TRANSPORTATION PLANNERS AND ENGINEERS

Granville Rezoning

Transportation Impact Assessment

Final Draft Report

Prepared for

Alldritt Land Corporation

Date

May 31, 2023

Project No.

03-21-0088

CORPORATE AUTHORIZATION

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Engineer's Stamp

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EXHIBITS

TABLES

1. INTRODUCTION

The Granville Neighbourhood Structure Plan (NSP) was adopted in 2007 and has seen a number of amendments since then. The NSP was most recently amended in June 2017, and the approved plan as amended (Bylaw 18041) serves as the basis for the following assessment.

Alldritt Land Corporation (Alldritt) is pursuing a rezoning of lands in the southeast quadrant of the 215 Street/Glastonbury Blvd intersection and a rezoning of lands in the northwest quadrant of the Granville Drive/Glastonbury Blvd intersection. The rezoning as proposed will increase the density of land use as compared to the currently approved NSP.

As part of the rezoning process, Alldritt has retained Bunt & Associates to complete a Traffic Impact Assessment (TIA).

1.1 Study Purpose and Objectives

The traffic generated by the proposed amendment area lands has the potential to impact adjacent roadway facilities. To provide safe and efficient access capabilities to existing and future land uses, consideration must be given to the increase in traffic anticipated to be generated by the development of the lands. The primary purpose for completing the study is to ensure that the adjacent roadways and key intersections can appropriately accommodate all roadway users at safe and satisfactory levels of service and to identify any upgrades that may be required to do so.

1.2 Study Methodology

The assessment presented in the following sections reflects an understanding of the area's locational attributes, site access requirements, and adjacent traffic accommodation issues and concerns. The assessment was completed using the following methodology:

- An examination of the NSP and surrounding area with respect to existing and forecast conditions: land use, roadways, traffic conditions, and traffic operations;
- Identification of future vehicular trips anticipated to be generated to and from the NSP;
- Identification of vehicular trips anticipated to be generated to and from the amendment lands under approved and proposed zoning;
- Distribution and assignment of the projected vehicular demands on the adjacent corridor based on the access strategy, and the relative location of trip origins and destinations; and
- Completion of an analysis and assessment of the estimated roadway/intersection volumes to assess the overall traffic impacts.

1.3 Key Intersections & Study Horizons

The following key study intersections have been included in this study:

- 215 Street/Glastonbury Blvd;
- Glastonbury Blvd/Granville Drive; and
- Site access intersections.

The following assessment considers a five-year horizon year (2028) representing full build-out of the amendment area lands and full build-out of the Granville neighbourhood. This is anticipated to represent a conservative estimate of development within the 2028 horizon.

2. SITE CONTEXT

2.1 Site Location and Adjacent Land Uses

Exhibit 2.1 presents the approved Granville NSP with the amendment area lands identified. **Exhibit 2.2** identifies lands currently undeveloped or partially built out. As presented, undeveloped lands are generally located in the southwest quadrant of the plan area with additional undeveloped parcels along Glastonbury Blvd. The Stages/Phases identified in Exhibit 2.2 will be used to reference these parcels in subsequent report sections.

2.2 Transportation Network

Exhibit 2.3 identifies the arterial and collector roadway network in the greater area including the Granville and the Glastonbury neighbourhoods bounded by Whitemud Drive, Anthony Henday Drive, 62 Avenue, and 215 Street.

The Granville neighbourhood is bounded by Whitemud Drive on its north side, the 215 Street (Winterburn Road) arterial on its west side, the 62 Avenue arterial on its south side, and the west boundary of the Glastonbury Neighbourhood on its east side.

Collector access to the Granville neighbourhood is provided via Glastonbury Blvd from both 215 Street and 62 Avenue, Granville Link from 62 Avenue, Granville Drive from Guardian Road, and a 69 Avenue link to Glastonbury Blvd from Guardian Road.

For the purpose of the following assessment, key roadways include 215 Street, Glastonbury Blvd, and Granville Drive.

2.2.1 Existing Roadway Network

215 Street forms the west boundary of the City of Edmonton south of Whitemud Drive and forms the west boundary of the Granville NSP. 215 Street is generally a 2-lane undivided rural roadway south of 62 Avenue, transitioning to a semi-urban/urban 2-lane undivided roadway north of 62 Avenue with additional left and right turn bays developed at intersections.

Glastonbury Blvd, initiated at 215 Street, is a two-lane collector roadway bisecting the Granville neighbourhood and continuing through the Glastonbury neighbourhood to the east, ultimately curving to the south to intersect 62 Avenue west of 199 Street.

Granville Drive is a two-lane collector roadway link between the Guardian Road arterial and Glastonbury Blvd. South of Glastonbury Blvd, Granville Drive is planned to be constructed as a local roadway, intersecting with Granville Link north of 62 Avenue.

Exhibit 2.1: Granville NSP and Amendment Areas

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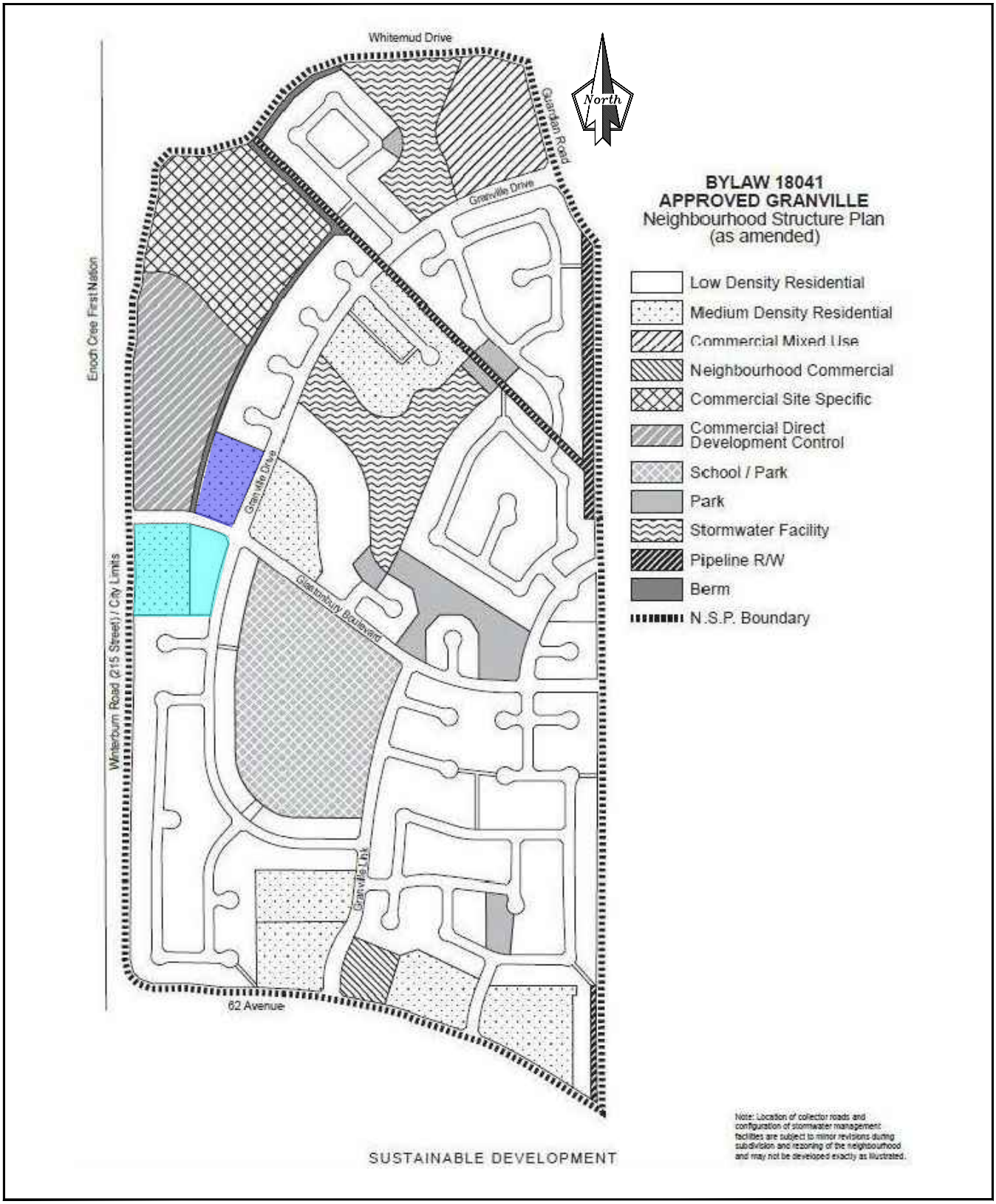

Legend:

Stage 13 Amendment Area

Stage 15 Amendment Area

N.T.S.

Exhibit 2.1

Granville NSP and Amendment Areas

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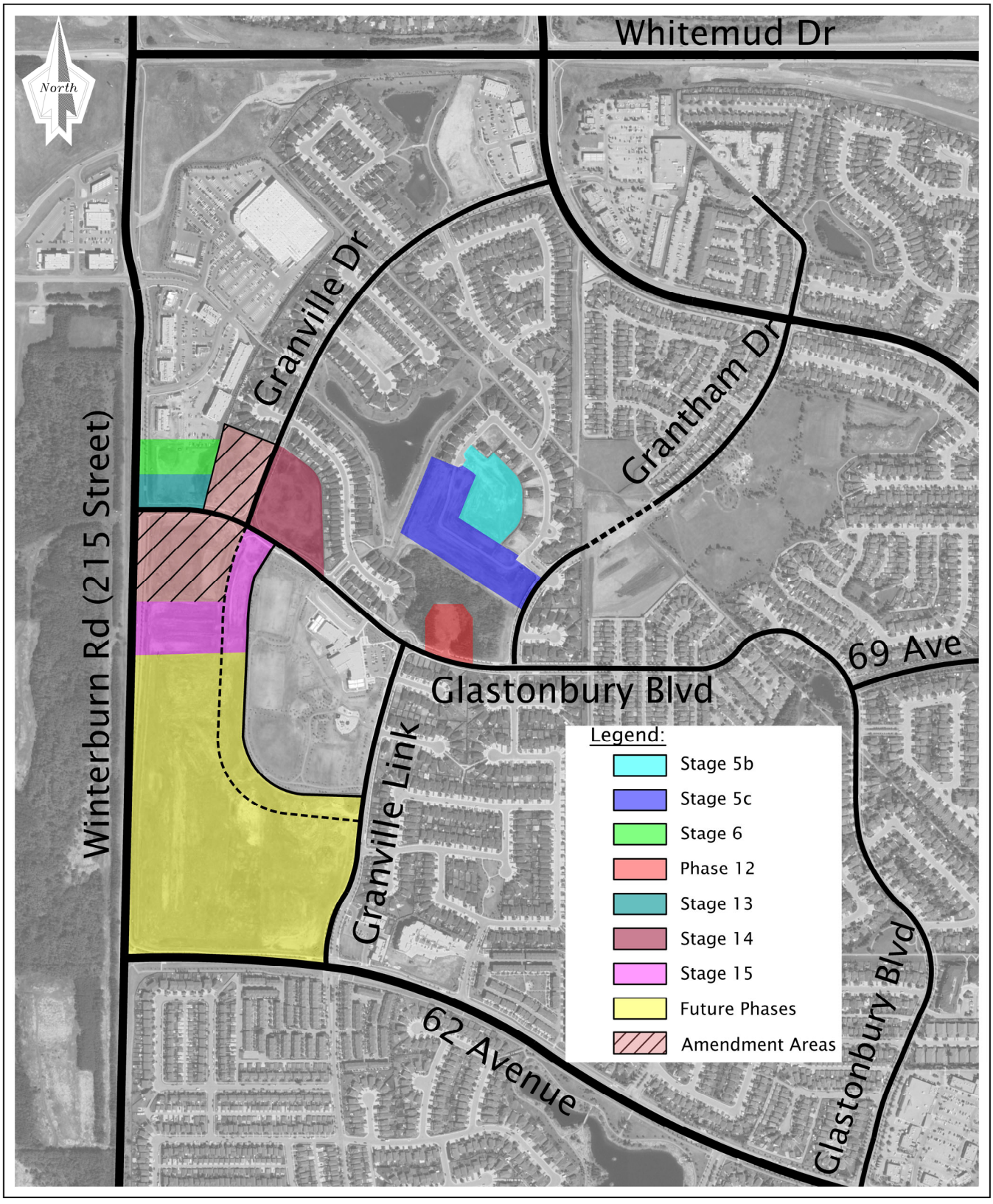

Exhibit 2.2

N.T.S.

Undeveloped Sites Granville Neighbourhood

Granville NSP Amendment
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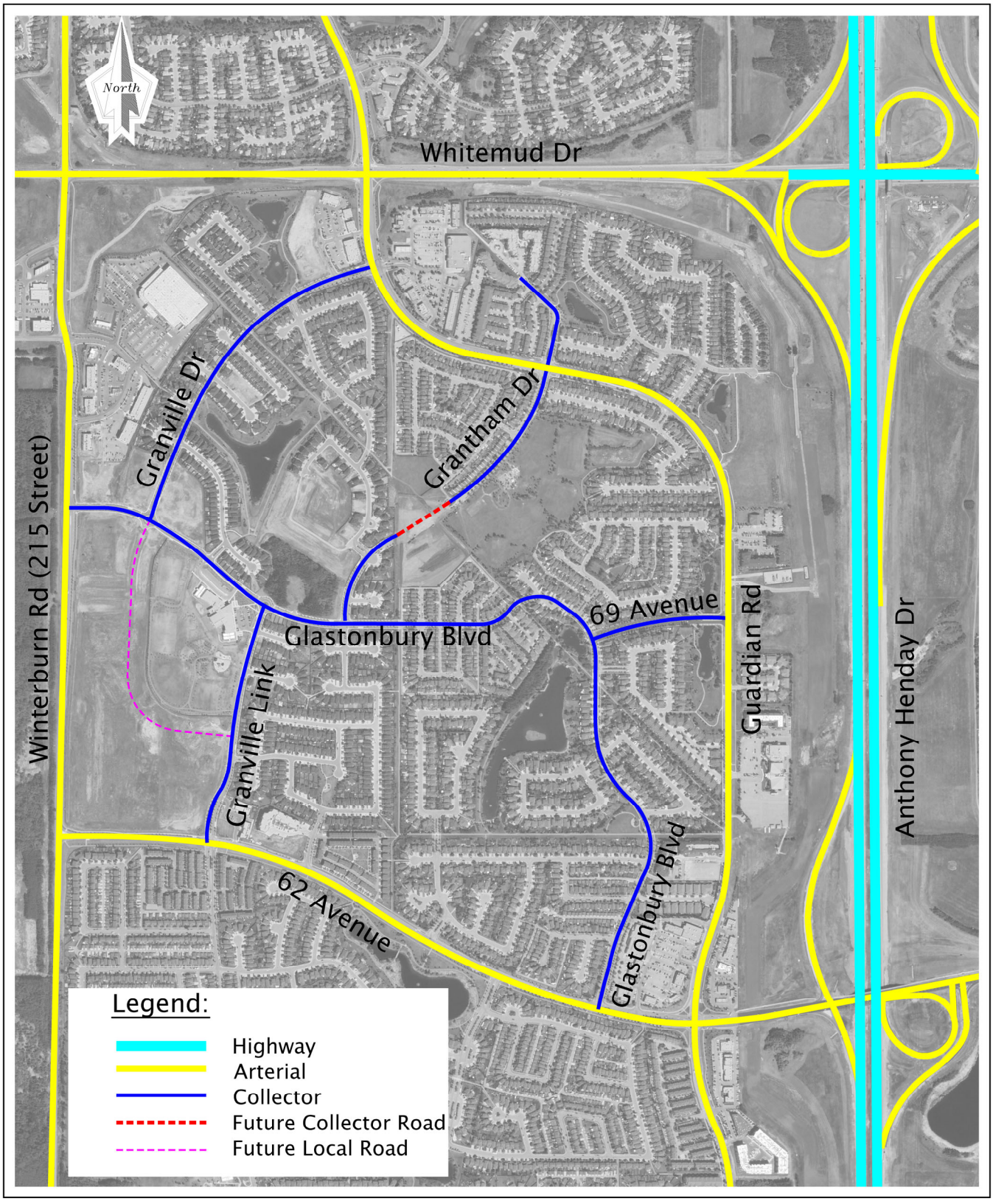

Exhibit 2.3

N.T.S.

Area Roadway Network

Granville NSP Amendment
bunt & associates | Project No. 03-21-0088

The intersection of **215 Street and Glastonbury Blvd** is a T-intersection with stop-control on the east leg of the intersection. Glastonbury Blvd intersects 215 Street as the east leg of a T-intersection approximately midway between 62 Avenue and Whitemud Drive. A northbound right turn bay and a southbound left turn bay have been developed at the intersection with Glastonbury Blvd. It is acknowledged that the west leg of the intersection may be developed in the future to provide access to lands west of 215 Street. The intersection is planned to be traffic-signal controlled when warranted.

The intersection of **Glastonbury Blvd and Granville Drive** has been constructed as a single-lane roundabout. The south approach (Granville Drive) is not yet constructed.

2.2.2 Horizon Year Roadway Network

In addition to the existing road network, the five-year assessment horizon is assumed to include the construction of the Granville Drive local roadway between the Glastonbury Blvd/Granville Drive roundabout and Granville Link.

2.2.3 Long Term Roadway Network

It is acknowledged that the ultimate roadway network planned for the area includes a six-lane cross-section for 215 Street, an interchange at Whitemud Drive/215 Street, and closure of the Guardian Road at-grade intersection with Whitemud Drive. A future Guardian Road flyover over Whitemud Drive is planned. The long term roadway network is considered to be outside the 2028 horizon and will not be evaluated as part of this TIA.

2.3 Existing Traffic

In order to establish existing background traffic volumes, Bunt & Associates reviewed historical traffic count information and completed new traffic counts. The traffic counts are included in **Appendix A**. The traffic counts include:

- 24-hour traffic counts at the T-intersection of 215 Street/ Glastonbury Blvd and at the roundabout intersection of Glastonbury Blvd and Granville Drive (November 23, 2021).
- Commercial Access (north of Glastonbury Blvd)/215 Street intersection (June 16, 2022)
- Glastonbury Blvd/Granville Drive roundabout (April 27, 2023)

Traffic volumes measured in 2021 are anticipated to be impacted by the COVID-19 pandemic; however, as Provincial restrictions were lifted prior to June 2022, the 2022 and 2023 counts are assumed to represent existing conditions. Therefore, turning movements at the Glastonbury Blvd/215 Street intersection were increased to balance between the Glastonbury Blvd/Granville Drive intersection to the east and the commercial access/215 Street intersection to the north. **Exhibit 2.4** summarizes the peak hour and daily traffic volumes at the key study intersections anticipated to best represent existing conditions. Daily traffic volumes were estimated based on applying the PM peak/Daily volume ratio established by the 24-hour 2021 counts completed to the 2022 and 2023 peak hour data. As presented, Glastonbury Blvd currently carries about 3,200 vpd; Granville Drive carries about 2,700 vpd; and 215 Street carries about 11,200 vpd south of Glastonbury Blvd and 12,900 vpd north of Glastonbury Blvd.

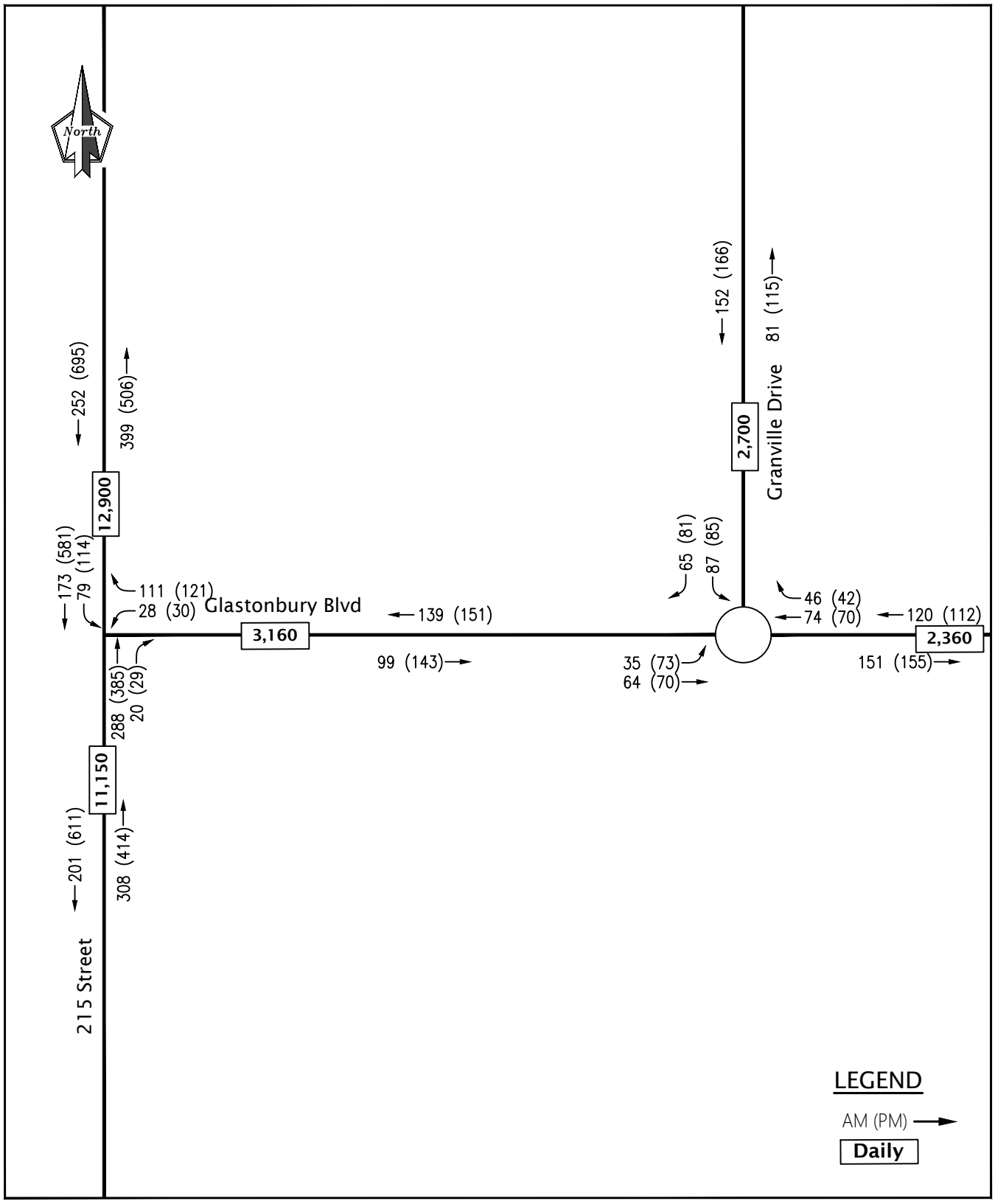

Exhibit 2.4

N.T.S.

Existing Traffic Volumes

Based on a review of historic volumes along 215 Street (2013-2018), the AAWDT remained fairly consistent at about 3,000 vpd (north of 62 Avenue). The 2021 24-hr count completed identified an AADT of 9,500 vpd. Between 2018 and 2021, significant growth was experienced on the corridor north of 62 Avenue. It is anticipated that growth has been driven by roadway network changes and area development. The Glastonbury Blvd and 62 Avenue connections to 215 Street were established in 2018 and 2016 respectively, contributing to traffic growth on 215 Street, in addition to the contributions of traffic generated by continued development in adjacent neighbourhoods and neighbourhoods located both to the north and south.

2.4 Horizon Year Background Traffic

As identified previously, a five-year horizon has been assumed to represent the full build-out of the amendment area lands and has been selected as the horizon year (2028) for assessment purposes.

Traffic growth along Glastonbury Blvd and Granville Drive within the five-year horizon will be driven by ongoing development of the Granville Neighbourhood and has been estimated based on the established zoning and future land use plans for undeveloped parcels. Lands currently undeveloped or partially built out that are anticipated to be built-out in the short-term horizon are summarized in **Table 2.1** and include all undeveloped lands identified in Exhibit 2.2.

The build-out of commercial area for Stage 6 and Stage 13 has been assumed based on a review of the most current site plans prepared by Arc Studio and provided by Aldritt. While the density of commercial development assumed is less than what is possible based on the approved zoning, it is consistent with the level of development that has been realized on the existing site and with what is anticipated to be developed. Should the land uses or development area differ substantially at the development permit stage from that which has been assumed, it is understood the City can request a trip generation review to determine if further study and TIA updates are required.

It is noted that the lands identified as 'Future Phases' have yet to be subdivided. While it is unlikely for these lands to develop within a five-year horizon, their inclusion represents a conservative assessment. The development of the Future Phases lands also assumes the future local roadway (identified in Exhibit 2.3) between Glastonbury Blvd and Granville Link is in place.

Trip generation rates for the undeveloped lands are as per City of Edmonton approved rates as applicable, also summarized in Table 2.1.

Table 2.1: Horizon Year – Additional Background Traffic Generators

STAGE	LAND USE	INTENSITY	AM PEAK HOUR	PM PEAK HOUR	DAILY
Stage 13	Commercial (Note 1)	10,162 SF	4.02 trips/1,000sf	9.82 trips/1,000sf	67.52 trips/1,000sf
Stage 6	Commercial	11,577 SF			
Phase 12	Residential – Single Family (Note 2)	10 units	0.69 trips/unit	0.79 trips/unit	7.92 trips/unit
Stage 5b	Residential – Single Family (Note 2)	14 units	0.69 trips/unit	0.79 trips/unit	7.92 trips/unit
Stage 5c	Residential – Single Family (Note 2)	37 units	0.69 trips/unit	0.79 trips/unit	7.92 trips/unit
Stage 14	Residential – RF6 (Note 3)	64 units	0.46 rips/unit	0.58 trips/unit	6.59 trips/unit
Stage 15	Residential – Single Family (Note 2)	50 units	0.69 trips/unit	0.79 trips/unit	7.92 trips/unit
Future Phases	Residential – LDR (Note 4)	310 units	0.69 trips/unit	0.79 trips/unit	7.92 trips/unit
Future Phases	Residential – MDR (Note 3)	110 units	0.46 trips/unit	0.58 trips/unit	6.59 trips/unit

Note 1: Rates based on City of Edmonton CSC rate calculated based on overall commercial site development area

Note 2: Intensity as per IBI Granville Staging Plan (October 11, 2017)

Note 3: Intensity assumed at 45 units/ha

Note 4: Intensity assumed at 25 units/ha

Table 2.2 presents the gross projected two-way vehicle trips that are anticipated to be added to the existing background traffic volumes within the five-year horizon.

Table 2.2: Horizon Year Background Traffic Estimates – Gross Trips

LAND USE	UNITS	AM PEAK HOUR		PM PEAK HOUR		DAILY	
		IN	OUT	IN	OUT	IN	OUT
Commercial	21,739 SF	46	41	102	111	753	753
Residential	595 units	68	290	274	139	2,199	2,199
TOTAL		114	331	376	250	2,952	2,952

The ITE handbook suggests an average PM pass-by rate of 34% for a shopping centre. Pass-by trips associated with the commercial land use were assumed to represent 34% of the gross trips during all timeframes.

Table 2.3 summarizes the anticipated primary and pass-by trips generated by the additional short-term development within the Granville Neighbourhood.

Table 2.3: Horizon Year Additional Background Traffic Estimates – Primary vs Pass-by Trips

LAND USE	UNITS	AM PEAK HOUR		PM PEAK HOUR		DAILY	
		IN	OUT	IN	OUT	IN	OUT
Commercial	Pass-by Trips	14	14	35	35	256	256
TOTAL PASS-BY TRIPS		14	14	35	35	256	256
Commercial	Primary Trips	32	27	67	76	497	497
Residential	Primary Trips	68	290	274	139	2,199	2,199
TOTAL PRIMARY TRIPS		100	317	341	215	2,696	2,696

Trips were assigned to the roadway network based on the following assumed access locations/routes:

- Access to commercial lands available from Glastonbury Blvd as well as through existing commercial lands to the north.
- Access to Phase 12 from Glastonbury Blvd.
- Access to Phase 5b and 5c from Glastonbury Blvd and Granville Drive and Granville Link.
- Access to Stage 14 from Granville Drive.
- Access to Future Phases from Glastonbury Blvd and Granville Link.

While an increase in background traffic turning movements at the 215 Street/Glastonbury Blvd intersection is anticipated to be generated by further development within the Granville Neighbourhood, an increase in northbound and southbound through movements is also anticipated as a result of external area development.

In order to establish a growth rate for 215 Street, the City provided the 1.25M Population traffic model volume projections for the corridor (estimated to correspond to 2032). **Table 2.4** summarizes the projected model volumes and the traffic volumes collected by Bunt in 2022.

Table 2.4: 1.25M Population (2032) Model Volume Projections vs Existing Volume

215 STREET		AM PEAK HOUR			PM PEAK HOUR		
		SB	NB	TOTAL	SB	NB	TOTAL
North of Glastonbury Blvd	2022 Existing	252	399	651	695	506	1201
	2032 Model Projection	321	612	933	690	446	1136
LINEAR GROWTH RATE (%/YEAR)		2.74%	5.33%	4.33%	-	-	-

Based on the above, a linear growth rate of 5% per year has been applied to link volumes north of Glastonbury Blvd in the AM peak hour. As presented, growth in the PM peak hour is not anticipated to be significant in the short term. Notwithstanding, for the purpose of the assessment, a linear growth rate of 2% per year over five years has been applied to the existing north approach of 215 Street at Glastonbury Blvd during the PM peak hour and on a daily basis. The resulting projected growth, discounted by the projected link volume associated with build-out of the neighbourhood, has been assigned to the northbound and southbound through movement at the Glastonbury Blvd/215 Street intersection.

Exhibit 2.5 presents the five-year horizon weekday AM and PM peak hour and daily background traffic activity at the key study intersections assumed for assessment purposes. It is noted that not all of the background traffic generated within the Granville neighbourhood is added to all of the study intersections given collector connections to other arterial routes to/from the east (i.e., Guardian Road and 62 Avenue) and the distribution of traffic. For example, of the additional traffic generated by the Granville neighbourhood, in the order of 25% is anticipated to pass through the Granville Drive/Glastonbury Blvd intersection.

2.4.1 Long Term

While a long term horizon was not considered for assessment purposes, it is acknowledged that an interchange at Whitemud Drive/215 Street and a future Guardian Road flyover over Whitemud Drive will impact travel patterns in the area, which is reflected in the City's 1.5M Population traffic model volume projections which suggest a substantial increase in volume on Glastonbury Blvd and a decrease in volume on Guardian Road.

It is anticipated that the impacts of the above network changes and their associated impacts will be reviewed as part of future studies when these long-term infrastructure projects are further contemplated.

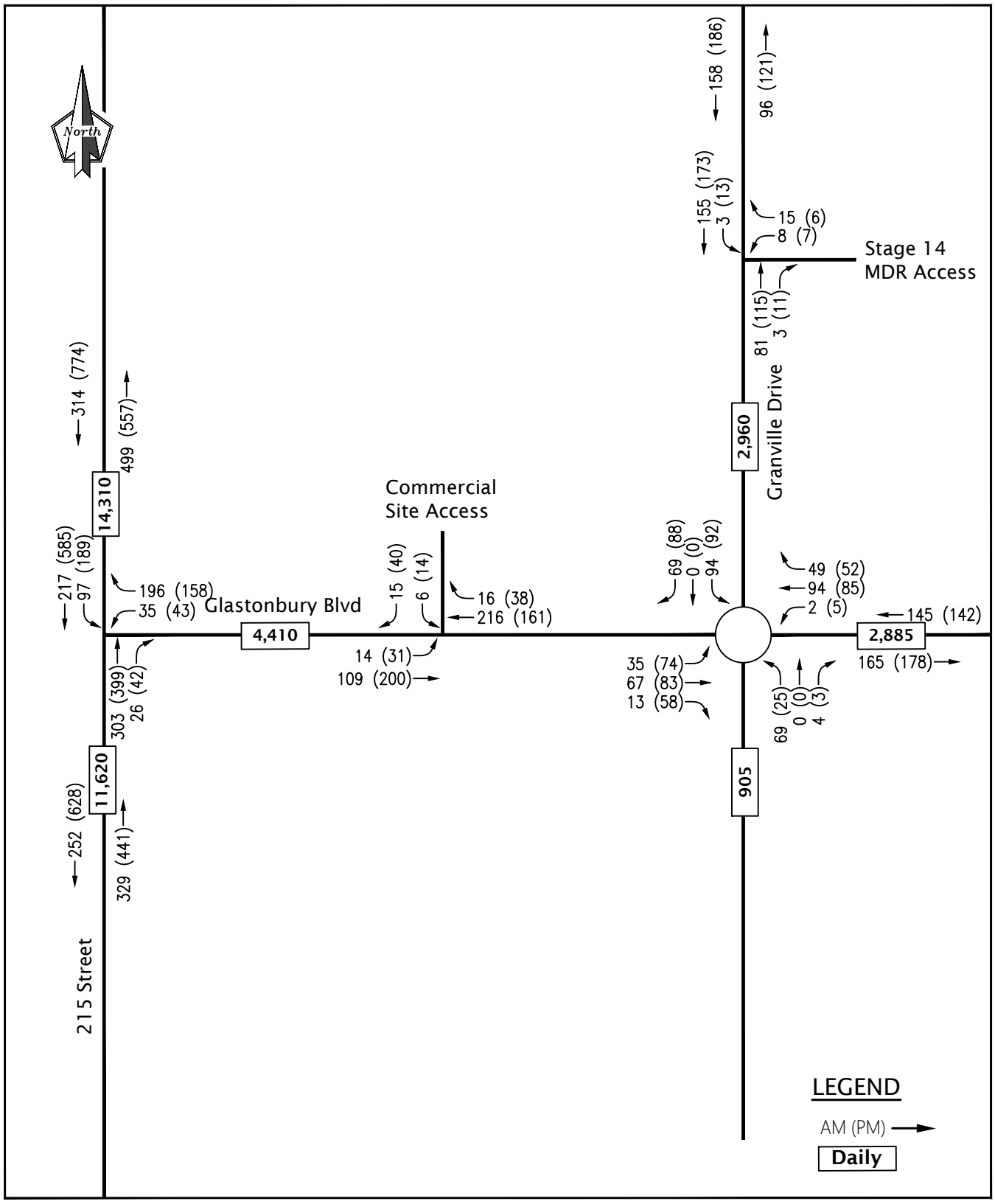

Exhibit 2.5

N.T.S.

Horizon Year
Background Traffic Volume Estimate

3. PROPOSED AMENDMENT CHARACTERISTICS

3.1 Land Use

As identified in Exhibit 2.1, the two rezoning sites will be referred to as the Stage 13 and the Stage 15 amendment areas, respectively. Although site plans have not been finalized, draft site plans for the sites have been provided for reference in **Exhibit 3.1**.

With respect to the Stage 15 site, the medium density residential site (identified in the NSP) in the southeast quadrant of 215 Street/Glastonbury Blvd intersection will be combined with a portion of the Stage 15 low-density residential lands to create a commercial site accommodating a self-storage facility and convenience commercial land uses. Convenience commercial uses could include such uses as fast-food restaurant, gas station, carwash, etc.

The Stage 13 lands in the northwest quadrant of the Glastonbury Blvd/Granville Drive intersection are proposed to be rezoned, increasing the density and including both residential and commercial land uses (two 6-story residential buildings and a CRU building).

The land use schedule for assessment purposes has been summarized in **Table 3.1**. Table 3.1 also includes a comparison to the land use schedule that could be developed based on the approved NSP. A residential density of 45 units/ha for the MDR lands and a density of 25 units/ha for the LDR lands has been assumed to estimate the number of units that could be developed within the amendment areas under existing conditions, which is consistent with densities in the approved NSP.

Table 3.1: Land Use Schedule

LAND USE	PROPOSED AMENDMENT	CURRENT NSP
STAGE 13 AMENDMENT AREA		
Residential	192 units	56 units
Commercial	8,062 SF	-
STAGE 15 AMENDMENT AREA		
Gas Bar/Convenience	2,000 SF / 6 fueling positions	-
Commercial	8,062 SF	-
Fast Food	1,800 SF	-
Self-Storage Facility	654 storage units	-
Residential	-	80 units

It is noted that while the density of Stage 15 commercial development assumed is less than what is possible based on the proposed zoning, it is consistent with the level of development that has been realized on the commercial site north of Glastonbury Blvd and with what is anticipated to be developed. Should the land uses or development area differ substantially at the development permit stage from that which has been assumed, it is understood the City can request a trip generation review to determine if further study and TIA updates are required.

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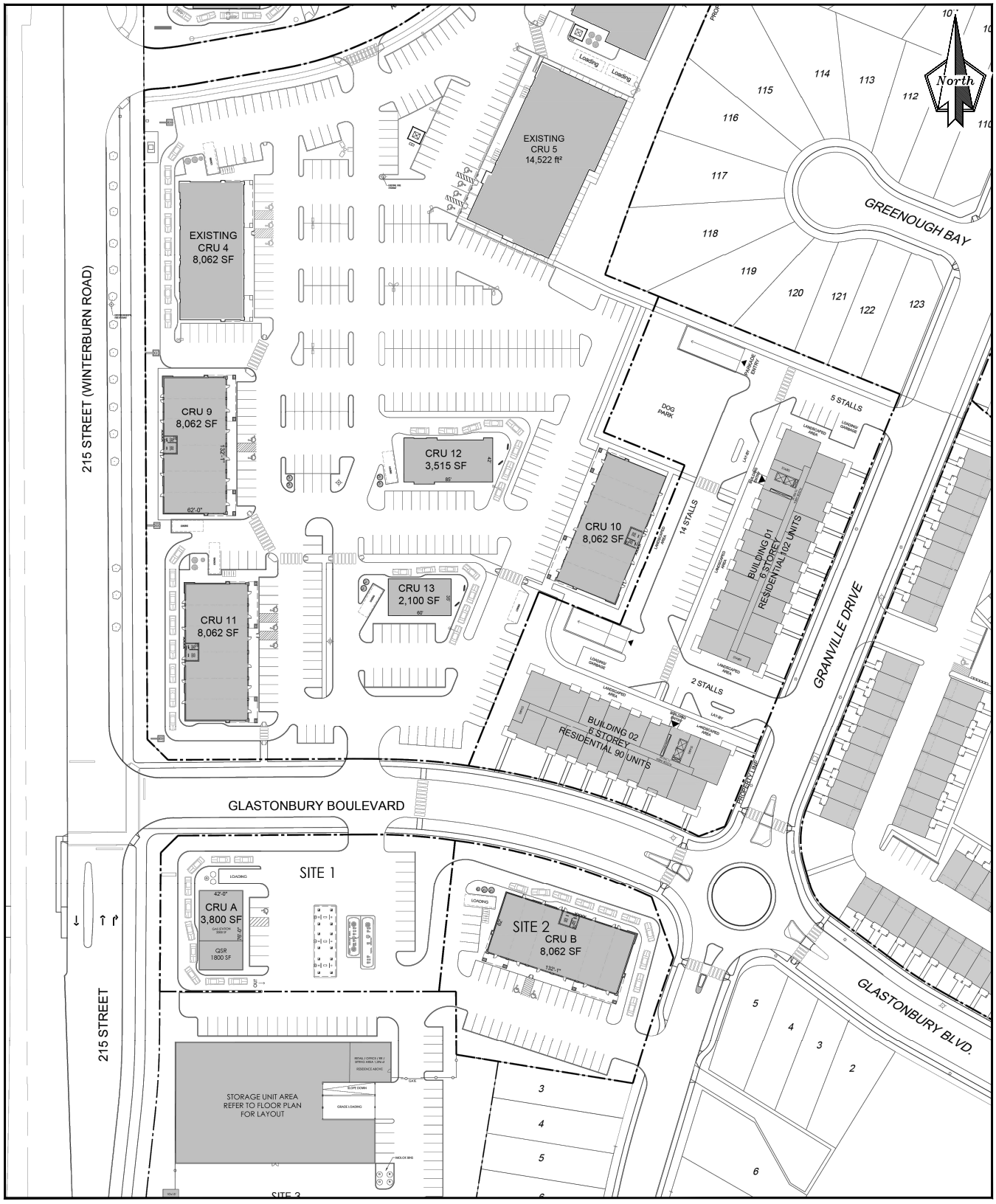

Exhibit 3.1

N.T.S.

Preliminary Site Plans

Granville NSP Amendment
bunt & associates | Project No. 03-21-0088

Additionally, it is noted that the proposed zoning allows for some ground floor commercial area in the residential buildings. It is anticipated that potential commercial land uses would be small and convenience commercial in nature. Given the location of the site, it is anticipated that any commercial would cater primarily to immediate area residents and is not anticipated to generate a significant traffic demand.

3.2 Site Access

Based on a review of the preliminary site plans prepared, the following is noted. With respect to the Stage 15 site, access to both Glastonbury Blvd and Granville Drive has been identified on the site plan. With respect to the Stage 13 site, access to the residential buildings is planned to be provided from Granville Drive, while the commercial building will form part of the greater commercial precinct to the west, with access to Glastonbury Blvd and through the commercial lands to the north.

Exhibit 3.2 identifies the site access spacing of the currently identified access locations.

The City's Access Management Guidelines have been reviewed as they relate to the location of the site accesses to the amendment areas identified on the current site plan.

3.2.1 Stage 15

Glastonbury Blvd, a collector roadway, forms the north boundary of the site. Site access should be located a minimum of 40m from 215 Street and 30m from Granville Drive. If two site accesses are proposed, they should be separated by a minimum of 30m. Based on a review of the preliminary site plan, the access strategy as shown meets the City's guidelines.

The location of the site access to the Granville Drive local roadway along the site's east boundary is located greater than 20m from Glastonbury Blvd and meets the spacing requirements of the City's guidelines.

3.2.2 Stage 13

Consistent with what is shown on the preliminary site plan, the access to the commercial site on the north side of Glastonbury Blvd should line up across Glastonbury Blvd with the Stage 15 site access. This strategy requires the removal of an existing curb return on the north side of Glastonbury Blvd along this frontage. With respect to the location of site access to the residential site along the Granville Drive frontage, based on the City's access management guidelines, a minimum of 30m should be maintained from Glastonbury Blvd, with a minimum of 30m between site accesses. The south site access location meets this criteria as it relates to Glastonbury Blvd; however, the spacing between the south site access and the site access to the MDR site on the east side of Granville Drive is slightly less than 30m. Notwithstanding, this intersection spacing which reflects a minor deficiency has been reviewed with the City and has received approval in principle. The location of the north site access meets the Access Management Guidelines identified.

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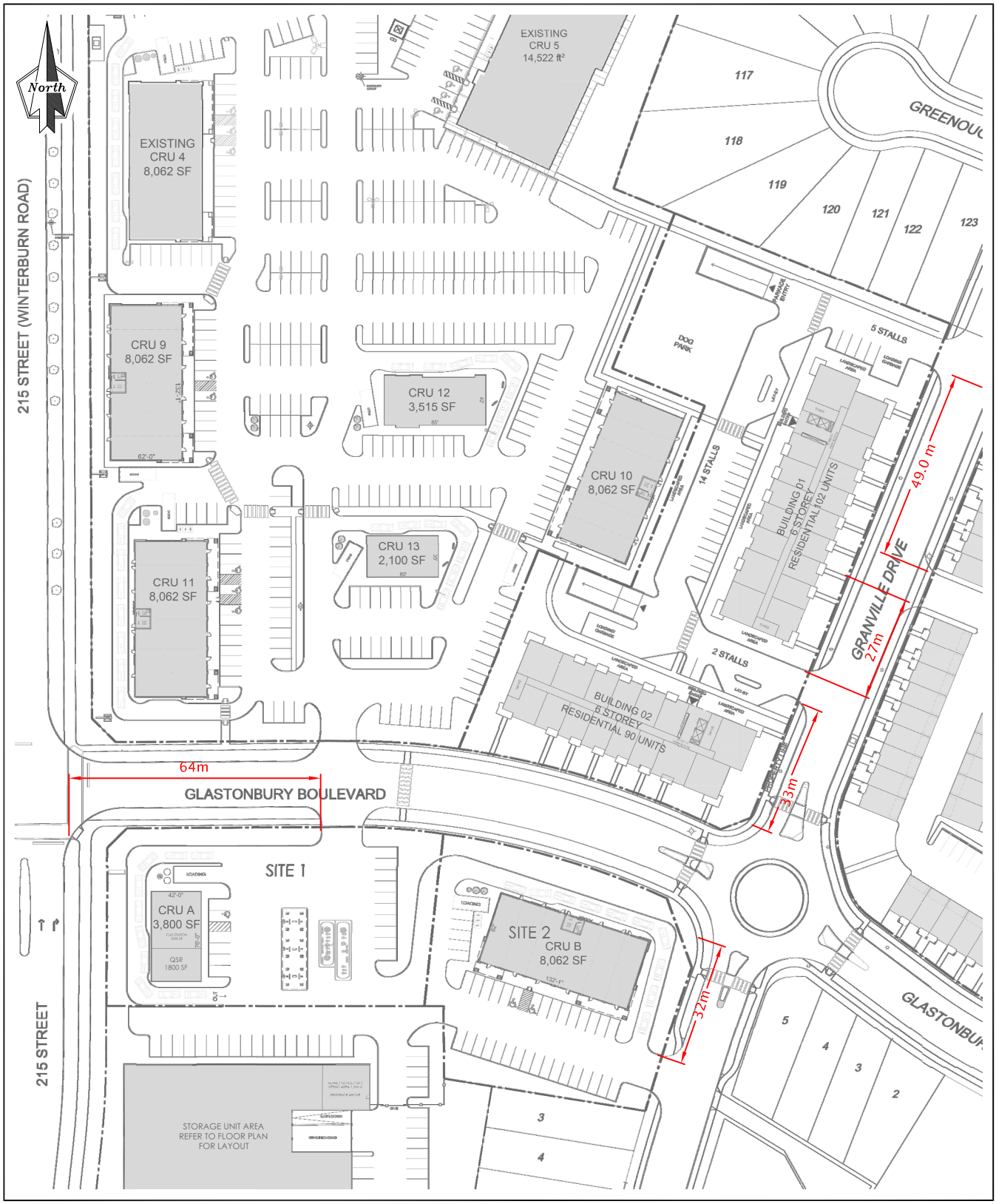

Exhibit 3.2

Site Access Spacing

4. AMENDMENT AREA TRAFFIC CHARACTERISTICS

4.1 Trip Generation

Trip generation rates have been applied based on a combination of City of Edmonton approved rates and rates from the ITE Trip Generation Manual 11th edition. Trip generation rates used in the assessment are summarized in **Table 4.1.**

Table 4.1: Trip Generation Rates

LAND USE	SOURCE	AM PEAK HOUR	PM PEAK HOUR	DAILY
STAGE 13 AMENDMENT				
Residential	C of E (RA7/RA8)	0.34 trips/unit	0.40 trips/unit	5.81 trips/unit
Commercial	Peak Hours: C of E (CSC) Daily: ITE 821 fitted curve (Note 1)	4.02 trips/1,000sf	9.42 trips/1,000sf	67.52 trips/1,000sf
STAGE 15 AMENDMENT				
Gas Bar/Convenience	Peak Hours: C of E rate Daily: ITE 945	12.36 trips/ fuel position	17.23 trips/ fuel position	205.36 trips/ fuel position
Commercial	ITE 822 Fitted curve (Note 1)	2.72 trips/1,000sf	7.41 trips/1,000sf	61.56 trips/1,000sf
Fast Food	Peak Hours: C of E rate Daily: ITE 934	20.27 trips/1,000sf	13.89 trips/1,000sf	467.48 trips/1,000sf
Self-Storage Facility	ITE 151 (Mini-Warehouse)	1.21 trips/ 100 storage units	1.68 trips/ 100 storage units	17.96 trips/100 units

Note 1: Fitted curve based on total area of the greater commercial site within which the land use is located.

Table 4.2 summarizes the projected two-way vehicle trips anticipated to be generated by full build-out of the amendment lands during the AM and PM peak hours as well as on a daily basis.

Table 4.2: Gross Trip Generation Estimates – Proposed Amendment

LAND USE	UNITS	AM PEAK HOUR		PM PEAK HOUR		DAILY	
		IN	OUT	IN	OUT	IN	OUT
STAGE 13 AMENDMENT							
Residential	192 units	11	54	48	28	558	558
Commercial	8,062 sf	17	15	36	39	272	272
SUBTOTAL STAGE 13 AMENDMENT		**28**	**69**	**84**	**67**	**830**	**830**
STAGE 15 AMENDMENT							
Gas Bar/Convenience	6 fuel positions	38	36	51	53	616	616
Commercial	8,062 sf	13	9	30	30	248	248
Fast Food	1,800 sf	19	18	13	13	421	421
Self-Storage Facility	654 storage units	4	4	5	5	59	59
SUBTOTAL STAGE 15 AMENDMENT		**74**	**67**	**99**	**101**	**1,344**	**1,344**

4.1.1 Pass-by Trips

Pass-by trips for the commercial land uses were estimated using the ITE Trip Generation Handbook. The handbook suggests an average PM pass-by rate of 34% for a shopping centre and a peak hour pass-by rate of about 50% for fast food restaurants and about 60% for the Gas Station/Convenience land use.

Pass-by trips associated with the general commercial in Stage 13 were assumed to represent 34% of the gross trips during all timeframes. Pass-by trips associated with the commercial land uses anticipated in Stage 15 (exclusive of the self-storage facility land use) were assumed to represent 50% of the gross trips during all timeframes. **Table 4.3** summarizes the commercial site generated traffic upon application of the above noted pass-by trips percentages.

Table 4.3: Net External Commercial Trip Estimates

LAND USE	AM PEAK HOUR		PM PEAK HOUR		DAILY	
	IN	OUT	IN	OUT	IN	OUT
STAGE 13 AMENDMENT						
Total Gross Commercial Trips	17	15	36	39	272	272
Pass-By	(5)	(5)	(12)	(12)	(92)	(92)
NET PRIMARY	**12**	**10**	**24**	**27**	**180**	**180**
STAGE 15 AMENDMENT						
Total Gross Commercial Trips (Note 1)	70	63	94	96	1,285	1,285
Pass-By	(32)	(32)	(47)	(47)	(643)	(643)
Self-Storage Facility	4	4	5	5	59	59
NET PRIMARY	**42**	**35**	**52**	**54**	**701**	**701**

Note 1: Exclusive of Self-Storage Facility

Table 4.4 summarizes the net primary trips anticipated to be generated to neighbourhood roadways (i.e. not including pass-by trips).

Table 4.4: Primary Trip Summary

LAND USE	AM PEAK HOUR		PM PEAK HOUR		DAILY	
	IN	OUT	IN	OUT	IN	OUT
STAGE 13 AMENDMENT						
Residential	11	54	48	28	558	558
Commercial	12	10	24	27	180	180
SUBTOTAL STAGE 13 AMENDMENT	**23**	**64**	**72**	**55**	**738**	**738**
STAGE 15 AMENDMENT						
Commercial	42	35	52	54	701	701
SUBTOTAL STAGE 15 AMENDMENT	**42**	**35**	**52**	**54**	**701**	**701**

4.1.2 Trip Comparison

Table 4.5 compares the proposed amendment net primary trip generation with the trip generation estimated based on the approved residential land use within the amendment areas. The City of Edmonton

RF5 trip rate has been applied to the approved residential land uses. The proposed amendment land use schedule for the subject areas represents an overall increase in trip activity as compared to the approved residential land use schedule.

Table 4.5: Net Primary Trip Comparison – Proposed vs Approved

LAND USE	UNITS	AM PEAK HOUR		PM PEAK HOUR		DAILY	
		IN	OUT	IN	OUT	IN	OUT
STAGE 13 AMENDMENT							
Total Proposed		23	64	72	55	738	738
Total Approved	56 units	5	20	21	11	185	185
NET INCREASE		32	112	113	81	1252	1252
		144		194		2,504	
STAGE 15 AMENDMENT							
Total Proposed		42	35	52	54	701	701
Total Approved	80 units	8	32	32	17	272	272
NET PRIMARY TRIP INCREASE		34	3	20	37	429	429
		37		57		858	

4.2 Trip Distribution and Assignment

The residential trip distribution used in this assessment reflects the City of Edmonton's 2030 origin-destination information. The site generated trips were assigned to/from the site accesses, Granville Drive, Glastonbury Blvd, and 215 Street based on the most logical and the origin-destination information. **Table 4.6** summarizes the assumed residential trip distribution to the major routes.

Table 4.6: Residential Trip Distribution

ROADWAY	AM		PM		DAILY	
	IN	OUT	IN	OUT	IN	OUT
Anthony Henday Drive North	30%	35%	35%	30%	30%	30%
Whitemud Drive East	15%	30%	20%	15%	20%	20%
Anthony Henday Drive South	50%	30%	40%	50%	45%	45%
215 Street North	5%	5%	5%	5%	5%	5%
TOTAL	100%	100%	100%	100%	100%	100%

With respect to the distribution and assignment of commercial trips, it has been assumed that 50% of primary trips represent trips external to the neighbourhood accessing the area via 215 Street. The balance of the primary trips have been assigned along collector roadways internal to the Granville neighbourhood.

Commercial pass-by trips were assigned from the Glastonbury Blvd corridor based on the distribution of traffic passing the site. The following pass-by trip distribution was assumed for the time periods assessed:

- AM Peak Hour: 40% EB; 60% WB
- PM Peak Hour: 40% EB; 60% WB
- Daily: 45% EB; 55% WB

Exhibit 4.1 presents the assignment of AM and PM peak hour trips to the subject intersections and site accesses as well as daily trip link estimates in the horizon year. Preliminary site plans identify two Stage 13 residential access points along Granville Drive; however, a single access point has been schematically illustrated and assessed, reflecting a conservative review of intersection capacity.

4.3 Total Traffic

Exhibit 4.2 presents the horizon year total AM and PM peak hour traffic anticipated at the proposed site accesses and key study intersections, reflecting the site generated traffic superimposed on the horizon year background traffic.

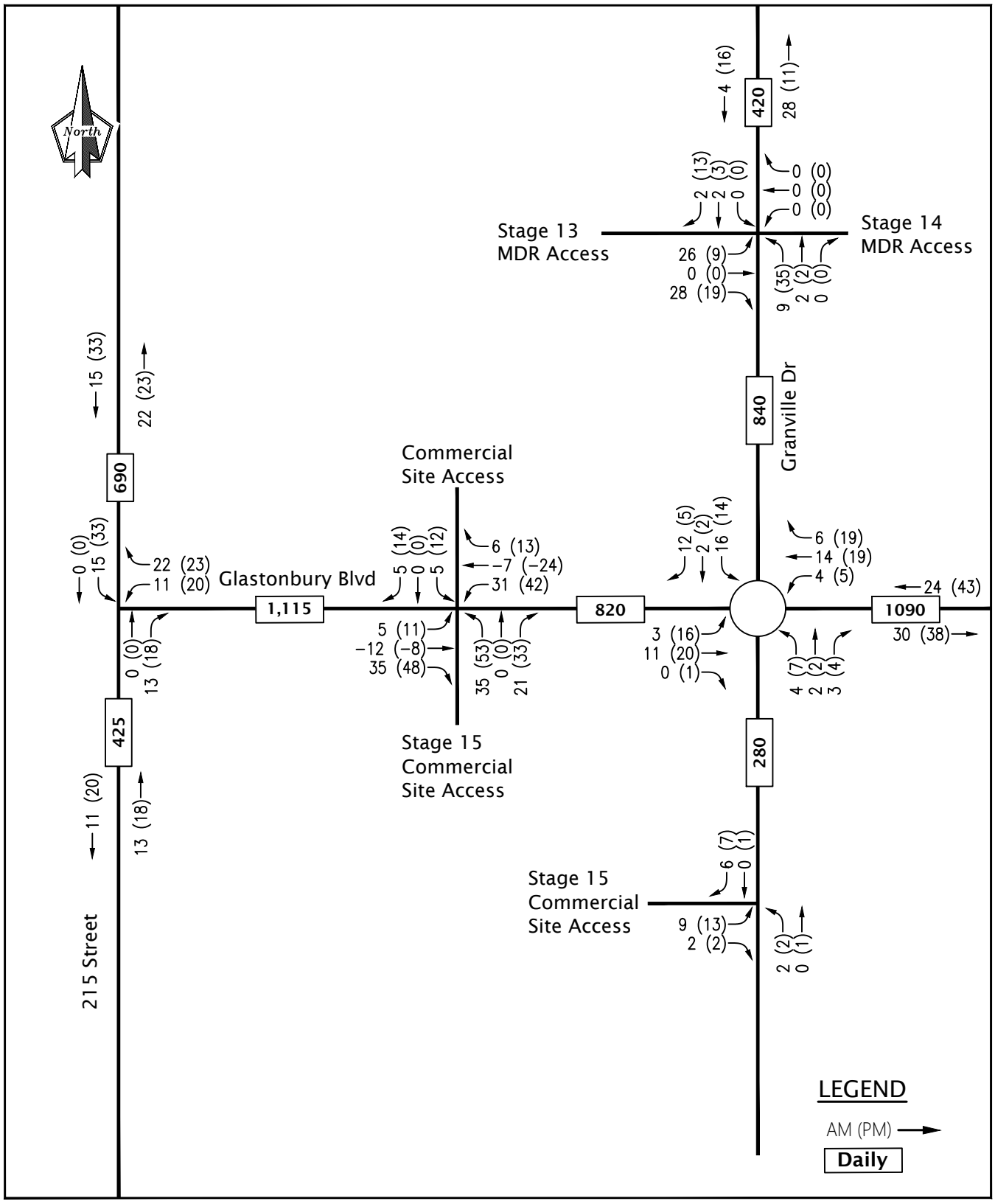

Exhibit 4.1

N.T.S.

Site Generated Traffic Assignment

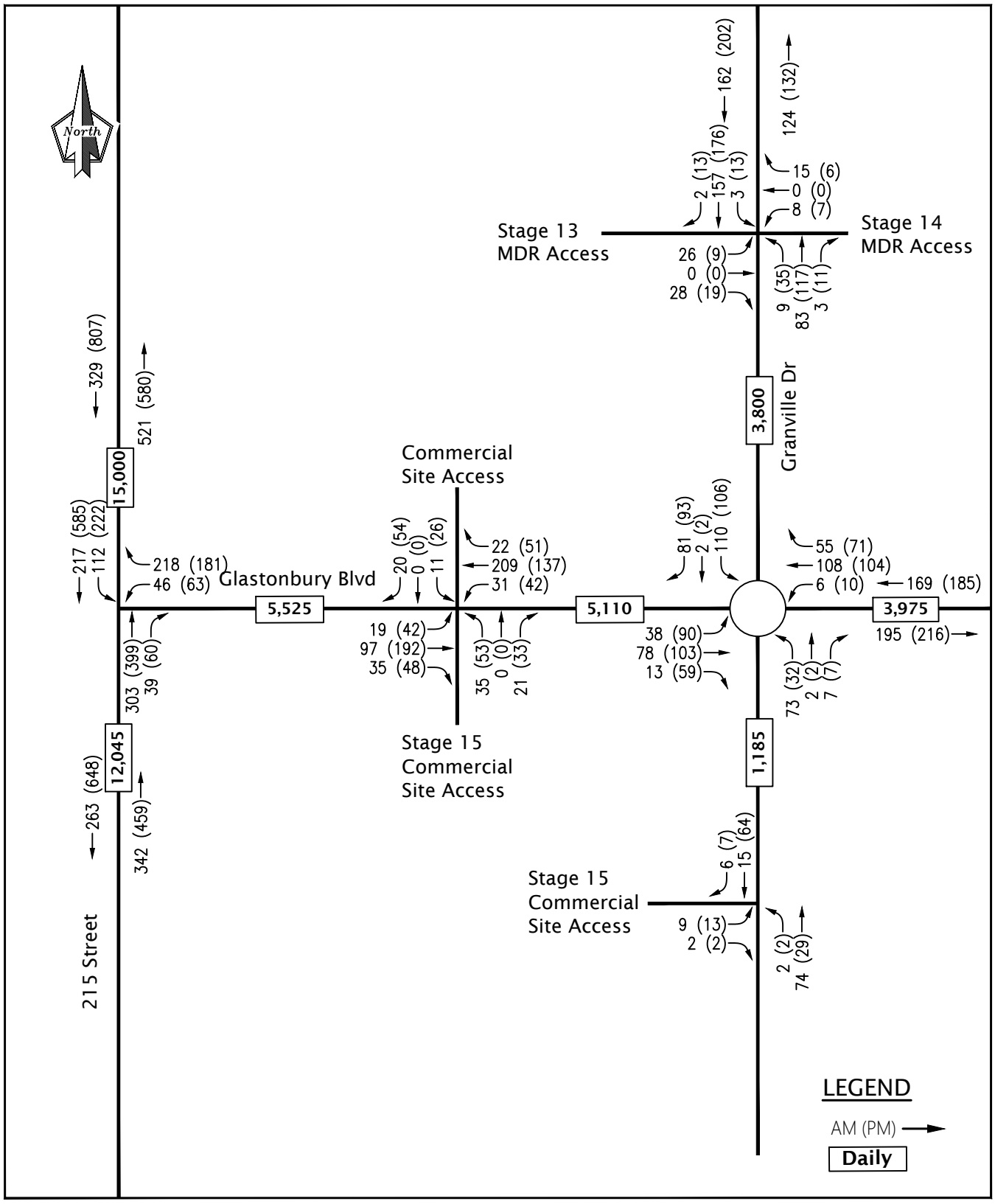

Exhibit 4.2

N.T.S.

Horizon Year
Total Traffic Volume Estimate

5. TRANSPORTATION ASSESSMENT

5.1 Daily Volume Review

5.1.1 Neighbourhood Roadways

The total daily volume estimates on Glastonbury Blvd and Granville Drive were reviewed to assess the appropriateness of the roadway cross-sections to accommodate the full build-out of the Granville neighbourhood with the proposed amendment land uses in place.

Table 5.1 summarizes the estimated daily traffic on Glastonbury Blvd and Granville Drive. The City of Edmonton TIA guidelines identify a threshold of 5,000 to 10,000 vehicles per day for a two-lane collector roadway (with the upper threshold identified for cross-sections with mitigations in place such as parking restrictions and access control) and a threshold of 1,000 vehicles per day for local roads.

Table 5.1: Neighbourhood Roadways –Daily Traffic Estimate

ROADWAY	EXISTING DAILY TRAFFIC[1]	HORIZON YEAR ESTIMATED DAILY TRAFFIC
Glastonbury Blvd East of 215 Street	3,160	5,525
Glastonbury Blvd East of Commercial Site Access	3,160	5,110
Glastonbury Blvd East of Granville Drive	2,360	3,975
Granville Drive North of Glastonbury Blvd	2,700	3,800
Granville Drive South of Glastonbury Blvd	-	1,185

1. Calculated based on the PM/Daily ratio established based on 2021 24-hr data and applied to 2023 PM peak hour data.

The projected total traffic volume on Glastonbury Blvd is anticipated to range between 3,800 and 5,500 vehicles per day between 215 Street and Granville Drive, which is in line with the City's threshold for a collector roadway. There is currently no adjacent development along this link, thus no on-street parking demand along the corridor. The 11.5m width can accommodate the allocation of a separate left turn bay and through/right turn lane at its approach to 215 Street, increasing capacity at the intersection. (The addition of parking ban signage along the corridor is recommended upon development of the adjacent lands). Capacity of the Glastonbury Blvd corridor is also optimized given that it does not accommodate residential front-drive accesses, and roundabouts are developed at Granville Drive and Granville Link. Intersection operations along the corridor will provide additional information regarding the roadway geometry and traffic control required to accommodate the projected traffic volumes.

As presented, the total daily traffic volume on the Granville Drive collector north of Glastonbury Blvd is anticipated to be in the order of 3,800vpd in the horizon year. It is noted that the volume along this link could decline over time with long-term infrastructure plans in place, including the Guardian Road flyover and the 215 Street/Whitemud Drive interchange.

With respect to the Granville Drive local roadway south of Glastonbury Blvd, it has been estimated that daily traffic volume could be in the order of 1,200 vpd, which is slightly higher than the City's threshold of a local roadway. It is recommended that two travel lanes be maintained between Glastonbury Blvd and the commercial site access to appropriately accommodate this level of traffic. Parking could be banned on one side of the roadway to maintain a travel lane in each direction. Traffic volume is anticipated to decrease south of the commercial site access.

5.1.2 215 Street

It is understood that urbanization of 215 Street between 45 Avenue to south of 62 Avenue is an outstanding obligation of Grange ASP ARA basin. It is further understood that Alldritt has prepared a staging plan for 215 Street improvements for the submission to the City under separate cover.

Table 5.2 summarizes the estimated daily traffic on 215 Street. As presented, the daily traffic north of Glastonbury Blvd is anticipated to increase from 12,900vpd existing to 15,000vpd in the horizon year. South of Glastonbury Blvd, daily traffic is projected to increase from 11,150vpd to 12,045vpd in the horizon year.

Table 5.2: 215 Street –Daily Traffic Estimate

ROADWAY	EXISTING DAILY TRAFFIC[1]	HORIZON YEAR ESTIMATED DAILY TRAFFIC[1]
215 Street North of Glastonbury Blvd	12,900	15,000
215 Street South of Glastonbury Blvd	11,150	12,045

1. Calculated based on the PM/Daily ratio established based on 2021 24-hr data and applied to the 2023 PM peak hour estimate.

Based on the City of Edmonton TIA Guidelines, the general volume threshold for a two-lane undivided arterial roadway is 12,000 vehicles per day. The neighbourhood build-out in the horizon year is anticipated to result in daily volumes along 215 Street in excess of 12,000 vehicles per day. Notwithstanding, existing left and right turn bays developed at intersections along the corridor are anticipated to increase the capacity at intersections, which typically represent critical points along a corridor from a capacity perspective. The following section reviews the intersection of 215 Street/Glastonbury Blvd from an intersection capacity perspective.

5.2 Intersection Capacity Analysis

5.2.1 Methodology

The intersection capacity assessments were completed using Synchro 11/HCM 2010 (signalized/unsignalized) and Sidra (roundabout). 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. The second measure of performance, Level of Service (LOS), is based on the estimated average delay per vehicle among all traffic passing through the intersection. A low average delay merits a LOS A rating. Average delays greater than 80 seconds per vehicle generally produce a LOS F rating for signalized intersections, while average delays greater than 50 seconds per vehicle generally produce a LOS F rating for unsignalized intersections.

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

- Saturation Flow Rate – 1,900 vphg
- Peak Hour Factor – As per existing counts for Existing Condition; 1.0 for horizon background and total traffic conditions.
- % Heavy Vehicles – As per existing counts, 2% minimum

The geometry assumed for the intersection is included in the assessment tables. Left turn movements, through movements, and right turn movements are represented by “L”, “T”, and “R” respectively in the assessment tables, and lanes are separated by a “/”. For example, an approach whose geometry is described as LT/R features two lanes: one lane accommodating shared left/through movements and a second lane accommodating right turning movements. Traffic control and/or key signal phasing is also identified in the summary tables, with protected/permitted left turn phasing denoted as “Pm+Pt”, for example.

As per the HCM 2010 methodology, assessment results for the unsignalized intersections are reported for critical movements only. It is also noted that HCM 2010 reports queue lengths in number of vehicles.

Intersection capacity assessments were completed for the two study area intersections and three site access intersections under the following scenarios, as applicable:

- Existing Conditions
- Horizon Year Background Traffic
- Horizon Year Total Traffic

The results of the intersection capacity assessments are summarized in the following sections, and the Synchro output results are included as **Appendix B**.

5.2.2 215 Street/Glastonbury Blvd

The base intersection geometry assumed for the assessment of the intersection of 215 Street/Glastonbury Blvd is consistent with the existing geometry and is as follows:

- ***East Approach*** – one left turn lane, one right turn lane;
- ***South Approach*** – one through lane, one right turn lane; and
- ***North Approach*** – one left turn lane, one through lane.

It is noted that although the east approach is not currently striped as two separate lanes, sufficient width exists to accommodate simultaneous movements.

Table 5.3 summarizes the results of the AM peak hour existing, horizon background traffic, and horizon total traffic assessment. The existing stop-control on the east approach has been assumed.

Table 5.3: 215 Street/Glastonbury Blvd – AM Peak Hour

DIRECTION	WESTBOUND		NORTHBOUND		SOUTHBOUND	
MOVEMENT	L	R	T	R	L	T
Existing Traffic – Unsignalized (WB Stop)						
Geometry	L/R		T/R		L/T	
Volume (vph)	28	111	288	20	79	173
v/c	0.11	0.16			0.08	
Delay (s)	16.6	11.1			8.3	
LOS	C	B			A	
95th Queue (veh)	1	1			1	
Intersection Delay:	3.2		Intersection LOS:		A	
Horizon Background Traffic – Unsignalized (WB Stop)						
Geometry	L/R		T/R		L/T	
Volume (vph)	35	196	303	26	97	217
v/c	0.10	0.27			0.08	
Delay (s)	15.9	11.7			8.2	
LOS	C	B			A	
95th Queue (veh)	1	1			1	
Intersection Delay:	4.1		Intersection LOS:		A	
Horizon Total Traffic – Unsignalized (WB Stop)						
Geometry	L/R		T/R		L/T	
Volume (vph)	46	218	303	39	112	217
v/c	0.13	0.30			0.10	
Delay (s)	17.0	12.0			8.3	
LOS	C	B			A	
95th Queue (veh)	1	1			1	
Intersection Delay:	4.6		Intersection LOS:		A	

Table 5.4 summarizes the results of the PM peak hour existing, horizon background traffic, and horizon total traffic assessment.

Table 5.4: 215 Street/Glastonbury Blvd – PM Peak Hour

DIRECTION	WESTBOUND		NORTHBOUND		SOUTHBOUND		
MOVEMENT	L	R	T	R	L	T	
Existing Traffic - Unsignalized (WB Stop)							
Geometry	L/R		T/R		L/T		
Volume (vph)	30	121	385	29	114	581	
v/c	0.36	0.22			0.11		
Delay (s)	38.8	12.5			8.7		
LOS	E	B			A		
95th Queue (veh)	2	1			1		
Intersection Delay:		3.6			Intersection LOS:		A
Horizon Background Traffic - Unsignalized (WB Stop)							
Geometry	L/R		T/R		L/T		
Volume (vph)	43	158	399	42	189	585	
v/c	0.32	0.24			0.17		
Delay (s)	43.7	12.3			8.9		
LOS	E	B			A		
95th Queue (veh)	1	1			1		
Intersection Delay:		3.9			Intersection LOS:		A
Horizon Total Traffic - Unsignalized (WB Stop)							
Geometry	L/R		T/R		L/T		
Volume (vph)	63	181	399	60	222	585	
v/c	0.53	0.28			0.20		
Delay (s)	65.1	12.6			9.1		
LOS	F	B			A		
95th Queue (veh)	3	1			1		
Intersection Delay:		5.6			Intersection LOS:		A

As presented, the 215 Street/Glastonbury Blvd intersection is anticipated to continue to operate at overall LOS A in the horizon year. Delay resulting in LOS F is anticipated for the westbound left turn movement in the PM peak hour; however, the v/c is anticipated to be >1.0. Delay on the stop-controlled minor leg approach of collector/arterial intersections is not uncommon; however, a Transportation Association of Canada (TAC) traffic signal warrant was completed to determine if signalization may be required under total traffic conditions. The warrant review was completed assuming the AM and PM 2-hour volume inputs represent two times the AM/PM peak hour volume and the noon 2-hour volume input represents the sum of the AM and PM peak hour volumes multiplied by a factor of 0.67 (based on a review of historical 24-hr

count profiles). Based on the assessment, a warrant score of 87 was identified, indicating a signal is not anticipated to be warranted in the horizon year.

This intersection represents a future traffic signal-controlled intersection and should be monitored for traffic signal installation to determine when volume warrants are met.

It is recommended that paint line markings be added to the intersection approach to 215 Street to delineate two westbound approach lanes. It is further recommended that parking ban signage be installed along the Glastonbury Blvd corridor upon development of the adjacent lands.

5.2.3 Glastonbury Blvd/Granville Drive

The south approach of the single-lane roundabout has been added in the assessment of the horizon year scenarios. **Table 5.5** and **Table 5.6,** summarize the AM peak hour and PM peak hour background and total traffic conditions, respectively, for the horizon year.

Table 5.5: Glastonbury Blvd/Granville Drive – AM Peak Hour

DIRECTION	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND		
MOVEMENT	L	T	R	L	T	R	L	T	R	L	T	R
Horizon Background Traffic – Roundabout												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	35	67	13	2	94	49	25	0	3	94	0	69
v/c	0.09			0.13			0.07			0.15		
Delay (s)	3.0			2.0			6.3			4.9		
LOS	A			A			A			A		
95th Queue (m)	3.4			4.8			2.5			5.7		
Intersection Delay: 3.8										Intersection LOS: A		
Horizon Total Traffic – Roundabout												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	38	78	13	6	108	55	73	2	7	110	2	81
v/c	0.10			0.15			0.08			0.19		
Delay (s)	3.1			2.2			6.3			5.0		
LOS	A			A			A			A		
95th Queue (m)	4.0			5.7			2.9			7.1		
Intersection Delay: 3.9										Intersection LOS: A		

Table 5.6: Glastonbury Blvd/Granville Drive – PM Peak Hour

DIRECTION	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND		
MOVEMENT	L	T	R	L	T	R	L	T	R	L	T	R
Horizon Background Traffic – Roundabout												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	74	83	58	5	85	52	25	0	3	94	0	69
v/c	0.17			0.12			0.03			0.16		
Delay (s)	3.3			2.1			6.3			4.3		
LOS	A			A			A			A		
95th Queue (m)	6.5			4.6			1.0			6.1		
Intersection Delay: 3.5							Intersection LOS: A					
Horizon Total Traffic – Roundabout												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	90	103	59	10	104	71	32	2	7	106	2	81
v/c	0.20			0.17			0.04			0.18		
Delay (s)	4.6			2.4			6.3			3.4		
LOS	A			A			A			A		
95th Queue (m)	8.1			6.3			1.5			7.2		
Intersection Delay: 3.7							Intersection LOS: A					

As presented, the Glastonbury Blvd/Granville Drive single lane roundabout is anticipated to operate at excellent levels of service during the horizon year for both time frames assessed.

5.2.4 Glastonbury Blvd Site Access Intersection

As discussed previously, the preliminary site plan identifies a single site access along the Glastonbury Blvd frontage, representing a four-legged intersection serving the Stage 15 commercial site and the Stage 13 commercial site (north side of corridor). It is acknowledged that additional accesses could be considered while continuing to meet the City's spacing guidelines, based on the site frontage available.

The intersection geometry assumed for the Glastonbury site access intersection is as follows:

- ***West Approach*** – one shared left/through/right turn lane;
- ***East Approach*** – one shared left/through/right turn lane;
- ***North Approach*** – one shared left/through/right turn lane; and
- ***South Approach*** – one shared left/through/right turn lane.

Table 5.7 summarizes the AM and PM peak hour total traffic conditions for the horizon year.

As presented, the Glastonbury Blvd all-directional site access intersection is anticipated to operate at appropriate levels of service during both the AM and PM peak hours.

Table 5.7: Glastonbury Blvd Site Access – Total Traffic

DIRECTION	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND		
MOVEMENT	L	T	R	L	T	R	L	T	R	L	T	R
AM Peak Hour – Unsignalized (N/S Stop)												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	19	97	35	31	209	22	35	0	21	11	0	20
v/c	0.01			0.02			0.09			0.05		
Delay (s)	7.7			7.5			11.6			10.7		
LOS	A			A			B			B		
95th Queue (veh)	0			1			1			1		
Intersection Delay: 2.7							Intersection LOS: A					
PM Peak Hour – Unsignalized (N/S Stop)												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	42	192	48	42	137	51	53	0	33	26	0	54
v/c	0.03			0.03			0.18			0.13		
Delay (s)	7.7			7.8			14.1			11.5		
LOS	A			A			B			B		
95th Queue (veh)	1			1			1			1		
Intersection Delay: 4.1							Intersection LOS: A					

5.2.5 Granville Drive Stage 13 Site Access Intersection

As discussed previously, the preliminary site plan identifies two accesses to the Granville Drive collector corridor from the Stage 13 medium density residential site. Notwithstanding, for the purpose of a conservative assessment, a single access lining up across Granville Drive with the future access to the Stage 14 MDR site has been assumed. Stop control on the east and west approach has been assumed.

The intersection geometry assumed for the site access intersection is as follows:

- ***West Approach*** – one shared left/through/right turn lane;
- ***East Approach*** – one shared left/through/right turn lane;
- ***North Approach*** – one shared left/through/right turn lane; and
- ***South Approach*** – one shared left/through/right turn lane.

Table 5.8 summarizes the AM peak hour and PM peak hour total traffic conditions for the horizon year. As presented, the intersection is anticipated to operate at LOS A. Therefore, the three proposed T-intersections along Granville Drive are also anticipated to operate at excellent levels of service.

Table 5.8: Granville Drive Stage 13 Site Access – Total Traffic

DIRECTION	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND		
MOVEMENT	L	T	R	L	T	R	L	T	R	L	T	R
AM Peak Hour – Unsignalized (E/W Stop)												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	26	0	28	8	0	15	9	83	3	3	157	2
v/c	0.07			0.03			0.01			0.00		
Delay (s)	10.1			9.5			7.5			7.4		
LOS	B			A			A			A		
95th Queue (veh)	1			1			0			0		
Intersection Delay: 2.5										Intersection LOS: A		
PM Peak Hour – Unsignalized (E/W Stop)												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	9	0	19	7	0	6	35	117	11	13	176	13
v/c	0.04			0.02			0.03			0.01		
Delay (s)	10.2			10.6			7.7			7.5		
LOS	B			B			A			A		
95th Queue (veh)	1			1			1			0		
Intersection Delay: 1.9										Intersection LOS: A		

5.2.6 Granville Drive Stage 15 Site Access Intersection

The commercial site access to the Granville Drive local roadway south of Glastonbury Blvd is anticipated to tee into the corridor. Stop control on the west approach has been assumed. The intersection geometry assumed for the site access intersection is as follows:

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

Table 5.9 summarizes the AM peak hour and PM peak hour total traffic conditions for the horizon year. As presented, the intersection is anticipated to operate at LOS A.

Table 5.9: Granville Drive Stage 15 Site Access – Total Traffic

DIRECTION	EASTBOUND		NORTHBOUND		SOUTHBOUND	
MOVEMENT	L	R	L	T	T	R
AM Peak Hour – WB Stop-control						
Geometry	LR		LT		TR	
Volume (vph)	9	2	2	74	15	6
v/c	0.01		0.01			
Delay (s)	8.9		7.3			
LOS	A		A			
95th Queue (veh)	0		0			
Intersection Delay:	1.0		Intersection LOS:		A	
PM Peak Hour – WB Stop-control						
Geometry	LR		LT		TR	
Volume (vph)	13	2	2	29	64	7
v/c	0.02		0.01			
Delay (s)	9.0		7.4			
LOS	A		A			
95th Queue (veh)	1		0			
Intersection Delay:	1.3		Intersection LOS:		A	

6. ADDITIONAL CONSIDERATIONS

6.1 Active Modes Connectivity

In the vicinity of the study area, a shared use path is developed along the east side of 215 Street, the south side of 62 Avenue, and the west side of 199 Street (Guardian Road). The City's Bike Plan identifies 62 Street and 199 Street as District Connector Routes. A number of neighbourhood shared use path routes connecting park space and communities have also been developed. Sidewalks are developed on both sides of Granville Drive, Glastonbury Blvd and Granville Link, and, upon construction, sidewalks are planned to be developed on both sides of the Granville Drive link between Glastonbury Blvd and Granville Link.

In order to facilitate the movement of pedestrians to/from the adjacent sidewalk infrastructure, connectivity should be provided between the proposed rezoning sites and the adjacent sidewalk system. The site plan prepared for the proposed Stage 13 residential site identifies internal sidewalk connectivity to the external sidewalk system along both Granville Drive and Glastonbury Blvd.

Although not currently identified on the site plan, it is recommended that the Stage 15 commercial site provide pedestrian connectivity to the adjacent Glastonbury Blvd sidewalk and to the future Granville Drive sidewalk.

The proposed rezoning site plan identifies a pedestrian crossing location on the east approach of the proposed Glastonbury Blvd/Commercial site access intersection. It is noted that a crossing at this location is less than 100m from the crossing locations at both 215 Street and Granville Drive and would thus not warrant a pedestrian crossing based on TAC guidelines.

6.2 Glastonbury Blvd East of Granville Drive

The Kim Hung School site abuts the Glastonbury Blvd corridor immediately West of Granville Link. It is understood that existing speeding concerns have been identified by the neighbourhood in front of the school. School zone measures currently in place include playground zone speed reductions enforceable between 7:30 AM and 9:00 PM and a marked crosswalk with zebra paint lines and rapid flashing beacons at the west school site access to facilitate crossing of Glastonbury Blvd. It is noted that the south curb frontage between the two school site accesses is signed for 5-minute passenger loading during prescribed hours (7:00 AM – 4:00 PM).

The traffic assessment completed has identified that the Glastonbury Blvd collector along the school site is anticipated to continue to operate within the volume threshold of a typical two-lane collector roadway. Enhanced education, enforcement and/or raised crosswalks represent potential traffic calming measures that could be implemented adjacent to school sites. Given that an existing issue has been identified, the City of Edmonton Traffic Safety Section may wish to further investigate the situation to determine if mitigation measures are warranted. Improvements identified are anticipated to be a response to school operations, not the increase in traffic associated with the proposed rezonings.

7. CONCLUSIONS

The proposed Granville amendment area lands include commercial and medium density residential land uses. The addition of traffic generated by the amendment areas is not anticipated to result in modifications required to the 215 Street/Glastonbury Blvd intersection in the horizon year. **It is recommended that the City continue to monitor the 215 Street/Glastonbury Blvd intersection for traffic signal control installation when warranted.**

The amendment area lands make only a modest contribution to volumes on 215 Street. Long term growth external to the plan area is anticipated to contribute significant traffic to 215 Street. As such, timing of improvements to the 215 Street corridor will be dependent upon the rate of development as well as infrastructure modifications in the greater area anticipated to impact traffic flow patterns.

It is understood that construction of 215 Street between 45 Avenue to south of 62 Avenue is an outstanding obligation of Grange ASP ARA basin. It is further understood that Alldritt has prepared a staging plan for 215 Street improvements for the submission to the City under separate cover.

The Glastonbury Blvd collector corridor, a two-lane undivided collector roadway is anticipated to continue to be appropriate to accommodate the build-out of the amendment lands as proposed. It is anticipated that sufficient width exists at the approach to 215 Street to accommodate left turning and right turning traffic simultaneously. **It is recommended that paint line markings be added to the Glastonbury Blvd intersection approach to 215 Street to delineate two westbound approach lanes. It is further recommended that parking ban signage be installed along the Glastonbury Blvd corridor upon development of the adjacent lands**.

The two-lane collector cross-section of Granville Drive north of Glastonbury Blvd is anticipated to continue to be appropriate to accommodate traffic demands upon build-out of the neighbourhood.

The Granville Drive local roadway south of Glastonbury Blvd is anticipated to carry in the order of 1,200vpd north of the Stage 15 commercial site access. **Two travel lanes should be maintained on Granville Drive between Glastonbury Blvd and a point south of the commercial site access. This can be achieved by banning parking on one side of the roadway or through a modified local cross-section.**

With respect to pedestrian connectivity, **it is recommended that the Stage 15 commercial site provide pedestrian connectivity to the adjacent Glastonbury Blvd sidewalk and to the future Granville Drive sidewalk**.

APPENDIX A

Traffic Counts

APPENDIX B

Synchro Results