TRAFFIC IMPACT ANALYSIS

LOFTS AT CASTLE HILLS

CASTLE HILLS, TEXAS

FEBRUARY 2022 | VERSION 1

2/15/2022

Prepared By:

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068716416

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EXECUTIVE SUMMARY

This report documents a traffic impact analysis (TIA) performed for Lofts at Castle Hills, a multifamily housing development located on the southeast corner of Lockhill Selma Road & N Winston Lane in the City of Castle Hills, Bexar County, Texas.

The proposed development is anticipated to consist of 300 dwelling units and is expected to be complete by 2023.

Traffic operations were analyzed at the following intersections in addition to all access points for Existing 2022, Background 2023, Background 2028, Build Out 2023, and Build Out 2028 scenarios:

- NW Military Highway & N Winston Lane
- Lockhill Selma Road & N Winston Lane

Peak hour level of service analyses were performed using the *Synchro 10™* software program. Background traffic volumes for each scenario reflect existing traffic volumes that have been grown using an agreed upon compound annual growth rate.

Based on the analyses performed during this traffic study, we offer the following conclusions and recommendations:

Existing 2022 Conditions

All intersections are operating at an acceptable LOS during the peak hours.

Background 2023 Conditions

All intersections are operating at an acceptable LOS during the peak hours.

Background 2028 Conditions

All intersections are operating at an acceptable LOS during the peak hours.

Build Out 2023 Conditions

Based on the analysis of the projected build out 2023 conditions, all intersections are projected to continue to operate at an acceptable LOS during the peak hours. No offsite improvements are triggered by the City of Castle Hills Code of Ordinances to mitigate traffic associated with the development. However, the developer is coordinating with the City on potential improvements on N Winston Lane.

Horizon 2028 Conditions

Based on the analysis of the projected horizon 2028 conditions, it is anticipated that all study intersections will continue to operate at an acceptable LOS during the peak hours with ongoing background traffic growth. The horizon analysis is required by the City of Castle Hills Code of Ordinances to aid the City in planning for the future. Any increases in delay are not attributable to the development, but the result of continued background growth.

1. INTRODUCTION

This report documents a traffic impact analysis (TIA) performed for Lofts at Castle Hills, a multifamily housing development located on the southeast corner of Lockhill Selma Road & N Winston Lane in the City of Castle Hills, Bexar County, Texas.

Prior to the preparation of the TIA, Kimley-Horn discussed the scope of the TIA and study area with the City of Castle Hills City Council at the Special City Council Meeting on December 7, 2021 and provided follow up scoping materials for review on December 14, 2021. TIA scoping materials provided are included in **Appendix A**.

The purpose of this study is to address the traffic impacts of the proposed development. At the request of the City, a supplemental to the TIA that documents traffic volumes, operational analysis results, and recommendations for improvements (if necessary) for two additional intersections - S Winston Lane & Fox Hall Lane and S Winston Lane & E Castle Lane - will be added to **Appendix E**. The analysis of these two additional offsite intersections is not required by the City of Castle Hills Code of Ordinances. The developer agreed to provide the additional analysis to aid the City in addressing resident concerns unrelated to the traffic associated with the development.

2. EXISTING AND PROPOSED LAND USE

2.1. SITE LOCATION / STUDY AREA

The proposed development is located on the southeast corner of Lockhill Selma Road & N Winston Lane in the City of Castle Hills, Bexar County, Texas. **Figure 1** illustrates the study area and site location.

As determined through coordination with the City of Castle Hills City Council, the traffic evaluation included analysis of the following intersections, in addition to all access points:

- NW Military Highway & N Winston Lane
- Lockhill Selma Road & N Winston Lane

Based on the City of Castle Hills Code of Ordinances, the capacity analysis must include the current year, opening year of the development, and five years after the opening year of the development and should include both the no-build condition and build condition. The traffic evaluation was comprised of capacity analyses for the Existing 2022, Background 2023, Background 2028, Build Out 2023, and Horizon 2028 scenarios that have been performed with *Synchro 10™* software.

2.2. EXISTING AND PROPOSED DEVELOPMENT

The site is currently undeveloped. Lofts at Castle Hills is a proposed multifamily housing development that is anticipated to consist of 300 dwelling units upon full build out as shown in **Table 1**.The current site plan is shown in **Figure 2**.

Table 1: Proposed Land Uses

Land Use Description	ITE Land Use Code	Quantity
Multifamily Housing (Low-Rise)	220	300 Dwelling Units

SHEET NUMBER 1	LOFTS AT CASTLE HILLS	SITE LOCATION	KHA PROJECT 068716416 DATE FEBRUARY 2022 SCALE AS SHOWN DESIGNED BY ____ DRAWN BY ____ CHECKED BY ____	N.T.S. NORTH	Kimley»Horn		

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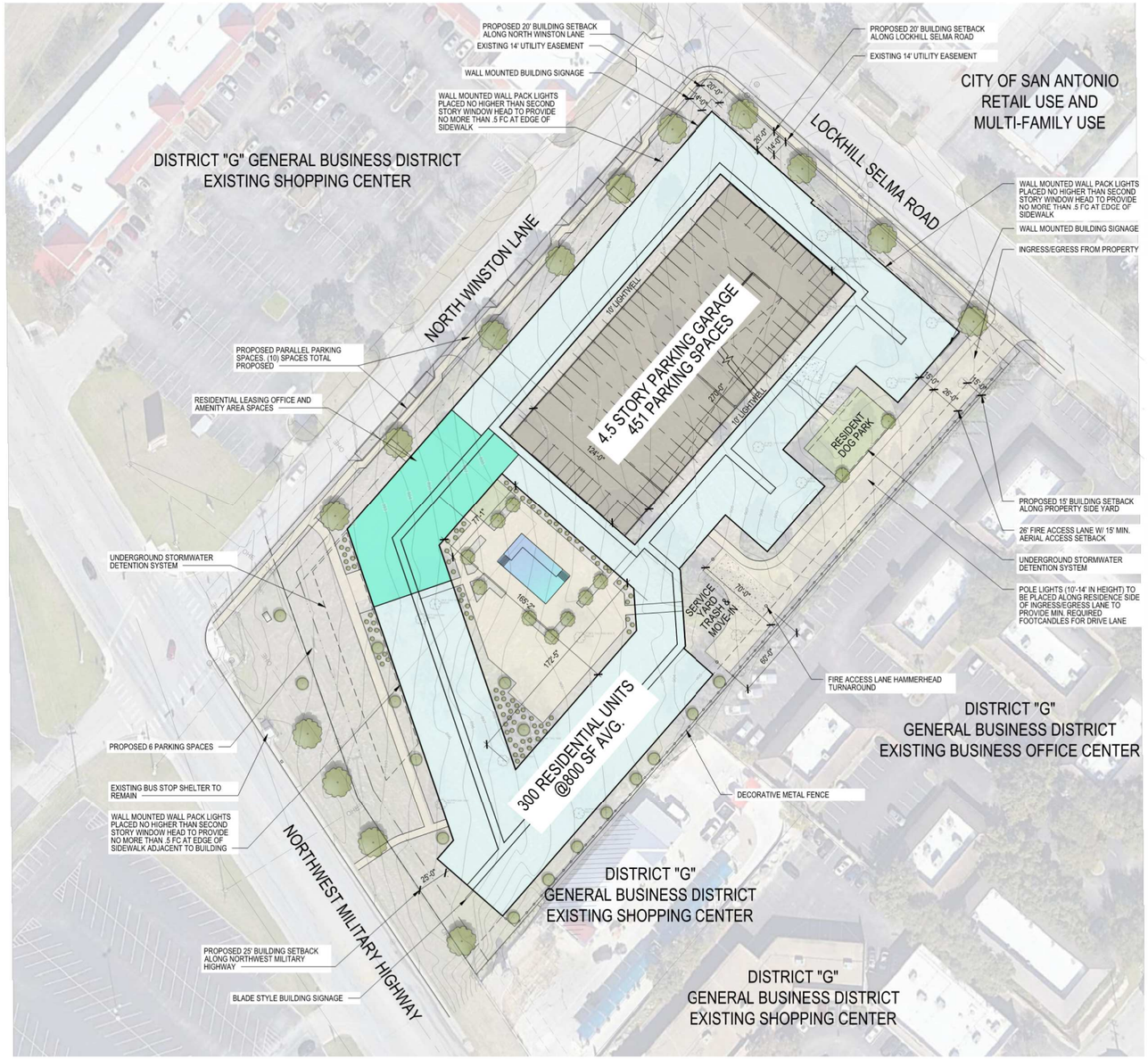
No.	REVISIONS	DATE	BY

Proposed use:	Apartment Units300 units @ 800 sf average
Proposed building height	60 feet above average grade plane
Proposed Building Setbacks:	(a)Front yard. There shall be a front yard having a minimum depth of 25 feet. (b)Side yard. Minimum side yard setbacks shall be 15 feet minimum (c)Rear yards. The minimum rear yard shall be 20 feet
Proposed lot area.	675 square feet per dwelling unit

Buildings or structures on any one lot must not cover more than two-thirds of the total lot area.

Proposed Parking space.	Off-street parking space shall be provided on the lot to accommodate a minimum of one and a half motor cars for each dwelling unit. However, no supporting member of any garage, carport, or automobile storage structure or any parking spaces except for loading and unloading shall be located within the required 25-foot front yard.
Fences.	No fence may be erected in the required 25-foot front yard.



VAQUERO RESIDENTIAL | **MILITARY HIGHWAY MULTI-FAMILY**

*FOR CONCEPTUAL USE ONLY
** ALL ZONING MUST BE VERIFIED BY A ZONING ATTORNEY

0" 50' 150'

*ALL NUMBERS ARE APPROXIMATE

architects maa merriman anderson

3. EXISTING ROADWAY AND TRAFFIC CONDITIONS

3.1. EXISTING ROADWAY CHARACTERISTICS

N Winston Lane is an existing two-lane undivided local street with no existing striping or posted speed limit. N Winston Lane has 30-feet of pavement with approximately 55-feet of right-of-way.

Lockhill Selma Road is an existing three-lane (2 northbound lanes and 1 southbound lane) undivided roadway with a posted speed limit of 35 miles per hour and is classified as a Secondary Arterial Type B according to the City of San Antonio's Major Thoroughfare Plan. Lockhill Selma Road has 40-feet of pavement with approximately 74-feet of right-of-way.

NW Military Highway is an existing five-lane undivided TxDOT roadway with two lanes in each direction and a center two-way left-turn lane. NW Military Highway has a posted speed limit of 35 miles per hour and is classified as a Primary Arterial Type A according to the City of San Antonio's Major Thoroughfare Plan. NW Military Highway has 64-feet of pavement with approximately 100-feet of right-of-way.

3.2. EXISTING TRAFFIC VOLUMES

Turning movement volumes were collected for the following intersections on Tuesday, January 25, 2022 during the AM (7:00 AM – 9:00 AM) and PM (4:00 PM – 6:00 PM) peak periods.

- NW Military Highway & N Winston Lane
- Lockhill Selma Road & N Winston Lane

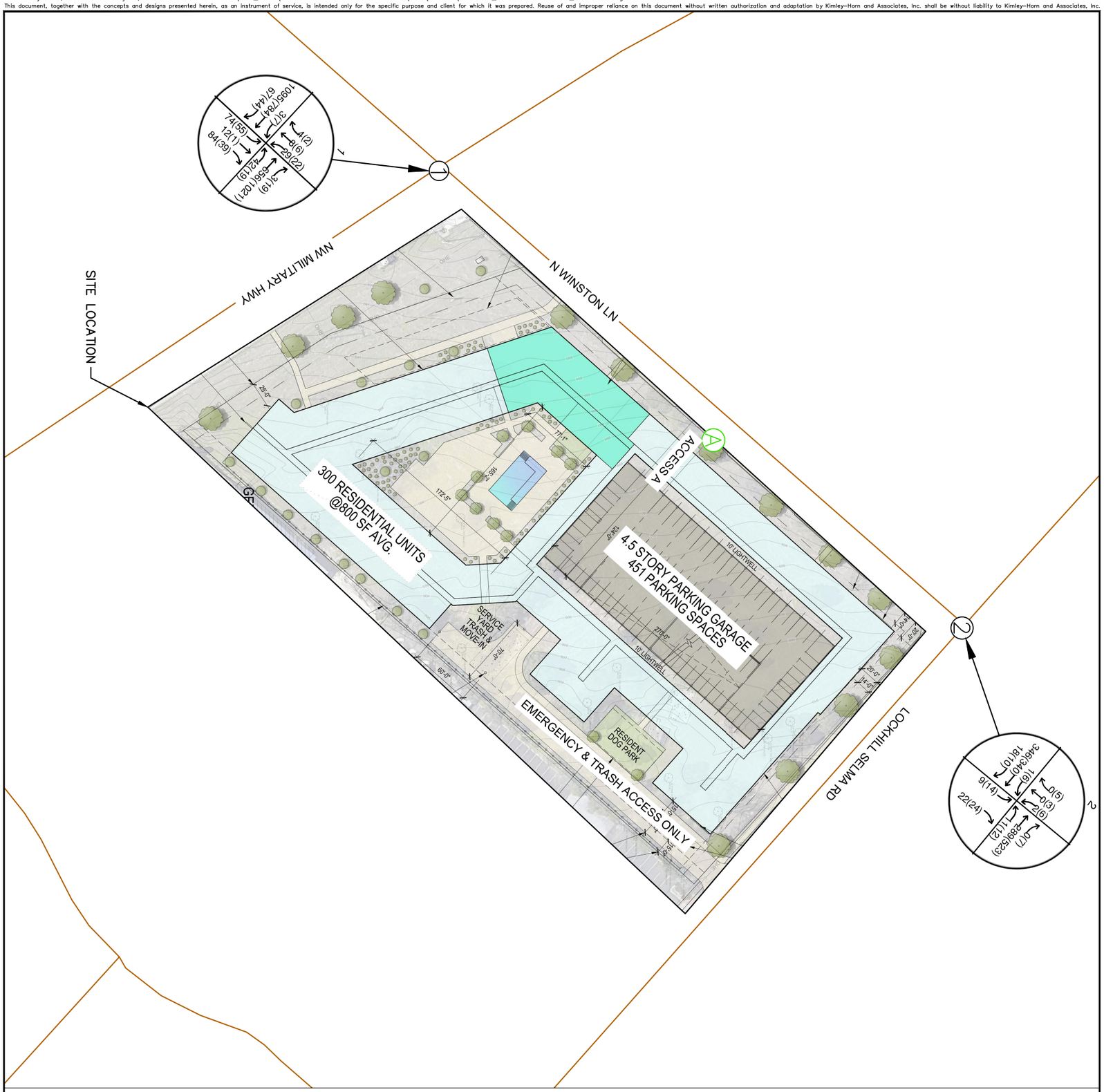
For the most conservative analysis, the AM and PM peak hours at each intersection were used in the analysis. The AM and PM peak hours for NW Military Highway & N Winston Lane were determined to be from 7:15 AM to 8:15 AM and 4:45 PM to 5:45 PM. The AM and PM peak hours for Lockhill Selma Road & N Winston Lane were determined to be from 7:30 AM to 8:30 AM and 5:00 PM to 6:00 PM. Turning movement counts are provided in **Appendix B**. **Figure 3** presents the existing weekday AM and PM peak hour traffic volumes.

3.3. BACKGROUND TRAFFIC GROWTH

To project background traffic, historical daily traffic volumes were obtained from the TxDOT Traffic Count Database System to establish an annual growth rate. Based on coordination at the TIA scoping meeting, an agreed upon compound annual growth rate of 2% was used to project future traffic volumes for this study. Historical daily traffic volumes and growth rates obtained are shown in **Table 2**. Background 2023 and 2028 traffic volumes are shown in **Figure 4** and **Figure 6**, respectively.

Table 2: TxDOT Historical Daily Traffic Volumes

Count Location	2015	2016	2017	2018	2019	Average Annual Growth
NW Military N of Loop 410	26,961	25,440	24,827	24,519	26,332	-0.47%
NW Military N of Braesview	21,498	23,693	23,269	22,852	23,640	2.52%
					Average Annual Growth Rate	**1.02%**
Note: 2020 volumes were omitted due to the COVID-19 pandemic and 2021 data is not yet available.						



XX(XX) → TURNING MOVEMENT
AM (PM) TURNING MOVEMENT VOLUME

SHEET NUMBER 3

LOFTS AT CASTLE HILLS

EXISTING 2022 TURNING MOVEMENT VOLUMES

KHA PROJECT	068716416
DATE	FEBRUARY 2022
SCALE	AS SHOWN
DESIGNED BY	____
DRAWN BY	____
CHECKED BY	____

N.T.S.

NORTH

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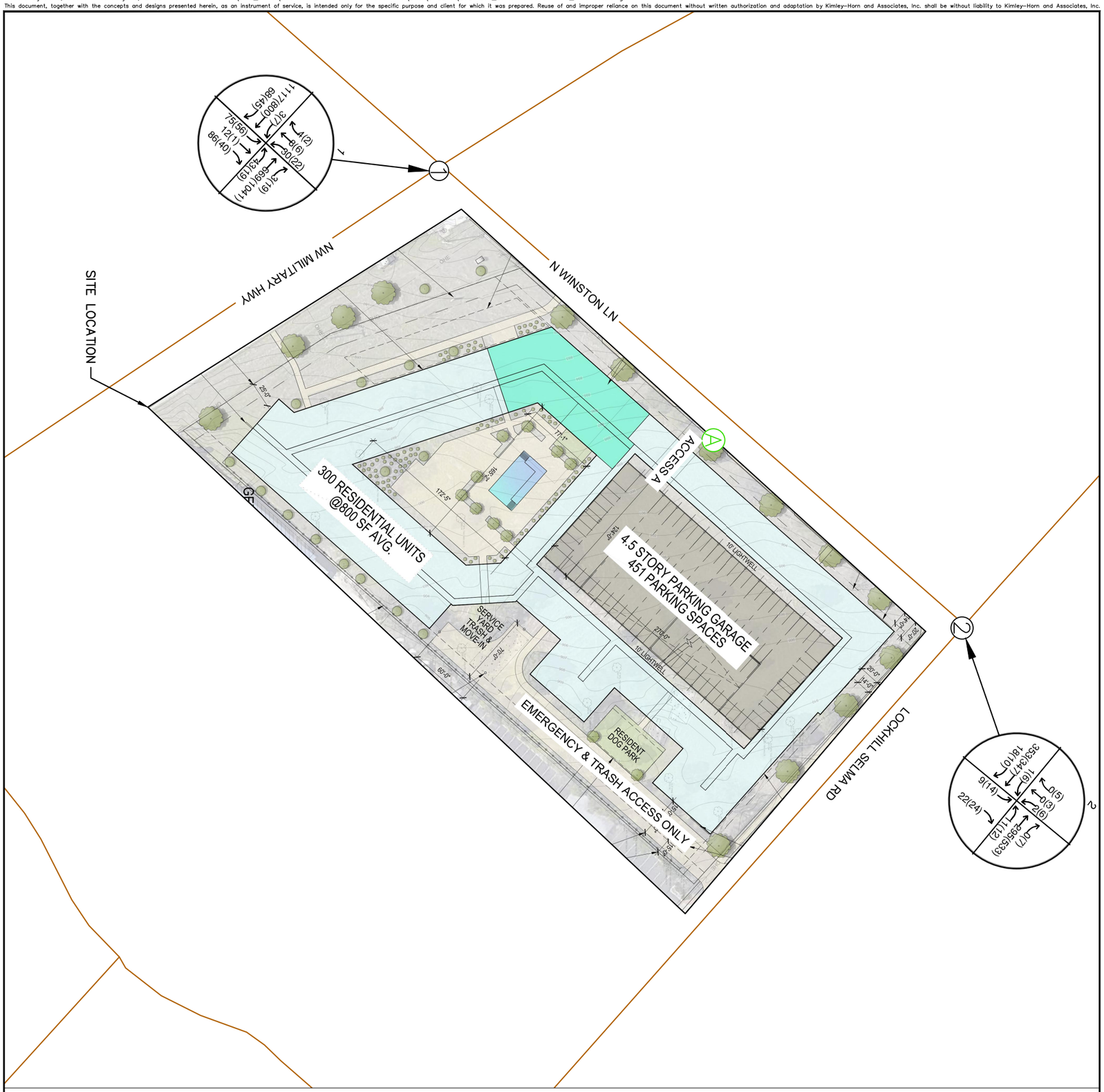
No.	REVISIONS	DATE	BY



XX(XX) TURNING MOVEMENT
AM (PM) TURNING MOVEMENT VOLUME

SHEET NUMBER	LOFTS AT CASTLE HILLS	BACKGROUND 2023 TURNING MOVEMENT VOLUMES	KHA PROJECT 068716416
4			DATE FEBRUARY 2022
			SCALE AS SHOWN
			DESIGNED BY ____
			DRAWN BY ____
			CHECKED BY ____

N.T.S.

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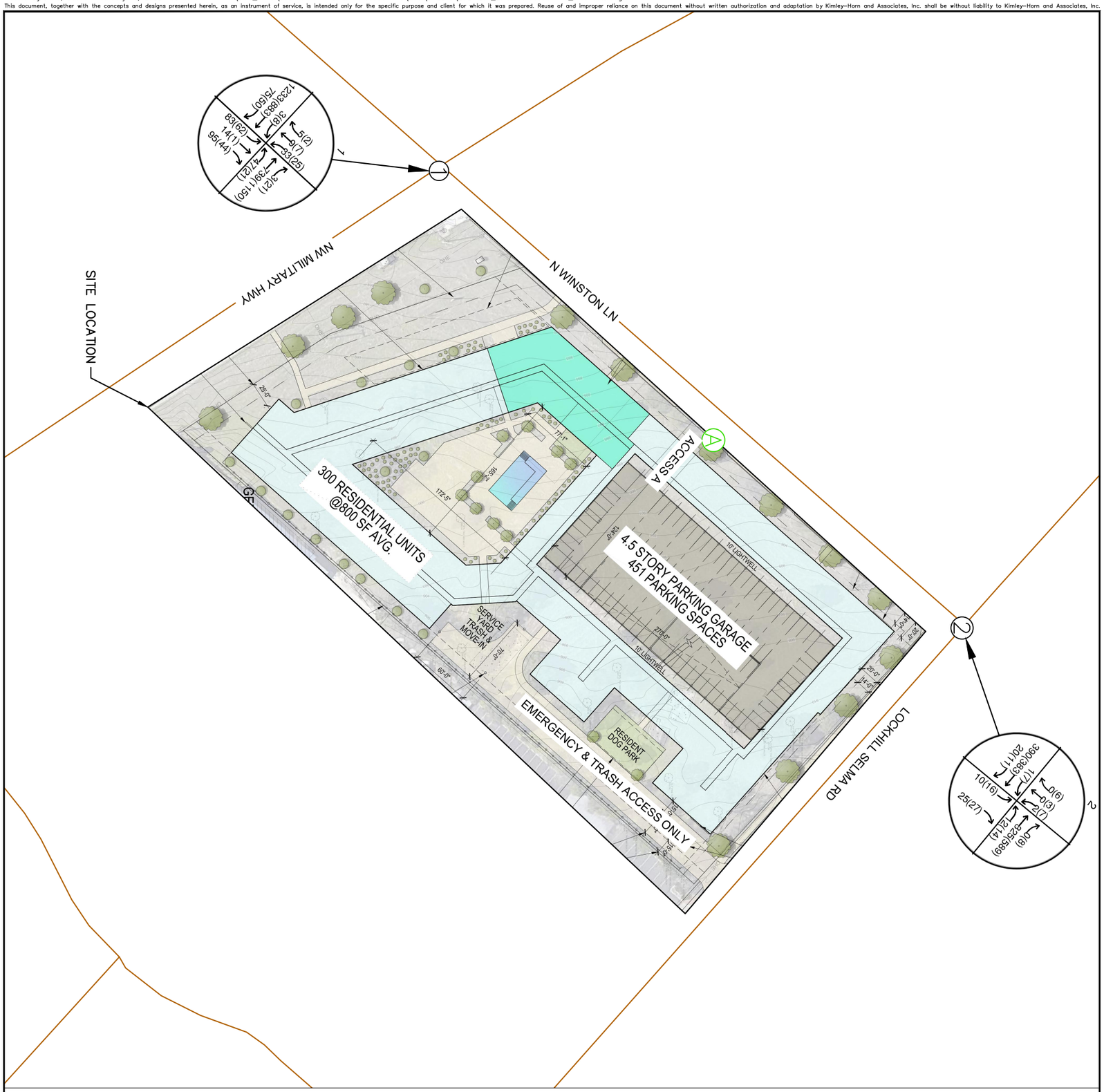
No.	REVISIONS	DATE	BY



XX(XX) TURNING MOVEMENT
AM (PM) TURNING MOVEMENT VOLUME

SHEET NUMBER 4	LOFTS AT CASTLE HILLS	BACKGROUND 2028 TURNING MOVEMENT VOLUMES	KHA PROJECT 068716416 DATE FEBRUARY 2022 SCALE AS SHOWN DESIGNED BY ____ DRAWN BY ____ CHECKED BY ____	N.T.S. NORTH	Kimley»Horn	No. REVISIONS DATE BY

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4. BUILD OUT SITE TRAFFIC CHARACTERISTICS

4.1. SITE TRIP GENERATION

Traffic projections were prepared for the proposed development based on the trip generation rates found in the Institute of Transportation Engineers (ITE) publication entitled *Trip Generation Manual, 10th Edition*. The ITE trip generation rates assumed for the proposed development are presented in **Table 3**. The calculated number of trips from these rates represents one-way vehicle trips.

Table 3: Estimated Trip Generation Rates

Land Uses	ITE Code	Units	AM Peak Hour		PM Peak Hour	
			In:Out Split (%)	Rate	In:Out Split (%)	Rate
Multifamily Housing (Low-Rise)	220	Dwelling Units	23:77	0.46	63:37	0.56

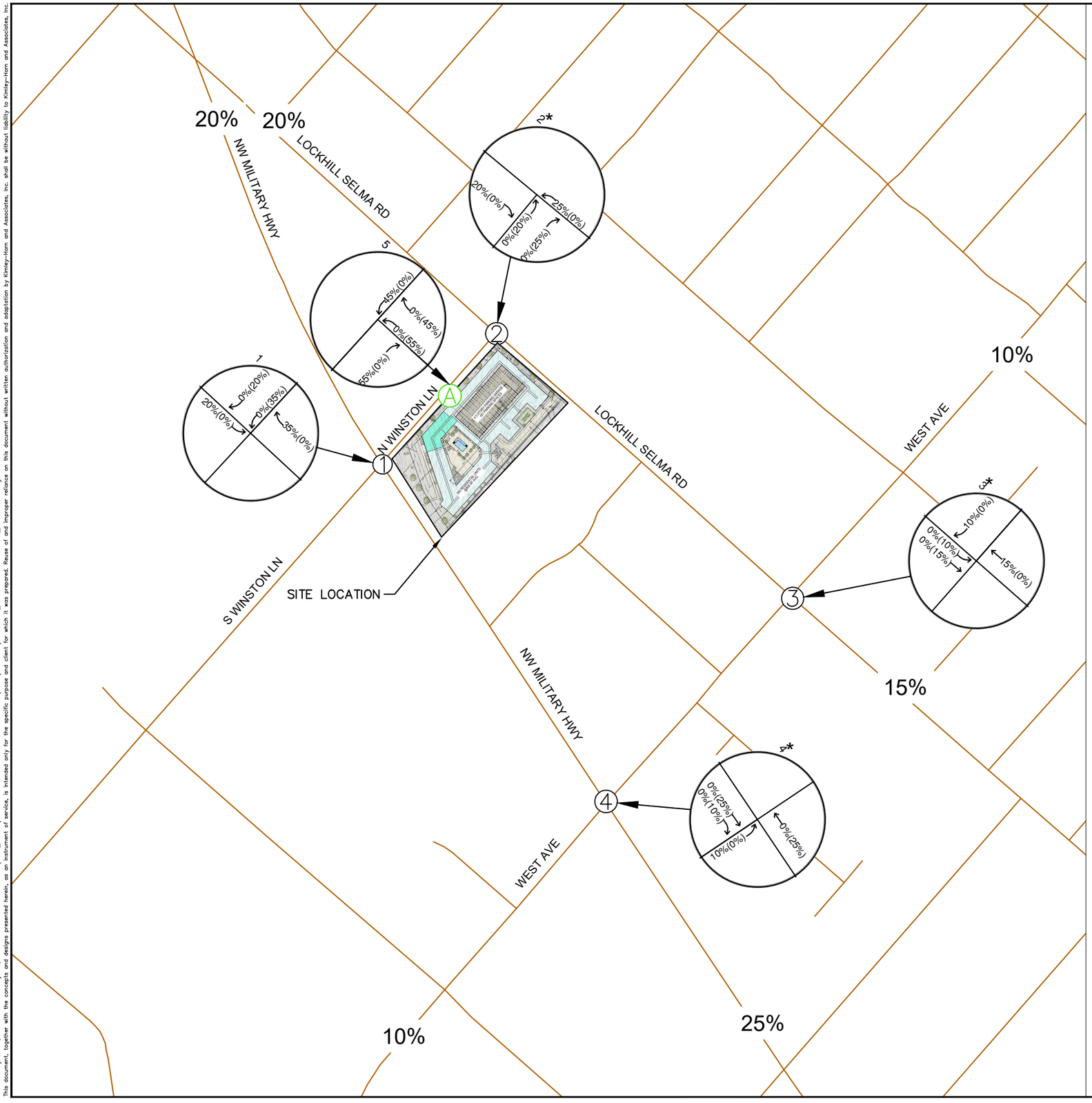
Table 4 summarizes the total number of trips that are expected to be generated by the proposed development during the AM and PM peak periods and on a daily basis. The number of trips generated represents the number of vehicles entering and exiting the proposed development to and from the adjacent street system.

Table 4: Estimated Trip Generation

Land Uses	Amount	Units	ITE Code	Daily One-Way Trips	AM Peak Hour One-Way Trips			PM Peak Hour One-Way Trips		
					IN	OUT	TOTAL	IN	OUT	TOTAL
Multifamily Housing (Low-Rise)	300	Dwelling Units	220	2,196	32	106	138	106	62	168
Total Trips:				**2,196**	**32**	**106**	**138**	**106**	**62**	**168**

4.2. TRIP DISTRIBUTION AND TRAFFIC ASSIGNMENT

The distribution and assignment of the build out site-generated traffic along the study area roadway network was performed to reflect anticipated local traffic patterns. Trip distribution for the development is shown in **Figure 7**. The anticipated turning movement volumes were computed based on the trip generation information and directional distribution assumptions. **Figure 8** shows the projected AM and PM peak hour site related trips distributed on the roadway network for the development. **Figure 8** and **Figure 9** show the build out 2023 and horizon 2028 traffic volumes for the development, respectively.



*NODES 2, 3, AND 4 ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE NOT RECOMMENDED STUDY INTERSECTIONS

→	TURNING MOVEMENT
XX%(XX%)	INBOUND(OUTBOUND) TURNING DISTRIBUTION

No.	REVISIONS	DATE	BY

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NORTH

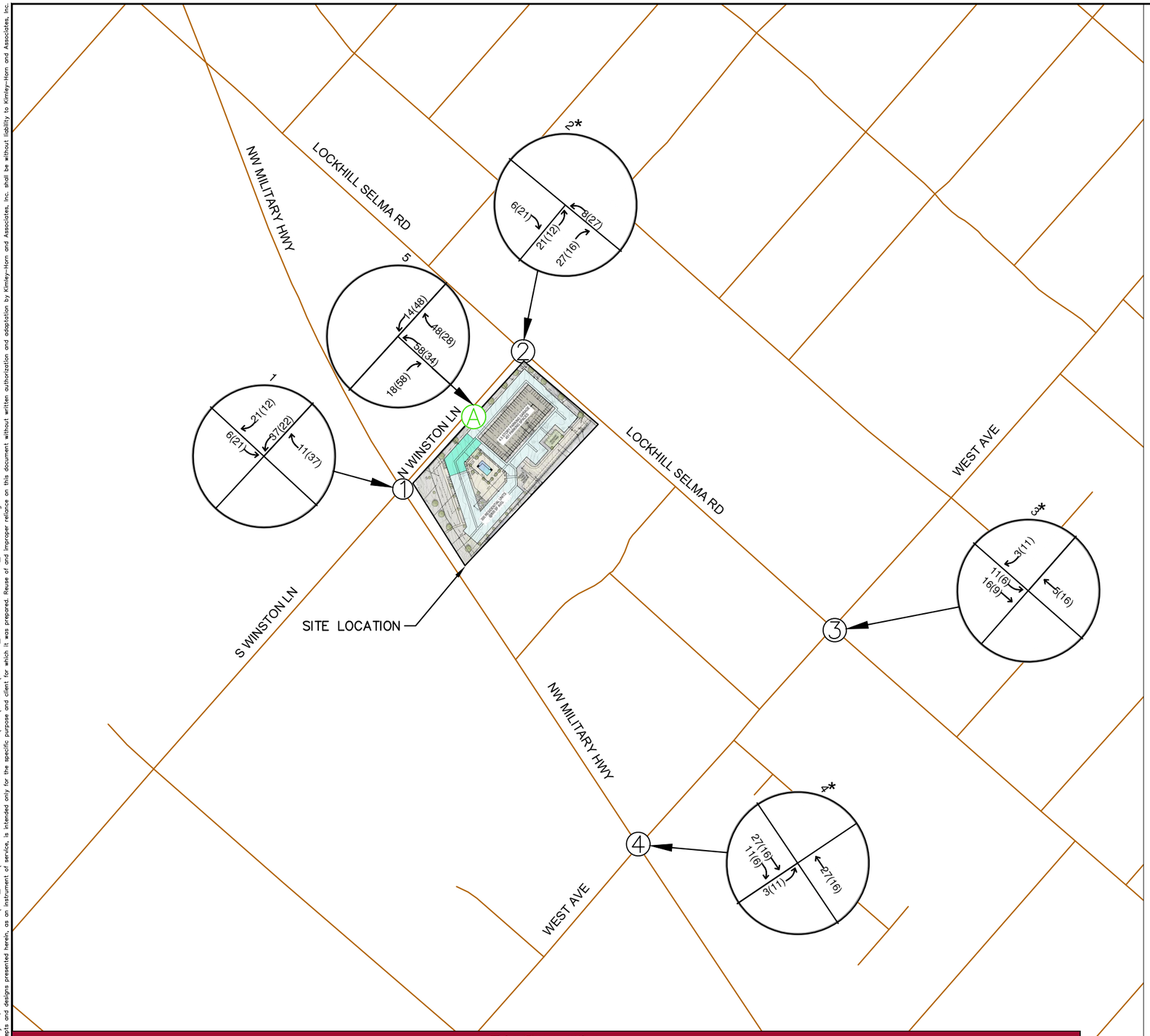
N.T.S.

KHA PROJECT 068716416
DATE FEBRUARY 2022
SCALE AS SHOWN
DESIGNED BY ---
DRAWN BY ---
CHECKED BY ---

TRIP DISTRIBUTION

LOFTS AT CASTLE HILLS

SHEET NUMBER 3



Trip Generation

Land Use	Amount	Units	ITE Code	Daily One-Way Trips	AM Peak Hour One-Way Trips			PM Peak Hour One-Way Trips		
					IN	OUT	TOTAL	IN	OUT	TOTAL
Multifamily Housing (Low-Rise)	300	Dwelling Units	220	2,196	32	106	138	106	62	168
Total Trips:				**2,196**	**32**	**106**	**138**	**106**	**62**	**168**

*NODES 3 AND 4 ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE NOT RECOMMENDED STUDY INTERSECTIONS

→ TURNING MOVEMENT

XX(XX) AM (PM) TURNING MOVEMENT VOLUME

N.T.S.

No.	REVISIONS	DATE	BY

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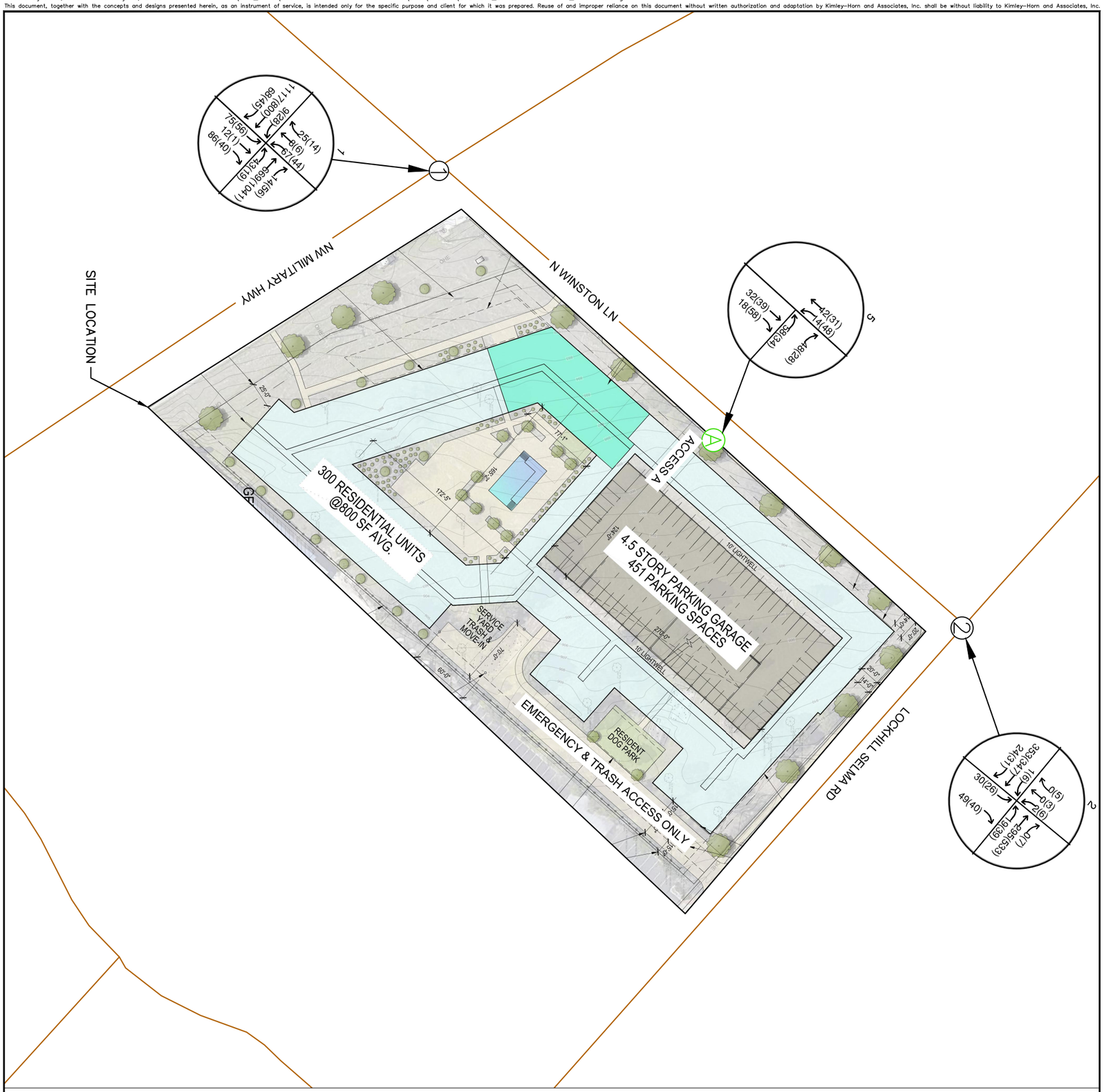
KHA PROJECT 068716416
DATE FEBRUARY 2022
SCALE AS SHOWN
DESIGNED BY ---
DRAWN BY ---
CHECKED BY ---

SITE GENERATED TRIPS

LOFTS AT CASTLE HILLS

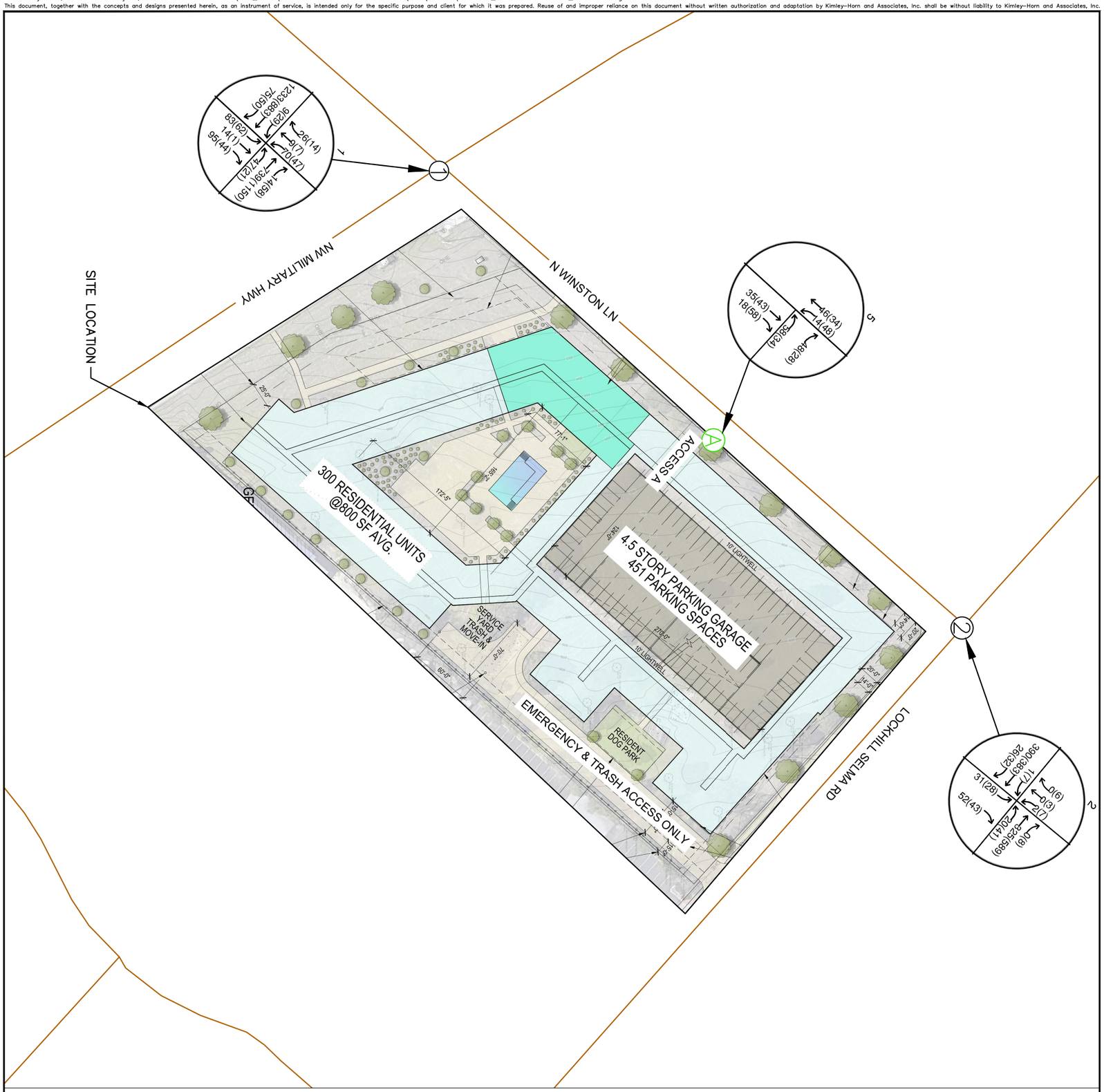
SHEET NUMBER 4



XX(XX) TURNING MOVEMENT

AM (PM) TURNING MOVEMENT VOLUME

SHEET NUMBER 7	LOFTS AT CASTLE HILLS	BUILD OUT 2023 TURNING MOVEMENT VOLUMES	KHA PROJECT 068716416 DATE FEBRUARY 2022 SCALE AS SHOWN DESIGNED BY ____ DRAWN BY ____ CHECKED BY ____	N.T.S. NORTH	Kimley»Horn ©2021 KIMLEY-HORN AND ASSOCIATES, INC. 601 NW LOOP 410, SUITE 350, SAN ANTONIO, TX 78216 PHONE : 210-541-9166 FAX: 210-541-8699 WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928	No. REVISIONS DATE BY



XX(XX) TURNING MOVEMENT

AM (PM) TURNING MOVEMENT VOLUME

SHEET NUMBER 7	LOFTS AT CASTLE HILLS	HORIZON 2028 TURNING MOVEMENT VOLUMES	KHA PROJECT 068716416 DATE FEBRUARY 2022 SCALE AS SHOWN DESIGNED BY ____ DRAWN BY ____ CHECKED BY ____	N.T.S. NORTH	Kimley»Horn ©2021 KIMLEY-HORN AND ASSOCIATES, INC. 601 NW LOOP 410, SUITE 350, SAN ANTONIO, TX 78216 PHONE : 210-541-9166 FAX: 210-541-8699 WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928	No. REVISIONS DATE BY

4.3. TURN LANE EVALUATION

The proposed development has one full access point on N Winston Lane and one gated service use/emergency only access point on Lockhill Selma Road.

TxDOT right-turn/left-turn deceleration auxiliary lane thresholds require a turn-lane when turning movements exceed 60 vehicles per hour and the posted speed limit is less than or equal to 45 mph. **Table 5** summarizes the required turn-lanes for external site access points based on PM peak hour volumes upon full build out in 2023.

Table 5: Turn Lane Summary

Intersection	TxDOT Threshold	Right-Turn Volume	Left-Turn Volume	Turn Lane Needed	
				Right	Left
N Winston Lane & Access A	60 vph	58	48	No	No

5. TRAFFIC OPERATIONAL ANALYSIS

The evaluation of traffic operations within the study area was comprised of capacity analyses for the AM and PM peak hours using the *Synchro 10™* software. By first evaluating background traffic conditions, a baseline condition is established and used to evaluate any increases in intersection delay that may result from the proposed development. It should be noted that the Synchro model was calibrated to most closely approximate conditions during the busiest 15 minutes of the peak hour by using the peak hour factors (PHFs) based on the turning movement counts collected. PHFs compare the traffic volume during the busiest 15-minutes of the peak hour with the total volume during the peak hour. Peak-hour factors in urban areas generally range between 0.80 and 0.98. Lower values signify greater variability of flow within the subject hour, and higher values signify little flow variation. The peak hour factors for the existing traffic at the study intersections are provided in the turning movement count data. The PHFs for the future traffic and the site-generated traffic are unknown, so the PHFs at the site driveway were assumed to be 0.92.

Capacity defines the volume of traffic that can be accommodated by a roadway at a specified level of service (LOS). Capacity is affected by various geometric factors including roadway type (e.g. divided or undivided), number of lanes, lane widths, and grades. LOS, which is a measure of the degree of congestion, ranges from LOS A (free flowing) to LOS F (a congested, forced flow condition).

LOS C is considered the minimum acceptable LOS for design and evaluation purposes according to the City of Castle Hills UDC. If the Background condition's LOS is D, E, or F, the delay value must not increase by more than ten percent. If the delay value increases by more than ten percent, mitigation measures will be recommended. The mitigation measures shall improve the level of service to a similar LOS as the no-build conditions. Delay and LOS thresholds for signalized and unsignalized intersections as well as a description of each operational state is presented in **Table 6**.

Table 6: Level of Service (LOS) Definitions

Level of Service (LOS)	Average Control Delay per Vehicle (sec/veh)		Description
	Signalized	Unsignalized	
A	≤ 10	≤ 10	No delays at intersections with continuous flow traffic. Uncongested operations; high frequency of long gaps available for all left and right-turning traffic; no observable queues.
B	> 10 and ≤ 20	> 10 and ≤ 15	
C	> 20 and ≤ 35	> 15 and ≤ 25	Moderate delays at intersections with satisfactory to good traffic flow. Light congestion; infrequent backups on critical approaches.
D	> 35 and ≤ 55	> 25 and ≤ 35	Increased probability of delays along every approach. Significant congestion on critical approaches, but intersection functional. No long-standing lines formed.
E	> 55 and ≤ 80	> 35 and ≤ 50	Heavy traffic flow condition. Heavy delays probable. No available gaps for cross-street traffic or main street turning traffic. Limit of stable flow.
F	> 80	> 50	Unstable traffic flow. Heavy congestion. Traffic moves in forced flow condition. Average delays greater than one minute highly probable. Total breakdown.

Table 7 summarizes the LOS and delay of study intersections for each scenario evaluated. Based on this evaluation, all off-site intersections operate at an acceptable LOS upon horizon in 2028. Per the City of Castle Hills Code of Ordinances, a queuing analysis at the site driveways and study intersections should

be included within the TIA if relevant. The purpose of the queuing analysis is to determine if the 95th percentile queue is anticipated to intrude or "spillback" into adjacent through lanes. Spillback will not occur at the study intersections due to the geometry of the approaches. Right-turn lanes are not present at the study intersections and the left-turn lanes are provided within two-way left-turn lanes, which prevents spillback from occurring. For this reason, queue analysis was not included in this TIA.

No improvements are triggered by the City of Castle Hills Code of Ordinances to mitigate traffic associated with the development. However, the developer is coordinating with the City on potential improvements on N Winston Lane.

Based on the proposed land use and density, a rough proportionality worksheet has been provided in **Appendix D**. Per Section 8-56 of the City of Castle Hills Code of Ordinances, the roughly proportionate determination was completed according to the standards and methodology for the City of San Antonio. A roughly proportionate determination is to establish if the proposed mitigation measures are reasonable and appropriate for the development.

Table 7: Level of Service (LOS) Evaluation Summary

Intersection	Controlled Approach	Existing 2022				Background 2023				Background 2028				Build Out 2023				Horizon 2028			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]
NW Military Hwy & N Winston Lane	Signalized	B	11.3	A	6.0	B	11.7	A	6.1	B	14.5	A	6.9	B	11.6	A	6.5	B	14.4	A	7.4
Lockhill Selma Road & N Winston Lane	Northbound	B	11.8	B	13.2	B	11.9	B	13.3	B	12.5	B	14.4	B	13.3	C	15.2	B	14.1	C	16.8
	Southbound	C	16.9	C	18.6	C	17.2	C	19.0	C	18.9	C	21.6	C	18.7	C	21.5	C	20.7	C	24.8
N Winston Lane & Access A	Westbound													A	9.4	A	9.7	A	9.5	A	9.7

[1] Delay is in seconds

6. CONCLUSION AND RECOMMENDATIONS

Based on the analyses performed during this traffic study, we offer the following conclusions and recommendations:

Existing 2022 Conditions

All intersections are operating at an acceptable LOS during the peak hours.

Background 2023 Conditions

All intersections are operating at an acceptable LOS during the peak hours.

Background 2028 Conditions

All intersections are operating at an acceptable LOS during the peak hours.

Build Out 2023 Conditions

Based on the analysis of the projected build out 2023 conditions, all intersections are projected to continue to operate at an acceptable LOS during the peak hours. No offsite improvements are triggered by the City of Castle Hills Code of Ordinances to mitigate traffic associated with the development. However, the developer is coordinating with the City on potential improvements on N Winston Lane.

Horizon 2028 Conditions

Based on the analysis of the projected horizon 2028 conditions, it is anticipated that all study intersections will continue to operate at an acceptable LOS during the peak hours with ongoing background traffic growth. The horizon analysis is required by the City of Castle Hills Code of Ordinances to aid the City in planning for the future. Any increases in delay are not attributable to the development, but the result of continued background growth.

Appendix A: City of Castle Hills Scoping Materials as Presented to City Council - December 14, 2021

Kimley»Horn

State of Texas Registered Firm No. 928

TECHNICAL MEMORANDUM

DATE: JANUARY 10, 2022

TO: CITY OF CASTLE HILLS

FROM: BECCA BOND, P.E.
KIMLEY-HORN

RE: LOFTS AT CASTLE HILLS TIA
TRAFFIC IMPACT ANALYSIS (TIA) PROPOSED SCOPE

This technical memorandum is being submitted to the Mayor and City Council to finalize the scope of the TIA and study assumptions. The purpose of this memorandum is to outline the proposed scope to perform a TIA for a multifamily housing development located southeast of Lockhill Selma Road & N Winston Lane in the City of Castle Hills, Bexar County, Texas. The scope has been revised to address comments from the Special City Council Meeting held on December 7, 2021. The meeting minutes are attached to this technical memorandum for reference. With City Council approval of the TIA scope, Kimley-Horn will proceed on the TIA and submit a completed TIA to City Council.

STUDY INTERSECTIONS

A level of service (LOS) evaluation and operational analysis for the AM and PM peak periods will be performed for existing and future traffic conditions at the intersections listed below, in addition to the proposed site driveway.

- Lockhill Selma Road & N Winston Lane
- NW Military Hwy & N Winston Lane

ANALYSIS ASSUMPTIONS

This site is anticipated to have one full access point on N Winston Lane and one emergency only access point on Lockhill Selma Road. The study intersections and proposed site access point will be evaluated for existing conditions 2021, background 2022, and build out 2022.

BACKGROUND TRAFFIC GROWTH RATE

Traffic count data from the Texas Department of Transportation (TxDOT) Traffic Count Database System was referenced to establish a background traffic growth rate. The locations chosen are in the general vicinity of the project site. Five years' worth of data was collected and evaluated at each location and an average annual growth rate was calculated over the five-year period. Through volumes have not shown a steady growth trend, more development has started to occur, so a growth rate of 2.0% is proposed for the subject site.

Table 1: TxDOT Historical Traffic Counts

TxDOT Statewide Planning Map Historical Daily Traffic Volumes							
Count Location	**Count Station**	**2015**	**2016**	**2017**	**2018**	**2019**	**Average Annual Growth**
NW Military N of Loop 410	15H75	26,961	25,440	24,827	24,519	26,332	-0.47%
NW Military N of Braesview	15H76	21,498	23,693	23,269	22,852	23,640	2.52%
					Average Annual Growth Rate		***1.02%***

PROPOSED LAND USES

The site is currently undeveloped. The proposed development will consist of a multifamily housing (low-rise) development. Traffic projections were prepared for the proposed development based on the trip generation rates found in the Institute of Transportation Engineers (ITE) publication entitled *Trip Generation Manual, 10th Edition*. **Table 2** summarizes the land uses and total number of trips that are expected to be generated by the proposed development during the AM and PM peak periods and on a daily basis. The number of trips generated represents the number of vehicles entering and exiting the proposed development to and from the adjacent street system.

Table 2: Proposed Land Uses and Site Generated Trips

Trip Generation										
Land Use	Amount	Units	ITE Code	Daily One-Way Trips	AM Peak Hour One-Way Trips			PM Peak Hour One-Way Trips		
					IN	OUT	TOTAL	IN	OUT	TOTAL
Multifamily Housing (Low-Rise)	300	Dwelling Units	220	2,196	32	106	138	106	62	168
			Total Trips:	**2,196**	**32**	**106**	**138**	**106**	**62**	**168**

TRAFFIC DISTRIBUTION

The trip generation, directional distribution, and site generated trips are attached to this memorandum.

ACCESS COORDINATION

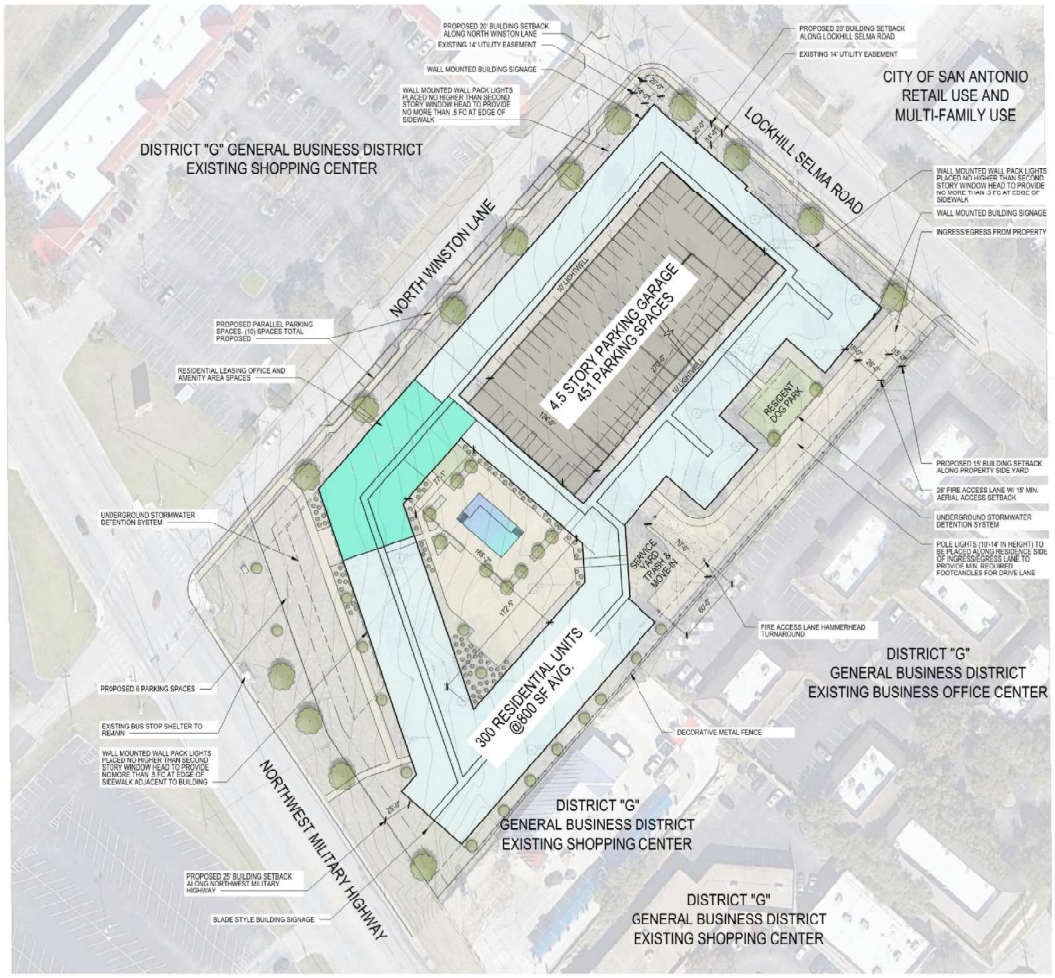
Access coordination is ongoing. Kimley-Horn will coordinate with the City of Castle Hills to confirm the most appropriate access locations.

SHEET NUMBER 1	LOFTS AT CASTLE HILLS	SITE LOCATION	KHA PROJECT 068716416 DATE DECEMBER 2021 SCALE AS SHOWN DESIGNED BY ____ DRAWN BY ____ CHECKED BY ____	N.T.S. NORTH	Kimley»Horn © 2021 KIMLEY-HORN AND ASSOCIATES, INC. 601 NW LOOP 410, SUITE 350, SAN ANTONIO, TX 78216 PHONE: 210-541-9166 FAX: 210-541-8699 WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928	No. REVISIONS DATE BY

Proposed use:	Apartment Units300 units @ 800 sf average
Proposed building height	60 feet above average grade plane
Proposed Building Setbacks:	(a)Front yard. There shall be a front yard having a minimum depth of 25 feet. (b)Side yard. Minimum side yard setbacks shall be 15 feet minimum (c)Rear yards. The minimum rear yard shall be 20 feet
Proposed lot area.	675 square feet per dwelling unit

Buildings or structures on any one lot must not cover more than two-thirds of the total lot area.

Proposed Parking space.	Off-street parking space shall be provided on the lot to accommodate a minimum of one and a half motor cars for each dwelling unit. However, no supporting member of any garage, carport, or automobile storage structure or any parking spaces except for loading and unloading shall be located within the required 25-foot front yard.
Fences.	No fence may be erected in the required 25-foot front yard.



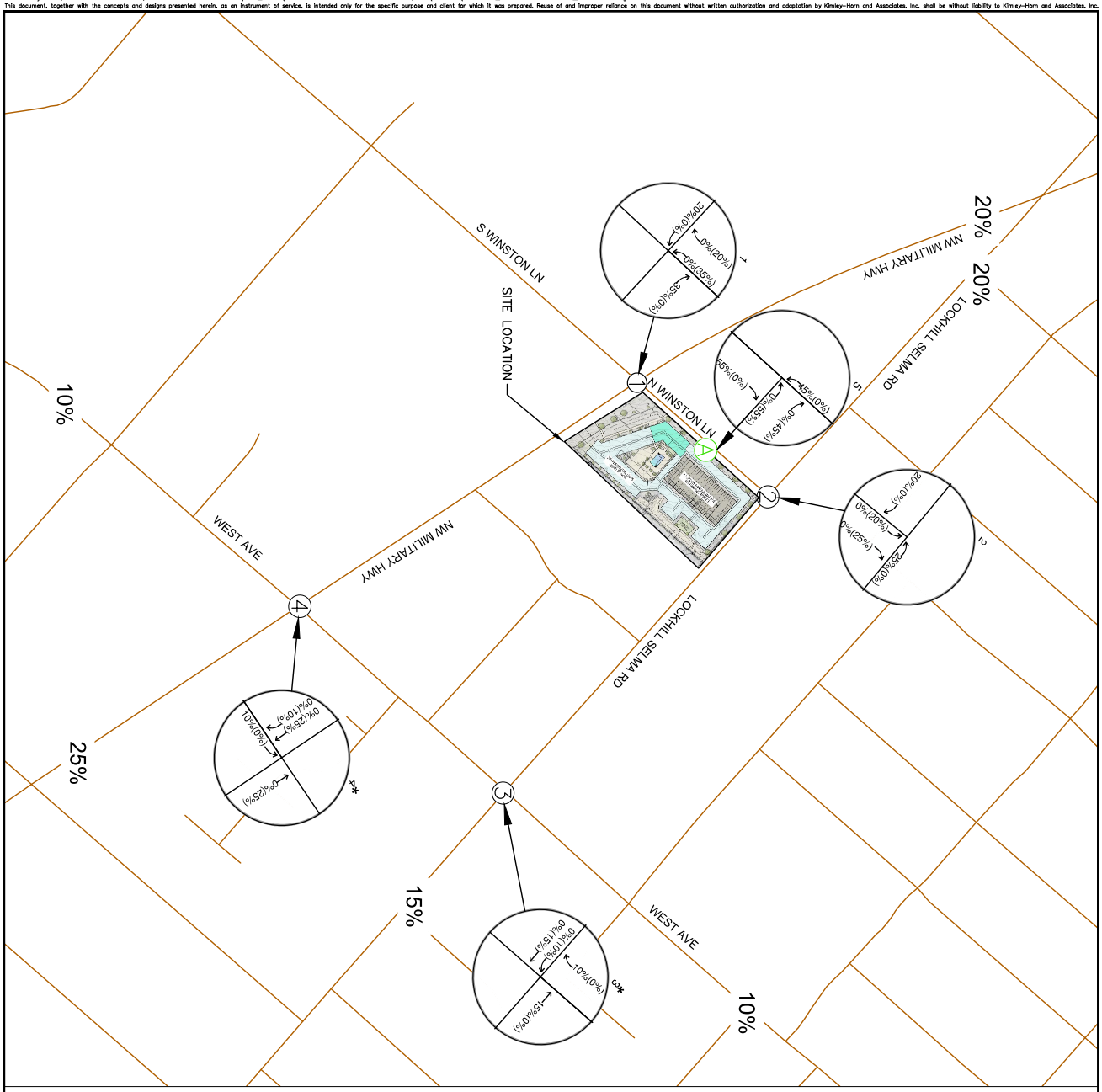
*FOR CONCEPTUAL USE ONLY
** ALL ZONING MUST BE VERIFIED BY A ZONING ATTORNEY

0" 50' 150'

*ALL NUMBERS ARE APPROXIMATE

SHEET NUMBER
2

architects maa merriman anderson



*NODES ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE NOT RECOMMENDED STUDY INTERSECTIONS

XX%(XX%) → TURNING MOVEMENT
INBOUND(OUTBOUND) TURNING DISTRIBUTION

SHEET NUMBER 3

LOFTS AT CASTLE HILLS

TRIP DISTRIBUTION

KHA PROJECT	068716416
DATE	DECEMBER 2021
SCALE	AS SHOWN
DESIGNED BY	____
DRAWN BY	____
CHECKED BY	____

N.T.S.

Kimley»Horn
© 2021 KIMLEY-HORN AND ASSOCIATES, INC.
601 NW LOOP 410, SUITE 350, SAN ANTONIO, TX 78216
PHONE : 210-541-9166 FAX: 210-541-9699
WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928

No.	REVISIONS	DATE	BY

Trip Generation

Land Use	Amount	Units	ITE Code	Daily One-Way Trips	AM Peak Hour One-Way Trips			PM Peak Hour One-Way Trips		
					IN	OUT	TOTAL	IN	OUT	TOTAL
Multifamily Housing (Low-Rise)	300	Dwelling Units	220	2,196	32	106	138	106	62	168
			Total Trips:	**2,196**	**32**	**106**	**138**	**106**	**62**	**168**

*NODES ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE NOT RECOMMENDED STUDY INTERSECTIONS

→ TURNING MOVEMENT

XX(XX) AM (PM) TURNING MOVEMENT VOLUME

No.	REVISIONS	DATE	BY

Kimley»Horn
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601 NW LOOP 410, SUITE 350, SAN ANTONIO, TX 78216
PHONE: 210-541-9166 FAX: 210-541-8699
WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928

NORTH

N.T.S.

KHA PROJECT 069716416
DATE DECEMBER 2021
SCALE AS SHOWN
DESIGNED BY
DRAWN BY
CHECKED BY

SITE GENERATED TRIPS

LOFTS AT CASTLE HILLS

SHEET NUMBER 4

1. CALL THE CASTLE HILLS SPECIAL CITY COUNCIL MEETING TO ORDER AND DETERMINE A QUORUM IS PRESENT.
Mayor Trevino called the meeting to order at 6:30 p.m.

Member of Council	Present
JR Treviño, Mayor	X
Joe Izbrand, Mayor Pro Tem, Place 1	X
Frank Paul, Place 2	X
Kurt May, Place 3	X
Jack Joyce, Place 4	X
Douglas Gregory, Place 5	X

2. INVOCATION / PLEDGE OF ALLEGIANCE
Asst. to the City Manager Zamarron led the Pledge of Allegiance to the Flag.

3. ACKNOWLEDGEMENTS/PRESENTATIONS
None.

4. CITIZEN COMMENTS.
No one signed up to address City Council.

5. CONSENT AGENDA
The Consent Agenda items are self-explanatory by the City Council or have been previously discussed and will be enacted with one motion. There will be no separate discussion of these items unless a Council Member so requests. The Consent Agenda is for consideration by the City Council only and not subject to public discussion.
None.

6. NEW BUSINESS

6.1 Discussion on a potential economic development opportunity proposed by business prospect.
Mr. Brymer, Vaquero led the discussion on the proposed multifamily development located on the southeast corner of Lockhill Selma Rd & N Winston Ln and emphasized that this will be a Class A multifamily development.

Ms. Bond, PE discussed the preliminary traffic projections.
There was discussion for more in-depth information on the traffic specifically the impact on N. Winston Ln. The Developer had discussed the possibility of moving the exit from N. Winston Ln to Lockhill Selma with the neighborhood and stated that this option is not feasible. There was discussion regarding egress and ingress to the location.

6.2 **Deliberate regarding an offer of a financial or other incentive to a business prospect that the City Council seeks to have locate in the City and with which the City Council is conducting economic development negotiations. Possible Executive Session pursuant to Texas Government Code Section 551.087, deliberation regarding economic development negotiations.**
Mr. Plummer, Bracewell LLP presented an overview of the project capitalization and potential funds that would benefit the city.
Discussion followed regarding inflation, taxes, cost of living, city's risk factors, selling of the project and impact to the city.

6.3 Discussion and Possible Action on authorizing Bracewell LLP to proceed with preparation of a Community Development Plan for a Community Development Program for the City of Castle Hills

Ms. Fernandez, Bracewell LLP, discussed the next steps with the preparation of the Community Development Plan. Mr. Plummer and Ms. Fernandez assured City Council that these steps do not obligate the City to agree to the proposed multifamily development if City Council does not wish to proceed with this proposed project.

Council Member Joyce informed City Council that the City Comprehensive Plan is scheduled for discussion for the next Regular City Council Meeting and voiced concerns that the Community Development Plan should be aligned with the City Comprehensive Plan.

Mayor Pro Tem Izbrand made a motion to postpone this agenda item 6.3 until the next Regular City Council Meeting scheduled December 14, 2021.

Council Member Gregory seconded the motion.

The motion to postpone item 6.3 Discussion on Possible Action on authorizing Bracewell LLP to proceed with preparation of a Community Development Plan for a Community Development Program for the City of Castle Hills carried with the following vote:
AYES: 4; NAYS: 1 (Council Member May)

7. ANNOUNCEMENTS BY MAYOR AND CITY COUNCILMEMBERS ON ITEMS OF COMMUNITY INTEREST.

None.

8. ADJOURNMENT

Council Member May made a motion to adjourn the meeting.

Council Member Joyce seconded the motion.

The meeting adjourned at 8:57 p.m.

JR Trevino
Mayor

Zina Tedford
City Secretary

Appendix B: Traffic Data

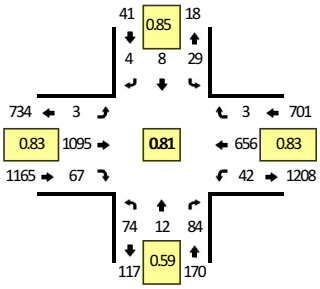
Type of peak hour being reported: Intersection Peak

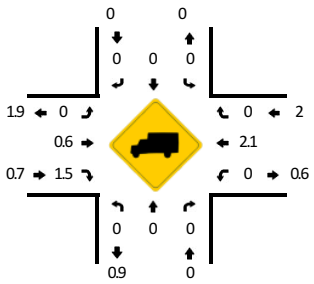
Method for determining peak hour: Total Entering Volume

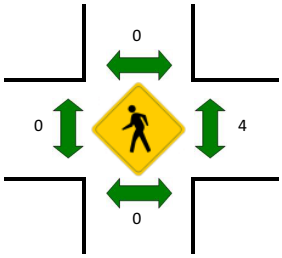
LOCATION: N Winston Ln -- NW Military Hwy
CITY/STATE: Castle Hills, TX

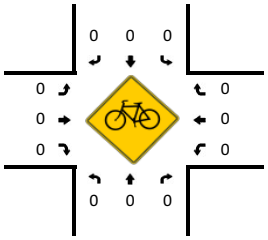
QC JOB #: 15678601
DATE: Tue, Jan 25 2022

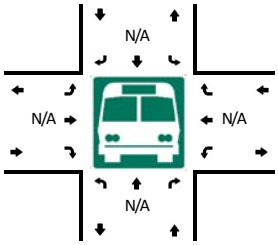
Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

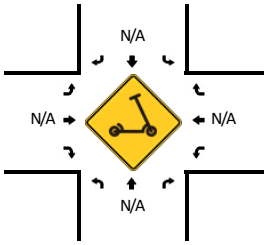












15-Min Count Period Beginning At	N Winston Ln (Northbound)				N Winston Ln (Southbound)				NW Military Hwy (Eastbound)				NW Military Hwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	0	6	0	4	1	0	0	1	152	4	0	4	65	2	0	240	
7:15 AM	3	2	9	0	6	3	2	0	1	236	6	0	6	124	0	0	398	
7:30 AM	25	3	33	0	8	3	1	0	0	326	22	0	18	148	1	0	588	
7:45 AM	35	5	32	0	11	1	0	0	0	325	24	0	8	202	0	0	643	1869
8:00 AM	11	2	10	0	4	1	1	0	2	208	15	0	10	182	2	0	448	2077
8:15 AM	9	1	9	0	2	1	0	0	1	194	7	0	2	150	7	0	383	2062
8:30 AM	12	1	9	0	2	0	2	0	0	189	13	0	2	135	4	0	369	1843
8:45 AM	4	1	4	0	3	1	0	0	1	139	5	0	1	154	4	0	317	1517

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	140	20	128	0	44	4	0	0	0	1300	96	0	32	808	0	0	2572
Heavy Trucks	0	0	0		0	0	0		0	4	0		0	4	0		8
Buses																	
Pedestrians		0				0				0				12			12
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 2/4/2022 12:13 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

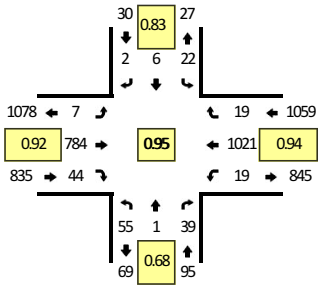
Type of peak hour being reported: Intersection Peak

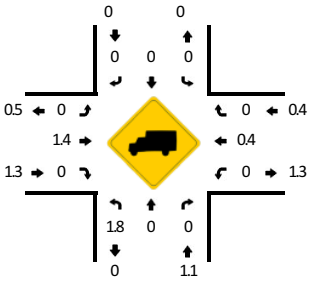
Method for determining peak hour: Total Entering Volume

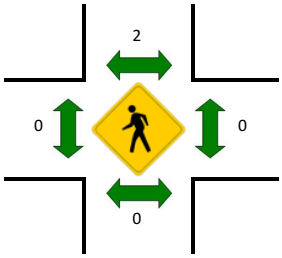
LOCATION: N Winston Ln -- NW Military Hwy
CITY/STATE: Castle Hills, TX

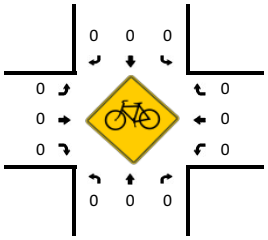
QC JOB #: 15678602
DATE: Tue, Jan 25 2022

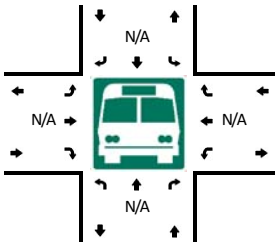
Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

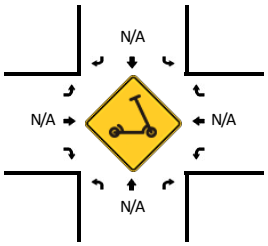












15-Min Count Period Beginning At	N Winston Ln (Northbound)				N Winston Ln (Southbound)				NW Military Hwy (Eastbound)				NW Military Hwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	24	2	20	0	6	2	0	0	2	192	12	0	4	214	4	0	482	
4:15 PM	15	1	2	0	2	2	0	0	2	153	4	0	3	268	3	0	455	
4:30 PM	14	0	4	0	10	1	0	0	3	183	5	0	10	248	1	0	479	
4:45 PM	9	0	8	0	4	0	1	0	1	188	12	0	6	243	1	0	473	1889
5:00 PM	16	1	5	0	5	3	0	0	2	203	14	0	3	269	9	0	530	1937
5:15 PM	19	0	16	0	9	0	0	0	2	211	13	0	6	245	3	0	524	2006
5:30 PM	11	0	10	0	4	3	1	0	2	182	5	0	4	264	6	0	492	2019
5:45 PM	9	2	4	0	2	0	0	0	2	179	9	0	1	217	10	0	435	1981

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	64	4	20	0	20	12	0	0	8	812	56	0	12	1076	36	0	2120
Heavy Trucks	0	0	0		0	0	0		0	12	0		0	4	0		16
Buses																	
Pedestrians		0				8				0				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 2/4/2022 12:13 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

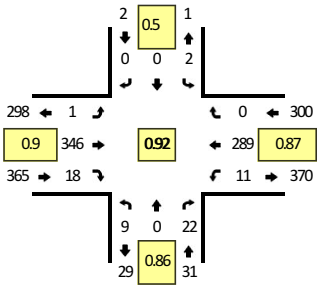
Type of peak hour being reported: Intersection Peak

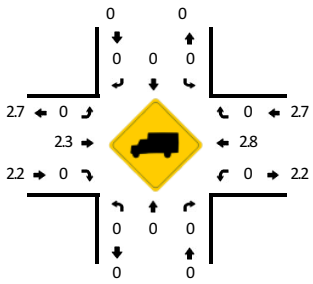
Method for determining peak hour: Total Entering Volume

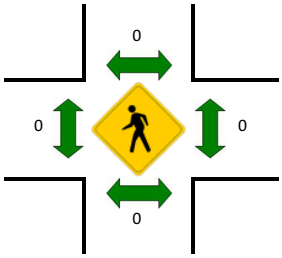
LOCATION: N Winston Ln -- Lockhill Selma Rd
CITY/STATE: Castle Hills, TX

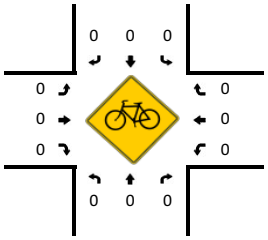
QC JOB #: 15678603
DATE: Tue, Jan 25 2022

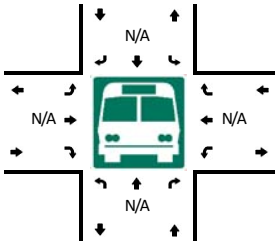
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

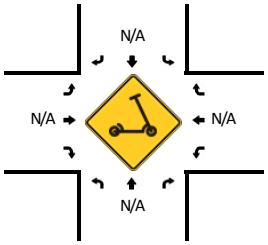












15-Min Count Period Beginning At	N Winston Ln (Northbound)				N Winston Ln (Southbound)				Lockhill Selma Rd (Eastbound)				Lockhill Selma Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	0	2	0	0	0	0	0	0	59	4	0	1	53	0	0	121	
7:15 AM	1	0	1	0	0	0	1	0	0	71	6	0	6	62	1	0	149	
7:30 AM	1	0	7	0	1	0	0	0	1	77	5	0	3	59	0	0	154	
7:45 AM	0	0	6	0	1	0	0	0	0	92	9	0	3	79	0	0	190	614
8:00 AM	2	0	6	0	0	0	0	0	0	90	3	0	4	66	0	0	171	664
8:15 AM	6	0	3	0	0	0	0	0	0	87	1	0	1	85	0	0	183	698
8:30 AM	2	0	4	0	0	0	0	0	0	68	3	0	0	54	0	0	131	675
8:45 AM	0	0	5	0	0	0	0	0	0	78	5	0	2	38	0	0	128	613

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	24	0	4	0	0	0	0	368	36	0	12	316	0	0	760
Heavy Trucks	0	0	0		0	0	0		0	8	0		0	0	0		8
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 2/4/2022 12:13 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

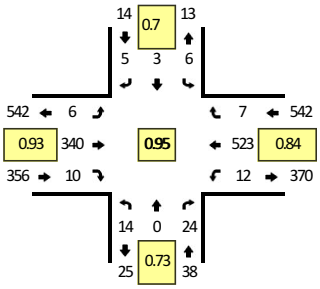
Type of peak hour being reported: Intersection Peak

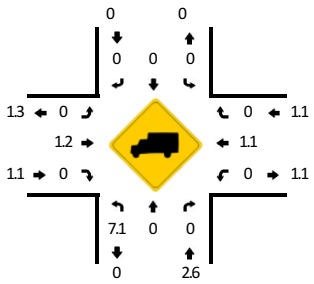
Method for determining peak hour: Total Entering Volume

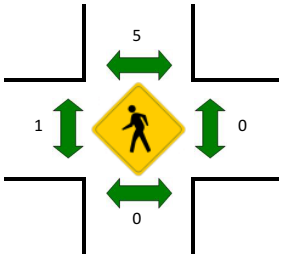
LOCATION: N Winston Ln -- Lockhill Selma Rd
CITY/STATE: Castle Hills, TX

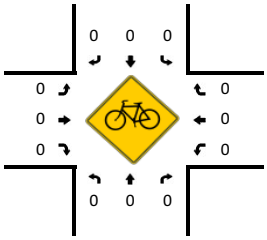
QC JOB #: 15678604
DATE: Tue, Jan 25 2022

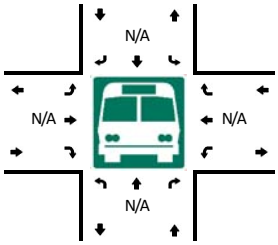
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

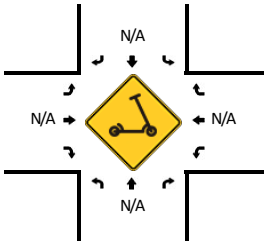












15-Min Count Period Beginning At	N Winston Ln (Northbound)				N Winston Ln (Southbound)				Lockhill Selma Rd (Eastbound)				Lockhill Selma Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	3	0	3	0	0	0	3	0	0	58	8	0	3	107	1	0	186	
4:15 PM	3	0	5	0	1	1	1	0	1	84	3	0	3	116	4	0	222	
4:30 PM	2	0	2	0	1	1	0	0	0	66	7	0	4	103	1	0	187	
4:45 PM	2	1	3	0	0	0	1	0	1	76	2	0	1	121	0	0	208	803
5:00 PM	7	0	6	0	4	0	1	0	1	84	5	0	4	105	3	0	220	837
5:15 PM	0	0	3	0	1	0	2	0	2	78	3	0	2	156	4	0	251	866
5:30 PM	6	0	7	0	1	1	1	0	1	84	2	0	3	144	0	0	250	929
5:45 PM	1	0	8	0	0	2	1	0	2	94	0	0	3	118	0	0	229	950

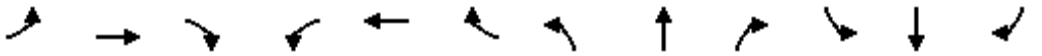
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	12	0	4	0	8	0	8	312	12	0	8	624	16	0	1004
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	8	0		8
Buses																	
Pedestrians		0				8				4				0			12
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 2/4/2022 12:13 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Appendix C: *Synchro10*™ Output Sheets



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1095	67	42	656	3	74	12	84	29	8	4
Future Volume (veh/h)	3	1095	67	42	656	3	74	12	84	29	8	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1945	1870	1870	1945	1870
Adj Flow Rate, veh/h	4	1319	81	51	790	4	125	20	142	34	9	5
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.59	0.59	0.59	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	457	2178	133	267	2405	12	146	36	136	170	43	19
Arrive On Green	0.00	0.64	0.64	0.03	0.66	0.66	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1781	3401	208	1781	3626	18	625	219	826	722	263	114
Grp Volume(v), veh/h	4	688	712	51	387	407	287	0	0	48	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1833	1781	1777	1867	1670	0	0	1099	0	0
Q Serve(g_s), s	0.1	27.3	27.4	1.2	11.3	11.3	16.5	0.0	0.0	2.6	0.0	0.0
Cycle Q Clear(g_c), s	0.1	27.3	27.4	1.2	11.3	11.3	16.5	0.0	0.0	2.6	0.0	0.0
Prop In Lane	1.00		0.11	1.00		0.01	0.44		0.49	0.71		0.10
Lane Grp Cap(c), veh/h	457	1138	1173	267	1179	1238	0	0	0	0	0	0
V/C Ratio(X)	0.01	0.60	0.61	0.19	0.33	0.33	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	715	1138	1173	484	1179	1238	0	0	0	0	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.2	12.7	12.7	10.4	8.7	8.7	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.4	2.3	0.1	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.7	11.1	0.4	4.3	4.5	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.2	15.1	15.0	10.6	9.4	9.4	0.0	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	B	B	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		1404			845			287			48	
Approach Delay, s/veh		15.0			9.5			0.0			0.0	
Approach LOS		B			A			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.8	83.3		26.9	7.0	86.1		26.9				
Change Period (Y+Rc), s	6.5	6.5		* 7.2	6.5	6.5		* 7.2				
Max Green Setting (Gmax), s	17.9	35.9		* 46	17.9	35.9		* 46				
Max Q Clear Time (g_c+I1), s	3.2	29.4		4.6	2.1	13.3		18.5				
Green Ext Time (p_c), s	0.0	3.4		0.2	0.0	3.1		1.2				

Intersection Summary			
HCM 6th Ctrl Delay		11.3	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

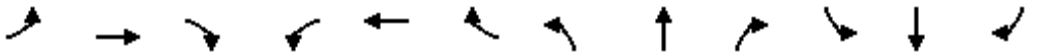
Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	346	18	11	289	0	9	0	22	2	0	0
Future Vol, veh/h	1	346	18	11	289	0	9	0	22	2	0	0
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	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	376	20	12	314	0	10	0	24	2	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	314	0	0	396	0	0	569	726	386	738	736	157
Stage 1	-	-	-	-	-	-	388	388	-	338	338	-
Stage 2	-	-	-	-	-	-	181	338	-	400	398	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1245	-	-	1161	-	-	419	350	661	320	346	861
Stage 1	-	-	-	-	-	-	635	608	-	651	640	-
Stage 2	-	-	-	-	-	-	804	640	-	625	602	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1245	-	-	1161	-	-	414	345	661	305	341	861
Mov Cap-2 Maneuver	-	-	-	-	-	-	414	345	-	305	341	-
Stage 1	-	-	-	-	-	-	634	607	-	650	632	-
Stage 2	-	-	-	-	-	-	794	632	-	602	601	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	11.8	16.9
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	563	1245	-	-	1161	-	-	305
HCM Lane V/C Ratio	0.06	0.001	-	-	0.01	-	-	0.007
HCM Control Delay (s)	11.8	7.9	0	-	8.1	0	-	16.9
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	784	44	19	1021	19	55	1	39	22	6	2
Future Volume (veh/h)	7	784	44	19	1021	19	55	1	39	22	6	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1945	1870	1870	1945	1870
Adj Flow Rate, veh/h	8	852	48	20	1086	20	81	1	57	27	7	2
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.68	0.68	0.68	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	394	2507	141	488	2647	49	116	14	57	133	31	7
Arrive On Green	0.01	0.73	0.73	0.02	0.74	0.74	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	1781	3420	193	1781	3570	66	834	165	695	978	376	80
Grp Volume(v), veh/h	8	443	457	20	541	565	139	0	0	36	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1836	1781	1777	1859	1694	0	0	1434	0	0
Q Serve(g_s), s	0.1	10.6	10.6	0.3	13.6	13.6	7.4	0.0	0.0	1.8	0.0	0.0
Cycle Q Clear(g_c), s	0.1	10.6	10.6	0.3	13.6	13.6	7.4	0.0	0.0	1.8	0.0	0.0
Prop In Lane	1.00		0.10	1.00		0.04	0.58		0.41	0.75		0.06
Lane Grp Cap(c), veh/h	394	1303	1346	488	1318	1378	0	0	0	0	0	0
V/C Ratio(X)	0.02	0.34	0.34	0.04	0.41	0.41	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	646	1303	1346	725	1318	1378	0	0	0	0	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.6	5.7	5.7	4.3	5.8	5.8	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.7	0.0	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.7	3.8	0.1	4.6	4.8	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.6	6.4	6.4	4.3	6.7	6.7	0.0	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		908			1126			139			36	
Approach Delay, s/veh		6.4			6.6			0.0			0.0	
Approach LOS		A			A			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	94.5		17.1	7.4	95.5		17.1				
Change Period (Y+Rc), s	6.5	6.5		* 7.2	6.5	6.5		* 7.2				
Max Green Setting (Gmax), s	17.9	35.9		* 46	17.9	35.9		* 46				
Max Q Clear Time (g_c+I1), s	2.3	12.6		3.8	2.1	15.6		9.4				
Green Ext Time (p_c), s	0.0	3.7		0.1	0.0	4.6		0.5				

Intersection Summary	
HCM 6th Ctrl Delay	6.0
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

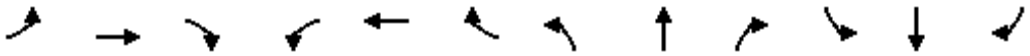
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	340	10	12	523	7	14	0	24	6	3	5
Future Vol, veh/h	6	340	10	12	523	7	14	0	24	6	3	5
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	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	370	11	13	568	8	15	0	26	7	3	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	576	0	0	381	0	0	702	992	376	1001	993	288
Stage 1	-	-	-	-	-	-	390	390	-	598	598	-
Stage 2	-	-	-	-	-	-	312	602	-	403	395	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	995	-	-	1176	-	-	339	245	670	209	245	709
Stage 1	-	-	-	-	-	-	633	607	-	457	490	-
Stage 2	-	-	-	-	-	-	674	488	-	623	604	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	995	-	-	1176	-	-	326	239	670	197	239	709
Mov Cap-2 Maneuver	-	-	-	-	-	-	326	239	-	197	239	-
Stage 1	-	-	-	-	-	-	627	602	-	453	482	-
Stage 2	-	-	-	-	-	-	654	480	-	593	599	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	13.2	18.6
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	482	995	-	-	1176	-	-	280
HCM Lane V/C Ratio	0.086	0.007	-	-	0.011	-	-	0.054
HCM Control Delay (s)	13.2	8.6	0	-	8.1	0.1	-	18.6
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1117	68	43	669	3	75	12	86	30	8	4
Future Volume (veh/h)	3	1117	68	43	669	3	75	12	86	30	8	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1945	1870	1870	1945	1870
Adj Flow Rate, veh/h	4	1346	82	52	806	4	127	20	146	35	9	5
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.59	0.59	0.59	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	446	2165	132	258	2392	12	148	36	140	173	43	19
Arrive On Green	0.00	0.64	0.64	0.03	0.66	0.66	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1781	3403	207	1781	3626	18	626	215	835	722	254	111
Grp Volume(v), veh/h	4	701	727	52	395	415	293	0	0	49	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1833	1781	1777	1867	1676	0	0	1087	0	0
Q Serve(g_s), s	0.1	28.5	28.7	1.2	11.7	11.7	16.9	0.0	0.0	2.7	0.0	0.0
Cycle Q Clear(g_c), s	0.1	28.5	28.7	1.2	11.7	11.7	16.9	0.0	0.0	2.7	0.0	0.0
Prop In Lane	1.00		0.11	1.00		0.01	0.43		0.50	0.71		0.10
Lane Grp Cap(c), veh/h	446	1131	1166	258	1172	1231	0	0	0	0	0	0
V/C Ratio(X)	0.01	0.62	0.62	0.20	0.34	0.34	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	704	1131	1166	475	1172	1231	0	0	0	0	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.4	13.1	13.2	11.0	8.9	8.9	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.6	2.5	0.1	0.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	11.2	11.7	0.4	4.4	4.6	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.4	15.7	15.7	11.1	9.7	9.7	0.0	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	B	B	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		1432			862			293			49	
Approach Delay, s/veh		15.6			9.8			0.0			0.0	
Approach LOS		B			A			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.8	82.9		27.4	7.0	85.6		27.4				
Change Period (Y+Rc), s	6.5	6.5		* 7.2	6.5	6.5		* 7.2				
Max Green Setting (Gmax), s	17.9	35.9		* 46	17.9	35.9		* 46				
Max Q Clear Time (g_c+I1), s	3.2	30.7		4.7	2.1	13.7		18.9				
Green Ext Time (p_c), s	0.0	3.0		0.2	0.0	3.1		1.2				

Intersection Summary		
HCM 6th Ctrl Delay		11.7
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

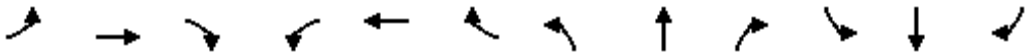
Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	1	353	18	11	295	0	9	0	22	2	0	0
Future Vol, veh/h	1	353	18	11	295	0	9	0	22	2	0	0
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	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	384	20	12	321	0	10	0	24	2	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	321	0	0	404	0	0	581	741	394	753	751	161
Stage 1	-	-	-	-	-	-	396	396	-	345	345	-
Stage 2	-	-	-	-	-	-	185	345	-	408	406	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1237	-	-	1153	-	-	411	343	654	312	339	856
Stage 1	-	-	-	-	-	-	629	603	-	645	635	-
Stage 2	-	-	-	-	-	-	800	635	-	619	597	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1237	-	-	1153	-	-	406	338	654	297	334	856
Mov Cap-2 Maneuver	-	-	-	-	-	-	406	338	-	297	334	-
Stage 1	-	-	-	-	-	-	628	602	-	644	627	-
Stage 2	-	-	-	-	-	-	790	627	-	596	596	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	11.9	17.2
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	555	1237	-	-	1153	-	-	297
HCM Lane V/C Ratio	0.061	0.001	-	-	0.01	-	-	0.007
HCM Control Delay (s)	11.9	7.9	0	-	8.2	0	-	17.2
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	800	45	19	1041	19	56	1	40	22	6	2
Future Volume (veh/h)	7	800	45	19	1041	19	56	1	40	22	6	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1945	1870	1870	1945	1870
Adj Flow Rate, veh/h	8	870	49	20	1107	20	82	1	59	27	7	2
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.68	0.68	0.68	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	385	2502	141	478	2643	48	117	14	59	134	31	7
Arrive On Green	0.01	0.73	0.73	0.02	0.74	0.74	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	1781	3420	193	1781	3571	65	826	164	703	971	372	79
Grp Volume(v), veh/h	8	452	467	20	551	576	142	0	0	36	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1836	1781	1777	1859	1693	0	0	1422	0	0
Q Serve(g_s), s	0.1	11.0	11.0	0.3	14.0	14.0	7.5	0.0	0.0	1.8	0.0	0.0
Cycle Q Clear(g_c), s	0.1	11.0	11.0	0.3	14.0	14.0	7.5	0.0	0.0	1.8	0.0	0.0
Prop In Lane	1.00		0.10	1.00		0.03	0.58		0.42	0.75		0.06
Lane Grp Cap(c), veh/h	385	1300	1343	478	1315	1376	0	0	0	0	0	0
V/C Ratio(X)	0.02	0.35	0.35	0.04	0.42	0.42	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	637	1300	1343	715	1315	1376	0	0	0	0	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.7	5.8	5.8	4.4	5.9	5.9	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.7	0.0	1.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.8	3.9	0.1	4.8	5.0	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.7	6.5	6.5	4.4	6.9	6.8	0.0	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		927			1147			142			36	
Approach Delay, s/veh		6.5			6.8			0.0			0.0	
Approach LOS		A			A			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	94.3		17.3	7.4	95.3		17.3				
Change Period (Y+Rc), s	6.5	6.5		* 7.2	6.5	6.5		* 7.2				
Max Green Setting (Gmax), s	17.9	35.9		* 46	17.9	35.9		* 46				
Max Q Clear Time (g_c+I1), s	2.3	13.0		3.8	2.1	16.0		9.5				
Green Ext Time (p_c), s	0.0	3.7		0.1	0.0	4.7		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	6.1
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

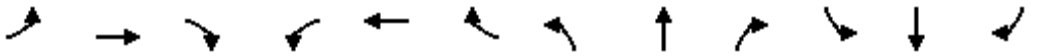
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	6	347	10	12	533	7	14	0	24	6	3	5
Future Vol, veh/h	6	347	10	12	533	7	14	0	24	6	3	5
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	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	377	11	13	579	8	15	0	26	7	3	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	587	0	0	388	0	0	714	1010	383	1019	1011	294
Stage 1	-	-	-	-	-	-	397	397	-	609	609	-
Stage 2	-	-	-	-	-	-	317	613	-	410	402	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	986	-	-	1169	-	-	332	239	664	203	239	703
Stage 1	-	-	-	-	-	-	628	603	-	450	484	-
Stage 2	-	-	-	-	-	-	669	482	-	618	600	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	986	-	-	1169	-	-	319	233	664	191	233	703
Mov Cap-2 Maneuver	-	-	-	-	-	-	319	233	-	191	233	-
Stage 1	-	-	-	-	-	-	622	598	-	446	476	-
Stage 2	-	-	-	-	-	-	648	474	-	588	595	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	13.3	19
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	475	986	-	-	1169	-	-	272
HCM Lane V/C Ratio	0.087	0.007	-	-	0.011	-	-	0.056
HCM Control Delay (s)	13.3	8.7	0	-	8.1	0.1	-	19
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1233	75	47	739	3	83	14	95	33	9	5
Future Volume (veh/h)	3	1233	75	47	739	3	83	14	95	33	9	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1945	1870	1870	1945	1870
Adj Flow Rate, veh/h	4	1486	90	57	890	4	141	24	161	39	11	6
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.59	0.59	0.59	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	391	2091	126	212	2316	10	162	40	155	184	50	22
Arrive On Green	0.00	0.61	0.61	0.03	0.64	0.64	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1781	3405	205	1781	3628	16	627	211	818	702	264	116
Grp Volume(v), veh/h	4	773	803	57	436	458	326	0	0	56	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1833	1781	1777	1867	1655	0	0	1082	0	0
Q Serve(g_s), s	0.1	35.6	36.1	1.4	14.1	14.1	19.3	0.0	0.0	3.1	0.0	0.0
Cycle Q Clear(g_c), s	0.1	35.6	36.1	1.4	14.1	14.1	19.3	0.0	0.0	3.1	0.0	0.0
Prop In Lane	1.00		0.11	1.00		0.01	0.43		0.49	0.70		0.11
Lane Grp Cap(c), veh/h	391	1091	1126	212	1134	1192	0	0	0	0	0	0
V/C Ratio(X)	0.01	0.71	0.71	0.27	0.38	0.38	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	650	1091	1126	428	1134	1192	0	0	0	0	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.5	15.8	15.9	14.5	10.4	10.4	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.9	3.9	0.2	1.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	14.5	15.2	0.5	5.5	5.7	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.5	19.7	19.8	14.8	11.4	11.3	0.0	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	B	B	B	B	B	A	A	A	A	A	A
Approach Vol, veh/h		1580			951			326			56	
Approach Delay, s/veh		19.7			11.6			0.0			0.0	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.9	80.2		29.9	7.0	83.1		29.9				
Change Period (Y+Rc), s	6.5	6.5		* 7.2	6.5	6.5		* 7.2				
Max Green Setting (Gmax), s	17.9	35.9		* 46	17.9	35.9		* 46				
Max Q Clear Time (g_c+I1), s	3.4	38.1		5.1	2.1	16.1		21.3				
Green Ext Time (p_c), s	0.0	0.0		0.2	0.0	3.5		1.4				

Intersection Summary		
HCM 6th Ctrl Delay		14.5
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

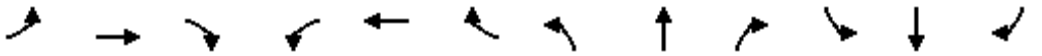
Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	390	20	12	325	0	10	0	25	2	0	0
Future Vol, veh/h	1	390	20	12	325	0	10	0	25	2	0	0
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	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	424	22	13	353	0	11	0	27	2	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	353	0	0	446	0	0	640	816	435	830	827	177
Stage 1	-	-	-	-	-	-	437	437	-	379	379	-
Stage 2	-	-	-	-	-	-	203	379	-	451	448	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1204	-	-	1112	-	-	374	311	620	276	306	836
Stage 1	-	-	-	-	-	-	597	578	-	616	614	-
Stage 2	-	-	-	-	-	-	780	614	-	587	572	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1204	-	-	1112	-	-	370	306	620	261	301	836
Mov Cap-2 Maneuver	-	-	-	-	-	-	370	306	-	261	301	-
Stage 1	-	-	-	-	-	-	596	577	-	615	605	-
Stage 2	-	-	-	-	-	-	768	605	-	561	571	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.4	12.5	18.9
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	520	1204	-	-	1112	-	-	261
HCM Lane V/C Ratio	0.073	0.001	-	-	0.012	-	-	0.008
HCM Control Delay (s)	12.5	8	0	-	8.3	0.1	-	18.9
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	883	50	21	1150	21	62	1	44	25	7	2
Future Volume (veh/h)	8	883	50	21	1150	21	62	1	44	25	7	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1945	1870	1870	1945	1870
Adj Flow Rate, veh/h	9	960	54	22	1223	22	91	1	65	30	8	2
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.68	0.68	0.68	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	339	2471	139	432	2611	47	124	14	64	141	34	6
Arrive On Green	0.01	0.72	0.72	0.02	0.73	0.73	0.09	0.09	0.09	0.09	0.09	0.09
Sat Flow, veh/h	1781	3420	192	1781	3571	64	835	149	695	959	366	70
Grp Volume(v), veh/h	9	499	515	22	608	637	157	0	0	40	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1836	1781	1777	1859	1679	0	0	1395	0	0
Q Serve(g_s), s	0.2	13.0	13.0	0.4	16.8	16.8	8.4	0.0	0.0	2.0	0.0	0.0
Cycle Q Clear(g_c), s	0.2	13.0	13.0	0.4	16.8	16.8	8.4	0.0	0.0	2.0	0.0	0.0
Prop In Lane	1.00		0.10	1.00		0.03	0.58		0.41	0.75		0.05
Lane Grp Cap(c), veh/h	339	1284	1326	432	1299	1359	0	0	0	0	0	0
V/C Ratio(X)	0.03	0.39	0.39	0.05	0.47	0.47	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	590	1284	1326	667	1299	1359	0	0	0	0	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.3	6.4	6.4	4.8	6.6	6.6	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.9	0.0	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	4.6	4.7	0.1	5.8	6.1	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.3	7.3	7.3	4.9	7.8	7.8	0.0	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		1023			1267			157			40	
Approach Delay, s/veh		7.3			7.7			0.0			0.0	
Approach LOS		A			A			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.6	93.2		18.2	7.5	94.2		18.2				
Change Period (Y+Rc), s	6.5	6.5		* 7.2	6.5	6.5		* 7.2				
Max Green Setting (Gmax), s	17.9	35.9		* 46	17.9	35.9		* 46				
Max Q Clear Time (g_c+I1), s	2.4	15.0		4.0	2.2	18.8		10.4				
Green Ext Time (p_c), s	0.0	4.2		0.1	0.0	5.1		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		6.9	
HCM 6th LOS		A	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

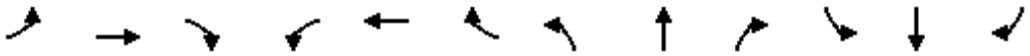
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	7	383	11	14	589	8	16	0	27	7	3	6
Future Vol, veh/h	7	383	11	14	589	8	16	0	27	7	3	6
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	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	416	12	15	640	9	17	0	29	8	3	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	649	0	0	428	0	0	790	1117	422	1128	1119	325
Stage 1	-	-	-	-	-	-	438	438	-	675	675	-
Stage 2	-	-	-	-	-	-	352	679	-	453	444	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	935	-	-	1130	-	-	294	207	631	170	206	671
Stage 1	-	-	-	-	-	-	597	578	-	411	452	-
Stage 2	-	-	-	-	-	-	639	450	-	585	574	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	935	-	-	1130	-	-	280	200	631	158	199	671
Mov Cap-2 Maneuver	-	-	-	-	-	-	280	200	-	158	199	-
Stage 1	-	-	-	-	-	-	590	572	-	406	443	-
Stage 2	-	-	-	-	-	-	615	441	-	552	568	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.3	14.4	21.6
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	430	935	-	-	1130	-	-	234
HCM Lane V/C Ratio	0.109	0.008	-	-	0.013	-	-	0.074
HCM Control Delay (s)	14.4	8.9	0	-	8.2	0.1	-	21.6
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	1117	68	43	669	14	75	12	86	67	8	25
Future Volume (veh/h)	9	1117	68	43	669	14	75	12	86	67	8	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1945	1870	1870	1945	1870
Adj Flow Rate, veh/h	11	1346	82	52	806	17	127	20	146	79	9	29
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.59	0.59	0.59	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	444	2159	131	257	2319	49	147	36	138	168	25	47
Arrive On Green	0.01	0.63	0.63	0.03	0.65	0.65	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1781	3403	207	1781	3559	75	610	211	815	694	145	277
Grp Volume(v), veh/h	11	701	727	52	402	421	293	0	0	117	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1833	1781	1777	1857	1636	0	0	1116	0	0
Q Serve(g_s), s	0.3	28.6	28.8	1.2	12.2	12.2	17.1	0.0	0.0	6.8	0.0	0.0
Cycle Q Clear(g_c), s	0.3	28.6	28.8	1.2	12.2	12.2	17.1	0.0	0.0	6.8	0.0	0.0
Prop In Lane	1.00		0.11	1.00		0.04	0.43		0.50	0.68		0.25
Lane Grp Cap(c), veh/h	444	1127	1163	257	1158	1210	0	0	0	0	0	0
V/C Ratio(X)	0.02	0.62	0.62	0.20	0.35	0.35	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	691	1127	1163	474	1158	1210	0	0	0	0	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.5	13.2	13.3	11.1	9.4	9.4	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.6	2.5	0.1	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	11.3	11.7	0.4	4.7	4.9	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.5	15.8	15.8	11.2	10.2	10.2	0.0	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	B	B	B	B	B	A	A	A	A	A	A
Approach Vol, veh/h		1439			875			293			117	
Approach Delay, s/veh		15.8			10.3			0.0			0.0	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.8	82.6		27.6	7.7	84.7		27.6				
Change Period (Y+Rc), s	6.5	6.5		* 7.2	6.5	6.5		* 7.2				
Max Green Setting (Gmax), s	17.9	35.9		* 46	17.9	35.9		* 46				
Max Q Clear Time (g_c+I1), s	3.2	30.8		8.8	2.3	14.2		19.1				
Green Ext Time (p_c), s	0.0	2.9		0.5	0.0	3.2		1.2				

Intersection Summary		
HCM 6th Ctrl Delay		11.6
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	353	24	19	295	0	30	0	49	2	0	0
Future Vol, veh/h	1	353	24	19	295	0	30	0	49	2	0	0
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	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	384	26	21	321	0	33	0	53	2	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	321	0	0	410	0	0	602	762	397	789	775	161
Stage 1	-	-	-	-	-	-	399	399	-	363	363	-
Stage 2	-	-	-	-	-	-	203	363	-	426	412	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1237	-	-	1147	-	-	397	334	652	294	328	856
Stage 1	-	-	-	-	-	-	626	601	-	629	624	-
Stage 2	-	-	-	-	-	-	780	624	-	606	593	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1237	-	-	1147	-	-	390	326	652	265	320	856
Mov Cap-2 Maneuver	-	-	-	-	-	-	390	326	-	265	320	-
Stage 1	-	-	-	-	-	-	625	600	-	628	610	-
Stage 2	-	-	-	-	-	-	763	610	-	556	592	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.6	13.3	18.7
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	519	1237	-	-	1147	-	-	265
HCM Lane V/C Ratio	0.165	0.001	-	-	0.018	-	-	0.008
HCM Control Delay (s)	13.3	7.9	0	-	8.2	0.1	-	18.7
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.6	0	-	-	0.1	-	-	0

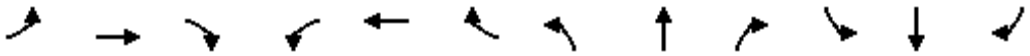
Intersection	
Int Delay, s/veh	5.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	58	48	32	18	14	42
Future Vol, veh/h	58	48	32	18	14	42
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	63	52	35	20	15	46

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	121	45	0	0	55	0
Stage 1	45	-	-	-	-	-
Stage 2	76	-	-	-	-	-
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	874	1025	-	-	1550	-
Stage 1	977	-	-	-	-	-
Stage 2	947	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	865	1025	-	-	1550	-
Mov Cap-2 Maneuver	865	-	-	-	-	-
Stage 1	977	-	-	-	-	-
Stage 2	938	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	1.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	931	1550	-
HCM Lane V/C Ratio	-	-	0.124	0.01	-
HCM Control Delay (s)	-	-	9.4	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	800	45	19	1041	56	56	1	40	44	6	14
Future Volume (veh/h)	28	800	45	19	1041	56	56	1	40	44	6	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1945	1870	1870	1945	1870
Adj Flow Rate, veh/h	30	870	49	20	1107	60	82	1	59	53	7	17
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.68	0.68	0.68	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	384	2499	141	477	2489	135	115	14	58	126	21	27
Arrive On Green	0.02	0.73	0.73	0.02	0.73	0.73	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	1781	3420	193	1781	3428	186	796	162	681	893	248	323
Grp Volume(v), veh/h	30	452	467	20	574	593	142	0	0	77	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1836	1781	1777	1837	1639	0	0	1464	0	0
Q Serve(g_s), s	0.5	11.0	11.0	0.3	15.7	15.7	7.6	0.0	0.0	4.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	11.0	11.0	0.3	15.7	15.7	7.6	0.0	0.0	4.0	0.0	0.0
Prop In Lane	1.00		0.10	1.00		0.10	0.58		0.42	0.69		0.22
Lane Grp Cap(c), veh/h	384	1299	1342	477	1290	1334	0	0	0	0	0	0
V/C Ratio(X)	0.08	0.35	0.35	0.04	0.44	0.44	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	612	1299	1342	714	1290	1334	0	0	0	0	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.0	5.8	5.8	4.4	6.7	6.7	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.7	0.0	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	3.8	4.0	0.1	5.5	5.7	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.0	6.6	6.5	4.4	7.8	7.7	0.0	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		949			1187			142			77	
Approach Delay, s/veh		6.5			7.7			0.0			0.0	
Approach LOS		A			A			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	94.2		17.4	9.0	93.6		17.4				
Change Period (Y+Rc), s	6.5	6.5		* 7.2	6.5	6.5		* 7.2				
Max Green Setting (Gmax), s	17.9	35.9		* 46	17.9	35.9		* 46				
Max Q Clear Time (g_c+I1), s	2.3	13.0		6.0	2.5	17.7		9.6				
Green Ext Time (p_c), s	0.0	3.7		0.3	0.0	4.8		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	6.5
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	6	347	31	39	533	7	26	0	40	6	3	5
Future Vol, veh/h	6	347	31	39	533	7	26	0	40	6	3	5
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	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	377	34	42	579	8	28	0	43	7	3	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	587	0	0	411	0	0	783	1079	394	1097	1092	294
Stage 1	-	-	-	-	-	-	408	408	-	667	667	-
Stage 2	-	-	-	-	-	-	375	671	-	430	425	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	986	-	-	1146	-	-	297	218	654	179	214	703
Stage 1	-	-	-	-	-	-	619	596	-	415	456	-
Stage 2	-	-	-	-	-	-	619	454	-	603	586	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	986	-	-	1146	-	-	277	204	654	159	201	703
Mov Cap-2 Maneuver	-	-	-	-	-	-	277	204	-	159	201	-
Stage 1	-	-	-	-	-	-	613	591	-	411	431	-
Stage 2	-	-	-	-	-	-	577	429	-	558	581	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.7	15.2	21.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	426	986	-	-	1146	-	-	234
HCM Lane V/C Ratio	0.168	0.007	-	-	0.037	-	-	0.065
HCM Control Delay (s)	15.2	8.7	0	-	8.3	0.2	-	21.5
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.6	0	-	-	0.1	-	-	0.2

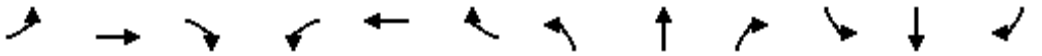
Intersection	
Int Delay, s/veh	4.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	28	39	58	48	31
Future Vol, veh/h	34	28	39	58	48	31
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	37	30	42	63	52	34

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	212	74	0	0	105	0
Stage 1	74	-	-	-	-	-
Stage 2	138	-	-	-	-	-
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	776	988	-	-	1486	-
Stage 1	949	-	-	-	-	-
Stage 2	889	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	748	988	-	-	1486	-
Mov Cap-2 Maneuver	748	-	-	-	-	-
Stage 1	949	-	-	-	-	-
Stage 2	857	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	4.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	840	1486	-
HCM Lane V/C Ratio	-	-	0.08	0.035	-
HCM Control Delay (s)	-	-	9.7	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	1233	75	47	739	14	83	14	95	70	9	26
Future Volume (veh/h)	9	1233	75	47	739	14	83	14	95	70	9	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1945	1870	1870	1945	1870
Adj Flow Rate, veh/h	11	1486	90	57	890	17	141	24	161	82	11	31
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.59	0.59	0.59	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	390	2083	126	211	2247	43	160	40	153	180	29	53
Arrive On Green	0.01	0.61	0.61	0.03	0.63	0.63	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1781	3405	205	1781	3567	68	611	207	799	678	153	277
Grp Volume(v), veh/h	11	773	803	57	443	464	326	0	0	124	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1833	1781	1777	1858	1617	0	0	1108	0	0
Q Serve(g_s), s	0.3	35.8	36.3	1.4	14.8	14.8	19.6	0.0	0.0	7.3	0.0	0.0
Cycle Q Clear(g_c), s	0.3	35.8	36.3	1.4	14.8	14.8	19.6	0.0	0.0	7.3	0.0	0.0
Prop In Lane	1.00		0.11	1.00		0.04	0.43		0.49	0.66		0.25
Lane Grp Cap(c), veh/h	390	1087	1122	211	1119	1170	0	0	0	0	0	0
V/C Ratio(X)	0.03	0.71	0.72	0.27	0.40	0.40	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	637	1087	1122	426	1119	1170	0	0	0	0	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.7	16.0	16.1	14.7	11.0	11.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.9	3.9	0.3	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	14.6	15.3	0.5	5.8	6.0	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.8	19.9	20.0	14.9	12.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	B	C	B	B	B	A	A	A	A	A	A
Approach Vol, veh/h		1587			964			326			124	
Approach Delay, s/veh		19.9			12.2			0.0			0.0	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.9	79.9		30.2	7.7	82.1		30.2				
Change Period (Y+Rc), s	6.5	6.5		* 7.2	6.5	6.5		* 7.2				
Max Green Setting (Gmax), s	17.9	35.9		* 46	17.9	35.9		* 46				
Max Q Clear Time (g_c+I1), s	3.4	38.3		9.3	2.3	16.8		21.6				
Green Ext Time (p_c), s	0.0	0.0		0.5	0.0	3.5		1.4				

Intersection Summary	
HCM 6th Ctrl Delay	14.4
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	390	26	20	325	0	31	0	52	2	0	0
Future Vol, veh/h	1	390	26	20	325	0	31	0	52	2	0	0
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	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	424	28	22	353	0	34	0	57	2	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	353	0	0	452	0	0	661	837	438	866	851	177
Stage 1	-	-	-	-	-	-	440	440	-	397	397	-
Stage 2	-	-	-	-	-	-	221	397	-	469	454	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1204	-	-	1107	-	-	362	302	618	260	296	836
Stage 1	-	-	-	-	-	-	595	577	-	601	603	-
Stage 2	-	-	-	-	-	-	762	603	-	574	568	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1204	-	-	1107	-	-	355	294	618	232	288	836
Mov Cap-2 Maneuver	-	-	-	-	-	-	355	294	-	232	288	-
Stage 1	-	-	-	-	-	-	594	576	-	600	588	-
Stage 2	-	-	-	-	-	-	743	588	-	521	567	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.6	14.1	20.7
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	484	1204	-	-	1107	-	-	232
HCM Lane V/C Ratio	0.186	0.001	-	-	0.02	-	-	0.009
HCM Control Delay (s)	14.1	8	0	-	8.3	0.1	-	20.7
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0

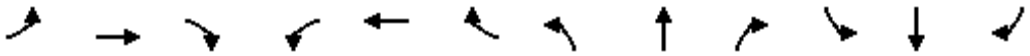
Intersection	
Int Delay, s/veh	5.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	58	48	35	18	14	46
Future Vol, veh/h	58	48	35	18	14	46
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	63	52	38	20	15	50

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	128	48	0	0	58	0
Stage 1	48	-	-	-	-	-
Stage 2	80	-	-	-	-	-
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	866	1021	-	-	1546	-
Stage 1	974	-	-	-	-	-
Stage 2	943	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	857	1021	-	-	1546	-
Mov Cap-2 Maneuver	857	-	-	-	-	-
Stage 1	974	-	-	-	-	-
Stage 2	934	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	1.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	924	1546	-
HCM Lane V/C Ratio	-	-	0.125	0.01	-
HCM Control Delay (s)	-	-	9.5	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	883	50	21	1150	58	62	1	44	47	7	14
Future Volume (veh/h)	29	883	50	21	1150	58	62	1	44	47	7	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1945	1870	1870	1945	1870
Adj Flow Rate, veh/h	32	960	54	22	1223	62	91	1	65	57	8	17
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.68	0.68	0.68	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	340	2468	139	432	2468	125	122	14	62	134	22	28
Arrive On Green	0.02	0.72	0.72	0.02	0.72	0.72	0.09	0.09	0.09	0.09	0.09	0.09
Sat Flow, veh/h	1781	3420	192	1781	3442	174	805	147	673	892	242	297
Grp Volume(v), veh/h	32	499	515	22	631	654	157	0	0	82	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1836	1781	1777	1839	1625	0	0	1432	0	0
Q Serve(g_s), s	0.6	13.0	13.0	0.4	18.7	18.7	8.5	0.0	0.0	4.3	0.0	0.0
Cycle Q Clear(g_c), s	0.6	13.0	13.0	0.4	18.7	18.7	8.5	0.0	0.0	4.3	0.0	0.0
Prop In Lane	1.00		0.10	1.00		0.09	0.58		0.41	0.70		0.21
Lane Grp Cap(c), veh/h	340	1282	1325	432	1274	1319	0	0	0	0	0	0
V/C Ratio(X)	0.09	0.39	0.39	0.05	0.50	0.50	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	567	1282	1325	666	1274	1319	0	0	0	0	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.7	6.5	6.5	4.9	7.4	7.5	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.9	0.0	1.4	1.3	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	4.6	4.8	0.1	6.7	6.9	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.8	7.4	7.3	4.9	8.8	8.8	0.0	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		1046			1307			157			82	
Approach Delay, s/veh		7.3			8.7			0.0			0.0	
Approach LOS		A			A			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.6	93.1		18.3	9.1	92.5		18.3				
Change Period (Y+Rc), s	6.5	6.5		* 7.2	6.5	6.5		* 7.2				
Max Green Setting (Gmax), s	17.9	35.9		* 46	17.9	35.9		* 46				
Max Q Clear Time (g_c+I1), s	2.4	15.0		6.3	2.6	20.7		10.5				
Green Ext Time (p_c), s	0.0	4.2		0.3	0.0	5.1		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	7.4
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	383	32	41	589	8	28	0	43	7	3	6
Future Vol, veh/h	7	383	32	41	589	8	28	0	43	7	3	6
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	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	416	35	45	640	9	30	0	47	8	3	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	649	0	0	451	0	0	862	1189	434	1208	1202	325
Stage 1	-	-	-	-	-	-	450	450	-	735	735	-
Stage 2	-	-	-	-	-	-	412	739	-	473	467	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	935	-	-	1108	-	-	262	187	621	149	184	671
Stage 1	-	-	-	-	-	-	588	571	-	378	425	-
Stage 2	-	-	-	-	-	-	589	423	-	571	561	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	935	-	-	1108	-	-	241	173	621	130	170	671
Mov Cap-2 Maneuver	-	-	-	-	-	-	241	173	-	130	170	-
Stage 1	-	-	-	-	-	-	582	565	-	374	398	-
Stage 2	-	-	-	-	-	-	541	396	-	522	555	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.7	16.8	24.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	383	935	-	-	1108	-	-	199
HCM Lane V/C Ratio	0.201	0.008	-	-	0.04	-	-	0.087
HCM Control Delay (s)	16.8	8.9	0	-	8.4	0.2	-	24.8
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0.3

Intersection	
Int Delay, s/veh	3.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	28	43	58	48	34
Future Vol, veh/h	34	28	43	58	48	34
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	37	30	47	63	52	37

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	220	79	0	0	110	0
Stage 1	79	-	-	-	-	-
Stage 2	141	-	-	-	-	-
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	768	981	-	-	1480	-
Stage 1	944	-	-	-	-	-
Stage 2	886	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	740	981	-	-	1480	-
Mov Cap-2 Maneuver	740	-	-	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	854	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	4.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	832	1480	-
HCM Lane V/C Ratio	-	-	0.081	0.035	-
HCM Control Delay (s)	-	-	9.7	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-

Appendix D: Rough Proportionality Worksheet

Rough Proportionality Worksheet

for Roadway Infrastructure Improvements

City of San Antonio, Texas

Development Name: Lofts at Castle Hills

Applicant: *Insert Applicant Name*

Legal Description (Lot, Block): *Insert Legal Description*

Case / Plat Number: *Insert Case #* **Date:** February 10, 2022

Worksheet Last Updated: 05/14/2010

DEMAND - Traffic Generated by Proposed Development:

Peak Period to Analyze: ☐ AM Peak ☒ PM Peak

Trip Generation Method: ☒ Linear Rates ☐ Regression Equations

Land Use Type[1]:	Development Unit:	Intensity[2]:	Peak Hour Trip Rate[3]:	Internal Capture Rate[4]:	Trip Length[5]: (miles)	Demand: (vehicle-miles)	Impact of Development[6]: ($)
Apartment/Multi-family	Dwelling Unit	300	0.62	0%	1.50	**279.00**	**$639,329**

This row allows for the entry of unique or uncommon land uses not included within the current ITE Trip Generation; or when circumstances require manual entry of the development unit and/or trip rate. It shall only be used when (a) sufficient data is available to support an alternative calculation; and (b) it is agreed to by the City during the TIA scoping meeting.

IMPACT OF DEMAND PLACED ON THOROUGHFARE SYSTEM: **279.00** **$639,329**

Estimated Average Cost Per Vehicle-Mile[7]: $ 2,291.50

Notes: [1] Per the *ITE Trip Generation Manual*; [2] Intensity is the amount of the development unit that is proposed; [3] Trip Rate is the trip generation rate with a reduction for pass-by's per the *ITE Trip Generation Handbook*. When regression equations are used, the rate is derived from the equation at the given intensity. When this results in a negative value, the rate defers back to the linear method and the cell is shaded blue. For uses without a regression equation, the rate defers back to the linear method and the cell is shaded gray. ITE does not have data available for all land uses during the AM Peak; when data is unavailable the PM Peak Period may be used. [4] Internal Capture should only be used when supported by a traffic study; [5] Trip length shall not (1) exceed the SA/BC MPO Modeled Trip Length, (2) exceed 1.5 miles, or (3) be less than 1.0 mile; [6] Based on an estimated average cost to provide the capacity (construction, engineering, and right-of-way dedication) for one vehicle mile. [7] Estimated average cost per vehicle-mile is derived from the 'Summary of Roadway Costs' worksheet.

Roadway Supply- Off-Site Roads to be Built or Funded by the Applicant:

Roadway Name:	Classification:	Roadway Length: (Feet)	Number of Thru Lanes:	Supply Cost Estimate[8]: ($)	Cost Estimate based on Detailed OPCC[9]: ($)

ROADWAY SUPPLY ADDED TO SYSTEM SUBTOTAL: **$0**

Intersection Improvements - Specific Improvements to be Built or Funded by the Applicant:

Intersection:	Description of Improvement:	Estimated Cost[10]: ($)

INTERSECTION IMPROVEMENTS ADDED TO SYSTEM SUBTOTAL: **$0**

Right-of-Way Dedication - ROW to be dedicated by the Applicant:

ROW Dedication:	General Description of ROW Dedication:	Estimated Cost[11]: ($)

RIGHT-OF-WAY DEDICATION SUPPLY ADDED TO SYSTEM SUBTOTAL: **$0**

TOTAL VALUE OF SUPPLY ADDED TO THOROUGHFARE SYSTEM: **$0**

Notes: [8] Based on an estimated cost to provide the roadway supply (construction and engineering) based on the classification; [9] Revised cost estimate, if available, for construction and engineering based on more detailed preliminary engineering and/or design; [10] Estimated intersection improvement costs; [11] Cost of right-of-way should be estimated using Appraisal District values (number of square feet of dedication multipled by the unimproved land values).

SUPPLY / DEMAND COMPARISON:

A comparison of the capacity provided by a development against the traffic impacts of the proposed development.

	Cost	Comparison
TOTAL IMPACT OF DEMAND PLACED ON THOROUGHFARE SYSTEM:	$639,329	
TOTAL VALUE OF CAPACITY (SUPPLY) ADDED TO THOROUGHFARE SYSTEM:	$0	

Note: Minimum Standards for access to and from a development may supersede the results of this analysis.

Appendix E: Supplemental to TIA

(Traffic data collection underway – supplemental to be added)