LIV Timber Sky Project

Traffic Impact Analysis

South of Route 66 and
West of Woody Mountain Road
In Flagstaff, Arizona

June 2023
Project No. 15-537

Prepared For:
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For Submittal to:
City of Flagstaff

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Prepared for:
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For Submittal to:
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EXECUTIVE SUMMARY

VP 66 & Woody Mountain, LLC proposes the development of 214 multi-family residential units ("Project") located south of Route 66 and west of Woody Mountain Road on property currently undeveloped. The Project includes approximately 13 acres and is proposed to rezone the site from RR-RPO (Rural Residential, Resource Protection Overlay) to HR-RPO (High Density Residential, Resource Protection Overlay). The Project is proposed to have a main access on Woody Mountain Road, with a secondary emergency gated access along Route 66.

CivTech, Inc. has been retained by Liv Communities to produce the traffic impact analysis (TIA) for the proposed development. The purpose of this assessment is to address the traffic and transportation impacts of the proposed development on the surrounding streets and intersections.

The following conclusions and recommendations have been documented in this study:

CONCLUSIONS

GENERAL

- The proposed development is anticipated to generate 1,448 weekday daily trips, 89 trips (21 In/68 Out) during the AM peak hour, and 113 trips (71 In/42 Out) during the PM peak hour.

EXISTING

- The results of the existing conditions analysis indicate that all study intersections operate with acceptable levels of service (LOS C or better).

TRAFFIC SIGNAL WARRANT ANALYSIS

- The results of the volume-based traffic signal warrants analysis indicate that the 2024 and 2027 Build traffic volumes on Woody Mountain Road and Route 66 could be expected to exceed the criteria for Warrants 1, and 2. These traffic signal warrants are met.

PROPORTIONAL SHARE

- A proportional share analysis was completed for the opening year of 2024 in which the traffic signal warrant was met. Proportional share analysis results and email coordination with ADOT discussing the future signal funding at Woody Mountain Road and Route 66 are provided within **Appendix K**.

CAPACITY ANALYSIS

- The results of the Synchro analysis summarized in **Table 8** indicate that all study intersections operate with overall acceptable levels of service (LOS C or better).

QUEUE STORAGE

- The recommended storage lengths are provided for study horizon year 2027 using the total traffic projections.

SIGHT DISTANCE

- Sight visibility for the proposed driveways were calculated using AASHTO methodology considering roadway speed, grade, number of lanes, and other factors.
    - All landscaping that is within the line of sight from the access point to the surrounding public streets should be maintained at a maximum of two feet in height. Trees should be of a single trunk variety with all branches lower than eight feet trimmed. To avoid a "picket fence effect," trees should not be spaces too closely together.

INTRODUCTION

VP 66 & Woody Mountain, LLC proposes the development of 214 multi-family residential dwelling units located south of West Route 66 and west of Woody Mountain Road on property currently undeveloped. The Project includes approximately 13 acres and proposed to rezone the site from RR-RPO (Rural Residential, Resource Protection Overlay) to HR-RPO (High Density Residential, Resource Protection Overlay). The Project is proposed to have a main access on Woody Mountain Road, with a secondary emergency gated access along West Route 66. The vicinity of the site is provided in **Figure 1**.

CivTech, Inc. has been retained by Liv Communities to produce the traffic impact analysis (TIA) for the proposed development. The purpose of this assessment is to address the traffic and transportation impacts of the proposed development on the surrounding streets and intersections.

STUDY REQUIREMENTS

This study analyzes the Project's traffic impact on the surrounding street network. The study has been prepared in conformance with the *City of Flagstaff Transportation Impact Analysis Manual, Section 2* Traffic Levels of Study, May 2017. The specific objectives of the study are:

- To determine whether the planned street system in the vicinity of the site is adequate to accommodate the increased traffic that results from the proposed development.
- To recommend additional street improvements or traffic control devices, where necessary, to mitigate the additional site-generated traffic; and,
- Evaluate the internal site circulation and provide recommendations if necessary.

STUDY AREA

The study area has been defined as including the following intersections:

- Woody Mountain Road & Route 66
- Alvan Clark Boulevard & Route 66
- Woody Mountain Road & Presidio Drive
- Woody Mountain Road & Patio Del Presidio
- Flagstaff Public Works Driveway & Route 66
- Northwestern Street & Route 66

HORIZON YEARS

This study has been conducted to conform to *Transportation Impact Analysis Manual, Section 2* Traffic Levels of Study, prepared by the City of Flagstaff Transportation Department in May 2017. Under Section 240 of the Arizona Department of Transportation (ADOT) *Traffic Engineering Guidelines and Processes* (TGP 240), a Traffic Statement would be sufficient based on the proposed Project. For this analysis, knowing the challenges with the adjacent neighborhoods and the multi-jurisdictional review and through ongoing coordination with the City of Flagstaff and ADOT, a full Category 1 Traffic Impact Analysis will be performed for this development and will evaluate the opening year and a horizon year three (3) years after opening. It is assumed that the complex will open during 2024.

The study intersections and the site accesses will be analyzed for the AM and PM peak hours to determine the recommended intersection lane configuration, intersection stop control, turn lane storage requirements, and roadway typical sections for the development.

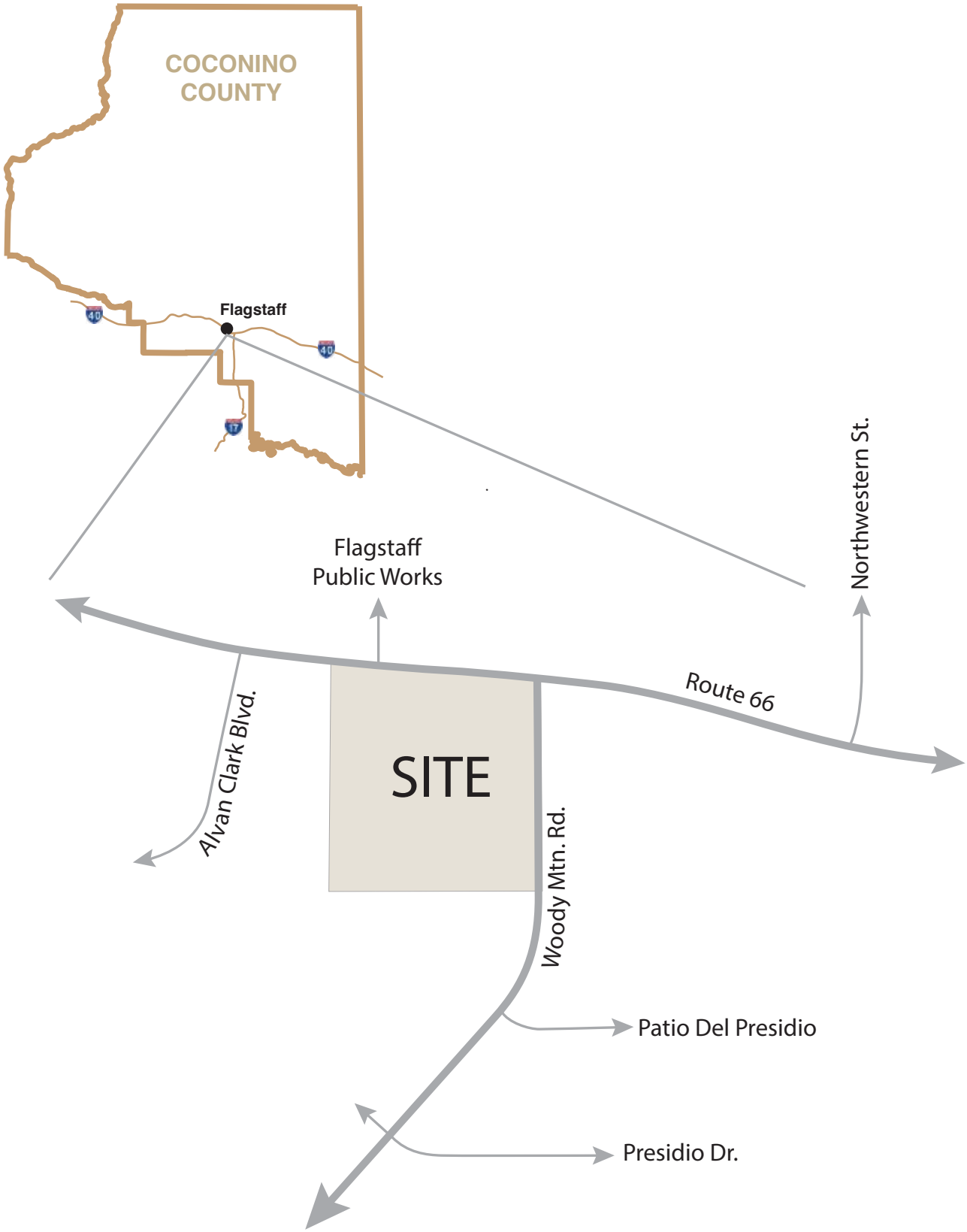


Figure 1: Site Plan and Access

EXISTING CONDITIONS

LAND USE

The existing land is currently used as vacant land.

SURROUNDING LAND USE

Directly surrounding the site is the Timber Sky master-planned community to the west and Sky Cottages to the south. Timber Sky is partially developed and occupied; Sky Cottages is currently under construction. West of the site across Alvan Clark Boulevard is the Orion at Timber Sky by Capstone Homes development and southeast of the site across Woody Mountain Road is the Presidio in The Pines development. Additionally, north of the site across Route 66 is the Flagstaff Public Works Department building. Freeways surrounding the site within two and a half miles include Interstate 40 (I-40) to the south and Interstate 17 (I-17) to the east.

ROADWAY NETWORK

The existing roadway network within the study area includes Alvan Clark Boulevard, Route 66, Woody Mountain Road, and Patio Del Presidio. The roadway classifications were obtained from the City of Flagstaff Roadway Functional Classification Map, 2017.

Alvan Clark Boulevard is north-south two (2) lane minor collector road with one (1) lane and a bike lane in each direction of travel and a raised median. The roadway begins at Route 66 and terminates to the south at McAllister Ranch Road. The posted speed limit is 30 miles per hour (mph) within the vicinity of the site.

Route 66 is an east-west two (2) lane minor arterial street with one (1) through lane and a bike lane in each direction of travel, and a center two-way left-turn lane (TWLTL). The roadway begins to the west at I-40 and extends northeast where it transitions to SR-89. Route 66 provides access to the I-40. The posted speed limit is 45 mph within the vicinity of the site. For a small segment west of Flagstaff Public Works Department Driveway, the posted speed limit is 50 mph in the westbound direction of travel.

Woody Mountain Road is a north-south two (2) lane minor arterial street with one (1) lane in each direction of travel. The roadway begins at Route 66 and transitions to SR-231 approximately 9,000 ft south of the site. Woody Mountain Road provides access to the I-40. The posted speed limit is 40 mph within the vicinity of the site.

Patio Del Presidio is an east-west two (2) lane minor collector road with one (1) lane in each direction of travel. The roadway begins at Woody Mountain Road and transitions to Pollo Circle at Pais Del Norte. There is no posted speed limit within the vicinity of the site.

Presidio Drive is an east-west two (2) lane minor collector road with one (1) lane and a bike lane in each direction of travel. The roadway begins south of Mission Timber Circle and terminates to the west at Woody Mountain Road. The posted speed limit is 25 mph within the vicinity of the site.

Northwestern Drive is a north-south two (2) lane minor collector road with one (1) lane in each direction of travel. The roadway begins to the south at Putnam Drive and terminates to the north at Route 66. The posted speed limit is 25 mph within the vicinity of the site.

INTERSECTION CONFIGURATION

The intersection of **Alvan Clark Boulevard and Route 66** is a "T" intersection with stop control on the northbound approach. The northbound approach consists of a left-turn lane and a right-turn lane. The eastbound approach consists of a through lane, a right-turn lane, and a bike lane. The westbound approach consists of a left-turn lane, a through lane, and a bike lane. A striped crosswalk is provided only at the south leg of the intersection.

The intersection of **Flagstaff Public Works Driveway and Route 66** is a "T" intersection with stop control on the southbound approach. The southbound approach consists of a left-turn lane and a right-turn lane. The eastbound approach consists of a left-turn lane, a through-lane, and a bike lane. The westbound approach consists of a through lane, a right-turn lane, and a bike lane.

The intersection of **Woody Mountain Road and Route 66** is a "T" intersection with stop control on the northbound approach. The northbound approach consists of a left-turn lane and a right-turn lane. The eastbound approach consists of a through lane, a right-turn lane, and a bike lane. The westbound approach consists of a left-turn lane, a through lane, and bike lane.

The intersection of **Woody Mountain Road and Patio Del Presidio** is a "T" intersection with stop control in the westbound approach. The northbound approach consists of a through lane, a right-turn lane, and a bike lane. The southbound approach consists of a left-turn lane, a through lane, and a bike lane. The westbound approach consists of a left-turn lane and a right-turn lane.

The intersection of **Woody Mountain Road and Presidio Drive** is a roundabout intersection with yield control on all approaches. The northbound, eastbound, and westbound approaches consist of one (1) shared through/left/right-turn lane. The southbound approach consists of one (1) shared through/left/right-turn lane and a bike lane. Pedestrian crosswalks are provided on all approaches of the intersection.

The intersection of **Northwestern Street and Route 66** is a "T" intersection with stop control in the southbound approach. The southbound approach consists of one (1) left-turn lane and one (1) right-turn lane. The eastbound approach consists of one (1) left-turn lane and one (1) through lane, and a bike lane. The westbound approach consists of one (1) through lane and one (1) shared through-right turn lane.

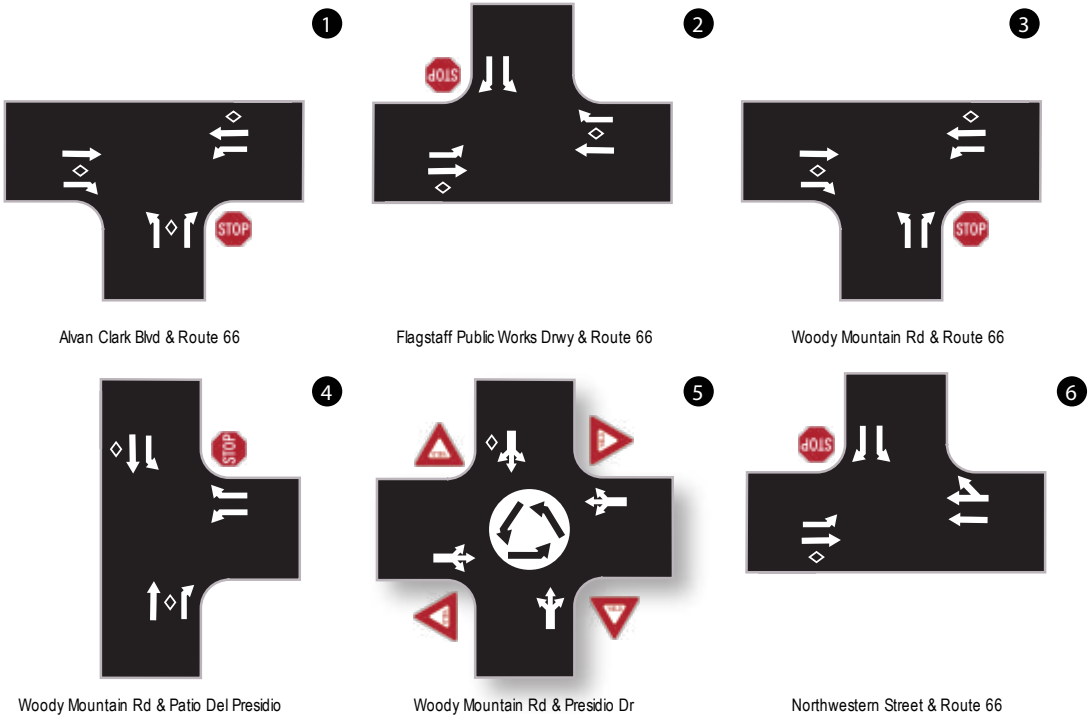
The existing intersection lane configurations and traffic control is illustrated in **Figure 2**.

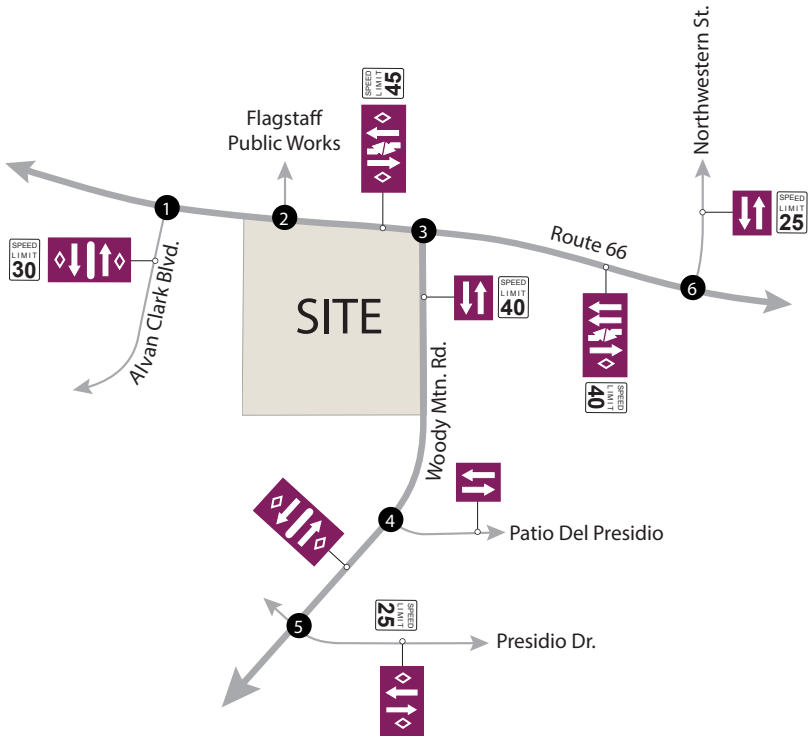
TRAFFIC VOLUMES

CivTech engaged All Traffic Data Services to record traffic volumes at four (4) study intersections within the project vicinity. Peak hour volume turning movement counts were performed from 7:00-9:00 AM and 4:00-6:00 PM on Tuesday, September 27, 2022. Peak hour turning movement counts were conducted at the following study intersections:

- Alvan Clark Boulevard and Route 66
- Flagstaff Public Works Driveway and Route 66
- Woody Mountain Road and Route 66
- Woody Mountain Road and Patio Del Presidio

The existing traffic volumes observed for this study are presented in **Figure 3** for the weekday AM and PM peak hours. Traffic volume data obtained for this study have been included in **Appendix B**.





LEGEND

NORTH

- Thru or Turning Movement
- Two-Way Left Turn-Lane
- Raised Median
- Bike Lane
- Traffic Signal
- Stop Sign
- Speed Limit
- Yield Sign

Figure 2: Existing Lane Configurations and Traffic Controls

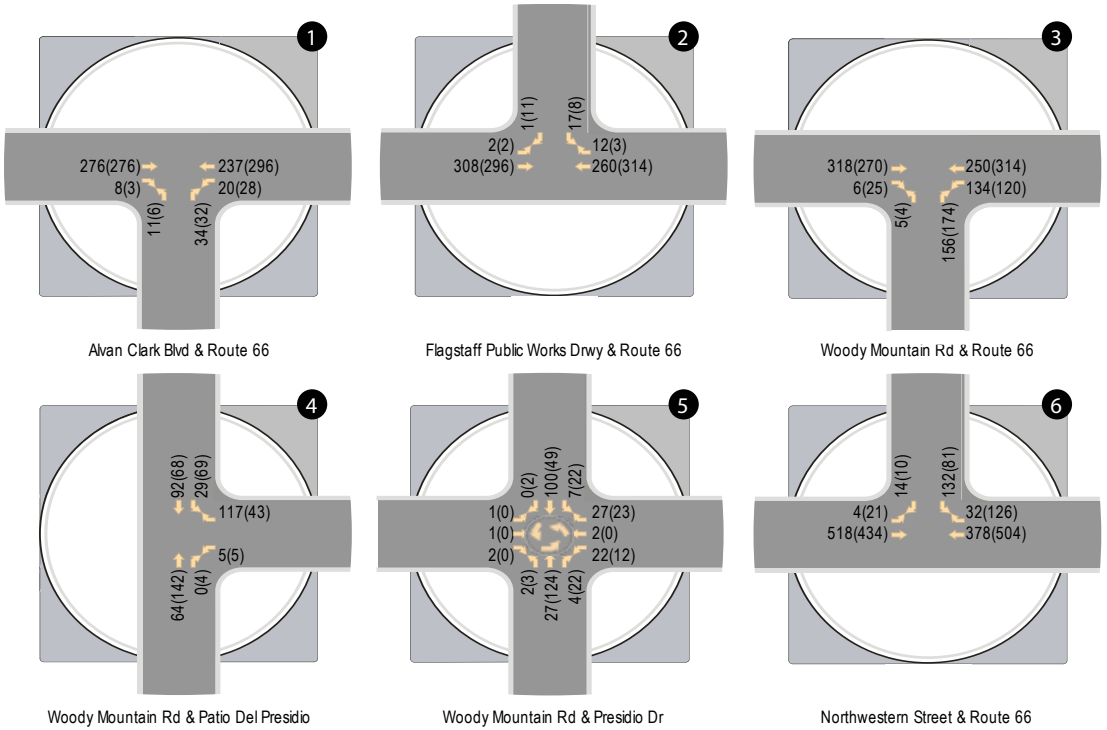


Figure 3: Existing Traffic Volumes

CAPACITY ANALYSIS

Peak hour capacity analyses have been conducted for the study intersections based on existing intersection configurations and traffic volumes. All intersections have been analyzed using the methodologies presented in the *Highway Capacity Manual (HCM),* Updated 2016, *Special Report 209,* and using Synchro software, version 11.0 under the HCM 6th edition (2016) methodology.

The concept of level of service (LOS) uses qualitative measures that characterize operational conditions within the traffic stream. The individual levels of service are described by factors that include speed, travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. Six levels of service are defined for each type of facility for which analysis procedures are available. They are given letter designations A through F, with LOS A representing the best operating conditions and LOS F the worst. Each level of service represents a range of operating conditions. Levels of service for intersections are defined within ranges of average control delay per vehicle, the number of seconds a vehicle can expect to wait due to the presence of a traffic control device. **Table 1** lists the level of service criteria for signalized and unsignalized intersections, respectively.

Table 1 – Level of Service Criteria for Controlled Intersections

Level-of-Service	Signalized Control Delay (sec/veh)	Unsignalized Control Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10-20	> 10-15
C	> 20-35	> 15-25
D	> 35-55	> 25-35
E	> 55-80	> 35-50
F	> 80 (or v/c > 1)	> 50 (or v/c > 1)

Source: Exhibits 19-8, 20-2, 21-8, and 22-8, Highway Capacity Manual, 6th Edition (2016)

Synchro 11.0 software calculates the LOS per the HCM 6th edition (2016) methodology. The 6th edition HCM documents the signalized LOS calculation methodology which takes into account lane geometry, traffic volumes and cycle length/phasing to compute LOS. Synchro analysis worksheets report individual movement delay/LOS and overall delay/LOS for signalized intersections; unsignalized intersection worksheets report the worst-case delay/LOS and the average overall intersection delay. Results of the existing level of service analyses are shown in **Table 2** for both AM and PM peak hours. Delays within **Table 2** are measured in seconds per vehicle. The existing conditions analysis worksheets have been included in **Appendix C**.

Table 2 – Existing Peak Hour Levels of Service

ID	Intersection	Intersection Control	Approach/ Movement	Existing Delay & LOS AM (PM)
1	Alvan Clark Boulevard & Route 66	1-way stop (WB)	NB Left WB Left NB Right	10.8 B (10.9 B) 8.0 A (8.0 A) 10.4 B (10.3 B)
2	Flagstaff Public Works Driveway & Route 66	1-way stop (SB)	SB Left EB Left SB Right	12.1 B (12.2 B) 7.9 A (8.0 A) 9.9 A (10.3 B)
3	Woody Mountain Road & Route 66	1-way stop (NB)	NB Left WB Left NB Right	15.1 C (14.9 B) 8.5 A (8.4 A) 12.1 B (11.9 B)
4	Woody Mountain Road & Patio Del Presidio	1-way stop (WB)	SB Left WB Left WB Right	7.4 A (7.7 A) 10.1 B (11.6 B) 9.3 A (9.4 A)
5	Woody Mountain Road & Presidio Dr	Roundabout	NB SB EB WB	2.9 A (3.8 A) 3.5 A (3.3 A) 3.1 A (-) 3.2 A (3.4 A)
			Overall	3.3 A (3.6 A)
6	Northwestern Street & Route 66	1-way stop (SB)	SB Left EB Left SB Right	17.7 C (17.1 C) 8.4 A (9.1 A) 9.9 A (10.7 B)

The results of the existing conditions analysis summarized in **Table 2** indicate that all study intersections operate with acceptable levels of service (LOS C or better).

EXISTING TRAFFIC SIGNAL WARRANT ANALYSIS

CivTech utilized 2022 existing traffic volumes at the intersection of Woody Mountain Road and Route 66 in the signal warrant analysis below. The signal warrant analysis results are presented in **Table 3** for Warrants 1 through 3 for 2022.

CivTech conducted a site visit from 7:00-9:00 AM and 4:00-6:00 PM on Wednesday, May 3, 2023 to collect data for a right turn on red (RTOR) reduction to be used within the signal warrant analysis below. Peak hour turning movement counts were conducted for the northbound right-turn movement at the intersection of Woody Mountain Road and Route 66. Vehicles that were delayed less than 10 seconds while making the turn were counted as allowable for the RTOR reduction. It was determined that a daily average RTOR reduction of 64% occurs at the intersection. Per comments from ADOT, this percentage was increased to 74% within the signal warrant analyses below. The increase to 74% allows for non-peak hours to have a higher RTOR due to less through traffic on Route 66. Data obtained from the site visit have been included in **Appendix D**.

The traffic signal warrant analysis was accomplished in accordance with standard traffic signal warranting criteria found in the Manual on Uniform Traffic Control Devices, 2009 Edition (MUTCD). The MUTCD describes three conditions under which a traffic signal might be warranted, designated Warrants 1 through 3. It indicates that, "The investigation of the need for a traffic control signal shall

include an analysis of the applicable factors contained in the [three] traffic signal warrants and other factors related to existing operation and safety at the study location." It then cautions that, "The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal."

The MUTCD indicates that traffic control signals should be installed only after one or more of the signal warrants are met; however, as provided in the MUTCD itself (see previous paragraph), the satisfaction of a warrant or warrants is not in itself justification for a signal. Every situation is unique and warrant guidelines must be supplemented by the effects of specific site conditions and the application of good engineering judgment. Installation of a traffic signal should improve the overall safety and/or operation of an intersection and should be considered only when deemed necessary by careful traffic analysis and after less restrictive solutions have been attempted.

Recorded approach traffic volumes at the subject intersection were compared to the MUTCD criteria to determine if a traffic signal would be warranted prior to and with the proposed development. The MUTCD methodology calls for signal warrants to be analyzed using 24-hour directional approach counts at the intersection. CivTech engaged All Traffic Data Services to record 24-hour directional approach volumes at the intersection of Woody Mountain Road and Route 66. Counts were performed on Tuesday, September 27, 2022.

WARRANT 1: EIGHT-HOUR VEHICULAR VOLUME

The Eight-Hour Vehicular Volume Warrant is intended for locations where either of the following two conditions, or a combination of both, exist for each of any 8 hours of an average day and is, thus, the principle reason to consider the installation of a traffic signal: a large volume of intersecting traffic or traffic volumes so heavy on the major street that entering vehicles suffer extensive delay or conflict.

CONDITION A: MINIMUM VEHICULAR VOLUME

Condition A, the Minimum Vehicular Volume, is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal. The need for a traffic control signal shall be considered if the vehicles per hour given in both of the 100 percent columns of Condition A in Table 4C-1 of the MUTCD (reproduced below) occur on the major-street and the higher-volume minor-street approaches, respectively, to the intersection for each of any 8 hours of an average day.

CONDITION B: INTERRUPTION OF CONTINUOUS TRAFFIC

Condition B, the Interruption of Continuous Traffic, is intended for application at locations where the traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street. The need for a traffic control signal shall be considered if the vehicles per hour given in both of the 100 percent columns of Condition B in Table 4C-1 of the MUTCD occur on the major-street and the higher-volume minor-street approaches, respectively, to the intersection for each of any 8 hours of an average day.

COMBINATION OF CONDITIONS A AND B

The combination of Conditions A and B is intended for application at locations where Condition A is not satisfied and Condition B is not satisfied *and should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems*. The need for a traffic control signal shall be considered if the vehicles per hour given in both of the 80 percent columns of Conditions A and Condition B in Table 4C-1 of the MUTCD occur on the major-street and the higher-volume minor-street approaches, respectively, to the intersection for each of any 8 hours of an average day.

Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

Condition A—Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1.....	1.....	500	400	350	280	150	120	105	84
2 or more...	1.....	600	480	420	336	150	120	105	84
2 or more...	2 or more ...	600	480	420	336	200	160	140	112
1.....	2 or more ...	500	400	350	280	200	160	140	112

Condition B—Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1.....	1.....	750	600	525	420	75	60	53	42
2 or more...	1.....	900	720	630	504	75	60	53	42
2 or more...	2 or more ...	900	720	630	504	100	80	70	56
1.....	2 or more ...	750	600	525	420	100	80	70	56

[a] Basic minimum hourly volume.
[b] Used for combination of Conditions A and B after adequate trial of other remedial measures.
[c] May be used when the major-street speed exceeds 70 km/h or exceeds 40 mph or in an isolated community with a population of less than 10,000.
[d] May be used for combination of Conditions A and B after adequate trial of other remedial measures when the major- street speed exceeds 70 km/h or exceeds 40 mph or in an isolated community with a population of less than 10,000.

Excerpt from MUTCD page 438

For each of the above, if the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the traffic volumes in the 70 percent columns in Table 4C-1 may be used in place of the 100 percent columns.

WARRANT 2: FOUR-HOUR VEHICULAR VOLUME

The Four-Hour Vehicular Volume signal warrant conditions are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal. The need for a traffic control signal shall be considered if an engineering study finds that, for each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) all fall above the applicable curve in Figure 4C-1 (this and all other referenced figures are attached) for the existing combination of approach lanes.

If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 70 km/h or exceeds 40 mph or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-2 may be used in place of Figure 4C-1. The posted speed limit on Route 66 is 45 mph; therefore, Figure 4C-2 was used for this analysis.

WARRANT 3: PEAK-HOUR

The Peak Hour signal warrant is intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street. It shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.

The need for a traffic control signal shall be considered if an engineering study finds that the criteria in either of the following two categories are met:

A. If all three of the following conditions exist for the same 1 hour (any four consecutive 15-minute periods) of an average day:

   1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach, and

   2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes, and

   3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

B. The plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) for 1 hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4C-3 for the existing combination of approach lanes.

If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 70 km/h or exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-4 may be used in place of Figure 4C-3 to satisfy the criteria in the second category of the Standard. The posted speed limit on Route 66 is 45 mph; therefore, Figure 4C-4 was used for this analysis.

Table 3 – Traffic Signal Analysis Summary Warrants 1 – 3

Warrant		Hour(s) of the Day	Hours Required to Meet Warrant	Existing	
				Hours Met	Is Warrant Met?
Warrant 1. Eight-Hour Vehicular Volume	Condition A: Minimum Vehicular Volume	Any Eight Hours	8	0	No
	Condition B: Interruption of Continuous Traffic	Any Eight Hours	8	6	No
	Combination of Condition A & Condition B	Any Eight Hours	8	0	No
	Overall (Either Condition A or B satisfied meets warrant)				**No**
Warrant 2. Four-Hour Vehicular Volume		Any Four Hours	4	0	**No**
Warrant 3. Peak Hour		Any One/ Peak Hour	1	0	**No**

Table 3 summarizes the volume-based warrant analysis results for the existing conditions. The warranting criteria for Warrants 2 and 3 were automatically calculated using formulae, not determined by the plotting method described in the MUTCD. The formulae, which approximate the curves of the MUTCD, were published in the *2011 Indiana MUTCD Revisions 1 & 2 & 3*.

The results of the volume-based traffic signal warrants analysis indicate that the existing traffic volumes on Woody Mountain Road and Route 66 do not exceed the criteria for Warrants 1, 2, or 3. These traffic signal warrants are not met. Signal Warrant worksheets for the existing conditions are included in **Appendix E**.

FUTURE ROADWAY IMPROVEMENTS

The development will not provide any new external roadways. The proposed development will be required to construct half-street improvements to Woody Mountain Road and Route 66 along the project frontage. Based on the signal warrant analysis, a signal is warranted at the intersection of Woody Mountain Road and Route 66. Existing underground equipment is already installed to facilitate the construction of the traffic signal at Woody Mountain Road and Route 66. In addition, the Arizona Department of Transportation indicated via email on July 14, 2022, that proportionate share contributions from other developers have been provided to construct the traffic signal once recommended.

CRASH HISTORY

Crash data for the study area was obtained from the Arizona Department of Transportation (ADOT) for three (3) consecutive years, 2018, 2019, and 2020. Crash data for all study intersections were provided. In total, there have been 1 incident within the study area since the beginning of 2018. The incident occurred in 2019 and was classified as "other". There were 0 crashes involving a pedestrian and 0 crashes involving a bicyclist. The summary of intersection crash data is presented in **Table 4** and the summary of segment crash data is presented in **Appendix F.**

Table 4 – Intersection Crash Data Summary

Intersection	Total	2021	2020	2019	Injury	Fatality	Angle	Left Turn	Rear End	Head On	Sideswipe	Other	DUI	Pedestrian	Bicycle
Woody Mountain Road & Route 66	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0
Northwestern Street & Route 66	2	2	0	0	1	0	0	2	0	0	0	0	0	0	0

PROPOSED DEVELOPMENT

SITE LOCATION

VP 66 & Woody Mountain, LLC proposes development of a multi-family residential development community located on the southwest corner of Route 66 and Woody Mountain Road on property currently undeveloped. The Project includes approximately 13 acres.

SITE DENSITY/INTENSITY

This development consists of 214 multi-family residential dwelling units. The 214 units are comprised of the following:

- 1 Bedroom – 48 dwelling units
- 2 Bedroom – 118 dwelling units
- 3 Bedroom – 48 dwelling units

SITE ACCESS

The Project will have one (1) boulevard-type access point.

- *Access A* – is the main full movement access along Woody Mountain Road. Access A is located approximately 410 feet south of Route 66. Curb cuts as well as a southbound right-turn bay are expected to be constructed at this proposed access.

The proposed development site plans are provided in **Figure 4**.

TRIP GENERATION

The potential trip generation for the proposed development was estimated utilizing the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th Edition* and *Trip Generation Handbook, 3rd Edition*. The ITE *Trip Generation Manual* contains data collected by various transportation professionals for a wide range of different land uses. The data are summarized in the report and average rates and equations have been established that correlate the relationship between an independent variable that describes the development size and generated trips for each categorized land use. The report provides information for daily and peak hour trips.

The anticipated trip generation is summarized in **Table 5**. Detailed trip generation calculations are provided in **Appendix G**.

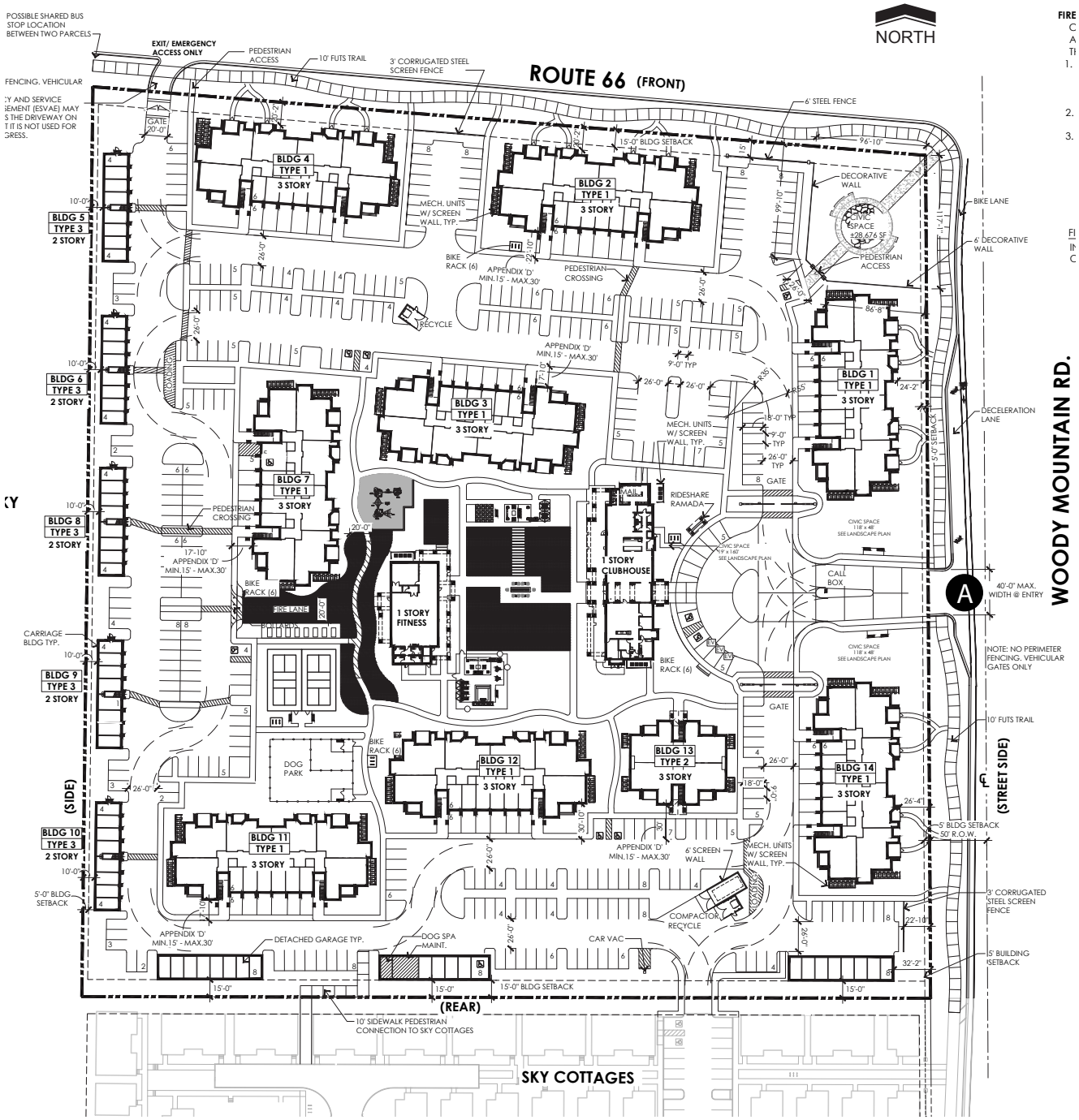


Figure 4: Site Plan and Access

Table 5 – Trip Generation

Land Use	ITE Code	ITE Land Use Name	Quantity	Units+	AM Distribution		PM Distribution	
					In	Out	In	Out
Apartments	220	Multi-family Housing (Low-Rise)	214	DUs	24%	76%	63%	37%

Land Use	ADT		AM Peak Hour				PM Peak Hour			
	Avg. Rate*	Total	Avg. Rate*	In	Out	Total	Avg. Rate*	In	Out	Total
Apartments	6.76	1,448	0.42	21	68	89	0.53	71	42	113

Notes: *All average rates were calculated by dividing total trips generated using regression equation by the number of dwelling units. (See below.)
DUs = Dwelling Units

CALCULATIONS (Equations shown only where applicable)			
Land Use [Units]	*Daily*	*AM Peak Hour*	*PM Peak Hour*
Apartments [214 DUs]	T_{Day} = 214 x 6.41 + 75.31 = 1,448	T_{AM} = 214 x 0.31+ 22.85 = 89	T_{PM} = 214 x 0.43 + 20.55 = 113

The proposed development is anticipated to generate 1,448 weekday daily trips, 89 trips (21 In/68 Out) during the AM peak hour, and 113 trips (71 In/42 Out) during the PM peak hour.

VEHICLE TRIP DISTRIBUTION AND ASSIGNMENT

The trip distributions approved within Figure 5 of the approved Sky Cottages TIA was used for this study. Trip distribution patterns used are for traffic generated by residential land use only. A single trip distribution pattern was applied for trips generated by residential use. The resulting trip distribution percentages for the study are shown in **Table 6** and the approved Sky Cottages TIA trip distribution has been included within **Appendix H.**

Table 6 – Site Trip Distribution

Direction (To/From)	Percentage
South on Woody Mountain Road (South of Patio del Presidio)	5%
East on Route 66 (East of Northwestern Road)	90%
West on Route 66 (West of Alvan Clark Boulevard)	5%
Total	**100%**

Figure 5 illustrates the trip distribution percentages noted in **Table 6** on the roadway network within the study area. The percentages presented in **Figure 5** were applied to the site trips generated to determine the AM and PM peak hour site traffic at the intersections within the study area. **Figure 6** presents the resulting site generated traffic for the proposed development.

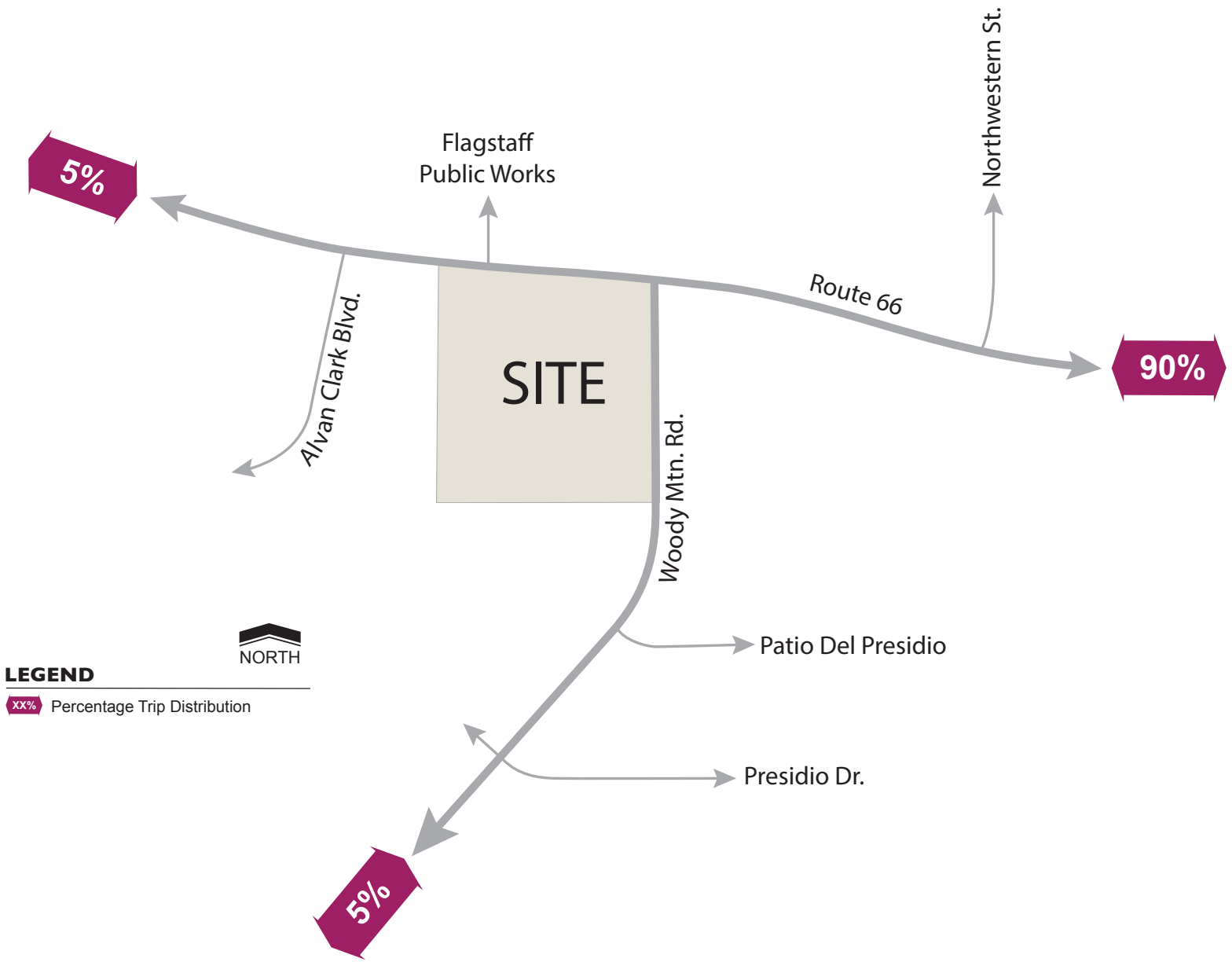


Figure 5: Trip Distribution

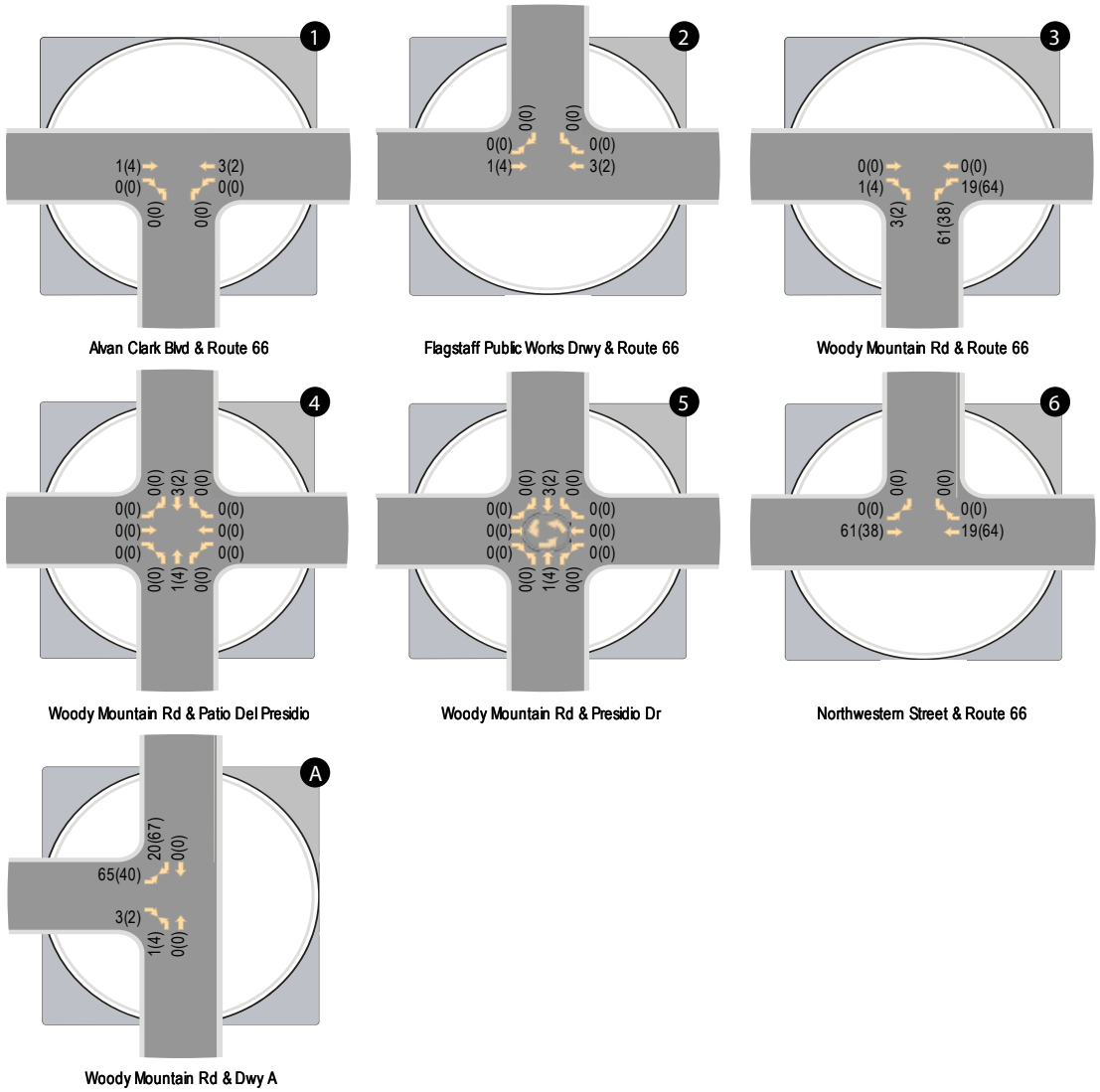


Figure 6: Site Generated Traffic Volumes

FUTURE BACKGROUND TRAFFIC

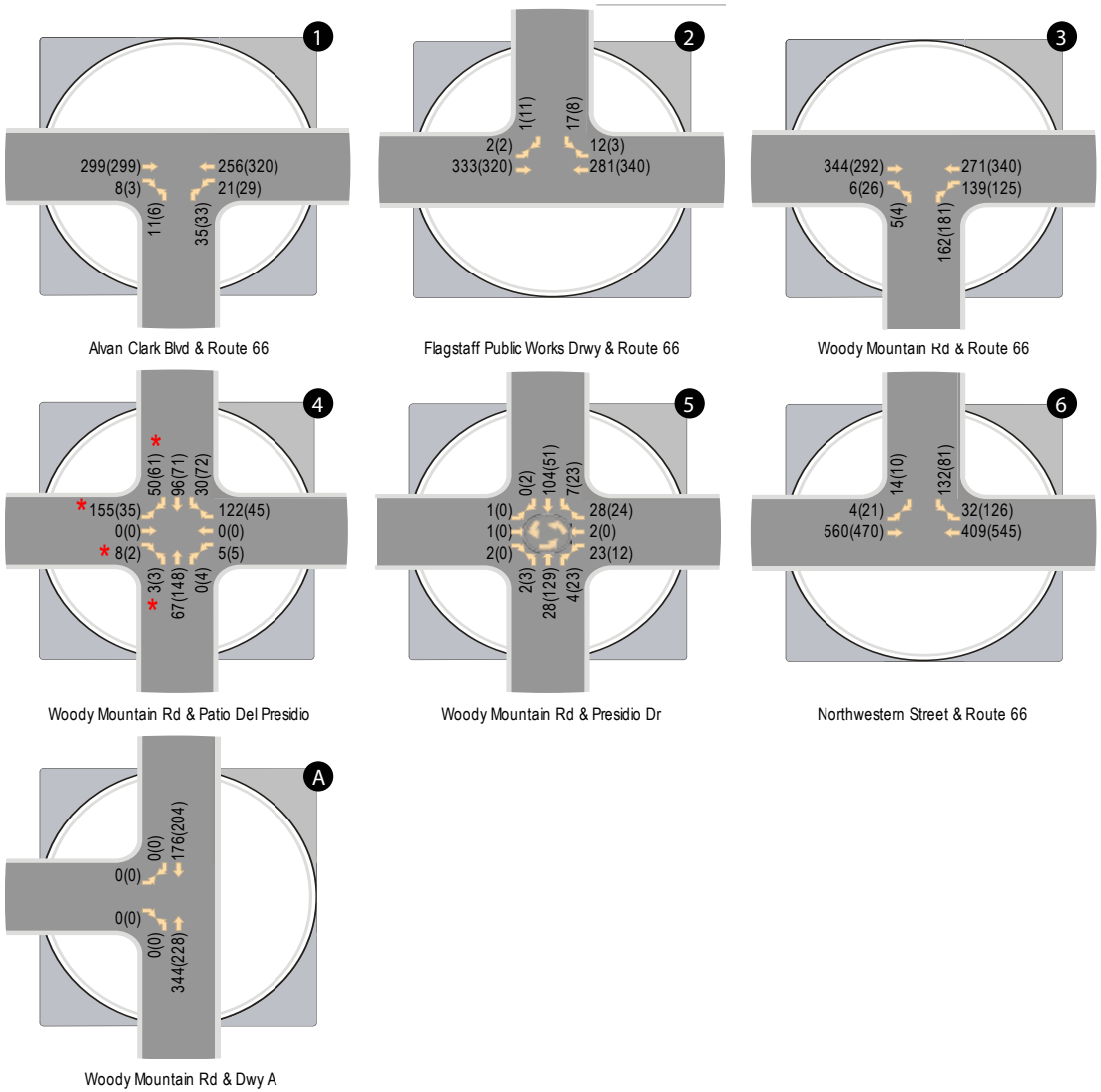
After discussion with ADOT and the City of Flagstaff, CivTech utilized an annual growth rate of 2% per year for existing volumes to/from Alvan Clark Boulevard as well as to/from and along Woody Mountain Road. An annual growth rate of 4% per year was utilized for the existing through movement volumes along Route 66. The 2% annual growth rate (1.04 expansion factor for 2024, 1.104 for 2027) and 4% annual growth rate (1.082 expansion factor for 2024, 1.217 for 2027) were applied to the existing volumes at the study intersections to obtain future background traffic volumes. In the previous report, volumes to/from Northwestern Street and the Flagstaff Public Works Driveway were grown with a 2% annual growth rate, this has been eliminated in the updated report since there is little area for growth from the existing conditions.

In addition, after coordination with both ADOT and the City of Flagstaff, surrounding development traffic from the Timber Sky and Sky Cottages proposed developments were taken out of this version of the report. As shown within **Figure 7** and **Figure 8**, surrounding development traffic from the Sky Cottages project were only added to/from the eastbound approach at the intersection of Woody Mountain Road and Patio Del Presidio to obtain realistic, non-zero volumes at that approach for the opening and horizon years. The surrounding development volumes and growth rate calculations are provided in **Appendix I**.

The background volumes for the opening year of 2024 are presented in **Figure 7**. The background volumes for the horizon year of 2027 are presented in **Figure 8**.

TOTAL TRAFFIC

Total traffic was determined by adding the site generated traffic to the estimated projected background traffic. Total peak hour traffic volumes for the opening year of 2024 are shown in **Figure 9**. Total peak hour traffic volumes for the horizon year of 2027 are shown in **Figure 10**.



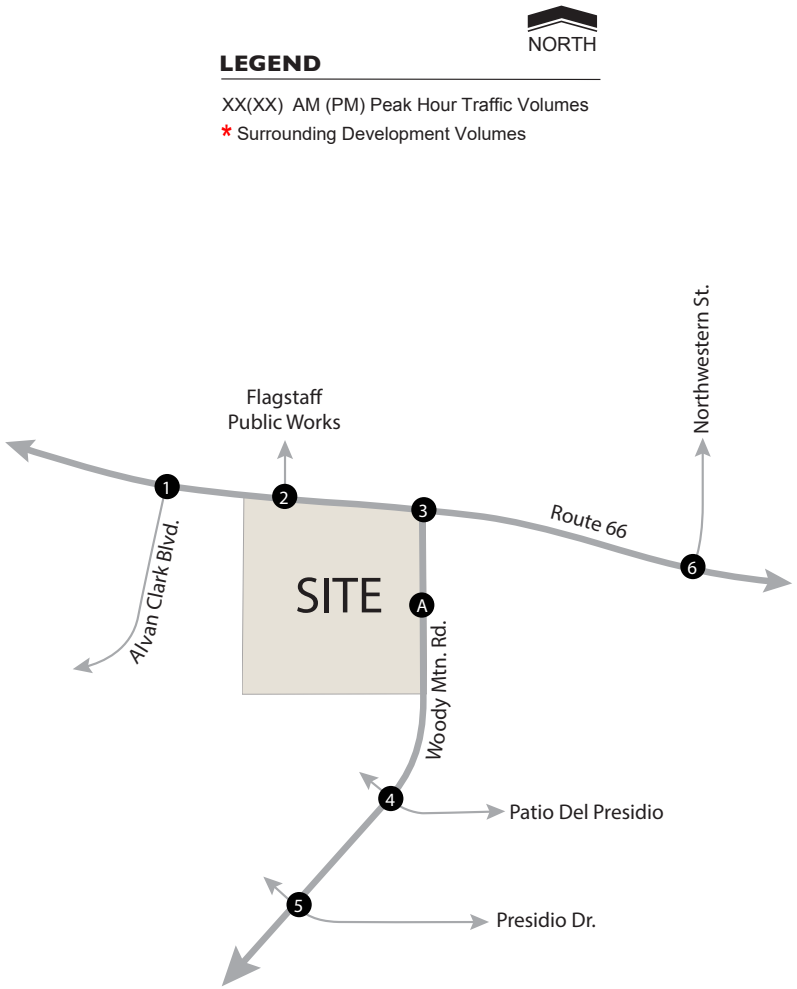


Figure 7: 2024 Background Traffic Volumes

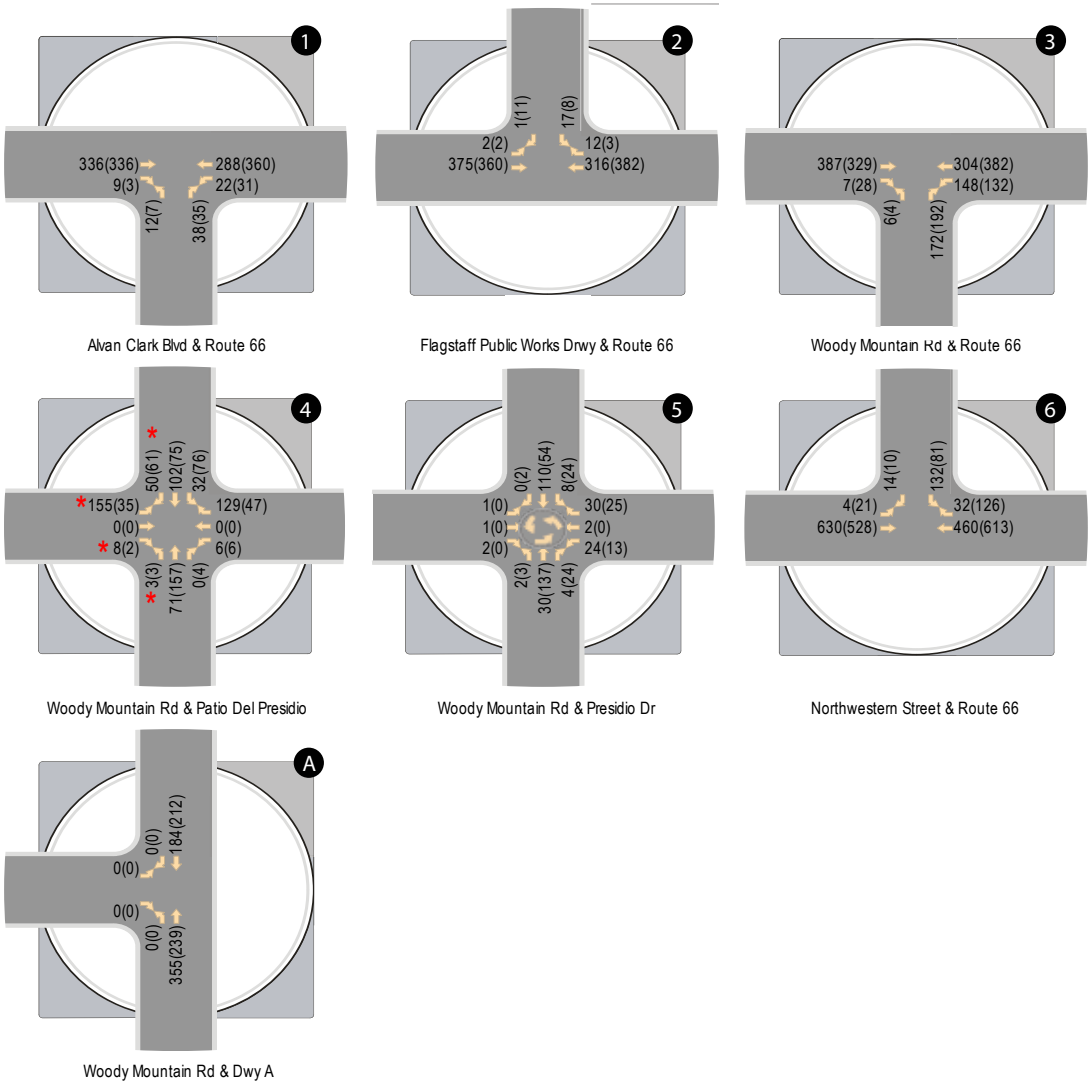


Figure 8: 2027 Background Traffic Volumes

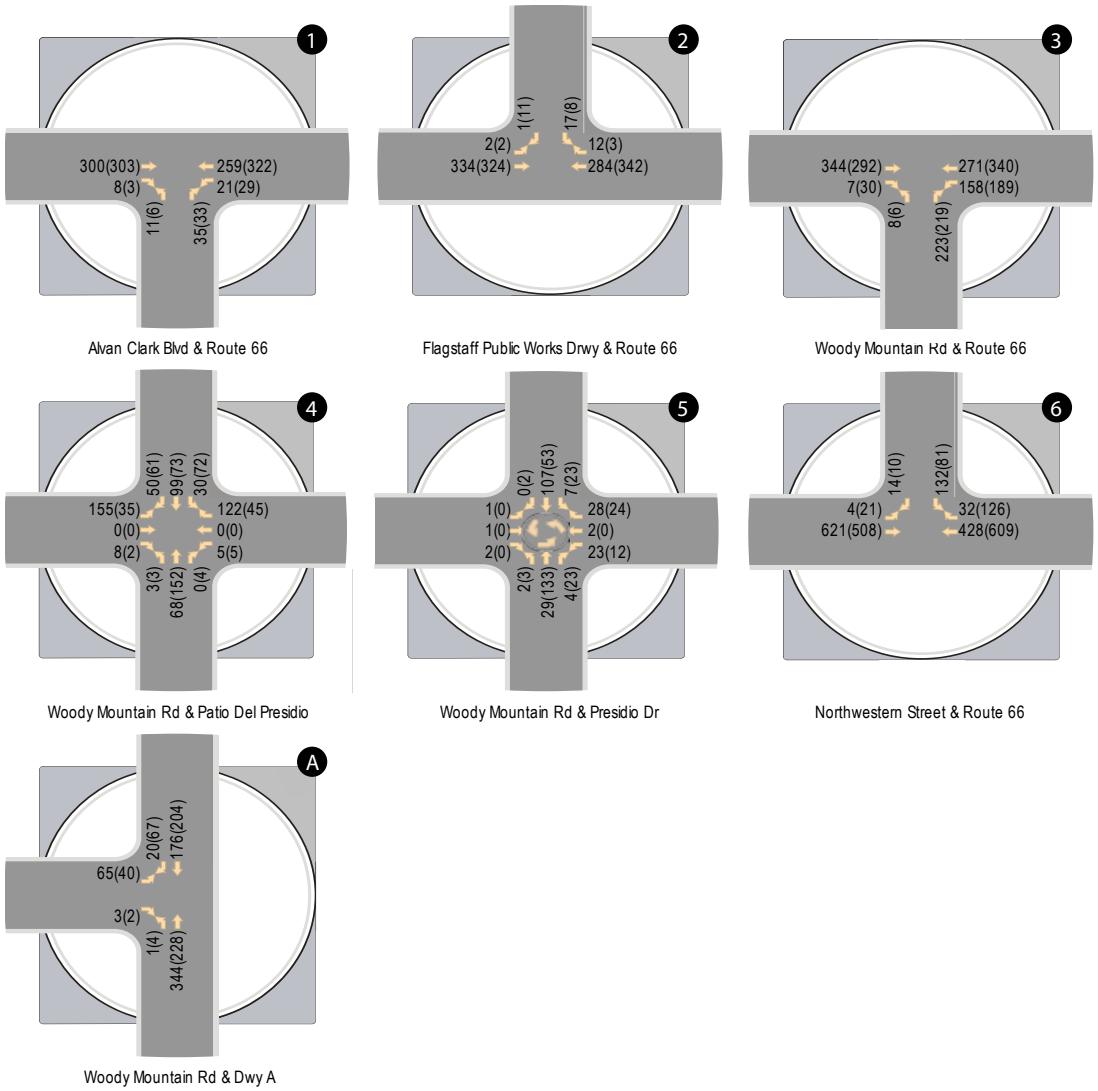


Figure 9: 2024 Total Traffic Volumes

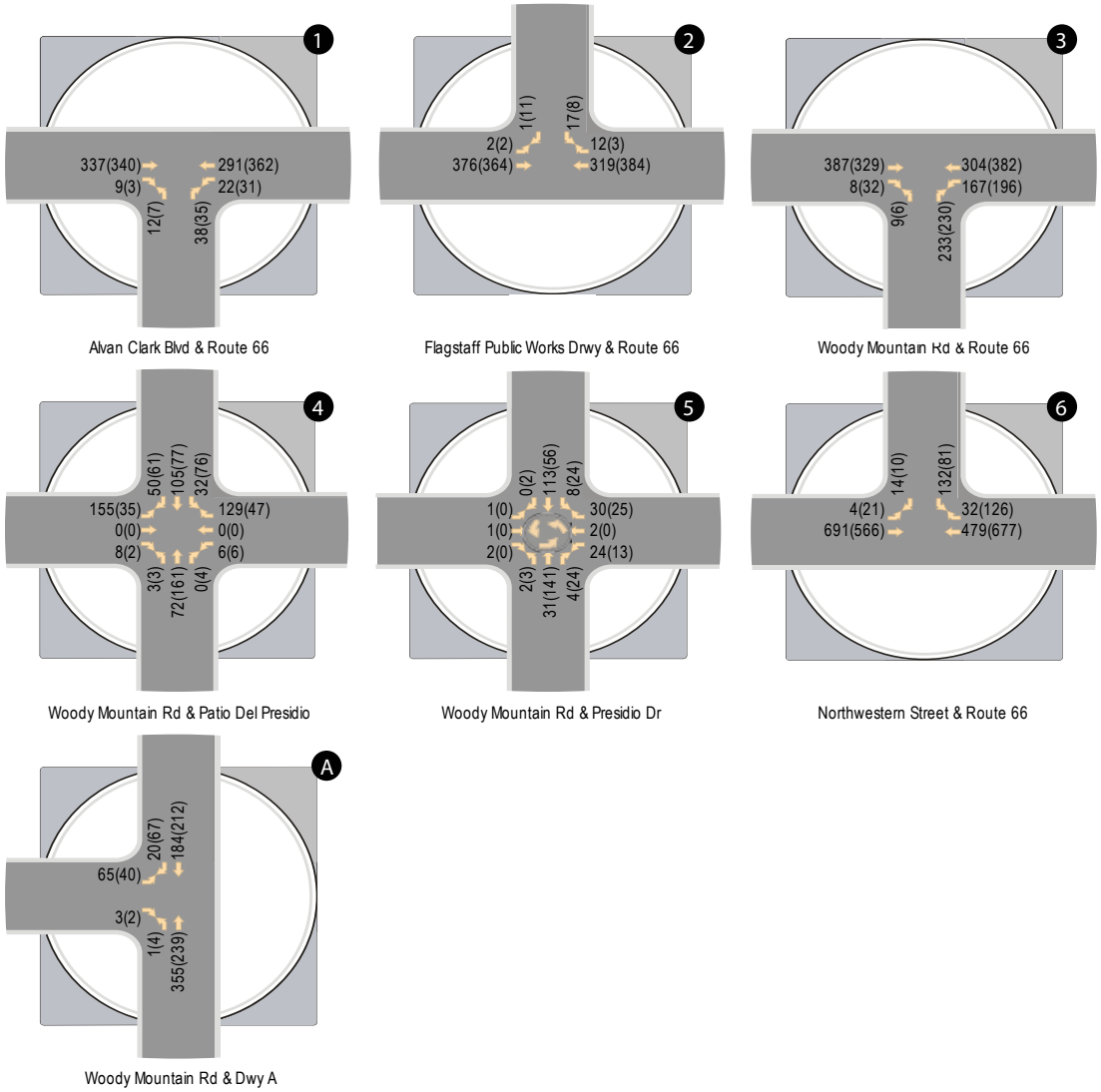


Figure 10: 2027 Total Traffic Volumes

FUTURE TRAFFIC SIGNAL WARRANT ANALYSIS

The signal warrant analysis results are presented in **Table 7** for Warrants 1 through 3 for the opening year of 2024 and horizon year of 2027. Existing counts were grown for opening and horizon analyses based on the methods discussed within the future background traffic section. Site volumes were added to the background volumes for the total "Build" signal warrant analyses. The signal warrant analyses presented below were completed using the same MUTCD standards as the existing traffic signal warrant analysis.

Table 7 – Traffic Signal Analysis Summary Warrants 1 – 3

Warrant		Hour(s) of the Day	Hours Required to Meet Warrant	2024 No Build		2024 Build		2027 No Build		2027 Build	
				Hours Met	Is Warrant Met?	Hours Met	Is Warrant Met?	Hours Met	Is Warrant Met?	Hours Met	Is Warrant Met?
Warrant 1. Eight-Hour Vehicular Volume	Condition A: Minimum Vehicular Volume	Any Eight Hours	8	0	No	0	No	0	No	0	No
	Condition B: Interruption of Continuous Traffic	Any Eight Hours	8	6	No	7	No	6	No	8	Yes
	Combination of Condition A & Condition B	Any Eight Hours	8	0	No	1	No	0	No	1	No
	Overall (Either Condition A or B satisfied meets warrant)				**No**	-	**No**	**-**	**No**	**-**	**Yes**
Warrant 2. Four-Hour Vehicular Volume		Any Four Hours	4	0	**No**	4	**Yes**	1	**No**	6	**Yes**
Warrant 3. Peak Hour		Any One/ Peak Hour	1	0	**No**	0	**No**	0	**No**	0	**No**

Table 7 summarizes the volume-based warrant analysis results for the future conditions. The results of the volume-based traffic signal warrants analysis indicate that the 2024 and 2027 Build traffic volumes on Woody Mountain Road and Route 66 could be expected to exceed the criteria for Warrants 1, and 2. These traffic signal warrants are met. Future signal warrant worksheets are included in **Appendix J**.

PROPORTIONAL SHARE

A proportional share analysis was completed for the opening year of 2024 in which the traffic signal warrant was met. Proportional share analysis results and email coordination with ADOT discussing the future signal funding at Woody Mountain Road and Route 66 are provided within **Appendix K**.

TRAFFIC AND IMPROVEMENT ANALYSIS

The overall intersection and approach levels of service are summarized in **Table 8** for the 2024 and 2027 background and total traffic conditions. Detailed analysis worksheets for the 2024 background analysis can be found in **Appendix L**, worksheets for the 2027 background analysis can be found in **Appendix M**, worksheets for the 2024 total traffic analysis can be found in **Appendix N**, worksheets for the 2027 total traffic analysis can be found in **Appendix O**. Worksheets showing analyses with a traffic signal at Woody Mountain Road and Route 66 can be found in **Appendix P**.

Table 8 – Peak Hour Levels of Service

ID	Intersection	Intersection Control	Approach/ Movement	2024 Delay & LOS		2027 Delay & LOS	
				No Build	Build	No Build	Build
				AM (PM)	AM(PM)	AM (PM)	AM(PM)
1	Alvan Clark Boulevard & Route 66	1-way stop (WB)	NB Left WB Left NB Right	10.9 B (11.1 B) 8.1 A (8.1 A) 10.6 B (10.5 B)	11.0 B (11.1 B) 8.1 A (8.1 A) 10.6 B (10.4 B)	11.2 B (11.4 B) 8.1 A (8.2 A) 10.8 B (10.7 B)	11.2 B (11.4 B) 8.1 A (8.2 A) 10.8 B (10.8 B)
2	Flagstaff Public Works Driveway & Route 66	1-way stop (SB)	SB Left EB Left SB Right	12.4 B (12.5 B) 8.0 A (8.1 A) 10.1 B (10.5 B)	12.4 B (12.5 B) 8.0 A (8.1 A) 10.1 B (10.5 B)	12.9 B (13.0 B) 8.0 A (8.2 A) 10.2 B (10.8 B)	12.9 B (13.1 B) 8.0 A (8.2 A) 10.2 B (10.9 B)
3	Woody Mountain Road & Route 66	1-way stop (NB)	NB Left WB Left NB Right	15.7 C (15.5 C) 8.6 A (8.5 A) 12.6 B (12.4 B)	16.5 C (18.2 C) 8.7 A (8.8 A) 13.9 B (13.1 B)	16.6 C (16.4 C) 8.8 A (8.6 A) 13.5 B (12.9 B)	17.6 C (19.4 C) 8.9 A (8.9 A) 15.2 C (13.8 B)
		Warrant: Signal	NB EB WB	- - -	9.5 A (9.9 A) 4.9 A (4.4 A) 5.7 A (5.6 A)	9.7 A (9.2 A) 5.0 A (4.7 A) 5.6 A (5.7 A)	10.4 B (10.6 B) 4.8 A (4.3 A) 5.7 A (5.6 A)
			Overall	-	5.7 A (5.5 A)	5.6 A (5.6 A)	5.7 A (5.5 A)
4	Woody Mountain Road & Patio Del Presidio	2-way stop (EB/WB)	SB Left WB Left NB Shared EB Shared WB Shared	7.4 A (7.8 A) 10.9 B (12.8 B) 7.6 A (7.5 A) 17.0 C (14.3 B) 9.3 A (9.4 A)	7.4 A (7.8 A) 10.9 B (12.9 B) 7.6 A (7.5 A) 17.1 C (14.5 B) 9.3 A (9.5 A)	7.5 A (7.8 A) 11.1 B (13.0 B) 7.6 A (7.5 A) 17.8 C (14.6 B) 9.4 A (9.5 A)	7.4 A (7.8 A) 11.1 B (13.1 B) 7.6 A (7.5 A) 17.8 C (14.7 B) 9.4 A (9.5 A)
5	Woody Mountain Road & Presidio Dr	Roundabout	NB SB EB WB	2.9 A (3.9 A) 3.5 A (3.3 A) 3.1 A (-) 3.2 A (3.5 A)	2.9 A (3.9 A) 3.6 A (3.3 A) 3.1 A (-) 3.2 A (3.5 A)	2.9 A (4.0 A) 3.6 A (3.3 A) 3.2 A (-) 3.2 A (3.5 A)	3.0 (4.0 A) 3.6 A (3.3 A) 3.2 A (-) 3.2 A (3.5 A)
			Overall	3.3 A (3.6 A)	3.4 A (3.7 A)	3.4 A (3.7 A)	3.4 A (3.7 A)
6	Northwestern Street & Route 66	1-way stop (SB)	SB Left EB Left SB Right	18.9 C (18.1 C) 8.5 A (9.3 A) 10.0 B (10.9 B)	20.4 C (19.8 C) 8.5 A (9.6 A) 10.1 B (11.2 B)	21.2 C (20.0 C) 8.6 A (9.6 A) 10.2 B (11.2 B)	23.1 C (21.9 C) 8.7 A (9.9 A) 10.3 B (11.6 B)
7	Woody Mountain Road & Access A	1-way stop (EB)	NB Left EB Left EB Right	- - -	7.7 A (7.9 A) 14.3 B (12.7 B) 9.3 A (9.5 A)	- - -	7.7 A (7.9 A) 14.6 B (13.0 B) 9.4 A (9.6 A)

The results of the Synchro analysis summarized in **Table 8** indicate that all study intersections operate with overall acceptable levels of service (LOS C or better).

The results of the volume-based traffic signal warrants analysis indicate that the 2024 and 2027 Build traffic volumes on Woody Mountain Road and Route 66 could be expected to exceed the criteria for Warrants 1, and 2. These traffic signal warrants are met and the intersection was analyzed with both a signal and stop-control for the 2024 Build and 2027 scenarios.

TURN LANE WARRANTING AND QUEUE LENGTH ANALYSIS

RIGHT-TURN DECELERATION LANES

CivTech utilized the 2027 total traffic volumes and the City *Figure 10-10-01 Right Turn Lane Warrant* in the *Engineering Standards* to determine if a right turn deceleration lane is warranted at the proposed access. For a roadway such as Woody Mountain Road, with a posted speed limit of 40 mph, more than 25 hourly right-turning vehicles would be required to warrant a turn lane. With 67 right-turning vehicles during the highest peak hour, a southbound right-turn deceleration lane is warranted at Access A. Additionally, the site plan already shows a southbound right-turn deceleration lane at Access A, therefore CivTech assumed for the future analysis that the lane will be constructed.

An eastbound right-turn lane currently exists at the intersection of Woody Mountain Road and Route 66. Per comments from Flagstaff, a right-turn lane warrant was completed assuming a four-lane cross-section on Route 66. For a roadway such as Route 66, with a posted speed limit of 45 mph, more than 20 hourly right-turning vehicles would be required to warrant a turn lane. With 32 right-turning vehicles during the highest peak hour, an eastbound right turn deceleration lane is warranted at Woody Mountain Road and Route 66 per City *Figure 10-10-01 Right Turn Lane Warrant* in the *Engineering Standards.* Based on ADOT guidelines for right-turn lanes, for an eastbound advancing volume of 329 vph during the highest peak hour, and a posted speed limit of 45 mph along Route 66, a right-turn deceleration lane is not warranted at Woody Mountain Road and Route 66.

The intersection of Woody Mountain Road and Route 66 operates acceptably in the future horizon years with a three (3) lane section on Route 66 and the current dedicated eastbound right-turn deceleration lane. The client understands that right-of-way should be dedicated for future full build out at the intersection consisting of a five-lane cross section with a dedicated eastbound right-turn deceleration lane. Maintaining the current geometry is recommended.

LEFT-TURN DECELERATION LANES

After referring to Chapter 10 of the City of Flagstaff *Engineering Standards*, left-turn lane warrant guidelines were unable to be found to determine the need for the installation of a left-turn deceleration lane. Based on ADOT guidelines for left-turn lanes, for a northbound advancing volume of 355 vph during the highest peak hour, and a posted speed limit of 40 mph along Woody Mountain Road, a left-turn deceleration lane into Access A is not warranted. Based on comments from the City of Flagstaff and given that Woody Mountain Road is classified as a minor arterial roadway, a left-turn deceleration lane is required into Access A.

The City of Flagstaff and ADOT turn lane warrant guidelines are included within **Appendix Q.**

QUEUE STORAGE

Adequate turn storage should be supplied on any approach where turn lanes are permitted and/or warranted. A queuing analysis was prepared according to the methodology documented in *AASHTO's A Policy on Geometric Design of Highways and Streets*. The study intersections were analyzed to determine the left-turn and right-turn storage needed to accommodate the expected traffic volumes in the 2027 horizon year.

The storage length for a turn lane is typically estimated as the length required to hold the average number of arriving vehicles per two minutes, where unsignalized, or per one-and-a-half to two signal cycles, where signalized.[1] The equations used for the calculations are shown below, and the resulting turn lane storage requirements for the study intersections are summarized in **Table 9**. Detailed queue storage calculation worksheets using the AASHTO method are included in **Appendix R.**

For signalized intersections, the storage length is determined by the following equations:

$$\text{Storage Length} = \left[\frac{1.5\ x\ (veh/hr)}{(cycles/hr)}\right] \times\ 25\ feet$$

For unsignalized intersections, the storage length for a left turn lane is determined by the following equation:

$$\text{Storage Length} = \left\{\frac{\ln[P(n>N)]}{\ln\frac{v}{c}} - 1\right\} \times\ 25\ feet$$

where:

$$c = \frac{V_0 e^{-V_0 t_c/3600}}{1 - e^{-V_0 t_c/3600}}$$

as defined in *AASHTO's A Policy on Geometric Design of Highways and Streets Equations 9-3 and 9-4.*

[1] The American Association of Highway and Transportation Officials, under Section 9.7.2.2 (page 9-96) of the latest (7th) edition of its publication, A Policy on Geometric Design of Highways and Streets (the AASHTO "Green Book"), indicates that storage length for a turn lane, exclusive of taper, "should usually be based on 1.5 to 2 times the average number of vehicles that would need to be stored per signal cycle" at a signalized intersection.

Table 9 – Queue Storage Lengths

ID	Intersection	Intersection Control	Movement	Braking Distance (ft)[9]	Gap Length (ft)[9]	Turn Lane Length				
						Existing[1]	AASHTO	ADOT	HCM[2] [8]	Recommended
1	Alvan Clark Boulevard & Route 66	1-way stop (WB)	NB Left	80′	60′	135′ [6]	85′	110′	85′	No Change
			WB Left	245′	140′	TWLTL[3]	225′	250′	225′	No Change
			NB Right	80′	60′	135′	110′	110′	85′	No Change
			EB Right	245′	140′	200′	225′	250′	200′	250′
2	Flagstaff Public Works Driveway & Route 66	1-way stop (SB)	SB Left	45′	60′	100′[4]	50′	75′	50′	No Change
			EB Left	245′	140′	TWLTL[3]	225′	250′	200′	No Change
			WB Right	245′	140′	275′	225′	250′	200′	No Change
3	Woody Mountain Road & Route 66	Signal	NB Left	150′	90′	90′	145′	170′	145′	170′
			WB Left	200′	140′	175′	405′	355′	205′	355′
			NB Right	150′	90′	90′	420′	345′	145′	345′
			EB Right	200′	140′	240′	205′	205′	180′	No Change
4	Woody Mountain Road & Patio Del Presidio	2-way stop (EB/WB)	SB Left	-	-	215′	25′[7]	-	25′[7]	No Change
			WB Left	-	-	50′	25′[7]	-	25′[7]	No Change
			NB Right	-	-	120′	25′[7]	-	<25′[7]	No Change
			WB Right	-	-	50′	125′[7]	-	25′[7]	No Change
6	Northwestern Street & Route 66	1-way stop (SB)	EB Left	200′	140′	175′	180′	205′	180′	205′
			SB Right	45′	60′	110′	50′	75′	50′	No Change
A	Woody Mountain Road & Driveway A	1-way stop (EB)	NB Left	-	-	-	25′[7]	-	<25′[7]	25′[7]
			EB Left	-	-	-	75′[7]	-	25′[7]	25′[7]
			SB Right	-	-	-	75′[7]	-	<25′[7]	150′[5]
			EB Right	-	-	-	25′[7]	-	<25′[7]	25′[7]

(1) Measured from beginning of stop bar.
(2) HCM 95th percentile queue reported in vehicles/lane, assuming 1 vehicle ~ 25 feet.
(3) TWLTL provides excess storage for the left-turn lane.
(4) Dedicated left-turn constructed but not striped.
(5) Distance shown in the latest Site Plan
(6) Lane is a drop turn lane.
(7) Queue Storage Length for Non-ADOT Intersection.
(8) HCM value calculated by rounding up 95th Percentile to the next vehicle, then multiplying by 25 feet.
(9) Braking Distance and Gap Lengths used to calculate turn lane length for ADOT Intersections.

The recommended storage lengths in **Table 9** are provided for study horizon year 2027 using the total traffic projections. Proposed lane configurations are shown in **Figure 11**.

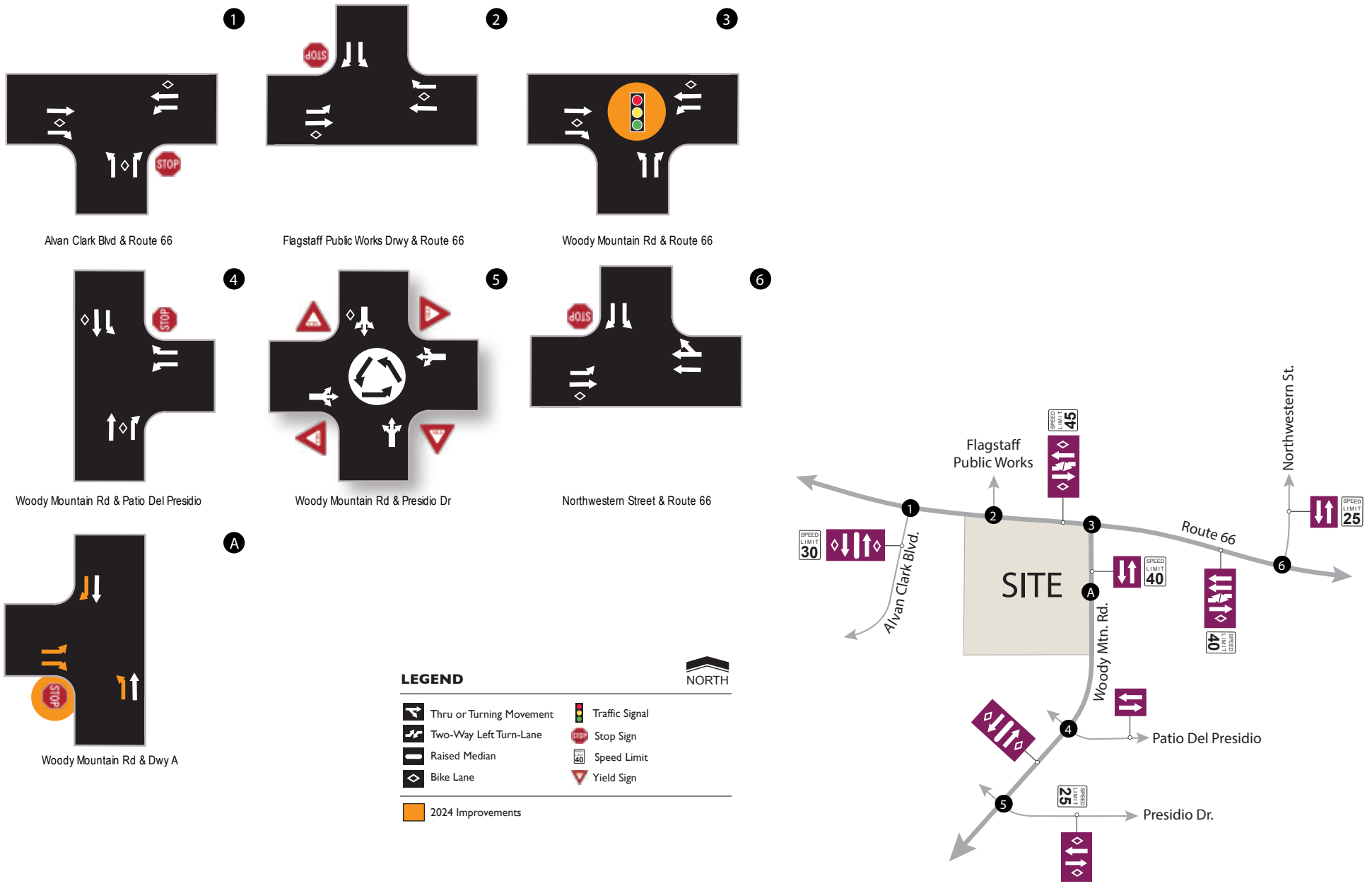


Figure 11: Proposed Lane Configurations and Traffic Controls

SIGHT DISTANCE ANALYSIS

Adequate sight distance must be provided at intersections and site access driveways to allow safe turning movements. There must be sufficient unobstructed sight distance along both approaches of a street/driveway intersection and across their included corners to allow operators of vehicles to see each other in time to prevent a collision.

An intersection sight distance analysis was performed to set guidelines for establishing lines of sight for the proposed development at the site access points. Using the guidelines set forth by the *American Association of State Highway and Transportation Officials' (AASHTO)'s A Policy on Geometric Design of Highway and* Streets, appropriate sight distances were calculated for the right and left turn/crossing movements out of each site driveway ("Case B2" and "Case B3/B1," respectively) and the left turn movement into these site driveways ("Case F").

Sight visibility for the proposed driveway was calculated using AASHTO methodology considering roadway speed, grade, number of lanes, and other factors. Recommended sight distances for movements from site driveways are summarized in **Table 10**.

Table 10 – AASHTO Sight Distance Requirements

Roadway	Posted Speed Limit/ Design Speed (mph)	Sight Distance Along Roadway		
		Left of Driveway (Case B2/B3)	Right of Driveway (Case B1)	On Major Road (Case F)
Woody Mountain Road	40/50	480′	555′	405′
Route 66	50/60	575′	665′	490′

Sight visibility should be provided at the driveway according to the distances shown in **Table 10**. All landscaping that is within the line of sight from the access point to the surrounding public streets should be maintained at a maximum of two feet in height. Trees should be of a single trunk variety with all branches lower than eight feet trimmed. To avoid a "picket fence effect," trees should not be spaces too closely together. AASHTO Sight Distance guidelines have been included within **Appendix S**.

CONCLUSIONS

The following conclusions and recommendations have been documented in this study.

GENERAL

- The proposed development is anticipated to generate 1,448 weekday daily trips, 89 trips (21 In/68 Out) during the AM peak hour, and 113 trips (71 In/42 Out) during the PM peak hour.

EXISTING

- The results of the existing conditions analysis indicate that all study intersections operate with acceptable levels of service (LOS C or better).

TRAFFIC SIGNAL WARRANT ANALYSIS

- The results of the volume-based traffic signal warrants analysis indicate that the 2024 and 2027 Build traffic volumes on Woody Mountain Road and Route 66 could be expected to exceed the criteria for Warrants 1, and 2. These traffic signal warrants are met.

PROPORTIONAL SHARE

- A proportional share analysis was completed for the opening year of 2024 in which the traffic signal warrant was met. Proportional share analysis results and email coordination with ADOT discussing the future signal funding at Woody Mountain Road and Route 66 are provided within **Appendix K**.

CAPACITY ANALYSIS

- The results of the Synchro analysis summarized in **Table 8** indicate that all study intersections operate with overall acceptable levels of service (LOS C or better).

QUEUE STORAGE

- The recommended storage lengths are provided for study horizon year 2027 using the total traffic projections.

SIGHT DISTANCE

- Sight visibility for the proposed driveways were calculated using AASHTO methodology considering roadway speed, grade, number of lanes, and other factors.
    - All landscaping that is within the line of sight from the access point to the surrounding public streets should be maintained at a maximum of two feet in height. Trees should be of a single trunk variety with all branches lower than eight feet trimmed. To avoid a "picket fence effect," trees should not be spaces too closely together.

LIST OF REFERENCES

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TECHNICAL APPENDICES

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APPENDIX C	**EXISTING PEAK HOUR ANALYSIS**
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APPENDIX Q	**TURN LANE WARRANT GUIDELINES**
APPENDIX R	**QUEUE STORAGE ANALYSIS**
APPENDIX S	**SIGHT DISTANCE ANALYSIS**

APPENDIX A

REVIEW COMMENTS AND RESPONSES (Reserved)

Liv Timber Sky **CivTech, Inc.** **Review Comments & Responses**

1st Submittal

Disposition Codes: (1) Will Comply (2) Will Evaluate (3) Delete Comment (4) Defer to Consultant/Owner

Reviewer Name, Agency: **Northwest Region Traffic**

Item	Review Comment	(Code) & Response
1.	Need more discussion on the traffic signal warrant analysis. Example: right turn reductions, why 2 approach lanes were used for Woody when left turn volumes are essentially nonexistent, etc.	(1) Will comply. The traffic signal warrant analysis was updated to account for a 74% reduction in northbound right turns based on field data showing 64% reductions for four peak hours and coordination with ADOT. Woody Mountain Road was analyzed as having one approach lane due to the low number of NB left turns in the existing conditions. With these changes, a signal is warranted in the build scenario in 2024/2027. A signal is not warranted in the existing condition.
2.	Northwestern left turn delay needs to be mitigated somehow.	(1) After re-evaluating the volumes at Northwestern Street and Route 66, it was determined that there is little area for growth from the existing conditions. In the previous report, volumes to/from Northwestern were grown with the growth rate, this has been eliminated in the updated report. With this change and assuming a 4% annual growth rate along Route 66 with no surrounding development volumes incorporated along Route 66, the intersection of Northwestern Street and Route 66 operates with acceptable levels of service.
3.	In table 8 why are you recommending shorter than ADOT desired turn lane lengths? Our preference is the desirable length and less than that typically requires explanation/justification.	(2) Will evaluate and use desired lengths, where possible, on ADOT facilities. If not, recommendations will include a length to maximize the available queue distance. Minimum lengths will be only be recommended where required.
4.	Full build-out volumes from the projects expected to be constructed / that are already partially constructed in the immediate area should be included in this report. This will further highlight the need for mitigation at the Northwestern intersection.	(3) After further discussion with ADOT, it has been agreed upon that growing existing volumes at an annual 2% rate and including surrounding development volumes overestimates future traffic within the study area. Traffic along Route 66 will be grown at an annual 4% rate. Ingress/egress traffic at Woody Mountain Road and Route 66 will be grown at the annual 2% growth rate.
5.	ROW should be dedicated at the woody mountain intersection for a future right turn lane into the site with a 5 lane cross section on Route 66. ADOT does not want a shared right/through lane.	(4) Noted. Client understands that ROW should be dedicated for future full build out at the intersection of Woody Mountain Road and Route 66.

Disposition Codes: (1) Will Comply (2) Will Evaluate (3) Delete Comment (4) Defer to Consultant/Owner

Reviewer Name, Agency: **Northwest Region Traffic**

Item	Review Comment	(Code) & Response
6.	Please analyze route 66/ woody mountain as a single lane roundabout. This is the preferred intersection control for this intersection.	(3) There is an email from ADOT on July 14th, 2022 that discusses proportionate share contributions from other developers and coordination once a traffic signal is warranted. Existing underground equipment is already installed to facilitate construction of a traffic signal at Woody Mountain Road and Route 66. The email from ADOT is included for review.

CivTech Received Date: 2/3/2023
CivTech Entered Date: 6/7/2023
CivTech Response Date: 6/9/2023

Drawing # or Page #	Item #	ADOT Comments	Applicants Response
Name of Reviewer: Northern Region Traffic			
	1	Need more discussion on the traffic signal warrant analysis. Example: right turn reductions, why 2 approach lanes were used for Woody when left turn volumes are essentially nonexistent, etc.	
	2	Northwestern left turn delay needs to be mitigated somehow.	
	3	In table 8 why are you recommending shorter than ADOT desired turn lane lengths? Our preference is the desirable length and less than that typically requires explanation/justification.	
	4	Full build-out volumes from the projects expected to be constructed / that are already partially constructed in the immediate area should be included in this report. This will further highlight the need for mitigation at the Northwestern intersection.	
	5	ROW should be dedicated at the woody mountain intersection for a future right turn lane into the site with a 5 lane cross section on Route 66. ADOT does not want a shared right/through lane.	
	6	Please analyze route 66/ woody mountain as a single lane roundabout . This is the preferred intersection control for this intersection.	

Disposition Codes: (1) Will Comply (2) Will Evaluate (3) Delete Comment (4) Defer to Consultant/Owner

Reviewer Name, Agency: **Stephanie Santana, Reid Miller, City of Flagstaff**

Item	Review Comment	(Code) & Response
1.	PDF pg. 19 – Future Roadway Improvements: "ADOT indicated via email on July 14, 2022 that proportionate share contributions from other developers have been provided to construct the traffic signal once warranted." In the event that a traffic signal is not warranted with the project, but will be in the future, LIV Timber needs to calculate a proportional share using the same methodology as Sky Cottage. See calculation below.	(1) Will Comply and calculate a proportional updated proportional share values for the intersection of Woody Mountain Road and Route 66.
2.	PDF pg. 31 – Table 7 Peak Hour LOS: This table needs to also include delays.	(1) Will Comply and add delay values to the table.
3.	PDF pg. 31 – Table 7 Peak Hour LOS – ID 6 Northwestern & Route 66: The AM peak hour LOS changes from D in no build to a failing E in the build scenario. This needs to be mitigated.	(1) After re-evaluating the volumes at Northwestern Street and Route 66, it was determined that there is little area for growth from the existing conditions. In the previous report, volumes to/from Northwestern were grown with the growth rate, this has been eliminated in the updated report. With this change and assuming a 4% annual growth rate along Route 66 with no surrounding development volumes incorporated along Route 66, the intersection of Northwestern Street and Route 66 operates with acceptable levels of service.
4.	PDF pg. 32 – "Due to the intersection having unacceptable delay in the background scenario, no mitigation is recommended at this intersection." This is incorrect. The LOS is a D in the no build scenario and falls to an E in the build scenario.	(1) Refer to comment three.
5.	PDF pg. 33 – Right Turn Deceleration Lanes: A right turn lane warrant needs to be completed at Route 66 and Woody Mountain assuming a 4-lane cross section on Route 66. If a right turn lane is warranted right-of-way will need to be designated on the site plan (this comment was also made previously on the Site Plan review).	(1) Will comply and complete a turn lane warrant analysis with these assumptions.

Disposition Codes: (1) Will Comply (2) Will Evaluate (3) Delete Comment (4) Defer to Consultant/Owner

Reviewer Name, Agency: **Stephanie Santana, Reid Miller, City of Flagstaff**

Item	Review Comment	(Code) & Response
6.	PDF pg. 33 - Left Turn Deceleration Lanes: Woody Mountain is a minor Arterial roadway, and this requires a left turn lane into any access point (this comment was also made previously on the Site Plan review).	(1) Will comply and add a Left turn deceleration lane based on Minor Arterial Roadway requirements.
7.	PDF pg. 34 – Table 8 Queue Storage Lengths: The HCM method shall be calculated by first rounding the 95th%tile queue storage length up to the next vehicle, then multiplying by 25 feet.	(2) Will comply and update HCM queue storage values based on the described method.
8.	PDF pg. 34 – Table 8 Queue Storage Lengths – ID A: Missing EBL & EBR at Driveway A & Woody Mtn.	(1) Noted. Will add in Queue Lengths for EBL and EBR at driveway A.
9.	PDF pg. 35 – Figure 11 Proposed Lane Configurations and Traffic Controls – Intersection A: This figure shows designated EB left turn and right turn lanes, but it was analyzed as an EB shared left/right lane.	(1) Analysis will be updated to account for designated EB left turn and right turn lanes out of the site.
10.	General: Please ensure ADOT receives future submittals as well.	(1) Will Comply
11.	General: Please schedule a meeting for comment resolution.	(1) Will Comply

MEMORANDUM

Transportation Engineering Section

To: **Genevieve Pearthree, Senior Planner**

From: **Stephanie Santana, Sr. Transportation Engineer**
Reid Miller, Sr. Transportation Engineer

Date: **January 31, 2023**

RE: **1st Review of LIV Timber Sky - Sealed November 21, 2022**

CC: **Jeffrey Bauman, City of Flagstaff Traffic Engineer**

The City of Flagstaff Transportation Engineering Section has reviewed the submitted TIA sealed November 21, 2022. Please address the following comments and resubmit:

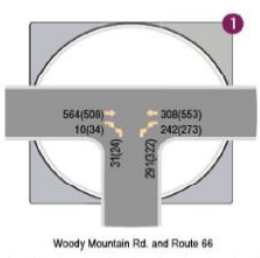
1. PDF pg. 19 – Future Roadway Improvements: "ADOT indicated via email on July 14, 2022 that proportionate share contributions from other developers have been provided to construct the traffic signal once warranted." In the event that a traffic signal is not warranted with the project, but will be in the future, LIV Timber needs to calculate a proportional share using the same methodology as Sky Cottage. See calculation below.
2. PDF pg. 31 – Table 7 Peak Hour LOS: This table needs to also include delays.
3. PDF pg. 31 – Table 7 Peak Hour LOS – ID 6 Northwestern & Route 66: The AM peak hour LOS changes from D in no build to a failing E in the build scenario. This needs to be mitigated.
4. PDF pg. 32 – "Due to the intersection having unacceptable delay in the background scenario, no mitigation is recommended at this intersection." This is incorrect. The LOS is a D in the no build scenario and falls to an E in the build scenario.
5. PDF pg. 33 – Right Turn Deceleration Lanes: A right turn lane warrant needs to be completed at Route 66 and Woody Mountain assuming a 4-lane cross section on Route 66. If a right turn lane is warranted right-of-way will need to be designated on the site plan (this comment was also made previously on the Site Plan review).
6. PDF pg. 33 - Left Turn Deceleration Lanes: Woody Mountain is a minor Arterial roadway, and this requires a left turn lane into any access point (this comment was also made previously on the Site Plan review).

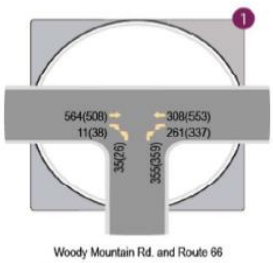
7. PDF pg. 34 – Table 8 Queue Storage Lengths: The HCM method shall be calculated by first rounding the 95th%tile queue storage length up to the next vehicle, then multiplying by 25 feet.
8. PDF pg. 34 – Table 8 Queue Storage Lengths – ID A: Missing EBL & EBR at Driveway A & Woody Mtn.
9. PDF pg. 35 – Figure 11 Proposed Lane Configurations and Traffic Controls – Intersection A: This figure shows designated EB left turn and right turn lanes, but it was analyzed as an EB shared left/right lane.
10. General: Please ensure ADOT receives future submittals as well.
11. General: Please schedule a meeting for comment resolution.

CivTech	Project: Sky Cottages TIA	Date: 10/21/2020	Date: 10/22/2020	Project No.
	Subject: Traffic Signal Proportional Share	Prepared By: BAG	Checked By: AA	15-0536

Traffic Signal at Route 66 and Woody Mountain Road

Using 2022 Traffic Volumes, as shown in Initial TIA with seal date October 5 2020





Without Project	With Project
AM: 564+10+31+291+242+308 = 1446	AM: 564+11+35+355+261+308 = 1534
PM: 508+34+24+322+273+553 = 1714	PM: 508+38+26+359+337+553 = 1821

AM Percentage = 100 * (1534 -1446) / 1534 = 5.77%
PM Percentage = 100 * (1821 - 1714) / 1821 = 5.88%

For the Daily trips, the TIA assumed 95% of trips would be from/to the north and use the intersection of Route 66 and Woody Mountain Road.

ADT of project is 1,472 total trips
1472 * 0.95 = 1398 trips per day through intersection.

Utilizing a K-Factor of 0.09, to convert from PM Peak Hour total volume of 1714, 1714/.09 = 19,044 vehicles per day

Daily Percentage = 100 * (1398) / (19044 + 1398) = 6.83%

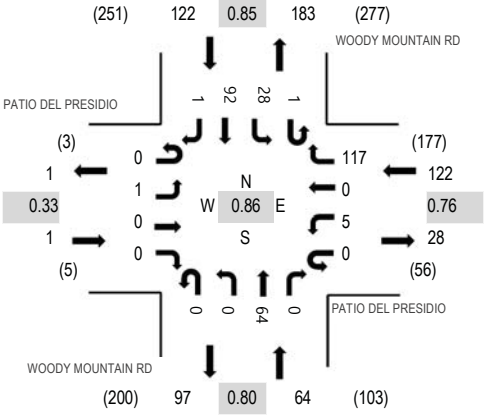
APPENDIX B

EXISTING TRAFFIC COUNTS

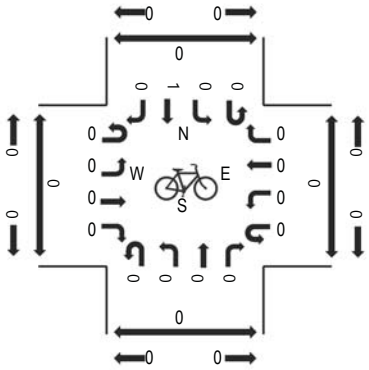
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 1 WOODY MOUNTAIN RD & PATIO DEL PRESIDIO AM
Date: Tuesday, September 27, 2022
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

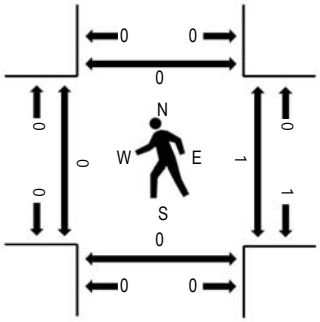
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

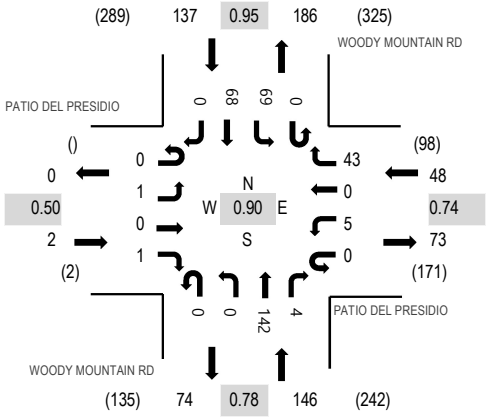
Traffic Counts - Motorized Vehicles

Interval Start Time	PATIO DEL PRESIDIO Eastbound				PATIO DEL PRESIDIO Westbound				WOODY MOUNTAIN RD Northbound				WOODY MOUNTAIN RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	1	0	0	0	0	0	22	0	0	17	0	1	3	18	1	63	309	0	1	0	0
7:15 AM	0	0	0	0	0	0	0	29	0	0	12	0	0	4	23	0	68	302	0	0	0	0
7:30 AM	0	0	0	0	0	2	0	38	0	0	20	0	0	9	21	0	90	302	0	0	0	0
7:45 AM	0	0	0	0	0	3	0	28	0	0	15	0	0	12	30	0	88	264	0	0	0	0
8:00 AM	0	0	0	0	0	1	0	14	0	0	11	0	0	4	25	1	56	227	0	0	0	0
8:15 AM	0	3	0	0	0	1	0	15	0	0	9	0	0	12	28	0	68		0	0	0	0
8:30 AM	0	0	0	0	0	1	0	10	0	0	11	0	0	4	25	1	52		0	0	0	0
8:45 AM	0	1	0	0	0	0	0	13	0	0	7	1	0	7	22	0	51		0	0	0	0
Count Total	0	5	0	0	0	8	0	169	0	0	102	1	1	55	192	3	536		0	1	0	0
Peak Hour	0	1	0	0	0	5	0	117	0	0	64	0	1	28	92	1	309		0	1	0	0

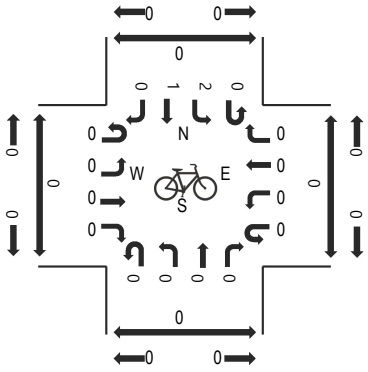
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 1 WOODY MOUNTAIN RD & PATIO DEL PRESIDIO PM
Date: Tuesday, September 27, 2022
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:00 PM - 04:15 PM

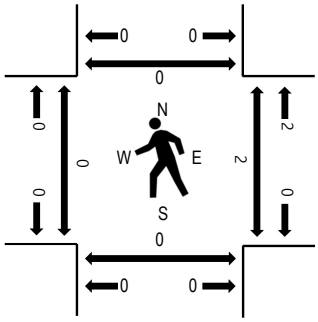
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

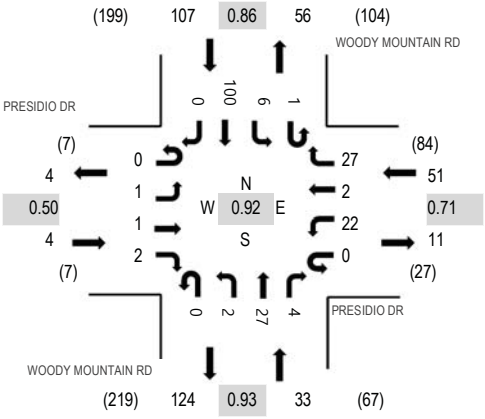
Traffic Counts - Motorized Vehicles

Interval Start Time	PATIO DEL PRESIDIO Eastbound				PATIO DEL PRESIDIO Westbound				WOODY MOUNTAIN RD Northbound				WOODY MOUNTAIN RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	0	1	0	0	0	8	0	0	46	1	0	16	21	0	93	333	0	2	0	0
4:15 PM	0	1	0	0	0	0	0	11	0	0	28	1	0	19	16	0	76	318	0	0	0	0
4:30 PM	0	0	0	0	0	2	0	10	0	0	38	1	0	15	14	0	80	311	0	0	0	0
4:45 PM	0	0	0	0	0	3	0	14	0	0	30	1	0	19	17	0	84	306	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	8	1	0	30	1	0	23	15	0	78	298	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	9	0	0	19	1	0	27	13	0	69		0	0	0	0
5:30 PM	0	0	0	0	1	0	0	15	0	0	22	0	0	23	14	0	75		0	0	0	0
5:45 PM	0	0	0	0	0	0	0	17	0	0	19	3	0	19	18	0	76		0	0	0	0
Count Total	0	1	0	1	1	5	0	92	1	0	232	9	0	161	128	0	631		0	2	0	0
Peak Hour	0	1	0	1	0	5	0	43	0	0	142	4	0	69	68	0	333		0	2	0	0

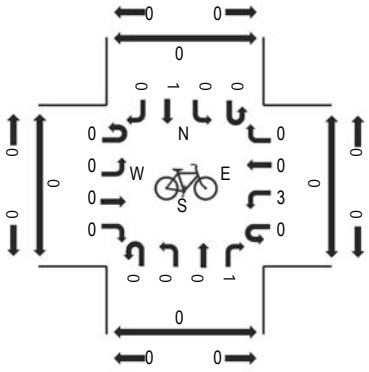
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 2 WOODY MOUNTAIN RD & PRESIDIO DR AM
Date: Tuesday, September 27, 2022
Peak Hour: 07:30 AM - 08:30 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

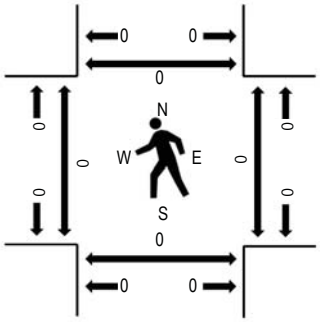
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

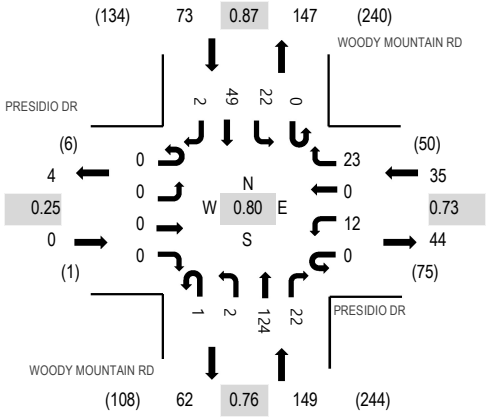
Traffic Counts - Motorized Vehicles

Interval Start Time	PRESIDIO DR Eastbound				PRESIDIO DR Westbound				WOODY MOUNTAIN RD Northbound				WOODY MOUNTAIN RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	0	0	0	4	0	7	0	0	10	1	0	2	15	0	39	182	0	0	0	0
7:15 AM	0	0	0	0	0	4	0	3	0	0	9	1	0	4	20	1	42	194	0	0	0	0
7:30 AM	0	0	0	1	0	3	1	10	0	0	11	0	0	2	20	0	48	195	0	0	0	0
7:45 AM	0	0	0	0	0	4	1	6	0	1	6	2	1	1	31	0	53	192	0	0	0	0
8:00 AM	0	0	1	1	0	11	0	7	0	0	4	2	0	2	23	0	51	175	0	0	0	0
8:15 AM	0	1	0	0	0	4	0	4	0	1	6	0	0	1	26	0	43		0	0	0	0
8:30 AM	0	0	2	1	1	2	1	2	0	0	8	0	1	3	24	0	45		0	0	0	0
8:45 AM	0	0	0	0	0	4	1	4	0	0	4	1	0	1	21	0	36		0	0	0	0
Count Total	0	1	3	3	1	36	4	43	0	2	58	7	2	16	180	1	357		0	0	0	0
Peak Hour	0	1	1	2	0	22	2	27	0	2	27	4	1	6	100	0	195		0	0	0	0

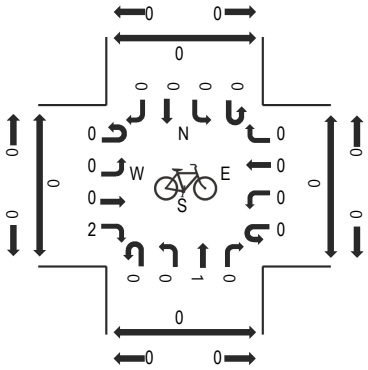
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 2 WOODY MOUNTAIN RD & PRESIDIO DR PM
Date: Tuesday, September 27, 2022
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:00 PM - 04:15 PM

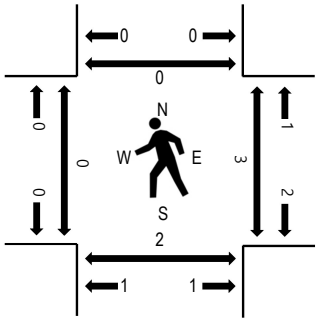
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

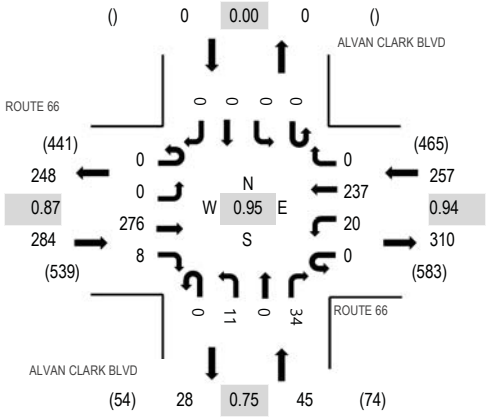
Traffic Counts - Motorized Vehicles

Interval Start Time	PRESIDIO DR Eastbound				PRESIDIO DR Westbound				WOODY MOUNTAIN RD Northbound				WOODY MOUNTAIN RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	0	0	0	4	0	6	1	0	40	8	0	2	19	0	80	257	0	1	1	0
4:15 PM	0	0	0	0	0	4	0	3	0	0	26	11	0	6	9	1	60	226	0	0	0	0
4:30 PM	0	0	0	0	0	2	0	4	0	0	35	0	0	6	10	0	57	210	0	0	0	0
4:45 PM	0	0	0	0	0	2	0	10	0	2	23	3	0	8	11	1	60	189	0	2	1	0
5:00 PM	0	0	0	0	0	2	0	1	0	0	28	2	0	5	11	0	49	172	0	0	0	2
5:15 PM	0	0	0	1	0	3	2	1	0	0	20	4	0	4	9	0	44		1	0	0	0
5:30 PM	0	0	0	0	0	1	0	1	0	0	19	1	1	5	8	0	36		0	1	0	2
5:45 PM	0	0	0	0	0	1	0	3	0	0	18	3	1	7	10	0	43		0	0	0	0
Count Total	0	0	0	1	0	19	2	29	1	2	209	32	2	43	87	2	429		1	4	2	4
Peak Hour	0	0	0	0	0	12	0	23	1	2	124	22	0	22	49	2	257		0	3	2	0

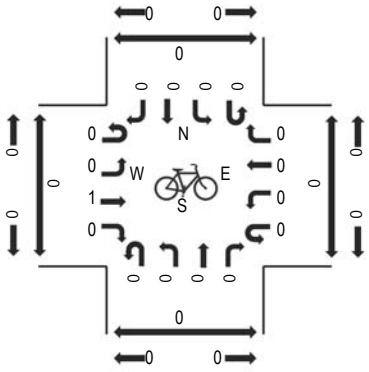
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 3 ALVAN CLARK BLVD & ROUTE 66 AM
Date: Tuesday, September 27, 2022
Peak Hour: 07:45 AM - 08:45 AM
Peak 15-Minutes: 08:30 AM - 08:45 AM

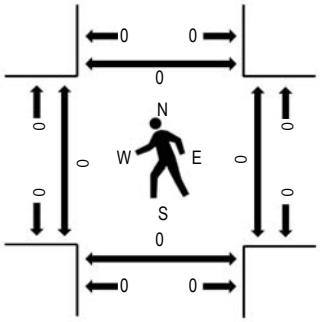
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	ROUTE 66 Eastbound				ROUTE 66 Westbound				ALVAN CLARK BLVD Northbound				ALVAN CLARK BLVD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	62	1	0	6	43	0	0	5	0	6	0	0	0	0	123	517	0	0	0	0
7:15 AM	0	0	63	0	0	4	41	0	0	0	0	8	0	0	0	0	116	533	0	0	0	0
7:30 AM	0	0	73	0	0	6	44	0	0	2	0	6	0	0	0	0	131	562	0	0	0	0
7:45 AM	0	0	79	3	0	6	44	0	0	4	0	11	0	0	0	0	147	586	0	0	0	0
8:00 AM	0	0	57	1	0	4	64	0	0	4	0	9	0	0	0	0	139	561	0	0	0	0
8:15 AM	0	0	68	3	0	8	59	0	0	2	0	5	0	0	0	0	145		0	0	0	0
8:30 AM	0	0	72	1	0	2	70	0	0	1	0	9	0	0	0	0	155		0	0	0	0
8:45 AM	0	0	53	3	0	6	58	0	0	0	0	2	0	0	0	0	122		0	0	0	0
Count Total	0	0	527	12	0	42	423	0	0	18	0	56	0	0	0	0	1,078		0	0	0	0
Peak Hour	0	0	276	8	0	20	237	0	0	11	0	34	0	0	0	0	586		0	0	0	0

ALL TRAFFIC DATA SERVICES
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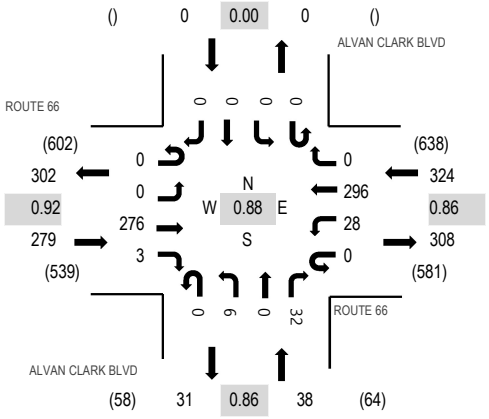
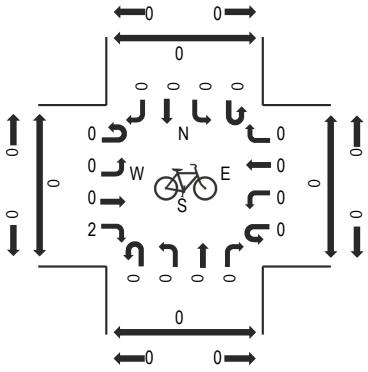
Location: 3 ALVAN CLARK BLVD & ROUTE 66 PM
Date: Tuesday, September 27, 2022
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

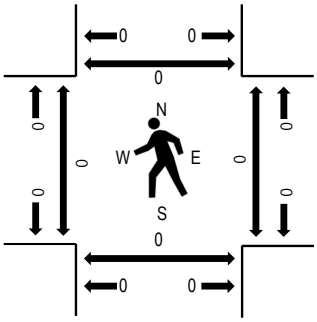
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

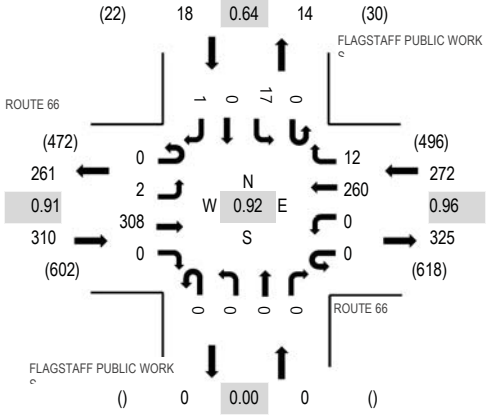
Traffic Counts - Motorized Vehicles

Interval Start Time	ROUTE 66 Eastbound				ROUTE 66 Westbound				ALVAN CLARK BLVD Northbound				ALVAN CLARK BLVD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	74	3	0	3	85	0	0	1	0	5	0	0	0	0	171	622	0	0	0	0
4:15 PM	0	0	60	3	0	7	69	0	0	1	0	3	0	0	0	0	143	633	0	0	0	0
4:30 PM	0	0	75	1	0	5	76	0	0	1	0	8	0	0	0	0	166	641	0	0	0	0
4:45 PM	0	0	61	0	0	6	68	0	0	2	0	5	0	0	0	0	142	632	0	0	0	0
5:00 PM	0	0	76	0	0	13	82	0	0	2	0	9	0	0	0	0	182	619	0	0	0	0
5:15 PM	0	0	64	2	0	4	70	0	0	1	0	10	0	0	0	0	151		0	0	0	0
5:30 PM	0	0	67	1	0	0	80	0	0	0	0	9	0	0	0	0	157		0	0	1	0
5:45 PM	0	0	48	4	0	6	64	0	0	0	0	7	0	0	0	0	129		0	0	0	0
Count Total	0	0	525	14	0	44	594	0	0	8	0	56	0	0	0	0	1,241		0	0	1	0
Peak Hour	0	0	276	3	0	28	296	0	0	6	0	32	0	0	0	0	641		0	0	0	0

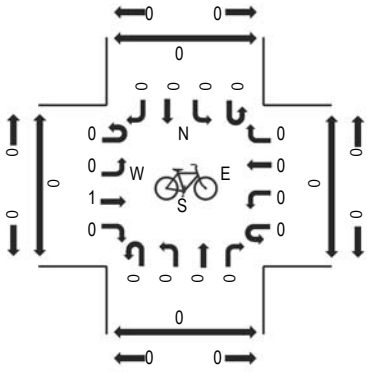
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 4 FLAGSTAFF PUBLIC WORKS & ROUTE 66 AM
Date: Tuesday, September 27, 2022
Peak Hour: 07:45 AM - 08:45 AM
Peak 15-Minutes: 08:30 AM - 08:45 AM

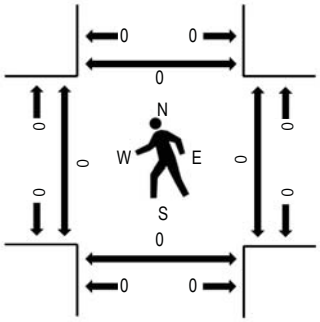
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

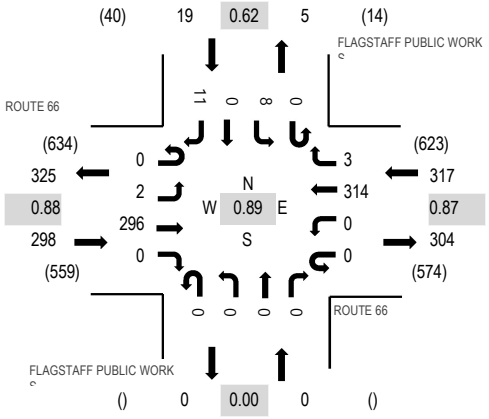
Traffic Counts - Motorized Vehicles

Interval Start Time	ROUTE 66 Eastbound				ROUTE 66 Westbound				FLAGSTAFF PUBLIC WORKS Northbound				FLAGSTAFF PUBLIC WORKS Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	78	0	0	0	49	1	0	0	0	0	0	1	0	0	129	545	0	0	0	0
7:15 AM	0	0	70	0	0	0	48	3	0	0	0	0	0	2	0	0	123	553	0	0	0	0
7:30 AM	0	3	88	0	0	0	50	5	0	0	0	0	0	0	0	0	146	583	0	0	0	0
7:45 AM	0	1	90	0	0	0	51	2	0	0	0	0	0	2	0	1	147	600	0	0	0	0
8:00 AM	0	0	64	0	0	0	66	4	0	0	0	0	0	3	0	0	137	575	0	0	0	0
8:15 AM	0	1	72	0	0	0	72	3	0	0	0	0	0	5	0	0	153		0	0	0	0
8:30 AM	0	0	82	0	0	0	71	3	0	0	0	0	0	7	0	0	163		0	0	0	0
8:45 AM	0	0	53	0	0	0	64	4	0	0	0	0	0	1	0	0	122		0	0	0	0
Count Total	0	5	597	0	0	0	471	25	0	0	0	0	0	21	0	1	1,120		0	0	0	0
Peak Hour	0	2	308	0	0	0	260	12	0	0	0	0	0	17	0	1	600		0	0	0	0

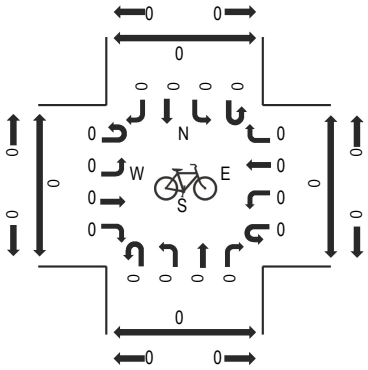
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 4 FLAGSTAFF PUBLIC WORKS & ROUTE 66 PM
Date: Tuesday, September 27, 2022
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

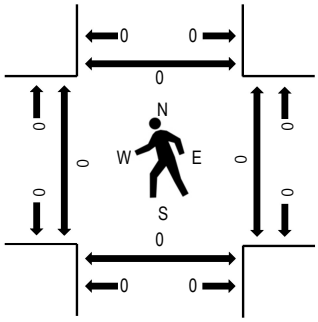
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

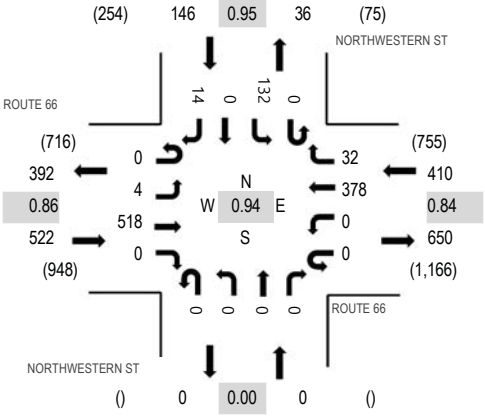
Traffic Counts - Motorized Vehicles

Interval Start Time	ROUTE 66 Eastbound				ROUTE 66 Westbound				FLAGSTAFF PUBLIC WORKS Northbound				FLAGSTAFF PUBLIC WORKS Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	67	0	0	0	78	1	0	0	0	0	0	8	0	5	159	609	0	0	0	0
4:15 PM	0	2	61	0	0	0	76	4	0	0	0	0	0	2	0	1	146	628	0	0	0	0
4:30 PM	0	0	83	0	0	0	74	1	0	0	0	0	0	3	0	7	168	634	0	0	0	0
4:45 PM	0	0	57	0	0	0	73	0	0	0	0	0	0	4	0	2	136	620	0	0	0	0
5:00 PM	0	1	84	0	0	0	91	1	0	0	0	0	0	0	0	1	178	613	0	0	0	0
5:15 PM	0	1	72	0	0	0	76	1	0	0	0	0	0	1	0	1	152		0	0	0	0
5:30 PM	0	1	75	0	0	0	76	0	0	0	0	0	0	0	0	2	154		0	0	0	0
5:45 PM	0	0	55	0	0	0	70	1	0	0	0	0	0	2	0	1	129		0	0	0	0
Count Total	0	5	554	0	0	0	614	9	0	0	0	0	0	20	0	20	1,222		0	0	0	0
Peak Hour	0	2	296	0	0	0	314	3	0	0	0	0	0	8	0	11	634		0	0	0	0

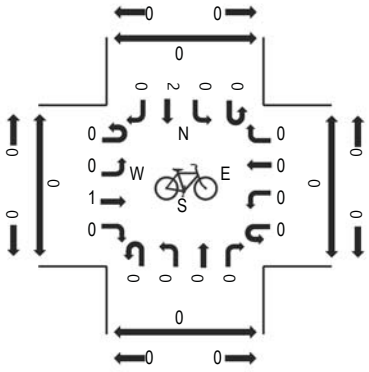
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 5 NORTHWESTERN ST & ROUTE 66 AM
Date: Tuesday, September 27, 2022
Peak Hour: 07:30 AM - 08:30 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

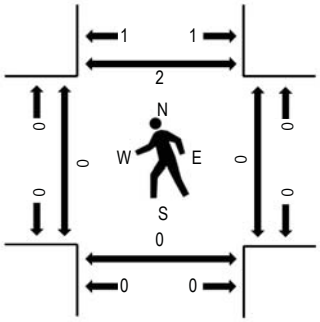
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

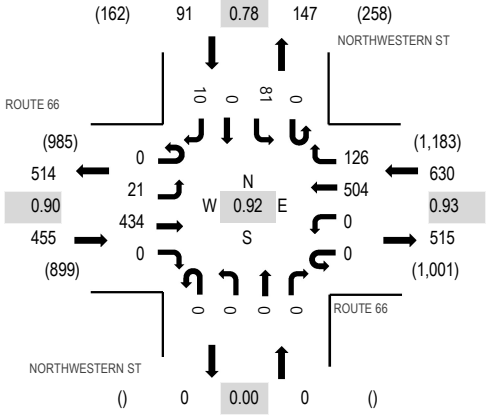
Traffic Counts - Motorized Vehicles

Interval Start Time	ROUTE 66 Eastbound				ROUTE 66 Westbound				NORTHWESTERN ST Northbound				NORTHWESTERN ST Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	1	121	0	0	0	64	9	0	0	0	0	0	17	0	1	213	998	0	0	0	0
7:15 AM	0	2	110	0	0	0	66	3	0	0	0	0	0	33	0	8	222	1,035	0	0	0	0
7:30 AM	0	1	156	0	0	0	81	6	0	0	0	0	0	39	0	4	287	1,078	0	0	0	0
7:45 AM	0	0	150	0	0	0	80	6	0	0	0	0	0	36	0	4	276	1,032	0	0	0	0
8:00 AM	0	2	102	0	0	0	94	12	0	0	0	0	0	37	0	3	250	959	0	0	0	1
8:15 AM	0	1	110	0	0	0	123	8	0	0	0	0	0	20	0	3	265		0	0	0	1
8:30 AM	0	0	113	0	0	0	94	11	0	0	0	0	0	19	0	4	241		0	0	0	0
8:45 AM	0	1	78	0	0	0	86	12	0	0	0	0	0	25	0	1	203		0	0	0	0
Count Total	0	8	940	0	0	0	688	67	0	0	0	0	0	226	0	28	1,957		0	0	0	2
Peak Hour	0	4	518	0	0	0	378	32	0	0	0	0	0	132	0	14	1,078		0	0	0	2

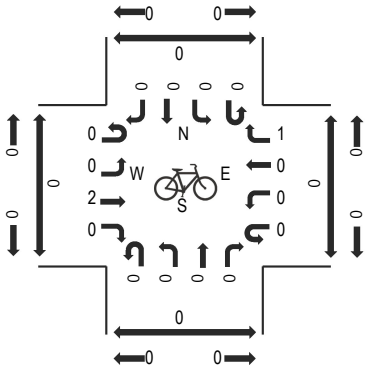
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 5 NORTHWESTERN ST & ROUTE 66 PM
Date: Tuesday, September 27, 2022
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

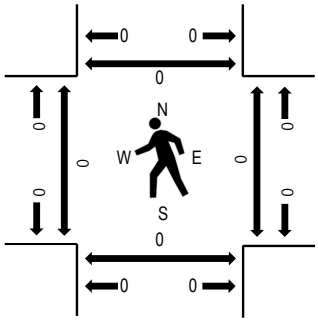
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	ROUTE 66 Eastbound				ROUTE 66 Westbound				NORTHWESTERN ST Northbound				NORTHWESTERN ST Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	5	126	0	0	0	112	19	0	0	0	0	0	18	0	3	283	1,083	0	0	0	0
4:15 PM	0	5	98	0	0	0	101	20	0	0	0	0	0	13	0	3	240	1,119	0	0	0	0
4:30 PM	0	3	128	0	0	0	114	32	0	0	0	0	0	12	0	3	292	1,176	0	0	0	0
4:45 PM	0	0	106	0	0	0	109	31	0	0	0	0	0	20	0	2	268	1,176	0	0	0	0
5:00 PM	0	7	112	0	0	0	138	33	0	0	0	0	0	29	0	0	319	1,161	0	0	0	0
5:15 PM	0	11	88	0	0	0	143	30	0	0	0	0	0	20	0	5	297		0	0	0	0
5:30 PM	0	7	107	0	0	0	142	21	0	0	0	0	0	14	0	1	292		0	0	0	1
5:45 PM	0	2	94	0	0	0	106	32	0	0	0	0	0	16	0	3	253		0	0	0	0
Count Total	0	40	859	0	0	0	965	218	0	0	0	0	0	142	0	20	2,244		0	0	0	1
Peak Hour	0	21	434	0	0	0	504	126	0	0	0	0	0	81	0	10	1,176		0	0	0	0

All Traffic Data Services

6 WOODY MOUNTAIN RD & ROUTE 66 AM
Tuesday, September 27, 2022

Peak Hour
02:15 PM - 03:15 PM
Peak 15-Minutes
02:30 PM - 02:45 PM

Traffic Counts - All Vehicles

	ROUTE 66					ROUTE 66					WOODY MOUNTAIN RD					WOODY MOUNTAIN RD						
	Eastbound					Westbound					Northbound					Southbound						Rolling
Time	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total	Hour
7:00 AM	0	0	74	0	0	0	22	46	0	0	0	4	0	35	0	0	0	0	0	0	181	824
7:15 AM	0	0	69	2	0	0	28	46	0	0	0	4	0	37	0	0	0	0	0	0	186	836
7:30 AM	0	0	88	2	0	0	29	53	0	0	0	2	0	60	0	0	0	0	0	0	234	869
7:45 AM	0	0	88	3	0	0	38	51	0	0	0	2	0	41	0	0	0	0	0	0	223	850
8:00 AM	0	0	67	1	0	0	28	70	0	0	0	1	0	26	0	0	0	0	0	0	193	798
8:15 AM	0	0	75	0	0	0	39	76	0	0	0	0	0	29	0	0	0	0	0	0	219	791
8:30 AM	0	0	89	3	0	0	32	71	0	0	0	3	0	17	0	0	0	0	0	0	215	745
8:45 AM	0	0	57	0	0	0	26	67	0	0	0	2	0	19	0	0	0	0	0	0	171	698
9:00 AM	0	0	57	3	0	0	24	76	0	0	0	4	0	22	0	0	0	0	0	0	186	687
TOTAL Peak		0	318	6			134	250	0			5	0	156			0	0	0			

Peak Rolling Hour Flow Rates

	Eastbound					Westbound					Northbound					Southbound					
Vehicle Type	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total
Articulated Trucks	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Lights	0	0	318	12	0	0	209	261	0	0	0	8	0	226	0	0	0	0	0	0	1,034
Mediums	0	0	16	0	0	0	5	13	0	0	0	1	0	3	0	0	0	0	0	0	38
Total	0	0	334	12	0	0	214	275	0	0	0	9	0	229	0	0	0	0	0	0	1,073
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Bicycles on Crosswalk			0					0					0					0			0
Heavy Vehicle Percentage			4.6%					3.9%					1.7%					0.0%			3.6%
Heavy Vehicle Percentage	0.0%	0.0%	4.8%	0.0%	0.0%	0.0%	2.3%	5.1%	0.0%	0.0%	0.0%	11.1%	0.0%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.6%
Peak Hour Factor (PHF)			0.85					0.95					0.58					0.00			0.78
Peak Hour Factor (PHF)	0.00	0.00	0.83	0.69	0.00	0.25	0.79	0.90	0.00	0.00	0.00	0.64	0.25	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.78

Traffic Counts by Vehicle Type

	Eastbound					Westbound					Northbound					Southbound					
Time	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total
Articulated Trucks																					
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:45 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
6:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
6:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4
9:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
11:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

12:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Lights

12:00 AM	0	0	2	0	0	0	1	1	0	0	0	0	0	4	0	0	0	0	0	0	8
12:15 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	2	0	0	0	0	0	0	4
12:30 AM	0	0	3	1	0	0	2	2	0	0	0	0	0	6	0	0	0	0	0	0	14
12:45 AM	0	0	3	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	5
1:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	11	0	0	0	0	0	0	12
1:15 AM	0	0	1	0	0	0	3	1	0	0	0	0	0	5	0	0	0	0	0	0	10
1:30 AM	0	0	6	0	0	0	1	4	0	0	0	0	0	75	0	0	0	0	0	0	86
1:45 AM	0	0	1	1	0	0	3	3	0	0	0	0	0	6	0	0	0	0	0	0	14
2:00 AM	0	0	2	0	0	0	3	1	0	0	0	0	0	1	0	0	0	0	0	0	7
2:15 AM	0	0	3	0	0	0	1	0	0	0	0	0	0	3	0	0	0	0	0	0	7
2:30 AM	0	0	2	0	0	0	4	0	0	0	0	0	0	5	0	0	0	0	0	0	11
2:45 AM	0	0	3	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	6
3:00 AM	0	0	1	0	0	0	7	5	0	0	0	0	0	1	0	0	0	0	0	0	14
3:15 AM	0	0	1	0	0	0	6	4	0	0	0	0	0	1	0	0	0	0	0	0	12
3:30 AM	0	0	5	0	0	0	19	8	0	0	0	0	0	9	0	0	0	0	0	0	41
3:45 AM	0	0	2	0	0	0	64	9	0	0	0	0	0	3	0	0	0	0	0	0	78
4:00 AM	0	0	3	0	0	0	11	3	0	0	0	0	0	2	0	0	0	0	0	0	19
4:15 AM	0	0	2	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	8
4:30 AM	0	0	7	0	0	0	5	7	0	0	0	1	0	2	0	0	0	0	0	0	22
4:45 AM	0	0	8	0	0	0	10	13	0	0	0	2	0	2	0	0	0	0	0	0	35
5:00 AM	0	0	5	0	0	0	1	18	0	0	0	3	0	0	0	0	0	0	0	0	27
5:15 AM	0	0	5	0	0	0	5	14	0	0	0	0	0	2	0	0	0	0	0	0	26
5:30 AM	0	0	13	0	0	0	6	43	0	0	0	3	0	4	0	0	0	0	0	0	69
5:45 AM	0	0	16	0	0	0	29	31	0	0	0	2	0	8	0	0	0	0	0	0	86
6:00 AM	0	0	26	0	0	0	7	20	0	0	0	0	0	10	0	0	0	0	0	0	63
6:15 AM	0	0	27	1	0	0	8	29	0	0	0	0	0	16	0	0	0	0	0	0	81
6:30 AM	0	0	46	0	0	0	8	30	0	0	0	1	0	18	0	0	0	0	0	0	103
6:45 AM	0	0	31	2	0	0	30	47	0	0	0	2	0	17	0	0	0	0	0	0	129
7:00 AM	0	0	67	0	0	0	21	44	0	0	0	4	0	35	0	0	0	0	0	0	171
7:15 AM	0	0	65	1	0	0	28	42	0	0	0	4	0	36	0	0	0	0	0	0	176
7:30 AM	0	0	83	2	0	0	28	52	0	0	0	2	0	59	0	0	0	0	0	0	226
7:45 AM	0	0	84	3	0	0	37	48	0	0	0	2	0	40	0	0	0	0	0	0	214
8:00 AM	0	0	66	1	0	0	28	65	0	0	0	1	0	25	0	0	0	0	0	0	186
8:15 AM	0	0	71	0	0	0	37	73	0	0	0	0	0	28	0	0	0	0	0	0	209
8:30 AM	0	0	84	2	0	0	29	67	0	0	0	3	0	17	0	0	0	0	0	0	202
8:45 AM	0	0	52	0	0	0	25	61	0	0	0	2	0	18	0	0	0	0	0	0	158
9:00 AM	0	0	55	2	0	0	24	74	0	0	0	4	0	22	0	0	0	0	0	0	181
9:15 AM	0	0	70	1	0	0	21	51	0	0	0	3	0	19	0	0	0	0	0	0	165
9:30 AM	0	0	65	0	0	0	19	50	0	0	0	3	0	24	0	0	0	0	0	0	161
9:45 AM	0	0	54	1	0	0	25	53	0	0	0	2	0	17	0	0	0	0	0	0	152
10:00 AM	0	0	70	1	0	0	18	62	0	0	0	2	0	21	0	0	0	0	0	0	174
10:15 AM	0	0	69	3	0	0	15	64	0	0	0	2	0	21	0	0	0	0	0	0	174
10:30 AM	0	0	73	0	0	0	17	53	0	0	0	3	0	21	0	0	0	0	0	0	167
10:45 AM	0	0	67	1	0	2	18	55	0	0	0	1	0	33	0	0	0	0	0	0	177
11:00 AM	0	0	65	3	0	0	35	63	0	0	0	2	0	44	0	0	0	0	0	0	212
11:15 AM	0	0	55	1	0	0	29	52	0	0	0	1	0	34	0	0	0	0	0	0	172
11:30 AM	0	0	80	5	0	0	37	94	0	0	0	4	0	56	0	0	0	0	0	0	276
11:45 AM	0	0	81	4	0	0	36	72	0	0	0	2	0	46	0	0	0	0	0	0	241
12:00 PM	0	0	66	3	0	1	45	78	0	0	0	3	0	53	0	0	0	0	0	0	249

12:15 PM	0	0	59	1	0	0	42	62	0	0	0	0	0	51	0	0	0	0	0	0	215
12:30 PM	0	0	58	1	0	0	58	70	0	0	0	4	0	27	0	0	0	0	0	0	218
12:45 PM	0	0	70	5	0	0	54	70	0	0	0	7	0	28	0	0	0	0	0	0	234
1:00 PM	0	0	65	2	0	0	35	76	0	0	0	4	0	30	0	0	0	0	0	0	212
1:15 PM	0	0	66	1	0	0	27	69	0	0	0	3	0	31	0	0	0	0	0	0	197
1:30 PM	0	0	52	1	0	0	27	67	0	0	0	3	0	23	0	0	0	0	0	0	173
1:45 PM	0	0	60	7	0	1	35	69	0	0	0	3	0	28	0	0	0	0	0	0	203
2:00 PM	0	0	64	3	0	0	34	60	0	0	0	4	0	26	0	0	0	0	0	0	191
2:15 PM	0	0	56	2	0	0	55	58	0	0	0	2	0	30	0	0	0	0	0	0	203
2:30 PM	0	0	99	2	0	0	68	65	0	0	0	2	0	99	0	0	0	0	0	0	335
2:45 PM	0	0	79	4	0	0	61	64	0	0	0	1	0	52	0	0	0	0	0	0	261
3:00 PM	0	0	84	4	0	0	25	74	0	0	0	3	0	45	0	0	0	0	0	0	235
3:15 PM	0	0	65	5	0	0	30	73	0	0	0	0	0	27	0	0	0	0	0	0	200
3:30 PM	0	0	75	4	0	0	36	76	0	0	0	3	0	52	0	0	0	0	0	0	246
3:45 PM	0	0	91	3	0	0	22	79	0	0	0	1	0	48	0	0	0	0	0	0	244
4:00 PM	0	0	68	3	0	0	31	78	0	0	0	1	0	49	0	0	0	0	0	0	230
4:15 PM	0	0	50	8	0	0	24	68	0	0	0	0	0	43	0	0	0	0	0	0	193
4:30 PM	0	0	77	3	0	0	28	72	0	0	0	2	0	47	0	0	0	0	0	0	229
4:45 PM	0	0	57	5	0	0	30	74	0	0	0	1	0	43	0	0	0	0	0	0	210
5:00 PM	0	0	79	6	0	0	34	89	0	0	0	0	0	34	0	0	0	0	0	0	242
5:15 PM	0	0	69	5	0	0	33	76	0	0	0	0	0	23	0	0	0	0	0	0	206
5:30 PM	0	0	69	5	0	0	31	78	0	0	0	2	0	36	0	0	0	0	0	0	221
5:45 PM	0	0	55	4	0	0	32	68	0	0	0	2	0	33	0	0	0	0	0	0	194
6:00 PM	0	0	50	4	0	0	23	48	0	0	0	1	0	17	0	0	0	0	0	0	143
6:15 PM	0	0	33	1	0	0	27	59	0	0	0	3	0	27	0	0	0	0	0	0	150
6:30 PM	0	0	42	2	0	0	20	40	0	0	0	0	0	25	0	0	0	0	0	0	129
6:45 PM	0	0	38	0	0	0	20	38	0	0	0	1	0	18	0	0	0	0	0	0	115
7:00 PM	0	0	29	1	0	0	22	40	0	0	0	1	0	19	0	0	0	0	0	0	112
7:15 PM	0	0	24	1	0	0	19	31	0	0	0	0	0	22	0	0	0	0	0	0	97
7:30 PM	0	0	17	2	0	0	21	28	0	0	0	1	0	12	0	0	0	0	0	0	81
7:45 PM	0	0	24	2	0	0	25	38	0	0	0	0	0	12	0	0	0	0	0	0	101
8:00 PM	0	0	22	1	0	0	24	21	0	0	0	0	0	33	0	0	0	0	0	0	101
8:15 PM	0	0	10	3	0	0	26	17	0	0	0	0	0	23	0	0	0	0	0	0	79
8:30 PM	0	0	21	1	0	0	29	21	0	0	0	0	0	9	0	0	0	0	0	0	81
8:45 PM	0	0	10	1	0	0	21	13	0	0	0	1	0	8	0	0	0	0	0	0	54
9:00 PM	0	0	10	3	0	0	11	18	0	0	0	0	0	15	0	0	0	0	0	0	57
9:15 PM	0	0	13	1	0	0	15	11	0	0	0	0	0	8	0	0	0	0	0	0	48
9:30 PM	0	0	13	0	0	0	17	9	0	0	0	1	0	5	0	0	0	0	0	0	45
9:45 PM	0	0	6	2	0	0	3	9	0	0	0	1	0	3	0	0	0	0	0	0	24
10:00 PM	0	0	10	2	0	0	3	9	0	0	0	1	0	3	0	0	0	0	0	0	28
10:15 PM	0	0	9	0	0	0	7	10	0	0	0	1	0	7	0	0	0	0	0	0	34
10:30 PM	0	0	5	0	0	0	3	5	0	0	0	1	0	6	0	0	0	0	0	0	20
10:45 PM	0	0	7	0	0	0	0	6	0	0	0	0	0	1	0	0	0	0	0	0	14
11:00 PM	0	0	5	0	0	0	8	2	0	0	0	1	0	2	0	0	0	0	0	0	18
11:15 PM	0	0	3	0	0	0	3	3	0	0	0	0	0	4	0	0	0	0	0	0	13
11:30 PM	0	0	3	0	0	0	0	5	0	0	0	1	0	1	0	0	0	0	0	0	10
11:45 PM	0	0	2	0	0	0	4	1	0	0	0	0	0	1	0	0	0	0	0	0	8

Mediums

12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 AM	0	0	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4
5:45 AM	0	0	9	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	11
6:00 AM	0	0	3	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	6
6:15 AM	0	0	4	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	5
6:30 AM	0	0	3	0	0	0	1	1	0	0	0	1	0	1	0	0	0	0	0	0	7
6:45 AM	0	0	3	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	5
7:00 AM	0	0	6	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	9
7:15 AM	0	0	4	1	0	0	0	4	0	0	0	0	0	1	0	0	0	0	0	0	10
7:30 AM	0	0	5	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	8
7:45 AM	0	0	4	0	0	0	1	3	0	0	0	0	0	1	0	0	0	0	0	0	9
8:00 AM	0	0	1	0	0	0	0	4	0	0	0	0	0	1	0	0	0	0	0	0	6
8:15 AM	0	0	4	0	0	0	2	3	0	0	0	0	0	1	0	0	0	0	0	0	10
8:30 AM	0	0	5	1	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	12
8:45 AM	0	0	2	0	0	0	1	5	0	0	0	0	0	1	0	0	0	0	0	0	9
9:00 AM	0	0	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	4
9:15 AM	0	0	4	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	8
9:30 AM	0	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	6
9:45 AM	0	0	2	1	0	0	0	4	0	0	0	0	0	1	0	0	0	0	0	0	8
10:00 AM	0	0	2	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	6
10:15 AM	0	0	3	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	6
10:30 AM	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	4
10:45 AM	0	0	1	0	0	0	1	6	0	0	0	0	0	0	0	0	0	0	0	0	8
11:00 AM	0	0	1	0	0	0	0	5	0	0	0	0	0	1	0	0	0	0	0	0	7
11:15 AM	0	0	4	0	0	0	0	4	0	0	0	0	1	0	0	0	0	0	0	0	9
11:30 AM	0	0	5	0	0	0	0	6	0	0	0	0	0	1	0	0	0	0	0	0	12
11:45 AM	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	3
12:00 PM	0	0	2	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	5

12:15 PM	0	0	2	0	0	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	7
12:30 PM	0	0	0	2	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	5
12:45 PM	0	0	2	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	5
1:00 PM	0	0	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	4
1:15 PM	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	6
1:30 PM	0	0	1	0	0	0	1	2	0	0	0	0	0	2	0	0	0	0	0	0	6
1:45 PM	0	0	2	0	0	0	0	5	0	0	0	0	0	1	0	0	0	0	0	0	8
2:00 PM	0	0	4	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	8
2:15 PM	0	0	3	0	0	0	1	6	0	0	0	0	0	2	0	0	0	0	0	0	12
2:30 PM	0	0	4	0	0	0	3	2	0	0	0	1	0	1	0	0	0	0	0	0	11
2:45 PM	0	0	5	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	7
3:00 PM	0	0	4	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	8
3:15 PM	0	0	1	0	0	0	0	4	0	0	0	2	0	0	0	0	0	0	0	0	7
3:30 PM	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
3:45 PM	0	0	2	0	0	0	0	5	0	0	0	0	0	3	0	0	0	0	0	0	10
4:00 PM	0	0	5	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	9
4:15 PM	0	0	3	1	0	0	3	9	0	0	0	1	0	1	0	0	0	0	0	0	18
4:30 PM	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
4:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	3
5:00 PM	0	0	0	1	0	0	1	0	0	0	0	0	0	4	0	0	0	0	0	0	6
5:15 PM	0	0	0	1	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	4
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:45 PM	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
7:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:30 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
7:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Bicycles on Road

12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
11:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1

12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Bicycles on Crosswalk

	Eastbound			Westbound			Northbound			Southbound		
Time	CCW	CW	Total	CCW	CW	Total	CCW	CW	Total	CCW	CW	Total
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	1	1	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0

12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	1	1	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrians

	Eastbound			Westbound			Northbound			Southbound		
Time	CCW	CW	Total	CCW	CW	Total	CCW	CW	Total	CCW	CW	Total
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	1	1	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	1	1	0	0	0

12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	1	1	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	1	1	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	1	1	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0

All Traffic Data Services

6 WOODY MOUNTAIN RD & ROUTE 66 PM
Tuesday, September 27, 2022

Peak Hour
02:15 PM - 03:15 PM
Peak 15-Minutes
02:30 PM - 02:45 PM

Traffic Counts - All Vehicles

	ROUTE 66					ROUTE 66					WOODY MOUNTAIN RD					WOODY MOUNTAIN RD						
	Eastbound					Westbound					Northbound					Southbound						Rolling
Time	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total	Hour
4:00 PM	0	0	73	3	0	0	33	81	0	0	0	1	0	49	0	0	0	0	0	0	240	899
4:15 PM	0	0	53	9	0	0	27	77	0	0	0	1	0	44	0	0	0	0	0	0	211	907
4:30 PM	0	0	81	4	0	0	28	73	0	0	0	2	0	47	0	0	0	0	0	0	235	906
4:45 PM	0	0	57	5	0	0	30	75	0	0	0	1	0	45	0	0	0	0	0	0	213	893
5:00 PM	0	0	79	7	0	0	35	89	0	0	0	0	0	38	0	0	0	0	0	0	248	875
5:15 PM	0	0	69	6	0	0	33	77	0	0	0	0	0	25	0	0	0	0	0	0	210	771
5:30 PM	0	0	69	5	0	0	31	79	0	0	0	2	0	36	0	0	0	0	0	0	222	712
5:45 PM	0	0	55	4	0	0	32	69	0	0	0	2	0	33	0	0	0	0	0	0	195	620
SUM PEAK		0	270	25			120	314	0			4	0	174			0	0	0			

Peak Rolling Hour Flow Rates

	Eastbound					Westbound					Northbound					Southbound					
Vehicle Type	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total
Articulated Trucks	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Lights	0	0	318	12	0	0	209	261	0	0	0	8	0	226	0	0	0	0	0	0	1,034
Mediums	0	0	16	0	0	0	5	13	0	0	0	1	0	3	0	0	0	0	0	0	38
Total	0	0	334	12	0	0	214	275	0	0	0	9	0	229	0	0	0	0	0	0	1,073
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Bicycles on Crosswalk			0					0					0					0			0
Heavy Vehicle Percentage			4.6%					3.9%					1.7%					0.0%			3.6%
Heavy Vehicle Percentage	0.0%	0.0%	4.8%	0.0%	0.0%	0.0%	2.3%	5.1%	0.0%	0.0%	0.0%	11.1%	0.0%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.6%
Peak Hour Factor (PHF)			0.85					0.95					0.58					0.00			0.78
Peak Hour Factor (PHF)	0.00	0.00	0.83	0.69	0.00	0.25	0.79	0.90	0.00	0.00	0.00	0.64	0.25	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.78

Traffic Counts by Vehicle Type

	Eastbound					Westbound					Northbound					Southbound					
Time	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total
Articulated Trucks																					
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:45 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
6:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
6:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4
9:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
11:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

12:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Lights

12:00 AM	0	0	2	0	0	0	1	1	0	0	0	0	0	4	0	0	0	0	0	0	8
12:15 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	2	0	0	0	0	0	0	4
12:30 AM	0	0	3	1	0	0	2	2	0	0	0	0	0	6	0	0	0	0	0	0	14
12:45 AM	0	0	3	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	5
1:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	11	0	0	0	0	0	0	12
1:15 AM	0	0	1	0	0	0	3	1	0	0	0	0	0	5	0	0	0	0	0	0	10
1:30 AM	0	0	6	0	0	0	1	4	0	0	0	0	0	75	0	0	0	0	0	0	86
1:45 AM	0	0	1	1	0	0	3	3	0	0	0	0	0	6	0	0	0	0	0	0	14
2:00 AM	0	0	2	0	0	0	3	1	0	0	0	0	0	1	0	0	0	0	0	0	7
2:15 AM	0	0	3	0	0	0	1	0	0	0	0	0	0	3	0	0	0	0	0	0	7
2:30 AM	0	0	2	0	0	0	4	0	0	0	0	0	0	5	0	0	0	0	0	0	11
2:45 AM	0	0	3	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	6
3:00 AM	0	0	1	0	0	0	7	5	0	0	0	0	0	1	0	0	0	0	0	0	14
3:15 AM	0	0	1	0	0	0	6	4	0	0	0	0	0	1	0	0	0	0	0	0	12
3:30 AM	0	0	5	0	0	0	19	8	0	0	0	0	0	9	0	0	0	0	0	0	41
3:45 AM	0	0	2	0	0	0	64	9	0	0	0	0	0	3	0	0	0	0	0	0	78
4:00 AM	0	0	3	0	0	0	11	3	0	0	0	0	0	2	0	0	0	0	0	0	19
4:15 AM	0	0	2	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	8
4:30 AM	0	0	7	0	0	0	5	7	0	0	0	1	0	2	0	0	0	0	0	0	22
4:45 AM	0	0	8	0	0	0	10	13	0	0	0	2	0	2	0	0	0	0	0	0	35
5:00 AM	0	0	5	0	0	0	1	18	0	0	0	3	0	0	0	0	0	0	0	0	27
5:15 AM	0	0	5	0	0	0	5	14	0	0	0	0	0	2	0	0	0	0	0	0	26
5:30 AM	0	0	13	0	0	0	6	43	0	0	0	3	0	4	0	0	0	0	0	0	69
5:45 AM	0	0	16	0	0	0	29	31	0	0	0	2	0	8	0	0	0	0	0	0	86
6:00 AM	0	0	26	0	0	0	7	20	0	0	0	0	0	10	0	0	0	0	0	0	63
6:15 AM	0	0	27	1	0	0	8	29	0	0	0	0	0	16	0	0	0	0	0	0	81
6:30 AM	0	0	46	0	0	0	8	30	0	0	0	1	0	18	0	0	0	0	0	0	103
6:45 AM	0	0	31	2	0	0	30	47	0	0	0	2	0	17	0	0	0	0	0	0	129
7:00 AM	0	0	67	0	0	0	21	44	0	0	0	4	0	35	0	0	0	0	0	0	171
7:15 AM	0	0	65	1	0	0	28	42	0	0	0	4	0	36	0	0	0	0	0	0	176
7:30 AM	0	0	83	2	0	0	28	52	0	0	0	2	0	59	0	0	0	0	0	0	226
7:45 AM	0	0	84	3	0	0	37	48	0	0	0	2	0	40	0	0	0	0	0	0	214
8:00 AM	0	0	66	1	0	0	28	65	0	0	0	1	0	25	0	0	0	0	0	0	186
8:15 AM	0	0	71	0	0	0	37	73	0	0	0	0	0	28	0	0	0	0	0	0	209
8:30 AM	0	0	84	2	0	0	29	67	0	0	0	3	0	17	0	0	0	0	0	0	202
8:45 AM	0	0	52	0	0	0	25	61	0	0	0	2	0	18	0	0	0	0	0	0	158
9:00 AM	0	0	55	2	0	0	24	74	0	0	0	4	0	22	0	0	0	0	0	0	181
9:15 AM	0	0	70	1	0	0	21	51	0	0	0	3	0	19	0	0	0	0	0	0	165
9:30 AM	0	0	65	0	0	0	19	50	0	0	0	3	0	24	0	0	0	0	0	0	161
9:45 AM	0	0	54	1	0	0	25	53	0	0	0	2	0	17	0	0	0	0	0	0	152
10:00 AM	0	0	70	1	0	0	18	62	0	0	0	2	0	21	0	0	0	0	0	0	174
10:15 AM	0	0	69	3	0	0	15	64	0	0	0	2	0	21	0	0	0	0	0	0	174
10:30 AM	0	0	73	0	0	0	17	53	0	0	0	3	0	21	0	0	0	0	0	0	167
10:45 AM	0	0	67	1	0	2	18	55	0	0	0	1	0	33	0	0	0	0	0	0	177
11:00 AM	0	0	65	3	0	0	35	63	0	0	0	2	0	44	0	0	0	0	0	0	212
11:15 AM	0	0	55	1	0	0	29	52	0	0	0	1	0	34	0	0	0	0	0	0	172
11:30 AM	0	0	80	5	0	0	37	94	0	0	0	4	0	56	0	0	0	0	0	0	276
11:45 AM	0	0	81	4	0	0	36	72	0	0	0	2	0	46	0	0	0	0	0	0	241
12:00 PM	0	0	66	3	0	1	45	78	0	0	0	3	0	53	0	0	0	0	0	0	249

12:15 PM	0	0	59	1	0	0	42	62	0	0	0	0	0	51	0	0	0	0	0	0	215
12:30 PM	0	0	58	1	0	0	58	70	0	0	0	4	0	27	0	0	0	0	0	0	218
12:45 PM	0	0	70	5	0	0	54	70	0	0	0	7	0	28	0	0	0	0	0	0	234
1:00 PM	0	0	65	2	0	0	35	76	0	0	0	4	0	30	0	0	0	0	0	0	212
1:15 PM	0	0	66	1	0	0	27	69	0	0	0	3	0	31	0	0	0	0	0	0	197
1:30 PM	0	0	52	1	0	0	27	67	0	0	0	3	0	23	0	0	0	0	0	0	173
1:45 PM	0	0	60	7	0	1	35	69	0	0	0	3	0	28	0	0	0	0	0	0	203
2:00 PM	0	0	64	3	0	0	34	60	0	0	0	4	0	26	0	0	0	0	0	0	191
2:15 PM	0	0	56	2	0	0	55	58	0	0	0	2	0	30	0	0	0	0	0	0	203
2:30 PM	0	0	99	2	0	0	68	65	0	0	0	2	0	99	0	0	0	0	0	0	335
2:45 PM	0	0	79	4	0	0	61	64	0	0	0	1	0	52	0	0	0	0	0	0	261
3:00 PM	0	0	84	4	0	0	25	74	0	0	0	3	0	45	0	0	0	0	0	0	235
3:15 PM	0	0	65	5	0	0	30	73	0	0	0	0	0	27	0	0	0	0	0	0	200
3:30 PM	0	0	75	4	0	0	36	76	0	0	0	3	0	52	0	0	0	0	0	0	246
3:45 PM	0	0	91	3	0	0	22	79	0	0	0	1	0	48	0	0	0	0	0	0	244
4:00 PM	0	0	68	3	0	0	31	78	0	0	0	1	0	49	0	0	0	0	0	0	230
4:15 PM	0	0	50	8	0	0	24	68	0	0	0	0	0	43	0	0	0	0	0	0	193
4:30 PM	0	0	77	3	0	0	28	72	0	0	0	2	0	47	0	0	0	0	0	0	229
4:45 PM	0	0	57	5	0	0	30	74	0	0	0	1	0	43	0	0	0	0	0	0	210
5:00 PM	0	0	79	6	0	0	34	89	0	0	0	0	0	34	0	0	0	0	0	0	242
5:15 PM	0	0	69	5	0	0	33	76	0	0	0	0	0	23	0	0	0	0	0	0	206
5:30 PM	0	0	69	5	0	0	31	78	0	0	0	2	0	36	0	0	0	0	0	0	221
5:45 PM	0	0	55	4	0	0	32	68	0	0	0	2	0	33	0	0	0	0	0	0	194
6:00 PM	0	0	50	4	0	0	23	48	0	0	0	1	0	17	0	0	0	0	0	0	143
6:15 PM	0	0	33	1	0	0	27	59	0	0	0	3	0	27	0	0	0	0	0	0	150
6:30 PM	0	0	42	2	0	0	20	40	0	0	0	0	0	25	0	0	0	0	0	0	129
6:45 PM	0	0	38	0	0	0	20	38	0	0	0	1	0	18	0	0	0	0	0	0	115
7:00 PM	0	0	29	1	0	0	22	40	0	0	0	1	0	19	0	0	0	0	0	0	112
7:15 PM	0	0	24	1	0	0	19	31	0	0	0	0	0	22	0	0	0	0	0	0	97
7:30 PM	0	0	17	2	0	0	21	28	0	0	0	1	0	12	0	0	0	0	0	0	81
7:45 PM	0	0	24	2	0	0	25	38	0	0	0	0	0	12	0	0	0	0	0	0	101
8:00 PM	0	0	22	1	0	0	24	21	0	0	0	0	0	33	0	0	0	0	0	0	101
8:15 PM	0	0	10	3	0	0	26	17	0	0	0	0	0	23	0	0	0	0	0	0	79
8:30 PM	0	0	21	1	0	0	29	21	0	0	0	0	0	9	0	0	0	0	0	0	81
8:45 PM	0	0	10	1	0	0	21	13	0	0	0	1	0	8	0	0	0	0	0	0	54
9:00 PM	0	0	10	3	0	0	11	18	0	0	0	0	0	15	0	0	0	0	0	0	57
9:15 PM	0	0	13	1	0	0	15	11	0	0	0	0	0	8	0	0	0	0	0	0	48
9:30 PM	0	0	13	0	0	0	17	9	0	0	0	1	0	5	0	0	0	0	0	0	45
9:45 PM	0	0	6	2	0	0	3	9	0	0	0	1	0	3	0	0	0	0	0	0	24
10:00 PM	0	0	10	2	0	0	3	9	0	0	0	1	0	3	0	0	0	0	0	0	28
10:15 PM	0	0	9	0	0	0	7	10	0	0	0	1	0	7	0	0	0	0	0	0	34
10:30 PM	0	0	5	0	0	0	3	5	0	0	0	1	0	6	0	0	0	0	0	0	20
10:45 PM	0	0	7	0	0	0	0	6	0	0	0	0	0	1	0	0	0	0	0	0	14
11:00 PM	0	0	5	0	0	0	8	2	0	0	0	1	0	2	0	0	0	0	0	0	18
11:15 PM	0	0	3	0	0	0	3	3	0	0	0	0	0	4	0	0	0	0	0	0	13
11:30 PM	0	0	3	0	0	0	0	5	0	0	0	1	0	1	0	0	0	0	0	0	10
11:45 PM	0	0	2	0	0	0	4	1	0	0	0	0	0	1	0	0	0	0	0	0	8

Mediums

12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 AM	0	0	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4
5:45 AM	0	0	9	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	11
6:00 AM	0	0	3	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	6
6:15 AM	0	0	4	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	5
6:30 AM	0	0	3	0	0	0	1	1	0	0	0	1	0	1	0	0	0	0	0	0	7
6:45 AM	0	0	3	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	5
7:00 AM	0	0	6	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	9
7:15 AM	0	0	4	1	0	0	0	4	0	0	0	0	0	1	0	0	0	0	0	0	10
7:30 AM	0	0	5	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	8
7:45 AM	0	0	4	0	0	0	1	3	0	0	0	0	0	1	0	0	0	0	0	0	9
8:00 AM	0	0	1	0	0	0	0	4	0	0	0	0	0	1	0	0	0	0	0	0	6
8:15 AM	0	0	4	0	0	0	2	3	0	0	0	0	0	1	0	0	0	0	0	0	10
8:30 AM	0	0	5	1	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	12
8:45 AM	0	0	2	0	0	0	1	5	0	0	0	0	0	1	0	0	0	0	0	0	9
9:00 AM	0	0	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	4
9:15 AM	0	0	4	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	8
9:30 AM	0	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	6
9:45 AM	0	0	2	1	0	0	0	4	0	0	0	0	0	1	0	0	0	0	0	0	8
10:00 AM	0	0	2	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	6
10:15 AM	0	0	3	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	6
10:30 AM	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	4
10:45 AM	0	0	1	0	0	0	1	6	0	0	0	0	0	0	0	0	0	0	0	0	8
11:00 AM	0	0	1	0	0	0	0	5	0	0	0	0	0	1	0	0	0	0	0	0	7
11:15 AM	0	0	4	0	0	0	0	4	0	0	0	0	1	0	0	0	0	0	0	0	9
11:30 AM	0	0	5	0	0	0	0	6	0	0	0	0	0	1	0	0	0	0	0	0	12
11:45 AM	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	3
12:00 PM	0	0	2	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	5

12:15 PM	0	0	2	0	0	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	7
12:30 PM	0	0	0	2	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	5
12:45 PM	0	0	2	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	5
1:00 PM	0	0	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	4
1:15 PM	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	6
1:30 PM	0	0	1	0	0	0	1	2	0	0	0	0	0	2	0	0	0	0	0	0	6
1:45 PM	0	0	2	0	0	0	0	5	0	0	0	0	0	1	0	0	0	0	0	0	8
2:00 PM	0	0	4	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	8
2:15 PM	0	0	3	0	0	0	1	6	0	0	0	0	0	2	0	0	0	0	0	0	12
2:30 PM	0	0	4	0	0	0	3	2	0	0	0	1	0	1	0	0	0	0	0	0	11
2:45 PM	0	0	5	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	7
3:00 PM	0	0	4	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	8
3:15 PM	0	0	1	0	0	0	0	4	0	0	0	2	0	0	0	0	0	0	0	0	7
3:30 PM	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
3:45 PM	0	0	2	0	0	0	0	5	0	0	0	0	0	3	0	0	0	0	0	0	10
4:00 PM	0	0	5	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	9
4:15 PM	0	0	3	1	0	0	3	9	0	0	0	1	0	1	0	0	0	0	0	0	18
4:30 PM	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
4:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	3
5:00 PM	0	0	0	1	0	0	1	0	0	0	0	0	0	4	0	0	0	0	0	0	6
5:15 PM	0	0	0	1	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	4
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:45 PM	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
7:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:30 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
7:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Bicycles on Road

12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
11:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1

12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Bicycles on Crosswalk

	Eastbound			Westbound			Northbound			Southbound		
Time	CCW	CW	Total	CCW	CW	Total	CCW	CW	Total	CCW	CW	Total
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	1	1	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0

12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	1	1	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrians

	Eastbound			Westbound			Northbound			Southbound		
Time	CCW	CW	Total	CCW	CW	Total	CCW	CW	Total	CCW	CW	Total
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	1	1	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	1	1	0	0	0

12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	1	1	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	1	1	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	1	1	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX C

EXISTING PEAK HOUR ANALYSIS

Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	276	8	20	237	11	34
Future Vol, veh/h	276	8	20	237	11	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	75	-	0	200
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	80	80	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	325	10	25	279	14	43

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	335	0	515	325
Stage 1	-	-	-	-	325	-
Stage 2	-	-	-	-	190	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1223	-	504	715
Stage 1	-	-	-	-	731	-
Stage 2	-	-	-	-	824	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1223	-	494	715
Mov Cap-2 Maneuver	-	-	-	-	639	-
Stage 1	-	-	-	-	731	-
Stage 2	-	-	-	-	808	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	639	715	-	-	1223	-
HCM Lane V/C Ratio	0.022	0.059	-	-	0.02	-
HCM Control Delay (s)	10.8	10.4	-	-	8	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	276	3	28	296	6	32
Future Vol, veh/h	276	3	28	296	6	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	75	-	0	200
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	80	80	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	325	4	35	348	8	40

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	329	0	569	325
Stage 1	-	-	-	-	325	-
Stage 2	-	-	-	-	244	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1229	-	468	715
Stage 1	-	-	-	-	731	-
Stage 2	-	-	-	-	775	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1229	-	455	715
Mov Cap-2 Maneuver	-	-	-	-	613	-
Stage 1	-	-	-	-	731	-
Stage 2	-	-	-	-	753	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	613	715	-	-	1229	-
HCM Lane V/C Ratio	0.012	0.056	-	-	0.028	-
HCM Control Delay (s)	10.9	10.3	-	-	8	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	308	260	12	17	1
Future Vol, veh/h	2	308	260	12	17	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	300	90	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	90	85	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	342	306	15	21	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	321	0	-	0	654	306
Stage 1	-	-	-	-	306	-
Stage 2	-	-	-	-	348	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1239	-	-	-	431	734
Stage 1	-	-	-	-	747	-
Stage 2	-	-	-	-	715	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1239	-	-	-	430	734
Mov Cap-2 Maneuver	-	-	-	-	529	-
Stage 1	-	-	-	-	746	-
Stage 2	-	-	-	-	715	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1239	-	-	-	529	734
HCM Lane V/C Ratio	0.002	-	-	-	0.04	0.002
HCM Control Delay (s)	7.9	-	-	-	12.1	9.9
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	296	314	3	8	11
Future Vol, veh/h	2	296	314	3	8	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	300	90	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	85	90	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	348	349	4	10	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	353	0	-	0	703	349
Stage 1	-	-	-	-	349	-
Stage 2	-	-	-	-	354	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1206	-	-	-	404	694
Stage 1	-	-	-	-	714	-
Stage 2	-	-	-	-	710	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1206	-	-	-	403	694
Mov Cap-2 Maneuver	-	-	-	-	509	-
Stage 1	-	-	-	-	713	-
Stage 2	-	-	-	-	710	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1206	-	-	-	509	694
HCM Lane V/C Ratio	0.002	-	-	-	0.02	0.02
HCM Control Delay (s)	8	-	-	-	12.2	10.3
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0.1

Intersection	
Int Delay, s/veh	3.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	318	6	134	250	5	156
Future Vol, veh/h	318	6	134	250	5	156
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	235	175	-	0	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	80	85	85	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	353	8	158	294	6	184

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	361	0	963	353
Stage 1	-	-	-	-	353	-
Stage 2	-	-	-	-	610	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1198	-	284	691
Stage 1	-	-	-	-	711	-
Stage 2	-	-	-	-	542	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1198	-	247	691
Mov Cap-2 Maneuver	-	-	-	-	363	-
Stage 1	-	-	-	-	711	-
Stage 2	-	-	-	-	470	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3	12.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	363	691	-	-	1198	-
HCM Lane V/C Ratio	0.017	0.266	-	-	0.132	-
HCM Control Delay (s)	15.1	12.1	-	-	8.5	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	1.1	-	-	0.5	-

Intersection	
Int Delay, s/veh	3.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	270	25	120	314	4	174
Future Vol, veh/h	270	25	120	314	4	174
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	235	175	-	0	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	80	85	90	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	318	31	141	349	5	205

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	349	0	949	318
Stage 1	-	-	-	-	318	-
Stage 2	-	-	-	-	631	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1210	-	289	723
Stage 1	-	-	-	-	738	-
Stage 2	-	-	-	-	530	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1210	-	255	723
Mov Cap-2 Maneuver	-	-	-	-	368	-
Stage 1	-	-	-	-	738	-
Stage 2	-	-	-	-	468	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	12
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	368	723	-	-	1210	-
HCM Lane V/C Ratio	0.014	0.283	-	-	0.117	-
HCM Control Delay (s)	14.9	11.9	-	-	8.4	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0	1.2	-	-	0.4	-

Intersection	
Int Delay, s/veh	4.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	117	64	0	29	92
Future Vol, veh/h	5	117	64	0	29	92
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	100	215	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	85	80	80	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	138	80	0	36	108

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	260	80	0	0	80	0
Stage 1	80	-	-	-	-	-
Stage 2	180	-	-	-	-	-
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	729	980	-	-	1518	-
Stage 1	943	-	-	-	-	-
Stage 2	851	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	712	980	-	-	1518	-
Mov Cap-2 Maneuver	712	-	-	-	-	-
Stage 1	943	-	-	-	-	-
Stage 2	831	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	1.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	712	980	1518	-
HCM Lane V/C Ratio	-	-	0.009	0.14	0.024	-
HCM Control Delay (s)	-	-	10.1	9.3	7.4	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0.5	0.1	-

Intersection	
Int Delay, s/veh	3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	43	142	4	69	68
Future Vol, veh/h	5	43	142	4	69	68
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	100	215	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	85	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	54	167	5	86	85

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	424	167	0	0	172	0
Stage 1	167	-	-	-	-	-
Stage 2	257	-	-	-	-	-
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	587	877	-	-	1405	-
Stage 1	863	-	-	-	-	-
Stage 2	786	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	551	877	-	-	1405	-
Mov Cap-2 Maneuver	551	-	-	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	738	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	3.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	551	877	1405	-
HCM Lane V/C Ratio	-	-	0.011	0.061	0.061	-
HCM Control Delay (s)	-	-	11.6	9.4	7.7	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0.2	0.2	-

Intersection	
Intersection Delay, s/veh	3.3
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	4	64	41	126
Demand Flow Rate, veh/h	4	66	42	128
Vehicles Circulating, veh/h	157	38	10	33
Vehicles Exiting, veh/h	4	14	151	71
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	3.1	3.2	2.9	3.5
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	4	66	42	128
Cap Entry Lane, veh/h	1176	1327	1366	1334
Entry HV Adj Factor	0.995	0.969	0.984	0.982
Flow Entry, veh/h	4	64	41	126
Cap Entry, veh/h	1170	1286	1344	1310
V/C Ratio	0.003	0.050	0.031	0.096
Control Delay, s/veh	3.1	3.2	2.9	3.5
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

Intersection	
Intersection Delay, s/veh	3.6
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	44	176	91
Demand Flow Rate, veh/h	0	45	180	93
Vehicles Circulating, veh/h	106	153	29	19
Vehicles Exiting, veh/h	6	56	77	179
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	3.4	3.8	3.3
Approach LOS	-	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	0	45	180	93
Cap Entry Lane, veh/h	1238	1180	1340	1353
Entry HV Adj Factor	1.000	0.978	0.978	0.976
Flow Entry, veh/h	0	44	176	91
Cap Entry, veh/h	1238	1154	1310	1321
V/C Ratio	0.000	0.038	0.134	0.069
Control Delay, s/veh	2.9	3.4	3.8	3.3
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	518	378	32	132	14
Future Vol, veh/h	4	518	378	32	132	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	175	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	90	85	85	85	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	576	445	38	155	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	483	0	-	0	1050	242
Stage 1	-	-	-	-	464	-
Stage 2	-	-	-	-	586	-
Critical Hdwy	4.13	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	1078	-	-	-	237	759
Stage 1	-	-	-	-	600	-
Stage 2	-	-	-	-	555	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1078	-	-	-	236	759
Mov Cap-2 Maneuver	-	-	-	-	438	-
Stage 1	-	-	-	-	597	-
Stage 2	-	-	-	-	555	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	16.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1078	-	-	-	438	759
HCM Lane V/C Ratio	0.005	-	-	-	0.355	0.023
HCM Control Delay (s)	8.4	-	-	-	17.7	9.9
HCM Lane LOS	A	-	-	-	C	A
HCM 95th %tile Q(veh)	0	-	-	-	1.6	0.1

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	434	504	126	81	10
Future Vol, veh/h	21	434	504	126	81	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	175	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	90	90	90	85	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	482	560	140	95	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	700	0	-	0	1164	350
Stage 1	-	-	-	-	630	-
Stage 2	-	-	-	-	534	-
Critical Hdwy	4.13	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	895	-	-	-	201	647
Stage 1	-	-	-	-	494	-
Stage 2	-	-	-	-	587	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	895	-	-	-	195	647
Mov Cap-2 Maneuver	-	-	-	-	392	-
Stage 1	-	-	-	-	480	-
Stage 2	-	-	-	-	587	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	16.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	895	-	-	-	392	647
HCM Lane V/C Ratio	0.029	-	-	-	0.243	0.019
HCM Control Delay (s)	9.1	-	-	-	17.1	10.7
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.9	0.1

APPENDIX D

RIGHT TURN ON RED SITE VISIT

Traffic Counts Performed: 5/3/2023

Location: Northbound Right at Woody Mountain Road and Route 66

Time	No Wait	Wait
7:00 AM to 7:15 AM	16	8
7:15 AM to 7:30 AM	38	11
7:30 AM to 7:45 AM	18	21
7:45 AM to 8:00 AM	27	10
8:00 AM to 8:15 AM	23	7
8:15 AM to 8:30 AM	26	4
8:30 AM to 8:45 AM	12	7
8:45 AM to 9:00 AM	19	5
4:00 PM to 4:15 PM	34	23
4:15 PM to 4:30 PM	25	20
4:30 PM to 4:45 PM	34	22
4:45 PM to 5:00 PM	33	15
5:00 PM to 5:15 PM	28	32
5:15 PM to 5:30 PM	21	7
5:30 PM to 5:45 PM	19	13
5:45 PM to 6:00 PM	22	15

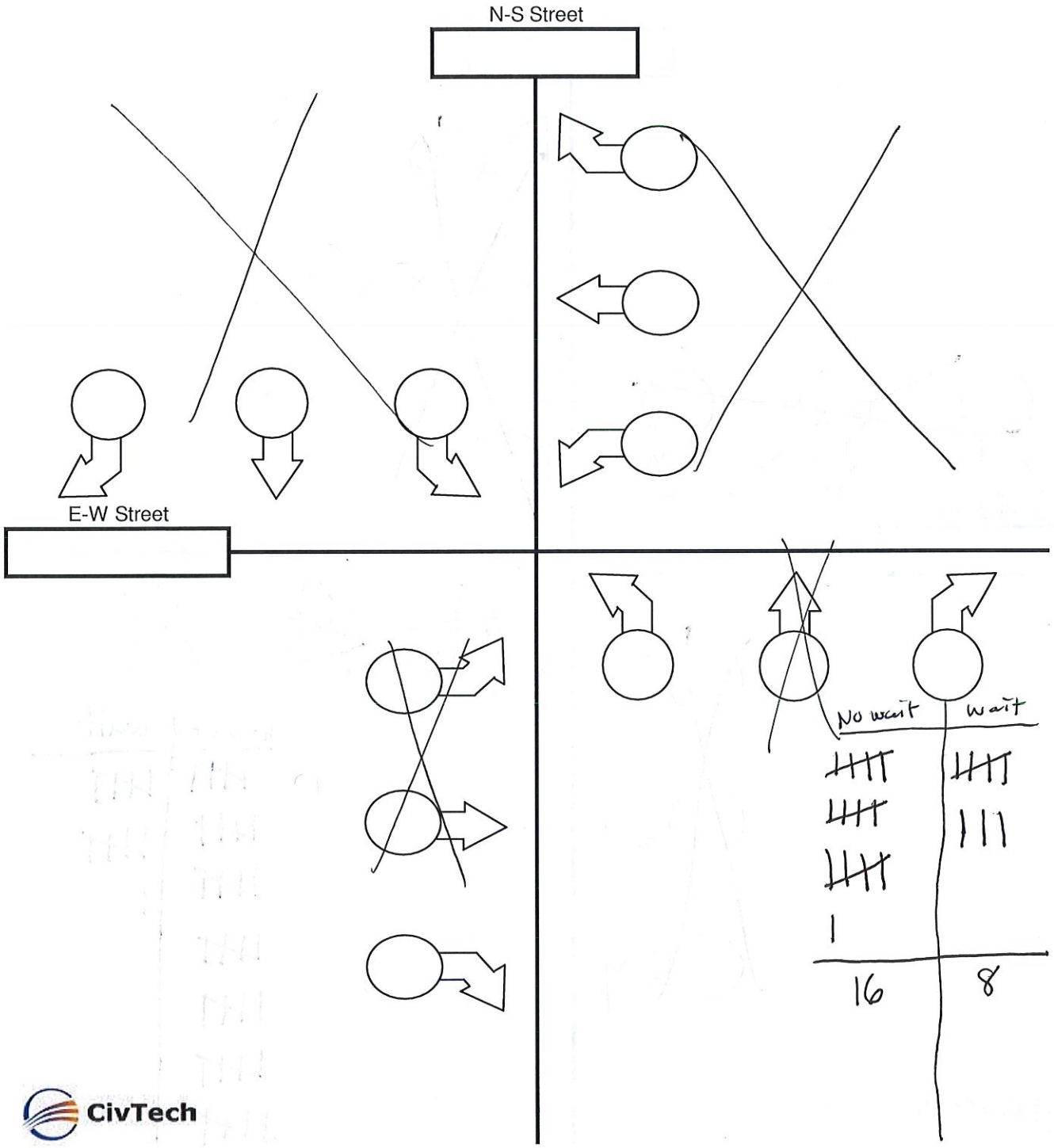
Total	395	220	615

Percentage	64%	36%

Traffic Count Data Collection

Date: 5/3/23 **Day of Week:** wednesday
Time: 7:00 AM to 7:15 AM
Name: Eddie M.
Location: woody Merriam Rd & Route 66

N

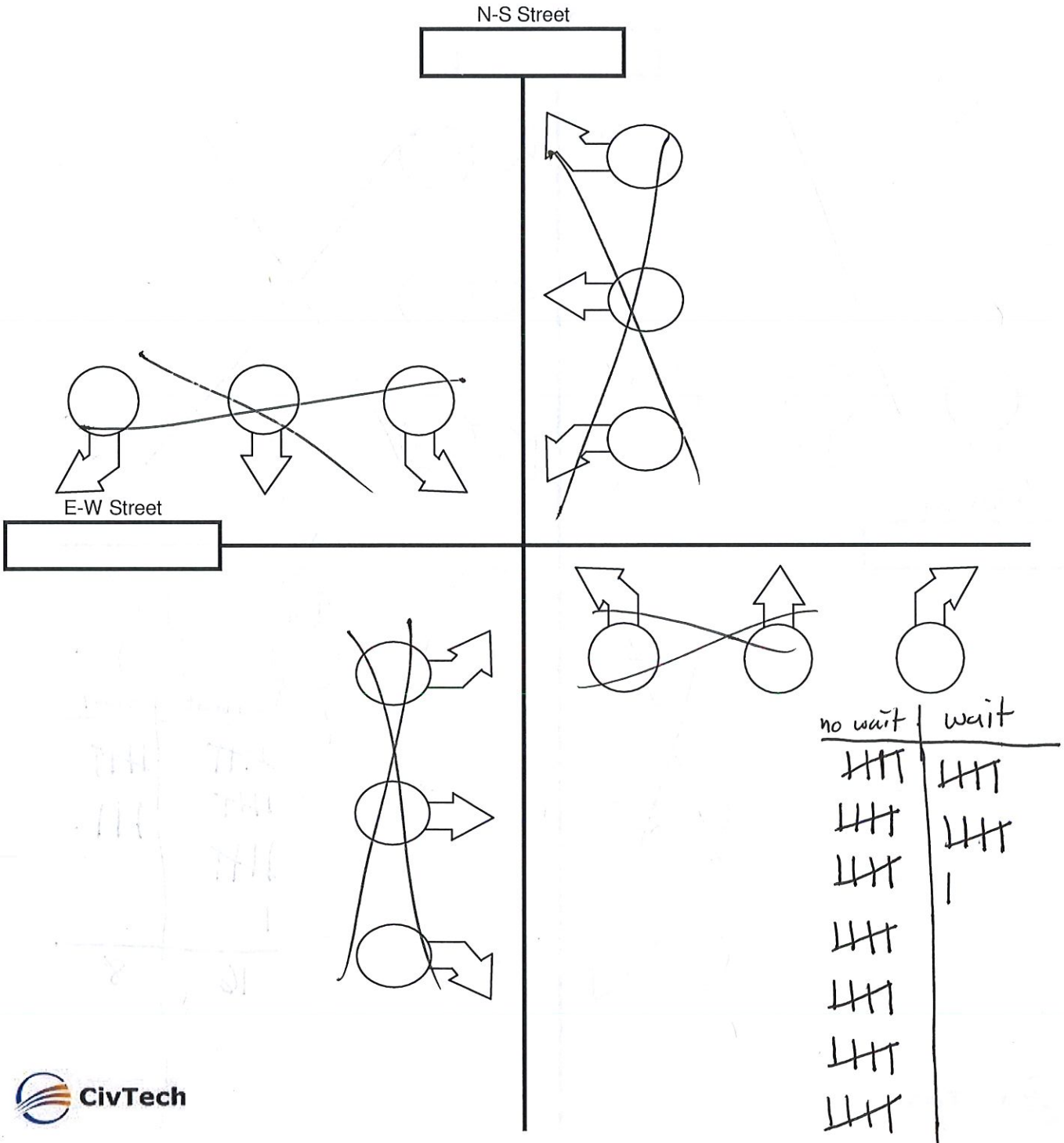


CivTech

Traffic Count Data Collection

Date: _____ **Day of Week:** _____
Time: 7:15 AM to 7:30 AM
Name: _____
Location: _____

N



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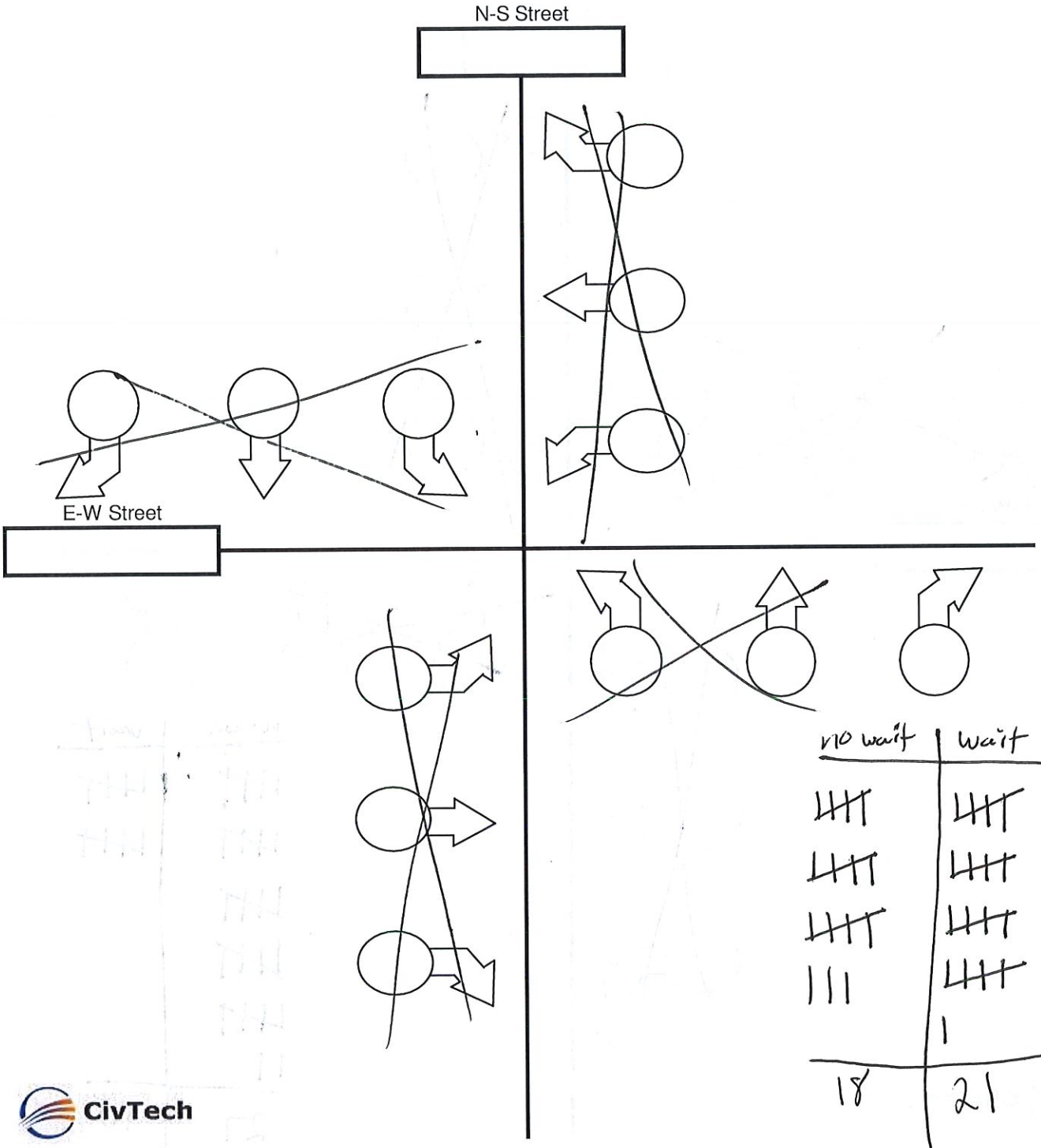
Traffic Count Data Collection

Date: _____ **Day of Week:** _____
Time: 7:30 AM to 7:45 AM
Name: _____
Location: _____

N



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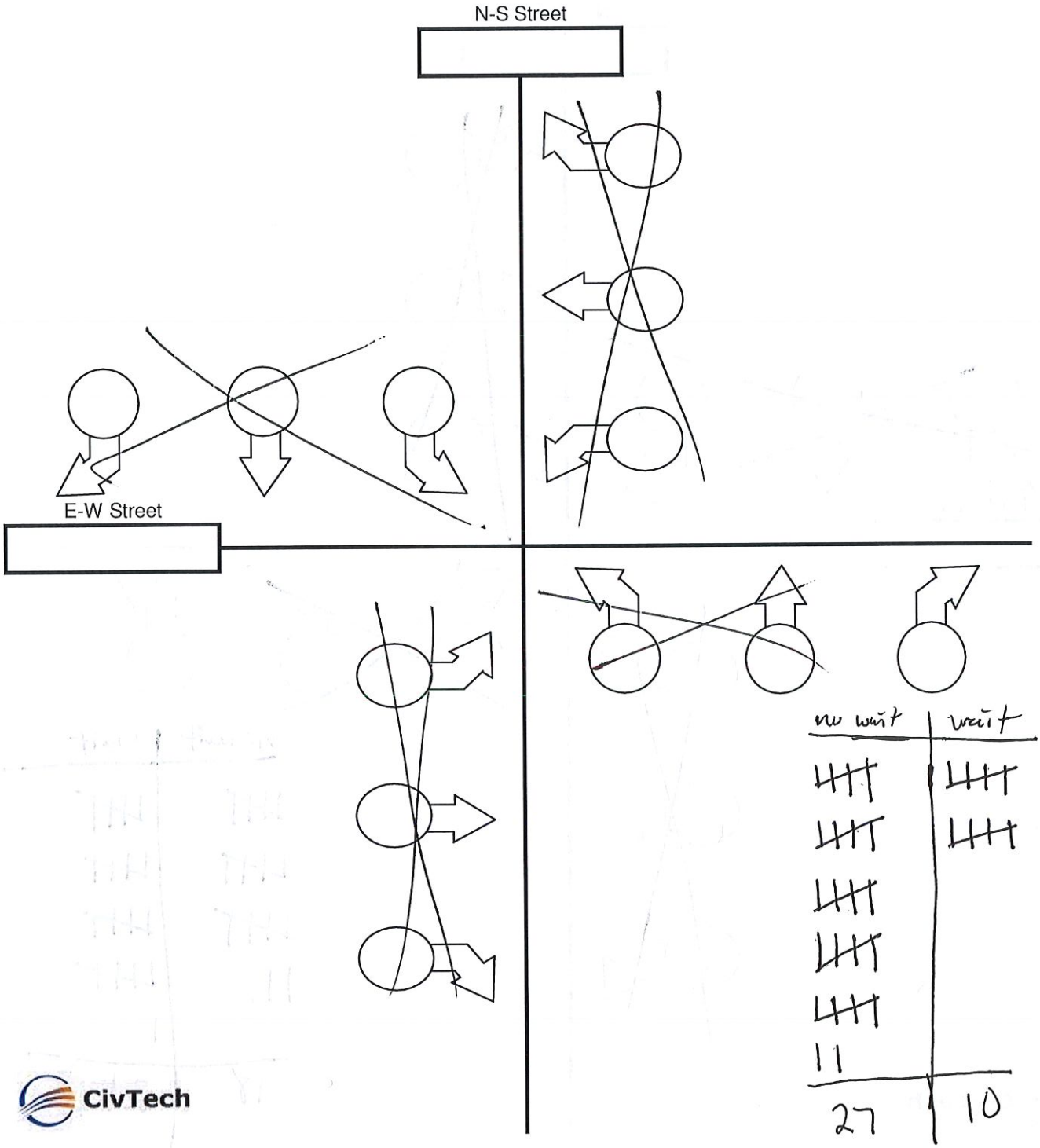
Traffic Count Data Collection

Date: _____ **Day of Week:** _____
Time: 7:45 AM to 8:00 AM
Name: _____
Location: _____

N



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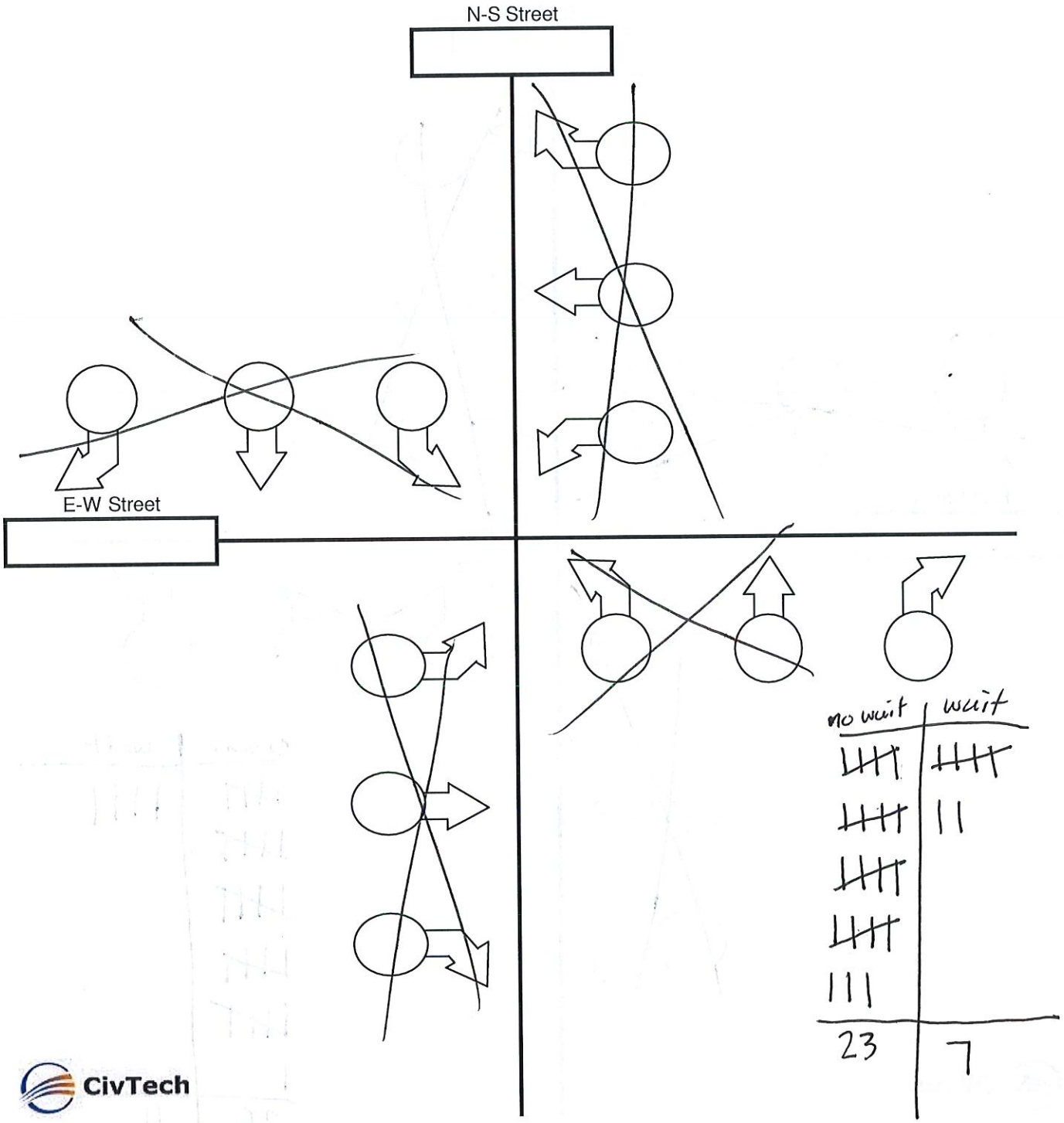
Traffic Count Data Collection

Date: _____ **Day of Week:** _____
Time: 8:00 AM to 8:15 AM
Name: _____
Location: _____

N



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23	7

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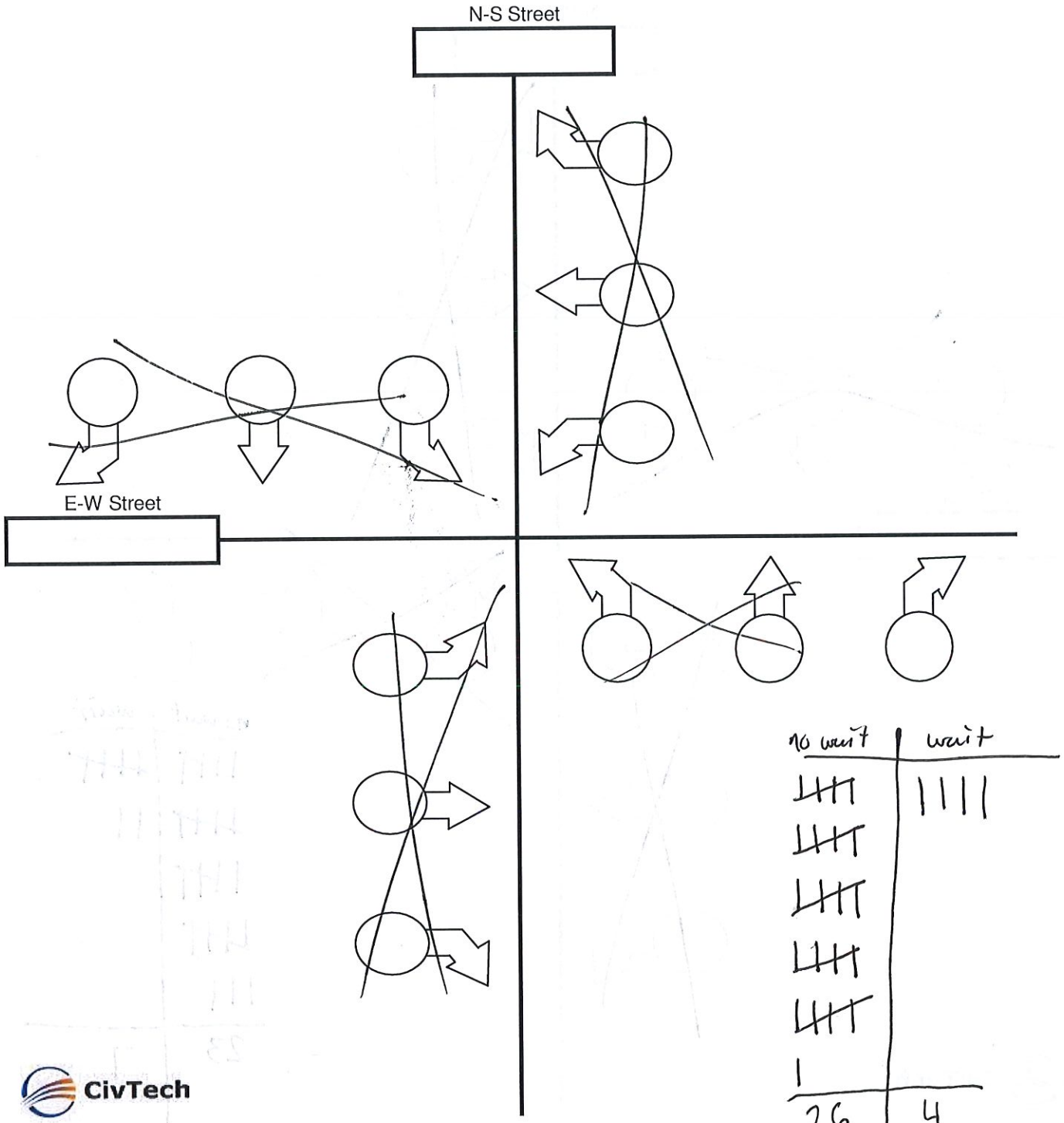
Traffic Count Data Collection

Date: _____ **Day of Week:** _____
Time: 8:15 AM to 8:30 AM
Name: _____
Location: _____

N



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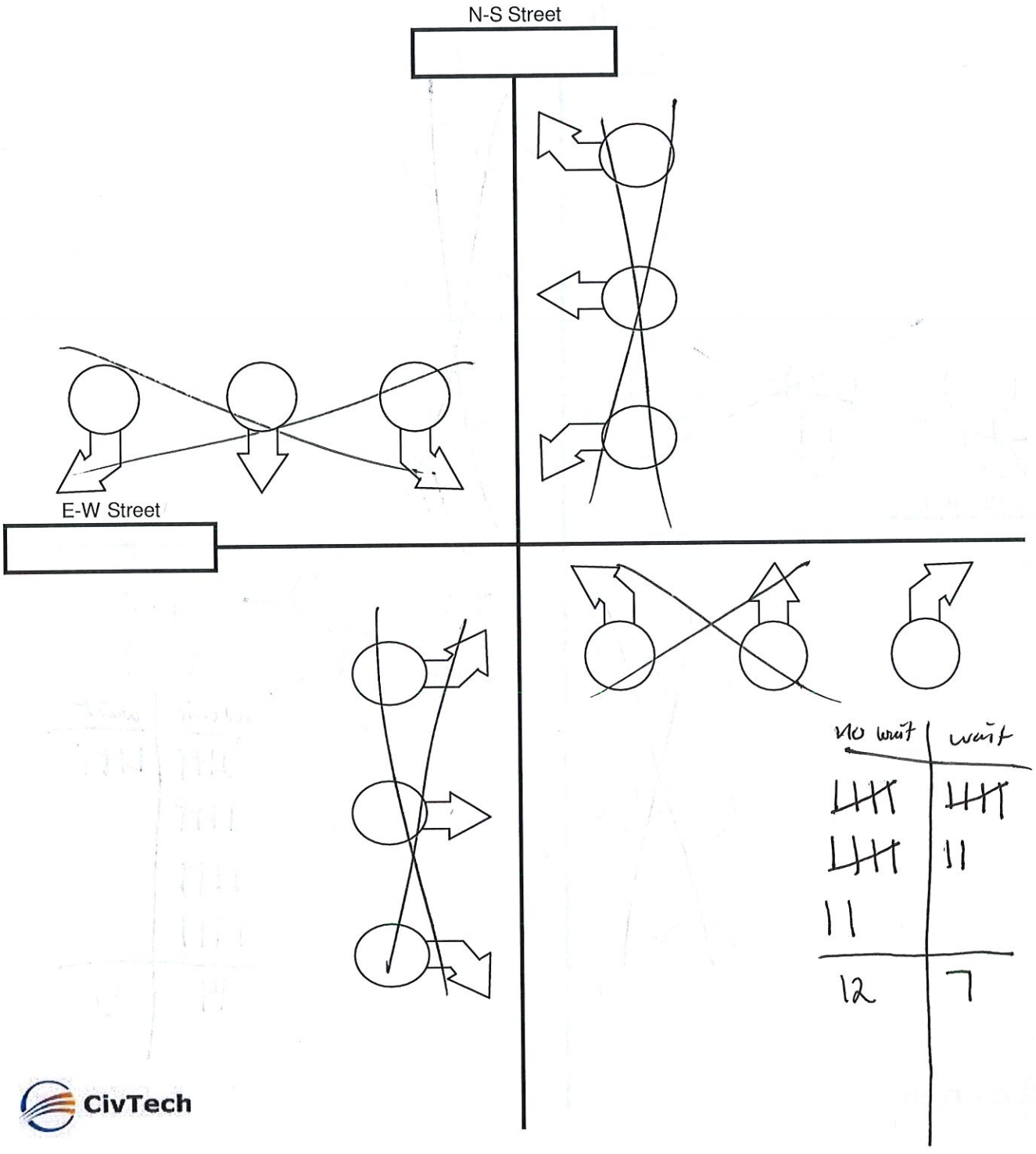
Traffic Count Data Collection

Date: _____ **Day of Week:** _____
Time: 8:30 AM to 8:45 AM
Name: _____
Location: _____

N

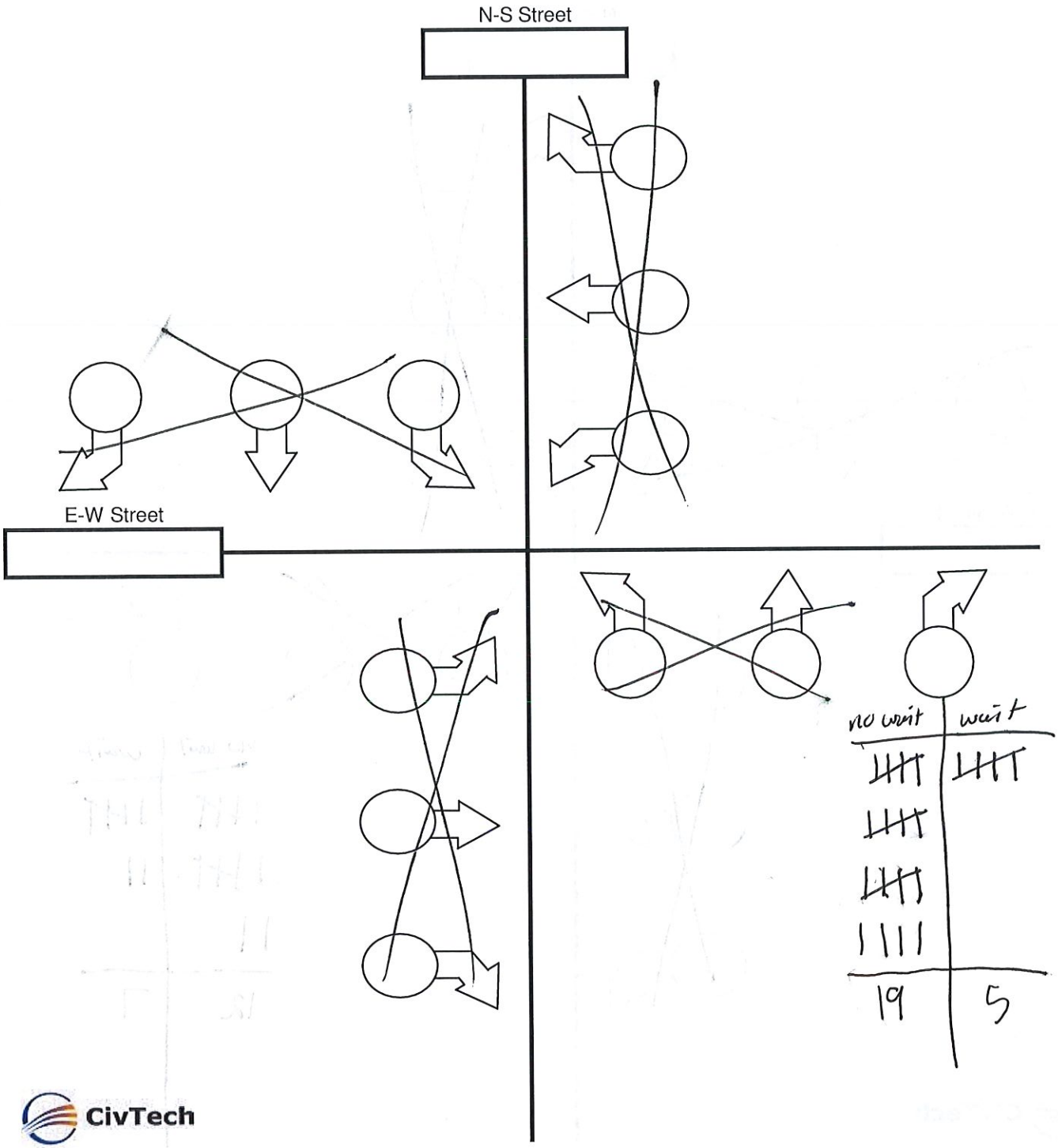


CivTech

Traffic Count Data Collection

Date: _____ **Day of Week:** _____
Time: 8:45 AM to 9:00 AM
Name: _____
Location: _____

N



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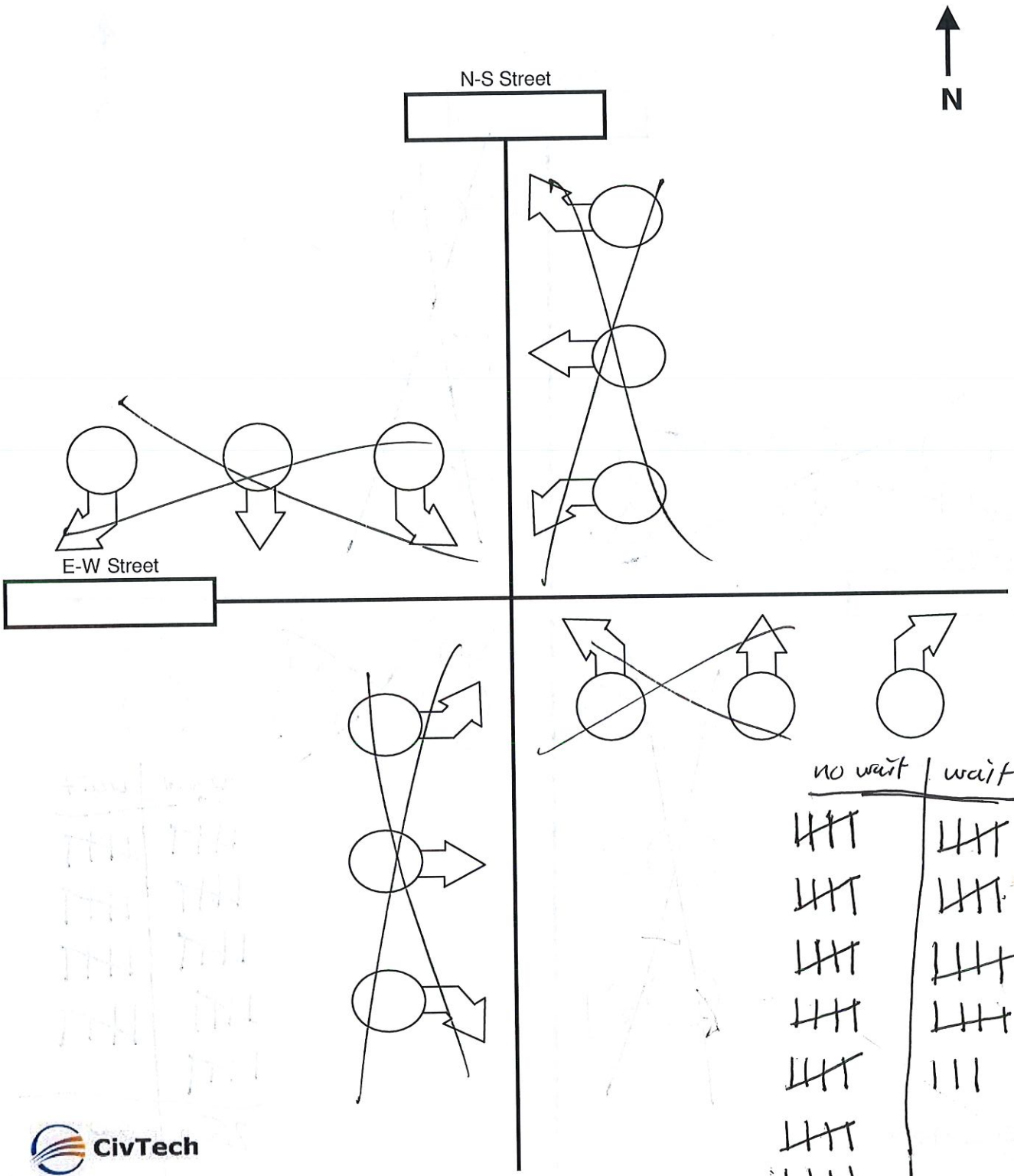
Traffic Count Data Collection

Date: _____ **Day of Week:** _____
Time: 4:00 PM to 4:15 PM
Name: _____
Location: _____



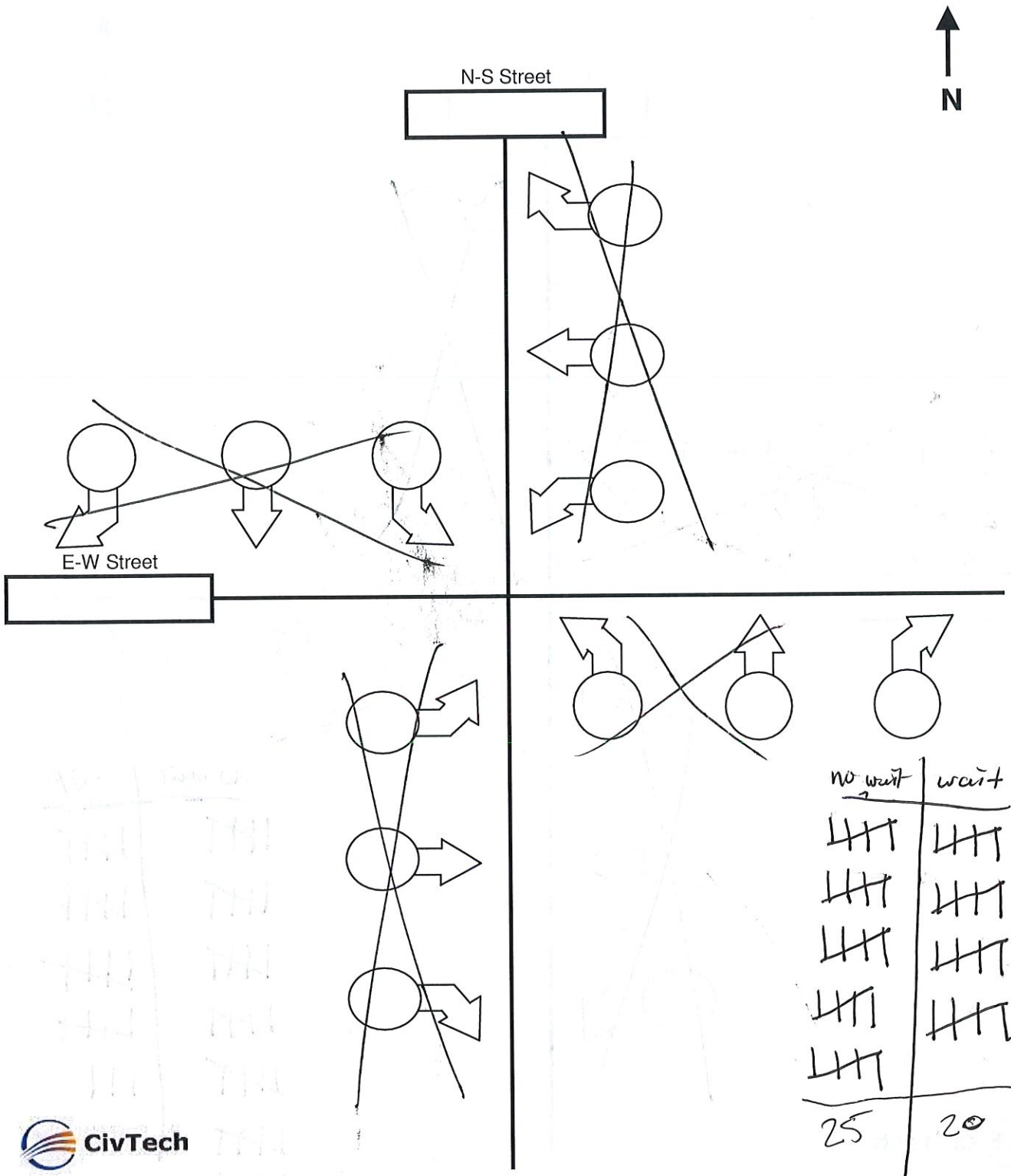
no wait	wait
34	23

10

CivTech

Traffic Count Data Collection

Date: _____ **Day of Week:** _____
Time: 4:15 PM to 4:30 PM
Name: _____
Location: _____

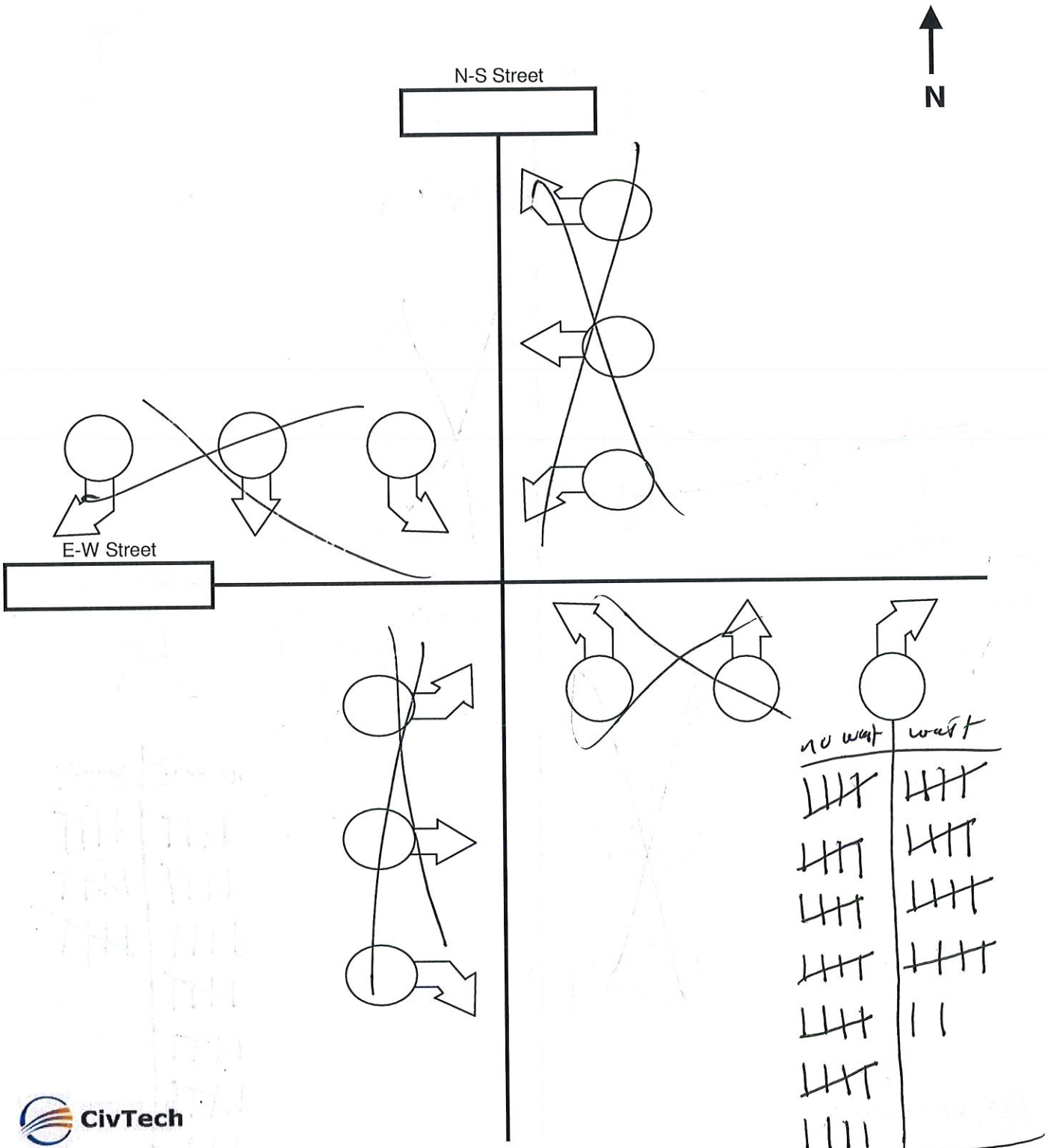


no wait	wait
25	20

CivTech

Traffic Count Data Collection

Date: _____ **Day of Week:** _____
Time: 4:30 PM to 4:45 PM
Name: _____
Location: _____



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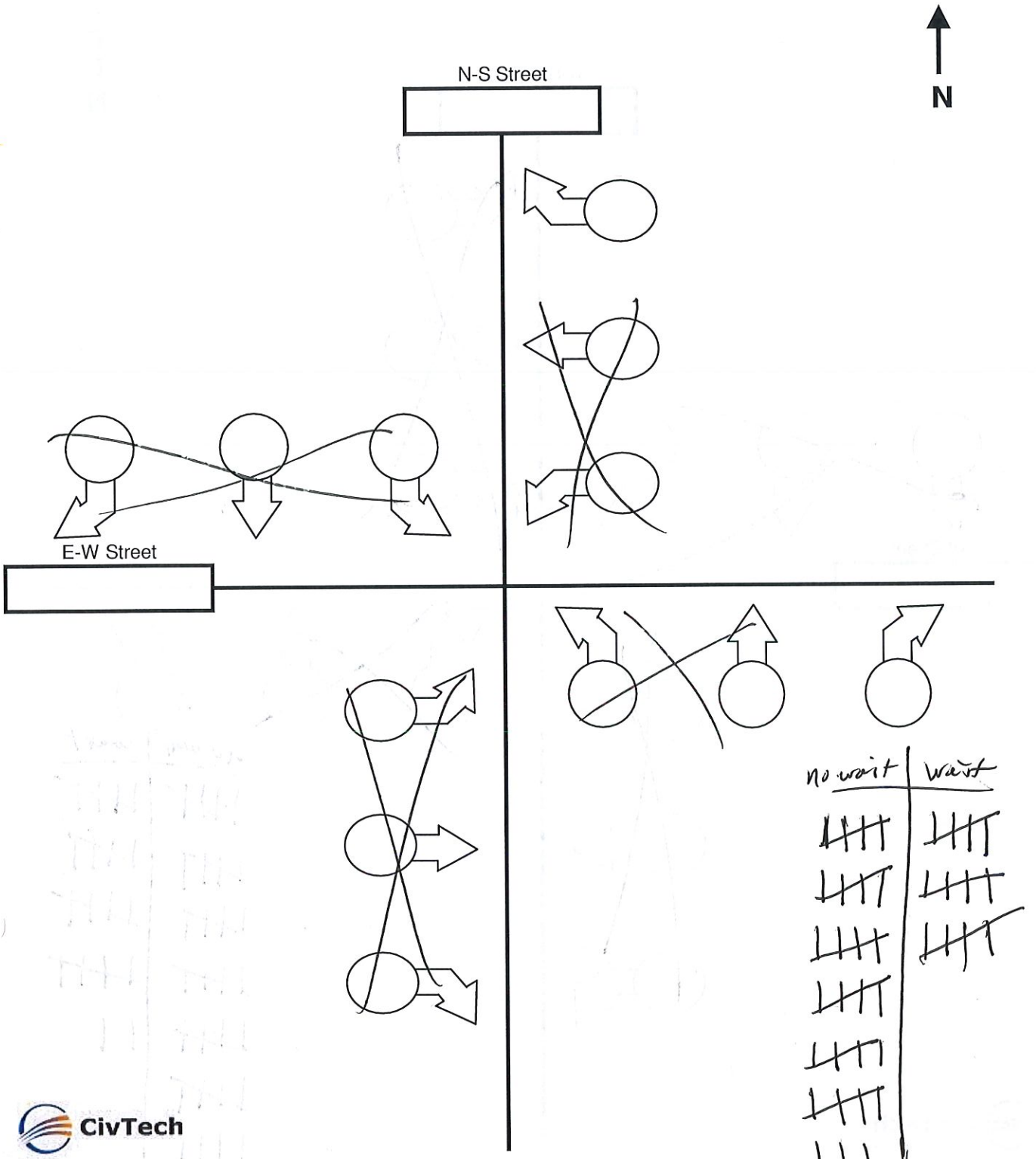
Traffic Count Data Collection

Date: _____ **Day of Week:** _____
Time: 4:45 PM to 5:00 PM
Name: _____
Location: _____



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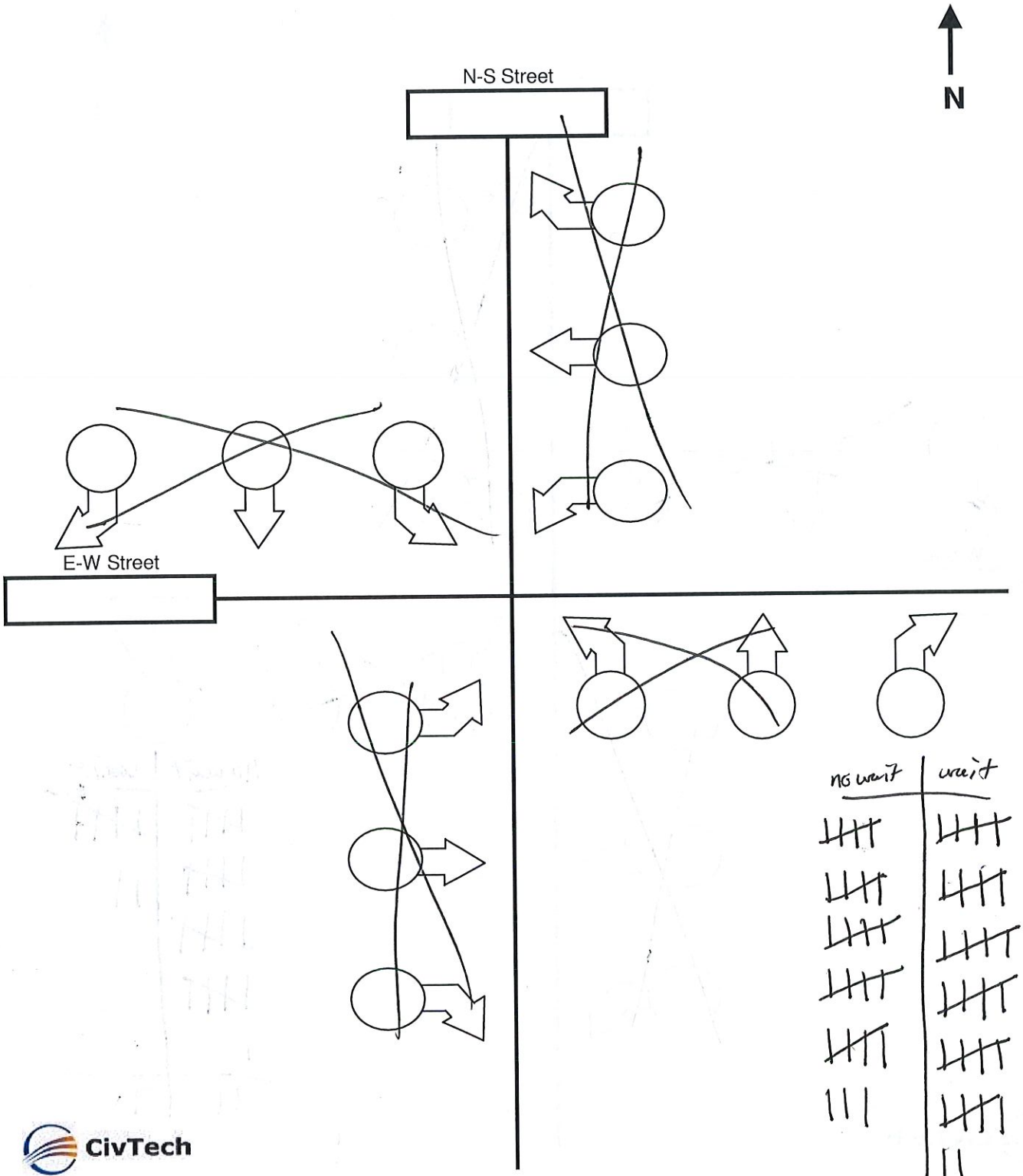
Traffic Count Data Collection

Date: _____ **Day of Week:** _____
Time: 5:00 PM to 5:15 PM
Name: _____
Location: _____



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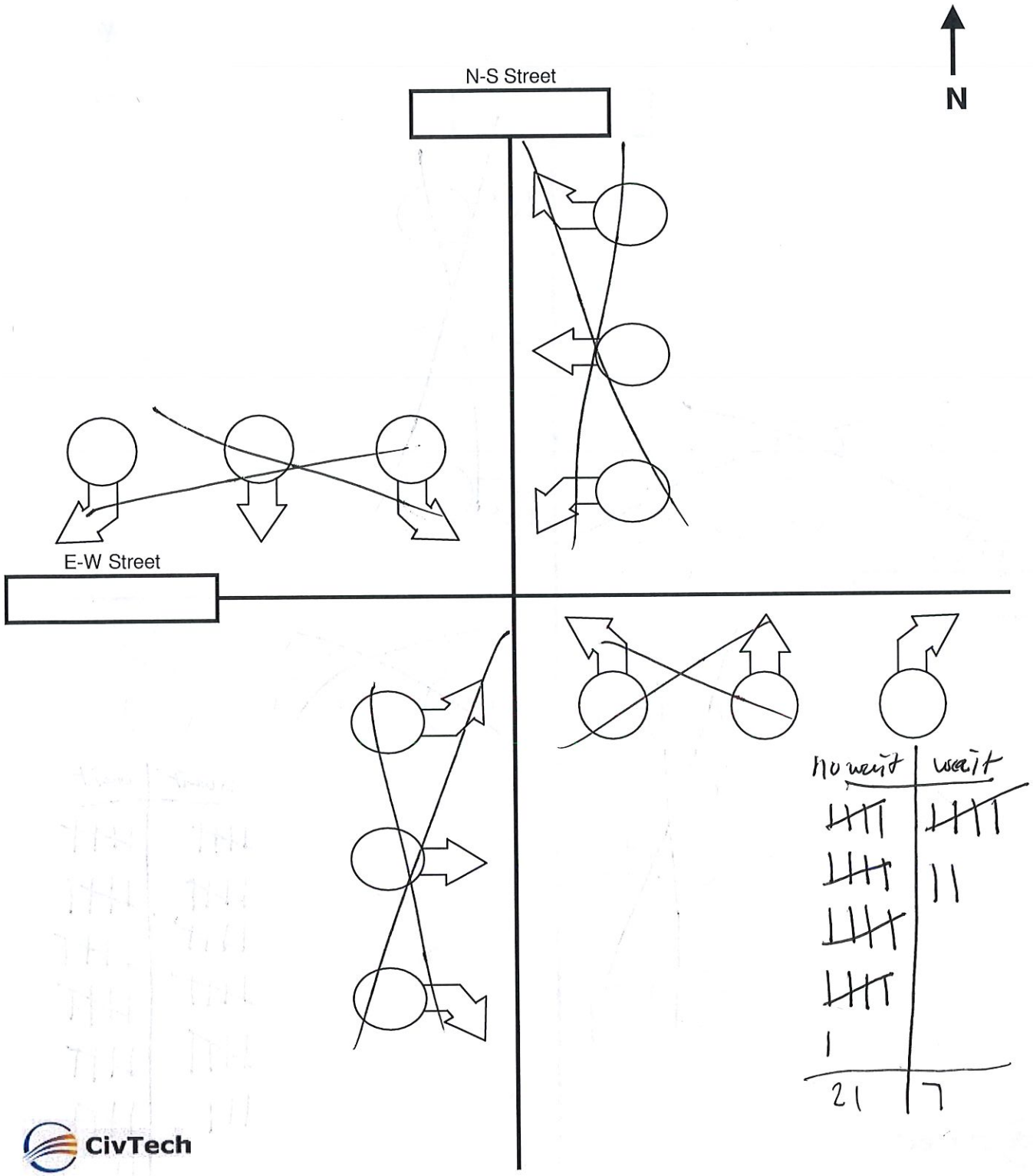
Traffic Count Data Collection

Date: _____ **Day of Week:** _____
Time: 5:15 PM to 5:30 PM
Name: _____
Location: _____



CivTech

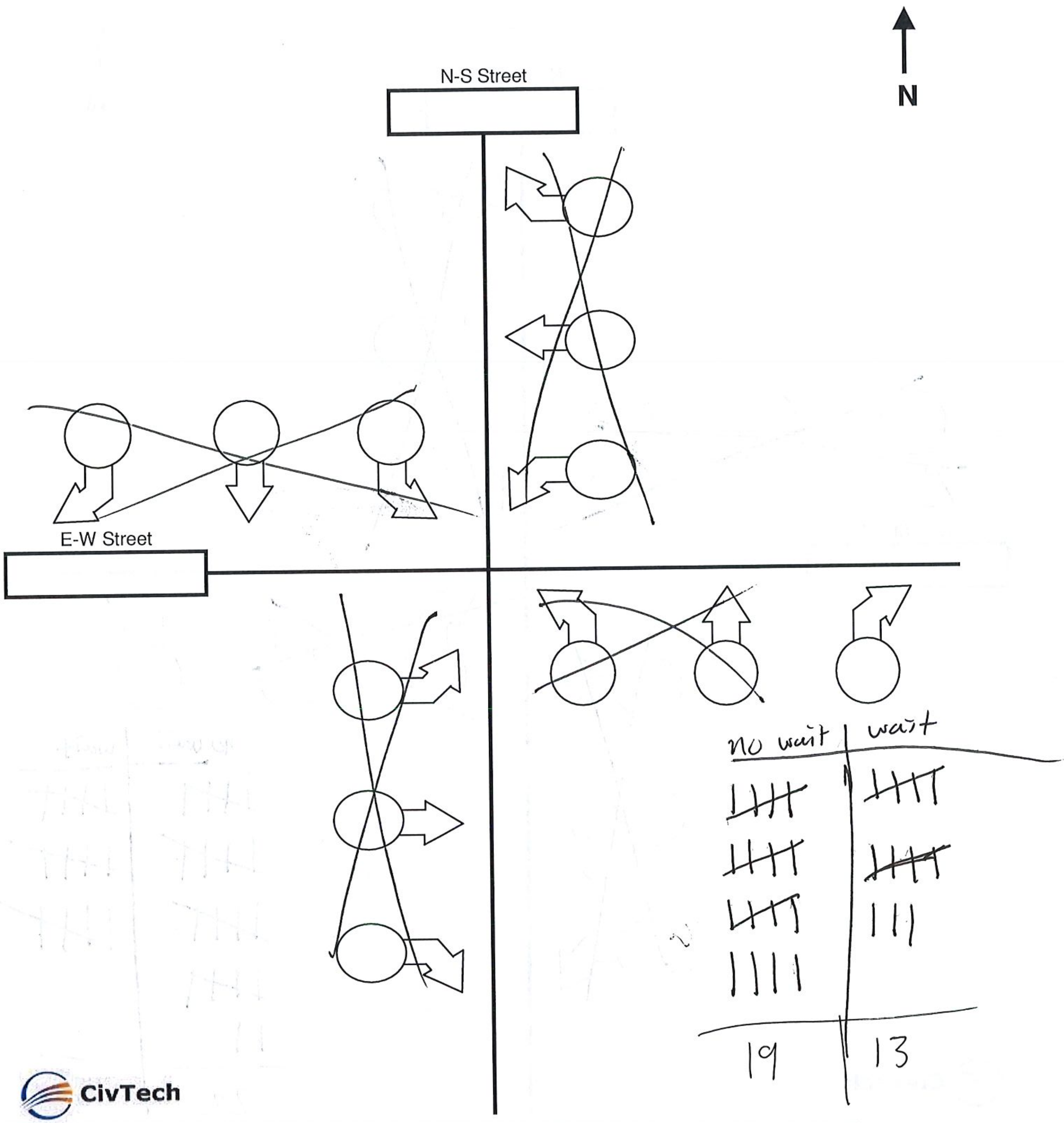
Traffic Count Data Collection

Date: ______ **Day of Week:** ______

Time: 5:30 PM to 5:45 PM

Name: ______

Location: ______



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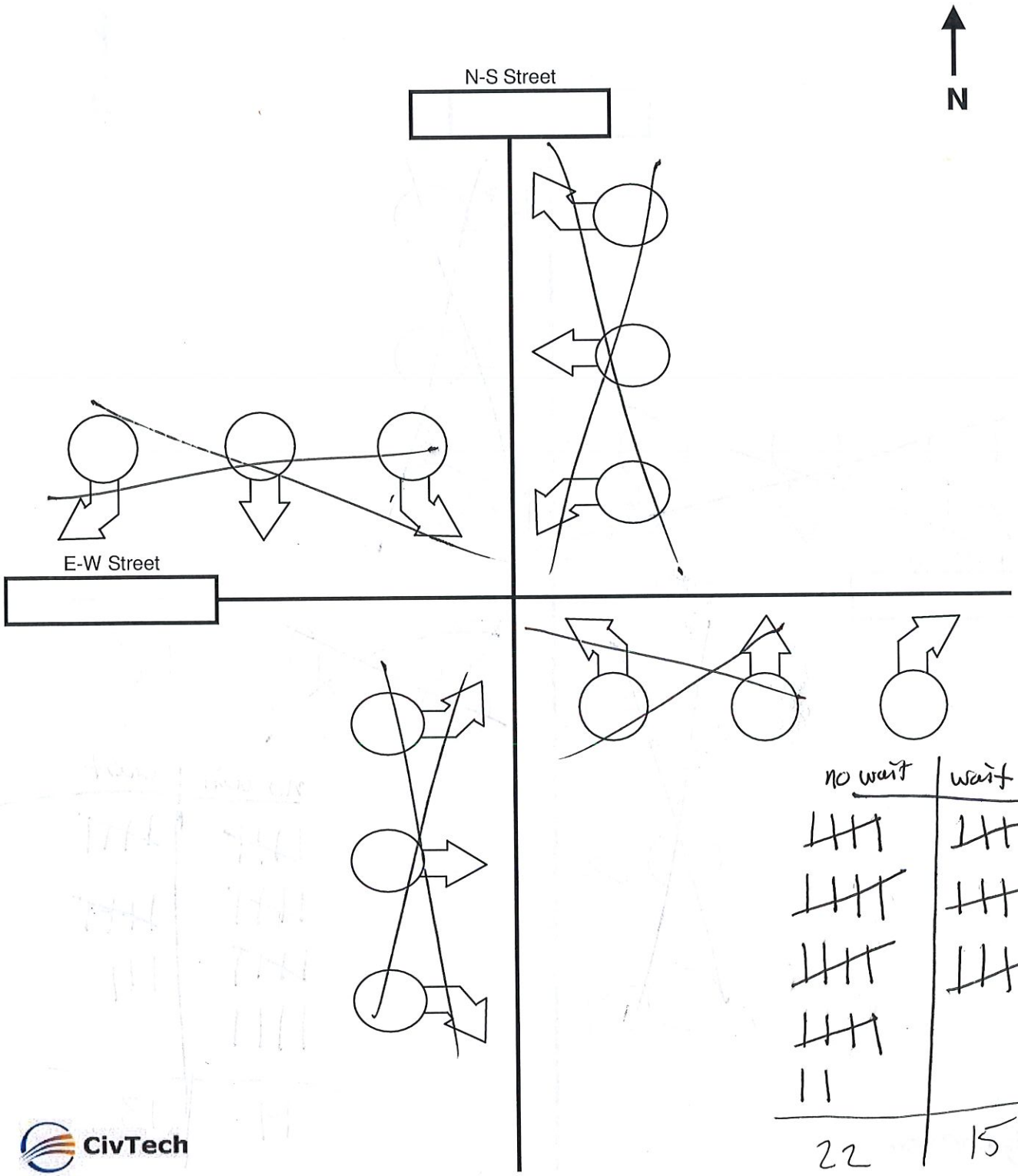
Traffic Count Data Collection

Date: _____ **Day of Week:** _____
Time: 5:45 PM to 6:00 PM
Name: _____
Location: _____



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22	15

CivTech

APPENDIX E

EXISTING TRAFFIC SIGNAL WARRANT WORKSHEETS

Timber Sky Apartments

Signal Warrant Analysis

MUTCD Warrants 1-3

Major Street: Route 66 — Speed Limit: 45 — Lanes:* 2
Minor Street: Woody Mountian Road — Speed Limit: 40 — Lanes:* 1
Locale: City of Flagstaff — *Number of Approach Lanes of Moving Traffic:

Major Street vph - total of both approaches	18	25	23	136	76	206	333	639	701	592	613	745	765	683	809	768	709	739	451	332	242	142	78	39
Minor Street volume - higher-volume approach (vph)	3	25	2	4	5	12	21	57	30	34	33	57	56	43	65	55	53	38	28	19	20	10	7	4
Direction of higher-volume minor approach	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB
Beginning of hour	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00

Critical speed of major street traffic above 40 mph X
In built-up area of isolated community less than 10,000 population
Urban x

Warrant 1, Eight-Hour Vehicular Volume

Condition A *Minimum Vehicular Volume*					Criteria	Hour																						
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Minimum Reqmts	500	600	600	500																									
(100%[a])	150	150	200	200																									
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	**2/1**																								
Minimum Reqmts	350	420	420	350	**420**	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
(70%[c])	105	105	140	140	**105**	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Warrant met?	**No**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Condition B *Interruption of Cont. Traffic*					Criteria	Hour																						
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Minimum Reqmts	750	900	900	750																									
(100%[a])	75	75	100	100																									
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	**2/1**																								
Minimum Reqmts	525	630	630	525	**630**	No	No	No	No	No	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
(70%[c])	53	53	70	70	**53**	No	No	No	No	No	No	No	Yes	No	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No	No
Warrant met?	**No**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Combination *of Conditions A & B*					Criteria	Hour																						
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Condition A	400	480	480	400																									
(80%[b])	120	120	160	160																									
Condition B	600	720	720	600																									
(80%[b])	60	60	80	80																									
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	**2/1**																								
Condition A	280	336	336	280	**336**	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
(56%[d])	84	84	112	112	**84**	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Condition B	420	504	504	420	**504**	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
(56%[d])	42	42	56	56	**42**	No	No	No	No	No	No	No	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No
Warrant met?	**No**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Warrant 2, Four Hour Vehicular Volume					Criteria	Hour																						
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	**2/1**	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
100% *See to the right*																													
70% *See to the right*					**Use**	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Warrant met?	**No**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Warrant 3, Peak Hour					Criteria	Hour																						
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	**2/1**	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
100% *See to the right*																													
70% *See to the right*					**Use**	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Warrant met?	**No**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Volume-Based Traffic Signal Warrants Analysis Summary

Warrant		Hour(s) of the Day	Hours Required to Meet Warrant	Hours Met	Is Warrant Met?
Warrant 1. Eight-Hour Vehicular Volume	Condition A: Minimum Vehicular Volume	Any Eight Hours	8	0	No
	Condition B: Interruption of Continuous Traffic	Any Eight Hours	8	6	No
	Combination of Condition A & Condition B	Any Eight Hours	8	0	No
	Overall (at least 1 of the 3 conditions required to meet warrant)				**No**
Warrant 2. Four-Hour Vehicular Volume		Any Four Hours	4	0	**No**
Warrant 3. Peak Hour		Any One/Peak Hour	1	0	**No**

APPENDIX F

CRASH ANALYSIS WORKSHEETS

CRASH STATISTICS

2019

Woody Mountain Rd & Route 66

Involvement

	# Incidents	Totals		# Motorists	# Non-Motorists
Incidents	1	1	Veh	1	0
Fatal	0	0	Ppl	0	0
Injury	0	0	Ppl	0	0
PDO	1	1	Veh		

Peds/Bikes Summary

	Incidents	Persons	Injuries Fatal	Injuries Non-Fatal
Pedestrian:	0	0	0	0
Bicycle:	0	0	0	0

Code	LightCondition	No.
1	DAYLIGHT	0
2	DAWN	0
3	DUSK	0
4	DARK_LIGHTED	0
5	DARK_NOT_LIGHTED	1
6	DARK_UNKNOWN_LIGHTING	0
99	UNKNOWN	0
	Check Total	1

Code	Weather	No.
1	CLEAR	1
2	CLOUDY	0
3	SLEET_HAIL_FREEZING_RAIN_OR_DRIZZLE	0
4	RAIN	0
5	SNOW	0
6	SEVERE_CROSSWINDS	0
7	BLOWING_SAND_SOIL_DIRT	0
8	FOG_SMOG_SMOKE	0
9	BLOWING_SNOW	0
97	OTHER	0
99	UNKNOWN	0
	Check Total	1

Code	TrafficWayType	No.
1	ONE_WAY_TRAFFICWAY	0
2	TWO_WAY_NOT_DIVIDED	1
3	ED_WITH_CONTINUOUS_LEFT_TURN_LANE	0
4	_UNPROTECTED_PAINTED_4_FEET_MEDIAN	0
5	DED_POSITIVE_MEDIAN_BARRIER	0
99	UNKNOWN	0
	Check Total	1

Code	Weekday	No.
1	Sunday	1
2	Monday	0
3	Tuesday	0
4	Wednesday	0
5	Thursday	0
6	Friday	0
7	Saturday	0
	Check Total	1

Circumstances

Hit & Run?	0
Intersection Related?	0

Code	JunctionRelation	No.
0	NOT_JUNCTION_RELATED	1
1	INTERSECTION_NON_INTERCHANGE	0
2	INTERSECTION_RELATED_NON_INTERCHANGE	0
3	ENTRANCE_EXIT_RAMP_NON_INTERCHANGE	0
4	RAILWAY_GRADE_CROSSING	0
5	CROSSOVER_RELATED	0
6	FRONTAGE_ROAD_NON_INTERCHANGE	0
7	DRIVEWAY	0
8	ALLEY_ACCESS_RELATED	0
9	UNKNOWN_NON_INTERCHANGE	0
10	THRU_ROADWAY	0
11	INTERSECTION_INTERCHANGE	0
12	INTERSECTION_RELATED_INTERCHANGE	0
13	ENTRANCE_EXIT_RAMP_INTERCHANGE	0
14	FRONTAGE_ROAD_INTERCHANGE	0
15	OTHER_PART_OF_INTERCHANGE	0
16	<not defined>	0
17	UNKNOWN_INTERCHANGE	0
18	UNKNOWN_JUNCTION	0
99	UNKNOWN	0
109	OTHER_NON_INTERCHANGE	0
	Check Total	1

Code	CollisionManner	No.
1	SINGLE_VEHICLE	1
2	ANGLE (front to side)(other than left turn)	0
3	LEFT_TURN	0
4	REAR_END	0
5	HEAD_ON	0
6	SIDESWIPE_SAME_DIRECTION	0
7	SIDESWIPE_OPPOSITE_DIRECTION	0
8	REAR_TO_SIDE	0
9	REAR_TO_REAR	0
97	OTHER	0
99	UNKNOWN	0
	Check Total	1

TravelDirection		
1	NORTH	N
2	SOUTH	S
3	EAST	E
4	WEST	W
5	NORTHWEST	NW
6	NORTHEAST	NE
7	SOUTHWEST	SW
8	SOUTHEAST	SE
99	UNKNOWN	99

Code	First Harmful Event	No.
1	OVERTURN_ROLLOVER	0
2	FIRE_EXPLOSION	0
3	IMMERSION	0
4	JACKKNIFE	0
5	CARGO_EQUIPMENT_LOSS_SHIFT	0
6	FELL_JUMPED_FROM_VEHICLE	0
7	THROWN_OR_FALLING_OBJECT	0
8	OTHER_NON_COLLISION	0
9	EQUIPMENT_FAILURE~~_TIRES_BRAKES~~	0
10	SEPARATION_OF_UNITS	0
11	RAN_OFF_ROAD_RIGHT	0
12	RAN_OFF_ROAD_LEFT	0
13	CROSS_MEDIAN	0
14	CROSS_CENTERLINE	0
15	DOWNHILL_RUNAWAY	0
16	MOTOR_VEHICLE_IN_TRANSPORT	0
17	PEDESTRIAN	0
18	PEDALCYCLE	0
19	RAILWAY_VEHICLE_TRAIN_ENGINE	0
20	LIGHT_RAILWAY_RAILCAR_VEHICLE	0
21	ANIMAL_WILD_NON_GAME	1
22	ANIMAL_WILD_GAME	0
23	ANIMAL_PET	0
24	ANIMAL_LIVESTOCK	0
25	PARKED_MOTOR_VEHICLE	0
26	WORK_ZONE_MAINTENANCE_EQUIPMENT	0
27	STRUCK_BY_FALLING_SHIFTING_CARGO_OR_OBJECT	0
28	OTHER_NON_FIXED_OBJECT	0
29	IMPACT_ATTENUATOR_CRASH_CUSHION	0
30	BRIDGE_OVERHEAD_STRUCTURE	0
31	BRIDGE_RAIL	0
32	CULVERT	0
33	CURB	0
34	DITCH	0
35	EMBANKMENT	0
36	GUARDRAIL_FACE	0
37	GUARDRAIL_END	0
38	CONCRETE_TRAFFIC_BARRIER	0
39	CABLE_TRAFFIC_BARRIER	0
40	OTHER_TRAFFIC_BARRIER	0
41	TREE_BUSH_STUMP_STANDING	0
42	TRAFFIC_SIGN_SUPPORT	0
43	TRAFFIC_SIGNAL_SUPPORT	0
44	UTILITY_POLE_LIGHT_SUPPORT	0
45	OTHER_POST_POLE_OR_SUPPORT	0
46	FENCE	0
47	MAILBOX	0
48	BUILDING	0
49	OTHER_FIXED_OBJECT	0
99	UNKNOWN	0
255	Not Reported	0
	Check Total	1

Code	Month	No.
1	January	0
2	February	0
3	March	0
4	April	0
5	May	0
6	June	0
7	July	1
8	August	0
9	September	0
10	October	0
11	November	0
12	December	0
	Total	1

Code	(Unit) SurfaceCondition	No.
1	DRY	1
2	WET	0
3	SNOW	0
4	SLUSH	0
5	ICE_FROST	0
6	WATER_STANDING_MOVING	0
7	SAND	0
8	MUD_DIRT_GRAVEL	0
9	OIL	0
97	OTHER	0
99	UNKNOWN	0
	Total	1

Additional Useful Information

Vehicle Action Codes

1	GOING_STRAIGHT_AHEAD
2	SLOWING_IN_TRAFFICWAY
3	STOPPED_IN_TRAFFICWAY
4	MAKING_LEFT_TURN
5	MAKING_RIGHT_TURN
6	MAKING_U_TURN
7	OVERTAKING_PASSING
8	CHANGING_LANES
9	NEGOTIATING_A_CURVE
10	BACKING
11	Avoiding_Vehicle_Object_Pedestrian
12	ENTERING_PARKING_POSITION
13	LEAVING_PARKING_POSITION
14	PROPERLY_PARKED
15	IMPROPERLY_PARKED
16	DRIVERLESS_MOVING_VEHICLE
17	CROSSING_ROAD
18	WALKING_WITH_TRAFFIC
19	WALKING_AGAINST_TRAFFIC
20	STANDING
21	LYING
22	GETTING_ON_OR_OFF_VEHICLE
23	WORKING_ON_OR_PUSHING_VEHICLE
24	WORKING_ON_ROAD
97	OTHER
99	UNKNOWN

Body Styles

-1	NOT_REPORTED
1	\Passenger Vehicles, including RVs
53	/
54	\TRUCKS
88	/
89	\MOBILEHOME (NOT RVS)
92	/
93	\TRAILERS
120	/
121	\MOTORCYCLES
128	/
254	UNKNOWN
255	NOT REPORTED

<-------- LOCATION -------->							<-DATE & TIME->		<-------- UNITS -------->														<-------- PERSON -------->								<-------- SEVERITY -------->				<----- GENERAL ----->						
INCIDNT	ON STREET	MP	OFF-SET	D R	DIS-TANCE	INTERSECT STREET	OFCR NCIC	OFCR NCIC	YYMMDD	HH:MM	D W	TO-TAL	SRFCND U1	SRFCND U2	ALGMT 1	ALGMT 2	GRADE 1	GRADE 2	DFCTS U1	DFCTS U2	BSTYLE U1	BSTYLE U2	TRDR 1	TRDR 2	UACT U1	UACT U2	TTL MOT	TTL NON	TYP 1	TYP 2	INJR 1	INJR 2	VLTN D1	VLTN D2	PHSCND D1	PHSCND D2	NON LOC	INCIDENTS PDO	INJ	FAT	INJURIES TTL	FATALITIES MOT	FATALITIES NON	H R	LT CN	WE CN	JCT REL	TRF CWY	HE CD	M C
3540845	03W ROUTE 66			M	500	S Woody Mountain Rd	301	301	190714	22:12	1	1	1		1		1		0		31		E		1		1	0	1		1		99		0		1		0	0		N	5	1	0	2	21	1

CRASH STATISTICS

2021

Northwestern Street & Route 66

Involvement

	# Incidents	Totals		# Motorists	# Non-Motorists
Incidents	2	4	Veh	5	0
Fatal	0	0	Ppl	0	0
Injury	1	1	Ppl	0	0
PDO	1	2	Veh		

Peds/Bikes Summary

	Incidents	Persons	Injuries Fatal	Injuries Non-Fatal
Pedestrian:	0	0	0	0
Bicycle:	0	0	0	0

LightCondition	Code	No.
DAYLIGHT	1	2
DAWN	2	0
DUSK	3	0
DARK_LIGHTED	4	0
DARK_NOT_LIGHTED	5	0
DARK_UNKNOWN_LIGHTING	6	0
UNKNOWN	99	0
Check Total		2

Weather		
CLEAR	1	1
CLOUDY	2	1
SLEET_HAIL_FREEZING_RAIN_OR_DRIZZLE	3	0
RAIN	4	0
SNOW	5	0
SEVERE_CROSSWINDS	6	0
BLOWING_SAND_SOIL_DIRT	7	0
FOG_SMOG_SMOKE	8	0
BLOWING_SNOW	9	0
OTHER	97	0
UNKNOWN	99	0
Check Total		2

TrafficWayType		
ONE_WAY_TRAFFICWAY	1	0
TWO_WAY_NOT_DIVIDED	2	1
ED_WITH_CONTINUOUS_LEFT_TURN_LANE	3	1
_UNPROTECTED_PAINTED_4_FEET_MEDIAN	4	0
DED_POSITIVE_MEDIAN_BARRIER	5	0
UNKNOWN	99	0
Check Total		2

Weekday		
Sunday	1	0
Monday	2	1
Tuesday	3	0
Wednesday	4	1
Thursday	5	0
Friday	6	0
Saturday	7	0
Check Total		2

Circumstances

Hit & Run?	0
Intersection Related?	0

JunctionRelation	Code	No.
NOT_JUNCTION_RELATED	0	0
INTERSECTION_NON_INTERCHANGE	1	0
INTERSECTION_RELATED_NON_INTERCHANGE	2	0
ENTRANCE_EXIT_RAMP_NON_INTERCHANGE	3	2
RAILWAY_GRADE_CROSSING	4	0
CROSSOVER_RELATED	5	0
FRONTAGE_ROAD_NON_INTERCHANGE	6	0
DRIVEWAY	7	0
ALLEY_ACCESS_RELATED	8	0
UNKNOWN_NON_INTERCHANGE	9	0
THRU_ROADWAY	10	0
INTERSECTION_INTERCHANGE	11	0
INTERSECTION_RELATED_INTERCHANGE	12	0
ENTRANCE_EXIT_RAMP_INTERCHANGE	13	0
FRONTAGE_ROAD_INTERCHANGE	14	0
OTHER_PART_OF_INTERCHANGE	15	0
<not defined>	16	0
UNKNOWN_INTERCHANGE	17	0
UNKNOWN_JUNCTION	18	0
UNKNOWN	99	0
OTHER_NON_INTERCHANGE	109	0
Check Total		2

CollisionManner	Code	No.
SINGLE_VEHICLE	1	0
ANGLE (front to side)(other than left turn)	2	0
LEFT_TURN	3	2
REAR_END	4	0
HEAD_ON	5	0
SIDESWIPE_SAME_DIRECTION	6	0
SIDESWIPE_OPPOSITE_DIRECTION	7	0
REAR_TO_SIDE	8	0
REAR_TO_REAR	9	0
OTHER	97	0
UNKNOWN	99	0
Check Total		2

TravelDirection		
1	NORTH	N
2	SOUTH	S
3	EAST	E
4	WEST	W
5	NORTHWEST	NW
6	NORTHEAST	NE
7	SOUTHWEST	SW
8	SOUTHEAST	SE
99	UNKNOWN	99

First Harmful Event	Code	No.
OVERTURN_ROLLOVER	1	0
FIRE_EXPLOSION	2	0
IMMERSION	3	0
JACKKNIFE	4	0
CARGO_EQUIPMENT_LOSS_SHIFT	5	0
FELL_JUMPED_FROM_VEHICLE	6	0
THROWN_OR_FALLING_OBJECT	7	0
OTHER_NON_COLLISION	8	0
EQUIPMENT_FAILURE~~_TIRES_BRAKES~~	9	0
SEPARATION_OF_UNITS	10	0
RAN_OFF_ROAD_RIGHT	11	0
RAN_OFF_ROAD_LEFT	12	0
CROSS_MEDIAN	13	0
CROSS_CENTERLINE	14	0
DOWNHILL_RUNAWAY	15	0
MOTOR_VEHICLE_IN_TRANSPORT	16	2
PEDESTRIAN	17	0
PEDALCYCLE	18	0
RAILWAY_VEHICLE_TRAIN_ENGINE	19	0
LIGHT_RAILWAY_RAILCAR_VEHICLE	20	0
ANIMAL_WILD_NON_GAME	21	0
ANIMAL_WILD_GAME	22	0
ANIMAL_PET	23	0
ANIMAL_LIVESTOCK	24	0
PARKED_MOTOR_VEHICLE	25	0
WORK_ZONE_MAINTENANCE_EQUIPMENT	26	0
STRUCK_BY_FALLING_SHIFTING_CARGO_OR_OBJECT	27	0
OTHER_NON_FIXED_OBJECT	28	0
IMPACT_ATTENUATOR_CRASH_CUSHION	29	0
BRIDGE_OVERHEAD_STRUCTURE	30	0
BRIDGE_RAIL	31	0
CULVERT	32	0
CURB	33	0
DITCH	34	0
EMBANKMENT	35	0
GUARDRAIL_FACE	36	0
GUARDRAIL_END	37	0
CONCRETE_TRAFFIC_BARRIER	38	0
CABLE_TRAFFIC_BARRIER	39	0
OTHER_TRAFFIC_BARRIER	40	0
TREE_BUSH_STUMP_STANDING	41	0
TRAFFIC_SIGN_SUPPORT	42	0
TRAFFIC_SIGNAL_SUPPORT	43	0
UTILITY_POLE_LIGHT_SUPPORT	44	0
OTHER_POST_POLE_OR_SUPPORT	45	0
FENCE	46	0
MAILBOX	47	0
BUILDING	48	0
OTHER_FIXED_OBJECT	49	0
UNKNOWN	99	0
Not Reported	255	0
Check Total		2

Month	Code	No.
January	1	0
February	2	0
March	3	1
April	4	0
May	5	0
June	6	0
July	7	0
August	8	0
September	9	0
October	10	0
November	11	0
December	12	1
Total		2

(Unit) SurfaceCondition		
DRY	1	4
WET	2	0
SNOW	3	0
SLUSH	4	0
ICE_FROST	5	0
WATER_STANDING_MOVING	6	0
SAND	7	0
MUD_DIRT_GRAVEL	8	0
OIL	9	0
OTHER	97	0
UNKNOWN	99	0
Total		4

Additional Useful Information

Vehicle Action Codes

1	GOING_STRAIGHT_AHEAD
2	SLOWING_IN_TRAFFICWAY
3	STOPPED_IN_TRAFFICWAY
4	MAKING_LEFT_TURN
5	MAKING_RIGHT_TURN
6	MAKING_U_TURN
7	OVERTAKING_PASSING
8	CHANGING_LANES
9	NEGOTIATING_A_CURVE
10	BACKING
11	Avoiding_Vehicle_Object_Pedestrian
12	ENTERING_PARKING_POSITION
13	LEAVING_PARKING_POSITION
14	PROPERLY_PARKED
15	IMPROPERLY_PARKED
16	DRIVERLESS_MOVING_VEHICLE
17	CROSSING_ROAD
18	WALKING_WITH_TRAFFIC
19	WALKING_AGAINST_TRAFFIC
20	STANDING
21	LYING
22	GETTING_ON_OR_OFF_VEHICLE
23	WORKING_ON_OR_PUSHING_VEHICLE
24	WORKING_ON_ROAD
97	OTHER
99	UNKNOWN

Body Styles

-1	NOT_REPORTED
1	\Passenger Vehicles, including RVs
53	/
54	\TRUCKS
88	/
89	\MOBILEHOME (NOT RVS)
92	/
93	\TRAILERS
120	/
121	\MOTORCYCLES
128	/
254	UNKNOWN
255	NOT REPORTED

<-------- LOCATION -------->									<-DATE & TIME->		<-------- UNITS -------->																				<---------- PERSON ---------->									<------- SEVERITY ------->							<----- GENERAL ----->					
INCIDNT	ON STREET	MP	OFF-SET	D R	DIS-TANCE	INTERSECT STREET	NCIC	OFCR NCIC	YYMMDD	HH:MM	D W	TO-TAL	SRF U1	SRF U2	CND 1	CND 2	ALGMT 1	ALGMT 2	GRADE 1	GRADE 2	DFCTS U1	DFCTS U2	BSTYLE U1	BSTYLE U2	TRDR 1	TRDR 2	UACT U1	UACT U2	TTL MOT	TTL NON	TYP 1	TYP 2	INJR 1	INJR 2	VLTN D1	VLTN D2	PHSCND D1	PHSCND D2	NON LOC	INCIDENTS PDO	INJ	FAT	INJURIES TTL	INJURIES MOT	INJURIES NON	FATALITIES TTL	FATALITIES MOT	FATALITIES NON	H R	LT CN	WE CN	JCT REL	TRF CWY	HE CD	M C
3746416	03W ROUTE 66			P	0	S Northwestern St	301	301	210324	14:23	4	2	1	1	1	1	1	0	0	0	254	44	S	W	4	1	2	0	1	1	2	1	20	1	0	0	0		1		1	0	0	0	0	0	N	1	1	3	3	16	3
3847777	03W ROUTE 66			P	0	S Northwestern St	301	301	211213	12:48	2	2	1	1	1	1	1	0	0	0	44	32	S	W	4	1	3	0	1	1	1	1	5	1	0	0	0	1			0		0			N	1	2	3	2	16	3
																														4		1		0		0																	

APPENDIX G

TRIP GENERATION CALCULATIONS

LIV Timber Sky Apartments

Trip Generation

Proposed

October 2022

Methodology Overview

This form facilitates trip generation estimation using data within the Institute of Transportation Engineer's (ITE) Trip Generation Manual, 11th Edition and methodology described within ITE's Trip Generation Handbook, 3rd Edition. These references will be referred to as Manual and Handbook, respectively. The Manual contains data collected by various transportation professionals for a wide range of different land uses, with each land use category represented by a land use code (LUC). Average rates and equations have been established that correlate the relationship between an independent variable that describes the development size and generated trips for each categorized LUC in various settings and time periods. The Handbook indicates an established methodology for how to use data contained within the Manual when to use the fitted curve instead of the average rate and when to adjustments to the volume of trips are appropriate and how to do so. The methodology steps are represented visually in boxes in Figure 3.1. This worksheet applies calculations for each box if applicable.

Box 1 - Define Study Site Land Use Type & Site Characteristics

The analyst is to pick an appropriate LUC(s) based on the subject's zoning/land use(s)/future land use(s). The size of the land use(s) is described in reference to an independent variable(s) specific to (each) the land use (example: 1,000 square feet of building area is relatively common).

Land Use Types and Size

Proposed Use	Amount	Units	ITE LUC	ITE Land Use Name
LR-Apartments No Rail	214	Dwelling Units	220	Multifamily Housing (Low-Rise Not Close to Rail)

Box 2 - Define Site Context

Context assessment is to "simply determine whether the study sites is in a multimodal setting" and "could have persons accessing the site by walking, bicycling, or riding transit." This assessment is used in Box 4. The Manual separates data into 4 setting categories - Rural, General Urban/Suburban, Dense Multi-Urban Use and Center City Core. This worksheet uses the following abbreviations, respectively: R, G, D, and C. The Manual does not have data for all settings of all land use codes. See the table on the next page titled "Site Context and Time Periods" - if this table is not provided, the "General Urban/Suburban" setting is used by default.

Box 3 - Define Analysis Objectives Types of Trips & Time Period

This tool will focus on vehicular trips for a 24-hour period on a typical weekday as well as its AM peak hour and PM peak hour. Other time period(s) may be of interest.

Box 4 - Is Study Site Multimodal?

Per the Handbook, "if the objective is to establish a local trip generation rate for a particular land use or study site, the simplified approach (Box 9) may be acceptable but the Box 5 through 8 approach is required if the study site is located in an infill setting, contains a mix of uses on-site, or is near significant transit service."

Box 5/Box 9 - Estimate Baseline Trips/Estimate Vehicular Trips (Determine Equation)

Vehicle trips are estimated using rates/equations applicable to each LUC. When the appropriate graph has a fitted curve, the Handbook has a process (Figure 4.2) to determine when to use it versus using the weighted average rate or collecting local data. The methodology requires for engineering judgement in some circumstances and permits engineering judgement to override or make adjustments when appropriate to best project (example 1: study site is expected to operate differently than data in the applicable land use code - such as restaurant that is closed in the morning or in the evening; example 2: LUC data in a localized area fails to be represented by the typically selected fitted curve/weighted average rate - a small shop/LUC 820, AM peak hour is skewed by the high y-intercept).

Equation Type: Equation Used [Equated Rate] (Type Abbreviations: Weighted Average Rate ("WA"), Fitted Curve ("FC"), or Custom ("C"))

Proposed Use	ADT	AM Peak Hour	PM Peak Hour	(not used)
LR-Apartments No Rail	FC: T=6.41*X+75.31 [6.76]	FC: T=0.31*X+22.85 [0.42]	FC: T=0.43*X+20.55 [0.53]	

Box 5/Box 9 - Estimate Baseline Trips/Estimate Vehicular Trips (Apply Equations and in/out Distributions)

Baseline Vehicular Trips

	ADT				AM Peak Hour				PM Peak Hour				(not used)			
Proposed Use	% In	In	Out	Total	% In	In	Out	Total	% In	In	Out	Total	% In	In	Out	Total
LR-Apartments No Rail	50%	724	724	1,448	24%	21	68	89	63%	71	42	113				
Totals		**724**	**724**	**1,448**		**21**	**68**	**89**		**71**	**42**	**113**				

If vehicle trip reductions are not applied for internal capture and alternative mode, vehicle trips may be separtated into vehicle trip subsets (pass-by trips, diverted trips, truck trips, new passenger vehicle trips) as part of Box 10. If vehicle trip reductions are to be applied, continue to Box 6.

APPENDIX H

TRIP DISTRIBUTION CALCULATIONS

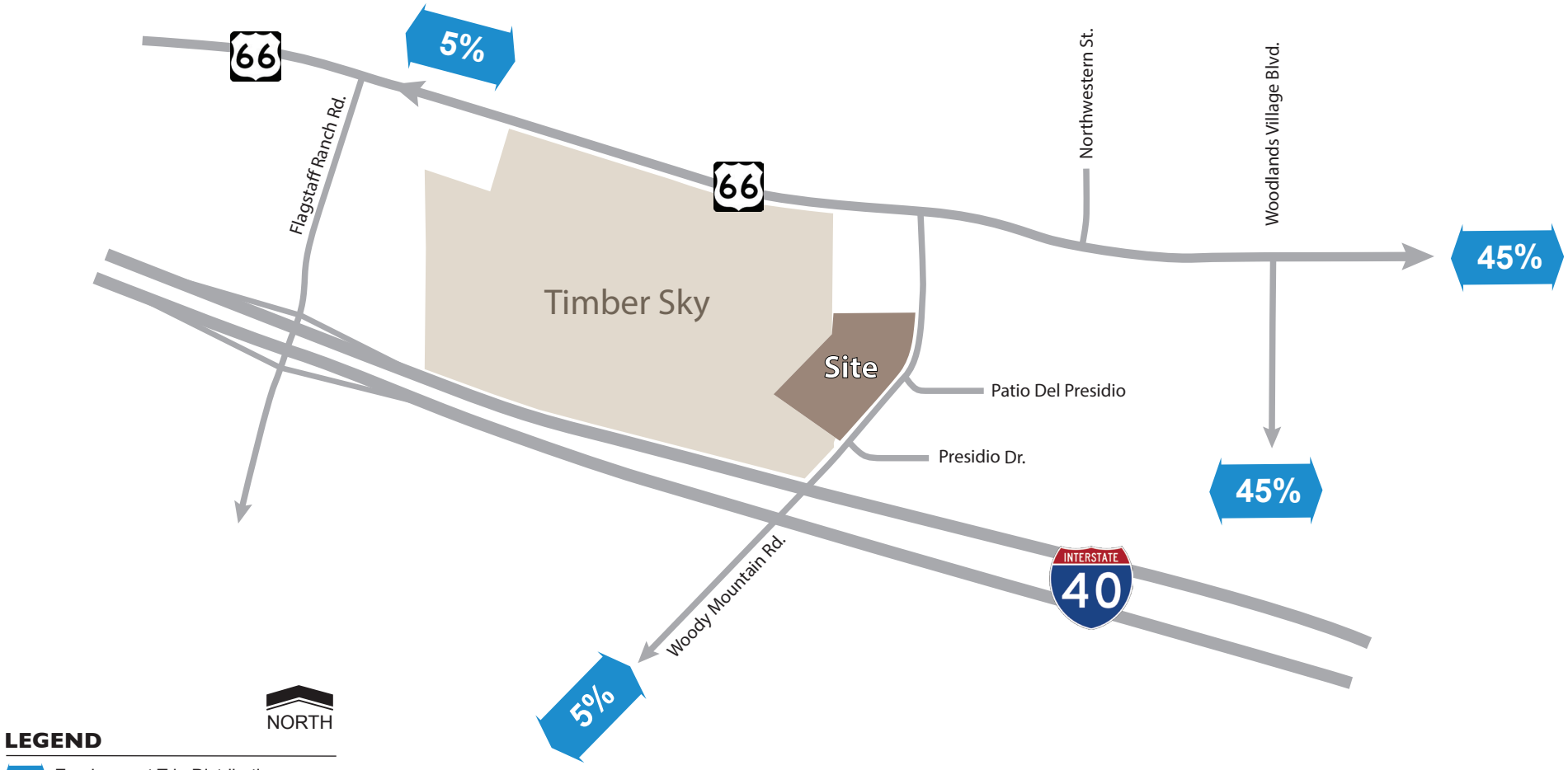


Figure 5: Trip Distribution

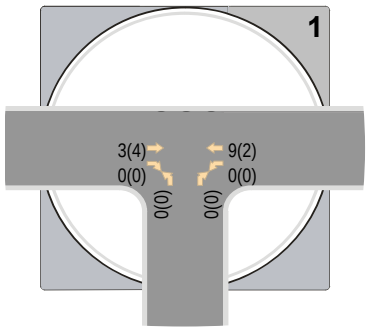
APPENDIX I

GROWTH AND SURROUNDING DEVELOPMENT TRAFFIC

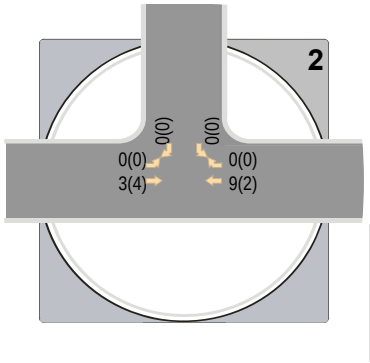
AAGR	2.0%	4.0%
Exp Factor	1.000	1.000

Growth Rate Used	2.0%	4.0%
Per-Year Multiplier	1.020	1.040

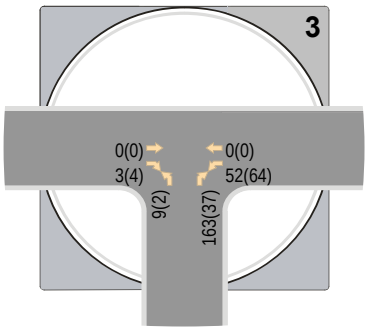
Year	Expansion Factor(s)	
2022	1.000	1.000
2023	1.020	1.040
2024	**1.040**	**1.082**
2025	1.061	1.125
2026	1.082	1.170
2027	**1.104**	**1.217**
2028	1.126	1.265
2029	1.149	1.316
2030	1.172	1.369



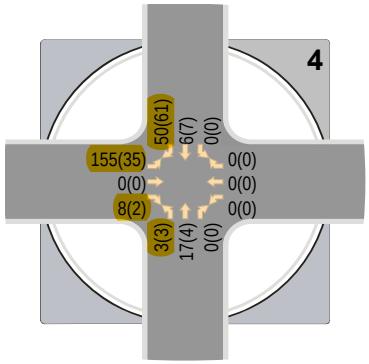
Alvan Clark Blvd & Route 66



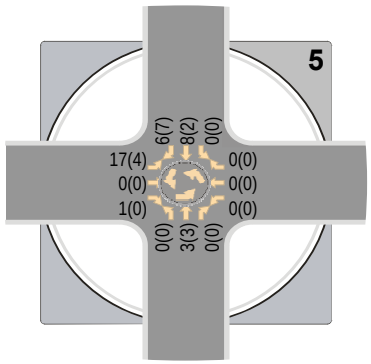
Flagstaff Public Works Drwy & Route 66



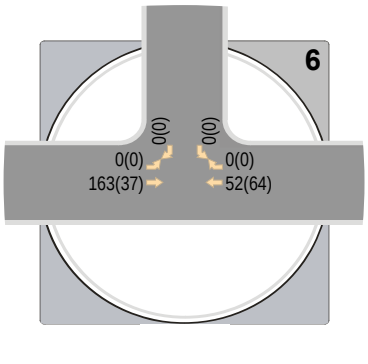
Woody Mountain Rd & Route 66



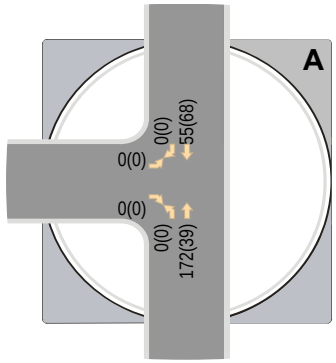
Woody Mountain Rd & Patio Del Presidio



Woody Mountain Rd & Presidio Dr



Northwestern Street & Route 66



Woody Mountain Rd & Dwy A

CivTech

APPENDIX J

FUTURE TRAFFIC SIGNAL WARRANT WORKSHEETS

Timber Sky Apartments

Signal Warrant Analysis

MUTCD Warrants 1-3

Major Street: Route 66 — Speed Limit: 45 — Lanes:* 2
Minor Street: Woody Mountian Road — Speed Limit: 40 — Lanes:* 1
Locale: City of Flagstaff
*Number of Approach Lanes of Moving Traffic:

Major Street vph - total of both approaches	20	27	25	145	82	220	357	686	752	635	659	800	820	732	868	824	761	793	484	356	260	152	84	42
Minor Street volume - higher-volume approach (vph)	4	26	2	4	5	12	22	59	31	35	35	60	58	45	67	57	55	40	29	20	21	10	8	4
Direction of higher-volume minor approach	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB
Beginning of hour	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00

Critical speed of major street traffic above 40 mph X
In built-up area of isolated community less than 10,000 population
Urban x

Warrant 1, Eight-Hour Vehicular Volume

Condition A *Minimum Vehicular Volume*					Criteria	Hour																						
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Minimum Reqmts	500	600	600	500																									
(100%[a])	150	150	200	200																									
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	**2/1**																								
Minimum Reqmts	350	420	420	350	**420**	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
(70%[c])	105	105	140	140	**105**	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Warrant met?	**No**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Condition B *Interruption of Cont. Traffic*					Criteria	Hour																						
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Minimum Reqmts	750	900	900	750																									
(100%[a])	75	75	100	100																									
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	**2/1**																								
Minimum Reqmts	525	630	630	525	**630**	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
(70%[c])	53	53	70	70	**53**	No	No	No	No	No	No	No	Yes	No	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No	No
Warrant met?	**No**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Combination *of Conditions A & B*					Criteria	Hour																						
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Condition A	400	480	480	400																									
(80%[b])	120	120	160	160																									
Condition B	600	720	720	600																									
(80%[b])	60	60	80	80																									
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	**2/1**																								
Condition A	280	336	336	280	**336**	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
(56%[d])	84	84	112	112	**84**	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Condition B	420	504	504	420	**504**	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
(56%[d])	42	42	56	56	**42**	No	No	No	No	No	No	No	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No
Warrant met?	**No**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Warrant 2, Four Hour Vehicular Volume					Criteria	Hour																						
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	**2/1**	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
100% *See to the right*																													
70% *See to the right*					**Use**	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Warrant met?	**No**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Warrant 3, Peak Hour					Criteria	Hour																						
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	**2/1**	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
100% *See to the right*																													
70% *See to the right*					**Use**	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Warrant met?	**No**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Volume-Based Traffic Signal Warrants Analysis Summary

Warrant		Hour(s) of the Day	Hours Required to Meet Warrant	Hours Met	Is Warrant Met?
Warrant 1. Eight-Hour Vehicular Volume	Condition A: Minimum Vehicular Volume	Any Eight Hours	8	0	No
	Condition B: Interruption of Continuous Traffic	Any Eight Hours	8	6	No
	Combination of Condition A & Condition B	Any Eight Hours	8	0	No
	Overall (at least 1 of the 3 conditions required to meet warrant)				**No**
Warrant 2. Four-Hour Vehicular Volume		Any Four Hours	4	0	**No**
Warrant 3. Peak Hour		Any One/Peak Hour	1	0	**No**

Timber Sky Apartments

Signal Warrant Analysis

MUTCD Warrants 1-3

Major Street: Route 66 — Speed Limit: 45 — Lanes:* 2
Minor Street: Woody Mountian Road — Speed Limit: 40 — Lanes:* 1
Locale: City of Flagstaff
*Number of Approach Lanes of Moving Traffic:

Major Street vph - total of both approaches	21	29	26	159	88	238	379	724	800	674	696	850	877	782	924	874	810	844	516	382	279	163	89	45
Minor Street volume - higher-volume approach (vph)	5	34	3	5	6	16	28	76	40	45	45	77	75	58	87	73	71	51	37	25	27	14	10	5
Direction of higher-volume minor approach	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB
Beginning of hour	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00

Critical speed of major street traffic above 40 mph X
In built-up area of isolated community less than 10,000 population
Urban x

Warrant 1, Eight-Hour Vehicular Volume

Condition A *Minimum Vehicular Volume*

Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	Criteria	Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Minimum Reqmts	500	600	600	500																										
(100%[a])	150	150	200	200																										
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	**2/1**																									
Minimum Reqmts	350	420	420	350	**420**	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
(70%[c])	105	105	140	140	**105**	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Warrant met?	**No**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Condition B *Interruption of Cont. Traffic*

Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	Criteria	Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Minimum Reqmts	750	900	900	750																										
(100%[a])	75	75	100	100																										
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	**2/1**																									
Minimum Reqmts	525	630	630	525	**630**	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
(70%[c])	53	53	70	70	**53**	No	No	No	No	No	No	No	No	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No
Warrant met?	**No**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Combination *of Conditions A & B*

Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	Criteria	Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Condition A	400	480	480	400																										
(80%[b])	120	120	160	160																										
Condition B	600	720	720	600																										
(80%[b])	60	60	80	80																										
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	**2/1**																									
Condition A	280	336	336	280	**336**	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
(56%[d])	84	84	112	112	**84**	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	No
Condition B	420	504	504	420	**504**	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
(56%[d])	42	42	56	56	**42**	No	No	No	No	No	No	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
Warrant met?	**No**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Warrant 2, Four Hour Vehicular Volume

Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	Criteria **2/1**	Hour 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
100% *See to the right*																													
70% *See to the right*					**Use**	No	No	No	No	No	No	No	No	No	No	No	Yes	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No
Warrant met?	**Yes**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**	**Yes**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Warrant 3, Peak Hour

Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	Criteria **2/1**	Hour 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
100% *See to the right*																													
70% *See to the right*					**Use**	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Warrant met?	**No**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Volume-Based Traffic Signal Warrants Analysis Summary

Warrant		Hour(s) of the Day	Hours Required to Meet Warrant	Hours Met	Is Warrant Met?
Warrant 1. Eight-Hour Vehicular Volume	Condition A: Minimum Vehicular Volume	Any Eight Hours	8	0	No
	Condition B: Interruption of Continuous Traffic	Any Eight Hours	8	7	No
	Combination of Condition A & Condition B	Any Eight Hours	8	1	No
	Overall (at least 1 of the 3 conditions required to meet warrant)				**No**
Warrant 2. Four-Hour Vehicular Volume		Any Four Hours	4	4	**Yes**
Warrant 3. Peak Hour		Any One/Peak Hour	1	0	**No**

Timber Sky Apartments

Signal Warrant Analysis

MUTCD Warrants 1-3

Major Street: Route 66 — Speed Limit: 45 — Lanes:* 2
Minor Street: Woody Mountian Road — Speed Limit: 40 — Lanes:* 1
Locale: City of Flagstaff
*Number of Approach Lanes of Moving Traffic:

Major Street vph - total of both approaches	22	30	27	161	90	245	397	764	836	707	732	888	910	813	964	916	845	880	537	395	288	169	93	47
Minor Street volume - higher-volume approach (vph)	4	28	3	4	5	13	23	63	33	37	37	63	62	47	71	60	59	42	31	21	22	11	8	5
Direction of higher-volume minor approach	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB
Beginning of hour	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00

Critical speed of major street traffic above 40 mph X
In built-up area of isolated community less than 10,000 population
Urban x

Warrant 1, Eight-Hour Vehicular Volume

Condition A *Minimum Vehicular Volume*

Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	Criteria	Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Minimum Reqmts	500	600	600	500																										
(100%[a])	150	150	200	200																										
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	**2/1**																									
Minimum Reqmts	350	420	420	350	**420**	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
(70%[c])	105	105	140	140	**105**	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Warrant met?	**No**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Condition B *Interruption of Cont. Traffic*

Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	Criteria	Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Minimum Reqmts	750	900	900	750																										
(100%[a])	75	75	100	100																										
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	**2/1**																									
Minimum Reqmts	525	630	630	525	**630**	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
(70%[c])	53	53	70	70	**53**	No	No	No	No	No	No	No	No	Yes	No	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No	No
Warrant met?	**No**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Combination *of Conditions A & B*

Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	Criteria	Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Condition A	400	480	480	400																										
(80%[b])	120	120	160	160																										
Condition B	600	720	720	600																										
(80%[b])	60	60	80	80																										
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	**2/1**																									
Condition A	280	336	336	280	**336**	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
(56%[d])	84	84	112	112	**84**	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Condition B	420	504	504	420	**504**	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
(56%[d])	42	42	56	56	**42**	No	No	No	No	No	No	No	No	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
Warrant met?	**No**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Warrant 2, Four Hour Vehicular Volume

Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	Criteria **2/1**	Hour 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
100% *See to the right*																													
70% *See to the right*					**Use**	No	No	No	No	No	No	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	No
Warrant met?	**No**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Warrant 3, Peak Hour

Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	Criteria **2/1**	Hour 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
100% *See to the right*																													
70% *See to the right*					**Use**	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Warrant met?	**No**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Volume-Based Traffic Signal Warrants Analysis Summary

Warrant		Hour(s) of the Day	Hours Required to Meet Warrant	Hours Met	Is Warrant Met?
Warrant 1. Eight-Hour Vehicular Volume	Condition A: Minimum Vehicular Volume	Any Eight Hours	8	0	No
	Condition B: Interruption of Continuous Traffic	Any Eight Hours	8	6	No
	Combination of Condition A & Condition B	Any Eight Hours	8	0	No
	Overall (at least 1 of the 3 conditions required to meet warrant)				**No**
Warrant 2. Four-Hour Vehicular Volume		Any Four Hours	4	1	**No**
Warrant 3. Peak Hour		Any One/Peak Hour	1	0	**No**

Timber Sky Apartments

Signal Warrant Analysis

MUTCD Warrants 1-3

Major Street: Route 66 — Speed Limit: 45 — Lanes:* 2
Minor Street: Woody Mountian Road — Speed Limit: 40 — Lanes:* 1
Locale: City of Flagstaff
*Number of Approach Lanes of Moving Traffic:

Major Street vph - total of both approaches	23	32	29	174	97	262	419	801	884	745	770	939	967	862	1,021	967	894	932	570	421	308	180	98	49
Minor Street volume - higher-volume approach (vph)	5	35	3	5	6	16	29	80	42	47	47	81	79	60	91	77	75	54	39	27	28	14	10	6
Direction of higher-volume minor approach	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB
Beginning of hour	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00

Critical speed of major street traffic above 40 mph X
In built-up area of isolated community less than 10,000 population
Urban x

Warrant 1, Eight-Hour Vehicular Volume

Condition A *Minimum Vehicular Volume* — Criteria — Hour

Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Minimum Reqmts	500	600	600	500																									
(100%[a])	150	150	200	200																									
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	**2/1**																								
Minimum Reqmts	350	420	420	350	**420**	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
(70%[c])	105	105	140	140	**105**	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Warrant met?	**No**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Condition B *Interruption of Cont. Traffic* — Criteria — Hour

Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Minimum Reqmts	750	900	900	750																									
(100%[a])	75	75	100	100																									
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	**2/1**																								
Minimum Reqmts	525	630	630	525	**630**	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
(70%[c])	53	53	70	70	**53**	No	No	No	No	No	No	No	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
Warrant met?	**Yes**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	**No**	**No**	**No**

Combination *of Conditions A & B* — Criteria — Hour

Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Condition A	400	480	480	400																									
(80%[b])	120	120	160	160																									
Condition B	600	720	720	600																									
(80%[b])	60	60	80	80																									
Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	**2/1**																								
Condition A	280	336	336	280	**336**	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
(56%[d])	84	84	112	112	**84**	No	No	No	No	No	No	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	No
Condition B	420	504	504	420	**504**	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
(56%[d])	42	42	56	56	**42**	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
Warrant met?	**No**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Warrant 2, Four Hour Vehicular Volume

Criteria — Hour

Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	**2/1**	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
100% *See to the right*																													
70% *See to the right*					**Use**	No	No	No	No	No	No	No	Yes	No	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No	No
Warrant met?	**Yes**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Warrant 3, Peak Hour

Criteria — Hour

Lanes (**M**/**m**):	1/1	2+/1	2+/2+	1/2+	**2/1**	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
100% *See to the right*																													
70% *See to the right*					**Use**	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Warrant met?	**No**					**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Volume-Based Traffic Signal Warrants Analysis Summary

Warrant		Hour(s) of the Day	Hours Required to Meet Warrant	Hours Met	Is Warrant Met?
Warrant 1. Eight-Hour Vehicular Volume	Condition A: Minimum Vehicular Volume	Any Eight Hours	8	0	No
	Condition B: Interruption of Continuous Traffic	Any Eight Hours	8	8	Yes
	Combination of Condition A & Condition B	Any Eight Hours	8	1	No
	Overall (at least 1 of the 3 conditions required to meet warrant)				**Yes**
Warrant 2. Four-Hour Vehicular Volume		Any Four Hours	4	6	**Yes**
Warrant 3. Peak Hour		Any One/Peak Hour	1	0	**No**

APPENDIX K

2024 PROPORTIONAL SHARE ANALYSIS

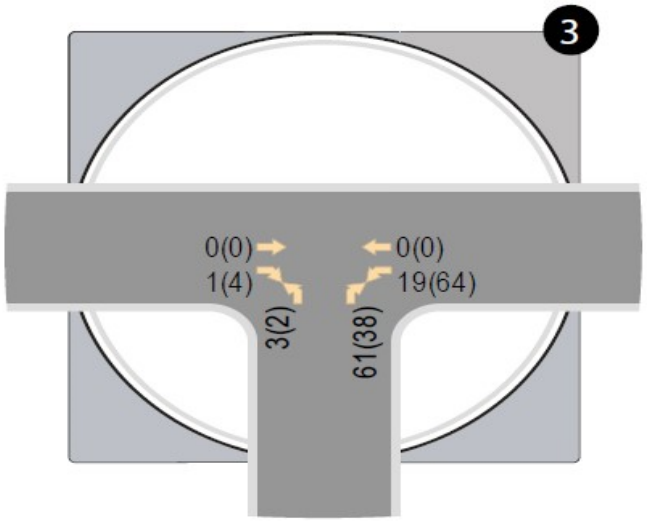
AM													SUM
SITE	3	0	61	0	0	0	0	0	1	19	0	0	84
TOTAL 2024	8	0	223	0	0	0	0	344	7	158	271	0	1011

AM %	**8.31%**

PM													SUM
SITE	2	0	38	0	0	0	0	0	4	64	0	0	108
TOTAL 2024	6	0	219	0	0	0	0	292	30	189	340	0	1076

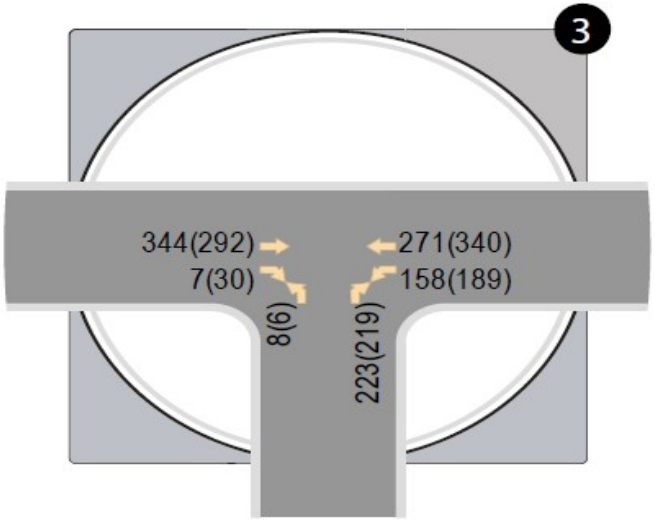
PM %	**10.04%**

Site Volumes



Woody Mountain Rd & Route 66

2024 Total



Woody Mountain Rd & Route 66

Andrew Ferreira

From: Nathan Reisner <nreisner@azdot.gov>
Sent: Thursday, July 14, 2022 10:55 AM
To: Dawn Cartier
Cc: Jeff Bauman; Steph Santana; Bill Selby; Ruth Gutierrez; Guillermo Cortes; Brenden Foley; John Litteer; Stephen Craver; Nathan Reisner; Vernon Dumbeck
Subject: Re: Woody Mountain & Route 66 Traffic Signal

Dawn,
Some corrections and additions on what is stated below.

1. Timber Sky was stipulated to install all of the underground foundations for the signal including the controller foundation, pole foundations, and pull boxes. The conduit had already been installed by ADOT in 2010 during a pavement preservation project. The foundations have been installed by Timber Sky.
2. Money has been collected (proportional share of signal costs at this intersection) from Presidio, a small amount from Timber Sky (this is supposed to come in Phase III), and from the COF maintenance facility. Last year we were working on how much Timber Sky owed for Phase III but not all of the comments to the costs were addressed by Timber Sky. I am not sure if Phase III ever moved forward.
3. Discussions between Timber Sky, ADOT, and the City sugged that there is enough money collected to install the above ground signal infrastructure and wiring once warrants are met. I do not recall the exact amount collected. If the City can confirm the exact amount so we can ensure there is enough money to install the wire, poles, detection cameras and cabinet, I would appreciate it.
    a. With the money collected from the other developments, ADOT was going to take the lead on installing the rest of the signal equipment once the signal warrants were met. Timber Sky had designed the intersection to full build out and placed the foundations in a location to not conflict with the full build out of the intersection.
    b. The original timeline for the signal warrant being met was assumed as 2023, it may take a couple of extra years due to the absorption rate of the homes in Timber Sky.
    c. If I recall correctly NRT did a signal needs study in 2020 or 2021 and the signal did not meet warrants yet, but I can not find that study in my files.
    d. It may be time for another signal needs study to be performed, as persido and Timber Sky have been infilling.
4. If the amount collected is not enough to install the remaining single infrastructure, I do believe it would be prudent to require any future developments that impact the intersection to contribute proportional funding to the signal funds and or require them to build the intersection to a full build out.

Thanks,

Nate Reisner, P.E.
Sr. Resident Engineer, Construction A & C
ADOT Northcentral District
1959 S. Woodlands Village Boulevard, Suite B.
Flagstaff, AZ 86001
928-714-2290

APPENDIX L

2024 NO BUILD PEAK HOUR ANALYSIS

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	299	8	21	256	11	35
Future Vol, veh/h	299	8	21	256	11	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	75	-	0	200
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	80	80	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	352	10	26	301	14	44

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	362	0	555	352
Stage 1	-	-	-	-	352	-
Stage 2	-	-	-	-	203	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1195	-	477	691
Stage 1	-	-	-	-	711	-
Stage 2	-	-	-	-	812	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1195	-	467	691
Mov Cap-2 Maneuver	-	-	-	-	619	-
Stage 1	-	-	-	-	711	-
Stage 2	-	-	-	-	794	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	619	691	-	-	1195	-
HCM Lane V/C Ratio	0.022	0.063	-	-	0.022	-
HCM Control Delay (s)	10.9	10.6	-	-	8.1	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	299	3	29	320	6	33
Future Vol, veh/h	299	3	29	320	6	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	75	-	0	200
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	80	80	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	352	4	36	376	8	41

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	356	0	612	352
Stage 1	-	-	-	-	352	-
Stage 2	-	-	-	-	260	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1201	-	440	691
Stage 1	-	-	-	-	711	-
Stage 2	-	-	-	-	760	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1201	-	427	691
Mov Cap-2 Maneuver	-	-	-	-	593	-
Stage 1	-	-	-	-	711	-
Stage 2	-	-	-	-	737	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	593	691	-	-	1201	-
HCM Lane V/C Ratio	0.013	0.06	-	-	0.03	-
HCM Control Delay (s)	11.1	10.5	-	-	8.1	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	333	281	12	17	1
Future Vol, veh/h	2	333	281	12	17	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	300	90	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	90	85	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	370	331	15	21	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	346	0	-	0	707	331
Stage 1	-	-	-	-	331	-
Stage 2	-	-	-	-	376	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1213	-	-	-	402	711
Stage 1	-	-	-	-	728	-
Stage 2	-	-	-	-	694	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1213	-	-	-	401	711
Mov Cap-2 Maneuver	-	-	-	-	507	-
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	694	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	12.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1213	-	-	-	507	711
HCM Lane V/C Ratio	0.002	-	-	-	0.042	0.002
HCM Control Delay (s)	8	-	-	-	12.4	10.1
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	320	340	3	8	11
Future Vol, veh/h	2	320	340	3	8	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	300	90	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	90	90	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	356	378	4	10	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	382	0	-	0	740	378
Stage 1	-	-	-	-	378	-
Stage 2	-	-	-	-	362	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1176	-	-	-	384	669
Stage 1	-	-	-	-	693	-
Stage 2	-	-	-	-	704	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1176	-	-	-	383	669
Mov Cap-2 Maneuver	-	-	-	-	493	-
Stage 1	-	-	-	-	691	-
Stage 2	-	-	-	-	704	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1176	-	-	-	493	669
HCM Lane V/C Ratio	0.002	-	-	-	0.02	0.021
HCM Control Delay (s)	8.1	-	-	-	12.5	10.5
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0.1

Intersection	
Int Delay, s/veh	3.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	344	6	139	271	5	162
Future Vol, veh/h	344	6	139	271	5	162
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	235	175	-	0	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	80	85	85	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	382	8	164	319	6	191

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	390	0	1029	382
Stage 1	-	-	-	-	382	-
Stage 2	-	-	-	-	647	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1169	-	259	665
Stage 1	-	-	-	-	690	-
Stage 2	-	-	-	-	521	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1169	-	223	665
Mov Cap-2 Maneuver	-	-	-	-	342	-
Stage 1	-	-	-	-	690	-
Stage 2	-	-	-	-	448	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.9	12.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	342	665	-	-	1169	-
HCM Lane V/C Ratio	0.018	0.287	-	-	0.14	-
HCM Control Delay (s)	15.7	12.6	-	-	8.6	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	1.2	-	-	0.5	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	292	26	125	340	4	181
Future Vol, veh/h	292	26	125	340	4	181
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	235	175	-	0	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	80	85	90	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	344	33	147	378	5	213

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	377	0	1016	344
Stage 1	-	-	-	-	344	-
Stage 2	-	-	-	-	672	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1181	-	264	699
Stage 1	-	-	-	-	718	-
Stage 2	-	-	-	-	508	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1181	-	231	699
Mov Cap-2 Maneuver	-	-	-	-	347	-
Stage 1	-	-	-	-	718	-
Stage 2	-	-	-	-	445	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	12.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	347	699	-	-	1181	-
HCM Lane V/C Ratio	0.014	0.305	-	-	0.125	-
HCM Control Delay (s)	15.5	12.4	-	-	8.5	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0	1.3	-	-	0.4	-

Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	155	0	8	5	0	122	3	67	0	30	96	50
Future Vol, veh/h	155	0	8	5	0	122	3	67	0	30	96	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	100	215	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	80	85	85	80	80	80	80	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	182	0	9	6	0	144	4	84	0	38	113	59

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	383	311	143	315	340	84	172	0	0	84	0	0
Stage 1	219	219	-	92	92	-	-	-	-	-	-	-
Stage 2	164	92	-	223	248	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	575	604	905	638	582	975	1405	-	-	1513	-	-
Stage 1	783	722	-	915	819	-	-	-	-	-	-	-
Stage 2	838	819	-	780	701	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	480	587	905	618	566	975	1405	-	-	1513	-	-
Mov Cap-2 Maneuver	480	587	-	618	566	-	-	-	-	-	-	-
Stage 1	781	704	-	912	817	-	-	-	-	-	-	-
Stage 2	712	817	-	753	683	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17	9.4	0.3	1.3
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1405	-	-	491	618	975	1513	-	-
HCM Lane V/C Ratio	0.003	-	-	0.391	0.01	0.147	0.025	-	-
HCM Control Delay (s)	7.6	0	-	17	10.9	9.3	7.4	-	-
HCM Lane LOS	A	A	-	C	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.8	0	0.5	0.1	-	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	0	2	5	0	45	3	148	4	72	71	61
Future Vol, veh/h	35	0	2	5	0	45	3	148	4	72	71	61
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	100	215	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	85	85	80	80	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	44	0	3	6	0	56	4	174	5	90	84	72

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	513	487	120	484	518	174	156	0	0	179	0	0
Stage 1	300	300	-	182	182	-	-	-	-	-	-	-
Stage 2	213	187	-	302	336	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	472	481	931	493	462	869	1424	-	-	1397	-	-
Stage 1	709	666	-	820	749	-	-	-	-	-	-	-
Stage 2	789	745	-	707	642	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	419	449	931	466	431	869	1424	-	-	1397	-	-
Mov Cap-2 Maneuver	419	449	-	466	431	-	-	-	-	-	-	-
Stage 1	707	623	-	818	747	-	-	-	-	-	-	-
Stage 2	736	743	-	660	601	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.3	9.7	0.1	2.8
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1424	-	-	432	466	869	1397	-	-
HCM Lane V/C Ratio	0.002	-	-	0.107	0.013	0.065	0.064	-	-
HCM Control Delay (s)	7.5	0	-	14.3	12.8	9.4	7.8	-	-
HCM Lane LOS	A	A	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0	0.2	0.2	-	-

Intersection	
Intersection Delay, s/veh	3.3
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	4	66	42	130
Demand Flow Rate, veh/h	4	68	43	132
Vehicles Circulating, veh/h	162	39	10	34
Vehicles Exiting, veh/h	4	14	156	73
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	3.1	3.2	2.9	3.5
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	4	68	43	132
Cap Entry Lane, veh/h	1170	1326	1366	1333
Entry HV Adj Factor	0.995	0.970	0.984	0.982
Flow Entry, veh/h	4	66	42	130
Cap Entry, veh/h	1164	1286	1343	1308
V/C Ratio	0.003	0.051	0.031	0.099
Control Delay, s/veh	3.1	3.2	2.9	3.5
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

Intersection	
Intersection Delay, s/veh	3.6
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	45	183	89
Demand Flow Rate, veh/h	0	46	187	91
Vehicles Circulating, veh/h	104	159	28	19
Vehicles Exiting, veh/h	6	56	76	186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	3.5	3.9	3.3
Approach LOS	-	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	0	46	187	91
Cap Entry Lane, veh/h	1241	1173	1341	1353
Entry HV Adj Factor	1.000	0.978	0.978	0.976
Flow Entry, veh/h	0	45	183	89
Cap Entry, veh/h	1241	1148	1312	1321
V/C Ratio	0.000	0.039	0.139	0.067
Control Delay, s/veh	2.9	3.5	3.9	3.3
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	560	409	32	132	14
Future Vol, veh/h	4	560	409	32	132	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	175	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	90	85	85	85	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	622	481	38	155	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	519	0	-	0	1132	260
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	632	-
Critical Hdwy	4.13	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	1045	-	-	-	210	740
Stage 1	-	-	-	-	575	-
Stage 2	-	-	-	-	529	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1045	-	-	-	209	740
Mov Cap-2 Maneuver	-	-	-	-	413	-
Stage 1	-	-	-	-	572	-
Stage 2	-	-	-	-	529	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	18
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1045	-	-	-	413	740
HCM Lane V/C Ratio	0.005	-	-	-	0.376	0.024
HCM Control Delay (s)	8.5	-	-	-	18.9	10
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0	-	-	-	1.7	0.1

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	470	545	126	81	10
Future Vol, veh/h	21	470	545	126	81	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	175	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	90	90	90	85	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	522	606	140	95	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	746	0	-	0	1250	373
Stage 1	-	-	-	-	676	-
Stage 2	-	-	-	-	574	-
Critical Hdwy	4.13	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	860	-	-	-	177	625
Stage 1	-	-	-	-	468	-
Stage 2	-	-	-	-	562	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	860	-	-	-	172	625
Mov Cap-2 Maneuver	-	-	-	-	369	-
Stage 1	-	-	-	-	454	-
Stage 2	-	-	-	-	562	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	17.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	860	-	-	-	369	625
HCM Lane V/C Ratio	0.031	-	-	-	0.258	0.02
HCM Control Delay (s)	9.3	-	-	-	18.1	10.9
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.1	-	-	-	1	0.1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	344	176	0
Future Vol, veh/h	0	0	0	344	176	0
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	0	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	90	85	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	382	207	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	589	207	207	0	-	0
Stage 1	207	-	-	-	-	-
Stage 2	382	-	-	-	-	-
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	471	833	1364	-	-	-
Stage 1	828	-	-	-	-	-
Stage 2	690	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	471	833	1364	-	-	-
Mov Cap-2 Maneuver	471	-	-	-	-	-
Stage 1	828	-	-	-	-	-
Stage 2	690	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1364	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	0	0	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	228	204	0
Future Vol, veh/h	0	0	0	228	204	0
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	0	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	85	85	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	268	240	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	508	240	240	0	-	0
Stage 1	240	-	-	-	-	-
Stage 2	268	-	-	-	-	-
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	525	799	1327	-	-	-
Stage 1	800	-	-	-	-	-
Stage 2	777	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	525	799	1327	-	-	-
Mov Cap-2 Maneuver	525	-	-	-	-	-
Stage 1	800	-	-	-	-	-
Stage 2	777	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1327	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	0	0	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-

APPENDIX M

2027 NO BUILD PEAK HOUR ANALYSIS

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	336	9	22	288	12	38
Future Vol, veh/h	336	9	22	288	12	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	75	-	0	200
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	80	80	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	373	11	28	339	15	48

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	384	0	599	373
Stage 1	-	-	-	-	373	-
Stage 2	-	-	-	-	226	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1173	-	448	672
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	791	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1173	-	437	672
Mov Cap-2 Maneuver	-	-	-	-	599	-
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	772	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	10.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	599	672	-	-	1173	-
HCM Lane V/C Ratio	0.025	0.071	-	-	0.023	-
HCM Control Delay (s)	11.2	10.8	-	-	8.1	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	336	3	31	360	7	35
Future Vol, veh/h	336	3	31	360	7	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	75	-	0	200
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	80	80	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	373	4	39	424	9	44

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	377	0	663	373
Stage 1	-	-	-	-	373	-
Stage 2	-	-	-	-	290	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1180	-	410	672
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	735	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1180	-	396	672
Mov Cap-2 Maneuver	-	-	-	-	570	-
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	711	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	10.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	570	672	-	-	1180	-
HCM Lane V/C Ratio	0.015	0.065	-	-	0.033	-
HCM Control Delay (s)	11.4	10.7	-	-	8.2	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	375	316	12	17	1
Future Vol, veh/h	2	375	316	12	17	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	300	90	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	90	90	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	417	351	15	21	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	366	0	-	0	774	351
Stage 1	-	-	-	-	351	-
Stage 2	-	-	-	-	423	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1193	-	-	-	367	692
Stage 1	-	-	-	-	713	-
Stage 2	-	-	-	-	661	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1193	-	-	-	366	692
Mov Cap-2 Maneuver	-	-	-	-	479	-
Stage 1	-	-	-	-	711	-
Stage 2	-	-	-	-	661	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1193	-	-	-	479	692
HCM Lane V/C Ratio	0.002	-	-	-	0.044	0.002
HCM Control Delay (s)	8	-	-	-	12.9	10.2
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	360	382	3	8	11
Future Vol, veh/h	2	360	382	3	8	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	300	90	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	90	90	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	400	424	4	10	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	428	0	-	0	830	424
Stage 1	-	-	-	-	424	-
Stage 2	-	-	-	-	406	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1131	-	-	-	340	630
Stage 1	-	-	-	-	660	-
Stage 2	-	-	-	-	673	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1131	-	-	-	339	630
Mov Cap-2 Maneuver	-	-	-	-	458	-
Stage 1	-	-	-	-	658	-
Stage 2	-	-	-	-	673	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1131	-	-	-	458	630
HCM Lane V/C Ratio	0.002	-	-	-	0.022	0.022
HCM Control Delay (s)	8.2	-	-	-	13	10.8
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0.1

Intersection	
Int Delay, s/veh	3.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	387	7	148	304	6	172
Future Vol, veh/h	387	7	148	304	6	172
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	235	175	-	0	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	80	85	90	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	430	9	174	338	8	202

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	439	0	1116	430
Stage 1	-	-	-	-	430	-
Stage 2	-	-	-	-	686	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1121	-	230	625
Stage 1	-	-	-	-	656	-
Stage 2	-	-	-	-	500	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1121	-	194	625
Mov Cap-2 Maneuver	-	-	-	-	317	-
Stage 1	-	-	-	-	656	-
Stage 2	-	-	-	-	423	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3	13.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	317	625	-	-	1121	-
HCM Lane V/C Ratio	0.024	0.324	-	-	0.155	-
HCM Control Delay (s)	16.6	13.5	-	-	8.8	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	1.4	-	-	0.5	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	329	28	132	382	4	192
Future Vol, veh/h	329	28	132	382	4	192
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	235	175	-	0	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	80	85	90	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	366	35	155	424	5	226

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	401	0	1100	366
Stage 1	-	-	-	-	366	-
Stage 2	-	-	-	-	734	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1158	-	235	679
Stage 1	-	-	-	-	702	-
Stage 2	-	-	-	-	475	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1158	-	204	679
Mov Cap-2 Maneuver	-	-	-	-	320	-
Stage 1	-	-	-	-	702	-
Stage 2	-	-	-	-	411	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	320	679	-	-	1158	-
HCM Lane V/C Ratio	0.016	0.333	-	-	0.134	-
HCM Control Delay (s)	16.4	12.9	-	-	8.6	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0	1.5	-	-	0.5	-

Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	155	0	8	6	0	129	3	71	0	32	102	50
Future Vol, veh/h	155	0	8	6	0	129	3	71	0	32	102	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	100	215	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	80	85	85	80	80	80	80	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	182	0	9	8	0	152	4	89	0	40	120	59

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	403	327	150	331	356	89	179	0	0	89	0	0
Stage 1	230	230	-	97	97	-	-	-	-	-	-	-
Stage 2	173	97	-	234	259	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	558	591	896	622	570	969	1397	-	-	1506	-	-
Stage 1	773	714	-	910	815	-	-	-	-	-	-	-
Stage 2	829	815	-	769	694	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	460	573	896	601	553	969	1397	-	-	1506	-	-
Mov Cap-2 Maneuver	460	573	-	601	553	-	-	-	-	-	-	-
Stage 1	771	695	-	907	813	-	-	-	-	-	-	-
Stage 2	697	813	-	741	675	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.8	9.5	0.3	1.4
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1397	-	-	471	601	969	1506	-	-
HCM Lane V/C Ratio	0.003	-	-	0.407	0.012	0.157	0.027	-	-
HCM Control Delay (s)	7.6	0	-	17.8	11.1	9.4	7.5	-	-
HCM Lane LOS	A	A	-	C	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	2	0	0.6	0.1	-	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	0	2	6	0	47	3	157	4	76	75	61
Future Vol, veh/h	35	0	2	6	0	47	3	157	4	76	75	61
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	100	215	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	85	85	80	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	44	0	3	8	0	59	4	185	5	89	88	72

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	527	500	124	497	531	185	160	0	0	190	0	0
Stage 1	302	302	-	193	193	-	-	-	-	-	-	-
Stage 2	225	198	-	304	338	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	462	473	927	483	454	857	1419	-	-	1384	-	-
Stage 1	707	664	-	809	741	-	-	-	-	-	-	-
Stage 2	778	737	-	705	641	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	408	441	927	457	424	857	1419	-	-	1384	-	-
Mov Cap-2 Maneuver	408	441	-	457	424	-	-	-	-	-	-	-
Stage 1	705	622	-	807	739	-	-	-	-	-	-	-
Stage 2	722	735	-	658	600	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.6	9.9	0.1	2.8
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1419	-	-	421	457	857	1384	-	-
HCM Lane V/C Ratio	0.002	-	-	0.11	0.016	0.069	0.065	-	-
HCM Control Delay (s)	7.5	0	-	14.6	13	9.5	7.8	-	-
HCM Lane LOS	A	A	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.1	0.2	0.2	-	-

Intersection	
Intersection Delay, s/veh	3.4
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	4	70	45	138
Demand Flow Rate, veh/h	4	72	46	141
Vehicles Circulating, veh/h	172	42	11	35
Vehicles Exiting, veh/h	4	15	165	79
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	3.2	3.2	2.9	3.6
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	4	72	46	141
Cap Entry Lane, veh/h	1158	1322	1364	1331
Entry HV Adj Factor	0.995	0.972	0.983	0.982
Flow Entry, veh/h	4	70	45	138
Cap Entry, veh/h	1152	1285	1342	1307
V/C Ratio	0.003	0.054	0.034	0.106
Control Delay, s/veh	3.2	3.2	2.9	3.6
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

Intersection	
Intersection Delay, s/veh	3.7
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	47	193	94
Demand Flow Rate, veh/h	0	48	197	96
Vehicles Circulating, veh/h	110	168	29	20
Vehicles Exiting, veh/h	6	58	81	196
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	3.5	4.0	3.3
Approach LOS	-	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	0	48	197	96
Cap Entry Lane, veh/h	1233	1163	1340	1352
Entry HV Adj Factor	1.000	0.979	0.979	0.976
Flow Entry, veh/h	0	47	193	94
Cap Entry, veh/h	1233	1138	1311	1320
V/C Ratio	0.000	0.041	0.147	0.071
Control Delay, s/veh	2.9	3.5	4.0	3.3
LOS	A	A	A	A
95th %tile Queue, veh	0	0	1	0

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	630	460	32	132	14
Future Vol, veh/h	4	630	460	32	132	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	175	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	90	85	85	85	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	700	541	38	155	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	579	0	-	0	1270	290
Stage 1	-	-	-	-	560	-
Stage 2	-	-	-	-	710	-
Critical Hdwy	4.13	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	993	-	-	-	172	707
Stage 1	-	-	-	-	536	-
Stage 2	-	-	-	-	486	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	993	-	-	-	171	707
Mov Cap-2 Maneuver	-	-	-	-	375	-
Stage 1	-	-	-	-	533	-
Stage 2	-	-	-	-	486	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	20.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	993	-	-	-	375	707
HCM Lane V/C Ratio	0.005	-	-	-	0.414	0.025
HCM Control Delay (s)	8.6	-	-	-	21.2	10.2
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0	-	-	-	2	0.1

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	528	613	126	81	10
Future Vol, veh/h	21	528	613	126	81	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	175	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	90	90	90	85	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	587	681	140	95	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	821	0	-	0	1390	411
Stage 1	-	-	-	-	751	-
Stage 2	-	-	-	-	639	-
Critical Hdwy	4.13	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	806	-	-	-	145	591
Stage 1	-	-	-	-	428	-
Stage 2	-	-	-	-	525	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	806	-	-	-	140	591
Mov Cap-2 Maneuver	-	-	-	-	334	-
Stage 1	-	-	-	-	414	-
Stage 2	-	-	-	-	525	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	19
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	806	-	-	-	334	591
HCM Lane V/C Ratio	0.033	-	-	-	0.285	0.021
HCM Control Delay (s)	9.6	-	-	-	20	11.2
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.1	-	-	-	1.2	0.1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	355	184	0
Future Vol, veh/h	0	0	0	355	184	0
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	0	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	90	85	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	394	216	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	610	216	216	0	-	0
Stage 1	216	-	-	-	-	-
Stage 2	394	-	-	-	-	-
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	458	824	1354	-	-	-
Stage 1	820	-	-	-	-	-
Stage 2	681	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	458	824	1354	-	-	-
Mov Cap-2 Maneuver	458	-	-	-	-	-
Stage 1	820	-	-	-	-	-
Stage 2	681	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1354	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	0	0	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	239	212	0
Future Vol, veh/h	0	0	0	239	212	0
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	0	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	85	85	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	281	249	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	530	249	249	0	-	0
Stage 1	249	-	-	-	-	-
Stage 2	281	-	-	-	-	-
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	510	790	1317	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	767	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	510	790	1317	-	-	-
Mov Cap-2 Maneuver	510	-	-	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	767	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1317	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	0	0	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-

APPENDIX N

2024 BUILD PEAK HOUR ANALYSIS

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	300	8	21	259	11	35
Future Vol, veh/h	300	8	21	259	11	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	75	-	0	200
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	80	80	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	353	10	26	305	14	44

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	363	0	558	353
Stage 1	-	-	-	-	353	-
Stage 2	-	-	-	-	205	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1194	-	475	690
Stage 1	-	-	-	-	710	-
Stage 2	-	-	-	-	810	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1194	-	465	690
Mov Cap-2 Maneuver	-	-	-	-	617	-
Stage 1	-	-	-	-	710	-
Stage 2	-	-	-	-	792	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	617	690	-	-	1194	-
HCM Lane V/C Ratio	0.022	0.063	-	-	0.022	-
HCM Control Delay (s)	11	10.6	-	-	8.1	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	303	3	29	322	6	33
Future Vol, veh/h	303	3	29	322	6	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	75	-	0	200
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	80	80	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	337	4	36	379	8	41

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	341	0	599	337
Stage 1	-	-	-	-	337	-
Stage 2	-	-	-	-	262	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1216	-	448	704
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	759	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1216	-	435	704
Mov Cap-2 Maneuver	-	-	-	-	599	-
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	736	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	599	704	-	-	1216	-
HCM Lane V/C Ratio	0.013	0.059	-	-	0.03	-
HCM Control Delay (s)	11.1	10.4	-	-	8.1	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	334	284	12	17	1
Future Vol, veh/h	2	334	284	12	17	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	300	90	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	90	85	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	371	334	15	21	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	349	0	-	0	711	334
Stage 1	-	-	-	-	334	-
Stage 2	-	-	-	-	377	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1210	-	-	-	400	708
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	694	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1210	-	-	-	399	708
Mov Cap-2 Maneuver	-	-	-	-	505	-
Stage 1	-	-	-	-	724	-
Stage 2	-	-	-	-	694	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	12.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1210	-	-	-	505	708
HCM Lane V/C Ratio	0.002	-	-	-	0.042	0.002
HCM Control Delay (s)	8	-	-	-	12.4	10.1
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	324	342	3	8	11
Future Vol, veh/h	2	324	342	3	8	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	300	90	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	90	90	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	360	380	4	10	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	384	0	-	0	746	380
Stage 1	-	-	-	-	380	-
Stage 2	-	-	-	-	366	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1174	-	-	-	381	667
Stage 1	-	-	-	-	691	-
Stage 2	-	-	-	-	702	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1174	-	-	-	380	667
Mov Cap-2 Maneuver	-	-	-	-	491	-
Stage 1	-	-	-	-	689	-
Stage 2	-	-	-	-	702	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1174	-	-	-	491	667
HCM Lane V/C Ratio	0.002	-	-	-	0.02	0.021
HCM Control Delay (s)	8.1	-	-	-	12.5	10.5
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0.1

Intersection	
Int Delay, s/veh	4.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	344	7	158	271	8	223
Future Vol, veh/h	344	7	158	271	8	223
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	235	175	-	0	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	80	85	85	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	382	9	186	319	10	262

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	391	0	1073	382
Stage 1	-	-	-	-	382	-
Stage 2	-	-	-	-	691	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1168	-	244	665
Stage 1	-	-	-	-	690	-
Stage 2	-	-	-	-	497	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1168	-	205	665
Mov Cap-2 Maneuver	-	-	-	-	322	-
Stage 1	-	-	-	-	690	-
Stage 2	-	-	-	-	418	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.2	14
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	322	665	-	-	1168	-
HCM Lane V/C Ratio	0.031	0.395	-	-	0.159	-
HCM Control Delay (s)	16.5	13.9	-	-	8.7	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	1.9	-	-	0.6	-

Intersection	
Int Delay, s/veh	4.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	292	30	189	340	6	219
Future Vol, veh/h	292	30	189	340	6	219
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	235	175	-	0	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	80	85	90	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	344	38	222	378	8	258

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	382	0	1166	344
Stage 1	-	-	-	-	344	-
Stage 2	-	-	-	-	822	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1176	-	214	699
Stage 1	-	-	-	-	718	-
Stage 2	-	-	-	-	432	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1176	-	174	699
Mov Cap-2 Maneuver	-	-	-	-	280	-
Stage 1	-	-	-	-	718	-
Stage 2	-	-	-	-	350	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.3	13.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	280	699	-	-	1176	-
HCM Lane V/C Ratio	0.027	0.369	-	-	0.189	-
HCM Control Delay (s)	18.2	13.1	-	-	8.8	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	1.7	-	-	0.7	-

Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	155	0	8	5	0	122	3	68	0	30	99	50
Future Vol, veh/h	155	0	8	5	0	122	3	68	0	30	99	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	100	215	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	80	85	85	80	80	80	80	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	182	0	9	6	0	144	4	85	0	38	116	59

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	387	315	146	319	344	85	175	0	0	85	0	0
Stage 1	222	222	-	93	93	-	-	-	-	-	-	-
Stage 2	165	93	-	226	251	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	572	601	901	634	579	974	1401	-	-	1512	-	-
Stage 1	780	720	-	914	818	-	-	-	-	-	-	-
Stage 2	837	818	-	777	699	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	477	584	901	614	563	974	1401	-	-	1512	-	-
Mov Cap-2 Maneuver	477	584	-	614	563	-	-	-	-	-	-	-
Stage 1	778	702	-	911	816	-	-	-	-	-	-	-
Stage 2	712	816	-	750	682	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.1	9.4	0.3	1.3
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1401	-	-	488	614	974	1512	-	-
HCM Lane V/C Ratio	0.003	-	-	0.393	0.01	0.147	0.025	-	-
HCM Control Delay (s)	7.6	0	-	17.1	10.9	9.3	7.4	-	-
HCM Lane LOS	A	A	-	C	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.9	0	0.5	0.1	-	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	0	2	5	0	45	3	152	4	72	73	61
Future Vol, veh/h	35	0	2	5	0	45	3	152	4	72	73	61
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	100	215	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	85	85	80	80	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	44	0	3	6	0	56	4	179	5	90	86	72

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	520	494	122	491	525	179	158	0	0	184	0	0
Stage 1	302	302	-	187	187	-	-	-	-	-	-	-
Stage 2	218	192	-	304	338	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	467	476	929	488	458	864	1422	-	-	1391	-	-
Stage 1	707	664	-	815	745	-	-	-	-	-	-	-
Stage 2	784	742	-	705	641	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	414	444	929	462	427	864	1422	-	-	1391	-	-
Mov Cap-2 Maneuver	414	444	-	462	427	-	-	-	-	-	-	-
Stage 1	705	621	-	813	743	-	-	-	-	-	-	-
Stage 2	731	740	-	658	599	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.5	9.8	0.1	2.8
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1422	-	-	427	462	864	1391	-	-
HCM Lane V/C Ratio	0.002	-	-	0.108	0.014	0.065	0.065	-	-
HCM Control Delay (s)	7.5	0	-	14.5	12.9	9.5	7.8	-	-
HCM Lane LOS	A	A	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0	0.2	0.2	-	-

Intersection	
Intersection Delay, s/veh	3.4
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	4	66	43	134
Demand Flow Rate, veh/h	4	68	44	137
Vehicles Circulating, veh/h	167	40	10	34
Vehicles Exiting, veh/h	4	14	161	74
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	3.1	3.2	2.9	3.6
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	4	68	44	137
Cap Entry Lane, veh/h	1164	1325	1366	1333
Entry HV Adj Factor	0.995	0.970	0.984	0.982
Flow Entry, veh/h	4	66	43	134
Cap Entry, veh/h	1158	1285	1343	1308
V/C Ratio	0.003	0.051	0.032	0.103
Control Delay, s/veh	3.1	3.2	2.9	3.6
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

Intersection	
Intersection Delay, s/veh	3.7
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	45	187	91
Demand Flow Rate, veh/h	0	46	191	93
Vehicles Circulating, veh/h	106	163	28	19
Vehicles Exiting, veh/h	6	56	78	190
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	3.5	3.9	3.3
Approach LOS	-	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	0	46	191	93
Cap Entry Lane, veh/h	1238	1169	1341	1353
Entry HV Adj Factor	1.000	0.978	0.978	0.976
Flow Entry, veh/h	0	45	187	91
Cap Entry, veh/h	1238	1143	1312	1321
V/C Ratio	0.000	0.039	0.142	0.069
Control Delay, s/veh	2.9	3.5	3.9	3.3
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	621	428	32	132	14
Future Vol, veh/h	4	621	428	32	132	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	175	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	90	85	85	85	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	690	504	38	155	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	542	0	-	0	1223	271
Stage 1	-	-	-	-	523	-
Stage 2	-	-	-	-	700	-
Critical Hdwy	4.13	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	1025	-	-	-	184	728
Stage 1	-	-	-	-	560	-
Stage 2	-	-	-	-	491	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1025	-	-	-	183	728
Mov Cap-2 Maneuver	-	-	-	-	387	-
Stage 1	-	-	-	-	557	-
Stage 2	-	-	-	-	491	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	19.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1025	-	-	-	387	728
HCM Lane V/C Ratio	0.005	-	-	-	0.401	0.024
HCM Control Delay (s)	8.5	-	-	-	20.4	10.1
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0	-	-	-	1.9	0.1

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	508	609	126	81	10
Future Vol, veh/h	21	508	609	126	81	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	175	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	90	90	90	85	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	564	677	140	95	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	817	0	-	0	1363	409
Stage 1	-	-	-	-	747	-
Stage 2	-	-	-	-	616	-
Critical Hdwy	4.13	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	809	-	-	-	150	592
Stage 1	-	-	-	-	430	-
Stage 2	-	-	-	-	538	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	809	-	-	-	145	592
Mov Cap-2 Maneuver	-	-	-	-	338	-
Stage 1	-	-	-	-	416	-
Stage 2	-	-	-	-	538	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	18.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	809	-	-	-	338	592
HCM Lane V/C Ratio	0.032	-	-	-	0.282	0.021
HCM Control Delay (s)	9.6	-	-	-	19.8	11.2
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.1	-	-	-	1.1	0.1

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	65	3	1	344	176	20
Future Vol, veh/h	65	3	1	344	176	20
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	0	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	90	85	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	81	4	1	382	207	25

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	591	207	232	0	-	0
Stage 1	207	-	-	-	-	-
Stage 2	384	-	-	-	-	-
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	470	833	1336	-	-	-
Stage 1	828	-	-	-	-	-
Stage 2	688	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	470	833	1336	-	-	-
Mov Cap-2 Maneuver	470	-	-	-	-	-
Stage 1	827	-	-	-	-	-
Stage 2	688	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1336	-	470	833	-	-
HCM Lane V/C Ratio	0.001	-	0.173	0.005	-	-
HCM Control Delay (s)	7.7	-	14.3	9.3	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.6	0	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	2	4	228	204	67
Future Vol, veh/h	40	2	4	228	204	67
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	0	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	85	85	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	50	3	5	268	240	84

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	518	240	324	0	-	0
Stage 1	240	-	-	-	-	-
Stage 2	278	-	-	-	-	-
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	518	799	1236	-	-	-
Stage 1	800	-	-	-	-	-
Stage 2	769	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	516	799	1236	-	-	-
Mov Cap-2 Maneuver	516	-	-	-	-	-
Stage 1	797	-	-	-	-	-
Stage 2	769	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.5	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1236	-	516	799	-	-
HCM Lane V/C Ratio	0.004	-	0.097	0.003	-	-
HCM Control Delay (s)	7.9	-	12.7	9.5	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.3	0	-	-

APPENDIX O

2027 BUILD PEAK HOUR ANALYSIS

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	337	9	22	291	12	38
Future Vol, veh/h	337	9	22	291	12	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	75	-	0	200
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	80	80	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	374	11	28	342	15	48

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	385	0	601	374
Stage 1	-	-	-	-	374	-
Stage 2	-	-	-	-	227	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1172	-	447	671
Stage 1	-	-	-	-	695	-
Stage 2	-	-	-	-	790	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1172	-	436	671
Mov Cap-2 Maneuver	-	-	-	-	598	-
Stage 1	-	-	-	-	695	-
Stage 2	-	-	-	-	771	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	10.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	598	671	-	-	1172	-
HCM Lane V/C Ratio	0.025	0.071	-	-	0.023	-
HCM Control Delay (s)	11.2	10.8	-	-	8.1	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	340	3	31	362	7	35
Future Vol, veh/h	340	3	31	362	7	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	75	-	0	200
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	80	80	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	378	4	39	426	9	44

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	382	0	669	378
Stage 1	-	-	-	-	378	-
Stage 2	-	-	-	-	291	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1175	-	407	668
Stage 1	-	-	-	-	692	-
Stage 2	-	-	-	-	734	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1175	-	394	668
Mov Cap-2 Maneuver	-	-	-	-	568	-
Stage 1	-	-	-	-	692	-
Stage 2	-	-	-	-	710	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	10.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	568	668	-	-	1175	-
HCM Lane V/C Ratio	0.015	0.065	-	-	0.033	-
HCM Control Delay (s)	11.4	10.8	-	-	8.2	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	376	319	12	17	1
Future Vol, veh/h	2	376	319	12	17	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	300	90	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	90	90	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	418	354	15	21	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	369	0	-	0	778	354
Stage 1	-	-	-	-	354	-
Stage 2	-	-	-	-	424	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1190	-	-	-	365	690
Stage 1	-	-	-	-	710	-
Stage 2	-	-	-	-	660	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1190	-	-	-	364	690
Mov Cap-2 Maneuver	-	-	-	-	477	-
Stage 1	-	-	-	-	708	-
Stage 2	-	-	-	-	660	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1190	-	-	-	477	690
HCM Lane V/C Ratio	0.002	-	-	-	0.045	0.002
HCM Control Delay (s)	8	-	-	-	12.9	10.2
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	364	384	3	8	11
Future Vol, veh/h	2	364	384	3	8	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	300	90	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	90	90	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	404	427	4	10	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	431	0	-	0	837	427
Stage 1	-	-	-	-	427	-
Stage 2	-	-	-	-	410	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1129	-	-	-	337	628
Stage 1	-	-	-	-	658	-
Stage 2	-	-	-	-	670	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1129	-	-	-	336	628
Mov Cap-2 Maneuver	-	-	-	-	456	-
Stage 1	-	-	-	-	656	-
Stage 2	-	-	-	-	670	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1129	-	-	-	456	628
HCM Lane V/C Ratio	0.002	-	-	-	0.022	0.022
HCM Control Delay (s)	8.2	-	-	-	13.1	10.9
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0.1

Intersection	
Int Delay, s/veh	4.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	387	8	167	304	9	233
Future Vol, veh/h	387	8	167	304	9	233
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	235	175	-	0	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	80	85	90	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	430	10	196	338	11	274

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	440	0	1160	430
Stage 1	-	-	-	-	430	-
Stage 2	-	-	-	-	730	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1120	-	216	625
Stage 1	-	-	-	-	656	-
Stage 2	-	-	-	-	477	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1120	-	178	625
Mov Cap-2 Maneuver	-	-	-	-	298	-
Stage 1	-	-	-	-	656	-
Stage 2	-	-	-	-	394	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.3	15.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	298	625	-	-	1120	-
HCM Lane V/C Ratio	0.038	0.439	-	-	0.175	-
HCM Control Delay (s)	17.6	15.2	-	-	8.9	-
HCM Lane LOS	C	C	-	-	A	-
HCM 95th %tile Q(veh)	0.1	2.2	-	-	0.6	-

Intersection	
Int Delay, s/veh	4.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	329	32	196	382	6	230
Future Vol, veh/h	329	32	196	382	6	230
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	235	175	-	0	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	80	85	90	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	366	40	231	424	8	271

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	406	0	1252	366
Stage 1	-	-	-	-	366	-
Stage 2	-	-	-	-	886	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1153	-	190	679
Stage 1	-	-	-	-	702	-
Stage 2	-	-	-	-	403	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1153	-	152	679
Mov Cap-2 Maneuver	-	-	-	-	257	-
Stage 1	-	-	-	-	702	-
Stage 2	-	-	-	-	322	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.1	14
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	257	679	-	-	1153	-
HCM Lane V/C Ratio	0.029	0.399	-	-	0.2	-
HCM Control Delay (s)	19.4	13.8	-	-	8.9	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	1.9	-	-	0.7	-

Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	155	0	8	6	0	129	3	72	0	32	105	50
Future Vol, veh/h	155	0	8	6	0	129	3	72	0	32	105	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	100	215	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	80	85	85	85	85	80	80	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	182	0	9	8	0	152	4	85	0	40	124	59

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	403	327	154	331	356	85	183	0	0	85	0	0
Stage 1	234	234	-	93	93	-	-	-	-	-	-	-
Stage 2	169	93	-	238	263	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	558	591	892	622	570	974	1392	-	-	1512	-	-
Stage 1	769	711	-	914	818	-	-	-	-	-	-	-
Stage 2	833	818	-	765	691	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	460	574	892	601	553	974	1392	-	-	1512	-	-
Mov Cap-2 Maneuver	460	574	-	601	553	-	-	-	-	-	-	-
Stage 1	767	693	-	911	816	-	-	-	-	-	-	-
Stage 2	701	816	-	737	673	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.8	9.5	0.3	1.3
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1392	-	-	471	601	974	1512	-	-
HCM Lane V/C Ratio	0.003	-	-	0.407	0.012	0.156	0.026	-	-
HCM Control Delay (s)	7.6	0	-	17.8	11.1	9.4	7.4	-	-
HCM Lane LOS	A	A	-	C	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	2	0	0.6	0.1	-	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	0	2	6	0	47	3	161	4	76	77	61
Future Vol, veh/h	35	0	2	6	0	47	3	161	4	76	77	61
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	100	215	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	85	85	80	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	44	0	3	8	0	59	4	189	5	89	91	72

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	534	507	127	504	538	189	163	0	0	194	0	0
Stage 1	305	305	-	197	197	-	-	-	-	-	-	-
Stage 2	229	202	-	307	341	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	457	468	923	478	450	853	1416	-	-	1379	-	-
Stage 1	705	662	-	805	738	-	-	-	-	-	-	-
Stage 2	774	734	-	703	639	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	404	436	923	452	419	853	1416	-	-	1379	-	-
Mov Cap-2 Maneuver	404	436	-	452	419	-	-	-	-	-	-	-
Stage 1	703	619	-	803	736	-	-	-	-	-	-	-
Stage 2	719	732	-	656	597	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.7	9.9	0.1	2.8
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1416	-	-	417	452	853	1379	-	-
HCM Lane V/C Ratio	0.002	-	-	0.111	0.017	0.069	0.065	-	-
HCM Control Delay (s)	7.5	0	-	14.7	13.1	9.5	7.8	-	-
HCM Lane LOS	A	A	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.1	0.2	0.2	-	-

Intersection	
Intersection Delay, s/veh	3.4
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	4	70	46	142
Demand Flow Rate, veh/h	4	72	47	145
Vehicles Circulating, veh/h	176	43	11	35
Vehicles Exiting, veh/h	4	15	169	80
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	3.2	3.2	3.0	3.6
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	4	72	47	145
Cap Entry Lane, veh/h	1153	1321	1364	1331
Entry HV Adj Factor	0.995	0.972	0.983	0.982
Flow Entry, veh/h	4	70	46	142
Cap Entry, veh/h	1147	1283	1342	1307
V/C Ratio	0.003	0.055	0.034	0.109
Control Delay, s/veh	3.2	3.2	3.0	3.6
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

Intersection	
Intersection Delay, s/veh	3.7
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	47	198	96
Demand Flow Rate, veh/h	0	48	202	98
Vehicles Circulating, veh/h	112	173	29	20
Vehicles Exiting, veh/h	6	58	83	201
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	3.5	4.0	3.3
Approach LOS	-	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	0	48	202	98
Cap Entry Lane, veh/h	1231	1157	1340	1352
Entry HV Adj Factor	1.000	0.979	0.979	0.976
Flow Entry, veh/h	0	47	198	96
Cap Entry, veh/h	1231	1133	1311	1320
V/C Ratio	0.000	0.041	0.151	0.072
Control Delay, s/veh	2.9	3.5	4.0	3.3
LOS	A	A	A	A
95th %tile Queue, veh	0	0	1	0

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	691	479	32	132	14
Future Vol, veh/h	4	691	479	32	132	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	175	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	90	85	85	85	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	768	564	38	155	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	602	0	-	0	1361	301
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	778	-
Critical Hdwy	4.13	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	973	-	-	-	~ 151	696
Stage 1	-	-	-	-	522	-
Stage 2	-	-	-	-	452	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	973	-	-	-	~ 150	696
Mov Cap-2 Maneuver	-	-	-	-	352	-
Stage 1	-	-	-	-	519	-
Stage 2	-	-	-	-	452	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	21.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	973	-	-	-	352	696
HCM Lane V/C Ratio	0.005	-	-	-	0.441	0.025
HCM Control Delay (s)	8.7	-	-	-	23.1	10.3
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0	-	-	-	2.2	0.1

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	566	677	126	81	10
Future Vol, veh/h	21	566	677	126	81	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	175	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	90	90	90	85	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	629	752	140	95	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	892	0	-	0	1503	446
Stage 1	-	-	-	-	822	-
Stage 2	-	-	-	-	681	-
Critical Hdwy	4.13	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	758	-	-	-	123	561
Stage 1	-	-	-	-	393	-
Stage 2	-	-	-	-	502	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	758	-	-	-	119	561
Mov Cap-2 Maneuver	-	-	-	-	307	-
Stage 1	-	-	-	-	380	-
Stage 2	-	-	-	-	502	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	20.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	758	-	-	-	307	561
HCM Lane V/C Ratio	0.035	-	-	-	0.31	0.022
HCM Control Delay (s)	9.9	-	-	-	21.9	11.6
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.1	-	-	-	1.3	0.1

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	65	3	1	355	184	20
Future Vol, veh/h	65	3	1	355	184	20
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	0	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	90	85	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	81	4	1	394	216	25

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	612	216	241	0	-	0
Stage 1	216	-	-	-	-	-
Stage 2	396	-	-	-	-	-
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	456	824	1326	-	-	-
Stage 1	820	-	-	-	-	-
Stage 2	680	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	456	824	1326	-	-	-
Mov Cap-2 Maneuver	456	-	-	-	-	-
Stage 1	819	-	-	-	-	-
Stage 2	680	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1326	-	456	824	-	-
HCM Lane V/C Ratio	0.001	-	0.178	0.005	-	-
HCM Control Delay (s)	7.7	-	14.6	9.4	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.6	0	-	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	2	4	239	212	67
Future Vol, veh/h	40	2	4	239	212	67
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	0	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	85	85	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	50	3	5	281	249	84

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	540	249	333	0	-	0
Stage 1	249	-	-	-	-	-
Stage 2	291	-	-	-	-	-
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	503	790	1226	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	759	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	501	790	1226	-	-	-
Mov Cap-2 Maneuver	501	-	-	-	-	-
Stage 1	789	-	-	-	-	-
Stage 2	759	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.8	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1226	-	501	790	-	-
HCM Lane V/C Ratio	0.004	-	0.1	0.003	-	-
HCM Control Delay (s)	7.9	-	13	9.6	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.3	0	-	-

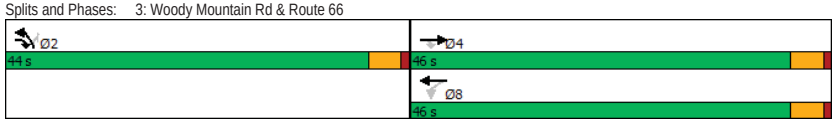
APPENDIX P

2024 & 2027 SIGNAL AT WOODY MOUNTAIN AND ROUTE 66

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	344	7	158	271	8	223
Future Volume (vph)	344	7	158	271	8	223
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	4	2		8	2	
Permitted Phases		4	8			2
Detector Phase	4	2	8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	46.0	44.0	46.0	46.0	44.0	44.0
Total Split (%)	51.1%	48.9%	51.1%	51.1%	48.9%	48.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	Min	None	None	Min	Min
Act Effct Green (s)	12.5	28.8	12.5	12.5	6.9	6.9
Actuated g/C Ratio	0.43	1.00	0.43	0.43	0.24	0.24
v/c Ratio	0.47	0.01	0.43	0.39	0.02	0.45
Control Delay	7.9	0.0	9.2	7.1	10.4	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.9	0.0	9.2	7.1	10.4	5.1
LOS	A	A	A	A	B	A
Approach Delay	7.8			7.9	5.3	
Approach LOS	A			A	A	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 28.8	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.47	
Intersection Signal Delay: 7.2	Intersection LOS: A
Intersection Capacity Utilization 42.3%	ICU Level of Service A
Analysis Period (min) 15	

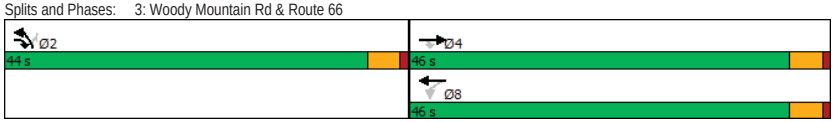
Splits and Phases: 3: Woody Mountain Rd & Route 66



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	292	30	189	340	6	219
Future Volume (vph)	292	30	189	340	6	219
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	4	2		8	2	
Permitted Phases		4	8			2
Detector Phase	4	2	8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	46.0	44.0	46.0	46.0	44.0	44.0
Total Split (%)	51.1%	48.9%	51.1%	51.1%	48.9%	48.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	Min	None	None	Min	Min
Act Effct Green (s)	13.7	30.1	13.7	13.7	6.9	6.9
Actuated g/C Ratio	0.46	1.00	0.46	0.46	0.23	0.23
v/c Ratio	0.41	0.02	0.47	0.45	0.02	0.46
Control Delay	7.0	0.0	9.5	7.4	11.3	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	0.0	9.5	7.4	11.3	5.4
LOS	A	A	A	A	B	A
Approach Delay	6.3			8.2	5.6	
Approach LOS	A			A	A	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 30.1	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.47	
Intersection Signal Delay: 7.0	Intersection LOS: A
Intersection Capacity Utilization 41.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Woody Mountain Rd & Route 66



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	344	7	158	271	8	223
Future Volume (veh/h)	344	7	158	271	8	223
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	382	8	186	319	10	68
Peak Hour Factor	0.90	0.80	0.85	0.85	0.80	0.85
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	888	1050	610	888	334	297
Arrive On Green	0.47	0.47	0.47	0.47	0.19	0.19
Sat Flow, veh/h	1870	1585	1001	1870	1781	1585
Grp Volume(v), veh/h	382	8	186	319	10	68
Grp Sat Flow(s),veh/h/ln	1870	1585	1001	1870	1781	1585
Q Serve(g_s), s	3.6	0.0	4.0	2.9	0.1	1.0
Cycle Q Clear(g_c), s	3.6	0.0	7.6	2.9	0.1	1.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	888	1050	610	888	334	297
V/C Ratio(X)	0.43	0.01	0.30	0.36	0.03	0.23
Avail Cap(c_a), veh/h	2913	2766	1694	2913	2640	2349
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	4.6	1.5	7.1	4.4	8.8	9.2
Incr Delay (d2), s/veh	0.3	0.0	0.3	0.2	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.0	0.0	0.9	0.8	0.1	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.0	1.5	7.4	4.7	8.9	9.6
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h	390			505	78	
Approach Delay, s/veh	4.9			5.7	9.5	
Approach LOS	A			A	A	

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	9.5	17.2	17.2
Change Period (Y+Rc), s	4.5	4.5	4.5
Max Green Setting (Gmax), s	39.5	41.5	41.5
Max Q Clear Time (g_c+I1), s	3.0	5.6	9.6
Green Ext Time (p_c), s	0.2	2.6	3.1

Intersection Summary	
HCM 6th Ctrl Delay	5.7
HCM 6th LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	292	30	189	340	6	219
Future Volume (veh/h)	292	30	189	340	6	219
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	344	29	222	378	8	67
Peak Hour Factor	0.85	0.80	0.85	0.90	0.80	0.85
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	918	1066	652	918	324	288
Arrive On Green	0.49	0.49	0.49	0.49	0.18	0.18
Sat Flow, veh/h	1870	1585	1037	1870	1781	1585
Grp Volume(v), veh/h	344	29	222	378	8	67
Grp Sat Flow(s),veh/h/ln	1870	1585	1037	1870	1781	1585
Q Serve(g_s), s	3.2	0.2	4.7	3.5	0.1	1.0
Cycle Q Clear(g_c), s	3.2	0.2	7.8	3.5	0.1	1.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	918	1066	652	918	324	288
V/C Ratio(X)	0.37	0.03	0.34	0.41	0.02	0.23
Avail Cap(c_a), veh/h	2823	2680	1707	2823	2559	2277
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	4.4	1.5	6.8	4.5	9.2	9.6
Incr Delay (d2), s/veh	0.3	0.0	0.3	0.3	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.9	0.1	1.1	1.0	0.1	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	4.6	1.5	7.1	4.8	9.3	10.0
LnGrp LOS	A	A	A	A	A	B
Approach Vol, veh/h	373			600	75	
Approach Delay, s/veh	4.4			5.6	9.9	
Approach LOS	A			A	A	

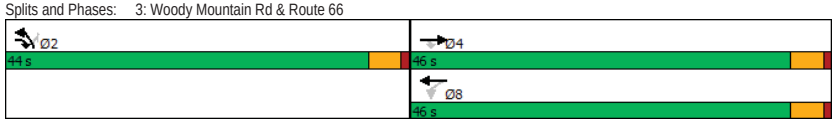
Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	9.5	18.0	18.0
Change Period (Y+Rc), s	4.5	4.5	4.5
Max Green Setting (Gmax), s	39.5	41.5	41.5
Max Q Clear Time (g_c+I1), s	3.0	5.2	9.8
Green Ext Time (p_c), s	0.2	2.4	3.7

Intersection Summary	
HCM 6th Ctrl Delay	5.5
HCM 6th LOS	A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	387	7	148	304	6	172
Future Volume (vph)	387	7	148	304	6	172
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	4	2		8	2	
Permitted Phases		4	8			2
Detector Phase	4	2	8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	46.0	44.0	46.0	46.0	44.0	44.0
Total Split (%)	51.1%	48.9%	51.1%	51.1%	48.9%	48.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	Min	None	None	Min	Min
Act Effct Green (s)	12.9	29.0	12.9	12.9	6.7	6.7
Actuated g/C Ratio	0.44	1.00	0.44	0.44	0.23	0.23
v/c Ratio	0.52	0.01	0.42	0.41	0.02	0.39
Control Delay	8.3	0.0	9.1	7.0	10.8	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	0.0	9.1	7.0	10.8	5.1
LOS	A	A	A	A	B	A
Approach Delay	8.1			7.7	5.3	
Approach LOS	A			A	A	

Intersection Summary		
Cycle Length: 90		
Actuated Cycle Length: 29		
Natural Cycle: 45		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.52		
Intersection Signal Delay: 7.4	Intersection LOS: A	
Intersection Capacity Utilization 44.0%	ICU Level of Service A	
Analysis Period (min) 15		

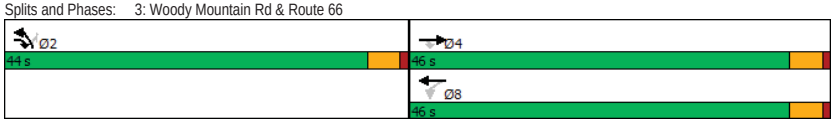
Splits and Phases: 3: Woody Mountain Rd & Route 66



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	329	28	132	382	4	192
Future Volume (vph)	329	28	132	382	4	192
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	4	2		8	2	
Permitted Phases		4	8			2
Detector Phase	4	2	8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	46.0	44.0	46.0	46.0	44.0	44.0
Total Split (%)	51.1%	48.9%	51.1%	51.1%	48.9%	48.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	Min	None	None	Min	Min
Act Effct Green (s)	12.4	28.3	12.4	12.4	6.6	6.6
Actuated g/C Ratio	0.44	1.00	0.44	0.44	0.23	0.23
v/c Ratio	0.45	0.02	0.35	0.52	0.01	0.42
Control Delay	7.5	0.0	7.8	8.4	9.8	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.5	0.0	7.8	8.4	9.8	4.9
LOS	A	A	A	A	A	A
Approach Delay	6.9			8.2	5.0	
Approach LOS	A			A	A	

Intersection Summary		
Cycle Length: 90		
Actuated Cycle Length: 28.3		
Natural Cycle: 45		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.52		
Intersection Signal Delay: 7.2	Intersection LOS: A	
Intersection Capacity Utilization 40.0%	ICU Level of Service A	
Analysis Period (min) 15		

Splits and Phases: 3: Woody Mountain Rd & Route 66



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	387	7	148	304	6	172
Future Volume (veh/h)	387	7	148	304	6	172
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	430	8	174	338	8	53
Peak Hour Factor	0.90	0.80	0.85	0.90	0.80	0.85
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	915	1065	585	915	325	289
Arrive On Green	0.49	0.49	0.49	0.49	0.18	0.18
Sat Flow, veh/h	1870	1585	958	1870	1781	1585
Grp Volume(v), veh/h	430	8	174	338	8	53
Grp Sat Flow(s),veh/h/ln	1870	1585	958	1870	1781	1585
Q Serve(g_s), s	4.2	0.0	4.0	3.1	0.1	0.8
Cycle Q Clear(g_c), s	4.2	0.0	8.2	3.1	0.1	0.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	915	1065	585	915	325	289
V/C Ratio(X)	0.47	0.01	0.30	0.37	0.02	0.18
Avail Cap(c_a), veh/h	2832	2689	1567	2832	2567	2284
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	4.6	1.5	7.4	4.4	9.2	9.5
Incr Delay (d2), s/veh	0.4	0.0	0.3	0.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.2	0.0	0.9	0.8	0.1	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.0	1.5	7.6	4.6	9.2	9.8
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h	438			512	61	
Approach Delay, s/veh	5.0			5.6	9.7	
Approach LOS	A			A	A	

Timer - Assigned Phs		2		4		8
Phs Duration (G+Y+Rc), s		9.5		17.9		17.9
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		39.5		41.5		41.5
Max Q Clear Time (g_c+I1), s		2.8		6.2		10.2
Green Ext Time (p_c), s		0.2		3.0		3.2

Intersection Summary		
HCM 6th Ctrl Delay		5.6
HCM 6th LOS		A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	329	28	132	382	4	192
Future Volume (veh/h)	329	28	132	382	4	192
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	366	26	155	424	5	59
Peak Hour Factor	0.90	0.80	0.85	0.90	0.80	0.85
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	873	1042	617	873	339	302
Arrive On Green	0.47	0.47	0.47	0.47	0.19	0.19
Sat Flow, veh/h	1870	1585	1016	1870	1781	1585
Grp Volume(v), veh/h	366	26	155	424	5	59
Grp Sat Flow(s),veh/h/ln	1870	1585	1016	1870	1781	1585
Q Serve(g_s), s	3.4	0.2	3.1	4.1	0.1	0.8
Cycle Q Clear(g_c), s	3.4	0.2	6.5	4.1	0.1	0.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	873	1042	617	873	339	302
V/C Ratio(X)	0.42	0.02	0.25	0.49	0.01	0.20
Avail Cap(c_a), veh/h	2956	2807	1748	2956	2679	2384
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	4.6	1.6	6.8	4.8	8.6	8.9
Incr Delay (d2), s/veh	0.3	0.0	0.2	0.4	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.9	0.1	0.7	1.2	0.0	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.0	1.6	7.0	5.2	8.6	9.3
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h	392			579	64	
Approach Delay, s/veh	4.7			5.7	9.2	
Approach LOS	A			A	A	

Timer - Assigned Phs		2		4		8
Phs Duration (G+Y+Rc), s		9.5		16.8		16.8
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		39.5		41.5		41.5
Max Q Clear Time (g_c+I1), s		2.8		5.4		8.5
Green Ext Time (p_c), s		0.2		2.5		3.7

Intersection Summary		
HCM 6th Ctrl Delay		5.6
HCM 6th LOS		A

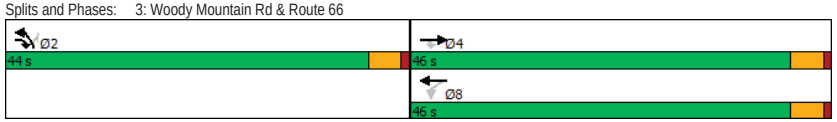
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	387	8	167	304	9	233
Future Volume (vph)	387	8	167	304	9	233
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	4	2		8	2	
Permitted Phases		4	8			2
Detector Phase	4	2	8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	46.0	44.0	46.0	46.0	44.0	44.0
Total Split (%)	51.1%	48.9%	51.1%	51.1%	48.9%	48.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	Min	None	None	Min	Min
Act Effct Green (s)	14.5	31.2	14.5	14.5	7.1	7.1
Actuated g/C Ratio	0.46	1.00	0.46	0.46	0.23	0.23
v/c Ratio	0.50	0.01	0.46	0.39	0.03	0.48
Control Delay	7.8	0.0	9.5	6.7	12.2	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.8	0.0	9.5	6.7	12.2	5.7
LOS	A	A	A	A	B	A
Approach Delay	7.7			7.8	5.9	
Approach LOS	A			A	A	

Intersection Summary		
Cycle Length: 90		
Actuated Cycle Length: 31.2		
Natural Cycle: 50		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.50		
Intersection Signal Delay: 7.3	Intersection LOS: A	
Intersection Capacity Utilization 45.0%	ICU Level of Service A	
Analysis Period (min) 15		

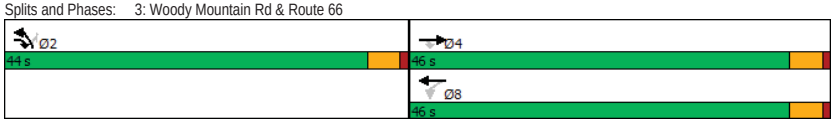
Splits and Phases: 3: Woody Mountain Rd & Route 66



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	329	32	196	382	6	230
Future Volume (vph)	329	32	196	382	6	230
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	4	2		8	2	
Permitted Phases		4	8			2
Detector Phase	4	2	8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	46.0	44.0	46.0	46.0	44.0	44.0
Total Split (%)	51.1%	48.9%	51.1%	51.1%	48.9%	48.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	Min	None	None	Min	Min
Act Effct Green (s)	15.1	31.7	15.1	15.1	7.0	7.0
Actuated g/C Ratio	0.48	1.00	0.48	0.48	0.22	0.22
v/c Ratio	0.41	0.03	0.48	0.48	0.02	0.48
Control Delay	6.8	0.0	9.3	7.5	12.3	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.8	0.0	9.3	7.5	12.3	5.8
LOS	A	A	A	A	B	A
Approach Delay	6.1			8.1	6.0	
Approach LOS	A			A	A	

Intersection Summary		
Cycle Length: 90		
Actuated Cycle Length: 31.7		
Natural Cycle: 50		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.48		
Intersection Signal Delay: 7.1	Intersection LOS: A	
Intersection Capacity Utilization 43.6%	ICU Level of Service A	
Analysis Period (min) 15		

Splits and Phases: 3: Woody Mountain Rd & Route 66



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	387	8	167	304	9	233
Future Volume (veh/h)	387	8	167	304	9	233
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	430	8	196	338	11	72
Peak Hour Factor	0.90	0.80	0.85	0.90	0.80	0.85
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	941	1079	595	941	316	281
Arrive On Green	0.50	0.50	0.50	0.50	0.18	0.18
Sat Flow, veh/h	1870	1585	958	1870	1781	1585
Grp Volume(v), veh/h	430	8	196	338	11	72
Grp Sat Flow(s),veh/h/ln	1870	1585	958	1870	1781	1585
Q Serve(g_s), s	4.2	0.0	4.7	3.1	0.1	1.1
Cycle Q Clear(g_c), s	4.2	0.0	8.9	3.1	0.1	1.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	941	1079	595	941	316	281
V/C Ratio(X)	0.46	0.01	0.33	0.36	0.03	0.26
Avail Cap(c_a), veh/h	2754	2615	1524	2754	2497	2222
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	4.5	1.4	7.4	4.2	9.6	10.0
Incr Delay (d2), s/veh	0.3	0.0	0.3	0.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.2	0.0	1.1	0.8	0.1	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	4.9	1.4	7.7	4.5	9.6	10.5
LnGrp LOS	A	A	A	A	A	B
Approach Vol, veh/h	438			534	83	
Approach Delay, s/veh	4.8			5.7	10.4	
Approach LOS	A			A	B	

Timer - Assigned Phs		2		4		8
Phs Duration (G+Y+Rc), s		9.5		18.7		18.7
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		39.5		41.5		41.5
Max Q Clear Time (g_c+I1), s		3.1		6.2		10.9
Green Ext Time (p_c), s		0.2		3.0		3.3

Intersection Summary		
HCM 6th Ctrl Delay		5.7
HCM 6th LOS		A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	329	32	196	382	6	230
Future Volume (veh/h)	329	32	196	382	6	230
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	366	30	231	424	8	71
Peak Hour Factor	0.90	0.80	0.85	0.90	0.80	0.85
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	957	1088	650	957	311	276
Arrive On Green	0.51	0.51	0.51	0.51	0.17	0.17
Sat Flow, veh/h	1870	1585	1016	1870	1781	1585
Grp Volume(v), veh/h	366	30	231	424	8	71
Grp Sat Flow(s),veh/h/ln	1870	1585	1016	1870	1781	1585
Q Serve(g_s), s	3.4	0.2	5.1	4.1	0.1	1.1
Cycle Q Clear(g_c), s	3.4	0.2	8.5	4.1	0.1	1.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	957	1088	650	957	311	276
V/C Ratio(X)	0.38	0.03	0.36	0.44	0.03	0.26
Avail Cap(c_a), veh/h	2706	2570	1600	2706	2453	2183
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	4.2	1.4	6.8	4.4	9.8	10.2
Incr Delay (d2), s/veh	0.3	0.0	0.3	0.3	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.9	0.1	1.2	1.1	0.1	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	4.5	1.4	7.2	4.7	9.9	10.7
LnGrp LOS	A	A	A	A	A	B
Approach Vol, veh/h	396			655	79	
Approach Delay, s/veh	4.3			5.6	10.6	
Approach LOS	A			A	B	

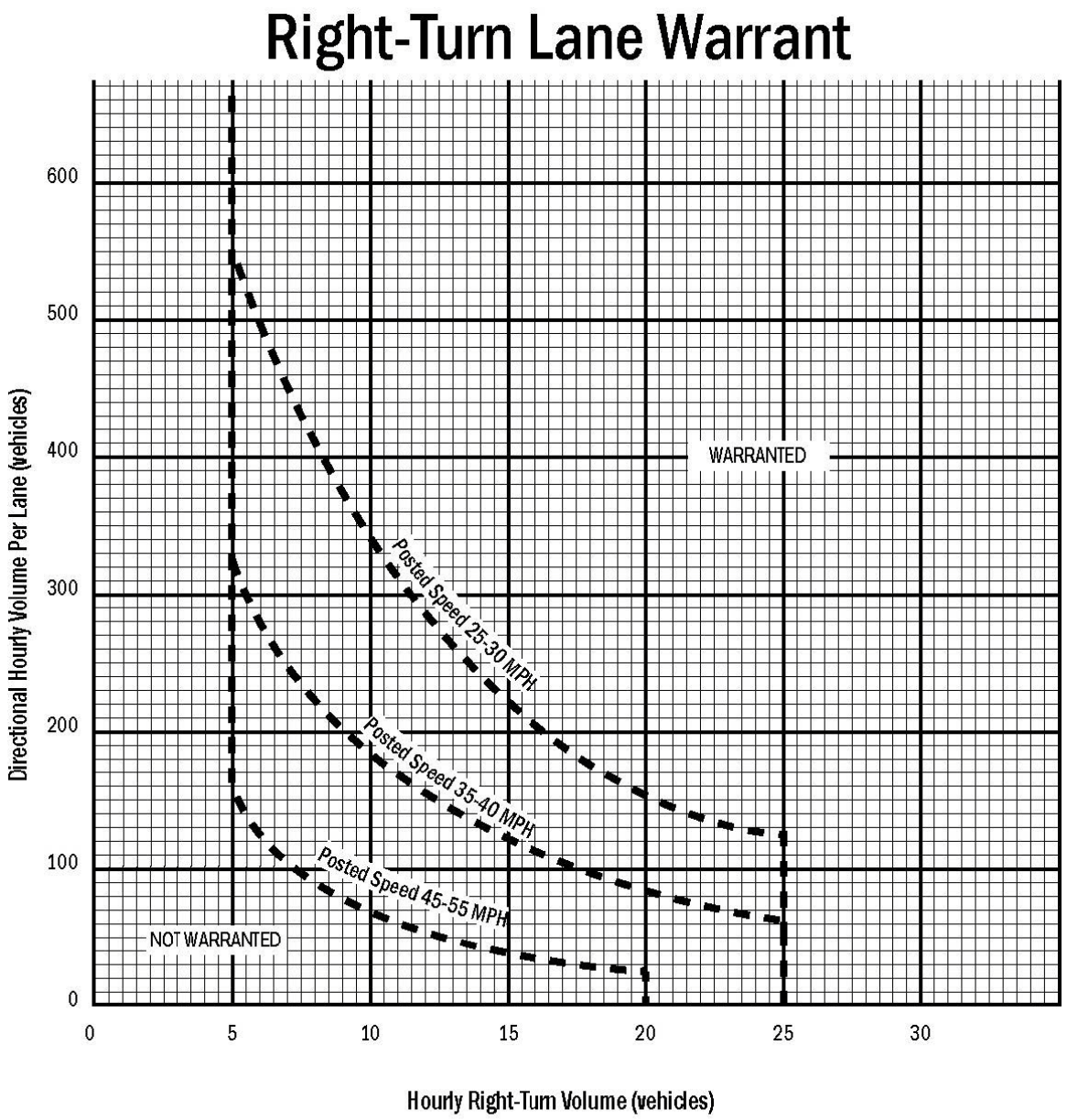
Timer - Assigned Phs		2		4		8
Phs Duration (G+Y+Rc), s		9.5		19.2		19.2
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		39.5		41.5		41.5
Max Q Clear Time (g_c+I1), s		3.1		5.4		10.5
Green Ext Time (p_c), s		0.2		2.5		4.2

Intersection Summary		
HCM 6th Ctrl Delay		5.5
HCM 6th LOS		A

APPENDIX Q

TURN LANE WARRANT GUIDELINES

Figure 10-10-01



Sources: Icaho Transportation Department "Traffic Manual"
Transportation Research Board, NCHRP Report 348, Access Managment Guidelines for Activity Centers.

(Ord. 2017-22, Rep&ReEn, 07/05/2017)

245 TURN LANE WARRANTS

The intent of this document is to offer guidance to warrant the installation of dedicated left or right turn lanes on state routes, whether during new construction, major reconstruction, or in the course of the encroachment permitting process. **The primary determining factors to warrant an exclusive turn lane shall be: (a) the combination of through traffic volume and turning traffic volume, (b) the posted roadway speed, and (c) the number of through lanes on the roadway.** Note: Dual right- or left-turn lanes should be considered when the turning volume exceeds 300 vehicles per hour. In addition to the criteria presented in the tables below, other factors should be taken into consideration when performing a warrant study such as: shoulder width, percentage of trucks, sight distance, highway grade, horizontal and vertical curvature and crash history.

Right-Turn Lane Warrants

Peak Hour Traffic Volume on the Highway in Advancing Direction	Minimum Peak Hour Right-turn Traffic Volume				
	# of thru lanes per direction				
	1		2		3
	< 45 MPH Posted Speed	≥ 45 MPH Posted Speed	< 45 MPH Posted Speed	≥ 45 MPH Posted Speed	All Speeds
≤ 200					
201 – 300	-	30	-	-	-
301 – 400	-	19	-	55	-
401 – 500	85	14	-	30	-
501 – 600	58	12	140	25	-
601 – 700	27	9	80	18	-
701 – 800	20	8	53	15	-
801 – 900	12	7	40	12	-
901 – 1000	9	6	30	11	-
1001 – 1100	8	5	23	9	18
1101 – 1200	7	5	18	8	16
1201 – 1300	6	4	14	8	15
1301 – 1400	6	4	11	6	12
1400+	5	3	8	6	10

ADOT Traffic Guidelines and Processes
January 2019
IDO and TSMO
Section 245 – Turn Lane Warrants

Left-Turn Lane Warrants

Peak Hour Traffic Volume on the Highway in Advancing Direction	Minimum Peak Hour Left-turn Traffic Volume			
	# of thru lanes per direction			
	1		2 (Undivided)*	
	< 45 MPH Posted Speed	≥ 45 MPH Posted Speed	< 45 MPH Posted Speed	≥ 45 MPH Posted Speed
≤ 200	30	15	-	-
201 – 300	12	12	40	30
301 – 400	12	12	30	25
401 – 500	12	12	25	18
501 – 600	12	12	15	12
601 – 1000	12	12	10	8
1000+	12	8	10	8

*On non-freeway divided highways, left-turn or U-turn lanes should be provided at median breaks.

Volumes and traffic factors utilized should be based on data from ADOT's Multimodal Planning Division, or should be based on current traffic counts as approved by the Regional Traffic Engineer. For encroachment permits, analysis of the relevant through and turning traffic volumes should be completed in the design year as identified in ADOT Traffic Guidelines and Processes (TGP) 240. For new construction and major reconstruction, analysis should be performed based on data for the appropriate design year. Turn lane warrant studies should be reviewed and approved by the Regional Traffic Engineer. In cases where the State Highway section in question intersects a route under other jurisdiction, it is recommended that a turning movement analysis be performed on the intersecting route as well.

When it is determined that a turn lane is warranted, shoulder width should be provided as part of the turn lane design in accordance with the ADOT Roadway Design Guidelines, which should be used to determine the minimum continuous usable width of paved shoulder along the turn lanes. Turn lane design should also conform to the guidance in ADOT TGP430.

APPENDIX R

QUEUE STORAGE ANALYSIS

Signalized Intersections

2027

Average Vehicle Length, VL (Per Table 9-23, AASHTO "Green Book" 2018, p 9-99)

Intersection Cycle Length (sec): 90

Cycles per Hour: 40 Queuing Cycles: 2

Truck % = 2% *VL* (ft) = 25 Average Vehicle Length

Table 9-23	
Truck%	**VL (ft)**
0%	25
2%	25
10%	32
15%	35
20%	38
25%	41

Equation Used Storage Length, SL, = 2 x (vehicles/hour)/(cycles/hour) x Average Vehicle Length

Intersection	Cycle Length	Move-ment	AM Peak (veh/hr)	Midday Peak (veh/hr)	PM Peak (veh/hr)	Max vehs per 2 cycles	AASHTO Storage Length (ft)	Turn Lane Length (ft
Woody Mountain Rd & Route 66	90	NB Left	9	0	6	1	25'	145
	90	WB Left	167	0	196	10	250'	403
	90	NB Right	233	0	230	12	300'	420
	90	EB Right	8	0	32	2	50'	203

*Note: Truck/Passenger Vehicle split is projected based on percentage and not reflective of acctual vehicle classification counts.

"Yield" for turns indicates that, while movement may or may not be subject to a Yield sign, vehicles must yield to oncoming traffic and may experience delays.

Unsignalized Intersections

2027

Left Turns (Per AASHTO "Green Book" 2018, pp 9-96 to 9-99)

Equation 9-3 — U.S. Customary

$$c = \frac{V_o e^{-V_o t_c/3600}}{1 - e^{-V_o t_f/3600}}$$

where:

c = left-turn capacity, veh/h

V_o = major-road volume conflicting with the minor movement, assumed to be equal to one-half of the two-way major-road volume, veh/h

t_c = critical gap, s

t_f = follow-up gap, s

Equation 9-4 — U.S. Customary

$$SL = \left\{ \frac{\ln\left[P(n>N)\right]}{\ln\left[\frac{v}{c}\right]} - 1 \right\} \times VL$$

where:

SL = storage length, ft

$P(n>N)$ = probability of turn-lane overflow

v = left-turn vehicle volume, veh/h

c = left-turn capacity, veh/h

VL = average length per vehicle, ft

Table 9-23

Truck%	VL (ft)
0%	25
5%	28
10%	32
15%	35
20%	38
25%	41

Per Section 9.7.2.2 Storage Length

c (veh/hr) =	*calculated*	Left-Turn Capacity
V_O (veh/hr) =	Opposing	Major Road Volume
t_c (sec) =	6.25	85th %-ile Critical Gap
t_f (sec) =	2.50	Follow-Up Gap
SL (ft) =	*calculated*	Storage Length
$P(n>N)$ =	0.005	(a probability, no units)
v (veh/hr) =	*enter below*	Left-Turn Vehicle Volume

Truck % = 2% VL (ft) = 25 Average Vehicle Length

Right Turns: Equation Used: storage length = 2 x (vehicles/hour)/(60 minutes/hour) x average vehicle length

Intersection	Move-ment	AM Peak (veh/hr)	Midday Peak (veh/hr)	PM Peak (veh/hr)	Veh per 2 minutes	Opposing V_O (veh/hr)	AASHTO Storage Length (ft)	Turn Lane Length (ft)
Alvan Clark Blvd & Route 66	NB Left	12	0	7	1	0	25'	85
	WB Left	22	0	31	2	340	25'	223
	NB Right	38	0	35	2	0	50'	110
	EB Right	9	0	3	1	0	25'	223
Flagstaff Public Works Drwy & Route 66	SB Left	17	0	8	1	0	25'	50
	EB Left	2	0	2	1	319	25'	223
	WB Right	12	0	3	1	0	25'	223
Woody Mountain Rd & Patio Del Presidio	SB Left	32	0	76	3	161	25'	115
	WB Left	6	0	6	1	0	25'	115
	NB Right	0	0	4	1	0	25'	115
	WB Right	129	0	47	5	0	125'	215
Northwestern Street & Route 66	EB Left	4	0	21	1	677	25'	178
	SB Right	14	0	10	1	0	25'	50
Woody Mountain Rd & Dwy A	NB Left	1	0	4	1	212	25'	115
	EB Left	65	0	40	3	0	75'	165
	SB Right	20	0	67	3	0	75'	165
	EB Right	3	0	2	1	0	25'	115

*Note: Truck/Passenger Vehicle split is projected based on percentage and not reflective of acctual vehicle classification counts.

"Yield" for turns indicates that, while movement may or may not be subject to a Yield sign, vehicles must yield to oncoming traffic and may experience delays.

Signalized Intersections
Total Traffic: ADOT Queue Storage Calculations
2027

Average Vehicle Length (ft): 25 Cycle Length (sec): 90 Cycles per Hour: 40

Queue Storage Equations:

Queue Length = 1.5 x (vehicles/hour) ÷ (40 cycles/hour) x average vehicle length*

Storage Length = Braking Distance + Queue Length

Turn Lane Length = Storage Length – [Gap – 2/3 Gap]

*** ADOT TGP 430 allows for queues to be calculated for 1.5 to 2.0 cycles.**

Gap Design Speed (mph)	Gap (ft)	2/3 Gap (ft)	Calculated Gap (ft)
< 40mph	60	40	20
40-50mph	90	60	30
> 50mph	140	95	45

	Minimum			Desired	
Design Speed (mph)	Entering Speed (mph)	Braking Speed (mph)	Braking Distance (ft)	Braking Speed (mph)	Braking Distance (ft)
30	20	20	20	29	80
35	25	25	40	34	115
40	30	29	50	38	150
45	35	34	85	43	200
50	40	38	120	47	245
55	45	42	145	52	300
60	50	47	200	56	360
65	55	52	265	60	415
70	60	56	315	64	490
75	65	61	400	70	585

* ADOT Queue length: minimum queue length is 2 vehicles (2 cars or 1 car+1 truck), which can be reduced by 20 feet for a free right turn movement.
Synchro Queue length: is the 95th percentile queue calculated by Synchro sofeware with HCM 6th edition methodology.

Intersection	Movement	Cycle Length	[M]in. or [D]esired	Posted Approach Speed	Gap Length (ft)	Flow of Turn	AM Peak (veh/hr)	Midday Peak (veh/hr)	PM Peak (veh/hr)	Trucks> 10% (Y if Yes)	Max vehs per 1.5 cycles	ADOT Queue Length (ft)*	Minimum Braking Distance (ft)	Turn Lane Length (ft)
Woody Mountain Rd & Route 66	NB Left	90	D	40	**90**		9		6	N	1	50	150	**170**
	WB Left		D	45	**140**		167		196	N	8	200	200	**353**
	NB Right		D	40	**90**		233		230	N	9	225	150	**345**
	EB Right		D	45	**140**		8		32	N	2	50	200	**203**

"Yield" for turns indicates that, while movement may or may not be subject to a Yield sign, vehicles must yield to oncoming traffic and may experience delays.

Unsignalized Intersections
Total Traffic: ADOT Queue Storage Calculations
2027

Average Vehicle Length (ft): 25

Queue Storage Equations:

Queue Length = 1.5 x (vehicles/hour) ÷ (60 minutes/hour) x average vehicle length

Storage Length = Braking Distance + Queue Length

Turn Lane Length = Storage Length – [Gap – 2/3 Gap]

Gap Design Speed (mph)	Gap (ft)	2/3 Gap (ft)	Calculated Gap (ft)
< 40mph	60	40	20
40-50mph	90	60	30
> 50mph	140	95	45

	Minimum			Desired	
Design Speed (mph)	Entering Speed (mph)	Braking Speed (mph)	Braking Distance (ft)	Braking Speed (mph)	Braking Distance (ft)
30	20	20	20	29	80
35	25	25	40	34	115
40	30	29	50	38	150
45	35	34	85	43	200
50	40	38	120	47	245
55	45	42	145	52	300
60	50	47	200	56	360
65	55	52	265	60	415
70	60	56	315	64	490
75	65	61	400	70	585

* ADOT Queue length: minimum queue length is 2 vehicles (2 cars or 1 car+1 truck), which can be reduced by 20 feet for a free right turn movement.
Synchro Queue length: is the 95th percentile queue calculated by Synchro sofeware with HCM 6th edition methodology.

Intersection	Movement		[M]in. or [D]esired	Posted Approach Speed	Gap Length (ft)	Flow of Turn	AM Peak (veh/hr)	Midday Peak (veh/hr)	PM Peak (veh/hr)	Trucks> 10% (Y if Yes)	Max vehs per 1.5 cycles	ADOT Queue Length (ft)*	Desired Braking Distance (ft)	Turn Lane Length (ft)
Alvan Clark Blvd & Route 66	NB Left		D	30	**60**		12		7	N	1	50	80	**110**
	WB Left		D	50	**140**		22		31	N	1	50	245	**248**
	NB Right		D	30	**60**		38		35	N	1	50	80	**110**
	EB Right		D	50	**140**		9		3	N	1	50	245	**248**
Flagstaff Public Works Drwy & Route 66	SB Left		D	25	**60**		17		8	N	1	50	45	**75**
	EB Left		D	50	**140**		2		2	N	1	50	245	**248**
	WB Right		D	50	**140**		12		3	N	1	50	245	**248**
Northwestern Street & Route 66	EB Left		D	45	**140**		4		21	N	1	50	200	**203**
	SB Right		D	25	**60**		14		10	N	1	50	45	**75**

"Yield" for turns indicates that, while movement may or may not be subject to a Yield sign, vehicles must yield to oncoming traffic and may experience delays.

APPENDIX S

SIGHT DISTANCE ANALYSIS

- Case B2—Right turns from the minor road; and
- Case B3—Crossing the major road from a minor-road approach.

Intersection sight distance criteria for stop-controlled intersections are longer than stopping sight distance to allow the intersection to operate smoothly. Minor-road vehicle operators can wait until they can proceed safely without forcing a major-road vehicle to stop.

9.5.3.2.1 Case B1—Left Turn from the Minor Road

Departure sight triangles for traffic approaching from either the right or the left, like those shown in Figure 9-17, should be provided for left turns from the minor road onto the major road for all stop-controlled approaches. The length of the leg of the departure sight triangle along the major road in both directions, shown as distance b in Figure 9-17, is the recommended intersection sight distance for Case B1.

The vertex (decision point) of the departure sight triangle on the minor road should be 14.5 ft [4.4 m] from the edge of the major-road traveled way. This represents the typical position of the minor-road driver's eye when a vehicle is stopped relatively close to the major road. Field observations of vehicle stopping positions found that, where needed, drivers will stop with the front of their vehicle 6.5 ft [2.0 m] or less from the edge of the major-road traveled way. Measurements of passenger cars indicate that the distance from the front of the vehicle to the driver's eye for the current U.S. passenger car population is nearly always 8 ft [2.4 m] or less (*21*). Where practical, it is desirable to increase the distance from the edge of the major-road traveled way to the vertex of the clear sight triangle from 14.5 to 18 ft [4.4 m to 5.4 m]. This increase allows 10 ft [3.0 m] from the edge of the major-road traveled way to the front of the stopped vehicle, providing a larger sight triangle. The length of the sight triangle along the minor road (distance *a* in Figure 9-17) is the sum of the distance from the major road plus $^1/_2$ lane width for vehicles approaching from the left, or $1^1/_2$ lane widths for vehicles approaching from the right.

Field observations of the gaps in major-road traffic actually accepted by drivers turning onto the major road have shown that the values in Table 9-6 provide sufficient time for the minor-road vehicle to accelerate from a stop and complete a left turn without unduly interfering with major-road traffic operations. The time gap acceptance time does not vary with approach speed on the major road. Studies have indicated that a constant value of time gap, independent of approach speed, can be used as a basis for intersection sight distance determinations. Observations have also shown that major-road drivers will reduce their speed to some extent when minor-road vehicles turn onto the major road. Where the time gap acceptance values in Table 9-6 are used to determine the length of the leg of the departure sight triangle, most major-road drivers should not need to reduce speed to less than 70 percent of their initial speed (*21*).

The intersection sight distance in each direction should be equal to the distance traveled at the design speed of the major road during a period of time equal to the applicable time gap shown

in Table 9-6. The length of the sight triangle leg to the right needed for a left-turn maneuver by a passenger car onto the major road, shown as dimension *b* in the drawing on the right in Figure 9-17, is based on a time gap of 7.5 s. A sight triangle to the left is also needed for the left-turning vehicle to cross the near lane(s) of the major road on which traffic approaches from the left; the length of the leg of this sight triangle along the major road is shown as dimension *b* in the drawing to the left in Figure 9-17. This sight triangle to the left is normally provided by Case B2 for the right-turn maneuver (see below). In the rare case where a right-turn maneuver is not permitted onto a two-way street, Case B2 should still be provided so that sight distance is available for crossing the near lane(s) in a left-turn maneuver. In applying Table 9-6, it can usually be assumed that the minor-road vehicle is a passenger car. However, where substantial volumes of heavy vehicles enter the major road, such as from a ramp terminal, the use of tabulated values for single-unit or combination trucks should be considered.

Table 9-6 includes appropriate adjustments to the gap times for the number of lanes on the major road and for the approach grade of the minor road. The adjustment for the grade of the minor-road approach is needed only if the rear wheels of the design vehicle would be on an upgrade that exceeds 3 percent when the vehicle is at the stop line of the minor-road approach.

Table 9-6. Time Gap for Case B1, Left Turn from Stop

Design Vehicle	Time Gap (t_g)(s) at Design Speed of Major Road
Passenger car	7.5
Single-unit truck	9.5
Combination truck	11.5

Note: Time gaps are for a stopped vehicle to turn left onto a two-lane highway with no median and with minor-road approach grades of 3 percent or less. The time gaps are applicable to determining sight distance to the right in left-turn maneuvers. The table values should be adjusted as follows:

For multilane roadways or medians—For left turns onto two-way roadways with more than two lanes, including turn lanes, add 0.5 s for passenger cars or 0.7 s for trucks for each additional lane, from the left, in excess of one, to be crossed by the turning vehicle. Median widths should be converted to an equivalent number of lanes in applying the 0.5 and 0.7 s criteria presented above; for example, an 18-ft [5.5-m] median is equivalent to one and a half lanes, and would require an additional 0.75 s for a passenger to cross and an additional 1.05 s for a truck to cross.

For minor-road approach grades—If the approach grade is an upgrade that exceeds 3 percent, add 0.2 s for each percent grade by which the approach grade exceeds zero percent.

The intersection sight distance along the major road (distance *b* in Figure 9-17) is determined by:

U.S. Customary	Metric
$ISD = 1.47\ V_{major}\ t_g$	$ISD = 0.278\ V_{major}\ t_g$
where:	where:
ISD = intersection sight distance (length of the leg of sight triangle along the major road) (ft)	ISD = intersection sight distance (length of the leg of sight triangle along the major road) (m)
V_{major} = design speed of major road (mph)	V_{major} = design speed of major road (km/h)
t_g = time gap for minor road vehicle to enter the major road (s)	t_g = time gap for minor road vehicle to enter the major road (s)

(9-1)

For example, a passenger car turning left onto a two-lane major road should be provided sight distance equivalent to a time gap of 7.5 s in major-road traffic. If the design speed of the major road is 60 mph [100 km/h], this corresponds to a sight distance of 1.47(60)(7.5) = 661.5 or 665 ft [0.278(100)(7.5) = 208.5 or 210 m], rounded for design.

A passenger car turning left onto a four-lane undivided roadway will need to cross two near lanes, rather than one. This increases the recommended gap in major-road traffic from 7.5 to 8.0 s. The corresponding value of sight distance for this example would be 706 ft [223 m]. If the minor-road approach to such an intersection is located on a 4 percent upgrade, then the time gap selected for intersection sight distance design for left turns should be increased from 8.0 to 8.8 s, equivalent to an increase of 0.2 s for each percent grade.

The design values for intersection sight distance for passenger cars are shown in Table 9-7.

No adjustment of the recommended sight distance values for the major-road grade is generally needed because both the major- and minor-road vehicle will be on the same grade when departing from the intersection. However, if the minor-road design vehicle is a heavy truck and the intersection is located near a sag vertical curve with grades over 3 percent, then an adjustment to extend the recommended sight distance based on the major-road grade should be considered.

Table 9-7. Design Intersection Sight Distance—Case B1, Left Turn from Stop

U.S. Customary				Metric			
Design Speed (mph)	Stopping Sight Distance (ft)	Intersection Sight Distance for Passenger Cars		Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance for Passenger Cars	
		Calculated (ft)	Design (ft)			Calculated (m)	Design (m)
15	80	165.4	170	20	20	41.7	45
20	115	220.5	225	30	35	62.6	65
25	155	275.6	280	40	50	83.4	85
30	200	330.8	335	50	65	104.3	105
35	250	385.9	390	60	85	125.1	130
40	305	441.0	445	70	105	146.0	150
45	360	496.1	500	80	130	166.8	170
50	425	551.3	555	90	160	187.7	190
55	495	606.4	610	100	185	208.5	210
60	570	661.5	665	110	220	229.4	230
65	645	716.6	720	120	250	250.2	255
70	730	771.8	775	130	285	271.1	275
75	820	826.9	830				
80	910	882.0	885				

Note: Intersection sight distance shown is for a stopped passenger car to turn left onto a two-lane highway with no median and grades 3 percent or less. For other conditions, the time gap should be adjusted and the sight distance recalculated.

Sight distance design for left turns at intersections on divided roads or streets should consider multiple design vehicles and median width. If the design vehicle used to determine sight distance for an intersection on a divided road or street is larger than a passenger car, then sight distance for left turns should be checked for that selected design vehicle and for a passenger car as well. If the median on a divided road or street is wide enough to store the design vehicle with a clearance to the through lanes of approximately 3 ft [1 m] at both ends of the vehicle, no separate analysis for the departure sight triangle for left turns is needed on the minor-road approach for the near roadway to the left. In most cases, the departure sight triangle for right turns (Case B2) will provide sufficient sight distance for a passenger car to cross the near roadway to reach the median. Possible exceptions are addressed in the discussion of Case B3.

If the design vehicle can be stored in the median with adequate clearance to the through lanes, a departure sight triangle to the right for left turns should be provided for that design vehicle turning left from the median roadway. Where the median is not wide enough to store the design vehicle, a departure sight triangle should be provided for that design vehicle to turn left from the minor-road approach.

The median width should be considered in determining the number of lanes to be crossed. The median width should be converted to equivalent lanes. For example, an 18-ft [5.5-m] median should be considered as one and a half additional lanes to be crossed in applying the multilane roadway adjustment for time gaps in Table 9-6. Furthermore, a departure sight triangle for left turns from the median roadway should be provided for the largest design vehicle that can be stored on the median roadway with adequate clearance to the through lanes.

If the sight distance along the major road shown in Figure 9-17, including any appropriate adjustments, cannot be provided, then consideration should be given to installing regulatory speed signing on the major-road approaches.

For left-turns onto a one-way roadway, time gaps based on Case B2 (see below) can be applied in determining the sight triangle needed for looking at vehicles approaching from the right.

9.5.3.2.2 Case B2—Right Turn from the Minor Road

A departure sight triangle for traffic approaching from the left like that shown in Figure 9-17 should be provided for right turns from the minor road onto the major road. The intersection sight distance for right turns is determined in the same manner as for Case B1, except that the time gaps (*tg*) in Table 9-6 should be adjusted. Field observations indicate that, in making right turns, drivers generally accept gaps that are slightly shorter than those accepted in making left turns (*21*). The time gaps in Table 9-6 can be decreased by 1.0 s for right-turn maneuvers without undue interference with major-road traffic. These adjusted time gaps for the right turn from the minor road are shown in Table 9-8. Design values based on these adjusted time gaps are shown in Table 9-9 for passenger cars. This 1.0-s reduction in the time gap applies only where turns are limited to right turns; where left turns are also permitted, the time gaps for Case B1 from Table 9-5 apply. When the minimum recommended sight distance for a right-turn maneuver cannot be provided, even with the reduction of 1.0 s from the values in Table 9-6, consideration should be given to installing regulatory speed signing or other traffic control devices on the major-road approaches.

Table 9-8. Time Gap for Case B2—Right Turn from Stop

Design Vehicle	Time Gap (t_g)(s) at Design Speed of Major Road
Passenger car	6.5
Single-unit truck	8.5
Combination truck	10.5

Note: Time gaps are for a stopped vehicle to turn right onto or to cross a two-lane roadway with no median and with minor-road approach grades of 3 percent or less. The table values should be adjusted as follows:

For minor-road approach grades—If the approach grade is an upgrade that exceeds 3 percent, add 0.1 s for each percent grade by which the approach grade exceeds zero percent.

Table 9-9. Design Intersection Sight Distance—Case B2, Right Turn from Stop

U.S. Customary				Metric			
Design Speed (mph)	Stopping Sight Distance (ft)	Intersection Sight Distance for Passenger Cars		Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance for Passenger Cars	
		Calculated (ft)	Design (ft)			Calculated (m)	Design (m)
15	80	143.3	145	20	20	36.1	40
20	115	191.1	195	30	35	54.2	55
25	155	238.9	240	40	50	72.3	75
30	200	286.7	290	50	65	90.4	95
35	250	334.4	335	60	85	108.4	110
40	305	382.2	385	70	105	126.5	130
45	360	430.0	430	80	130	144.6	145
50	425	477.8	480	90	160	162.6	165
55	495	525.5	530	100	185	180.7	185
60	570	573.3	575	110	220	198.8	200
65	645	621.1	625	120	250	216.8	220
70	730	668.9	670	130	285	234.9	235
75	820	716.6	720				
80	910	764.4	765				

Note: Intersection sight distance shown is for a stopped passenger car to turn right onto or to cross a two-lane roadway with no median and with grades of 3 percent or less. For other conditions, the time gap should be adjusted and the sight distance recalculated.

9.5.3.2.3 Case B3—Crossing Maneuver from the Minor Road

In most cases, the departure sight triangles for left and right turns onto the major road, as described for Cases B1 and B2, will also provide adequate sight distance for minor-road vehicles to cross the major road. However, in the following situations, it is advisable to check the availability of sight distance for crossing maneuvers:

- where left or right turns or both are not permitted from a particular approach and the crossing maneuver is the only legal maneuver;
- where the crossing vehicle would cross the equivalent width of more than six lanes; or
- where substantial volumes of heavy vehicles cross the roadway and steep grades that might slow the vehicle while its back portion is still in the intersection are present on the departure roadway on the far side of the intersection.

The equation for intersection sight distance in Case B1 (see Equation 9-1) is used again for the crossing maneuver except that time gaps (*tg*) are the same as those for the Right Turn from Stop maneuver, which presents time gaps and appropriate adjustment factors to determine the intersection sight distance along the major road to accommodate crossing maneuvers. At divid-

ed roadway intersections, depending on the relative magnitudes of the median width and the length of the design vehicle, intersection sight distance may need to be considered for crossing both roadways of the divided roadway or for crossing the near roadway only and stopping in the median before proceeding. The application of adjustment factors for median width and grade is discussed under Case B1.

The time gaps for use in determining intersection sight distance for crossing maneuvers are shown in Table 9-10. Table 9-11 shows the design values for passenger cars for the crossing maneuver based on the unadjusted time gaps in Table 9-10. For major roads with less than six lanes for both directions of travel combined, the provision of sight triangles for Cases B1 and B2 at an intersection will also provide sufficient sight distance for Case B3.

Table 9-10. Time Gap for Case B3, Crossing Maneuver from the Minor Road

Design Vehicle	Time Gap (tg)(s) at Design Speed of Major Road
Passenger car	6.5
Single-unit truck	8.5
Combination truck	10.5

Note: Time gaps are for a stopped vehicle to cross a two-lane highway with no median and with minor-road approach grades of 3 percent or less. The table values should be adjusted as follows:

For multilane roadways or medians—For crossing maneuvers that cross roadways with more than two lanes, including turn lanes, add 0.5 s for passenger cars or 0.7 s for trucks for each additional lane, from the left, in excess of two, to be crossed by the turning vehicle. Median widths should be converted to equivalent lanes; for example, an 18 ft [5.5 m] median would be equal to one and a half lanes and would need an additional time gap of 0.75 s for passenger cars and 1.05 s for trucks.

For minor-road approach grades—If the approach grade is an upgrade that exceeds 3 percent, add 0.2 s for each percent grade by which the approach grade exceeds zero percent.

Table 9-11. Design Intersection Sight Distance—Case B3, Crossing Maneuver

U.S. Customary				Metric			
Design Speed (mph)	Stopping Sight Distance (ft)	Intersection Sight Distance for Passenger Cars		Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance for Passenger Cars	
		Calculated (ft)	Design (ft)			Calculated (m)	Design (m)
15	80	143.3	145	20	20	36.1	40
20	115	191.1	195	30	35	54.2	55
25	155	238.9	240	40	50	72.3	75
30	200	286.7	290	50	65	90.4	95
35	250	334.4	335	60	85	108.4	110
40	305	382.2	385	70	105	126.5	130
45	360	430.0	430	80	130	144.6	145
50	425	477.8	480	90	160	162.6	165
55	495	525.5	530	100	185	180.7	185
60	570	573.3	575	110	220	198.8	200
65	645	621.1	625	120	250	216.8	220
70	730	668.9	670	130	285	234.9	235
75	820	716.6	720				
80	910	764.4	765				

Note: Intersection sight distance shown is for a stopped passenger car to turn right onto or to cross a two-lane roadway with no median and with grades of 3 percent or less. For other conditions, the time gap should be adjusted and the sight distance recalculated.

9.5.3.3 Case C—Intersections with Yield Control on the Minor Road

Drivers approaching yield signs are permitted to enter or cross the major road without stopping, if there are no potentially conflicting vehicles on the major road. The sight distances needed by drivers on yield-controlled approaches exceed those for stop-controlled approaches.

For four-leg intersections with yield control on the minor road, two separate pairs of approach sight triangles like those shown in Figure 9-16 should be provided. One set of approach sight triangles is needed to accommodate crossing the major road and a separate set of sight triangles is needed to accommodate left and right turns onto the major road. Both sets of sight triangles should be checked for potential sight obstructions.

For three-leg intersections with yield control on the minor road, only the approach sight triangles to accommodate left- and right-turn maneuvers need be considered, because the crossing maneuver does not exist.

Both approach and departure sight triangles for intersections with yield control on the minor road should be considered for two situations:

from these sight conditions, there are generally no other approach or departure sight triangles needed for signalized intersections. Signalization may be an appropriate crash countermeasure for higher volume intersections with restricted sight distance that have experienced a pattern of sight-distance related crashes.

However, if the traffic signal is to be placed on two-way flashing operation (i.e., flashing yellow on the major-road approaches and flashing red on the minor-road approaches) under off-peak or nighttime conditions, then the appropriate departure sight triangles for Case B, both to the left and to the right, should be provided for the minor-road approaches. In addition, if right turns on a red signal are to be permitted from any approach, then the appropriate departure sight triangle to the left for Case B2 should be provided to accommodate right turns from that approach.

9.5.3.5 Case E—Intersections with All-Way Stop Control

At intersections with all-way stop control, the first stopped vehicle on one approach should be visible to the drivers of the first stopped vehicles on each of the other approaches. There are no other sight distance criteria applicable to intersections with all-way stop control and, indeed, all-way stop control may be the best option at a limited number of intersections where sight distance for other control types cannot be attained. However, if the projected traffic volumes indicate that the intersection may need to be signalized within a few years, then consideration should be given to providing sight distances for Case D. The Case D sight distances do not differ markedly from the Case E sight distances except where provision is made to accommodate two-way flashing operation and or right turn on red at the future signal.

9.5.3.6 Case F—Left Turns from the Major Road

All locations along a major roadway from which vehicles are permitted to turn left across opposing traffic, including intersections and driveways, should have sufficient sight distance to accommodate the left-turn maneuver. Left-turning drivers need sufficient sight distance to decide when to turn left across the lane(s) used by opposing traffic. Sight distance design should be based on a left turn by a stopped vehicle, since a vehicle that turns left without stopping would need less sight distance. The sight distance along the major road to accommodate left turns is the distance traversed at the design speed of the major road in the travel time for the design vehicle given in Table 9-16.

Table 9-16—Time Gap for Case F, Left Turns from the Major Road

Design Vehicle	Time Gap (t_g)(s) at Design Speed of Major Road
Passenger car	5.5
Single-unit truck	6.5
Combination truck	7.5

Note: Time gaps are for a stopped vehicle turning left from a two-lane highway with no median

For multilane and/or divided roadways—For left turns on two-way roadways across more than one opposing lane, including turn lanes, add 0.5 s for passenger cars or 0.7 s for trucks for each additional lane to be crossed in the left-turn maneuver in excess of one lane. Where the left-turning vehicle must pass through a median, the median width should be converted to an equivalent number of lanes; for example, an 18-ft [5.5-m] median would be equivalent to one and a half lanes and crossing through the median would require an additional 0.75 s for a passenger car and 1.05 s for a truck. The table also contains appropriate adjustment factors for the number of major-road lanes to be crossed by the turning vehicle. The unadjusted time gap in Table 9-16 for passenger cars was used to develop the sight distances in Table 9-17.

Table 9-17. Intersection Sight Distance—Case F, Left Turn from the Major Road

U.S. Customary			
Design Speed (mph)	Stopping Sight Distance (ft)	Intersection Sight Distance	
		Passenger Cars	
		Calculated (ft)	Design (ft)
15	80	121.3	125
20	115	161.7	165
25	155	202.1	205
30	200	242.6	245
35	250	283.0	285
40	305	323.4	325
45	360	363.8	365
50	425	404.3	405
55	495	444.7	445
60	570	485.1	490
65	645	525.5	530
70	730	566.0	570
75	820	606.4	610
80	910	646.8	650

Metric			
Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance	
		Passenger Cars	
		Calculated (m)	Design (m)
20	20	30.6	35
30	35	45.9	50
40	50	61.2	65
50	65	76.5	80
60	85	91.7	95
70	105	107.0	110
80	130	122.3	125
90	160	137.6	140
100	185	152.9	155
110	220	168.2	170
120	250	183.5	185
130	285	198.8	200

Note: Intersection sight distance shown is for a passenger car making a left turn from an undivided roadway. For other conditions and design vehicles, the time gap should be adjusted and the sight distance recalculated.

If stopping sight distance has been provided continuously along the major road and if sight distance for Case B (stop control) or Case C (yield control) has been provided for each minor-road

approach, sight distance will generally be adequate for left turns from the major road. Therefore, no separate check of sight distance for Case F may be needed.

However, at three-leg intersections or driveways located on or near a horizontal curve or crest vertical curve on the major road, the availability of adequate sight distance for left turns from the major road should be checked. In addition, the availability of sight distance for left turns from divided roadways should be checked because of the possibility of sight obstructions in the median.

At four-leg intersections on divided roadways, opposing vehicles turning left can block a driver's view of oncoming traffic. Figure 9-40, presented in Section 9.7.3, illustrates intersection designs that can be used to offset the opposing left-turn lanes and provide left-turning drivers with a better view of oncoming traffic.

9.5.3.7 Case G—Roundabouts

Similar in application to other intersection types, a roundabout needs intersection sight distance so that drivers on a yield-controlled approach to the roundabout can decide when to proceed into the roundabout. Drivers entering a roundabout need to see and react to the presence of potentially conflicting vehicles. Specifically, drivers entering a roundabout need to see potentially conflicting vehicles along the circulatory roadway and vehicles entering the roundabout from the immediate upstream entry. NCHRP Report 672, *Roundabouts: An Informational Guide* (*41*), presents a procedure for determining sight distances for use in the design of roundabouts. The report indicates that, based on international experience, it is advantageous to provide only the minimum sight distance needed at a roundabout. Additional intersection sight distance could result in higher vehicle speeds that may increase conflicts between motor vehicles, bicyclists, and pedestrians. Landscaping within the central island can be effective in restricting sight distance to the minimum needed while creating a "terminal vista" on the approach to improve visibility of the central island.

9.5.4 Effect of Skew

Where two roadways intersect at an angle less than 75 degrees or greater than 105 degrees, and where conversion to a roundabout or realignment to increase the angle of intersection is not justified, some of the factors for determination of intersection sight distance may need adjustment.

Each of the clear sight triangles described above are applicable to oblique-angle intersections. As shown in Figure 9-18, the legs of the sight triangle will lie along the intersection approaches and each sight triangle will be larger or smaller than the corresponding sight triangle would be at a right-angle intersection. The area within each sight triangle should be clear of potential sight obstructions as described previously.