
11:00 - 11:15	2															4	1							2			17	19	
11:15 - 11:30						6										4								2			12	13	
11:30 - 11:45	1					1	1																	1			4	7	
11:45-12:00 PM						2										1	1							1			5	6	
12:00 - 12:15	1					3										3											7	8	
12:15 - 12:30	1					5										5								3			14	15	
12:30 - 12:45	2					4										3											10	14	
12:45 - 1:00						3										4								2			9	11	
1:00 - 1:15	1					3										5								1			11	13	
1:15 - 1:30																2								2			8	10	
1:30 - 1:45	1					4										7											12	14	
1:45 - 2:00	1					3										6									1		11	11	
2:00 - 2:15						5										7											13	14	
2:15 - 2:30						3										4											9	12	
2:30 - 2:45	1					4	1									1											7	8	
2:45 - 3:00						4	1									3								1			9	10	
3:00 - 3:15	2					3	1									5								3			14	16	
3:15 - 3:30						2										4								1			8	18	
3:30 - 3:45	1					3										2								2			8	14	
3:45 - 4:00	1					4										2	1							1			9	13	
4:00 - 4:15						5										2								1			8	10	
4:15 - 4:30	1															4	2							2			9	10	
4:30 - 4:45						8	1									1								1			11	15	
4:45 - 5:00	1					2										1	1							2			8	11	
5:00 - 5:15						5										3	1							3			12	17	
5:15 - 5:30						11										5								2			19	25	
5:30 - 5:45	1					4	1									5								1			12	18	
5:45 - 6:00						4										5											9	9	
6:00 - 6:15						1	1									4								1			7	10	
6:15 - 6:30	1					10										3								2			16	19	
6:30 - 6:45																													

LOCATION DIAGRAM ENCLOSED (Y/N): NO
 WEATHER CONDITIONS: CLEAR, SUNNY
 RECORDER(S): MIOVISION CAMERAS - TROY PEACOCK
 COMMENTS: 89 AVENUE IS ONE-WAY EASTBOUND EXCEPT FOR BICYCLES

VEHICLE CLASSES
 A: LIGHT VEHICLES B: BICYCLES ON ROAD C: BUSES
 D: SINGLE UNIT TRUCKS E: ARTICULATED TRUCKS

TURNING MOVEMENT SUMMARY DIAGRAM

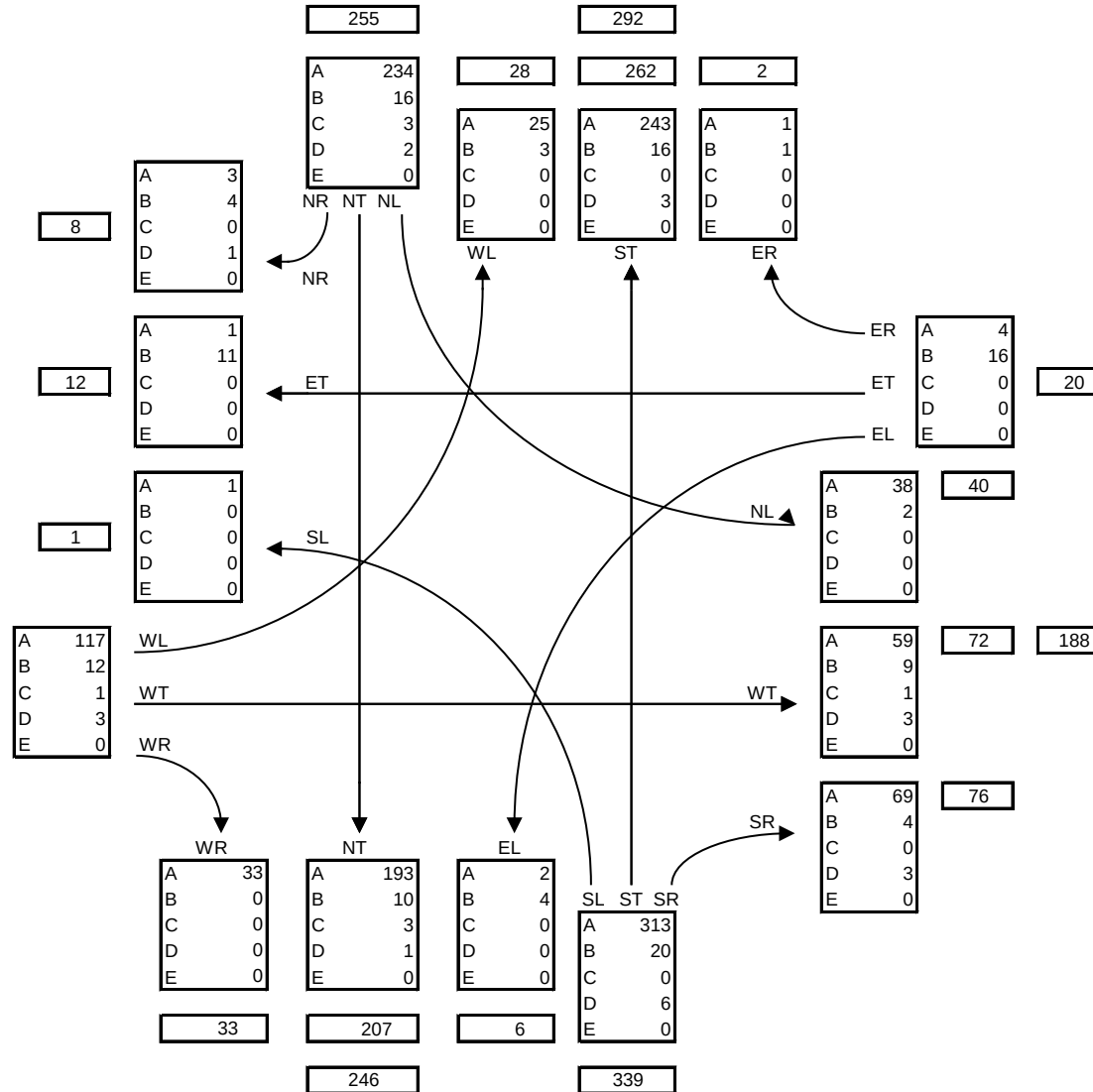
INTERSECTION OF: 89 AVENUE & 117 STREET, EDMONTON

DAY & DATE OF COUNT: THURSDAY, APRIL 04, 2024

COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

OBSERVED 24 HOURS TRAFFIC VOLUMES

WEST ON 89 AVENUE		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	122	79.22
B: BICYCLES ON ROAD	27	17.53
C: BUSES	1	0.65
D: SINGLE UNIT TRUCKS	4	2.60
E: ARTICULATED TRUCKS	0	0.00
TOTAL	154	



TURNING MOVEMENT ABBREVIATIONS

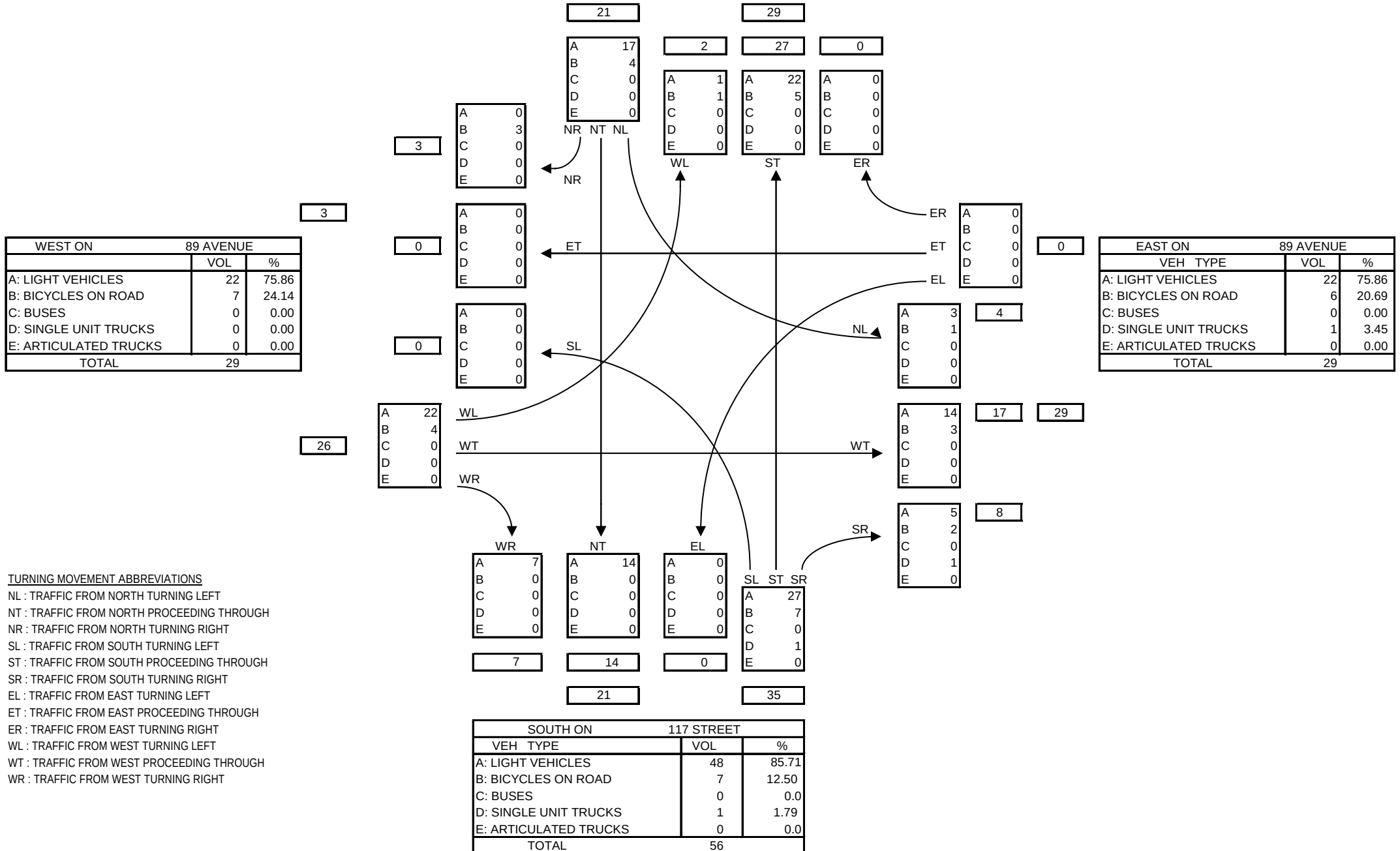
- NL : TRAFFIC FROM NORTH TURNING LEFT
- NT : TRAFFIC FROM NORTH PROCEEDING THROUGH
- NR : TRAFFIC FROM NORTH TURNING RIGHT
- SL : TRAFFIC FROM SOUTH TURNING LEFT
- ST : TRAFFIC FROM SOUTH PROCEEDING THROUGH
- SR : TRAFFIC FROM SOUTH TURNING RIGHT
- EL : TRAFFIC FROM EAST TURNING LEFT
- ET : TRAFFIC FROM EAST PROCEEDING THROUGH
- ER : TRAFFIC FROM EAST TURNING RIGHT
- WL : TRAFFIC FROM WEST TURNING LEFT
- WT : TRAFFIC FROM WEST PROCEEDING THROUGH
- WR : TRAFFIC FROM WEST TURNING RIGHT

TURNING MOVEMENT SUMMARY DIAGRAM

INTERSECTION OF: 89 AVENUE & 117 STREET, EDMONTON

DAY & DATE OF COUNT: THURSDAY, APRIL 04, 2024

OBSERVED AM PEAK HOUR TRAFFIC VOLUMES (8:00 - 9:00)

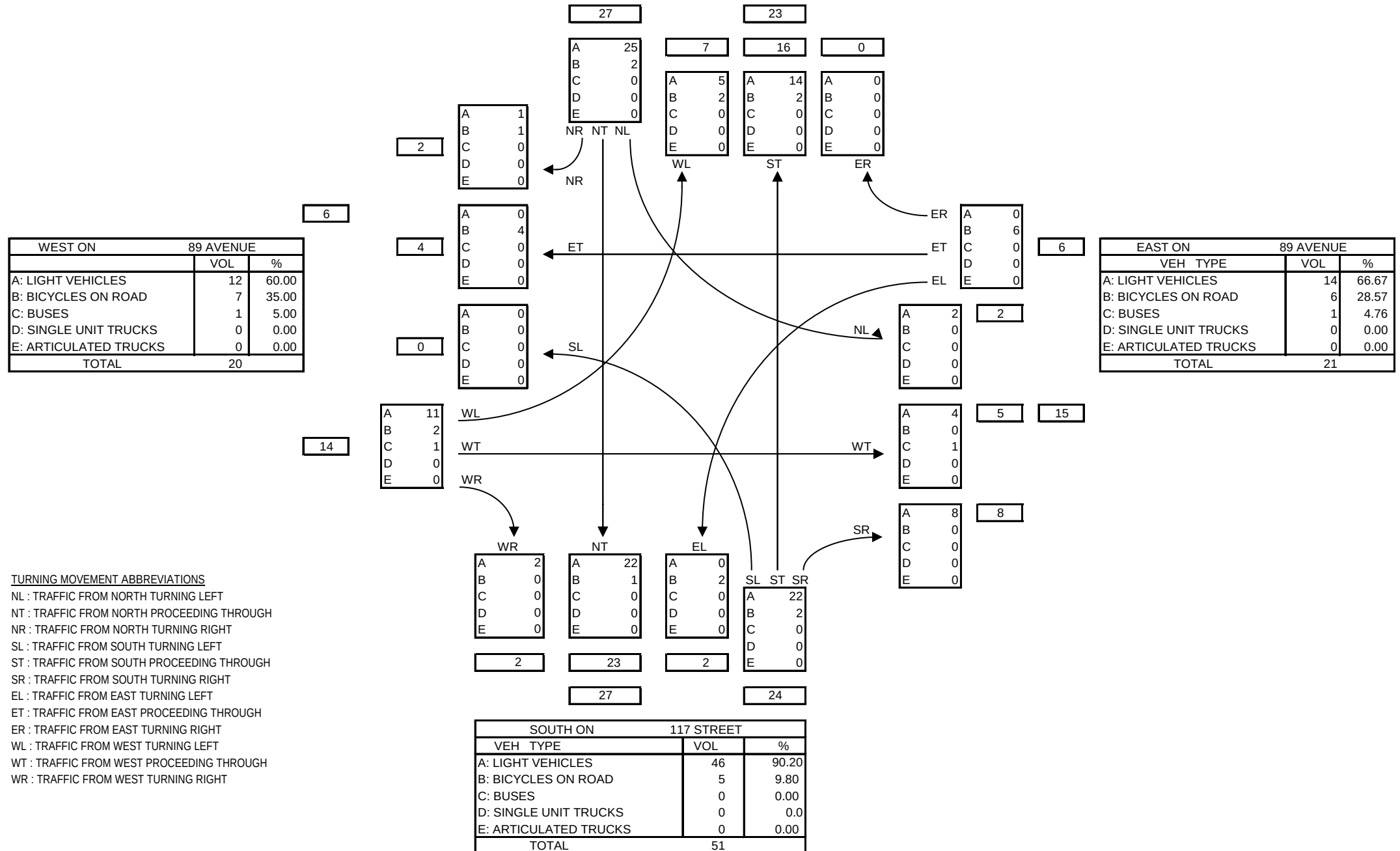


TURNING MOVEMENT SUMMARY DIAGRAM

INTERSECTION OF: 89 AVENUE & 117 STREET, EDMONTON

DAY & DATE OF COUNT: THURSDAY, APRIL 04, 2024

OBSERVED PM PEAK HOUR TRAFFIC VOLUMES (4:45 - 5:45)



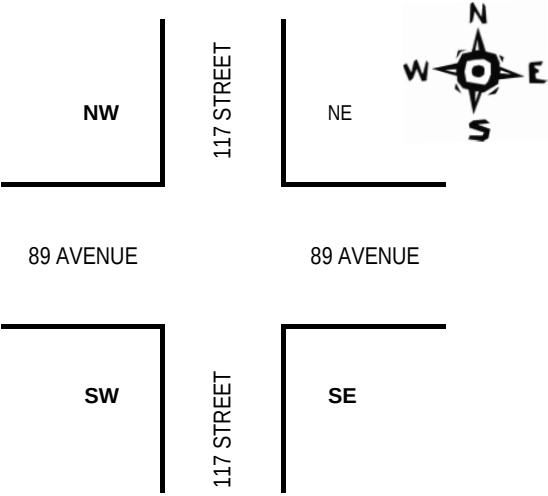
DIRECTIONAL PEDESTRIAN COUNT SUMMARY

LOCATION: 89 AVENUE & 117 STREET, EDMONTON

DATE: THURSDAY, APRIL 04, 2024

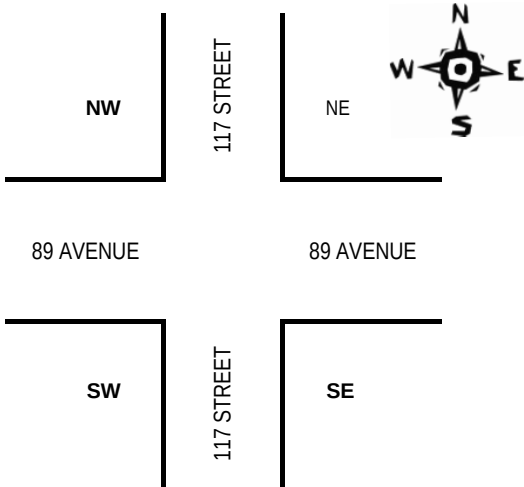
COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

PEDESTRIAN CROSSING FROM TO		INTERVAL																								SUB- TOTAL
		MIDNIGHT TO 1:00AM	1:00 AM TO 2:00 AM	2:00 AM TO 3:00 AM	3:00 AM TO 4:00 AM	4:00 AM TO 5:00 AM	5:00 AM TO 6:00AM	6:00 AM TO 7:00 AM	7:00 AM TO 8:00 AM	8:00 AM TO 9:00 AM	9:00 AM TO 10:00 AM	10:00 AM TO 11:00 AM	11:00 AM TO NOON	NOON TO 1:00PM	1:00PM TO 2:00 PM	2:00 PM TO 3:00 PM	3:00 PM TO 4:00 PM	4:00 PM TO 5:00 PM	5:00 PM TO 6:00 PM	6:00 PM TO 7:00 PM	7:00 PM TO 8:00 PM	8:00 PM TO 9:00 PM	9:00 PM TO 10:00 PM	10:00 PM TO 11:00 PM	11:00 PM TO MIDNIGHT	
NE CORNER	SE CORNER	1							1	1	1	2	1	1	2	1	4	3	6	5	2	6	1			38
	NW CORNER							1		2	3	3	1	13	5	13	18	16	9	5	3	7	1		2	102
NW CORNER	SW CORNER									2			1		1	3	4		1	2	1	2	1			18
	NE CORNER							2	8	4	11	10	7	13	6	2	6	6	5	3						83
SE CORNER	NE CORNER	1							4	2	5		1	3	5	5	1	2	4	2	1	2	3		1	42
	SW CORNER							1	1			1	1	1	3	1	2	6	2	2	2	2				25
SW CORNER	NW CORNER											1	1			2	1		1	4	4		1	1		16
	SE CORNER		2					1		2	4		1	2	3	1	2	4	3	3		4				32
TOTAL PEDESTRIANS																							356			



BICYCLES ON SIDEWALK

LOCATION: 89 AVENUE & 117 STREET, EDMONTON														DATE: THURSDAY, APRIL 04, 2024													
														COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)													
PEDESTRIAN CROSSING FROM TO		INTERVAL																								SUB- TOTAL	
		MIDNIGHT TO 1:00AM	1:00 AM TO 2:00 AM	2:00 AM TO 3:00 AM	3:00 AM TO 4:00 AM	4:00 AM TO 5:00 AM	5:00 AM TO 6:00AM	6:00 AM TO 7:00 AM	7:00 AM TO 8:00 AM	8:00 AM TO 9:00 AM	9:00 AM TO 10:00 AM	10:00 AM TO 11:00 AM	11:00 AM TO NOON	NOON TO 1:00PM	1:00PM TO 2:00 PM	2:00 PM TO 3:00 PM	3:00 PM TO 4:00 PM	4:00 PM TO 5:00 PM	5:00 PM TO 6:00 PM	6:00 PM TO 7:00 PM	7:00 PM TO 8:00 PM	8:00 PM TO 9:00 PM	9:00 PM TO 10:00 PM	10:00 PM TO 11:00 PM	11:00 PM TO MIDNIGHT		
NE CORNER	SE CORNER																										
	NW CORNER																										
NW CORNER	SW CORNER																	2								2	
	NE CORNER																										
SE CORNER	NE CORNER																										
	SW CORNER													1												1	
SW CORNER	NW CORNER																	1								1	
	SE CORNER																										
TOTAL BICYCLES ON SIDEWALK																								4			



HIGHWAY:	REFERENCE NO.:	INTERSECTION OF:	89 AVENUE & 116 STREET, EDMONTON
LATITUDE (degrees): 53.52482	LONGITUDE (degrees): -113.53066	LEGAL DESCRIPTION:	
DAY & DATE OF COUNT:	THURSDAY, SEPTEMBER 28, 2023	COUNT DURATION:	24 HOURS (MIDNIGHT TO MIDNIGHT)

LOCATION DIAGRAM ENCLOSED (Y / N): NO	<u>VEHICLE CLASSES</u>
WEATHER CONDITIONS: MOSTLY SUNNY, LIGHT RAIN AFTER 7:00 PM	A: LIGHT VEHICLES B: BUSES
RECORDER(S): MIOVISION CAMERAS - TROY PEACOCK	D: BICYCLES ON ROAD E: E-SCOOTERS
COMMENTS: WEST LEG IS A ONE WAY FOR VEHICLES BUT NOT FOR BICYCLES/E-SCOOTERS (*COULD AFFECT ET/NR/SL). BROADWAY SHOW AT JUBILEE AUDITORIUM MAY HAVE IMPACTED TRAFFIC VOLUMES	

DIRECTIONAL TRAFFIC COUNT SUMMARY

HIGHWAY: REFERENCE NO.: INTERSECTION OF: 89 AVENUE & 116 STREET, EDMONTON
LATITUDE (degrees): 53.52482 LONGITUDE (degrees): -113.53066 LEGAL DESCRIPTION:
DAY & DATE OF COUNT: THURSDAY, SEPTEMBER 28, 2023 COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

INTERVAL	APPROACHING INTERSECTION															TOTALS	GRAND TOTALS															
	FROM THE NORTH ON 116 STREET					FROM THE SOUTH ON 116 STREET																										
	LEFT		THROUGH		RIGHT	LEFT		THROUGH		RIGHT																						
MIDNIGHT - 0:15			3					3			1	7	19																			
0:15 - 0:30			1								1	2	6																			
0:30 - 0:45			5					2				7	10																			
0:45 - 1:00	1		2					1				4	5																			
1:00 - 1:15	1		3					1			2	7	9																			
1:15 - 1:30			3					3				6	8																			
1:30 - 1:45																																
1:45 - 2:00								2				2	3																			
2:00 - 2:15								1				1	2																			
2:15 - 2:30			1					3				4	4																			
2:30 - 2:45			4					1				5	8																			
2:45 - 3:00			1					1				2	3																			
3:00 - 3:15			1					1				2	2																			
3:15 - 3:30								4				4	4																			
3:30 - 3:45			1									1	1																			
3:45 - 4:00								2				2	2																			
4:00 - 4:15			1									1	1																			
4:15 - 4:30								2				2	2																			
4:30 - 4:45			1					1				2	2																			
4:45 - 5:00								2				2	2																			
5:00 - 5:15	1							1				2	3																			
5:15 - 5:30	1							2				7	7																			
5:30 - 5:45			2					2			3	7	8																			
5:45 - 6:00	4		4					9			1	18	20																			
6:00 - 6:15	3		1					10	1		4	22	23																			
6:15 - 6:30	7			1				10				39	40																			
6:30 - 6:45	10							14	2		10	62	66																			
6:45 - 7:00	16	2			1			28			22	97	101																			
7:00 - 7:15	7	1			1			43	1		34	107	112																			
7:15 - 7:30	29	2			1	1		81	1	1	36	181	187																			
7:30 - 7:45	27				1			91	4		40	209	218																			
7:45 - 8:00	29	1			1	1	1	93		2	39	222	234																			
8:00 - 8:15	29			2	1			70	1	2	1	174	186																			
8:15 - 8:30	24		1					58	2	1	36	150	166																			
8:30 - 8:45	21			1				82	1	4	1	190	205																			
8:45 - 9:00	26	1			2		1	93			45	202	208																			
9:00 - 9:15	26				2			116		2	1	223	236																			
9:15 - 9:30	23							72	1	1	33	181	204																			
9:30 - 9:45	11				2	1		58			24	134	148																			
9:45 - 10:00	9	2						42		4	3	103	114																			
10:00 - 10:15	11				2	2		50	1		2	119	133																			
10:15 - 10:30	6							60		3		116	133																			
10:30 - 10:45	9							62		2		137	148																			
10:45 - 11:00	14						1	84			3	186	204																			
11:00 - 11:15	4	1			2	2		50		1	1	120	141																			
11:15 - 11:30	6							46		2		97	119																			
11:30 - 11:45	8				2			45		2		93	105																			
11:45-12:00 PM	2				2			47				105	116																			
12:00 - 12:15	9							47				114	129																			
12:15 - 12:30	11			1				45		1		156	185																			
12:30 - 12:45	11					2		42		2		163	206																			
12:45 - 1:00	6	1			1	1		41			1	105	125																			
1:00 - 1:15	3				2	1		41		4	2	111	131																			
1:15 - 1:30	8				1		1	47			2	124	137																			
1:30 - 1:45	8		1			3		63		1		152	177																			
1:45 - 2:00	8			1		2	1	55		2	3	158	189																			
2:00 - 2:15	4				2	1		59	1		1	170	210																			
2:15 - 2:30	6	1			1			31		1	2	108	133																			
2:30 - 2:45	12			1		3	1	46				125	148																			
2:45 - 3:00	5				1			44			1	112	135																			
3:00 - 3:15	5							43		3	1	134	163																			
3:15 - 3:30	6				1	2		57		1		152	194																			
3:30 - 3:45	8				1	2	5	41	1		2	184	233																			
3:45 - 4:00	8		1	1				64		2	1	166	204																			
4:00 - 4:15	8				1		1	46			1	135	177																			
4:15 - 4:30	8				2			52			1	135	167																			
4:30 - 4:45	13				1	2		54			3	171	226																			
4:45 - 5:00	14					3		45	1	1	1	152	186																			
5:00 - 5:15	10				1			43			1	171	230																			
5:15 - 5:30	5				1	3		43				134	170																			
5:30 - 5:45	7							51		1	1	129	155																			
5:45 - 6:00	7					3	2	45				133	158																			
6:00 - 6:15	6				1	1		42				145	181																			
6:15 - 6:30	9					1		33				119	145																			
6:30 - 6:45	11					1		35		1		123	147																			
6:45 - 7:00	6							25				99	122																			
7:00 - 7:15	11							35				97	121																			
7:15 - 7:30	7				1			27				91	115																			
7:30 - 7:45	6						1	23				79	101																			
7:45 - 8:00	3							32				89	103																			
8:00 - 8:15	5							25				71	94																			
8:15 - 8:30								23				61	90																			
8:30 - 8:45	2							26			1	72	101																			
8:45 - 9:00	2					1		21			1	57	66																			
9:00 - 9:15	3					1		19				56	71																			
9:15 - 9:30	1							15				45	54																			
9:30 - 9:45	4							19				46	69																			
9:45 - 10:00	4							10				31	38																			
10:00 - 10:15								6				16	23																			
10:15 - 10:30								6				16	21																			
10:30 - 10:45	2							4	1			17	21																			
10:45 - 11:00	1							30				42	64																			
11:00 - 11:15	2							8				16	29																			
11:15 - 11:30	3							4				12	16																			
11:30 - 11:45								2				7	8																			
11:45-MIDNIGHT								2				9	12																			
VEH CLASS	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	TOTALS	GRAND TOTALS
TOTALS	643	4	10	7		3021	17	53	48	3	2		9	2		2		1		1	3066	7	53	43	2	1143	13	16	10		8176	9658
	NL					NT					NR					SL					ST					SR						

LOCATION DIAGRAM ENCLOSED (Y / N): NO
WEATHER CONDITIONS: MOSTLY SUNNY, LIGHT RAIN AFTER 7:00 PM
RECORDER(S): MOVISION CAMERAS - TROY PEACOCK

COMMENTS: WEST LEG IS A ONE WAY FOR VEHICLES BUT NOT FOR BICYCLES/SCOOTERS (*COULD AFFECT ET(NR/SL). BROADWAY SHOW AT JUBILEE AUDITORIUM MAY HAVE IMPACTED TRAFFIC VOLUMES

VEHICLE CLASSES
A: LIGHT VEHICLES B: BUSES C: TRUCKS
D: BICYCLES ON ROAD E: E-SCOOTERS

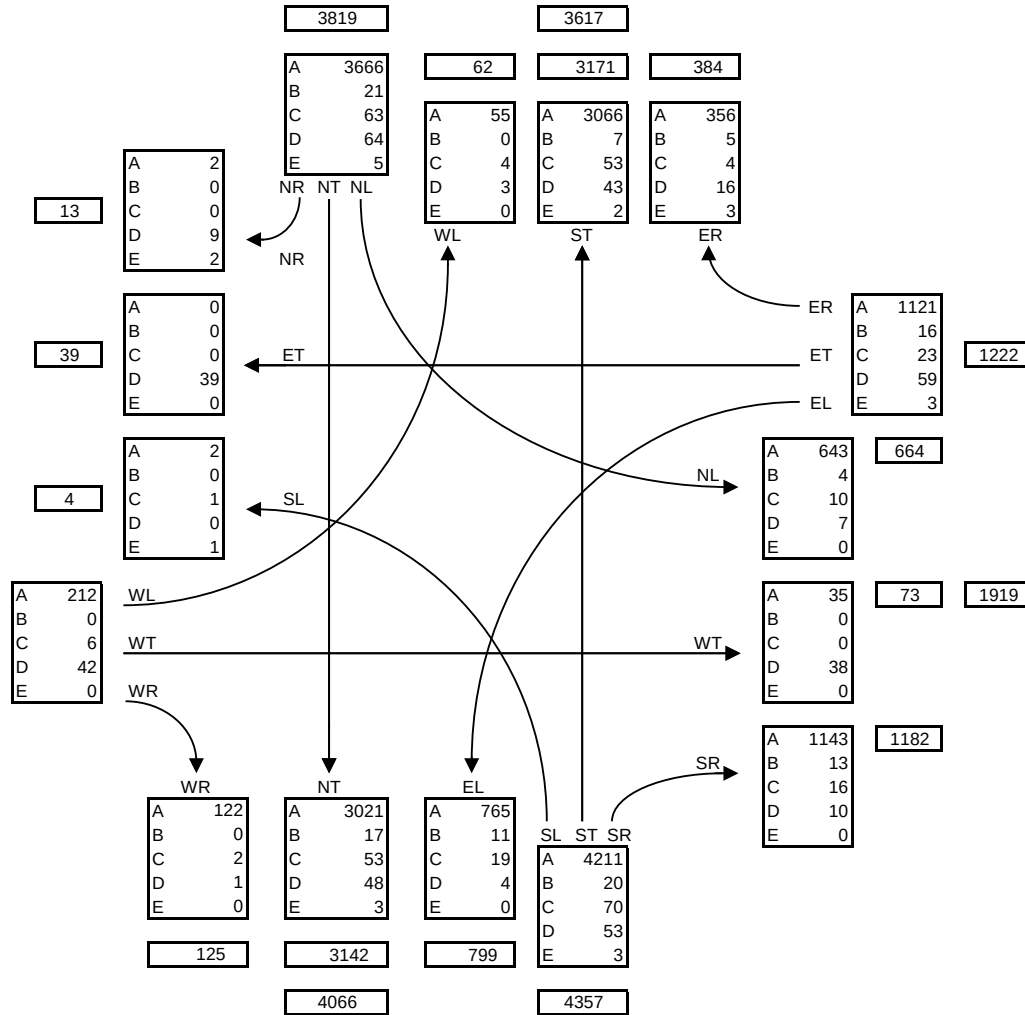
TURNING MOVEMENT SUMMARY DIAGRAM

INTERSECTION OF: 89 AVENUE & 116 STREET, EDMONTON

DAY & DATE OF COUNT: THURSDAY, SEPTEMBER 28, 2023
COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

OBSERVED 24 HOURS TRAFFIC VOLUMES

WEST ON 89 AVENUE		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	216	68.35
B: BUSES	0	0.00
C: TRUCKS	7	2.22
D: BICYCLES ON ROAD	90	28.48
E: E-SCOOTERS	3	0.95
TOTAL	316	



EAST ON 89 AVENUE		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	2942	93.66
B: BUSES	33	1.05
C: TRUCKS	49	1.56
D: BICYCLES ON ROAD	114	3.63
E: E-SCOOTERS	3	0.10
TOTAL	3141	

TURNING MOVEMENT ABBREVIATIONS

NL : TRAFFIC FROM NORTH TURNING LEFT
NT : TRAFFIC FROM NORTH PROCEEDING THROUGH
NR : TRAFFIC FROM NORTH TURNING RIGHT
SL : TRAFFIC FROM SOUTH TURNING LEFT
ST : TRAFFIC FROM SOUTH PROCEEDING THROUGH
SR : TRAFFIC FROM SOUTH TURNING RIGHT
EL : TRAFFIC FROM EAST TURNING LEFT
ET : TRAFFIC FROM EAST PROCEEDING THROUGH
ER : TRAFFIC FROM EAST TURNING RIGHT
WL : TRAFFIC FROM WEST TURNING LEFT
WT : TRAFFIC FROM WEST PROCEEDING THROUGH
WR : TRAFFIC FROM WEST TURNING RIGHT

SOUTH ON 116 STREET		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	8119	96.39
B: BUSES	48	0.57
C: TRUCKS	144	1.71
D: BICYCLES ON ROAD	106	1.26
E: E-SCOOTERS	6	0.07
TOTAL	8423	

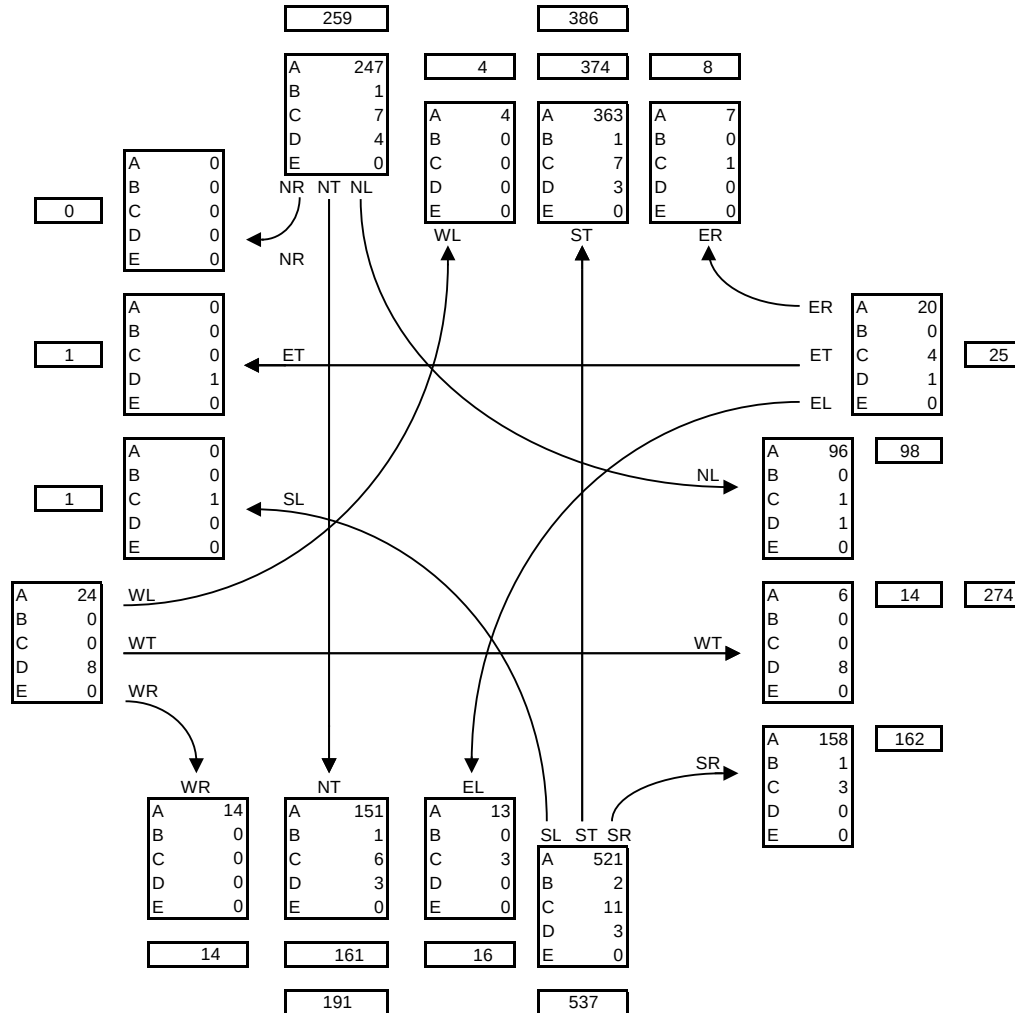
TURNING MOVEMENT SUMMARY DIAGRAM

INTERSECTION OF: 89 AVENUE & 116 STREET, EDMONTON

DAY & DATE OF COUNT: THURSDAY, SEPTEMBER 28, 2023

OBSERVED AM PEAK HOUR TRAFFIC VOLUMES (8:30 - 9:30)

WEST ON 89 AVENUE		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	24	70.59
B: BUSES	0	0.00
C: TRUCKS	1	2.94
D: BICYCLES ON ROAD	9	26.47
E: E-SCOOTERS	0	0.00
TOTAL	34	



EAST ON 89 AVENUE		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	280	93.65
B: BUSES	1	0.33
C: TRUCKS	8	2.68
D: BICYCLES ON ROAD	10	3.34
E: E-SCOOTERS	0	0.00
TOTAL	299	

TURNING MOVEMENT ABBREVIATIONS

NL : TRAFFIC FROM NORTH TURNING LEFT
 NT : TRAFFIC FROM NORTH PROCEEDING THROUGH
 NR : TRAFFIC FROM NORTH TURNING RIGHT
 SL : TRAFFIC FROM SOUTH TURNING LEFT
 ST : TRAFFIC FROM SOUTH PROCEEDING THROUGH
 SR : TRAFFIC FROM SOUTH TURNING RIGHT
 EL : TRAFFIC FROM EAST TURNING LEFT
 ET : TRAFFIC FROM EAST PROCEEDING THROUGH
 ER : TRAFFIC FROM EAST TURNING RIGHT
 WL : TRAFFIC FROM WEST TURNING LEFT
 WT : TRAFFIC FROM WEST PROCEEDING THROUGH
 WR : TRAFFIC FROM WEST TURNING RIGHT

SOUTH ON 116 STREET		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	699	96.02
B: BUSES	3	0.41
C: TRUCKS	20	2.75
D: BICYCLES ON ROAD	6	0.82
E: E-SCOOTERS	0	0.00
TOTAL	728	

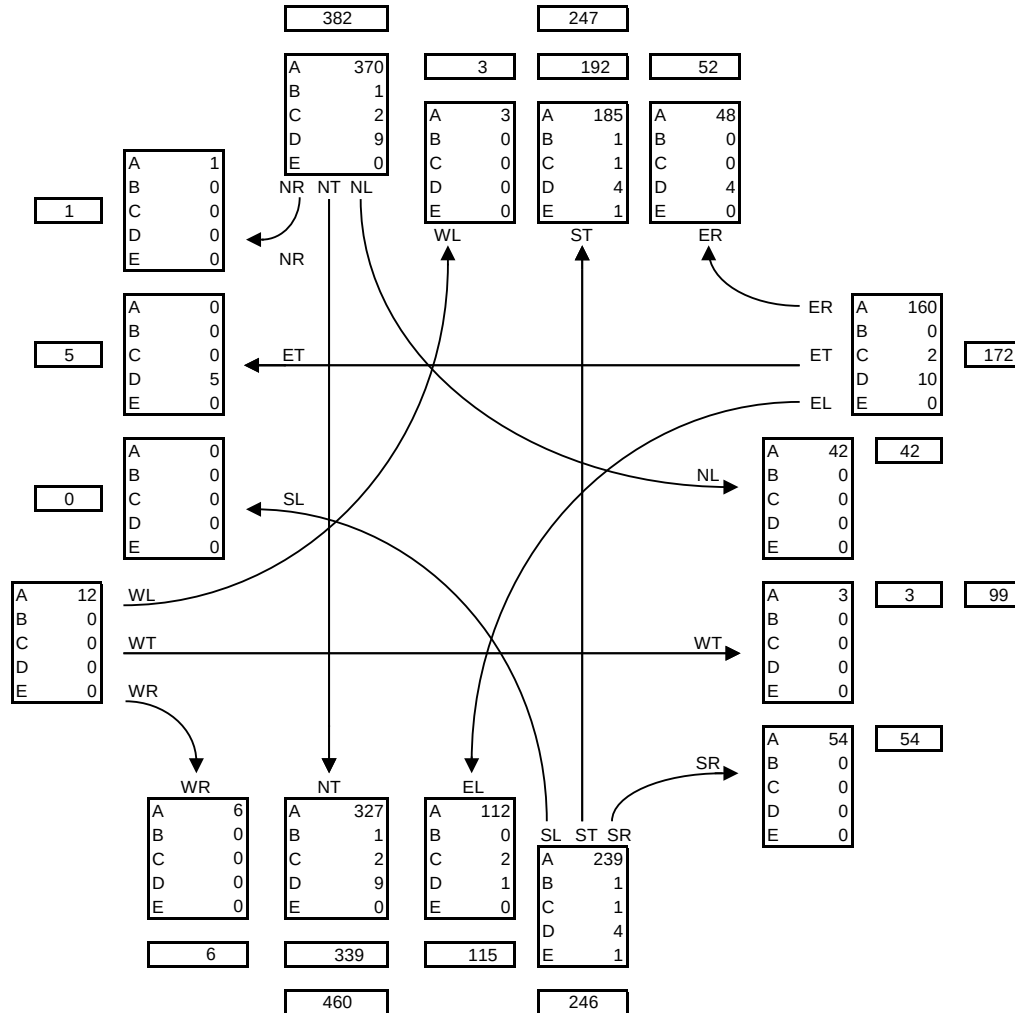
TURNING MOVEMENT SUMMARY DIAGRAM

INTERSECTION OF: 89 AVENUE & 116 STREET, EDMONTON

DAY & DATE OF COUNT: THURSDAY, SEPTEMBER 28, 2023

OBSERVED PM PEAK HOUR TRAFFIC VOLUMES (4:30 - 5:30)

WEST ON 89 AVENUE		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	13	72.22
B: BUSES	0	0.00
C: TRUCKS	0	0.00
D: BICYCLES ON ROAD	5	27.78
E: E-SCOOTERS	0	0.00
TOTAL	18	



EAST ON 89 AVENUE		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	259	95.57
B: BUSES	0	0.00
C: TRUCKS	2	0.74
D: BICYCLES ON ROAD	10	3.69
E: E-SCOOTERS	0	0.00
TOTAL	271	

SOUTH ON 116 STREET		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	684	96.88
B: BUSES	2	0.28
C: TRUCKS	5	0.71
D: BICYCLES ON ROAD	14	1.98
E: E-SCOOTERS	1	0.14
TOTAL	706	

TURNING MOVEMENT ABBREVIATIONS

NL : TRAFFIC FROM NORTH TURNING LEFT
 NT : TRAFFIC FROM NORTH PROCEEDING THROUGH
 NR : TRAFFIC FROM NORTH TURNING RIGHT
 SL : TRAFFIC FROM SOUTH TURNING LEFT
 ST : TRAFFIC FROM SOUTH PROCEEDING THROUGH
 SR : TRAFFIC FROM SOUTH TURNING RIGHT
 EL : TRAFFIC FROM EAST TURNING LEFT
 ET : TRAFFIC FROM EAST PROCEEDING THROUGH
 ER : TRAFFIC FROM EAST TURNING RIGHT
 WL : TRAFFIC FROM WEST TURNING LEFT
 WT : TRAFFIC FROM WEST PROCEEDING THROUGH
 WR : TRAFFIC FROM WEST TURNING RIGHT

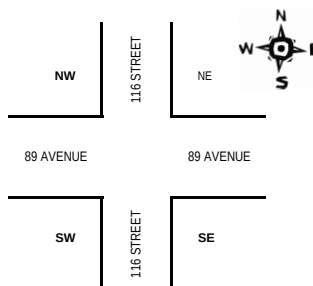
DIRECTIONAL PEDESTRIAN COUNT SUMMARY

LOCATION: 89 AVENUE & 116 STREET, EDMONTON

DATE: THURSDAY, SEPTEMBER 28, 2023

COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

PEDESTRIAN CROSSING		INTERVAL																								SUB-TOTAL
		MIDNIGHT TO 1:00 AM	1:00 AM TO 2:00 AM	2:00 AM TO 3:00 AM	3:00 AM TO 4:00 AM	4:00 AM TO 5:00 AM	5:00 AM TO 6:00 AM	6:00 AM TO 7:00 AM	7:00 AM TO 8:00 AM	8:00 AM TO 9:00 AM	9:00 AM TO 10:00 AM	10:00 AM TO 11:00 AM	11:00 AM TO NOON	NOON TO 1:00 PM	1:00 PM TO 2:00 PM	2:00 PM TO 3:00 PM	3:00 PM TO 4:00 PM	4:00 PM TO 5:00 PM	5:00 PM TO 6:00 PM	6:00 PM TO 7:00 PM	7:00 PM TO 8:00 PM	8:00 PM TO 9:00 PM	9:00 PM TO 10:00 PM	10:00 PM TO 11:00 PM	11:00 PM TO MIDNIGHT	
NE CORNER	SE CORNER	3	3		2				8	10	39	65	20	26	41	29	36	51	45	26	15	6	6	2	1	434
	NW CORNER	4						8	11	4	7	18	19	34	42	26	58	46	41	30	11	10	10	4	2	385
NW CORNER	SW CORNER							1	4	2	8	15	15	14	21	7	16	27	20	8	9	5	3	1		176
	NE CORNER						1	3	52	45	56	42	24	35	52	32	35	33	25	13	6	4	6	1		465
SE CORNER	NE CORNER	4	1	1				2	113	15	39	33	21	62	74	46	13	30	14	9	3	1	3	9		493
	SW CORNER	1							3	1	1	1	5	4	4	2	3	1	9	1	4		2	4		46
SW CORNER	NW CORNER								38	9	20	20	14	21	27	15	15	13	13	2	1		1	2		211
	SE CORNER		2					3	2	3		3	5		1	2	2	3		1			1			28
TOTAL PEDESTRIANS																										2238



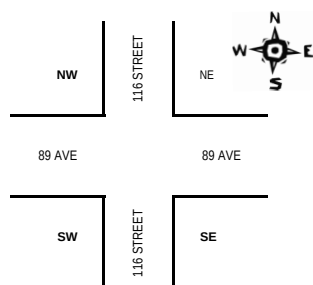
BICYCLES AND E-SCOOTERS ON SIDEWALK

LOCATION: 89 AVENUE & 116 STREET, EDMONTON

DATE: THURSDAY, SEPTEMBER 28, 2023

COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

PEDESTRIAN CROSSING		INTERVAL																								SUB-TOTAL
		MIDNIGHT TO 1:00AM	1:00 AM TO 2:00 AM	2:00 AM TO 3:00 AM	3:00 AM TO 4:00 AM	4:00 AM TO 5:00 AM	5:00 AM TO 6:00AM	6:00 AM TO 7:00 AM	7:00 AM TO 8:00 AM	8:00 AM TO 9:00 AM	9:00 AM TO 10:00 AM	10:00 AM TO 11:00 AM	11:00 AM TO NOON	NOON TO 1:00PM	1:00PM TO 2:00 PM	2:00 PM TO 3:00 PM	3:00 PM TO 4:00 PM	4:00 PM TO 5:00 PM	5:00 PM TO 6:00 PM	6:00 PM TO 7:00 PM	7:00 PM TO 8:00 PM	8:00 PM TO 9:00 PM	9:00 PM TO 10:00 PM	10:00 PM TO 11:00 PM	11:00 PM TO MIDNIGHT	
NE CORNER	SE CORNER										1				1	1	2	1								6
	NW CORNER								1				3			3	3		4	3	3					20
NW CORNER	SW CORNER																	1								1
	NE CORNER						1		2	7	1	1	1			1	3	2		2						21
SE CORNER	NE CORNER							2			2															4
	SW CORNER															1										1
SW CORNER	NW CORNER								1																	1
	SE CORNER														1											1
TOTAL BICYCLES AND E-SCOOTERS ON SIDEWALK																										55



DIRECTIONAL TRAFFIC COUNT SUMMARY

HIGHWAY: **REFERENCE NO.:** **INTERSECTION OF:** 89 AVE & ALLEY W. OF 116 ST, EDMONTON
LATITUDE (degrees): 53.52482 **LONGITUDE (degrees):** -113.531645 **LEGAL DESCRIPTION:**
DAY & DATE OF COUNT: THURSDAY, SEPTEMBER 28, 2023 **COUNT DURATION:** 24 HOURS (MIDNIGHT TO MIDNIGHT)

INTERVAL	APPROACHING INTERSECTION															TOTALS																
	FROM THE EAST ON 89 AVENUE					FROM THE WEST ON 89 AVENUE																										
	LEFT		THROUGH		RIGHT	LEFT		THROUGH		RIGHT																						
MIDNIGHT - 0:15															1																	
0:15 - 0:30																																
0:30 - 0:45																																
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10:30 - 10:45															4																	
10:45 - 11:00															9																	
11:00 - 11:15															6																	
11:15 - 11:30															5																	
11:30 - 11:45															3																	
11:45 - 12:00 PM															1																	
12:00 - 12:15															5																	
12:15 - 12:30															4																	
12:30 - 12:45															5																	
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1:00 - 1:15															6																	
1:15 - 1:30															2																	
1:30 - 1:45															3																	
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TOTALS																																342
	EL					ET					ER					WL					WT					WR						

LOCATION DIAGRAM ENCLOSED (Y / N): NO
 WEATHER CONDITIONS: MOSTLY SUNNY, LIGHT RAIN AFTER 7:00 PM
 RECORDER(S): MOVISION CAMERAS - TROY PEACOCK
 COMMENTS: WEST LEG IS A ONE WAY FOR VEHICLES BUT NOT FOR BICYCLES/SCOOTERS (*COULD AFFECT EL/ET/ERNR/SL), BROADWAY SHOW AT JUBILEE AUDITORIUM AT NIGHT MAY HAVE IMPACTED TRAFFIC VOLUMES

VEHICLE CLASSES
 A: LIGHT VEHICLES B: BUSES C: TRUCKS
 D: BICYCLES ON ROAD E: E-SCOOTERS

DIRECTIONAL TRAFFIC COUNT SUMMARY

HIGHWAY: **REFERENCE NO.:** **INTERSECTION OF:** 89 AVE & ALLEY W. OF 116 ST, EDMONTON
LATITUDE (degrees): 53.52482 **LONGITUDE (degrees):** -113.531645 **LEGAL DESCRIPTION:**
DAY & DATE OF COUNT: THURSDAY, SEPTEMBER 28, 2023 **COUNT DURATION:** 24 HOURS (MIDNIGHT TO MIDNIGHT)

INTERVAL	APPROACHING INTERSECTION															TOTALS	GRAND TOTALS															
	FROM THE NORTH ON ALLEY					FROM THE SOUTH ON ALLEY																										
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VEH CLASS	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E		
TOTALS	17				2	2					1					2						8					2				35	377
	NL					NT					NR					SL					ST					SR						

LOCATION DIAGRAM ENCLOSED (Y / N): NO
 WEATHER CONDITIONS: MOSTLY SUNNY, LIGHT RAIN AFTER 7:00 PM
 RECORDER(S): MOVISION CAMERAS - TROY PEACOCK
 COMMENTS: WEST LEG IS A ONE WAY FOR VEHICLES BUT NOT FOR BICYCLES/E-SCOOTERS (*COULD AFFECT E/ET/ERNR/SL), BROADWAY SHOW AT JUBILEE AUDITORIUM AT NIGHT MAY HAVE IMPACTED TRAFFIC VOLUMES

VEHICLE CLASSES
 A: LIGHT VEHICLES B: BUSES C: TRUCKS
 D: BICYCLES ON ROAD E: E-SCOOTERS

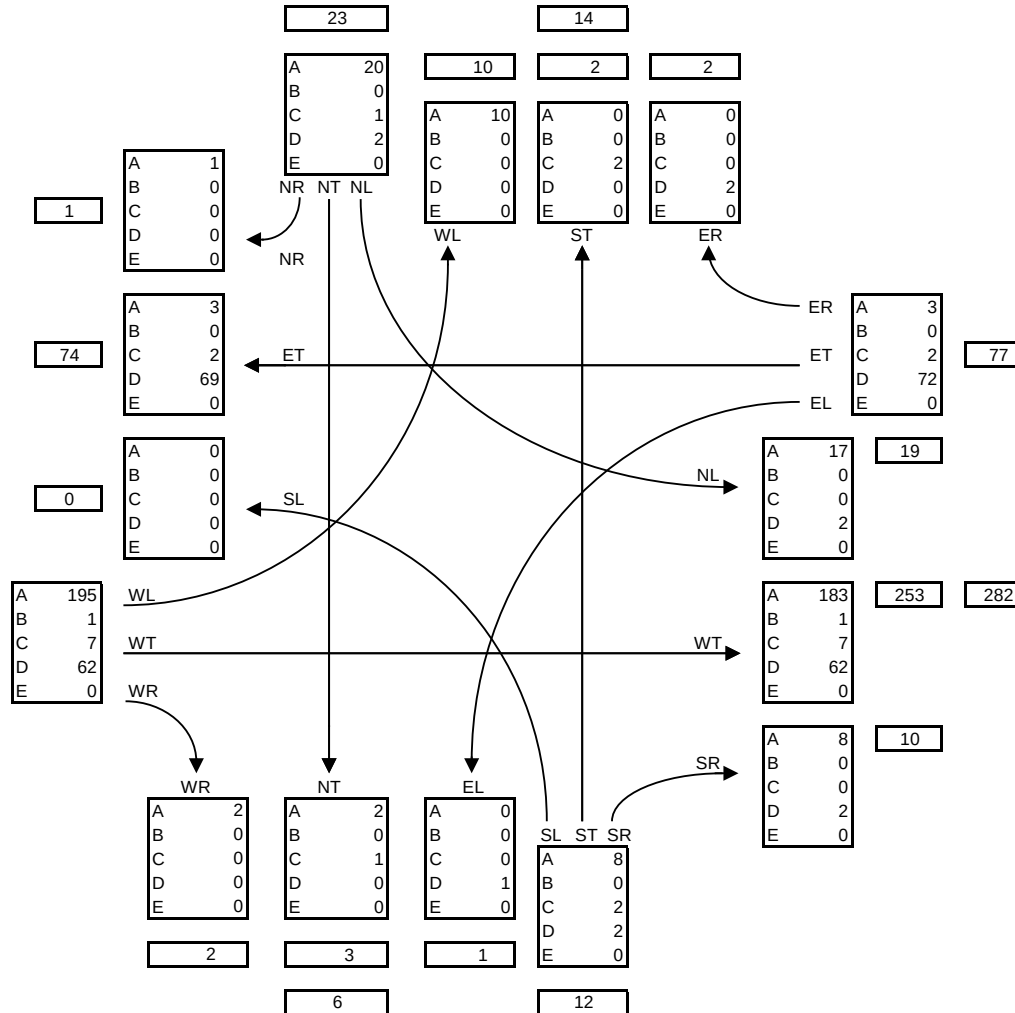
TURNING MOVEMENT SUMMARY DIAGRAM

INTERSECTION OF: 89 AVE & ALLEY W. OF 116 ST, EDMONTON

DAY & DATE OF COUNT: THURSDAY, SEPTEMBER 28, 2023
COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

OBSERVED 24 HOURS TRAFFIC VOLUMES

WEST ON 89 AVENUE		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	199	58.53
B: BUSES	1	0.29
C: TRUCKS	9	2.65
D: BICYCLES ON ROAD	131	38.53
E: E-SCOOTERS	0	0.00
TOTAL	340	



EAST ON 89 AVENUE		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	211	58.77
B: BUSES	1	0.28
C: TRUCKS	9	2.51
D: BICYCLES ON ROAD	138	38.44
E: E-SCOOTERS	0	0.00
TOTAL	359	

TURNING MOVEMENT ABBREVIATIONS

NL : TRAFFIC FROM NORTH TURNING LEFT
NT : TRAFFIC FROM NORTH PROCEEDING THROUGH
NR : TRAFFIC FROM NORTH TURNING RIGHT
SL : TRAFFIC FROM SOUTH TURNING LEFT
ST : TRAFFIC FROM SOUTH PROCEEDING THROUGH
SR : TRAFFIC FROM SOUTH TURNING RIGHT
EL : TRAFFIC FROM EAST TURNING LEFT
ET : TRAFFIC FROM EAST PROCEEDING THROUGH
ER : TRAFFIC FROM EAST TURNING RIGHT
WL : TRAFFIC FROM WEST TURNING LEFT
WT : TRAFFIC FROM WEST PROCEEDING THROUGH
WR : TRAFFIC FROM WEST TURNING RIGHT

SOUTH ON ALLEY		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	12	66.67
B: BUSES	0	0.00
C: TRUCKS	3	16.67
D: BICYCLES ON ROAD	3	16.67
E: E-SCOOTERS	0	0.00
TOTAL	18	

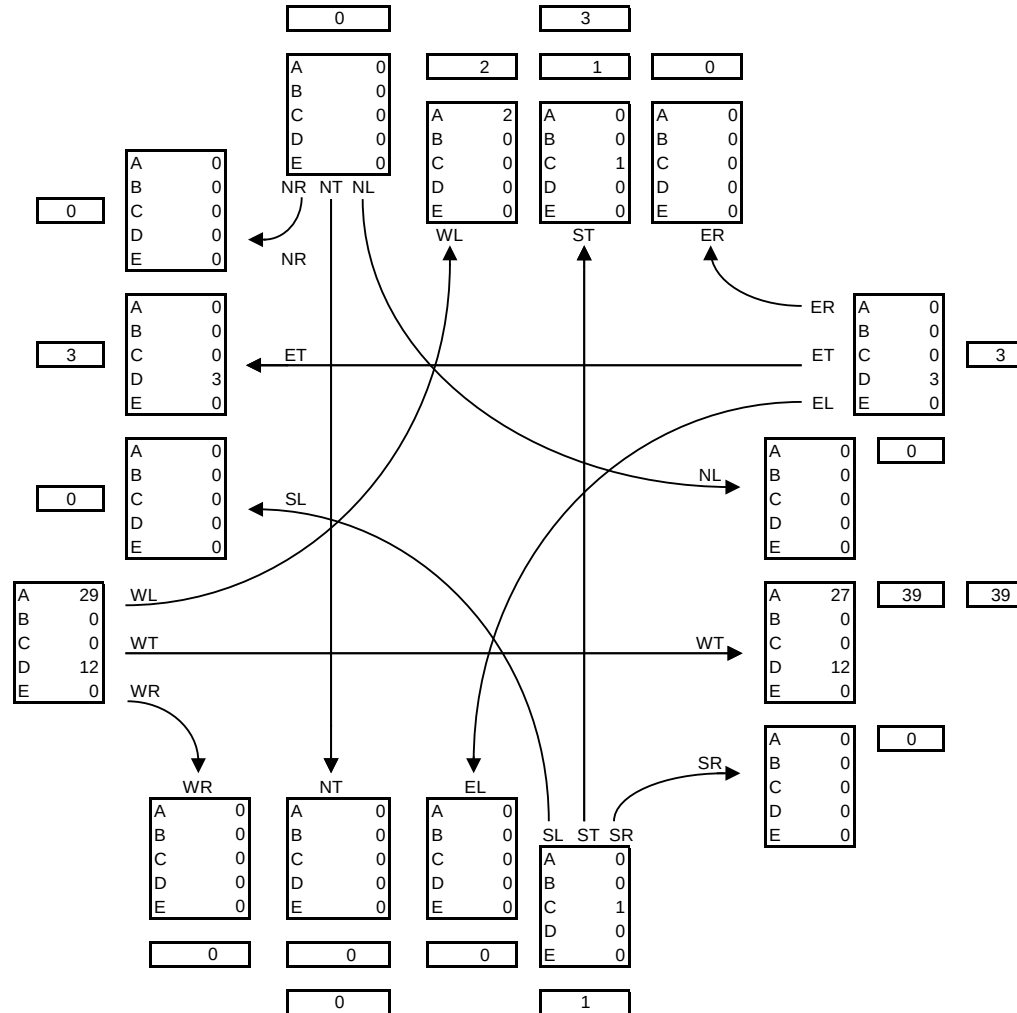
TURNING MOVEMENT SUMMARY DIAGRAM

INTERSECTION OF: 89 AVE & ALLEY W. OF 116 ST, EDMONTON

DAY & DATE OF COUNT: THURSDAY, SEPTEMBER 28, 2023

OBSERVED AM PEAK HOUR TRAFFIC VOLUMES (8:00 - 9:00)

WEST ON 89 AVENUE		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	29	65.91
B: BUSES	0	0.00
C: TRUCKS	0	0.00
D: BICYCLES ON ROAD	15	34.09
E: E-SCOOTERS	0	0.00
TOTAL	44	



TURNING MOVEMENT ABBREVIATIONS

NL : TRAFFIC FROM NORTH TURNING LEFT
 NT : TRAFFIC FROM NORTH PROCEEDING THROUGH
 NR : TRAFFIC FROM NORTH TURNING RIGHT
 SL : TRAFFIC FROM SOUTH TURNING LEFT
 ST : TRAFFIC FROM SOUTH PROCEEDING THROUGH
 SR : TRAFFIC FROM SOUTH TURNING RIGHT
 EL : TRAFFIC FROM EAST TURNING LEFT
 ET : TRAFFIC FROM EAST PROCEEDING THROUGH
 ER : TRAFFIC FROM EAST TURNING RIGHT
 WL : TRAFFIC FROM WEST TURNING LEFT
 WT : TRAFFIC FROM WEST PROCEEDING THROUGH
 WR : TRAFFIC FROM WEST TURNING RIGHT

SOUTH ON ALLEY		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	0	0.00
B: BUSES	0	0.00
C: TRUCKS	1	100.0
D: BICYCLES ON ROAD	0	0.00
E: E-SCOOTERS	0	0.00
TOTAL	1	

EAST ON 89 AVENUE		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	27	64.29
B: BUSES	0	0.00
C: TRUCKS	0	0.00
D: BICYCLES ON ROAD	15	35.71
E: E-SCOOTERS	0	0.00
TOTAL	42	

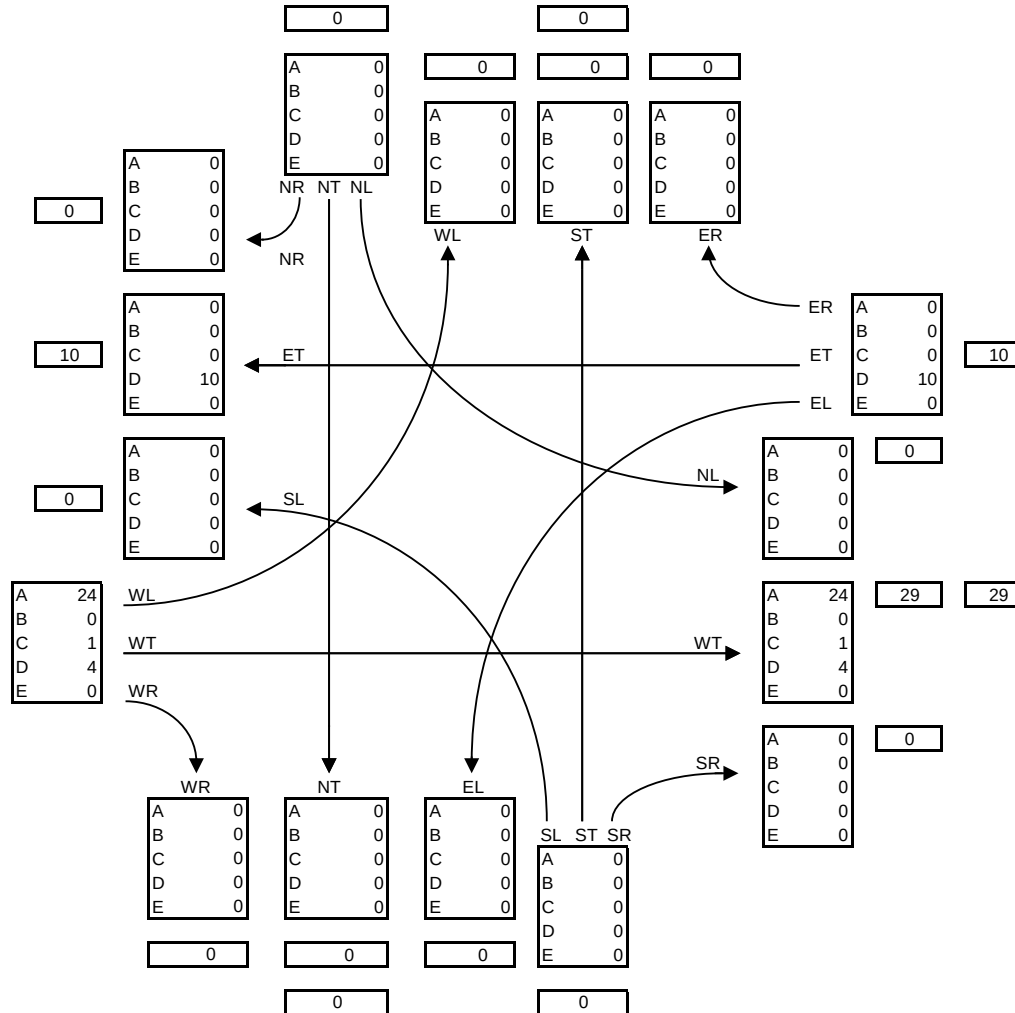
TURNING MOVEMENT SUMMARY DIAGRAM

INTERSECTION OF: 89 AVE & ALLEY W. OF 116 ST, EDMONTON

DAY & DATE OF COUNT: THURSDAY, SEPTEMBER 28, 2023

OBSERVED PM PEAK HOUR TRAFFIC VOLUMES (3:15 - 4:15)

WEST ON 89 AVENUE		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	24	61.54
B: BUSES	0	0.00
C: TRUCKS	1	2.56
D: BICYCLES ON ROAD	14	35.90
E: E-SCOOTERS	0	0.00
TOTAL	39	



EAST ON 89 AVENUE		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	24	61.54
B: BUSES	0	0.00
C: TRUCKS	1	2.56
D: BICYCLES ON ROAD	14	35.90
E: E-SCOOTERS	0	0.00
TOTAL	39	

TURNING MOVEMENT ABBREVIATIONS

NL : TRAFFIC FROM NORTH TURNING LEFT
 NT : TRAFFIC FROM NORTH PROCEEDING THROUGH
 NR : TRAFFIC FROM NORTH TURNING RIGHT
 SL : TRAFFIC FROM SOUTH TURNING LEFT
 ST : TRAFFIC FROM SOUTH PROCEEDING THROUGH
 SR : TRAFFIC FROM SOUTH TURNING RIGHT
 EL : TRAFFIC FROM EAST TURNING LEFT
 ET : TRAFFIC FROM EAST PROCEEDING THROUGH
 ER : TRAFFIC FROM EAST TURNING RIGHT
 WL : TRAFFIC FROM WEST TURNING LEFT
 WT : TRAFFIC FROM WEST PROCEEDING THROUGH
 WR : TRAFFIC FROM WEST TURNING RIGHT

SOUTH ON ALLEY		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	0	0.00
B: BUSES	0	0.00
C: TRUCKS	0	0.00
D: BICYCLES ON ROAD	0	0.00
E: E-SCOOTERS	0	0.00
TOTAL	0	

DIRECTIONAL PEDESTRIAN COUNT SUMMARY

LOCATION: 89 AVENUE & ALLEY WEST OF 116 STREET, EDMONTON

DATE: THURSDAY, SEPTEMBER 28, 2023

COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

PEDESTRIAN CROSSING		INTERVAL																									SUB- TOTAL
		MIDNIGHT TO 1:00AM	1:00 AM TO 2:00 AM	2:00 AM TO 3:00 AM	3:00 AM TO 4:00 AM	4:00 AM TO 5:00 AM	5:00 AM TO 6:00AM	6:00 AM TO 7:00 AM	7:00 AM TO 8:00 AM	8:00 AM TO 9:00 AM	9:00 AM TO 10:00 AM	10:00 AM TO 11:00 AM	11:00 AM TO NOON	NOON TO 1:00PM	1:00PM TO 2:00 PM	2:00 PM TO 3:00 PM	3:00 PM TO 4:00 PM	4:00 PM TO 5:00 PM	5:00 PM TO 6:00 PM	6:00 PM TO 7:00 PM	7:00 PM TO 8:00 PM	8:00 PM TO 9:00 PM	9:00 PM TO 10:00 PM	10:00 PM TO 11:00 PM	11:00 PM TO MIDNIGHT		
NE CORNER	SE CORNER						1						1							2	1					5	
	NW CORNER	4						6	8	8	1	5	11	26	19	15	28	19	15	15	5	3	6	3	1	198	
NW CORNER	SW CORNER							1				1	1			1										4	
	NE CORNER						1	3	11	28	30	16	9	17	18	13	18	11	9	8	1	4	3			200	
SE CORNER	NE CORNER	1					1	2	1				2	1	1						2					11	
	SW CORNER							1	3		1		2	4	4	2	6	5	4	6	1	2	3	1		45	
SW CORNER	NW CORNER					1			1				1	1	1			1			1					7	
	SE CORNER		2					2	1	2	2	8	8	8	4	3	7	10	2	1	5		3			68	
TOTAL PEDESTRIANS																									538		



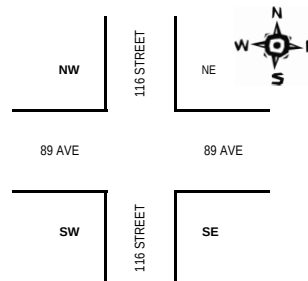
BICYCLES AND E-SCOOTERS ON SIDEWALK

LOCATION: 89 AVENUE & ALLEY WEST OF 116 STREET, EDMONTON

DATE: THURSDAY, SEPTEMBER 28, 2023

COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

PEDESTRIAN CROSSING		INTERVAL																									SUB- TOTAL
		MIDNIGHT TO 1:00AM	1:00 AM TO 2:00 AM	2:00 AM TO 3:00 AM	3:00 AM TO 4:00 AM	4:00 AM TO 5:00 AM	5:00 AM TO 6:00AM	6:00 AM TO 7:00 AM	7:00 AM TO 8:00 AM	8:00 AM TO 9:00 AM	9:00 AM TO 10:00 AM	10:00 AM TO 11:00 AM	11:00 AM TO NOON	NOON TO 1:00PM	1:00PM TO 2:00 PM	2:00 PM TO 3:00 PM	3:00 PM TO 4:00 PM	4:00 PM TO 5:00 PM	5:00 PM TO 6:00 PM	6:00 PM TO 7:00 PM	7:00 PM TO 8:00 PM	8:00 PM TO 9:00 PM	9:00 PM TO 10:00 PM	10:00 PM TO 11:00 PM	11:00 PM TO MIDNIGHT		
NE CORNER	SE CORNER																										
	NW CORNER																		1							1	
NW CORNER	SW CORNER																										
	NE CORNER																										
SE CORNER	NE CORNER																										
	SW CORNER															1										1	
SW CORNER	NW CORNER																										
	SE CORNER										1															1	
TOTAL BICYCLES AND E-SCOOTERS ON SIDEWALK																									3		



DIRECTIONAL TRAFFIC COUNT SUMMARY

HIGHWAY:

LATITUDE (degrees):

DAY & DATE OF COUNT: THURSDAY, APRIL 04, 2024

REFERENCE NO.:

LONGITUDE (degrees):

INTERSECTION OF: 117 STREET & ALLEY NORTH OF 87 AVE, EDMONTON

LEGAL DESCRIPTION:

COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

INTERVAL	APPROACHING INTERSECTION																				TOTALS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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LOCATION DIAGRAM ENCLOSED (Y / N): NO
WEATHER CONDITIONS: CLEAR, SUNNY
RECORDER(S): MIOVISION CAMERAS - TROY PEACOCK
COMMENTS: ALLEY BEHIND APARTMENTS AND CIRCLE K, NO CYCLISTS OBSERVED USING CROSSWALKS

VEHICLE CLASSES
A: LIGHT VEHICLES
B: BICYCLES ON ROAD
C: BUSES
D: SINGLE UNIT TRUCKS
E: ARTICULATED TRUCKS

DIRECTIONAL TRAFFIC COUNT SUMMARY

HIGHWAY: REFERENCE NO.: INTERSECTION OF: 117 STREET & ALLEY NORTH OF 87 AVE, EDMONTON
LATITUDE (degrees): LONGITUDE (degrees): LEGAL DESCRIPTION:
DAY & DATE OF COUNT: THURSDAY, APRIL 04, 2024 COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

INTERVAL	APPROACHING INTERSECTION																				TOTALS	GRAND TOTALS							
	FROM THE NORTH ON 117 STREET										FROM THE SOUTH ON 117 STREET																		
	LEFT					THROUGH					RIGHT					LEFT							THROUGH					RIGHT	
MIDNIGHT - 0:15						1										1									2	2			
0:15 - 0:30																	2								2	2			
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8:30 - 8:45						3						1					9	3							16	24			
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9:15 - 9:30						1						1					14				1				17	17			
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10:45 - 11:00						1											11								12	13			
11:00 - 11:15						9											5	1							15	15			
11:15 - 11:30						5											5								10	13			
11:30 - 11:45						3	1										1								5	5			
11:45-12:00 PM						2				1		1					2	1							7	9			
12:00 - 12:15						3						2					3								8	9			
12:15 - 12:30						4											8								12	12			
12:30 - 12:45						4				1		1					4								10	10			
12:45 - 1:00						3				1		1					9								14	15			
1:00 - 1:15						4		1				1					5								11	12			
1:15 - 1:30								1				1					3			2					7	8			
1:30 - 1:45						5						1					9								15	15			
1:45 - 2:00						3						1					5	1							10	11			
2:00 - 2:15						5											6	1		2					14	15			
2:15 - 2:30						4			1								4								9	10			
2:30 - 2:45						6	1					2					4								13	13			
2:45 - 3:00						3	1					1					4								9	11			
3:00 - 3:15						5	1					1					8								15	15			
3:15 - 3:30						4						1					5								10	12			
3:30 - 3:45						5											4								9	12			
3:45 - 4:00						4											2	1							7	8			
4:00 - 4:15						7	1																						

TURNING MOVEMENT SUMMARY DIAGRAM

INTERSECTION OF: 117 STREET & ALLEY N. OF 87 AVE, EDMONTON

DAY & DATE OF COUNT: THURSDAY, APRIL 04, 2024

COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

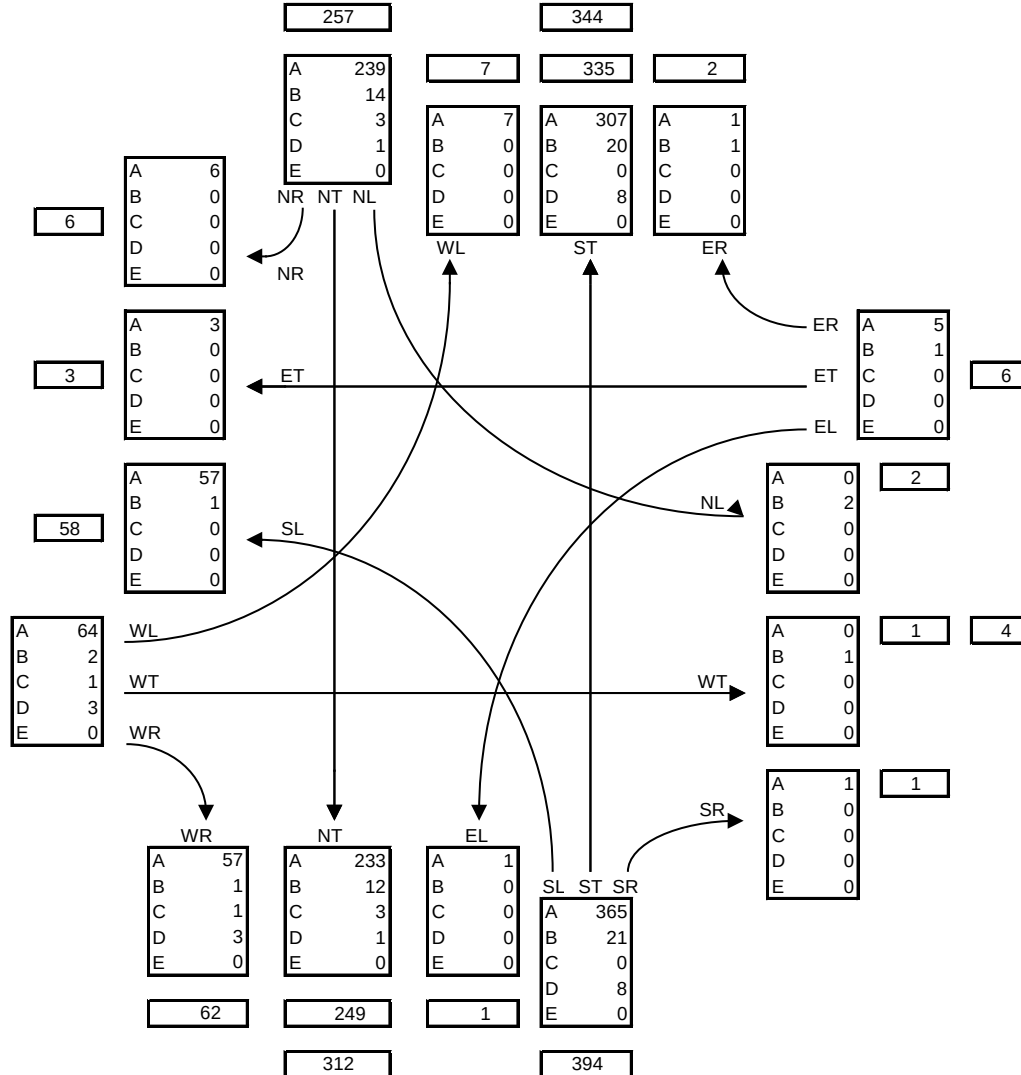
OBSERVED 24 HOURS TRAFFIC VOLUMES

NORTH ON 117 STREET		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	554	92.18
B: BICYCLES ON ROAD	35	5.82
C: BUSES	3	0.50
D: SINGLE UNIT TRUCKS	9	1.50
E: ARTICULATED TRUCKS	0	0.00
TOTAL	601	

257	344
A 239 B 14 C 3 D 1 E 0	7 335 2 A 7 A 307 A 1 B 0 B 20 B 1 C 0 C 0 C 0 D 0 D 8 D 0 E 0 E 0 E 0
NR NT NL	WL ST ER

WEST ON ALLEY		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	130	94.89
B: BICYCLES ON ROAD	3	2.19
C: BUSES	1	0.73
D: SINGLE UNIT TRUCKS	3	2.19
E: ARTICULATED TRUCKS	0	0.00
TOTAL	137	

EAST ON ALLEY		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	6	60.00
B: BICYCLES ON ROAD	4	40.00
C: BUSES	0	0.00
D: SINGLE UNIT TRUCKS	0	0.00
E: ARTICULATED TRUCKS	0	0.00
TOTAL	10	



TURNING MOVEMENT ABBREVIATIONS

NL : TRAFFIC FROM NORTH TURNING LEFT
 NT : TRAFFIC FROM NORTH PROCEEDING THROUGH
 NR : TRAFFIC FROM NORTH TURNING RIGHT
 SL : TRAFFIC FROM SOUTH TURNING LEFT
 ST : TRAFFIC FROM SOUTH PROCEEDING THROUGH
 SR : TRAFFIC FROM SOUTH TURNING RIGHT
 EL : TRAFFIC FROM EAST TURNING LEFT
 ET : TRAFFIC FROM EAST PROCEEDING THROUGH
 ER : TRAFFIC FROM EAST TURNING RIGHT
 WL : TRAFFIC FROM WEST TURNING LEFT
 WT : TRAFFIC FROM WEST PROCEEDING THROUGH
 WR : TRAFFIC FROM WEST TURNING RIGHT

SOUTH ON 117 STREET		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	656	92.92
B: BICYCLES ON ROAD	34	4.82
C: BUSES	4	0.57
D: SINGLE UNIT TRUCKS	12	1.70
E: ARTICULATED TRUCKS	0	0.00
TOTAL	706	

TURNING MOVEMENT SUMMARY DIAGRAM

INTERSECTION OF: 117 STREET & ALLEY N. OF 87 AVE, EDMONTON

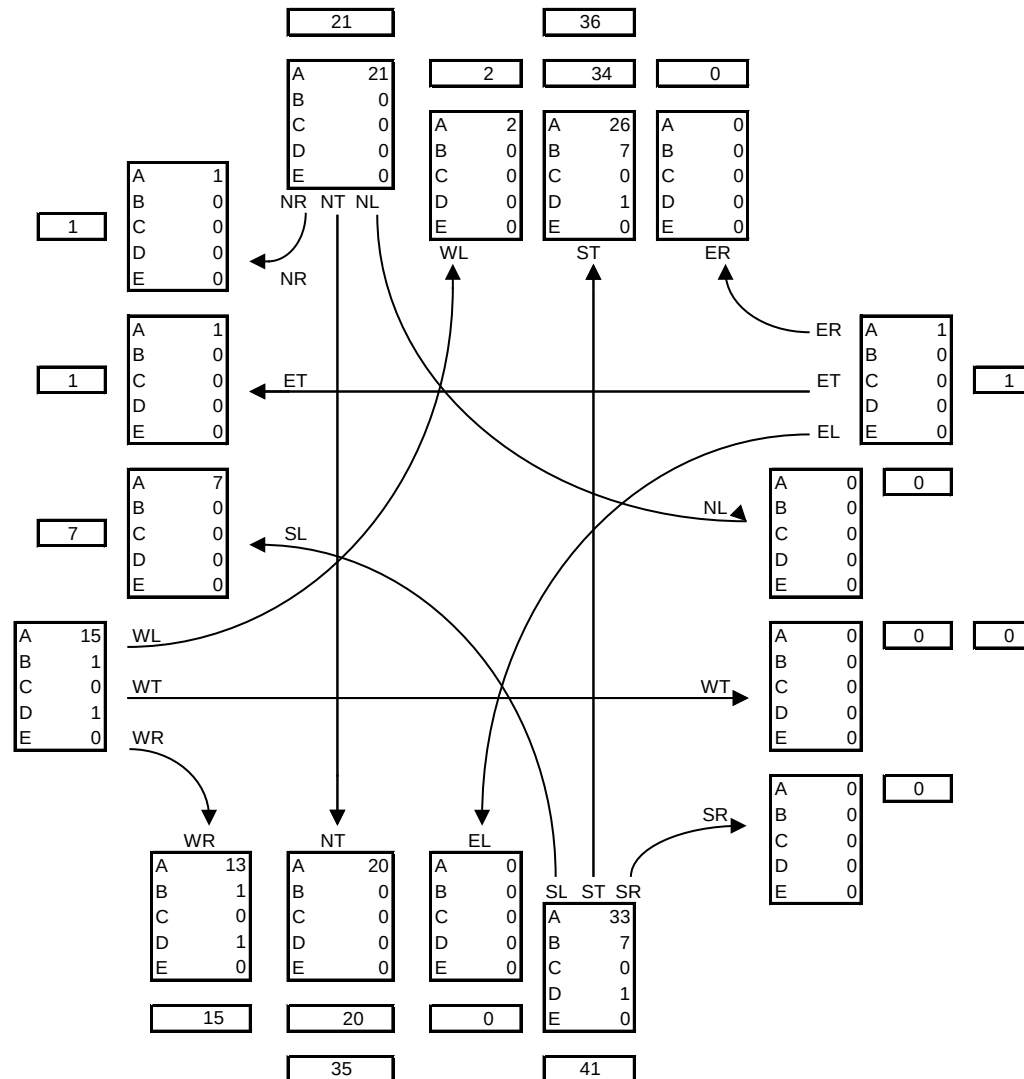
DAY & DATE OF COUNT: THURSDAY, APRIL 04, 2024

OBSERVED AM PEAK HOUR TRAFFIC VOLUMES (8:00 - 9:00)

WEST ON	ALLEY	
VEH TYPE	VOL	%
A: LIGHT VEHICLES	24	92.31
B: BICYCLES ON ROAD	1	3.85
C: BUSES	0	0.00
D: SINGLE UNIT TRUCKS	1	3.85
E: ARTICULATED TRUCKS	0	0.00
TOTAL	26	

9

17



EAST ON	ALLEY	
VEH TYPE	VOL	%
A: LIGHT VEHICLES	1	100.00
B: BICYCLES ON ROAD	0	0.00
C: BUSES	0	0.00
D: SINGLE UNIT TRUCKS	0	0.00
E: ARTICULATED TRUCKS	0	0.00
TOTAL	1	

TURNING MOVEMENT ABBREVIATIONS

NL : TRAFFIC FROM NORTH TURNING LEFT
 NT : TRAFFIC FROM NORTH PROCEEDING THROUGH
 NR : TRAFFIC FROM NORTH TURNING RIGHT
 SL : TRAFFIC FROM SOUTH TURNING LEFT
 ST : TRAFFIC FROM SOUTH PROCEEDING THROUGH
 SR : TRAFFIC FROM SOUTH TURNING RIGHT
 EL : TRAFFIC FROM EAST TURNING LEFT
 ET : TRAFFIC FROM EAST PROCEEDING THROUGH
 ER : TRAFFIC FROM EAST TURNING RIGHT
 WL : TRAFFIC FROM WEST TURNING LEFT
 WT : TRAFFIC FROM WEST PROCEEDING THROUGH
 WR : TRAFFIC FROM WEST TURNING RIGHT

SOUTH ON	117 STREET	
VEH TYPE	VOL	%
A: LIGHT VEHICLES	66	86.84
B: BICYCLES ON ROAD	8	10.53
C: BUSES	0	0.0
D: SINGLE UNIT TRUCKS	2	2.63
E: ARTICULATED TRUCKS	0	0.0
TOTAL	76	

TURNING MOVEMENT SUMMARY DIAGRAM

INTERSECTION OF: 117 STREET & ALLEY N. OF 87 AVE, EDMONTON

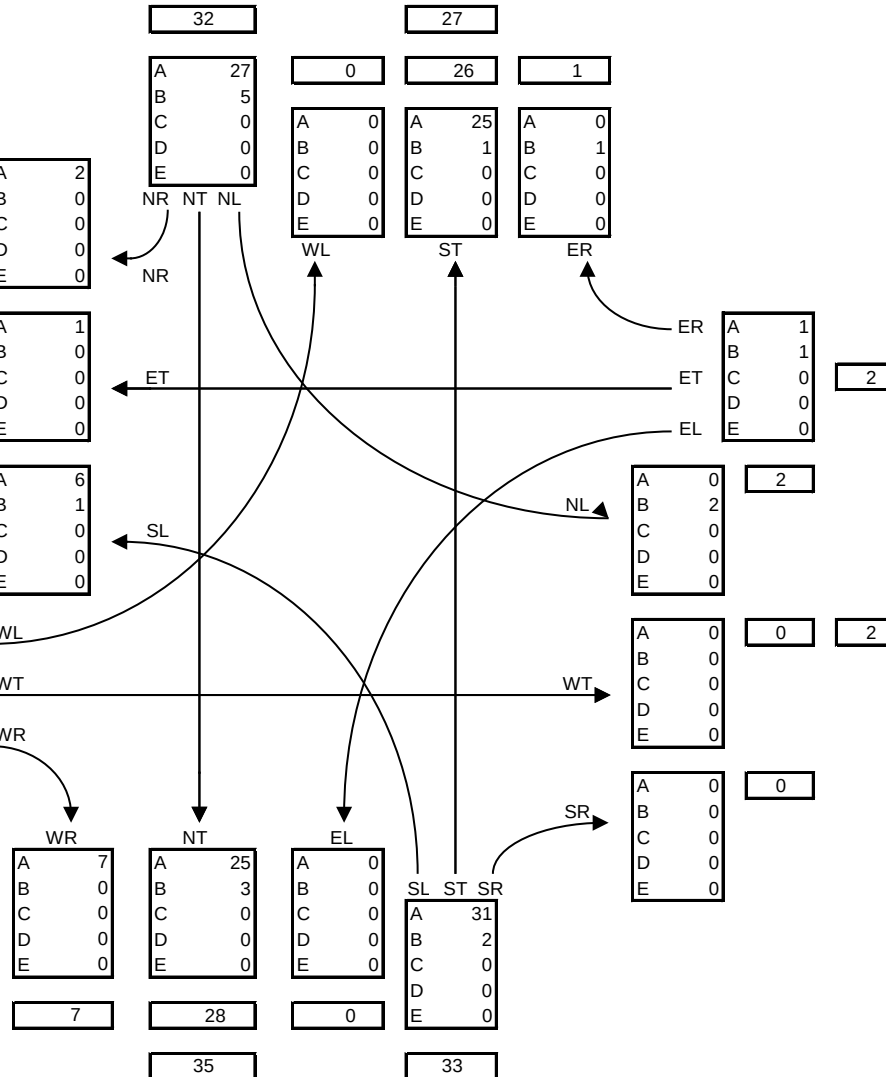
DAY & DATE OF COUNT: THURSDAY, APRIL 04, 2024

OBSERVED PM PEAK HOUR TRAFFIC VOLUMES (4:30 - 5:30)

NORTH ON 117 STREET		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	52	88.14
B: BICYCLES ON ROAD	7	11.86
C: BUSES	0	0.00
D: SINGLE UNIT TRUCKS	0	0.00
E: ARTICULATED TRUCKS	0	0.00
TOTAL	59	

WEST ON ALLEY		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	16	94.12
B: BICYCLES ON ROAD	1	5.88
C: BUSES	0	0.00
D: SINGLE UNIT TRUCKS	0	0.00
E: ARTICULATED TRUCKS	0	0.00
TOTAL	17	

EAST ON ALLEY		
VEH TYPE	VOL	%
A: LIGHT VEHICLES	1	25.00
B: BICYCLES ON ROAD	3	75.00
C: BUSES	0	0.00
D: SINGLE UNIT TRUCKS	0	0.00
E: ARTICULATED TRUCKS	0	0.00
TOTAL	4	



TURNING MOVEMENT ABBREVIATIONS

NL : TRAFFIC FROM NORTH TURNING LEFT
 NT : TRAFFIC FROM NORTH PROCEEDING THROUGH
 NR : TRAFFIC FROM NORTH TURNING RIGHT
 SL : TRAFFIC FROM SOUTH TURNING LEFT
 ST : TRAFFIC FROM SOUTH PROCEEDING THROUGH
 SR : TRAFFIC FROM SOUTH TURNING RIGHT
 EL : TRAFFIC FROM EAST TURNING LEFT
 ET : TRAFFIC FROM EAST PROCEEDING THROUGH
 ER : TRAFFIC FROM EAST TURNING RIGHT
 WL : TRAFFIC FROM WEST TURNING LEFT
 WT : TRAFFIC FROM WEST PROCEEDING THROUGH
 WR : TRAFFIC FROM WEST TURNING RIGHT

DIRECTIONAL PEDESTRIAN COUNT SUMMARY

BICYCLES ON SIDEWALK

LOCATION: 117 STREET & ALLEY NORTH OF 87 AVE, EDMONTON

DATE: THURSDAY, APRIL 04, 2024

COUNT DURATION: 24 HOURS (MIDNIGHT TO MIDNIGHT)

PEDESTRIAN CROSSING		INTERVAL																								SUB-TOTAL	
FROM	TO	MIDNIGHT TO 1:00AM	1:00 AM TO 2:00 AM	2:00 AM TO 3:00 AM	3:00 AM TO 4:00 AM	4:00 AM TO 5:00 AM	5:00 AM TO 6:00AM	6:00 AM TO 7:00 AM	7:00 AM TO 8:00 AM	8:00 AM TO 9:00 AM	9:00 AM TO 10:00 AM	10:00 AM TO 11:00 AM	11:00 AM TO NOON	NOON TO 1:00PM	1:00PM TO 2:00 PM	2:00 PM TO 3:00 PM	3:00 PM TO 4:00 PM	4:00 PM TO 5:00 PM	5:00 PM TO 6:00 PM	6:00 PM TO 7:00 PM	7:00 PM TO 8:00 PM	8:00 PM TO 9:00 PM	9:00 PM TO 10:00 PM	10:00 PM TO 11:00 PM	11:00 PM TO MIDNIGHT		
NE CORNER	SE CORNER																										
	NW CORNER																										
NW CORNER	SW CORNER																										
	NE CORNER																										
SE CORNER	NE CORNER																										
	SW CORNER																										
SW CORNER	NW CORNER																										
	SE CORNER																										
TOTAL BICYCLES ON SIDEWALK																											

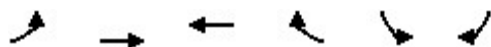
APPENDIX C

SYNCHRO SUMMARIES

Lanes, Volumes, Timings

9: 87 Ave & 116 St

05-28-2024

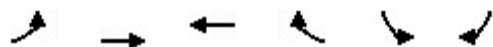


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3
Lane Configurations		↑↑	↑↑		↑↑		
Traffic Volume (vph)	50	422	232	471	183	13	
Future Volume (vph)	50	422	232	471	183	13	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	0.95	0.95	0.95	0.95	0.97	0.95	
Ped Bike Factor		1.00	0.97		0.78		
Frt			0.899		0.990		
Flt Protected		0.995			0.955		
Satd. Flow (prot)	0	3431	3071	0	3385	0	
Flt Permitted		0.825			0.955		
Satd. Flow (perm)	0	2844	3071	0	2649	0	
Right Turn on Red				Yes		No	
Satd. Flow (RTOR)			512				
Link Speed (k/h)		50	50		50		
Link Distance (m)		63.0	309.2		212.0		
Travel Time (s)		4.5	22.3		15.3		
Confl. Peds. (#/hr)	9			9	121	65	
Confl. Bikes (#/hr)				3			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	2%	5%	5%	2%	2%	2%	
Adj. Flow (vph)	54	459	252	512	199	14	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	513	764	0	213	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Left	Left	Right	Left	Right	
Median Width(m)		0.0	0.0		7.2		
Link Offset(m)		0.0	0.0		0.0		
Crosswalk Width(m)		4.8	4.8		4.8		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (k/h)	25			15	25	15	
Turn Type	Perm	NA	NA		pm+pt		
Protected Phases		1	1		2		3
Permitted Phases	1				3		
Detector Phase	1	1	1		2		
Switch Phase							
Minimum Initial (s)	24.0	24.0	24.0		7.0		21.0
Minimum Split (s)	36.0	36.0	36.0		22.5		33.0
Total Split (s)	43.0	43.0	43.0		24.0		33.0
Total Split (%)	43.0%	43.0%	43.0%		24.0%		33%
Maximum Green (s)	38.0	38.0	38.0		21.0		28.0
Yellow Time (s)	3.0	3.0	3.0		3.0		3.0
All-Red Time (s)	2.0	2.0	2.0		0.0		2.0
Lost Time Adjust (s)		0.0	0.0		0.0		
Total Lost Time (s)		5.0	5.0		3.0		
Lead/Lag	Lead	Lead	Lead		Lag		
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0
Recall Mode	None	None	None		Max		None

Lanes, Volumes, Timings

9: 87 Ave & 116 St

05-28-2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3
Walk Time (s)	10.0	10.0	10.0				7.0
Flash Dont Walk (s)	19.0	19.0	19.0				19.0
Pedestrian Calls (#/hr)	0	0	0				0
Act Effect Green (s)		24.0	24.0		21.0		
Actuated g/C Ratio		0.45	0.45		0.40		
v/c Ratio		0.40	0.46		0.16		
Control Delay		10.9	4.1		10.7		
Queue Delay		0.0	0.0		0.0		
Total Delay		10.9	4.1		10.7		
LOS		B	A		B		
Approach Delay		10.9	4.1		10.7		
Approach LOS		B	A		B		
Queue Length 50th (m)		16.8	7.3		6.7		
Queue Length 95th (m)		26.7	16.5		12.4		
Internal Link Dist (m)		39.0	285.2		188.0		
Turn Bay Length (m)							
Base Capacity (vph)		2039	2346		1341		
Starvation Cap Reductn		0	0		0		
Spillback Cap Reductn		0	0		0		
Storage Cap Reductn		0	0		0		
Reduced v/c Ratio		0.25	0.33		0.16		

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 53

Natural Cycle: 95

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.46

Intersection Signal Delay: 7.4

Intersection LOS: A

Intersection Capacity Utilization 60.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 9: 87 Ave & 116 St



Queuing and Blocking Report

Baseline

05-28-2024

Intersection: 5: 87 Ave & NS Alley

Movement	EB	EB	WB	SB
Directions Served	LT	T	T	LR
Maximum Queue (m)	39.6	34.8	1.8	9.1
Average Queue (m)	7.6	3.0	0.1	1.3
95th Queue (m)	25.9	16.7	1.3	6.4
Link Distance (m)	41.8	41.8	44.6	191.4
Upstream Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: NS Alley & 89 Ave

Movement	NB	SB
Directions Served	TR	LT
Maximum Queue (m)	9.1	9.1
Average Queue (m)	0.4	0.7
95th Queue (m)	3.5	4.8
Link Distance (m)	191.4	84.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: 116 St & 89 Ave

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	R	TR	LT
Maximum Queue (m)	16.5	13.1	11.8	36.1	43.7
Average Queue (m)	5.6	3.6	2.3	6.9	12.6
95th Queue (m)	13.3	11.4	8.9	22.5	31.8
Link Distance (m)	41.4	96.1	96.1	189.6	86.6
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Queuing and Blocking Report Baseline

05-28-2024

Intersection: 9: 87 Ave & 116 St

Movement	EB	EB	WB	WB	SB	SB
Directions Served	LT	T	T	TR	L	LR
Maximum Queue (m)	49.3	52.4	47.6	105.3	34.2	28.5
Average Queue (m)	40.0	33.4	25.3	47.3	15.5	11.7
95th Queue (m)	53.8	53.0	43.1	83.4	28.4	24.6
Link Distance (m)	44.6	44.6	297.3	297.3	189.6	189.6
Upstream Blk Time (%)	10	3				
Queuing Penalty (veh)	22	8				
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 11: 117 St & 87 Ave

Movement	EB	WB	NB	SB
Directions Served	LT	LT	LTR	LTR
Maximum Queue (m)	7.9	12.7	21.1	10.6
Average Queue (m)	0.3	2.4	10.5	6.3
95th Queue (m)	3.6	9.4	17.9	13.3
Link Distance (m)	104.8	41.8	75.2	33.9
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: 117 St & 89 Ave

Movement	EB	SB
Directions Served	LTR	LT
Maximum Queue (m)	11.9	1.8
Average Queue (m)	7.0	0.1
95th Queue (m)	13.6	1.3
Link Distance (m)	107.8	79.5
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report

Baseline

05-28-2024

Intersection: 15: 118 St & 87 Ave

Movement	WB	NB	SB
Directions Served	LT	LTR	LTR
Maximum Queue (m)	13.4	10.7	9.3
Average Queue (m)	2.9	2.8	4.0
95th Queue (m)	10.8	9.8	11.4
Link Distance (m)	104.8	78.2	155.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: 117 St & EW Alley

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	10.5	9.0	1.8
Average Queue (m)	3.8	1.1	0.1
95th Queue (m)	11.2	6.0	1.3
Link Distance (m)	41.3	34.0	33.9
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 30

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	457	246	7	2	3
Future Vol, veh/h	6	457	246	7	2	3
Conflicting Peds, #/hr	25	0	0	25	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	6	6	2	2	2
Mvmt Flow	7	497	267	8	2	3

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	300	0	0 560 163
Stage 1	-	-	- 296 -
Stage 2	-	-	- 264 -
Critical Hdwy	4.14	-	- 6.84 6.94
Critical Hdwy Stg 1	-	-	- 5.84 -
Critical Hdwy Stg 2	-	-	- 5.84 -
Follow-up Hdwy	2.22	-	- 3.52 3.32
Pot Cap-1 Maneuver	1258	-	- 458 853
Stage 1	-	-	- 729 -
Stage 2	-	-	- 756 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1236	-	- 438 838
Mov Cap-2 Maneuver	-	-	- 438 -
Stage 1	-	-	- 710 -
Stage 2	-	-	- 742 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	10.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1236	-	-	-	614
HCM Lane V/C Ratio	0.005	-	-	-	0.009
HCM Control Delay (s)	7.9	0	-	-	10.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↔			↕	
Traffic Vol, veh/h	2	34	1	0	0	0	0	1	1	1	1	0
Future Vol, veh/h	2	34	1	0	0	0	0	1	1	1	1	0
Conflicting Peds, #/hr	9	0	3	3	0	9	1	0	1	1	0	1
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	37	1	0	0	0	0	1	1	1	1	0
Major/Minor	Major1						Minor1			Minor2		
Conflicting Flow All	9	0	0				-	54	42	53	54	-
Stage 1	-	-	-				-	45	-	9	9	-
Stage 2	-	-	-				-	9	-	44	45	-
Critical Hdwy	4.12	-	-				-	6.52	6.22	7.12	6.52	-
Critical Hdwy Stg 1	-	-	-				-	5.52	-	-	-	-
Critical Hdwy Stg 2	-	-	-				-	-	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-				-	4.018	3.318	3.518	4.018	-
Pot Cap-1 Maneuver	1611	-	-				0	837	1029	946	837	0
Stage 1	-	-	-				0	857	-	-	-	0
Stage 2	-	-	-				0	-	-	970	857	0
Platoon blocked, %		-	-									
Mov Cap-1 Maneuver	1601	-	-				-	829	1026	937	829	-
Mov Cap-2 Maneuver	-	-	-				-	829	-	937	829	-
Stage 1	-	-	-				-	854	-	-	-	-
Stage 2	-	-	-				-	-	-	967	854	-
Approach	EB						NB			SB		
HCM Control Delay, s	0.4						8.9			9.1		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	SBLn1							
Capacity (veh/h)	917	1601	-	-	880							
HCM Lane V/C Ratio	0.002	0.001	-	-	0.002							
HCM Control Delay (s)	8.9	7.3	0	-	9.1							
HCM Lane LOS	A	A	A	-	A							
HCM 95th %tile Q(veh)	0	0	-	-	0							

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	14	14	16	0	8	0	374	162	98	161	0
Future Vol, veh/h	4	14	14	16	0	8	0	374	162	98	161	0
Conflicting Peds, #/hr	11	0	3	3	0	11	0	0	121	121	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	3	2	2	3	2
Mvmt Flow	4	15	15	17	0	9	0	407	176	107	175	0
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	900	1093	178	1023	-	627	-	0	0	704	0	0
Stage 1	389	389	-	616	-	-	-	-	-	-	-	-
Stage 2	511	704	-	407	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	-	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	-	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	259	214	865	214	0	484	0	-	-	894	-	0
Stage 1	635	608	-	478	0	-	0	-	-	-	-	0
Stage 2	545	440	-	621	0	-	0	-	-	-	-	0
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	223	164	863	155	-	430	-	-	-	802	-	-
Mov Cap-2 Maneuver	223	164	-	155	-	-	-	-	-	-	-	-
Stage 1	635	518	-	478	-	-	-	-	-	-	-	-
Stage 2	529	395	-	503	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	20.4		25.2		0		3.9					
HCM LOS	C		D									
Minor Lane/Major Mvmt	NBT		NBR		EBLn1WBLn1WBLn2		SBL		SBT			
Capacity (veh/h)	-		-		268 155 430		802		-			
HCM Lane V/C Ratio	-		-		0.13 0.112 0.02		0.133		-			
HCM Control Delay (s)	-		-		20.4 31.1 13.5		10.2		0			
HCM Lane LOS	-		-		C D B		B		A			
HCM 95th %tile Q(veh)	-		-		0.4 0.4 0.1		0.5		-			

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↕			↕	
Traffic Vol, veh/h	4	385	71	29	219	7	25	16	48	11	15	11
Future Vol, veh/h	4	385	71	29	219	7	25	16	48	11	15	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	5	2	2	5	2	2	2	2	2	2	2
Mvmt Flow	4	418	77	32	238	8	27	17	52	12	16	12
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	246	0	0	495	0	0	656	775	248	532	809	123
Stage 1	-	-	-	-	-	-	465	465	-	306	306	-
Stage 2	-	-	-	-	-	-	191	310	-	226	503	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1317	-	-	1065	-	-	351	327	752	430	313	905
Stage 1	-	-	-	-	-	-	547	561	-	679	660	-
Stage 2	-	-	-	-	-	-	792	658	-	756	540	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1317	-	-	1065	-	-	322	314	752	372	301	905
Mov Cap-2 Maneuver	-	-	-	-	-	-	322	314	-	372	301	-
Stage 1	-	-	-	-	-	-	545	559	-	676	637	-
Stage 2	-	-	-	-	-	-	735	635	-	679	538	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			1.1			14.8			14.9		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	463	1317	-	-	1065	-	-	404				
HCM Lane V/C Ratio	0.209	0.003	-	-	0.03	-	-	0.1				
HCM Control Delay (s)	14.8	7.7	0	-	8.5	0.1	-	14.9				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.8	0	-	-	0.1	-	-	0.3				

Intersection												
Int Delay, s/veh	4.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	34	7	0	0	0	0	22	5	3	14	0
Future Vol, veh/h	1	34	7	0	0	0	0	22	5	3	14	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	37	8	0	0	0	0	24	5	3	15	0
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	48	50	15				-	0	0	29	0	0
Stage 1	21	21	-				-	-	-	-	-	-
Stage 2	27	29	-				-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22				-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-				-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318				-	-	-	2.218	-	-
Pot Cap-1 Maneuver	962	841	1065				0	-	-	1584	-	0
Stage 1	1002	878	-				0	-	-	-	-	0
Stage 2	996	871	-				0	-	-	-	-	0
Platoon blocked, %							-	-				
Mov Cap-1 Maneuver	960	0	1065				-	-	-	1584	-	-
Mov Cap-2 Maneuver	960	0	-				-	-	-	-	-	-
Stage 1	1002	0	-				-	-	-	-	-	-
Stage 2	994	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	8.6						0			1.3		
HCM LOS	A											
Minor Lane/Major Mvmt		NBT	NBR	EBLn1	SBL	SBT						
Capacity (veh/h)		-	-	1051	1584	-						
HCM Lane V/C Ratio		-	-	0.043	0.002	-						
HCM Control Delay (s)		-	-	8.6	7.3	0						
HCM Lane LOS		-	-	A	A	A						
HCM 95th %tile Q(veh)		-	-	0.1	0	-						

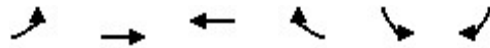
Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
Traffic Vol, veh/h	3	441	5	33	216	1	4	4	3	8	1	9
Future Vol, veh/h	3	441	5	33	216	1	4	4	3	8	1	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	5	2	2	5	2	2	2	2	2	2	2
Mvmt Flow	3	479	5	36	235	1	4	4	3	9	1	10
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	236	0	0	484	0	0	678	796	242	556	798	118
Stage 1	-	-	-	-	-	-	488	488	-	308	308	-
Stage 2	-	-	-	-	-	-	190	308	-	248	490	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1328	-	-	1075	-	-	338	318	759	414	317	912
Stage 1	-	-	-	-	-	-	530	548	-	677	659	-
Stage 2	-	-	-	-	-	-	794	659	-	734	547	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1328	-	-	1075	-	-	323	305	759	395	304	912
Mov Cap-2 Maneuver	-	-	-	-	-	-	323	305	-	395	304	-
Stage 1	-	-	-	-	-	-	528	546	-	675	633	-
Stage 2	-	-	-	-	-	-	754	633	-	723	545	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			1.2			15			11.9		
HCM LOS							C			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	373	1328	-	-	1075	-	-	539				
HCM Lane V/C Ratio	0.032	0.002	-	-	0.033	-	-	0.036				
HCM Control Delay (s)	15	7.7	0	-	8.5	0.1	-	11.9				
HCM Lane LOS	C	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.1				

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	1	13	1	1	1	7	27	1	1	20	1
Future Vol, veh/h	2	1	13	1	1	1	7	27	1	1	20	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	1	14	1	1	1	8	29	1	1	22	1
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	72	71	23	78	71	30	23	0	0	30	0	0
Stage 1	25	25	-	46	46	-	-	-	-	-	-	-
Stage 2	47	46	-	32	25	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	919	819	1054	911	819	1044	1592	-	-	1583	-	-
Stage 1	993	874	-	968	857	-	-	-	-	-	-	-
Stage 2	967	857	-	984	874	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	913	814	1054	894	814	1044	1592	-	-	1583	-	-
Mov Cap-2 Maneuver	913	814	-	894	814	-	-	-	-	-	-	-
Stage 1	988	873	-	963	853	-	-	-	-	-	-	-
Stage 2	960	853	-	969	873	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	8.6		9			1.5			0.3			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1592	-	-	1016	908	1583	-	-				
HCM Lane V/C Ratio	0.005	-	-	0.017	0.004	0.001	-	-				
HCM Control Delay (s)	7.3	0	-	8.6	9	7.3	0	-				
HCM Lane LOS	A	A	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

Lanes, Volumes, Timings

9: 87 Ave & 116 St

05-28-2024

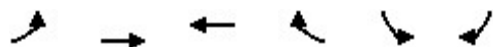


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3
Lane Configurations		↑↑	↑↑		↑↑		
Traffic Volume (vph)	25	301	496	240	405	63	
Future Volume (vph)	25	301	496	240	405	63	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	0.95	0.95	0.95	0.95	0.97	0.95	
Ped Bike Factor		1.00	0.96		0.74		
Frt			0.951		0.980		
Flt Protected		0.996			0.958		
Satd. Flow (prot)	0	3493	3196	0	3301	0	
Flt Permitted		0.872			0.958		
Satd. Flow (perm)	0	3052	3196	0	2514	0	
Right Turn on Red				Yes		No	
Satd. Flow (RTOR)			96				
Link Speed (k/h)		50	50		50		
Link Distance (m)		63.0	309.2		212.0		
Travel Time (s)		4.5	22.3		15.3		
Confl. Peds. (#/hr)	60			60	90	61	
Confl. Bikes (#/hr)				5			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	2%	3%	3%	2%	2%	2%	
Adj. Flow (vph)	27	327	539	261	440	68	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	354	800	0	508	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Left	Left	Right	Left	Right	
Median Width(m)		0.0	0.0		7.2		
Link Offset(m)		0.0	0.0		0.0		
Crosswalk Width(m)		4.8	4.8		4.8		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (k/h)	25			15	25	15	
Turn Type	Perm	NA	NA		pm+pt		
Protected Phases		1	1		2		3
Permitted Phases	1				3		
Detector Phase	1	1	1		2		
Switch Phase							
Minimum Initial (s)	24.0	24.0	24.0		7.0		21.0
Minimum Split (s)	39.0	39.0	39.0		22.5		26.0
Total Split (s)	54.0	54.0	54.0		30.0		26.0
Total Split (%)	49.1%	49.1%	49.1%		27.3%		24%
Maximum Green (s)	49.0	49.0	49.0		27.0		21.0
Yellow Time (s)	3.0	3.0	3.0		3.0		3.0
All-Red Time (s)	2.0	2.0	2.0		0.0		2.0
Lost Time Adjust (s)		0.0	0.0		0.0		
Total Lost Time (s)		5.0	5.0		3.0		
Lead/Lag	Lead	Lead	Lead		Lag		
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0
Recall Mode	None	None	None		Max		None

Lanes, Volumes, Timings

9: 87 Ave & 116 St

05-28-2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3
Walk Time (s)	10.0	10.0	10.0				7.0
Flash Dont Walk (s)	19.0	19.0	19.0				11.0
Pedestrian Calls (#/hr)	0	0	0				0
Act Effect Green (s)		24.4	24.4		27.0		
Actuated g/C Ratio		0.41	0.41		0.45		
v/c Ratio		0.28	0.58		0.34		
Control Delay		12.4	13.8		11.4		
Queue Delay		0.0	0.0		0.0		
Total Delay		12.4	13.8		11.4		
LOS		B	B		B		
Approach Delay		12.4	13.8		11.4		
Approach LOS		B	B		B		
Queue Length 50th (m)		13.5	30.9		17.8		
Queue Length 95th (m)		21.8	46.5		29.3		
Internal Link Dist (m)		39.0	285.2		188.0		
Turn Bay Length (m)							
Base Capacity (vph)		2517	2652		1500		
Starvation Cap Reductn		0	0		0		
Spillback Cap Reductn		0	0		0		
Storage Cap Reductn		0	0		0		
Reduced v/c Ratio		0.14	0.30		0.34		

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 59.4

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 12.8

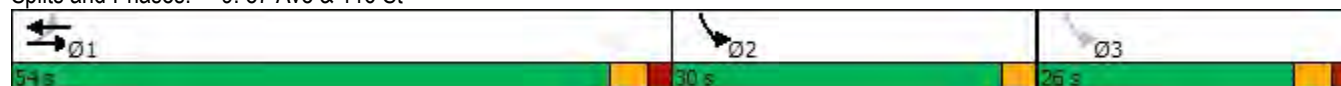
Intersection LOS: B

Intersection Capacity Utilization 49.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 9: 87 Ave & 116 St



Intersection: 5: 87 Ave & NS Alley

Movement	EB	EB	WB	SB
Directions Served	LT	T	T	LR
Maximum Queue (m)	15.3	9.0	7.0	10.4
Average Queue (m)	0.8	0.3	0.2	4.4
95th Queue (m)	7.2	4.7	3.6	11.7
Link Distance (m)	41.8	41.8	44.6	191.4
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: NS Alley & 89 Ave

Movement	NB	SB
Directions Served	TR	LT
Maximum Queue (m)	8.7	9.1
Average Queue (m)	0.4	0.5
95th Queue (m)	3.5	4.1
Link Distance (m)	191.4	84.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: 116 St & 89 Ave

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	R	TR	LT
Maximum Queue (m)	9.2	27.2	18.0	14.5	26.4
Average Queue (m)	2.9	13.8	7.9	1.9	6.1
95th Queue (m)	9.2	24.2	15.5	9.0	17.4
Link Distance (m)	41.4	96.1	96.1	189.6	86.6
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 9: 87 Ave & 116 St

Movement	EB	EB	WB	WB	SB	SB
Directions Served	LT	T	T	TR	L	LR
Maximum Queue (m)	46.6	43.7	72.0	70.1	57.5	60.0
Average Queue (m)	26.2	19.9	44.6	42.3	32.5	34.7
95th Queue (m)	42.5	36.7	65.7	66.8	51.4	57.2
Link Distance (m)	44.6	44.6	297.3	297.3	189.6	189.6
Upstream Blk Time (%)	1	0				
Queuing Penalty (veh)	2	0				
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 11: 117 St & 87 Ave

Movement	EB	WB	WB	NB	SB
Directions Served	LT	LT	TR	LTR	LTR
Maximum Queue (m)	13.8	24.5	9.5	34.8	16.8
Average Queue (m)	1.0	3.1	0.3	15.2	6.8
95th Queue (m)	6.5	13.4	6.0	26.3	14.9
Link Distance (m)	104.8	41.8	41.8	75.2	33.9
Upstream Blk Time (%)		0	0		
Queuing Penalty (veh)		0	0		
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 12: 117 St & 89 Ave

Movement	EB
Directions Served	LTR
Maximum Queue (m)	9.3
Average Queue (m)	2.9
95th Queue (m)	9.8
Link Distance (m)	107.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 15: 118 St & 87 Ave

Movement	EB	WB	NB	SB
Directions Served	LT	LT	LTR	LTR
Maximum Queue (m)	3.1	10.4	9.2	13.1
Average Queue (m)	0.2	1.1	3.0	5.8
95th Queue (m)	2.6	6.2	9.9	13.8
Link Distance (m)	135.5	104.8	78.2	155.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 16: 117 St & EW Alley

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	9.0	9.0	1.6
Average Queue (m)	2.3	1.1	0.1
95th Queue (m)	8.8	6.0	1.2
Link Distance (m)	41.3	34.0	33.9
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 2

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	296	566	15	10	8
Future Vol, veh/h	2	296	566	15	10	8
Conflicting Peds, #/hr	33	0	0	33	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	5	5	2	2	2
Mvmt Flow	2	322	615	16	11	9

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	664	0	0 821 350
Stage 1	-	-	- 656 -
Stage 2	-	-	- 165 -
Critical Hdwy	4.14	-	- 6.84 6.94
Critical Hdwy Stg 1	-	-	- 5.84 -
Critical Hdwy Stg 2	-	-	- 5.84 -
Follow-up Hdwy	2.22	-	- 3.52 3.32
Pot Cap-1 Maneuver	921	-	- 313 646
Stage 1	-	-	- 478 -
Stage 2	-	-	- 847 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	900	-	- 298 630
Mov Cap-2 Maneuver	-	-	- 298 -
Stage 1	-	-	- 466 -
Stage 2	-	-	- 828 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	900	-	-	-	389
HCM Lane V/C Ratio	0.002	-	-	-	0.05
HCM Control Delay (s)	9	0	-	-	14.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	1	29	1	0	0	0	0	1	1	1	1	0
Future Vol, veh/h	1	29	1	0	0	0	0	1	1	1	1	0
Conflicting Peds, #/hr	46	0	13	13	0	46	0	0	0	0	0	0
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	32	1	0	0	0	0	1	1	1	1	0

Major/Minor	Major1			Minor1			Minor2		
Conflicting Flow All	46	0	0	-	94	46	82	94	-
Stage 1	-	-	-	-	48	-	46	46	-
Stage 2	-	-	-	-	46	-	36	48	-
Critical Hdwy	4.12	-	-	-	6.52	6.22	7.12	6.52	-
Critical Hdwy Stg 1	-	-	-	-	5.52	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	-	4.018	3.318	3.518	4.018	-
Pot Cap-1 Maneuver	1562	-	-	0	796	1023	905	796	0
Stage 1	-	-	-	0	855	-	-	-	0
Stage 2	-	-	-	0	-	-	980	855	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1511	-	-	-	761	1012	873	761	-
Mov Cap-2 Maneuver	-	-	-	-	761	-	873	761	-
Stage 1	-	-	-	-	845	-	-	-	-
Stage 2	-	-	-	-	-	-	977	845	-

Approach	EB	NB	SB
HCM Control Delay, s	0.2	9.2	9.4
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	SBLn1
Capacity (veh/h)	869	1511	-	-	813
HCM Lane V/C Ratio	0.003	0.001	-	-	0.003
HCM Control Delay (s)	9.2	7.4	0	-	9.4
HCM Lane LOS	A	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0

Intersection												
Int Delay, s/veh	5.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔		↔			↔	
Traffic Vol, veh/h	3	3	6	115	0	52	0	192	54	42	339	0
Future Vol, veh/h	3	3	6	115	0	52	0	192	54	42	339	0
Conflicting Peds, #/hr	93	0	5	5	0	93	0	0	81	81	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	3	7	125	0	57	0	209	59	46	368	0
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	820	809	373	790	-	413	-	0	0	349	0	0
Stage 1	460	460	-	320	-	-	-	-	-	-	-	-
Stage 2	360	349	-	470	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	-	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	-	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	294	314	673	308	0	639	0	-	-	1210	-	0
Stage 1	581	566	-	692	0	-	0	-	-	-	-	0
Stage 2	658	633	-	574	0	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	233	278	670	270	-	548	-	-	-	1127	-	-
Mov Cap-2 Maneuver	233	278	-	270	-	-	-	-	-	-	-	-
Stage 1	581	537	-	692	-	-	-	-	-	-	-	-
Stage 2	544	589	-	534	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	15.1		24		0		0.9					
HCM LOS	C		C									
Minor Lane/Major Mvmt	NBT		NBR		EBLn1WBLn1WBLn2		SBL		SBT			
Capacity (veh/h)	-		-		368 270 548		1127		-			
HCM Lane V/C Ratio	-		-		0.035 0.463 0.103		0.041		-			
HCM Control Delay (s)	-		-		15.1 29.3 12.3		8.3		0			
HCM Lane LOS	-		-		C D B		A A					
HCM 95th %tile Q(veh)	-		-		0.1 2.3 0.3		0.1		-			

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	216	21	51	532	7	90	6	53	13	13	13
Future Vol, veh/h	7	216	21	51	532	7	90	6	53	13	13	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	5	2	2	5	2	2	2	2	2	2	2
Mvmt Flow	8	235	23	55	578	8	98	7	58	14	14	14
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	586	0	0	258	0	0	669	959	129	829	966	293
Stage 1	-	-	-	-	-	-	263	263	-	692	692	-
Stage 2	-	-	-	-	-	-	406	696	-	137	274	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	985	-	-	1304	-	-	343	256	897	263	253	703
Stage 1	-	-	-	-	-	-	719	689	-	400	443	-
Stage 2	-	-	-	-	-	-	593	441	-	852	682	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	985	-	-	1304	-	-	303	238	897	228	235	703
Mov Cap-2 Maneuver	-	-	-	-	-	-	303	238	-	228	235	-
Stage 1	-	-	-	-	-	-	712	682	-	396	415	-
Stage 2	-	-	-	-	-	-	526	413	-	782	675	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.9			20.6			19.1		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	391	985	-	-	1304	-	-	298				
HCM Lane V/C Ratio	0.414	0.008	-	-	0.043	-	-	0.142				
HCM Control Delay (s)	20.6	8.7	0	-	7.9	0.2	-	19.1				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	2	0	-	-	0.1	-	-	0.5				

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	4	2	0	0	0	0	14	8	2	22	0
Future Vol, veh/h	5	4	2	0	0	0	0	14	8	2	22	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	4	2	0	0	0	0	15	9	2	24	0
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	48	52	24				-	0	0	24	0	0
Stage 1	28	28	-				-	-	-	-	-	-
Stage 2	20	24	-				-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22				-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-				-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318				-	-	-	2.218	-	-
Pot Cap-1 Maneuver	962	839	1052				0	-	-	1591	-	0
Stage 1	995	872	-				0	-	-	-	-	0
Stage 2	1003	875	-				0	-	-	-	-	0
Platoon blocked, %							-	-				
Mov Cap-1 Maneuver	961	0	1052				-	-	-	1591	-	-
Mov Cap-2 Maneuver	961	0	-				-	-	-	-	-	-
Stage 1	995	0	-				-	-	-	-	-	-
Stage 2	1002	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	8.7						0			0.6		
HCM LOS	A											
Minor Lane/Major Mvmt		NBT	NBR	EBLn1	SBL	SBT						
Capacity (veh/h)		-	-	985	1591	-						
HCM Lane V/C Ratio		-	-	0.012	0.001	-						
HCM Control Delay (s)		-	-	8.7	7.3	0						
HCM Lane LOS		-	-	A	A	A						
HCM 95th %tile Q(veh)		-	-	0	0	-						

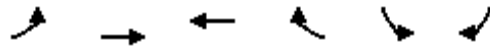
Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↕			↕	
Traffic Vol, veh/h	2	222	2	18	594	3	6	2	3	15	4	13
Future Vol, veh/h	2	222	2	18	594	3	6	2	3	15	4	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign 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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	5	2	2	5	2	2	2	2	2	2	2
Mvmt Flow	2	241	2	20	646	3	7	2	3	16	4	14
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	649	0	0	243	0	0	611	935	122	814	935	325
Stage 1	-	-	-	-	-	-	246	246	-	688	688	-
Stage 2	-	-	-	-	-	-	365	689	-	126	247	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	933	-	-	1320	-	-	378	264	906	270	264	671
Stage 1	-	-	-	-	-	-	736	701	-	403	445	-
Stage 2	-	-	-	-	-	-	627	445	-	865	701	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	933	-	-	1320	-	-	358	257	906	262	257	671
Mov Cap-2 Maneuver	-	-	-	-	-	-	358	257	-	262	257	-
Stage 1	-	-	-	-	-	-	735	700	-	402	434	-
Stage 2	-	-	-	-	-	-	593	434	-	857	700	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.3			14.4			16.5		
HCM LOS							B			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	395	933	-	-	1320	-	-	347				
HCM Lane V/C Ratio	0.03	0.002	-	-	0.015	-	-	0.1				
HCM Control Delay (s)	14.4	8.9	0	-	7.8	0.1	-	16.5				
HCM Lane LOS	B	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.3				

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	1	7	1	1	1	6	20	1	1	25	2
Future Vol, veh/h	1	1	7	1	1	1	6	20	1	1	25	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	1	8	1	1	1	7	22	1	1	27	2
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	68	67	28	72	68	23	29	0	0	23	0	0
Stage 1	30	30	-	37	37	-	-	-	-	-	-	-
Stage 2	38	37	-	35	31	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	925	824	1047	919	823	1054	1584	-	-	1592	-	-
Stage 1	987	870	-	978	864	-	-	-	-	-	-	-
Stage 2	977	864	-	981	869	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	919	820	1047	908	819	1054	1584	-	-	1592	-	-
Mov Cap-2 Maneuver	919	820	-	908	819	-	-	-	-	-	-	-
Stage 1	983	869	-	974	861	-	-	-	-	-	-	-
Stage 2	971	861	-	972	868	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	8.6		8.9			1.6			0.3			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1584	-	-	1001	917	1592	-	-				
HCM Lane V/C Ratio	0.004	-	-	0.01	0.004	0.001	-	-				
HCM Control Delay (s)	7.3	0	-	8.6	8.9	7.3	0	-				
HCM Lane LOS	A	A	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-				

Lanes, Volumes, Timings

9: 87 Ave & 116 St

07-11-2024

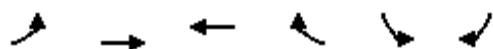


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3
Lane Configurations		↑↑	↑↑		↑↑		
Traffic Volume (vph)	50	480	257	471	210	13	
Future Volume (vph)	50	480	257	471	210	13	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	0.95	0.95	0.95	0.95	0.97	0.95	
Ped Bike Factor		1.00	0.98		0.77		
Frt			0.903		0.991		
Flt Protected		0.995			0.955		
Satd. Flow (prot)	0	3430	3085	0	3392	0	
Flt Permitted		0.831			0.955		
Satd. Flow (perm)	0	2864	3085	0	2648	0	
Right Turn on Red				Yes		No	
Satd. Flow (RTOR)			512				
Link Speed (k/h)		50	50		50		
Link Distance (m)		63.0	309.2		212.0		
Travel Time (s)		4.5	22.3		15.3		
Confl. Peds. (#/hr)	9			9	121	65	
Confl. Bikes (#/hr)				3			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	2%	5%	5%	2%	2%	2%	
Adj. Flow (vph)	54	522	279	512	228	14	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	576	791	0	242	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Left	Left	Right	Left	Right	
Median Width(m)		0.0	0.0		7.2		
Link Offset(m)		0.0	0.0		0.0		
Crosswalk Width(m)		4.8	4.8		4.8		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (k/h)	25			15	25	15	
Turn Type	Perm	NA	NA		pm+pt		
Protected Phases		1	1		2		3
Permitted Phases	1				3		
Detector Phase	1	1	1		2		
Switch Phase							
Minimum Initial (s)	24.0	24.0	24.0		7.0		21.0
Minimum Split (s)	36.0	36.0	36.0		22.5		33.0
Total Split (s)	43.0	43.0	43.0		24.0		33.0
Total Split (%)	43.0%	43.0%	43.0%		24.0%		33%
Maximum Green (s)	38.0	38.0	38.0		21.0		28.0
Yellow Time (s)	3.0	3.0	3.0		3.0		3.0
All-Red Time (s)	2.0	2.0	2.0		0.0		2.0
Lost Time Adjust (s)		0.0	0.0		0.0		
Total Lost Time (s)		5.0	5.0		3.0		
Lead/Lag	Lead	Lead	Lead		Lag		
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0
Recall Mode	None	None	None		Max		None

Lanes, Volumes, Timings

9: 87 Ave & 116 St

07-11-2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3
Walk Time (s)	10.0	10.0	10.0				7.0
Flash Dont Walk (s)	19.0	19.0	19.0				19.0
Pedestrian Calls (#/hr)	0	0	0				0
Act Effect Green (s)		24.3	24.3		21.0		
Actuated g/C Ratio		0.46	0.46		0.39		
v/c Ratio		0.44	0.47		0.18		
Control Delay		11.2	4.3		11.1		
Queue Delay		0.0	0.0		0.0		
Total Delay		11.2	4.3		11.1		
LOS		B	A		B		
Approach Delay		11.2	4.3		11.1		
Approach LOS		B	A		B		
Queue Length 50th (m)		19.4	8.2		7.7		
Queue Length 95th (m)		30.2	17.5		14.5		
Internal Link Dist (m)		39.0	285.2		188.0		
Turn Bay Length (m)							
Base Capacity (vph)		2040	2345		1336		
Starvation Cap Reductn		0	0		0		
Spillback Cap Reductn		0	0		0		
Storage Cap Reductn		0	0		0		
Reduced v/c Ratio		0.28	0.34		0.18		

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 53.3

Natural Cycle: 95

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.47

Intersection Signal Delay: 7.8

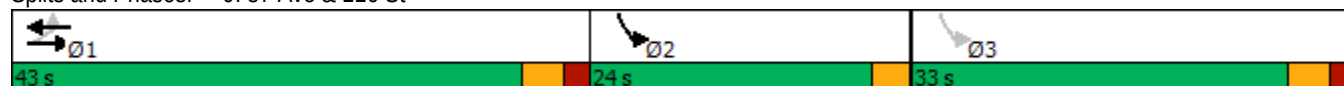
Intersection LOS: A

Intersection Capacity Utilization 61.6%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 9: 87 Ave & 116 St



Intersection: 5: 87 Ave & NS Alley

Movement	EB	EB	SB
Directions Served	LT	T	LR
Maximum Queue (m)	42.8	41.9	10.6
Average Queue (m)	13.2	7.9	4.6
95th Queue (m)	38.1	30.5	12.2
Link Distance (m)	41.8	41.8	191.4
Upstream Blk Time (%)	1	0	
Queuing Penalty (veh)	3	0	
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: NS Alley & 89 Ave

Movement	NB	SB
Directions Served	TR	LT
Maximum Queue (m)	9.1	9.1
Average Queue (m)	3.7	0.5
95th Queue (m)	10.7	4.1
Link Distance (m)	191.4	84.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: 116 St & 89 Ave

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	R	TR	LT
Maximum Queue (m)	19.1	13.1	10.2	34.1	45.0
Average Queue (m)	7.7	4.2	2.2	6.5	11.9
95th Queue (m)	15.1	12.0	8.4	21.9	29.9
Link Distance (m)	41.4	96.1	96.1	189.6	86.6
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 9: 87 Ave & 116 St

Movement	EB	EB	WB	WB	SB	SB
Directions Served	LT	T	T	TR	L	LR
Maximum Queue (m)	49.2	57.8	74.7	120.0	35.4	32.3
Average Queue (m)	43.3	39.0	28.4	55.0	16.2	13.3
95th Queue (m)	54.3	56.7	53.8	100.9	29.5	27.3
Link Distance (m)	44.6	44.6	297.3	297.3	189.6	189.6
Upstream Blk Time (%)	17	7				
Queuing Penalty (veh)	44	18				
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 11: 117 St & 87 Ave

Movement	EB	WB	WB	NB	SB
Directions Served	LT	LT	TR	LTR	LTR
Maximum Queue (m)	16.3	20.4	4.8	25.3	16.9
Average Queue (m)	1.3	4.0	0.3	11.3	8.1
95th Queue (m)	9.1	13.8	4.1	19.6	15.8
Link Distance (m)	104.8	41.8	41.8	75.2	33.9
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 12: 117 St & 89 Ave

Movement	EB
Directions Served	LTR
Maximum Queue (m)	14.7
Average Queue (m)	7.9
95th Queue (m)	13.9
Link Distance (m)	107.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 15: 118 St & 87 Ave

Movement	EB	WB	NB	SB
Directions Served	LT	LT	LTR	LTR
Maximum Queue (m)	10.0	14.1	9.2	18.2
Average Queue (m)	0.4	2.5	2.8	7.9
95th Queue (m)	4.2	9.7	9.7	15.8
Link Distance (m)	135.5	104.8	78.2	155.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 16: 117 St & EW Alley

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	15.4	8.8	1.4
Average Queue (m)	6.1	0.6	0.1
95th Queue (m)	13.8	4.2	1.2
Link Distance (m)	41.3	34.0	33.9
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 65

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Traffic Vol, veh/h	7	509	267	12	10	9
Future Vol, veh/h	7	509	267	12	10	9
Conflicting Peds, #/hr	25	0	0	25	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	6	6	2	2	2
Mvmt Flow	8	553	290	13	11	10

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	328	0	0 616 177
Stage 1	-	-	- 322 -
Stage 2	-	-	- 294 -
Critical Hdwy	4.14	-	- 6.84 6.94
Critical Hdwy Stg 1	-	-	- 5.84 -
Critical Hdwy Stg 2	-	-	- 5.84 -
Follow-up Hdwy	2.22	-	- 3.52 3.32
Pot Cap-1 Maneuver	1228	-	- 422 835
Stage 1	-	-	- 707 -
Stage 2	-	-	- 730 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1206	-	- 403 820
Mov Cap-2 Maneuver	-	-	- 403 -
Stage 1	-	-	- 687 -
Stage 2	-	-	- 717 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	12.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1206	-	-	-	531
HCM Lane V/C Ratio	0.006	-	-	-	0.039
HCM Control Delay (s)	8	0	-	-	12.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	2	49	1	0	0	0	0	1	17	1	1	0
Future Vol, veh/h	2	49	1	0	0	0	0	1	17	1	1	0
Conflicting Peds, #/hr	9	0	3	3	0	9	1	0	1	1	0	1
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	53	1	0	0	0	0	1	18	1	1	0
Major/Minor	Major1						Minor1			Minor2		
Conflicting Flow All	9	0	0				-	70	58	77	70	-
Stage 1	-	-	-				-	61	-	9	9	-
Stage 2	-	-	-				-	9	-	68	61	-
Critical Hdwy	4.12	-	-				-	6.52	6.22	7.12	6.52	-
Critical Hdwy Stg 1	-	-	-				-	5.52	-	-	-	-
Critical Hdwy Stg 2	-	-	-				-	-	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-				-	4.018	3.318	3.518	4.018	-
Pot Cap-1 Maneuver	1611	-	-				0	821	1008	912	821	0
Stage 1	-	-	-				0	844	-	-	-	0
Stage 2	-	-	-				0	-	-	942	844	0
Platoon blocked, %		-	-									
Mov Cap-1 Maneuver	1601	-	-				-	813	1005	888	813	-
Mov Cap-2 Maneuver	-	-	-				-	813	-	888	813	-
Stage 1	-	-	-				-	841	-	-	-	-
Stage 2	-	-	-				-	-	-	923	841	-
Approach	EB						NB			SB		
HCM Control Delay, s	0.3						8.7			9.3		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	SBLn1							
Capacity (veh/h)	992	1601	-	-	849							
HCM Lane V/C Ratio	0.02	0.001	-	-	0.003							
HCM Control Delay (s)	8.7	7.3	0	-	9.3							
HCM Lane LOS	A	A	A	-	A							
HCM 95th %tile O(veh)	0.1	0	-	-	0							

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕		↕		↕			↕	
Traffic Vol, veh/h	8	14	41	16	0	8	0	374	162	98	161	0
Future Vol, veh/h	8	14	41	16	0	8	0	374	162	98	161	0
Conflicting Peds, #/hr	11	0	3	3	0	11	0	0	121	121	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	3	2	2	3	2
Mvmt Flow	9	15	45	17	0	9	0	407	176	107	175	0
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	900	1093	178	1038	-	627	-	0	0	704	0	0
Stage 1	389	389	-	616	-	-	-	-	-	-	-	-
Stage 2	511	704	-	422	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	-	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	-	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	259	214	865	209	0	484	0	-	-	894	-	0
Stage 1	635	608	-	478	0	-	0	-	-	-	-	0
Stage 2	545	440	-	609	0	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	223	164	863	147	-	430	-	-	-	802	-	-
Mov Cap-2 Maneuver	223	164	-	147	-	-	-	-	-	-	-	-
Stage 1	635	518	-	478	-	-	-	-	-	-	-	-
Stage 2	529	395	-	476	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	16.8		26.3		0		3.9					
HCM LOS	C		D									
Minor Lane/Major Mvmt	NBT		NBR		EBLn1WBLn1WBLn2		SBL	SBT				
Capacity (veh/h)	-		-		373 147 430		802	-				
HCM Lane V/C Ratio	-		-		0.184 0.118 0.02		0.133	-				
HCM Control Delay (s)	-		-		16.8 32.7 13.5		10.2	0				
HCM Lane LOS	-		-		C D B		B	A				
HCM 95th %tile Q(veh)	-		-		0.7 0.4 0.1		0.5	-				

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
Traffic Vol, veh/h	5	421	71	29	231	21	25	16	48	24	15	11
Future Vol, veh/h	5	421	71	29	231	21	25	16	48	24	15	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	5	2	2	5	2	2	2	2	2	2	2
Mvmt Flow	5	458	77	32	251	23	27	17	52	26	16	12
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	274	0	0	535	0	0	705	845	268	575	872	137
Stage 1	-	-	-	-	-	-	507	507	-	327	327	-
Stage 2	-	-	-	-	-	-	198	338	-	248	545	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1286	-	-	1029	-	-	323	298	730	401	287	886
Stage 1	-	-	-	-	-	-	516	538	-	660	646	-
Stage 2	-	-	-	-	-	-	785	639	-	734	517	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1286	-	-	1029	-	-	294	285	730	344	275	886
Mov Cap-2 Maneuver	-	-	-	-	-	-	294	285	-	344	275	-
Stage 1	-	-	-	-	-	-	513	535	-	656	622	-
Stage 2	-	-	-	-	-	-	726	615	-	655	514	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			1			15.8			16.5		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	430	1286	-	-	1029	-	-	366				
HCM Lane V/C Ratio	0.225	0.004	-	-	0.031	-	-	0.148				
HCM Control Delay (s)	15.8	7.8	0	-	8.6	0.1	-	16.5				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile O(veh)	0.9	0	-	-	0.1	-	-	0.5				

Intersection												
Int Delay, s/veh	4.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	1	42	7	0	0	0	0	22	5	3	14	0
Future Vol, veh/h	1	42	7	0	0	0	0	22	5	3	14	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	46	8	0	0	0	0	24	5	3	15	0
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	48	50	15				-	0	0	29	0	0
Stage 1	21	21	-				-	-	-	-	-	-
Stage 2	27	29	-				-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22				-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-				-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318				-	-	-	2.218	-	-
Pot Cap-1 Maneuver	962	841	1065				0	-	-	1584	-	0
Stage 1	1002	878	-				0	-	-	-	-	0
Stage 2	996	871	-				0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	960	0	1065				-	-	-	1584	-	-
Mov Cap-2 Maneuver	960	0	-				-	-	-	-	-	-
Stage 1	1002	0	-				-	-	-	-	-	-
Stage 2	994	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	8.6						0			1.3		
HCM LOS	A											
Minor Lane/Major Mvmt		NBT	NBR	EBLn1	SBL	SBT						
Capacity (veh/h)		-	-	1051	1584	-						
HCM Lane V/C Ratio		-	-	0.052	0.002	-						
HCM Control Delay (s)		-	-	8.6	7.3	0						
HCM Lane LOS		-	-	A	A	A						
HCM 95th %tile O(veh)		-	-	0.2	0	-						

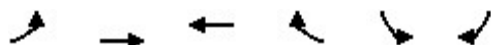
Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Vol, veh/h	5	460	5	33	234	7	4	4	3	28	1	18
Future Vol, veh/h	5	460	5	33	234	7	4	4	3	28	1	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign 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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	5	2	2	5	2	2	2	2	2	2	2
Mvmt Flow	5	500	5	36	254	8	4	4	3	30	1	20
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	262	0	0	505	0	0	713	847	253	592	845	131
Stage 1	-	-	-	-	-	-	513	513	-	330	330	-
Stage 2	-	-	-	-	-	-	200	334	-	262	515	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1299	-	-	1056	-	-	319	297	746	390	298	894
Stage 1	-	-	-	-	-	-	512	534	-	657	644	-
Stage 2	-	-	-	-	-	-	783	642	-	720	533	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1299	-	-	1056	-	-	300	284	746	371	285	894
Mov Cap-2 Maneuver	-	-	-	-	-	-	300	284	-	371	285	-
Stage 1	-	-	-	-	-	-	509	531	-	654	618	-
Stage 2	-	-	-	-	-	-	734	616	-	707	530	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			1.1			15.6			13.5		
HCM LOS							C			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	350	1299	-	-	1056	-	-	474				
HCM Lane V/C Ratio	0.034	0.004	-	-	0.034	-	-	0.108				
HCM Control Delay (s)	15.6	7.8	0	-	8.5	0.1	-	13.5				
HCM Lane LOS	C	A	A	-	A	A	-	B				
HCM 95th %tile O(veh)	0.1	0	-	-	0.1	-	-	0.4				

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	1	26	1	1	1	10	27	1	1	20	1
Future Vol, veh/h	2	1	26	1	1	1	10	27	1	1	20	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	1	28	1	1	1	11	29	1	1	22	1
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	78	77	23	91	77	30	23	0	0	30	0	0
Stage 1	25	25	-	52	52	-	-	-	-	-	-	-
Stage 2	53	52	-	39	25	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	911	813	1054	893	813	1044	1592	-	-	1583	-	-
Stage 1	993	874	-	961	852	-	-	-	-	-	-	-
Stage 2	960	852	-	976	874	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	904	806	1054	863	806	1044	1592	-	-	1583	-	-
Mov Cap-2 Maneuver	904	806	-	863	806	-	-	-	-	-	-	-
Stage 1	986	873	-	954	846	-	-	-	-	-	-	-
Stage 2	951	846	-	948	873	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	8.6		9			1.9			0.3			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1592	-	-	1031	894	1583	-	-				
HCM Lane V/C Ratio	0.007	-	-	0.031	0.004	0.001	-	-				
HCM Control Delay (s)	7.3	0	-	8.6	9	7.3	0	-				
HCM Lane LOS	A	A	-	A	A	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.1	0	0	-	-				

Lanes, Volumes, Timings

9: 87 Ave & 116 St

06-06-2024

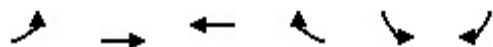


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3
Lane Configurations		↑↑	↑↑		↑↑		
Traffic Volume (vph)	25	340	563	240	420	66	
Future Volume (vph)	25	340	563	240	420	66	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	0.95	0.95	0.95	0.95	0.97	0.95	
Ped Bike Factor		1.00	0.96		0.74		
Frt			0.955		0.980		
Flt Protected		0.997			0.959		
Satd. Flow (prot)	0	3497	3221	0	3303	0	
Flt Permitted		0.872			0.959		
Satd. Flow (perm)	0	3053	3221	0	2518	0	
Right Turn on Red				Yes		No	
Satd. Flow (RTOR)			78				
Link Speed (k/h)		50	50		50		
Link Distance (m)		63.0	309.2		212.0		
Travel Time (s)		4.5	22.3		15.3		
Confl. Peds. (#/hr)	60			60	90	61	
Confl. Bikes (#/hr)				5			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	2%	3%	3%	2%	2%	2%	
Adj. Flow (vph)	27	370	612	261	457	72	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	397	873	0	529	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Left	Left	Right	Left	Right	
Median Width(m)		0.0	0.0		7.2		
Link Offset(m)		0.0	0.0		0.0		
Crosswalk Width(m)		4.8	4.8		4.8		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (k/h)	25			15	25	15	
Turn Type	Perm	NA	NA		pm+pt		
Protected Phases		1	1		2		3
Permitted Phases	1				3		
Detector Phase	1	1	1		2		
Switch Phase							
Minimum Initial (s)	24.0	24.0	24.0		7.0		21.0
Minimum Split (s)	39.0	39.0	39.0		22.5		26.0
Total Split (s)	54.0	54.0	54.0		30.0		26.0
Total Split (%)	49.1%	49.1%	49.1%		27.3%		24%
Maximum Green (s)	49.0	49.0	49.0		27.0		21.0
Yellow Time (s)	3.0	3.0	3.0		3.0		3.0
All-Red Time (s)	2.0	2.0	2.0		0.0		2.0
Lost Time Adjust (s)		0.0	0.0		0.0		
Total Lost Time (s)		5.0	5.0		3.0		
Lead/Lag	Lead	Lead	Lead		Lag		
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0
Recall Mode	None	None	None		Max		None

Lanes, Volumes, Timings

9: 87 Ave & 116 St

06-06-2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3
Walk Time (s)	10.0	10.0	10.0				7.0
Flash Dont Walk (s)	19.0	19.0	19.0				11.0
Pedestrian Calls (#/hr)	0	0	0				0
Act Effect Green (s)		25.0	25.0		27.0		
Actuated g/C Ratio		0.42	0.42		0.45		
v/c Ratio		0.31	0.63		0.36		
Control Delay		12.5	14.8		12.0		
Queue Delay		0.0	0.0		0.0		
Total Delay		12.5	14.8		12.0		
LOS		B	B		B		
Approach Delay		12.5	14.8		12.0		
Approach LOS		B	B		B		
Queue Length 50th (m)		15.4	36.2		18.8		
Queue Length 95th (m)		24.1	52.8		33.7		
Internal Link Dist (m)		39.0	285.2		188.0		
Turn Bay Length (m)							
Base Capacity (vph)		2492	2644		1485		
Starvation Cap Reductn		0	0		0		
Spillback Cap Reductn		0	0		0		
Storage Cap Reductn		0	0		0		
Reduced v/c Ratio		0.16	0.33		0.36		

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 60.1

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 13.5

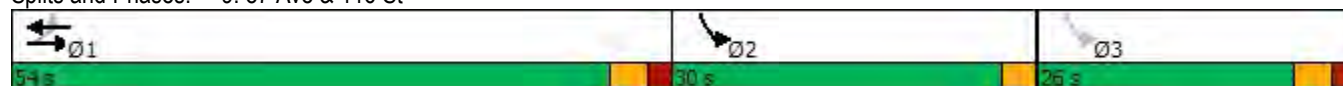
Intersection LOS: B

Intersection Capacity Utilization 50.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 9: 87 Ave & 116 St



Intersection: 5: 87 Ave & NS Alley

Movement	EB	EB	WB	WB	SB
Directions Served	LT	T	T	TR	LR
Maximum Queue (m)	20.6	13.3	3.0	3.1	14.1
Average Queue (m)	2.4	0.4	0.1	0.1	4.8
95th Queue (m)	12.4	6.1	2.1	2.2	12.5
Link Distance (m)	41.8	41.8	44.6	44.6	191.4
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	0				
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 6: NS Alley & 89 Ave

Movement	NB	SB
Directions Served	TR	LT
Maximum Queue (m)	9.1	7.2
Average Queue (m)	2.5	0.4
95th Queue (m)	9.0	3.5
Link Distance (m)	191.4	84.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: 116 St & 89 Ave

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	R	TR	LT
Maximum Queue (m)	11.5	29.4	16.9	18.3	31.6
Average Queue (m)	4.8	13.4	8.0	1.9	6.9
95th Queue (m)	11.3	24.2	15.5	9.7	20.3
Link Distance (m)	41.4	96.1	96.1	189.6	86.6
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 9: 87 Ave & 116 St

Movement	EB	EB	WB	WB	SB	SB
Directions Served	LT	T	T	TR	L	LR
Maximum Queue (m)	47.8	51.2	91.3	102.3	62.8	64.6
Average Queue (m)	32.6	26.8	52.2	52.7	33.2	35.1
95th Queue (m)	49.2	46.4	76.6	83.7	52.9	55.8
Link Distance (m)	44.6	44.6	297.3	297.3	189.6	189.6
Upstream Blk Time (%)	2	1				
Queuing Penalty (veh)	3	1				
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 11: 117 St & 87 Ave

Movement	EB	WB	WB	NB	SB
Directions Served	LT	LT	TR	LTR	LTR
Maximum Queue (m)	11.4	17.4	8.5	37.6	18.3
Average Queue (m)	0.8	3.8	0.3	15.4	8.1
95th Queue (m)	5.7	12.5	3.7	27.9	15.6
Link Distance (m)	104.8	41.8	41.8	75.2	33.9
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 12: 117 St & 89 Ave

Movement	EB
Directions Served	LTR
Maximum Queue (m)	12.0
Average Queue (m)	4.3
95th Queue (m)	12.1
Link Distance (m)	107.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 15: 118 St & 87 Ave

Movement	EB	WB	WB	NB	SB
Directions Served	LT	LT	TR	LTR	LTR
Maximum Queue (m)	10.9	9.2	6.1	10.5	22.0
Average Queue (m)	1.4	1.3	0.2	2.9	9.3
95th Queue (m)	7.0	6.5	3.1	9.9	18.5
Link Distance (m)	135.5	104.8	104.8	78.2	155.1
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 16: 117 St & EW Alley

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	10.6	8.8	1.8
Average Queue (m)	5.1	0.6	0.2
95th Queue (m)	12.4	4.2	2.5
Link Distance (m)	41.3	34.0	33.9
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 4

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	330	635	37	15	10
Future Vol, veh/h	6	330	635	37	15	10
Conflicting Peds, #/hr	33	0	0	33	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	5	5	2	2	2
Mvmt Flow	7	359	690	40	16	11
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	763	0	-	0	937	399
Stage 1	-	-	-	-	743	-
Stage 2	-	-	-	-	194	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	845	-	-	-	263	601
Stage 1	-	-	-	-	431	-
Stage 2	-	-	-	-	820	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	825	-	-	-	248	587
Mov Cap-2 Maneuver	-	-	-	-	248	-
Stage 1	-	-	-	-	416	-
Stage 2	-	-	-	-	801	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		17.2		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	825	-	-	-	322	
HCM Lane V/C Ratio	0.008	-	-	-	0.084	
HCM Control Delay (s)	9.4	0	-	-	17.2	
HCM Lane LOS	A	A	-	-	C	
HCM 95th %tile Q(veh)	0	-	-	-	0.3	

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	1	37	1	0	0	0	0	1	10	1	1	0
Future Vol, veh/h	1	37	1	0	0	0	0	1	10	1	1	0
Conflicting Peds, #/hr	46	0	13	13	0	46	0	0	0	0	0	0
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	40	1	0	0	0	0	1	11	1	1	0
Major/Minor	Major1						Minor1			Minor2		
Conflicting Flow All	46	0	0				-	102	54	95	102	-
Stage 1	-	-	-				-	56	-	46	46	-
Stage 2	-	-	-				-	46	-	49	56	-
Critical Hdwy	4.12	-	-				-	6.52	6.22	7.12	6.52	-
Critical Hdwy Stg 1	-	-	-				-	5.52	-	-	-	-
Critical Hdwy Stg 2	-	-	-				-	-	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-				-	4.018	3.318	3.518	4.018	-
Pot Cap-1 Maneuver	1562	-	-				0	788	1013	888	788	0
Stage 1	-	-	-				0	848	-	-	-	0
Stage 2	-	-	-				0	-	-	964	848	0
Platoon blocked, %		-	-									
Mov Cap-1 Maneuver	1511	-	-				-	753	1002	848	753	-
Mov Cap-2 Maneuver	-	-	-				-	753	-	848	753	-
Stage 1	-	-	-				-	838	-	-	-	-
Stage 2	-	-	-				-	-	-	951	838	-
Approach	EB						NB			SB		
HCM Control Delay, s	0.2						8.7			9.5		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	SBLn1							
Capacity (veh/h)	973	1511	-	-	798							
HCM Lane V/C Ratio	0.012	0.001	-	-	0.003							
HCM Control Delay (s)	8.7	7.4	0	-	9.5							
HCM Lane LOS	A	A	A	-	A							
HCM 95th %tile Q(veh)	0	0	-	-	0							

Intersection												
Int Delay, s/veh	6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕		↕		↕			↕	
Traffic Vol, veh/h	5	3	21	115	0	52	0	192	54	42	342	0
Future Vol, veh/h	5	3	21	115	0	52	0	192	54	42	342	0
Conflicting Peds, #/hr	93	0	5	5	0	93	0	0	81	81	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	3	23	125	0	57	0	209	59	46	372	0
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	824	813	377	802	-	413	-	0	0	349	0	0
Stage 1	464	464	-	320	-	-	-	-	-	-	-	-
Stage 2	360	349	-	482	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	-	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	-	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	292	313	670	302	0	639	0	-	-	1210	-	0
Stage 1	578	564	-	692	0	-	0	-	-	-	-	0
Stage 2	658	633	-	565	0	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	232	277	667	258	-	548	-	-	-	1127	-	-
Mov Cap-2 Maneuver	232	277	-	258	-	-	-	-	-	-	-	-
Stage 1	578	535	-	692	-	-	-	-	-	-	-	-
Stage 2	544	589	-	513	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	13.5		25.5		0		0.9					
HCM LOS	B		D									
Minor Lane/Major Mvmt	NBT		NBR		EBLn1WBLn1WBLn2		SBL		SBT			
Capacity (veh/h)	-		-		454 258 548		1127		-			
HCM Lane V/C Ratio	-		-		0.069 0.484 0.103		0.041		-			
HCM Control Delay (s)	-		-		13.5 31.4 12.3		8.3		0			
HCM Lane LOS	-		-		B D B		A A					
HCM 95th %tile Q(veh)	-		-		0.2 2.5 0.3		0.1		-			

Intersection												
Int Delay, s/veh	4.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	244	21	51	593	18	90	6	53	20	13	13
Future Vol, veh/h	7	244	21	51	593	18	90	6	53	20	13	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	5	2	2	5	2	2	2	2	2	2	2
Mvmt Flow	8	265	23	55	645	20	98	7	58	22	14	14
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	665	0	0	288	0	0	733	1068	144	917	1069	333
Stage 1	-	-	-	-	-	-	293	293	-	765	765	-
Stage 2	-	-	-	-	-	-	440	775	-	152	304	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	920	-	-	1271	-	-	309	220	877	227	220	663
Stage 1	-	-	-	-	-	-	691	669	-	362	410	-
Stage 2	-	-	-	-	-	-	566	406	-	835	662	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	920	-	-	1271	-	-	269	203	877	195	203	663
Mov Cap-2 Maneuver	-	-	-	-	-	-	269	203	-	195	203	-
Stage 1	-	-	-	-	-	-	684	662	-	358	382	-
Stage 2	-	-	-	-	-	-	497	378	-	765	655	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.8			23.7			23.2		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	351	920	-	-	1271	-	-	247				
HCM Lane V/C Ratio	0.461	0.008	-	-	0.044	-	-	0.202				
HCM Control Delay (s)	23.7	8.9	0	-	8	0.2	-	23.2				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	2.3	0	-	-	0.1	-	-	0.7				

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	12	2	0	0	0	0	14	8	2	22	0
Future Vol, veh/h	5	12	2	0	0	0	0	14	8	2	22	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	13	2	0	0	0	0	15	9	2	24	0
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	48	52	24				-	0	0	24	0	0
Stage 1	28	28	-				-	-	-	-	-	-
Stage 2	20	24	-				-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22				-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-				-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318				-	-	-	2.218	-	-
Pot Cap-1 Maneuver	962	839	1052				0	-	-	1591	-	0
Stage 1	995	872	-				0	-	-	-	-	0
Stage 2	1003	875	-				0	-	-	-	-	0
Platoon blocked, %							-	-				
Mov Cap-1 Maneuver	961	0	1052				-	-	-	1591	-	-
Mov Cap-2 Maneuver	961	0	-				-	-	-	-	-	-
Stage 1	995	0	-				-	-	-	-	-	-
Stage 2	1002	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	8.7						0			0.6		
HCM LOS	A											
Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT							
Capacity (veh/h)	-	-	985	1591	-							
HCM Lane V/C Ratio	-	-	0.021	0.001	-							
HCM Control Delay (s)	-	-	8.7	7.3	0							
HCM Lane LOS	-	-	A	A	A							
HCM 95th %tile Q(veh)	-	-	0.1	0	-							

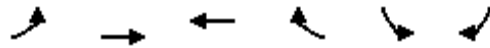
Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
Traffic Vol, veh/h	11	235	2	18	621	30	6	2	3	30	4	17
Future Vol, veh/h	11	235	2	18	621	30	6	2	3	30	4	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	5	2	2	5	2	2	2	2	2	2	2
Mvmt Flow	12	255	2	20	675	33	7	2	3	33	4	18
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	708	0	0	257	0	0	660	1028	129	885	1013	354
Stage 1	-	-	-	-	-	-	280	280	-	732	732	-
Stage 2	-	-	-	-	-	-	380	748	-	153	281	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	887	-	-	1305	-	-	348	233	897	239	237	642
Stage 1	-	-	-	-	-	-	703	678	-	379	425	-
Stage 2	-	-	-	-	-	-	614	418	-	834	677	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	887	-	-	1305	-	-	323	223	897	229	227	642
Mov Cap-2 Maneuver	-	-	-	-	-	-	323	223	-	229	227	-
Stage 1	-	-	-	-	-	-	692	667	-	373	414	-
Stage 2	-	-	-	-	-	-	575	408	-	815	666	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.3			15.5			20.3		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	356	887	-	-	1305	-	-	291				
HCM Lane V/C Ratio	0.034	0.013	-	-	0.015	-	-	0.19				
HCM Control Delay (s)	15.5	9.1	0.1	-	7.8	0.1	-	20.3				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.7				

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	20	1	1	1	17	20	1	1	25	2
Future Vol, veh/h	1	1	20	1	1	1	17	20	1	1	25	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	1	22	1	1	1	18	22	1	1	27	2
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	90	89	28	101	90	23	29	0	0	23	0	0
Stage 1	30	30	-	59	59	-	-	-	-	-	-	-
Stage 2	60	59	-	42	31	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	895	801	1047	880	800	1054	1584	-	-	1592	-	-
Stage 1	987	870	-	953	846	-	-	-	-	-	-	-
Stage 2	951	846	-	972	869	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	884	791	1047	853	790	1054	1584	-	-	1592	-	-
Mov Cap-2 Maneuver	884	791	-	853	790	-	-	-	-	-	-	-
Stage 1	975	869	-	942	836	-	-	-	-	-	-	-
Stage 2	937	836	-	950	868	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	8.6		9.1			3.3			0.3			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1584	-	-	1023	886	1592	-	-				
HCM Lane V/C Ratio	0.012	-	-	0.023	0.004	0.001	-	-				
HCM Control Delay (s)	7.3	0	-	8.6	9.1	7.3	0	-				
HCM Lane LOS	A	A	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

Lanes, Volumes, Timings

9: 87 Ave & 116 St

07-11-2024

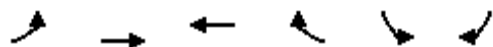


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3
Lane Configurations		↑↑	↑↑		↑↑		
Traffic Volume (vph)	50	527	307	471	225	20	
Future Volume (vph)	50	527	307	471	225	20	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	0.95	0.95	0.95	0.95	0.97	0.95	
Ped Bike Factor		1.00	0.98		0.78		
Frt			0.909		0.988		
Flt Protected		0.996			0.956		
Satd. Flow (prot)	0	3433	3107	0	3373	0	
Flt Permitted		0.831			0.956		
Satd. Flow (perm)	0	2863	3107	0	2653	0	
Right Turn on Red				Yes		No	
Satd. Flow (RTOR)			450				
Link Speed (k/h)		50	50		50		
Link Distance (m)		63.0	309.2		212.0		
Travel Time (s)		4.5	22.3		15.3		
Confl. Peds. (#/hr)	9			9	121	65	
Confl. Bikes (#/hr)				3			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	2%	5%	5%	2%	2%	2%	
Adj. Flow (vph)	54	573	334	512	245	22	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	627	846	0	267	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Left	Left	Right	Left	Right	
Median Width(m)		0.0	0.0		7.2		
Link Offset(m)		0.0	0.0		0.0		
Crosswalk Width(m)		4.8	4.8		4.8		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (k/h)	25			15	25	15	
Turn Type	Perm	NA	NA		pm+pt		
Protected Phases		1	1		2		3
Permitted Phases	1				3		
Detector Phase	1	1	1		2		
Switch Phase							
Minimum Initial (s)	24.0	24.0	24.0		7.0		21.0
Minimum Split (s)	36.0	36.0	36.0		22.5		33.0
Total Split (s)	43.0	43.0	43.0		24.0		33.0
Total Split (%)	43.0%	43.0%	43.0%		24.0%		33%
Maximum Green (s)	38.0	38.0	38.0		21.0		28.0
Yellow Time (s)	3.0	3.0	3.0		3.0		3.0
All-Red Time (s)	2.0	2.0	2.0		0.0		2.0
Lost Time Adjust (s)		0.0	0.0		0.0		
Total Lost Time (s)		5.0	5.0		3.0		
Lead/Lag	Lead	Lead	Lead		Lag		
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0
Recall Mode	None	None	None		Max		None

Lanes, Volumes, Timings

9: 87 Ave & 116 St

07-11-2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3
Walk Time (s)	10.0	10.0	10.0				7.0
Flash Dont Walk (s)	19.0	19.0	19.0				19.0
Pedestrian Calls (#/hr)	0	0	0				0
Act Effect Green (s)		25.0	25.0		21.0		
Actuated g/C Ratio		0.46	0.46		0.39		
v/c Ratio		0.47	0.50		0.20		
Control Delay		11.4	5.5		11.8		
Queue Delay		0.0	0.0		0.0		
Total Delay		11.4	5.5		11.8		
LOS		B	A		B		
Approach Delay		11.4	5.5		11.8		
Approach LOS		B	A		B		
Queue Length 50th (m)		21.5	12.2		8.6		
Queue Length 95th (m)		32.9	22.4		17.5		
Internal Link Dist (m)		39.0	285.2		188.0		
Turn Bay Length (m)							
Base Capacity (vph)		2017	2323		1313		
Starvation Cap Reductn		0	0		0		
Spillback Cap Reductn		0	0		0		
Storage Cap Reductn		0	0		0		
Reduced v/c Ratio		0.31	0.36		0.20		

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 54

Natural Cycle: 95

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 8.6

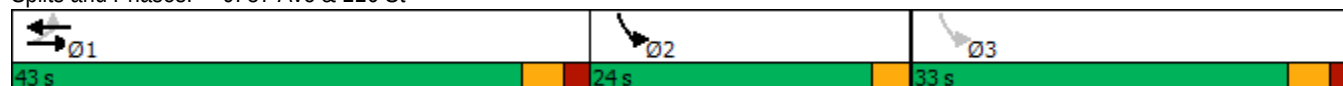
Intersection LOS: A

Intersection Capacity Utilization 63.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 9: 87 Ave & 116 St



Intersection: 5: 87 Ave & NS Alley

Movement	EB	EB	WB	SB
Directions Served	LT	T	TR	LR
Maximum Queue (m)	45.3	43.7	9.2	26.8
Average Queue (m)	20.9	14.7	0.4	11.2
95th Queue (m)	49.1	42.8	4.3	21.2
Link Distance (m)	41.8	41.8	44.6	191.4
Upstream Blk Time (%)	7	1		
Queuing Penalty (veh)	19	3		
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: NS Alley & 89 Ave

Movement	NB	SB
Directions Served	TR	LT
Maximum Queue (m)	17.0	7.3
Average Queue (m)	6.6	0.4
95th Queue (m)	14.7	3.2
Link Distance (m)	191.4	84.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: 116 St & 89 Ave

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	R	TR	LT
Maximum Queue (m)	21.3	14.1	11.6	29.0	47.4
Average Queue (m)	9.2	4.2	2.5	5.6	12.9
95th Queue (m)	16.5	12.3	9.2	19.6	32.7
Link Distance (m)	41.4	96.1	96.1	189.6	86.6
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 9: 87 Ave & 116 St

Movement	EB	EB	WB	WB	SB	SB
Directions Served	LT	T	T	TR	L	LR
Maximum Queue (m)	50.4	61.8	89.8	134.4	33.4	31.0
Average Queue (m)	45.2	44.4	29.7	65.0	17.5	14.7
95th Queue (m)	54.6	58.7	61.0	115.4	29.0	26.8
Link Distance (m)	44.6	44.6	297.3	297.3	189.6	189.6
Upstream Blk Time (%)	32	15				
Queuing Penalty (veh)	91	44				
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 11: 117 St & 87 Ave

Movement	EB	EB	WB	NB	SB
Directions Served	LT	TR	LT	LTR	LTR
Maximum Queue (m)	43.7	28.7	19.8	28.1	30.5
Average Queue (m)	6.4	1.5	4.1	11.3	11.8
95th Queue (m)	25.1	13.0	14.0	20.8	23.4
Link Distance (m)	104.9	104.9	41.8	75.2	53.0
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 12: 117 St & 89 Ave

Movement	EB
Directions Served	LTR
Maximum Queue (m)	18.4
Average Queue (m)	8.2
95th Queue (m)	15.4
Link Distance (m)	107.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 15: 118 St & 87 Ave

Movement	EB	WB	NB	SB
Directions Served	LT	LT	LTR	LTR
Maximum Queue (m)	3.6	17.0	10.5	16.0
Average Queue (m)	0.2	3.8	2.9	7.9
95th Queue (m)	2.6	12.2	10.1	15.4
Link Distance (m)	135.5	104.9	78.2	155.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 16: 117 St & EW Alley

Movement	WB
Directions Served	LR
Maximum Queue (m)	10.5
Average Queue (m)	4.7
95th Queue (m)	12.3
Link Distance (m)	33.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 156

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	531	267	69	35	21
Future Vol, veh/h	7	531	267	69	35	21
Conflicting Peds, #/hr	25	0	0	25	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	6	6	2	2	2
Mvmt Flow	8	577	290	75	38	23

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	390	0	0 659 208
Stage 1	-	-	- 353 -
Stage 2	-	-	- 306 -
Critical Hdwy	4.14	-	- 6.84 6.94
Critical Hdwy Stg 1	-	-	- 5.84 -
Critical Hdwy Stg 2	-	-	- 5.84 -
Follow-up Hdwy	2.22	-	- 3.52 3.32
Pot Cap-1 Maneuver	1165	-	- 397 798
Stage 1	-	-	- 682 -
Stage 2	-	-	- 720 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1144	-	- 379 784
Mov Cap-2 Maneuver	-	-	- 379 -
Stage 1	-	-	- 663 -
Stage 2	-	-	- 707 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	13.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1144	-	-	-	470
HCM Lane V/C Ratio	0.007	-	-	-	0.13
HCM Control Delay (s)	8.2	0	-	-	13.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Intersection												
Int Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕						↕			↕	
Traffic Vol, veh/h	2	49	1	0	0	0	0	1	40	1	1	0
Future Vol, veh/h	2	49	1	0	0	0	0	1	40	1	1	0
Conflicting Peds, #/hr	9	0	3	3	0	9	1	0	1	1	0	1
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	53	1	0	0	0	0	1	43	1	1	0
Major/Minor	Major1						Minor1			Minor2		
Conflicting Flow All	9	0	0				-	70	58	90	70	-
Stage 1	-	-	-				-	61	-	9	9	-
Stage 2	-	-	-				-	9	-	81	61	-
Critical Hdwy	4.12	-	-				-	6.52	6.22	7.12	6.52	-
Critical Hdwy Stg 1	-	-	-				-	5.52	-	-	-	-
Critical Hdwy Stg 2	-	-	-				-	-	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-				-	4.018	3.318	3.518	4.018	-
Pot Cap-1 Maneuver	1611	-	-				0	821	1008	895	821	0
Stage 1	-	-	-				0	844	-	-	-	0
Stage 2	-	-	-				0	-	-	927	844	0
Platoon blocked, %		-	-									
Mov Cap-1 Maneuver	1601	-	-				-	813	1005	849	813	-
Mov Cap-2 Maneuver	-	-	-				-	813	-	849	813	-
Stage 1	-	-	-				-	841	-	-	-	-
Stage 2	-	-	-				-	-	-	885	841	-
Approach	EB						NB			SB		
HCM Control Delay, s	0.3						8.8			9.3		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	SBLn1							
Capacity (veh/h)	999	1601	-	-	831							
HCM Lane V/C Ratio	0.045	0.001	-	-	0.003							
HCM Control Delay (s)	8.8	7.3	0	-	9.3							
HCM Lane LOS	A	A	A	-	A							
HCM 95th %tile O(veh)	0.1	0	-	-	0							

Intersection												
Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕		↕		↕			↕	
Traffic Vol, veh/h	16	14	56	16	0	8	0	374	162	98	168	0
Future Vol, veh/h	16	14	56	16	0	8	0	374	162	98	168	0
Conflicting Peds, #/hr	11	0	3	3	0	11	0	0	121	121	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	3	2	2	3	2
Mvmt Flow	17	15	61	17	0	9	0	407	176	107	183	0
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	908	1101	186	1054	-	627	-	0	0	704	0	0
Stage 1	397	397	-	616	-	-	-	-	-	-	-	-
Stage 2	511	704	-	438	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	-	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	-	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	256	212	856	204	0	484	0	-	-	894	-	0
Stage 1	629	603	-	478	0	-	0	-	-	-	-	0
Stage 2	545	440	-	597	0	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	220	162	854	140	-	430	-	-	-	802	-	-
Mov Cap-2 Maneuver	220	162	-	140	-	-	-	-	-	-	-	-
Stage 1	629	514	-	478	-	-	-	-	-	-	-	-
Stage 2	529	395	-	457	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	17.4		27.4		0		3.7					
HCM LOS	C		D									
Minor Lane/Major Mvmt	NBT		NBR		EBLn1WBLn1WBLn2		SBL	SBT				
Capacity (veh/h)	-		-		383 140 430		802	-				
HCM Lane V/C Ratio	-		-		0.244 0.124 0.02		0.133	-				
HCM Control Delay (s)	-		-		17.4 34.3 13.5		10.2	0				
HCM Lane LOS	-		-		C D B		B	A				
HCM 95th %tile Q(veh)	-		-		0.9 0.4 0.1		0.5	-				

Intersection												
Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
Traffic Vol, veh/h	15	421	71	29	243	21	25	16	48	46	15	11
Future Vol, veh/h	15	421	71	29	243	21	25	16	48	46	15	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	5	2	2	5	2	2	2	2	2	2	2
Mvmt Flow	16	458	77	32	264	23	27	17	52	50	16	12
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	287	0	0	535	0	0	733	880	268	610	907	144
Stage 1	-	-	-	-	-	-	529	529	-	340	340	-
Stage 2	-	-	-	-	-	-	204	351	-	270	567	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1272	-	-	1029	-	-	309	284	730	378	274	877
Stage 1	-	-	-	-	-	-	501	525	-	648	638	-
Stage 2	-	-	-	-	-	-	779	631	-	713	505	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1272	-	-	1029	-	-	278	269	730	320	259	877
Mov Cap-2 Maneuver	-	-	-	-	-	-	278	269	-	320	259	-
Stage 1	-	-	-	-	-	-	492	516	-	636	614	-
Stage 2	-	-	-	-	-	-	720	608	-	628	496	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.9			16.3			18.9		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	414	1272	-	-	1029	-	-	336				
HCM Lane V/C Ratio	0.234	0.013	-	-	0.031	-	-	0.233				
HCM Control Delay (s)	16.3	7.9	0.1	-	8.6	0.1	-	18.9				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile O(veh)	0.9	0	-	-	0.1	-	-	0.9				

Intersection												
Int Delay, s/veh	4.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	1	42	7	0	0	0	0	22	5	3	14	0
Future Vol, veh/h	1	42	7	0	0	0	0	22	5	3	14	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	46	8	0	0	0	0	24	5	3	15	0
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	48	50	15				-	0	0	29	0	0
Stage 1	21	21	-				-	-	-	-	-	-
Stage 2	27	29	-				-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22				-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-				-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318				-	-	-	2.218	-	-
Pot Cap-1 Maneuver	962	841	1065				0	-	-	1584	-	0
Stage 1	1002	878	-				0	-	-	-	-	0
Stage 2	996	871	-				0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	960	0	1065				-	-	-	1584	-	-
Mov Cap-2 Maneuver	960	0	-				-	-	-	-	-	-
Stage 1	1002	0	-				-	-	-	-	-	-
Stage 2	994	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	8.6						0			1.3		
HCM LOS	A											
Minor Lane/Major Mvmt		NBT	NBR	EBLn1	SBL	SBT						
Capacity (veh/h)		-	-	1051	1584	-						
HCM Lane V/C Ratio		-	-	0.052	0.002	-						
HCM Control Delay (s)		-	-	8.6	7.3	0						
HCM Lane LOS		-	-	A	A	A						
HCM 95th %tile O(veh)		-	-	0.2	0	-						

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Vol, veh/h	5	470	5	33	246	7	4	4	3	28	1	18
Future Vol, veh/h	5	470	5	33	246	7	4	4	3	28	1	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	5	2	2	5	2	2	2	2	2	2	2
Mvmt Flow	5	511	5	36	267	8	4	4	3	30	1	20
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	275	0	0	516	0	0	730	871	258	611	869	138
Stage 1	-	-	-	-	-	-	524	524	-	343	343	-
Stage 2	-	-	-	-	-	-	206	347	-	268	526	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1285	-	-	1046	-	-	310	288	741	378	289	885
Stage 1	-	-	-	-	-	-	504	528	-	646	636	-
Stage 2	-	-	-	-	-	-	777	633	-	714	527	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1285	-	-	1046	-	-	292	275	741	359	276	885
Mov Cap-2 Maneuver	-	-	-	-	-	-	292	275	-	359	276	-
Stage 1	-	-	-	-	-	-	501	525	-	643	610	-
Stage 2	-	-	-	-	-	-	727	607	-	701	524	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			1.1			15.9			13.8		
HCM LOS							C			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	341	1285	-	-	1046	-	-	461				
HCM Lane V/C Ratio	0.035	0.004	-	-	0.034	-	-	0.111				
HCM Control Delay (s)	15.9	7.8	0	-	8.6	0.1	-	13.8				
HCM Lane LOS	C	A	A	-	A	A	-	B				
HCM 95th %tile O(veh)	0.1	0	-	-	0.1	-	-	0.4				

Intersection

Int Delay, s/veh 2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	1	29	11	1	21
Future Vol, veh/h	21	1	29	11	1	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	1	32	12	1	23

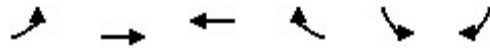
Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	63	38	0
Stage 1	38	-	-
Stage 2	25	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	943	1034	-
Stage 1	984	-	-
Stage 2	998	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	942	1034	-
Mov Cap-2 Maneuver	942	-	-
Stage 1	984	-	-
Stage 2	997	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	946	1564
HCM Lane V/C Ratio	-	-	0.025	0.001
HCM Control Delay (s)	-	-	8.9	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Lanes, Volumes, Timings
9: 87 Ave & 116 St

07-30-2024

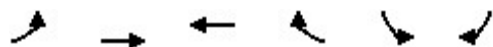


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3
Lane Configurations		↑↑	↑↑		↑↑		
Traffic Volume (vph)	25	410	661	240	445	79	
Future Volume (vph)	25	410	661	240	445	79	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	0.95	0.95	0.95	0.95	0.97	0.95	
Ped Bike Factor		1.00	0.96		0.74		
Frt			0.960		0.977		
Flt Protected		0.997			0.959		
Satd. Flow (prot)	0	3496	3252	0	3282	0	
Flt Permitted		0.874			0.959		
Satd. Flow (perm)	0	3062	3252	0	2516	0	
Right Turn on Red				Yes		No	
Satd. Flow (RTOR)			61				
Link Speed (k/h)		50	50		50		
Link Distance (m)		63.0	309.2		212.0		
Travel Time (s)		4.5	22.3		15.3		
Confl. Peds. (#/hr)	60			60	90	61	
Confl. Bikes (#/hr)				5			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	2%	3%	3%	2%	2%	2%	
Adj. Flow (vph)	27	446	718	261	484	86	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	473	979	0	570	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Left	Left	Right	Left	Right	
Median Width(m)		0.0	0.0		7.2		
Link Offset(m)		0.0	0.0		0.0		
Crosswalk Width(m)		4.8	4.8		4.8		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (k/h)	25			15	25	15	
Turn Type	Perm	NA	NA		pm+pt		
Protected Phases		1	1		2		3
Permitted Phases	1				3		
Detector Phase	1	1	1		2		
Switch Phase							
Minimum Initial (s)	24.0	24.0	24.0		7.0		21.0
Minimum Split (s)	39.0	39.0	39.0		22.5		26.0
Total Split (s)	54.0	54.0	54.0		30.0		26.0
Total Split (%)	49.1%	49.1%	49.1%		27.3%		24%
Maximum Green (s)	49.0	49.0	49.0		27.0		21.0
Yellow Time (s)	3.0	3.0	3.0		3.0		3.0
All-Red Time (s)	2.0	2.0	2.0		0.0		2.0
Lost Time Adjust (s)		0.0	0.0		0.0		
Total Lost Time (s)		5.0	5.0		3.0		
Lead/Lag	Lead	Lead	Lead		Lag		
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0
Recall Mode	None	None	None		Max		None

Lanes, Volumes, Timings

9: 87 Ave & 116 St

07-30-2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3
Walk Time (s)	10.0	10.0	10.0				7.0
Flash Dont Walk (s)	19.0	19.0	19.0				11.0
Pedestrian Calls (#/hr)	0	0	0				0
Act Effct Green (s)		26.9	26.9		27.1		
Actuated g/C Ratio		0.43	0.43		0.44		
v/c Ratio		0.36	0.68		0.40		
Control Delay		12.4	15.7		13.6		
Queue Delay		0.0	0.0		0.0		
Total Delay		12.4	15.7		13.6		
LOS		B	B		B		
Approach Delay		12.4	15.7		13.6		
Approach LOS		B	B		B		
Queue Length 50th (m)		18.9	44.0		21.0		
Queue Length 95th (m)		28.3	61.8		41.9		
Internal Link Dist (m)		39.0	285.2		188.0		
Turn Bay Length (m)							
Base Capacity (vph)		2429	2592		1434		
Starvation Cap Reductn		0	0		0		
Spillback Cap Reductn		0	0		0		
Storage Cap Reductn		0	0		0		
Reduced v/c Ratio		0.19	0.38		0.40		

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 62

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 14.4

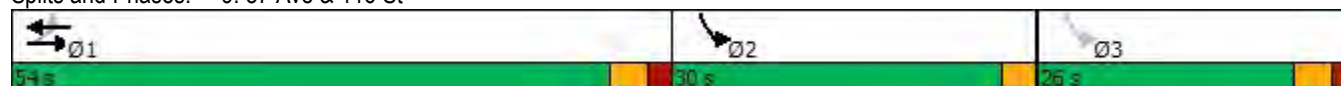
Intersection LOS: B

Intersection Capacity Utilization 53.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 9: 87 Ave & 116 St



Intersection: 5: 87 Ave & NS Alley

Movement	EB	EB	WB	WB	SB
Directions Served	LT	T	T	TR	LR
Maximum Queue (m)	27.5	20.1	1.8	12.0	25.3
Average Queue (m)	5.3	1.3	0.1	0.8	11.8
95th Queue (m)	19.4	10.8	1.2	5.8	20.2
Link Distance (m)	41.8	41.8	44.6	44.6	191.4
Upstream Blk Time (%)	0	0			
Queuing Penalty (veh)	0	0			
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 6: NS Alley & 89 Ave

Movement	NB	SB
Directions Served	TR	LT
Maximum Queue (m)	15.0	8.7
Average Queue (m)	7.6	0.5
95th Queue (m)	13.9	3.9
Link Distance (m)	191.4	84.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: 116 St & 89 Ave

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	R	TR	LT
Maximum Queue (m)	19.9	27.8	17.8	15.8	38.6
Average Queue (m)	8.1	13.8	8.2	1.9	8.5
95th Queue (m)	15.2	23.8	15.5	9.2	24.6
Link Distance (m)	41.4	96.1	96.1	189.6	86.6
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 9: 87 Ave & 116 St

Movement	EB	EB	WB	WB	SB	SB
Directions Served	LT	T	T	TR	L	LR
Maximum Queue (m)	48.6	50.3	103.9	113.0	71.8	72.8
Average Queue (m)	35.7	32.3	56.4	64.9	37.3	41.2
95th Queue (m)	52.3	50.1	85.9	98.4	60.2	65.1
Link Distance (m)	44.6	44.6	297.3	297.3	189.6	189.6
Upstream Blk Time (%)	6	2				
Queuing Penalty (veh)	12	4				
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 11: 117 St & 87 Ave

Movement	EB	WB	WB	NB	SB
Directions Served	LT	LT	TR	LTR	LTR
Maximum Queue (m)	20.8	18.3	5.6	33.0	26.0
Average Queue (m)	3.4	3.1	0.2	16.0	11.3
95th Queue (m)	13.2	12.5	2.9	28.6	20.8
Link Distance (m)	104.9	41.8	41.8	75.2	53.0
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 12: 117 St & 89 Ave

Movement	EB	SB
Directions Served	LTR	LT
Maximum Queue (m)	10.7	1.8
Average Queue (m)	4.1	0.1
95th Queue (m)	11.7	1.3
Link Distance (m)	107.8	79.5
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: 118 St & 87 Ave

Movement	EB	WB	NB	SB
Directions Served	LT	LT	LTR	LTR
Maximum Queue (m)	17.7	10.5	11.8	21.9
Average Queue (m)	1.8	0.8	3.7	8.4
95th Queue (m)	9.8	5.2	11.2	16.8
Link Distance (m)	135.5	104.9	78.2	155.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 16: 117 St & EW Alley

Movement	WB
Directions Served	LR
Maximum Queue (m)	16.5
Average Queue (m)	6.3
95th Queue (m)	14.3
Link Distance (m)	33.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 16

Intersection

Int Delay, s/veh 1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	360	635	149	55	29
Future Vol, veh/h	11	360	635	149	55	29
Conflicting Peds, #/hr	33	0	0	33	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	5	5	2	2	2
Mvmt Flow	12	391	690	162	60	32

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	885	0	0 1024 460
Stage 1	-	-	- 804 -
Stage 2	-	-	- 220 -
Critical Hdwy	4.14	-	- 6.84 6.94
Critical Hdwy Stg 1	-	-	- 5.84 -
Critical Hdwy Stg 2	-	-	- 5.84 -
Follow-up Hdwy	2.22	-	- 3.52 3.32
Pot Cap-1 Maneuver	760	-	- 231 548
Stage 1	-	-	- 401 -
Stage 2	-	-	- 795 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	742	-	- 216 535
Mov Cap-2 Maneuver	-	-	- 216 -
Stage 1	-	-	- 383 -
Stage 2	-	-	- 777 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	24.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	742	-	-	-	272
HCM Lane V/C Ratio	0.016	-	-	-	0.336
HCM Control Delay (s)	9.9	0.1	-	-	24.8
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	1.4

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	1	37	1	0	0	0	0	1	48	1	1	0
Future Vol, veh/h	1	37	1	0	0	0	0	1	48	1	1	0
Conflicting Peds, #/hr	46	0	13	13	0	46	0	0	0	0	0	0
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	40	1	0	0	0	0	1	52	1	1	0
Major/Minor	Major1						Minor1			Minor2		
Conflicting Flow All	46	0	0				-	102	54	115	102	-
Stage 1	-	-	-				-	56	-	46	46	-
Stage 2	-	-	-				-	46	-	69	56	-
Critical Hdwy	4.12	-	-				-	6.52	6.22	7.12	6.52	-
Critical Hdwy Stg 1	-	-	-				-	5.52	-	-	-	-
Critical Hdwy Stg 2	-	-	-				-	-	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-				-	4.018	3.318	3.518	4.018	-
Pot Cap-1 Maneuver	1562	-	-				0	788	1013	862	788	0
Stage 1	-	-	-				0	848	-	-	-	0
Stage 2	-	-	-				0	-	-	941	848	0
Platoon blocked, %		-	-									
Mov Cap-1 Maneuver	1511	-	-				-	753	1002	789	753	-
Mov Cap-2 Maneuver	-	-	-				-	753	-	789	753	-
Stage 1	-	-	-				-	838	-	-	-	-
Stage 2	-	-	-				-	-	-	890	838	-
Approach	EB						NB			SB		
HCM Control Delay, s	0.2						8.8			9.7		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	SBLn1							
Capacity (veh/h)	995	1511	-	-	771							
HCM Lane V/C Ratio	0.054	0.001	-	-	0.003							
HCM Control Delay (s)	8.8	7.4	0	-	9.7							
HCM Lane LOS	A	A	A	-	A							
HCM 95th %tile O(veh)	0.2	0	-	-	0							

Intersection												
Int Delay, s/veh	7.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕		↕		↕			↕	
Traffic Vol, veh/h	18	3	46	115	0	52	0	192	54	42	355	0
Future Vol, veh/h	18	3	46	115	0	52	0	192	54	42	355	0
Conflicting Peds, #/hr	93	0	5	5	0	93	0	0	81	81	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	3	50	125	0	57	0	209	59	46	386	0
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	838	827	391	830	-	413	-	0	0	349	0	0
Stage 1	478	478	-	320	-	-	-	-	-	-	-	-
Stage 2	360	349	-	510	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	-	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	-	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	286	307	658	289	0	639	0	-	-	1210	-	0
Stage 1	568	556	-	692	0	-	0	-	-	-	-	0
Stage 2	658	633	-	546	0	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	227	271	655	236	-	548	-	-	-	1127	-	-
Mov Cap-2 Maneuver	227	271	-	236	-	-	-	-	-	-	-	-
Stage 1	568	527	-	692	-	-	-	-	-	-	-	-
Stage 2	544	589	-	473	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	15.5		28.8		0		0.9					
HCM LOS	C		D									
Minor Lane/Major Mvmt	NBT		NBR		EBLn1WBLn1WBLn2		SBL		SBT			
Capacity (veh/h)	-		-		417 236 548		1127		-			
HCM Lane V/C Ratio	-		-		0.175 0.53 0.103		0.041		-			
HCM Control Delay (s)	-		-		15.5 36.2 12.3		8.3		0			
HCM Lane LOS	-		-		C E B		A A					
HCM 95th %tile Q(veh)	-		-		0.6 2.8 0.3		0.1		-			

Intersection												
Int Delay, s/veh	6.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Vol, veh/h	22	249	21	51	612	18	90	6	53	50	13	13
Future Vol, veh/h	22	249	21	51	612	18	90	6	53	50	13	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	5	2	2	5	2	2	2	2	2	2	2
Mvmt Flow	24	271	23	55	665	20	98	7	58	54	14	14
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	685	0	0	294	0	0	781	1126	147	972	1127	343
Stage 1	-	-	-	-	-	-	331	331	-	785	785	-
Stage 2	-	-	-	-	-	-	450	795	-	187	342	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	904	-	-	1264	-	-	285	203	873	207	203	653
Stage 1	-	-	-	-	-	-	656	644	-	352	402	-
Stage 2	-	-	-	-	-	-	558	398	-	797	637	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	904	-	-	1264	-	-	243	183	873	174	183	653
Mov Cap-2 Maneuver	-	-	-	-	-	-	243	183	-	174	183	-
Stage 1	-	-	-	-	-	-	635	623	-	341	374	-
Stage 2	-	-	-	-	-	-	489	370	-	713	617	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.8			0.8			27.1			34.9		
HCM LOS							D			D		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	321	904	-	-	1264	-	-	201				
HCM Lane V/C Ratio	0.505	0.026	-	-	0.044	-	-	0.411				
HCM Control Delay (s)	27.1	9.1	0.1	-	8	0.2	-	34.9				
HCM Lane LOS	D	A	A	-	A	A	-	D				
HCM 95th %tile O(veh)	2.7	0.1	-	-	0.1	-	-	1.9				

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↔						↔↕			↕↔	
Traffic Vol, veh/h	5	12	2	0	0	0	0	14	8	2	22	0
Future Vol, veh/h	5	12	2	0	0	0	0	14	8	2	22	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	13	2	0	0	0	0	15	9	2	24	0
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	48	52	24				-	0	0	24	0	0
Stage 1	28	28	-				-	-	-	-	-	-
Stage 2	20	24	-				-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22				-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-				-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318				-	-	-	2.218	-	-
Pot Cap-1 Maneuver	962	839	1052				0	-	-	1591	-	0
Stage 1	995	872	-				0	-	-	-	-	0
Stage 2	1003	875	-				0	-	-	-	-	0
Platoon blocked, %							-	-				
Mov Cap-1 Maneuver	961	0	1052				-	-	-	1591	-	-
Mov Cap-2 Maneuver	961	0	-				-	-	-	-	-	-
Stage 1	995	0	-				-	-	-	-	-	-
Stage 2	1002	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	8.7						0			0.6		
HCM LOS	A											
Minor Lane/Major Mvmt		NBT	NBR	EBLn1	SBL	SBT						
Capacity (veh/h)		-	-	985	1591	-						
HCM Lane V/C Ratio		-	-	0.021	0.001	-						
HCM Control Delay (s)		-	-	8.7	7.3	0						
HCM Lane LOS		-	-	A	A	A						
HCM 95th %tile O(veh)		-	-	0.1	0	-						

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
Traffic Vol, veh/h	11	255	2	18	640	30	6	2	3	30	4	17
Future Vol, veh/h	11	255	2	18	640	30	6	2	3	30	4	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	5	2	2	5	2	2	2	2	2	2	2
Mvmt Flow	12	277	2	20	696	33	7	2	3	33	4	18
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	729	0	0	279	0	0	692	1071	140	917	1056	365
Stage 1	-	-	-	-	-	-	302	302	-	753	753	-
Stage 2	-	-	-	-	-	-	390	769	-	164	303	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	871	-	-	1281	-	-	330	219	882	227	224	632
Stage 1	-	-	-	-	-	-	682	663	-	368	416	-
Stage 2	-	-	-	-	-	-	606	409	-	822	662	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	871	-	-	1281	-	-	306	210	882	217	215	632
Mov Cap-2 Maneuver	-	-	-	-	-	-	306	210	-	217	215	-
Stage 1	-	-	-	-	-	-	671	652	-	362	405	-
Stage 2	-	-	-	-	-	-	567	398	-	803	651	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.3			16			21.1		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	338	871	-	-	1281	-	-	278				
HCM Lane V/C Ratio	0.035	0.014	-	-	0.015	-	-	0.199				
HCM Control Delay (s)	16	9.2	0.1	-	7.9	0.1	-	21.1				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile O(veh)	0.1	0	-	-	0	-	-	0.7				

Intersection						
Int Delay, s/veh	3.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	31	1	21	16	1	27
Future Vol, veh/h	31	1	21	16	1	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	1	23	17	1	29
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	63	32	0	0	40	0
Stage 1	32	-	-	-	-	-
Stage 2	31	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	943	1042	-	-	1570	-
Stage 1	991	-	-	-	-	-
Stage 2	992	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	942	1042	-	-	1570	-
Mov Cap-2 Maneuver	942	-	-	-	-	-
Stage 1	991	-	-	-	-	-
Stage 2	991	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9	0		0.3		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	945	1570	-	
HCM Lane V/C Ratio	-	-	0.037	0.001	-	
HCM Control Delay (s)	-	-	9	7.3	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.1	0	-	