City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

Project Title: Tramway Starbucks **Building Permit #**_____ **Hydrology File #**_____
DRB#_____ **EPC#**_____
Legal Description: UPC: 102305602134521316 City Address OR Parcel 200 TRAMWAY BLVD. SE, ALBUQUERQUE, NM 87123

Applicant/Agent: Lee Engineering on Behalf of Modulus Architects **Contact:** Jonathon Kruse
Address: 8220 San Pedro Dr NE STE 150, Albuquerque NM 87113 **Phone:** 505-545-8459
Email: jkruse@lee-eng.com

Applicant/Owner: Modulus Architects **Contact:** Regina Okoye
Address: _____ **Phone:** 505-338-1499
Email: rokoye@modulusarchitects.com

TYPE OF DEVELOPMENT: ___PLAT (#of lots) __RESIDENCE __DRB SITE ___ ADMIN SITE: ____
RE-SUBMITTAL: _____YES X____ NO

DEPARTMENT: ___X_TRANSPORTATION _____ HYDROLOGY/DRAINAGE
Check all that apply:

TYPE OF SUBMITTAL:

___ENGINEER/ARCHITECT CERTIFICATION
___PAD CERTIFICATION
___CONCEPTUAL G&D PLAN
___GRADING PLAN
___DRAINAGE REPORT
___DRAINAGE MASTER PLAN
___FLOOD PLAN DEVELOPMENT PERMIT APP.
___ELEVATION CERTIFICATE
___CLOMR/LOMR
___TRAFFIC CIRCULATION LAYOUT (TCL) ADMINISTRATIVE
___TRAFFIC CIRCULATION LAYOUT FOR DRB APPROVAL
X TRAFFIC IMPACT STUDY (TIS)
___STREET LIGHT LAYOUT
___OTHER (SPECIFY)
___PRE-DESIGN MEETING?

TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

___BUILDING PERMIT APPROVAL
___CERTIFICATE OF OCCUPANCY
___CONCEPTUAL TCL DRB APPROVAL
___PRELIMINARY PLAT APPROVAL
___SITE PLAN FOR SUB'D APPROVAL
___SITE PLAN FOR BLDG PERMIT APPROVAL
___FINAL PLAT APPROVAL
___SIA/RELEASE OF FINANCIAL GUARANTEE
___FOUNDATION PERMIT APPROVAL
___GRADING PERMIT APPROVAL
___SO-19 APPROVAL
___PAVING PERMIT APPROVAL
___GRADING PAD CERTIFICATION
___WORK ORDER APPROVAL
___CLOMR/LOMR
___FLOOD PLAN DEVELOPMENT PERMIT
X OTHER (SPECIFY) TIA Review

DATE SUBMITTED: 7/31/2023

Traffic Impact Analysis (TIA)
for Tramway Starbucks

Draft Report

July 2023

Prepared for:

Modulus Architects & Land Use Planning, Inc.

Prepared By:

LEE ENGINEERING

EXECUTIVE SUMMARY

The following contains a Traffic Impact Study (TIS) for a Starbucks coffee shop in Albuquerque, NM. Lee Engineering has completed this report for Modulus Architects & Land Use Planning, Inc (MODULUS). All analyses and items contained herein conform to scoping requirements set forth in a scoping meeting held with the City of Albuquerque on May 1st, 2023.

BACKGROUND

The proposed development is to construct a Starbucks coffee shop on the parking lot of Smith's Superstore located along Tramway Blvd and Wenonah Ave. Nearby intersections include Wenonah Ave & 4 Hills Rd, Tramway Blvd & Wenonah Ave, West Entrance Driveway on Tramway Blvd, and East Entrance Driveway on Wenonah Ave.

The site is anticipated to generate 67 ingress and 66 egress trips during the AM peak hour, and 29 ingress and 28 egress during the PM peak hour. The number of vehicle trips generated by the proposed development was based on the trip generation rates and equations provided in the Trip Generation Manual, 10th Edition, by the Institute of Transportation Engineers (ITE) 937 – Coffee/Donut Shop with Drive-Through Window.

Site access is available from West Entrance Driveway along Tramway Blvd, and East Entrance Driveway along Wenonah Ave.

Study intersections include:

1. Wenonah Ave/ 4 Hills Rd
2. Tramway Blvd/ Wenonah Ave
3. West Entrance Driveway/ Tramway Blvd
4. East Entrance Driveway/ Wenonah Ave

Construction is anticipated to begin in 2023, with full completion of the Development in 2025. The Development is to be constructed in a single phase.

Analysis scenarios for this study include:

- Existing (2023) – Field counted Existing traffic volumes
- Build-Out Year (2025) Background –Existing traffic volumes with an applied annual growth rate.
- Build-Out Year (2025) Total – Build-Out Year Background volumes plus Starbucks site-generated Direct and Pass-By trips.

Existing turning movement counts were collected on June 20, 2023, for all study intersections. These volumes were analyzed unaltered in the Existing portion of the Capacity Analysis section.

Site trips for the development site were generated based on ITE 937 –Coffee/Donut Shop with Drive-Through Window, Peak Hour Generator. Proposed development-generated trips were used to analyze Build-Out Total volumes.

SUMMARY OF RECOMMENDATIONS

The following presents a summary of recommendations included in this report.

CONCLUSIONS

- All study intersections operate at an acceptable LOS throughout all study scenarios
- 95th % Queue Lengths do not exceed queue storage at study intersections for studied analsysis scenarios
- HCS results do not suggest the need for capacity mitigation measures or street improvements related to the proposed development
- Proposed Drive-Through Queue Storage accommodates average and 88th percentile queues but fails to accommodate 95th percentile of vehicle queues as designed. However, the provided storage does meet requirements set forth in the City of Albuquerque's Integrated Development Ordinance.

RECOMMENDATIONS

It is recommended that the existing southbound left turn lane serving the site at the west driveway be lengthened to meet DPM design specifications as closely as possible.

Maintain sight distance at all driveways by keeping sight lines visibility free from any obstructions such as but not limited to parking, canopies, site displays, and landscaping.

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INTRODUCTION

This report details the procedures and findings of a Traffic Impact Study (TIS) performed by Lee Engineering for Modulus Architects. This report and the analyses herein were performed for a Starbucks development to be constructed on the parking lot of Smith's Superstore located along Tramway Blvd and Wenonah Ave in Albuquerque, NM. This study examines the impacts of the proposed Development on surrounding traffic conditions and discusses the potential impacts of trips generated by the Development on the study intersections.

The scope of this report and the analyses performed were completed in agreement with the scoping requirements set forth by the CABQ. Scoping meeting notes from the scoping meeting held on May 1st 2023, are included in Appendix A. Analysis procedures, conclusions, and recommendations for this study were developed according to the *Highway Capacity Manual 6th Edition.*

Single-phase construction is anticipated to begin in 2023, with full completion of the Development in 2025. The proposed development site plan displayed in Figure 1 shows that the proposed development is a coffee/donut shop with a drive-through window. AM and PM peak hour volumes were analyzed for each scenario. Traffic generated by the site is anticipated to be 67 ingress and 66 egress trips during the AM peak hour, and 29 ingress and 28 egress trips during PM peak hour. Lee Engineering conducted an HCS Capacity Analysis for the following AM and PM peak hour scenarios:

Traffic Analysis

- Existing (2023) – Field counted Existing traffic volumes
- Build-Out Year (2025) Background –Existing traffic volumes with an applied annual growth rate and the addition of traffic volumes generated by the nearby development of a Coffee/Donut Shop with Drive-Through Window ITE code 937.
- Build-Out Year (2025) Total – Build-Out Year Background volumes plus Starbucks site-generated Direct Trips.

PROJECT LOCATION & SITE PLAN

The development will be located on Tramway Blvd and Wenonah Ave, in the northeast quadrant, in the parking lot of the Smith's superstore in Albuquerque, NM. Figure 1 shows the proposed site plan, and Figure 2 shows the site location, study intersections, and the surrounding area. Nearby intersections include Wenonah Ave and 4 Hills Rd, and Tramway Blvd & Central Ave. Existing commercial businesses border the project area on to the west and south, and residential land use borders the development to the east and southwest.

The proposed development would convert approximately 0.56 acres of land into into a 1,310 square feet Starbucks with a driveway. The development would include 14 existing parking spaces, 24 new parking spaces with a lot of 21,253 square feet. Proposed access points include two existing shared access driveways located north and west to the development site.

The development Site Plan is presented in Figure 1, and Figure 2 shows the Vicinity Map, which includes the study area and intersections.

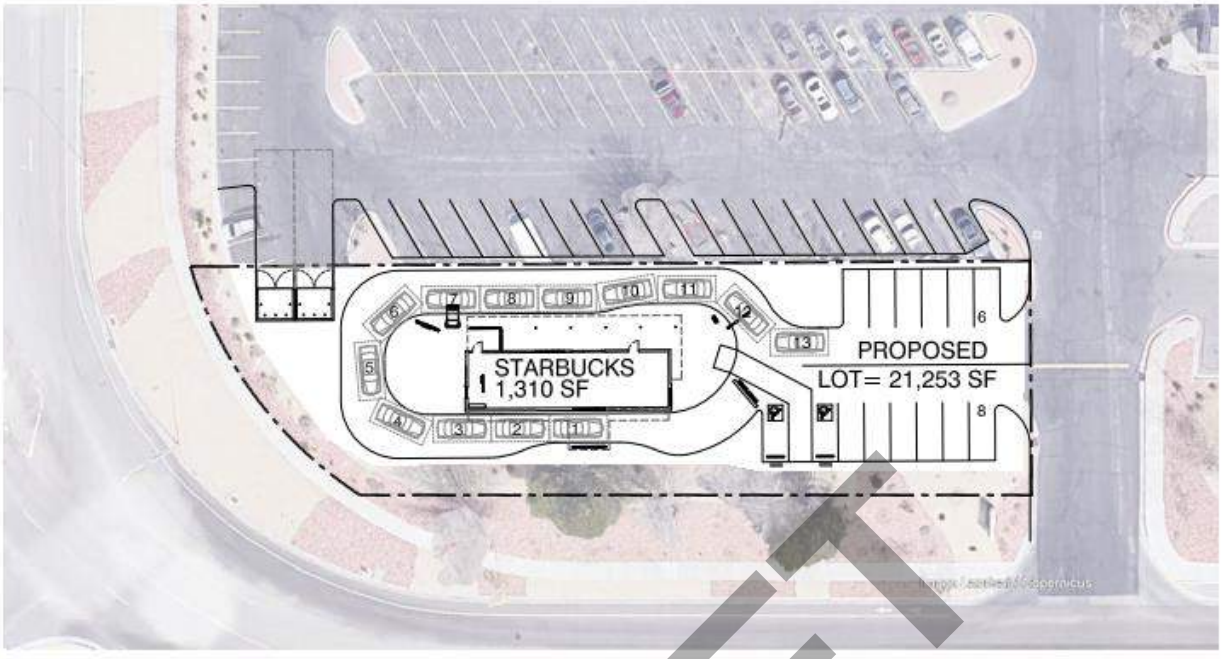


Figure 1: Site Plan

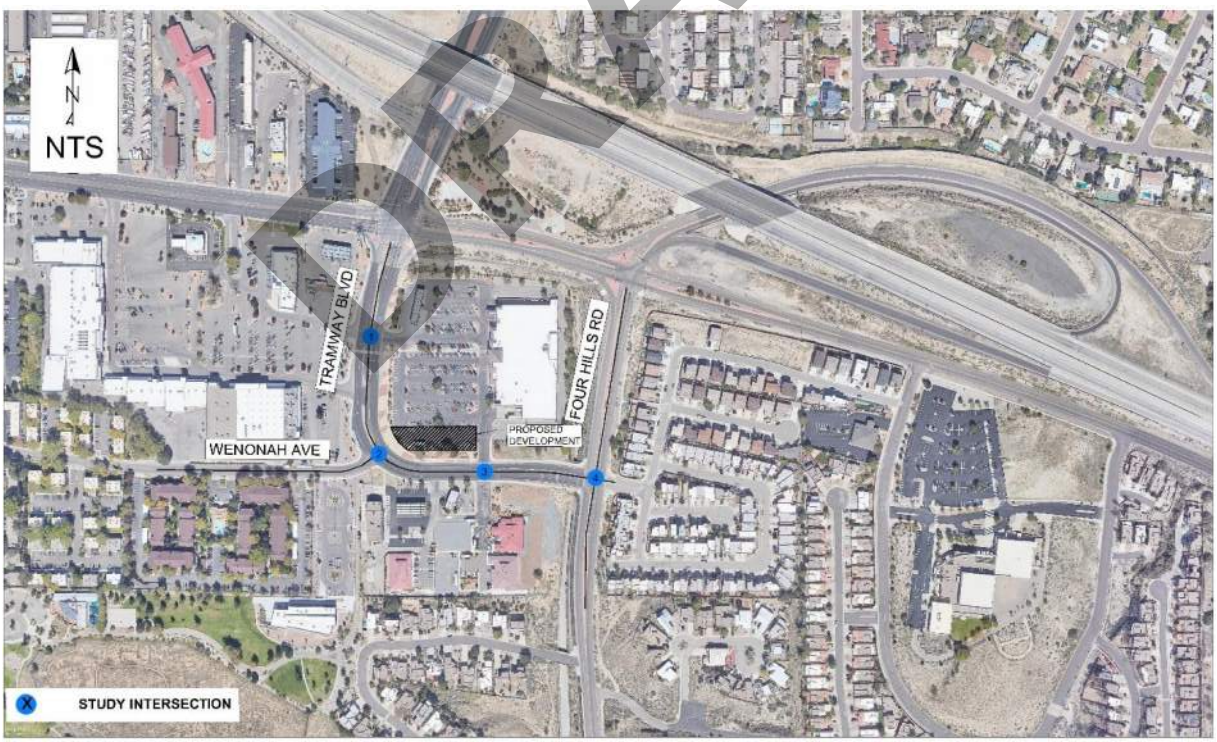


Figure 2: Vicinity Map

STUDY AREA, AREA LAND USE, AND STREETS NARRATIVE SUMMARY

STUDY AREA

The study area is defined as Wenonah Ave & 4 Hills Rd to West Driveway on Tramway Blvd. The following intersections were identified for analysis during the scoping meeting:

1. Wenonah Ave & 4 Hills Dr
2. Tramway Blvd & Wenonah Ave
3. West Entrance Driveway on Tramway Blvd
4. East Entrance Driveway on Wenonah Ave

AREA LAND USE

The Development will be located on the west side of the East Entrance Driveway on Wenonah Ave. Land uses adjacent to and surrounding consist of the following:

- Commercial: Existing commercial developments immediately surrounding the development site include markets, restaurants, gas stations, a travel center, and a hotel.
- Residential: Residential zones are located southwest and east of the development site.

STREETS

The following details the characteristics and features of streets included in the study area:

4 Hills Rd is a CABQ maintained roadway classified as a Major Collector, running north in Albuquerque, NM. The posted speed limit is 40 MPH. The roadway has 4 lanes that are 11 feet wide, and the road is divided by a 20-foot-wide raised median. The median narrows to accommodate northbound and southbound left turn lanes at 4 Hills Rd & Wenonah Ave, a northbound left turn lane at 4 Hills Rd, and a southbound left turn lane at 4 Hills Rd. In the southbound direction, there is a 6-foot bike lane that extends from Central Ave to Wenonah Ave. In the northbound firection there is a continuous sidewalk, and no bicycle facilities are present.

Wenonah Ave is CABQ maintained Major Collector running in an east-west direction, it is two-lane to the west of Tramway Blvd, and 3-lane to the west of Tramway Blvd. The posted speed limit is 25 MPH to the west of Tramway Blvd and 35 MPH to the east of Tramway Blvd. The roadway has 12-foot travel lanes with striping. To the west of Tramway Blvd, Wenonah Ave is undivided, and to the east of Tramway Blvd, it is divided bye a 12-ft two-way-two-lane median that extends from Tramway Blvd to 4 Hills Rd. There are 5-foot bike lanes in each direction to the east of Tramway Blvd, but no bicycle facilities to the west. Continuous sidewalk is present in both directions.

Tramway Blvd is a CABQ maintained Major Collector to the south of Central Ave & Tramway Blvd intersection, and a Principal Arterial to the north of Central Ave & Tramway Blvd intersection. The posted speed limit is 45 mph to the north of Central Ave & Tramway Blvd, and 35 MPH to the south of Central Ave & Tramway Blvd. The roadway has four lanes that are 12-ft wide, and the road is divided by a 18-ft-side raised median. The median narrows to accommodate northbound and southbound left turn lanes at Tramway Blvd. There are 5-foot bike lanes in each direction, and continouous sidewalk is present in both directions.

INTERSECTIONS

The following details the traffic control and characteristics of existing intersections in the study area:

Wenonah Ave & 4 Hills Rd is a 4-legged, stop-controlled intersection of major collectors. There are stop signs on the eastbound and westbound directions. The eastbound leg consists of one left-turn lane with approximately 128 ft of storage lane, one through-lane and one right-turn lane. The westbound leg consists of one left-turn lane and one through/right turn lane. The northbound and southbound legs consist of two

through-lanes and one left-turn lane with approximately 140 ft of storage. Curb cuts with ramps are present, but there are no painted crosswalks present for any leg of the intersection.

Tramway Blvd and Wenonah Ave is a 3-legged, stop-controlled intersection, both roadways are major collectors. There is a stop sign on Wenonah Ave, approaching eastbound traffic. The eastbound leg consists of one shared-lane. The northbound leg consists of one shared-lane, and the southbound leg consist of one through-lane and one through/right turn lane. Curb cuts with ramps are present, but there is no stripped crosswalk.

West Entrance Driveway & Tramway Blvd is a 4-leg intersection of a major collector and an unnamed business access road. For the purposes of this study the unnamed access road will be referred to as West Entrance Driveway. A stop sign is present on the eastbound approach. The eastbound and westbound legs consist of two lanes, and no stripping for any of the approaches. The northbound leg consist of one through-lane, one through/right turn lane, and one displaced left-turn lane separated by a painted 12-ft-wide lane. The southbound leg consists of one through-lane, one through/right turn lane, and one left-turn lane with approximately 140 ft of storage. A painted crosswalk is present across Tramway Blvd.

East Entrance Driveway & Wenonah Ave is a 4-legged, stop-controlled intersection of a major collector and an unnamed business access road. For the purpose of this study the unnamed access road will be referred to as East Entrance Driveway. The northbound leg consists of one through/left turn lane and one right turn lane, and the southbound leg consists of one shared lane. The eastbound leg consists of one shared lane, and the westbound leg consists of one through-lane and one through/right turn lane. No stop signs are present for any approach. No crosswalks are present.

BICYCLE FACILITIES

An existing 5-foot-wide bike lane runs adjacent to the Proposed Starbucks development on Wenonah Ave and Tramway Blvd. This bike lane begins on the 4 Hills Rd & Wenonah Ave intersection and continues north to Central Ave. This bike lane in present for both eastbound and westbound approaches along Wenonah Ave.

DATA COLLECTION

The following section details the data collection method used in subsequent analyses of this report. The data discussed below was collected via a combination of field observations and machine/video recordings.

Field Data Collection

PEDESTRIANS AND BICYCLES

Pedestrian and bicycle volumes were collected at all study intersections with turning movement counts (see Turning Movement Counts section below).

TRANSIT

Based on the ABQRIDE System Map (February 2022) several transit routes serve Tramway Blvd through the study area. As such, there is one bus stop inside the study area.

Turning Movement Counts

Turning movement counts for the study intersections were collected for three separate three-hour periods: 6:00 AM to 9:00 AM, 11:00 AM to 2:00 PM, and 3:00 PM to 6:00 PM on June 20, 2023. Turning movement volumes collected at the study intersections show a typical commuter directionally biased distribution with observable AM and PM peak hour periods. AM and PM peak hour counts are shown in Figure 3 and complete turning movement counts can be found in Appendix B.

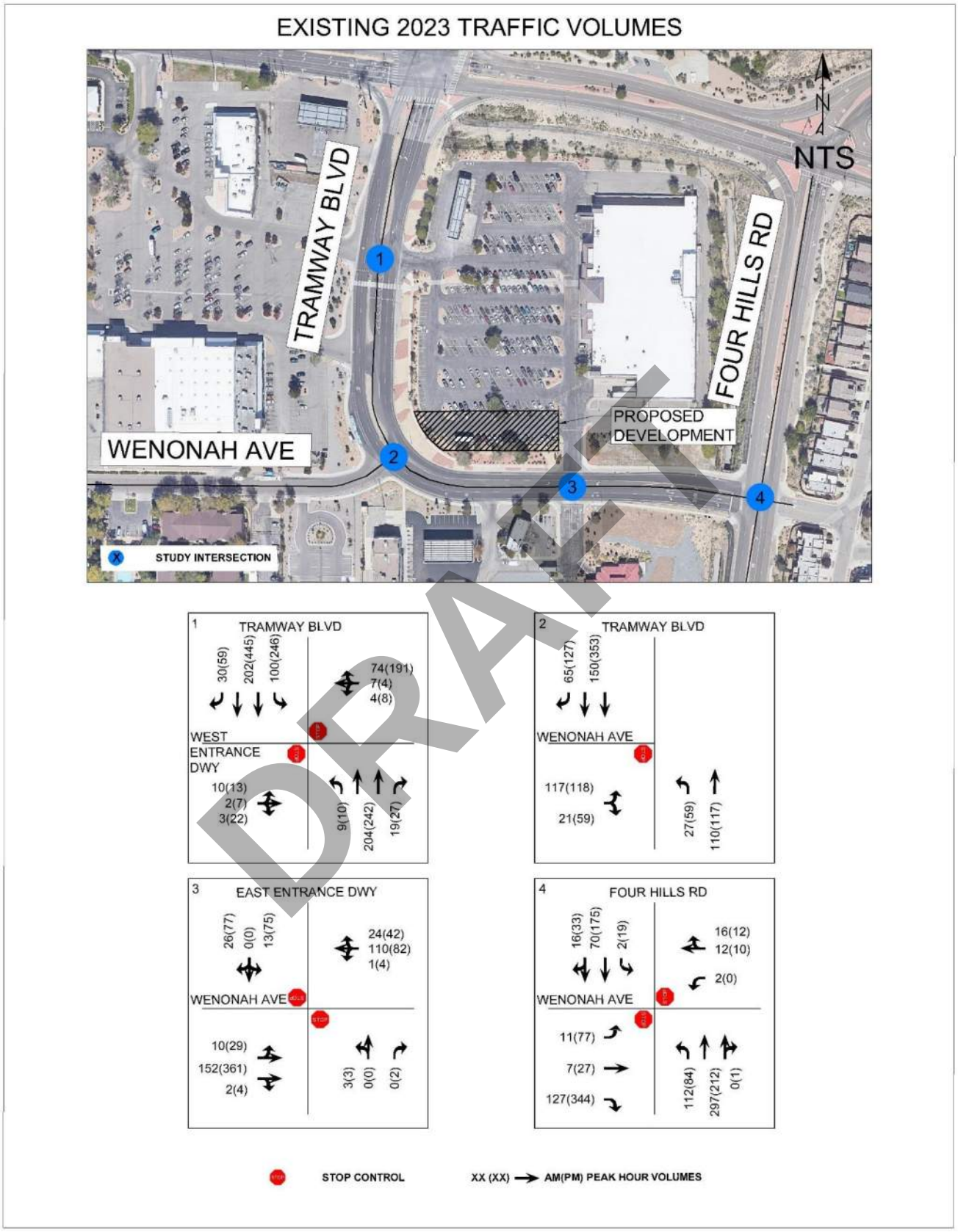


Figure 3: Existing Peak Hour Turning Movement Counts

CAPACITY ANALYSIS: LEVEL OF SERVICE AND QUEUING

ANALYSIS VOLUMES

EXISTING YEAR

For the Existing Year traffic volumes, video collected turning movement counts (TMCs) were used. AM and PM peak hours were analyzed for level of service, capacity, and queueing.

BUILD-OUT YEAR (2025) BACKGROUND

Existing TMCs were used with an applied annual growth rate developed from the MRCOG Metropolitan Transportation Plan (MTP) CUBE/2 Regional Model for the Build-Out Year Background volumes.

BUILD-OUT YEAR (2025) TOTAL

Site trips generated using the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition, were added to the Build-Out Year Background volumes for analysis.

CAPACITY ANALYSIS

Per the Highway Capacity Manual, LOS is presented as a letter grade (A through F) based on the calculated average delay for an intersection or movement. Delay is calculated as a function of several variables, including signal phasing operations, cycle length, traffic volumes, and opposing traffic volumes, but is a measurement of the average wait time a driver can expect when moving through an intersection. Factors such as total cycle time (for all movements), queueing restrictions, and vehicle volumes can affect measurements of delay, especially for lower volume movements and side streets. Generally, these factors are only realized when delays reach or exceed LOS E thresholds. In such cases, a narrative is offered in subsequent sections specific to the individual movement in question.

Table 1 below, reproduced from the Highway Capacity Manual, shows delay thresholds and the associated Level of Service assigned to delay ranges. Generally, a LOS of D or better is considered an acceptable level of service.

Table 1: LOS Criteria and Descriptions

Level of Service	Average Control Delay (sec/vehicle)	General Description (Signalized Intersections)
A	≤10	Free flow
B	>10 – 20	Stable flow (slight delays)
C	>10 – 35	Stable flow (acceptable delays)
D	>35 – 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 – 80	Unstable flow (intolerable delay)
F	>80	Forced flow (jammed)

Queueing is reported in vehicles, with a base assumption of 20 feet queue length per vehicle, for Two-Way Stop Controlled intersections, including the proposed site access points. Queues are reported for queue measurements falling within the 95th percentile. It should be noted that 95th percentile queues are statistically expected to occur during only 5% of the peak hour's sign cycles. It is also noted that un-reported average queueing at an intersection would statistically be much shorter than 95th percentile queueing.

For the purposes of this analysis, acceptable levels of service (LOS) are defined to be a LOS D or better. Based on procedures outlined in the Highway Capacity Manual, intersection delay and level of service for stop-

controlled intersections are reported as the delay and level of service for the worst-case movement at each intersection. Detailed output sheets can be found in Appendix C.

HCS ANALYSIS

Highway Capacity Software was used to analyze the study intersections for Level of Service (LOS) and queueing conditions. All intersection approaches operate at a LOS of C or better during AM and PM peak hours under the Existing scenario. The results of the HCS analysis for the Existing conditions are shown in Table 2.

Table 2: HCS Result Summary for Existing (2023) Conditions

		Wenonah Ave & Four Hills Rd					Tramway Blvd & Wenonah Ave					West Entrance Driveway & Tramway Blvd					East Entrance Driveway & Wenonah Ave				
		Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)	Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)	Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)	Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)
Existing	AM Peak Hour	EBL	13.2	B	6.0	0.1	EBL	-	-	-	-	EBL	-	-	-	-	EBL	7.6	A	-	0.0
		EBR	9.1	A	-	0.5	EBR	-	-	-	-	EBR	-	-	-	-	EBR				
		EBT	15.2	C	-	0.1	EBT	11.7	B	-	0.8	EBT	13.9	B	-	0.1	EBT				
		NBL	7.6	A	6.8	0.3	NBL	7.8	A	-	0.1	NBL	7.8	A	5.0	0.0	NBL	11.6	B	3.8	0.0
		NBR					NBR					NBR					NBR	8.8	A	3.8	0.0
		NBT					NBT					NBT	-	-	-	-	NBT	-	-	-	-
		SBL	7.9	A	5.2	0.0	SBL					SBL	8.1	A	6.4	0.3	SBL	-	-	-	-
		SBR					SBR					SBR					SBR	-	-	-	-
		SBT					SBT					SBT					SBT	9.7	A	-	0.2
		WBL	14.8	B	4.2	0.0	WBL					WBL	-	-	-	-	WBL	7.6	A	-	0.0
		WBR	12.1	B	4.2	0.2	WBR					WBR	-	-	-	-	WBR				
		WBT	-	-	-	-	WBT					WBT	10.5	B	-	0.4	WBT				
		Wenonah Ave & Four Hills Rd					Tramway Blvd & Wenonah Ave					West Entrance Driveway & Tramway Blvd					East Entrance Driveway & Wenonah Ave				
		Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)	Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)	Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)	Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)
Existing	PM Peak Hour	EBL	14.7	B	6.0	0.7	EBL	-	-	-	-	EBL	-	-	-	-	EBL	7.6	A		0.1
		EBR	11.6	B	-	2.0	EBR	-	-	-	-	EBR	-	-	-	-	EBR				
		EBT	16.3	C	-	0.3	EBT	15.5	C	-	1.7	EBT	23.9	C	-	0.7	EBT				
		NBL	7.9	A	6.8	0.2	NBL	8.8	A	-	0.2	NBL	8.6	A	5.0	0.0	NBL	17.0	C		0.0
		NBR					NBR					NBR					NBR	9.6	A		0.0
		NBT					NBT					NBT	-	-	-	-	NBT	-	-	-	-
		SBL	7.8	A	5.2	0.0	SBL					SBL	8.8	A	6.4	0.8	SBL	-	-	-	-
		SBR					SBR					SBR					SBR	-	-	-	-
		SBT					SBT					SBT					SBT	12.4	B		1.1
		WBL	18.1	C	4.2	0.0	WBL					WBL	-	-	-	-	WBL	8.2	A	-	0.0
		WBR	12.3	B	4.2	0.1	WBR					WBR	-	-	-	-	WBR				
		WBT	-	-	-	-	WBT					WBT	12.6	B	-	1.4	WBT				

From the above table, the following conclusions are made from the Existing Year analysis:

- Under existing conditions, all approaches for all four stop-controlled intersections operate at an acceptable level of service (LOS) C or better during both the AM and PM peak hours. Queuing is accommodated by existing storage lengths during both AM and PM peak hours.

BUILD YEAR (2025) ANALYSES

The following sections detail the methods and calculations used to obtain traffic volumes for Build-Out Year analysis scenarios. This process used the following tools as described below: Traffic Projections and Site Trip Distribution & Assignment. Figures at the end of this section show the resulting traffic volumes determined for the Build-Out Year (2025) analysis scenarios.

TRAFFIC PROJECTIONS

Development construction is anticipated to begin in the current year (2023), with full completion expected in 2025. Build-Out Year (2025) volumes were forecast from existing traffic volumes using counted values from 2016 and the 2040 (updated) travel demand models provided by MRCOG. These models were then compared using AM and PM peak hour direction volumes (AMPH LOAD and PMPH LOAD) to calculate anticipated growth rates for individual roadways near the study area. Roadways calculated to have a yearly growth rate of 2%. Growth rates were then converted to growth factors for specific analysis scenarios. Values provided by MRCOG are reproduced verbatim in Table 3, in addition to the calculated growth rates used in the analysis. Growth rates were then applied to the 2023 existing volumes to forecast future volumes.

Table 3: Growth Rates

Roadway			MRCOG 2016 Model "Peak Hour Load"	MRCOG 2040 Model "Peak Hour Load"	Yearly Growth Rate	Average Yearly Growth	Growth Rate for Analysis
Wenonah Ave & 4 Hills Rd	AM	PH	848	794	-0.27%	1.55%	2.00%
	PM	PH	575	601	0.18%		
Wenonah Ave & Tramway	AM	PH	199	528	4.15%		
	PM	PH	305	509	2.16%		

Projected turning movement volumes were used for the Build-Out Year Background scenario. Projected turning movement volumes plus the site-generated trips were used for the Build-Out Year Total scenario.

TRAMWAY STARBUCKS SITE TRIP GENERATION

Trip generation for the Development was performed using the procedures and methodologies provided in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition. The land use category Coffee/Donut Shop with Drive-Through Window (ITE 937) was used to generate trips for the Development. Trips were calculated using rates for daily, AM peak hour, and PM peak hour generators. Trips generated by the proposed development are shown below in the tables. Site-generated trips were added to the Background traffic volumes to create the Total Build-Out traffic volumes. Table 4 below shows the trip generation and associated calculations.

Table 4: Trip Generation

Use	Units		Trip Generation							
			AM Peak				PM Peak			
			Rate	Enter/Exit %	In	Out	Rate	Enter/Exit %	In	Out
ITE 937 - Coffee/Donut Shop with Drive-Through Window	1.31	SQ FT GFA	101.27	50/50	67	66	43.65	50/50	29	28

Trip Distribution and Assignment

Trip distribution was determined based on the analysis of existing intersection demand characteristics withing the study area. To facilitate a conservative capacity and queueing analysis, Pass-by trips were not considered in the trip generations above. It is noted that the ITE Trip Generation Manual, 11th Edition does provide a pass-by percentage of up to 50%.

The trips were routed withing the roadway network to and from the development based on the proportions of existing turning movement counts/demands. The routing was based on logical trip attractions and destinations. Figure 4 shows the trip distribution and routing percentages generated by the Development. When the applied distribution percentages did not result in whole vehicles or did not summate equal the total generated trips, rounding preference was assigned to the movement with the highest existing turning movement count volumes.

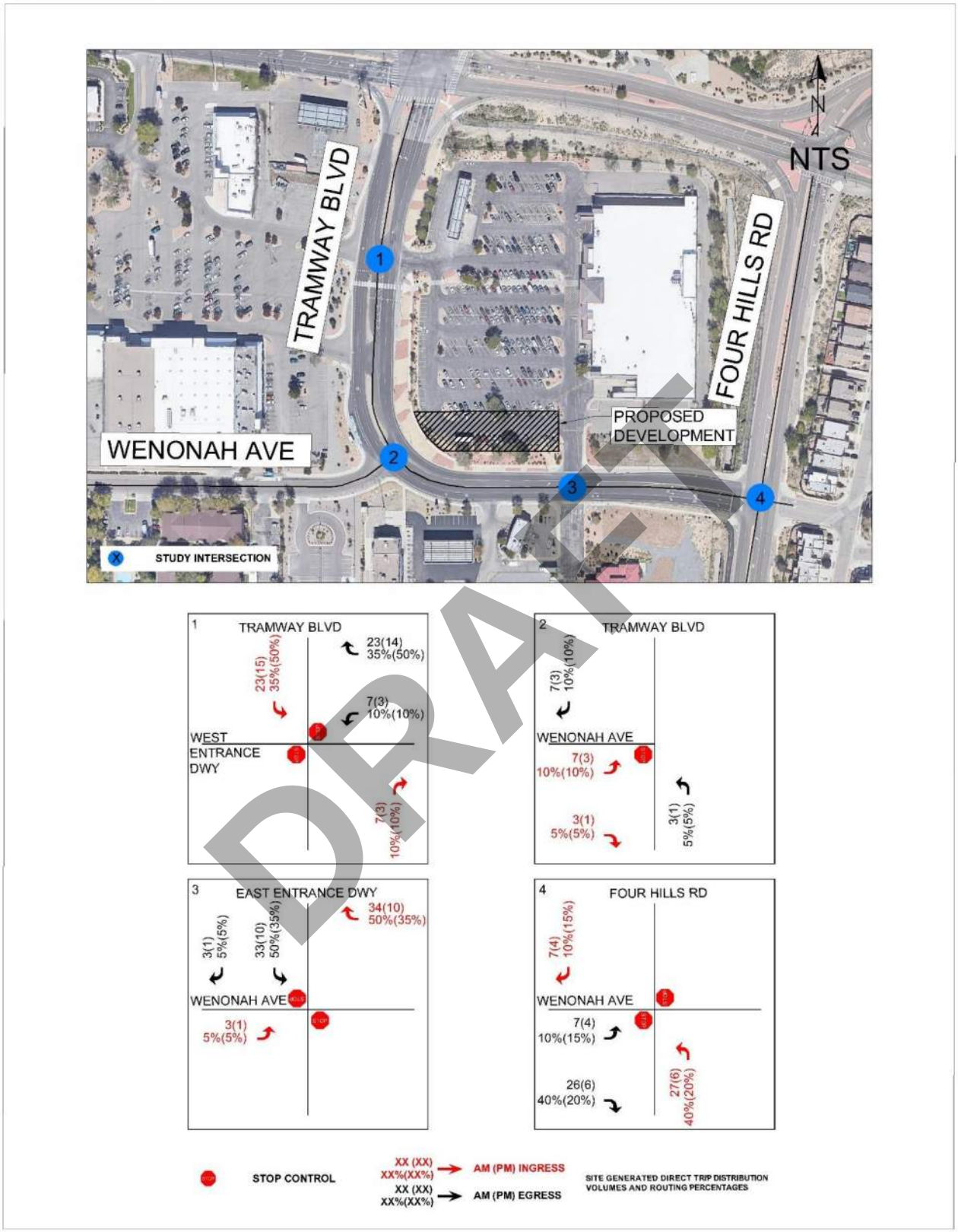


Figure 4: Site Generated Direct Trips & Routing Percentages

Traffic Volume Calculations

Traffic volumes used in the Build-Out Years analyses were calculated as follows:

- Build-Out Year (2025) Background –Existing traffic volumes with an applied annual growth rate
- Build-Out Year (2025) Total – Build-Out Year Background volumes plus Tramway Starbucks site-generated trips.

Figure 5 shows the Build-Out Year Background (2025) and Figure 6 shows Build-Out Year (2025) Total volumes.

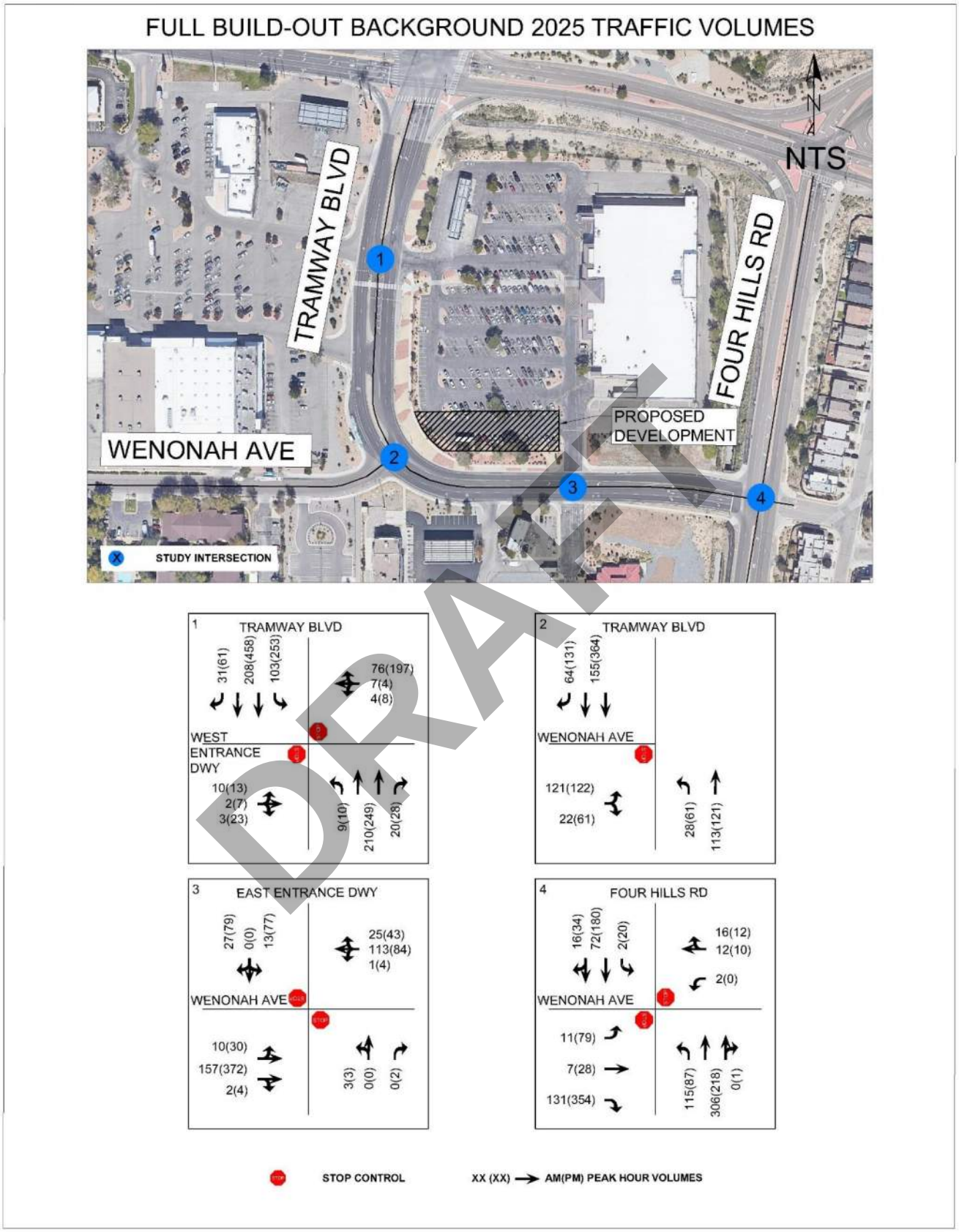


Figure 5: Build-Out Year (2025) Background

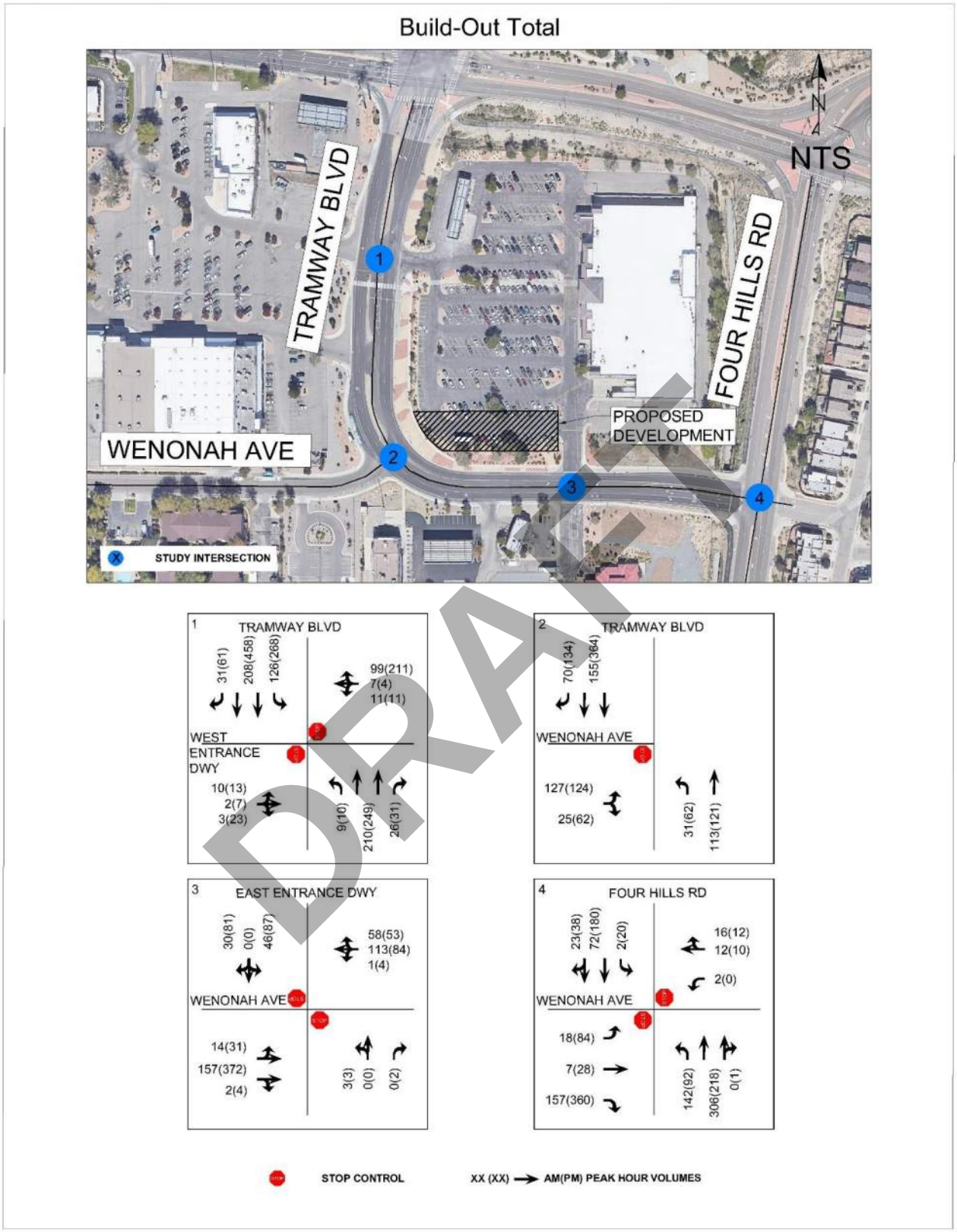


Figure 6: Build-Out Year (2025) Total

TRAFFIC ANALYSIS OF BUILD-OUT BACKGROUND AND TOTAL

As performed for Existing Background conditions, a Level of Service (LOS) and queueing analysis was performed for all Build-Out analysis scenarios using the same procedures, field data, and assumptions.

2025 Build-out Total Conditions

Table 5 below summarizes the delay, level of service, and queueing under 2025 build-out background conditions, Table 6 summarizes delay, level of service, and queueing under 2025 build-out total conditions. Detailed capacity output sheets showing all individual movements can be found in Appendix C.

Table 5: HCS Result Summary for Build-Out Year (2025) Backgroud Conditions

Build-Out Background	AM Peak Hour	Wenonah Ave & Four Hills Rd					Tramway Blvd & Wenonah Ave					West Entrance Driveway & Tramway Blvd					East Entrance Driveway & Wenonah Ave				
		Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)	Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)	Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)	Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)
		EBL	13.3	B	6.0	0.1	EBL	-	-	-	-	EBL	-	-	-	-	EBL	7.6	A	-	0.0
		EBR	9.1	A	-	0.5	EBR	-	-	-	-	EBR	-	-	-	-	EBR				
		EBT	15.5	C	-	0.1	EBT	11.9	B	-	0.9	EBT	14.1	B	-	0.1	EBT				
		NBL	7.6	A	6.8	0.3	NBL	7.8	A	-	0.1	NBL	7.8	A	5.0	0.0	NBL	11.7	B	3.8	0.0
		NBR					NBR					NBR					NBR	8.8	A	3.8	0.0
		NBT					NBT					NBT			-		NBT	-	-	-	-
		SBL	7.9	A	5.2	0.0	SBL					SBL	8.2	A	6.4	0.3	SBL	-	-	-	-
		SBR					SBR					SBR					SBR	-	-	-	-
		SBT					SBT					SBT					SBT	9.7	A	-	0.2
		WBL	15	B	4.2	0.0	WBL					WBL	-	-	-	-	WBL	7.6	A	-	0.0
		WBR	12.3	B	4.2	0.2	WBR					WBR	-	-	-	-	WBR				
		WBT	-	-	-	-	WBT					WBT	10.6	B	-	0.5	WBT				
Build-Out Background	PM Peak Hour	Wenonah Ave & Four Hills Rd					Tramway Blvd & Wenonah Ave					West Entrance Driveway & Tramway Blvd					East Entrance Driveway & Wenonah Ave				
		Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)	Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)	Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)	Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)
		EBL	15	B	6.0	0.7	EBL	-	-	-	-	EBL	-	-	-	-	EBL	7.6	A	-	0.1
		EBR	11.8	B	-	2.1	EBR	-	-	-	-	EBR	-	-	-	-	EBR				
		EBT	16.8	C	-	0.3	EBT	16.0	C	-	1.9	EBT	24.9	C	-	0.7	EBT				
		NBL	7.9	A	6.8	0.2	NBL	8.9	A	-	0.2	NBL	8.7	A	5.0	0.0	NBL	17.5	C	3.8	0.0
		NBR					NBR					NBR					NBR	9.6	A	3.8	0.0
		NBT					NBT					NBT			-		NBT	-	-	-	-
		SBL	7.8	A	5.2	0.1	SBL					SBL	8.9	A	6.4	0.9	SBL	-	-	-	-
		SBR					SBR					SBR					SBR	-	-	-	-
		SBT					SBT					SBT					SBT	12.7	B	-	1.1
		WBL	18.9	C	4.2	0.0	WBL					WBL	-	-	-	-	WBL	8.3	A	-	0.0
		WBR	12.5	B	4.2	0.1	WBR					WBR	-	-	-	-	WBR				
		WBT	-	-	-	-	WBT					WBT	12.8	B	-	1.4	WBT				

Table 6: HCS Result Summary for Build-Out Year (2025) Total Conditions

		Wenonah Ave & Four Hills Rd					Tramway Blvd & Wenonah Ave					West Entrance Driveway & Tramway Blvd					East Entrance Driveway & Wenonah Ave				
Build-out Total	AM Peak Hour	Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)	Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)	Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)	Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)
		EBL	14.4	B	6.0	0.1	EBL	-	-	-	-	EBL	-	-	-	-	EBL	7.7	A	-	0.0
		EBR	9.3	A	-	0.6	EBR	-	-	-	-	EBR	-	-	-	-	EBR				
		EBT	16.6	C	-	0.1	EBT	12.0	B	-	1	EBT	15.1	B	-	0.1	EBT				
		NBL	7.7	A	6.8	0.3	NBL	7.8	A	-	0.1	NBL	7.8	A	5.0	0.0	NBL	12.1	B	3.8	0.0
		NBR					NBR					NBR					NBR	8.8	A	3.8	0.0
		NBT					NBT					NBT			-		NBT	-	-	-	-
		SBL	7.9	A	5.2	0.0	SBL					SBL	8.3	A	6.4	0.4	SBL	-	-	-	-
		SBR					SBR					SBR					SBR	-	-	-	-
		SBT					SBT					SBT					SBT	10.8	B	-	0.4
		WBL	16.3	C	4.2	0.0	WBL					WBL	-	-	-	-	WBL	7.6	A	-	0.0
		WBR	12.8	B	4.2	0.2	WBR					WBR	-	-	-	-	WBR				
		WBT	-	-	-	-	WBT					WBT	11.2	B	-	0.7	WBT				
		Wenonah Ave & Four Hills Rd					Tramway Blvd & Wenonah Ave					West Entrance Driveway & Tramway Blvd					East Entrance Driveway & Wenonah Ave				
Build-out Total	PM Peak Hour	Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)	Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)	Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)	Movement	Delay (s/veh)	LOS	Storage Length (veh)	95th% Length (veh)
		EBL	15.4	C	6.0	0.8	EBL	-	-	-	-	EBL	-	-	-	-	EBL	7.6	A	-	0.1
		EBR	11.9	B	-	2.2	EBR	-	-	-	-	EBR	-	-	-	-	EBR				
		EBT	17.0	C	-	0.3	EBT	16.2	C	-	1.9	EBT	26.6	D	-	0.8	EBT				
		NBL	7.9	A	6.8	0.2	NBL	8.9	A	-	0.2	NBL	8.7	A	5.0	0.00	NBL	17.7	C	3.8	0.0
		NBR					NBR					NBR					NBR	9.6	A	3.8	0.0
		NBT					NBT					NBT			-		NBT	-	-	-	-
		SBL	7.8	A	5.2	0.1	SBL					SBL	8.9	A	6.4	0.9	SBL	-	-	-	-
		SBR					SBR					SBR					SBR	-	-	-	-
		SBT					SBT					SBT					SBT	13.2	B	-	1.3
		WBL	19.4	C	4.2	0.0	WBL					WBL	-	-	-	-	WBL	8.3	A	-	0.0
		WBR	12.6	B	4.2	0.2	WBR					WBR	-	-	-	-	WBR				
		WBT	-	-	-	-	WBT					WBT	13.7	B	-	1.7	WBT				

From the above tables, the following conclusions are made from the Build-Out year analysis:

- Wenonah Ave & Four Hills Rd
  - Capacity Analysis
    - The intersection approaches are predicted to operate at LOS C or better, the westbound left turn changed from existing LOS B to C during the AM peak hour. And the eastbound left turn changed from LOS B to C during the PM peak hour.
  - Queueing Analysis
    - Where HCS results are present, all queue lengths are <1 vehicle (20 feet). Except for the eastbound right movement during the PM peak hour, with a queue of 2.2 vehicles.
- Wenonah Ave & Tramway Blvd
  - Capacity Analysis
    - The intersection approaches are predicted to operate at LOS C or better, and is unchanged from the existing operating LOS to build-out conditions.
  - Queueing Analysis
    - Where HCS results are present, all queue lengths for the northbound left during the AM peak hour and PM peak hour are <1 vehicle (20 feet). The eastbound through is 1 and 1.9 during the AM and PM peak hour, respectively.
- Tramway Blvd & West Entrance Dwy
  - Capacity Analysis
    - The intersection approaches are predicted to operate at LOS D or better. The eastbound through changed from existing LOS C to D during the PM peak hour.
  - Queueing Analysis
    - Where HCS results are present, all queue lengths are <1 vehicle (20 feet). Except for the westbound through movement during the PM peak hour, with a queue of 1.7 vehicles.
- Wenonah Ave & East Entrance Dwy
  - Capacity Analysis
    - The intersection approaches are predicted to operate at LOS C or better. The southbound through changed from existing LOS A to B during the AM peak hour.
  - Queueing Analysis
    - Where HCS results are present, all queue lengths are <1 vehicle (20 feet). Except for the southbound through movement during the PM peak hour, with a queue of 1.3 vehicles.

Site Related Capacity Mitigations and Street Improvements

The above section shows that capacity and queueing issues are not observed during the study peak hours. No capacity mitigations or street improvements are recommended based on the HCS Analysis results pertaining to the proposed site development.

Site Access Sight Distance

The following presents recommended intersection sight distance requirements for the access driveway serving the Development. Intersection sight distance requirements were calculated based on the CABP DPM Chapter 7-4 for the east driveway, and 2018 AASHTO "Green Book" chapter 9.5 for the west driveway as the DPM does not contain any cases for a 4 lane divided roadway. The design vehicle used was a passenger vehicle.

- Case B1 – A stopped vehicle turning left turn from a minor street approach onto a major road.
- Case B2 – A stopped vehicle turning right from a minor street approach onto a major road.

Intersection sight distances were calculated based on the following assumptions:

- Required intersection sight distance for Case B2 was calculated based on the design vehicle crossing into the first lane of the roadway.

Values shown below in Table 7 were rounded up to the nearest 5-foot increment. Formulas, values, and calculations used in the sight distance analysis can be found in the Appendix D.

Table 7: Site Distance Requirements

Case	Roadway	Speed	Sight Distance Available	Sight Distance Required
Turning Left from East Dwy	Wenonah Ave	35 MPH	270 Ft	420 Ft
Turning Right from East Dwy	Wenonah Ave	35 MPH	480 Ft	340 Ft
Case B1 – Turning Left from West Dwy	Tramway Blvd	35 MPH	450 ft	465 Ft
Case B2 – Turning Right from West Dwy	Tramway Blvd	35 MPH	450 Ft	335 Ft

It is recommended that all development driveways adhere to the sight distance provisions detailed in the AASHTO "Green Book". An area bounded by the above sight distances with the decision point placed 14.5 feet back from the edge of the shoulder midway between the outbound driving lane should be maintained clear of any obstructions.

Auxiliary Lane Analysis

CABQ DPM auxiliary lane warrants were reviewed for the site access driveways. DPM Table 7.4.67 was used to determine potential auxiliary lane needs for site access points and to guide recommendations. DPM Tables 7.4.68 and 7.4.70 were used to determine applicable deceleration lengths. 2025 Full Build-Out traffic volumes and direct trips were used in the analysis. The results of this analysis are shown in Table 8 and the narratives below.

Table 8: Auxiliary Turn Lane Warrant

Location	Access/Turn Type	Posted Speed Limit	Max Turning Volume per Hour	DPM Warrant Result	Recommendation
Tramway & West Dwy	Full Access (Right Turn)	35 MPH	31	Not Required	Existing auxiliary lane; no change recommended
	Full Access (Left Turn)	35 MPH	256	Required	Lengthen existing auxiliary lane to meet DPM criteria or geometric constraints
Wenonah & East Dwy	Full Access (Right Turn)	35 MPH	58	Required	No change recommended; see narrative below
	Full Access (Left Turn)	35 MPH	30	Not Required	Existing Two-Way Left-Turn Lane; no change recommended

For the intersection of Tramway and the West Access Driveway:

- A right turn lane was not warranted per DPM criteria, however a right turn lane exists of approximately 150ft with a 50ft transition taper. No changes are recommended for the existing auxiliary lane.
- A left turn lane is warranted per DPM criteria. A turn lane exist approximately 200 ft in length with a 50 ft transition taper. This lane as it exists does not meet DPM design specifications. It is recommended that this auxiliary lane be lengthened to meep DPM criteria or geometric constraints. DPM criteria for this auxiliary turn lane recommends a queueing length of 50 FT, and a deceleration length of 240-350 FT with a 150 FT reverse curve taper. However, geometric constraints may limit the total length available for the auxiliary lane.

For the intersection of Wenonah and the East Access Driveway:

- A right turn lane is warranted per DPM criteria, however the construction of a new turn lane is not recommended. Existing traffic volumes, without the development, do not meet DPM criteria to warrant an auxiliary lane. While the addition of site trips does meet DPM criteria to warrant an auxiliary lane, only direct trips were analyzied in this report. The ITE Trip Generation Manual, 11th Edition provides a pass-by trip reduction of up to 50% which would potentially reduce the total number of new vehicles served by this intersection. Additionally, the right-in movement at this driveway is located approximately 300 feet from the stop controlled intersection of Four Hills Rd and Wenonah Ave where approaching traffic speeds are likely to be reduced. Furthermore, the site's location within an existing grocery store parking lot is likely to see a portion of its trips/sales through its "convenience" thereby reducing entering traffic. Therefore, construction of a right turn auxiliary lane at this driveway is not recommended.

- A left turn lane is not warranted per DPM criteria. However, a two-way left-turn lane exists as an auxiliary lane serving this access point. No changes are recommended for this movement.

Based on the information presented above, a turn lane is not recommended for right turns entering the site at Wenonah and the East Access Driveway. It is recommended that the existing left turn lane serving the site's west driveway be lengthened to meet DPM design specifications as closely as possible.

DRIVE-THRU QUEUING ANALYSIS

DRIVE-THRU DESCRIPTION

Based on the development site plan, the Tramway Starbucks will be located on a 21,253 square foot lot. 1,310 square feet will be developed for the building. The portion of the lot, designed for parking and vehicle access, contains an approximately 25-foot-wide parking lot travel lane and 14 parking spaces east of the building and drive-thru queue.

Per the site plan presented in Figure 1, queue storage is provided for 13 passenger vehicles. The queue processes counterclockwise around the building and exits into the existing parking lot travel lane adjacent to Wenonah Ave. Furthermore, there appears to be room within the parking lot travel lane to accommodate an additional three passenger cars without blocking the site's eastern entrance or spilling onto Wenonah Ave.

QUEUING VARIABLES

Queue extension analysis is presented using the following variables:

- **The Arrival Rate (λ)** is measured in vehicles per hour (vph). This rate determines how many vehicles enter the system in an hour. The value used in this analysis for λ was the ITE Trip Generation AM peak hour ingress volume for land use Coffee/Donut Shop with Drive-Through Window- ITE 937 presented previously in Table 4.
    - The site includes interior dining facilities, and presumably, some portion of the total inbound traffic would be dining on-site rather than using the drive-thru. No data related to the dine-in percentage was available. Thus, the conservative approach of routing 100% of ITE AM peak hour ingress traffic through the drive-thru was used.
- **Average Time in System (E_v) is** measured in seconds and converted to hours for calculation purposes. The variable represents the average amount of time individual vehicles spend in the queue from entry to exit. It is used to calculate the service rate in conjunction with the arrival rate.
    - Lee Engineering used a national study conducted in 2021 to know the Average Time in System for the Tramway Starbucks. The Starbucks Average Time in System of 409 seconds was used for the pruposes of this analysis.
- **The Service Rate (μ)** is also measured in vph; this is the rate at which vehicles are processed through the drive-thru. The value for the Service Rate used in this analysis was calculated from the Average Time in System in conjunction with the Arrival Rate based on the Queuing Performance Equations for Random Arrival-Random Service Single Channel Systems presented in Traffic Flow Fundamentals by Adolf D. May.

$$\mu = \lambda + \frac{1}{E_v}$$

QUEUING ANALYSIS

The queuing analysis assumed a single-channel queuing model where arrivals occur according to a Poisson process and service times have an exponential distribution (M/M/1 model). The following equation for M/M/1 queuing was used to determine a certain queue length's probability. The results for the probabilities of 0 through 25 vehicles are presented in Table 9.

$$Probability\ of\ More\ Than\ \text{“k” Vehicles in Queue} = \left(\frac{\lambda}{\mu}\right)^{k+1}$$

Table 9: Probability of "k" Vehicles in Queue

Number of Vehicles in Queue (k)	Probability of the Number of Vehicles	Cummulative Probability of the Number of Vehicles	Number of Vehicles in Queue (k)	Probability of the Number of Vehicles	Cummulative Probability of the Number of Vehicles
0	12%	12%	13	2%	83%
1	10%	22%	14	2%	85%
2	9%	31%	15	2%	87%
3	8%	40%	16	2%	88%
4	7%	47%	17	1%	90%
5	6%	53%	18	1%	91%
6	6%	59%	19	1%	92%
7	5%	64%	20	1%	93%
8	4%	68%	21	1%	94%
9	4%	72%	22	1%	94%
10	3%	75%	**23**	**1%**	**95%**
11	3%	78%	24	1%	96%
12	3%	81%	25	1%	96%

Table 9 shows that the 95th percentile probability event during the AM peak hour is equal to 23 vehicles in the queue, which fails to meet the threshold design of 13 vehicles. Although, there is potential for three additional vehicles, the design length does not appear to be enough to prevent conflict with the operations of the East driveway. The likelihood of the queue interfering with operations at the North Access Rd is low. This outcome is a 99th+ percentile event during PM peak hours. The results of the Queuing Analysis for the PM peak hour are further summarized in Table 10.

Table 10: Queuing Analysis Summary

Probability of Exceeding Queue Storage	Probability of Queue Spillback to East Dwy	AM PH Average Number of Vehicles in Queue
19%	9%	7

Therefore, proposed Drive-Through Queue Storage accommodates average and 88th percentile queues but fails to accommodate 95th percentile of vehicle queues as designed. It is noted that the provided storage does meet requirements set forth in the City of Albuquerque's Integrated Development Ordinance.

CRASH DATA SUMMARY

At the request of the NMDOT, a crash summary for the intersections within the study area has been completed. The purpose of this analysis is to highlight trends and observations from summarized crash data. Crash data was provided by NMDOT for the years 2015 to 2019 in aggregate form and is summarized in the table below.

Table 11: Crash Summary

Crash Summary		Wenonah Ave & Four Hills Rd	Tramway Blvd & Wenonah Ave
	Total Crashes	19	21
By Year	2015	5	6
	2016	5	3
	2017	3	3
	2018	3	6
	2019	3	3
By Type	Fixed Object	0	4
	Left Blank	3	3
	Other Vehicle - Both Going Straight/Entering at Angle	7	1
	Other Vehicle - From Opposite Direction	0	1
	Other Vehicle - From Same Direction/Both Going Straight	1	2
	Other Vehicle - From Same Direction/Rear End Collision	1	1
	Other Vehicle - From Same Direction/Sideswipe Collision	0	1
	Other Vehicle - One Left Turn/Entering At Angle	4	4
	Rollover	1	1
	Pedestrian Collision	1	0
	Other Vehicle - All Others/Entering At Angle	1	0
	Non-Collision - All Other/Not Stated	0	3
By Lighting Conditions	Daylight	15	13
	Dawn/Dusk	2	0
	Dark	2	7
	Invalid Code/Not Specified	0	1
By Severity	Fatal (K)	0	0
	Serious Injury (A)	0	0
	Visible Injury (B)	9	9
	Complaint of Injury (C)	0	0
	Property Damage Only (O)	10	12
By Contributing Factors	Driver Inattention	4	6
	Passed Stop Sign	0	1
	Improper Overtaking	0	1
	Improper Lane Change	1	0
	Pedestrian Error	1	0
	Alcohol/Drug Involved	1	3
	Avoid No Contact - Vehicle	1	0
	Collision with Motor Vehicle	0	0
	Disregarded Traffic Signal	1	0
	Excessive Speed	0	3
	Failed to Yield Right of Way	8	3
	Following Too Closely	1	2
	Improper Backing	0	0
	Made Improper Turn	0	0
	Missing Data	1	0
	None	0	0
	Other	0	2

From the above table, the following observations are made:

- For the intersection of Wenonah Ave & Four Hills Rd:
  - Within the years 2015 to 2019, 19 crashes were reported.
  - The most common crash classification was Other Vehicle – Both going straight/Entering at angle.
  - The majority of crashes at this intersection occurred during daylight hours.
  - No fatal crashes were reported from 2015 to 2019. However, injuries were reported.
  - The most common reported cause was Failed to Yield Right of Way.

- For the intersection of Tramway Blvd & Wenonah Ave:
  - Within the years 2015 to 2019, 21 crashes were reported.
  - The most common crash classification was Fixed Object and Other Vehicle – One Left Turn/Entering at Angle.
  - The majority of crashes at this intersection occurred during daylight hours.
  - No fatal crashes were reported from 2015 to 2019. However, injuries were reported.
  - The most common reported cause was Driver Inattention.

SUMMARY OF RECOMMENDATIONS

The following presents a summary of recommendations included in this report.

CONCLUSIONS

- All study intersections operate at an acceptable LOS throughout all study scenarios
- 95th % Queue Lengths do not exceed queue storage at study intersections for studied analsysis scenarios
- HCS results do not suggest the need for capacity mitigation measures or street improvements related to the proposed development
- Proposed Drive-Through Queue Storage accommodates average and 88th percentile queues but fails to accommodate 95th percentile of vehicle queues as designed. However, the provided storage does meet requirements set forth in the City of Albuquerque's Integrated Development Ordinance.

RECOMMENDATIONS

It is recommended that the existing southbound left turn lane serving the site at the west driveway be lengthened to meet DPM design specifications as closely as possible.

Maintain sight distance at all driveways by keeping sight lines visibility free from any obstructions such as but not limited to parking, canopies, site displays, and landscaping.

APPENDIX A:

SCOPING MEETING NOTES

SCOPE OF TRAFFIC IMPACT STUDY (TIS)

TO: Terry Brown, P.E.
Tierra West, LLC
5571 Midway Park Pl. NE
Albuquerque, NM 87109

MEETING DATE: Monday, May 1, 2023 (1:00 pm)

ATTENDEES: Matthew Grush, P.E. email comments (City of Albuquerque), Margaret Haynes*, P.E. (NM DOT D3), Ronald R. Bohannan, P.E., Terry Brown, P.E., Amanda Herrera, P.E., and Derek Bohannan (Tierra West, LLC)
*** - Margaret Haynes sent an e-mail dated 05/01/2023 stating that the NM DOT will not be involved with this Traffic Impact Study.**

PROJECT: Starbuck's Coffee (Wenonah Ave. / Tramway Blvd.)

REQUESTED CITY ACTION: ___ Zone Change __X__ Site Development Plan

___ Subdivision ___ Building Permit ___ Sector Plan ___ Sector Plan Amendment

___ Curb Cut Permit ___ Conditional Use ___ Annexation ___ Site Plan Amendment

ASSOCIATED APPLICATION: Coffee Shop w/ Drive- Thru Window (1,310 SF)

SCOPE OF REPORT:
The Traffic Impact Study should follow the standard report format, which is outlined in the DPM. The following supplemental information is provided for the preparation of this specific study.

1. Trip Generation - Use Trip Generation Manual, 11th Edition.
   Local data may be used for certain land use types as determined by staff.
   Consultant to provide local traffic generation volumes (AM and PM Peak Hour) for the following existing Starbuck's and Dutch Brothers Coffee shops:
   1) Starbuck's (Montgomery Blvd. & San Mateo)
   2) Starbuck's (Paseo del Norte & Golf Course Rd.)
   3) Starbuck's (Indian School Rd. / Juan Tabo Blvd.)
   4) Dutch Brothers (Fortuna Rd. / Coors Blvd.)

(Compare data to ITE Trip Generation data (11th Edition) – Local data preferred if significant variations.

2. Appropriate study area:
   Signalized Intersections; N/A

   Unsignalized Intersections;
   a. Wenonah Ave / Four Hills Rd
   b. Tramway / Wenonah Ave.

   Driveway Intersections: Smith's Access driveways (2)
   a. West entrance Driveway on Tramway @ Smith's
   b. South entrance Driveway on Wenonah @ Smith's

3. Intersection turning movement counts
   Study Time – 7-9 a.m. peak hour, 4-6 p.m. peak hour
   Consultant to provide for all intersections listed above.
   (Intersection turning movements counts to be correlated with TAQA data, if available)

4. Type of intersection progression and factors to be used. N/A

5. Boundaries of area to be used for trip distribution.
   City Wide - residential, office or industrial;
   2 mile radius – commercial;
   Interstate or to be determined by consultant - motel/hotel
   APS district boundary mapping for each school and bus routes

6. Basis for trip distribution.

Commercial - Use relationship based upon population. Use population data from 2040 Socioeconomic Forecasts, MRCOG – See MRCOG website for most current data.

Residential - Ts = (Tt) (Se / D) / (Se / D)
Ts = Development to Individual Subarea Trips
Tt = Total Trips
Se = Subarea Employment
D = Distance from Development to Subarea

Office/Industrial - Ts = (Tt) (Sp / D) / (Sp / D)
Ts = Development to Individual Subarea Trips
Tt = Total Trips
Sp = Subarea Population
D = Distance from Development to Subarea

Commercial -
Ts = (Tt) (Sp) / (Sp)
Ts = Development to Individual Subarea Trips
Tt = Total Trips
Sp = Subarea Population

7. Traffic Assignment. Logical routing on the major street system.

8. Proposed developments which have been approved but not constructed that are to be Included in the analyses. Projects in the area include:
   a. N/A

9. Method of intersection capacity analysis - planning or operational (see “2016 Highway Capacity Manual” or equivalent [i.e. HCS, Synchro, Teapac, etc.] as approved by staff). Must use latest version of design software and/or current edition of design manual.
   Implementation Year: 2025
   Horizon Year: N/A

10. Traffic conditions for analysis:
    a. Existing analysis __ yes _X_ no - year (N/A);

b. Phase implementation year(s) without proposed development – N/A
c. Phase implementation year(s) with proposed development – N/A
d. Project completion year without proposed development – 2025
e. Project completion year with proposed development – 2025
f. Other –

11. Background traffic growth.
Method: use 10-year historical growth based on standard data from the MRCOG Traffic Flow Maps. Minimum growth rate to be used is 1/2%.

12. Planned (programmed) traffic improvements.
List planned CIP improvements in study area and projected project implementation year:
a. Project – Location (Implementation Year) – N/A

13. Items to be included in the study:
a. Intersection analysis. Yes
b. Signal progression - An analysis is required if the driveway analysis indicates a traffic signal is possibly warranted. Analysis Method: N/A
c. Arterial LOS analysis; No
d. Recommended street, intersection and signal improvements. Yes
e. Site design features such as turning lanes, median cuts, queuing requirements and site circulation, including driveway signalization and visibility. Yes
f. Transportation system impacts. Yes
g. Other mitigating measures. Yes
h. Accident analyses _X_ yes __ no; Location(s):
Wenonah Ave / Four Hills Rd (5 years)
Tramway / Wenonah Ave (5 years)

i. Weaving analyses __ yes _X_ no; Location(s):
j. Other:

SUBMITTAL REQUIREMENTS:

1. Number of copies of report required
a. 1 paper copy
b. 1 digital copy
2. Submittal Fee – $1300 for up to 3 reviews (plus technology fee)

The Traffic Impact Study for this development proposal, project name, shall be performed in accordance with the above criteria. If there are any questions regarding the above items, please contact me at 924-3362.

MP P.E. 5/2/2023

Matt Grush, P.E. Date
Senior Engineer
City of Albuquerque, Planning
Transportation Development Section

via: email
C: TIS Task Force Attendees, file

APPENDIX B:

TURNING MOVEMENT COUNTS

Lee Engineering, LLC
Phoenix, Arizona - Dallas, Texas
Oklahoma City, Oklahoma - San Antonio, Texas
Albuquerque, New Mexico, United States 87113
5053380988 jkruse@lee-eng.com

Count Name: NM328.02 Tramway Starbucks TIA
Site Code:
Start Date: 06/20/2023

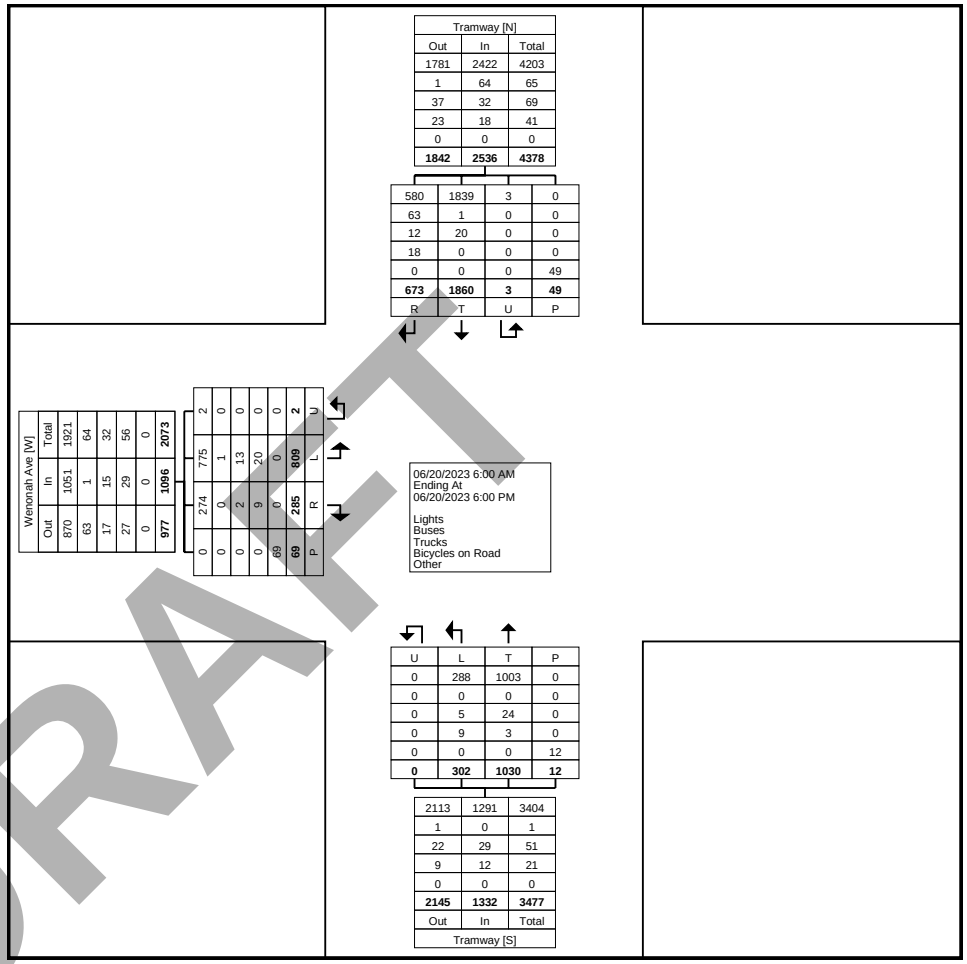
Turning Movement Data

Start Time	Tramway Southbound					Tramway Northbound					Wenonah Ave Eastbound					
	Right	Thru	U-Turn	Peds	App. Total	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Int. Total
6:00 AM	5	5	0	4	10	4	3	0	0	7	2	14	0	0	16	33
6:15 AM	9	8	0	0	17	11	4	0	0	15	3	16	0	0	19	51
6:30 AM	8	15	0	4	23	13	3	0	0	16	4	23	0	0	27	66
6:45 AM	5	14	0	0	19	13	6	0	0	19	1	19	0	1	20	58
Hourly Total	27	42	0	8	69	41	16	0	0	57	10	72	0	1	82	208
7:00 AM	13	16	0	0	29	19	3	0	0	22	3	14	0	1	17	68
7:15 AM	13	17	0	0	30	19	5	0	0	24	7	22	1	0	30	84
7:30 AM	20	27	0	0	47	21	8	0	0	29	4	35	0	2	39	115
7:45 AM	8	25	0	0	33	22	6	0	0	28	5	27	0	1	32	93
Hourly Total	54	85	0	0	139	81	22	0	0	103	19	98	1	4	118	360
8:00 AM	13	36	0	1	49	27	11	0	0	38	4	22	0	1	26	113
8:15 AM	15	41	0	1	56	32	5	0	0	37	3	33	0	1	36	129
8:30 AM	15	31	0	2	46	23	5	0	0	28	3	33	0	2	36	110
8:45 AM	19	42	0	0	61	28	6	0	0	34	11	29	0	2	40	135
Hourly Total	62	150	0	4	212	110	27	0	0	137	21	117	0	6	138	487
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	14	48	0	3	62	29	5	0	0	34	6	14	0	4	20	116
11:15 AM	11	49	0	3	60	35	4	0	0	39	5	17	0	8	22	121
11:30 AM	20	46	0	2	66	33	5	0	0	38	14	19	0	1	33	137
11:45 AM	18	49	0	0	67	24	5	0	0	29	9	18	0	3	27	123
Hourly Total	63	192	0	8	255	121	19	0	0	140	34	68	0	16	102	497
12:00 PM	11	51	0	1	62	53	13	0	2	66	12	27	0	2	39	167
12:15 PM	19	63	0	0	82	38	10	0	3	48	8	22	0	1	30	160
12:30 PM	20	59	0	1	79	42	6	0	0	48	7	21	0	1	28	155
12:45 PM	19	64	0	2	83	37	16	0	1	53	7	17	0	0	24	160
Hourly Total	69	237	0	4	306	170	45	0	6	215	34	87	0	4	121	642
1:00 PM	16	61	0	1	77	30	9	0	0	39	10	15	0	1	25	141
1:15 PM	18	43	0	0	61	42	6	0	0	48	10	12	0	1	22	131
1:30 PM	14	65	1	1	80	37	10	0	0	47	8	19	0	3	27	154
1:45 PM	25	53	0	1	78	26	6	0	0	32	7	26	0	0	33	143
Hourly Total	73	222	1	3	296	135	31	0	0	166	35	72	0	5	107	569
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	20	65	0	0	85	34	9	0	0	43	9	24	0	1	33	161
3:15 PM	29	66	1	1	96	30	7	0	0	37	9	19	0	3	28	161
3:30 PM	18	54	0	1	72	29	9	0	0	38	6	32	0	7	38	148
3:45 PM	24	78	0	3	102	29	10	0	0	39	8	19	0	2	27	168

Hourly Total	91	263	1	5	355	122	35	0	0	157	32	94	0	13	126	638
4:00 PM	18	72	0	4	90	30	14	0	0	44	8	29	0	2	37	171
4:15 PM	26	87	0	0	113	46	11	0	0	57	9	22	0	0	31	201
4:30 PM	35	88	0	3	123	29	6	0	0	35	12	22	1	2	35	193
4:45 PM	31	89	0	3	120	30	10	0	0	40	19	23	0	4	42	202
Hourly Total	110	336	0	10	446	135	41	0	0	176	48	96	1	8	145	767
5:00 PM	27	69	0	0	96	24	20	0	1	44	19	34	0	1	53	193
5:15 PM	36	118	1	3	155	30	17	0	2	47	7	30	0	6	37	239
5:30 PM	33	77	0	4	110	33	12	0	3	45	14	31	0	2	45	200
5:45 PM	28	69	0	0	97	28	17	0	0	45	12	10	0	3	22	164
Hourly Total	124	333	1	7	458	115	66	0	6	181	52	105	0	12	157	796
Grand Total	673	1860	3	49	2536	1030	302	0	12	1332	285	809	2	69	1096	4964
Approach %	26.5	73.3	0.1	-	-	77.3	22.7	0.0	-	-	26.0	73.8	0.2	-	-	-
Total %	13.6	37.5	0.1	-	51.1	20.7	6.1	0.0	-	26.8	5.7	16.3	0.0	-	22.1	-
Lights	580	1839	3	-	2422	1003	288	0	-	1291	274	775	2	-	1051	4764
% Lights	86.2	98.9	100.0	-	95.5	97.4	95.4	-	-	96.9	96.1	95.8	100.0	-	95.9	96.0
Buses	63	1	0	-	64	0	0	0	-	0	0	1	0	-	1	65
% Buses	9.4	0.1	0.0	-	2.5	0.0	0.0	-	-	0.0	0.0	0.1	0.0	-	0.1	1.3
Trucks	12	20	0	-	32	24	5	0	-	29	2	13	0	-	15	76
% Trucks	1.8	1.1	0.0	-	1.3	2.3	1.7	-	-	2.2	0.7	1.6	0.0	-	1.4	1.5
Bicycles on Road	18	0	0	-	18	3	9	0	-	12	9	20	0	-	29	59
% Bicycles on Road	2.7	0.0	0.0	-	0.7	0.3	3.0	-	-	0.9	3.2	2.5	0.0	-	2.6	1.2
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	2	-	-	-	-	5	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	16.7	-	-	-	-	7.2	-	-
Pedestrians	-	-	-	49	-	-	-	-	10	-	-	-	-	64	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	83.3	-	-	-	-	92.8	-	-

Lee Engineering, LLC
Phoenix, Arizona - Dallas, Texas
Oklahoma City, Oklahoma - San Antonio, Texas
Albuquerque, New Mexico, United States 87113
5053380988 jkruse@lee-eng.com

Count Name: NM328.02 Tramway Starbucks TIA
Site Code:
Start Date: 06/20/2023



Turning Movement Data Plot

Lee Engineering, LLC
Phoenix, Arizona - Dallas, Texas
Oklahoma City, Oklahoma - San Antonio, Texas
Albuquerque, New Mexico, United States 87113
5053380988 jkruse@lee-eng.com

Count Name: NM328.02 Tramway Starbucks TIA
Site Code:
Start Date: 06/20/2023

Turning Movement Peak Hour Data (8:00 AM)

Start Time	Tramway Southbound					Tramway Northbound					Wenonah Ave Eastbound					
	Right	Thru	U-Turn	Peds	App. Total	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Int. Total
8:00 AM	13	36	0	1	49	27	11	0	0	38	4	22	0	1	26	113
8:15 AM	15	41	0	1	56	32	5	0	0	37	3	33	0	1	36	129
8:30 AM	15	31	0	2	46	23	5	0	0	28	3	33	0	2	36	110
8:45 AM	19	42	0	0	61	28	6	0	0	34	11	29	0	2	40	135
Total	62	150	0	4	212	110	27	0	0	137	21	117	0	6	138	487
Approach %	29.2	70.8	0.0	-	-	80.3	19.7	0.0	-	-	15.2	84.8	0.0	-	-	-
Total %	12.7	30.8	0.0	-	43.5	22.6	5.5	0.0	-	28.1	4.3	24.0	0.0	-	28.3	-
PHF	0.816	0.893	0.000	-	0.869	0.859	0.614	0.000	-	0.901	0.477	0.886	0.000	-	0.863	0.902
Lights	52	141	0	-	193	107	25	0	-	132	20	115	0	-	135	460
% Lights	83.9	94.0	-	-	91.0	97.3	92.6	-	-	96.4	95.2	98.3	-	-	97.8	94.5
Buses	8	1	0	-	9	0	0	0	-	0	0	0	0	-	0	9
% Buses	12.9	0.7	-	-	4.2	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	1.8
Trucks	1	8	0	-	9	3	2	0	-	5	1	2	0	-	3	17
% Trucks	1.6	5.3	-	-	4.2	2.7	7.4	-	-	3.6	4.8	1.7	-	-	2.2	3.5
Bicycles on Road	1	0	0	-	1	0	0	0	-	0	0	0	0	-	0	1
% Bicycles on Road	1.6	0.0	-	-	0.5	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.2
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	4	-	-	-	-	0	-	-	-	-	6	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	100.0	-	-

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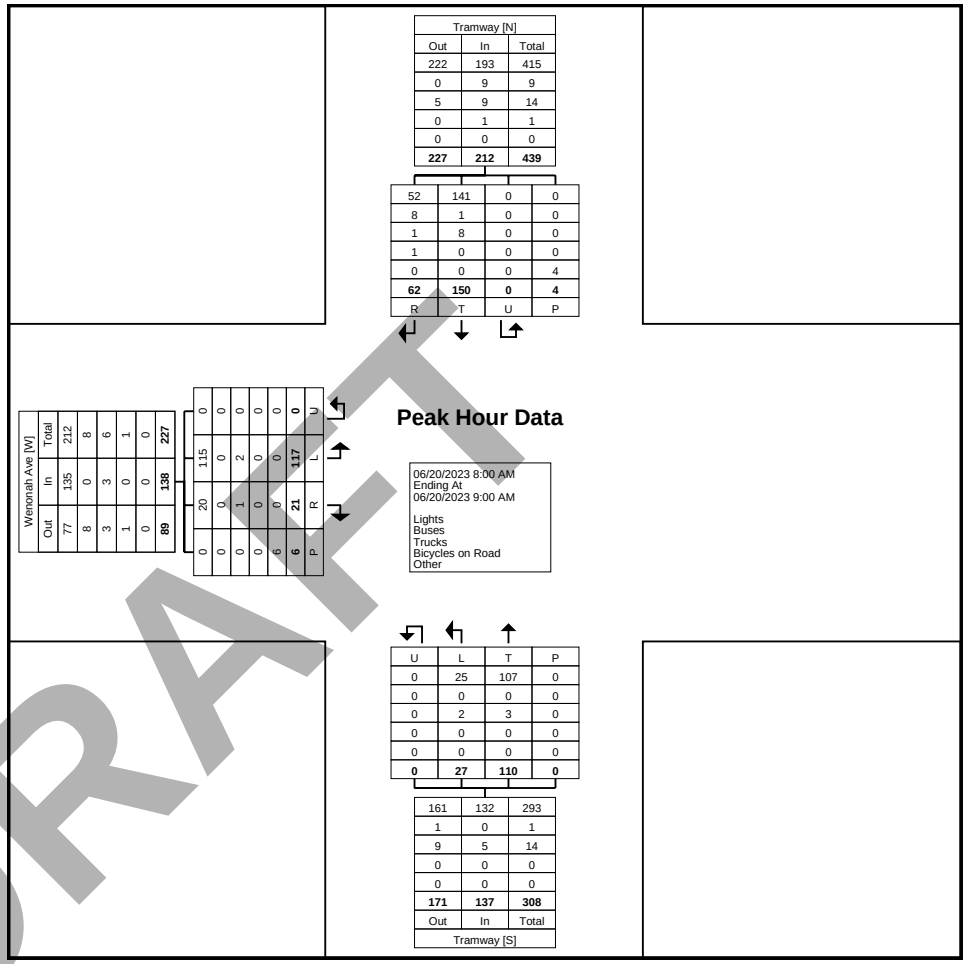

Turning Movement Peak Hour Data Plot (8:00 AM)

Lee Engineering, LLC
Phoenix, Arizona - Dallas, Texas
Oklahoma City, Oklahoma - San Antonio, Texas
Albuquerque, New Mexico, United States 87113
5053380988 jkruse@lee-eng.com

Count Name: NM328.02 Tramway Starbucks TIA
Site Code:
Start Date: 06/20/2023

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Tramway Southbound					Tramway Northbound					Wenonah Ave Eastbound					
	Right	Thru	U-Turn	Peds	App. Total	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Int. Total
4:45 PM	31	89	0	3	120	30	10	0	0	40	19	23	0	4	42	202
5:00 PM	27	69	0	0	96	24	20	0	1	44	19	34	0	1	53	193
5:15 PM	36	118	1	3	155	30	17	0	2	47	7	30	0	6	37	239
5:30 PM	33	77	0	4	110	33	12	0	3	45	14	31	0	2	45	200
Total	127	353	1	10	481	117	59	0	6	176	59	118	0	13	177	834
Approach %	26.4	73.4	0.2	-	-	66.5	33.5	0.0	-	-	33.3	66.7	0.0	-	-	-
Total %	15.2	42.3	0.1	-	57.7	14.0	7.1	0.0	-	21.1	7.1	14.1	0.0	-	21.2	-
PHF	0.882	0.748	0.250	-	0.776	0.886	0.738	0.000	-	0.936	0.776	0.868	0.000	-	0.835	0.872
Lights	119	352	1	-	472	111	57	0	-	168	56	110	0	-	166	806
% Lights	93.7	99.7	100.0	-	98.1	94.9	96.6	-	-	95.5	94.9	93.2	-	-	93.8	96.6
Buses	7	0	0	-	7	0	0	0	-	0	0	0	0	-	0	7
% Buses	5.5	0.0	0.0	-	1.5	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.8
Trucks	1	1	0	-	2	3	1	0	-	4	0	0	0	-	0	6
% Trucks	0.8	0.3	0.0	-	0.4	2.6	1.7	-	-	2.3	0.0	0.0	-	-	0.0	0.7
Bicycles on Road	0	0	0	-	0	3	1	0	-	4	3	8	0	-	11	15
% Bicycles on Road	0.0	0.0	0.0	-	0.0	2.6	1.7	-	-	2.3	5.1	6.8	-	-	6.2	1.8
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	2	-	-	-	-	3	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	33.3	-	-	-	-	23.1	-	-
Pedestrians	-	-	-	10	-	-	-	-	4	-	-	-	-	10	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	66.7	-	-	-	-	76.9	-	-

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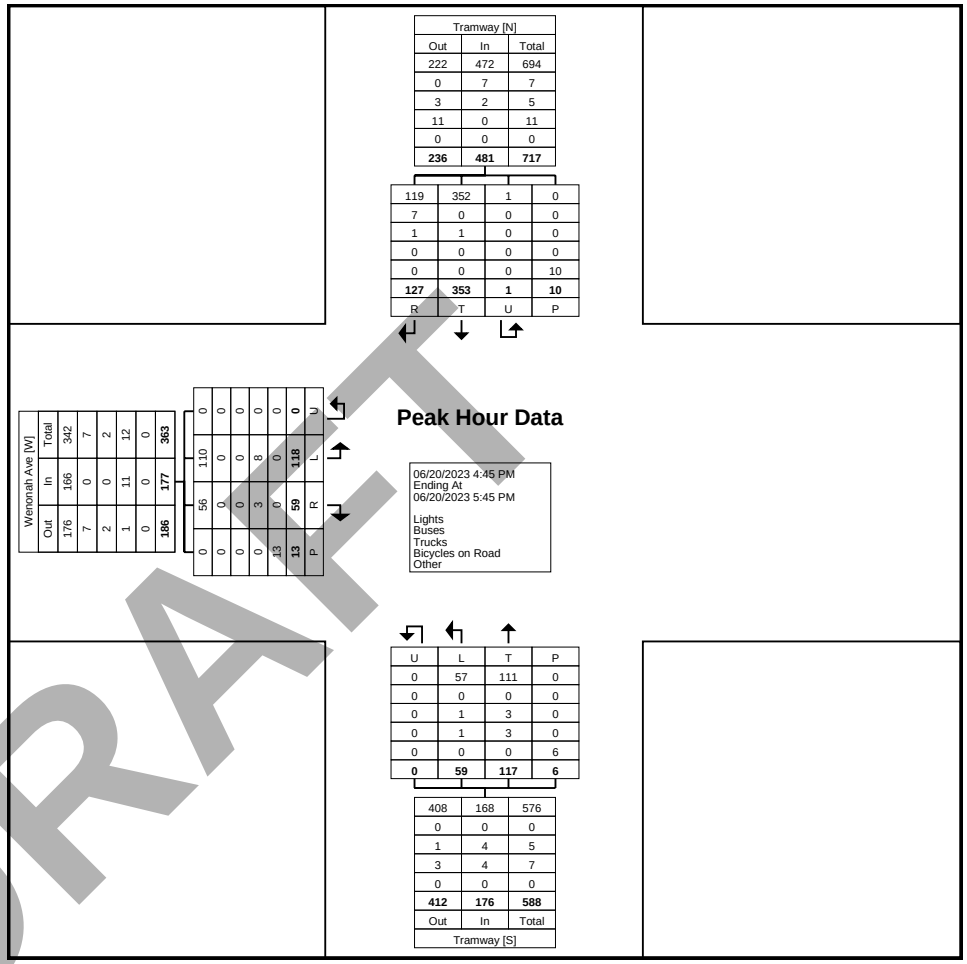

Turning Movement Peak Hour Data Plot (4:45 PM)

Lee Engineering, LLC
Phoenix, Arizona - Dallas, Texas
Oklahoma City, Oklahoma - San Antonio, Texas
Albuquerque, New Mexico, United States 87113
5053380988 jkruse@lee-eng.com

Count Name: NM328.02 Tramway Starbucks TIA
Site Code:
Start Date: 06/20/2023

Turning Movement Data

Start Time	Driveway Southbound						Wenonah Ave Westbound						Driveway Northbound						Wenonah Ave Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
6:00 AM	1	0	0	0	0	1	1	5	0	0	0	6	0	0	0	0	0	0	0	5	3	0	0	8	15
6:15 AM	3	0	0	0	2	3	2	12	0	1	0	15	0	0	0	0	0	0	0	10	2	0	0	12	30
6:30 AM	1	0	1	0	1	2	5	16	0	0	1	21	0	0	0	0	0	0	0	14	2	0	0	16	39
6:45 AM	2	0	2	0	0	4	4	19	0	0	0	23	0	0	0	0	1	0	1	16	0	0	0	17	44
Hourly Total	7	0	3	0	3	10	12	52	0	1	1	65	0	0	0	0	1	0	1	45	7	0	0	53	128
7:00 AM	5	0	0	0	0	5	6	15	0	0	0	21	0	0	0	0	0	0	3	16	0	0	0	19	45
7:15 AM	1	0	1	0	0	2	2	23	0	0	1	25	1	0	0	0	0	1	1	21	0	0	0	22	50
7:30 AM	3	0	2	0	0	5	7	27	0	0	1	34	0	0	0	0	0	0	1	24	3	0	0	28	67
7:45 AM	2	0	7	0	0	9	4	27	1	0	0	32	0	0	0	0	0	0	1	34	5	0	0	40	81
Hourly Total	11	0	10	0	0	21	19	92	1	0	2	112	1	0	0	0	0	1	6	95	8	0	0	109	243
8:00 AM	11	0	3	0	1	14	6	27	1	0	0	34	0	0	1	0	0	1	1	27	2	0	0	30	79
8:15 AM	4	0	5	0	0	9	8	33	0	0	0	41	0	0	2	0	0	2	0	43	2	0	0	45	97
8:30 AM	3	0	2	0	0	5	7	24	0	0	0	31	0	0	0	0	0	0	0	38	1	0	0	39	75
8:45 AM	8	0	3	0	0	11	3	26	0	0	0	29	0	0	0	0	0	0	1	44	5	0	0	50	90
Hourly Total	26	0	13	0	1	39	24	110	1	0	0	135	0	0	3	0	0	3	2	152	10	0	0	164	341
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	7	1	10	0	0	18	5	30	0	0	0	35	0	0	0	0	0	0	2	46	7	0	0	55	108
11:15 AM	11	0	11	0	1	22	8	25	3	0	0	36	1	0	0	0	0	1	1	48	5	0	1	54	113
11:30 AM	10	0	10	0	0	20	6	19	1	0	0	26	0	1	2	0	1	3	2	51	5	0	0	58	107
11:45 AM	9	1	10	0	0	20	3	20	0	0	0	23	0	0	2	0	0	2	2	43	7	0	0	52	97
Hourly Total	37	2	41	0	1	80	22	94	4	0	0	120	1	1	4	0	1	6	7	188	24	0	1	219	425
12:00 PM	18	1	6	0	0	25	4	46	1	0	0	51	2	0	2	0	0	4	2	53	8	0	0	63	143
12:15 PM	9	1	9	0	0	19	5	28	2	0	0	35	0	1	4	0	0	5	5	60	6	0	0	71	130
12:30 PM	12	1	7	0	0	20	4	38	0	0	0	42	0	1	1	0	1	2	2	58	4	0	0	64	128
12:45 PM	14	0	5	0	0	19	7	34	1	0	0	42	1	0	2	0	0	3	2	64	6	0	0	72	136
Hourly Total	53	3	27	0	0	83	20	146	4	0	0	170	3	2	9	0	1	14	11	235	24	0	0	270	537
1:00 PM	13	0	10	0	0	23	10	24	0	0	0	34	2	0	1	0	0	3	3	54	10	0	0	67	127
1:15 PM	12	0	11	0	0	23	9	28	0	0	0	37	0	0	0	0	0	0	3	38	6	0	1	47	107
1:30 PM	13	0	16	0	0	29	5	28	0	0	0	33	0	0	2	0	0	2	2	63	6	0	0	71	135
1:45 PM	9	0	14	0	0	23	5	23	0	0	0	28	0	1	0	0	0	1	3	52	6	0	1	61	113
Hourly Total	47	0	51	0	0	98	29	103	0	0	0	132	2	1	3	0	0	6	11	207	28	0	2	246	482
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	12	1	13	0	0	26	7	26	1	0	0	34	1	1	1	0	0	3	0	59	10	0	0	69	132
3:15 PM	14	0	18	0	0	32	11	20	0	0	0	31	0	0	2	0	0	2	1	67	5	0	0	73	138
3:30 PM	11	0	20	0	1	31	2	21	0	0	0	23	0	0	1	0	0	1	1	52	5	0	1	58	113

3:45 PM	15	0	11	0	0	26	12	18	0	0	0	30	1	0	0	0	0	1	2	75	4	0	0	81	138
Hourly Total	52	1	62	0	1	115	32	85	1	0	0	118	2	1	4	0	0	7	4	253	24	0	1	281	521
4:00 PM	13	0	24	0	0	37	7	26	0	0	0	33	0	1	3	0	0	4	0	71	8	0	0	79	153
4:15 PM	17	0	15	0	0	32	11	26	0	0	0	37	0	0	4	0	0	4	1	82	7	1	0	91	164
4:30 PM	10	0	15	0	1	25	6	22	0	0	0	28	0	0	0	0	0	0	0	92	11	0	0	103	156
4:45 PM	18	0	12	0	0	30	11	22	2	0	0	35	0	0	0	0	0	0	2	87	7	0	0	96	161
Hourly Total	58	0	66	0	1	124	35	96	2	0	0	133	0	1	7	0	0	8	3	332	33	1	0	369	634
5:00 PM	20	0	18	0	1	38	13	14	2	0	0	29	0	0	1	0	0	1	2	78	8	0	1	88	156
5:15 PM	24	0	24	0	0	48	8	22	0	0	0	30	1	0	1	0	0	2	0	113	5	0	0	118	198
5:30 PM	15	0	21	0	0	36	10	24	0	0	0	34	1	0	1	0	0	2	0	83	8	1	0	92	164
5:45 PM	20	0	13	0	0	33	6	18	2	0	0	26	0	0	1	0	0	1	2	65	8	0	0	75	135
Hourly Total	79	0	76	0	1	155	37	78	4	0	0	119	2	0	4	0	0	6	4	339	29	1	1	373	653
Grand Total	370	6	349	0	8	725	230	856	17	1	3	1104	11	6	34	0	3	51	49	1846	187	2	5	2084	3964
Approach %	51.0	0.8	48.1	0.0	-	-	20.8	77.5	1.5	0.1	-	-	21.6	11.8	66.7	0.0	-	-	2.4	88.6	9.0	0.1	-	-	-
Total %	9.3	0.2	8.8	0.0	-	18.3	5.8	21.6	0.4	0.0	-	27.9	0.3	0.2	0.9	0.0	-	1.3	1.2	46.6	4.7	0.1	-	52.6	-
Lights	348	6	348	0	-	702	226	833	17	1	-	1077	10	6	33	0	-	49	49	1823	180	2	-	2054	3882
% Lights	94.1	100.0	99.7	-	-	96.8	98.3	97.3	100.0	100.0	-	97.6	90.9	100.0	97.1	-	-	96.1	100.0	98.8	96.3	100.0	-	98.6	97.9
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.1	0.0	0.0	-	0.0	0.0
Trucks	21	0	1	0	-	22	4	11	0	0	-	15	1	0	0	0	-	1	0	13	7	0	-	20	58
% Trucks	5.7	0.0	0.3	-	-	3.0	1.7	1.3	0.0	0.0	-	1.4	9.1	0.0	0.0	-	-	2.0	0.0	0.7	3.7	0.0	-	1.0	1.5
Bicycles on Road	1	0	0	0	-	1	0	12	0	0	-	12	0	0	1	0	-	1	0	9	0	0	-	9	23
% Bicycles on Road	0.3	0.0	0.0	-	-	0.1	0.0	1.4	0.0	0.0	-	1.1	0.0	0.0	2.9	-	-	2.0	0.0	0.5	0.0	0.0	-	0.4	0.6
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	8	-	-	-	-	-	3	-	-	-	-	-	3	-	-	-	-	-	5	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

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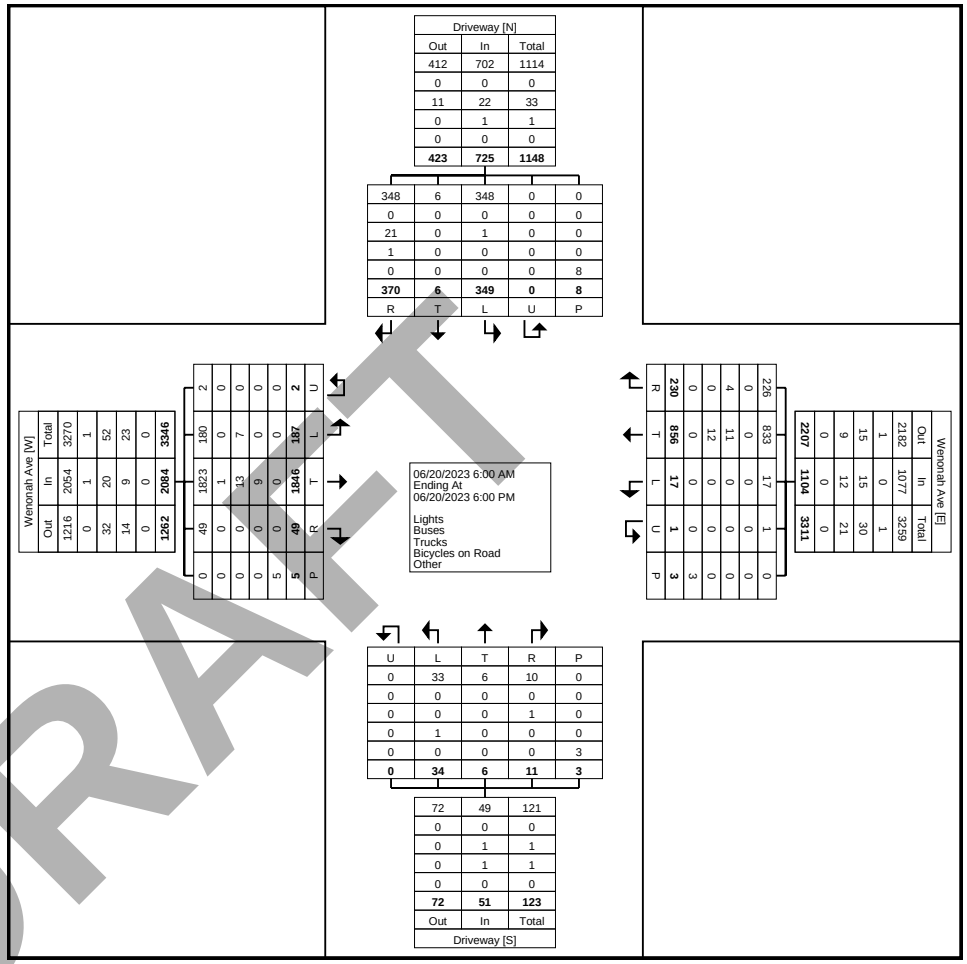

Turning Movement Data Plot

Lee Engineering, LLC
Phoenix, Arizona - Dallas, Texas
Oklahoma City, Oklahoma - San Antonio, Texas
Albuquerque, New Mexico, United States 87113
5053380988 jkruse@lee-eng.com

Count Name: NM328.02 Tramway Starbucks TIA
Site Code:
Start Date: 06/20/2023

Turning Movement Peak Hour Data (8:00 AM)

Start Time	Driveway Southbound						Wenonah Ave Westbound						Driveway Northbound						Wenonah Ave Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
8:00 AM	11	0	3	0	1	14	6	27	1	0	0	34	0	0	1	0	0	1	1	27	2	0	0	30	79
8:15 AM	4	0	5	0	0	9	8	33	0	0	0	41	0	0	2	0	0	2	0	43	2	0	0	45	97
8:30 AM	3	0	2	0	0	5	7	24	0	0	0	31	0	0	0	0	0	0	0	38	1	0	0	39	75
8:45 AM	8	0	3	0	0	11	3	26	0	0	0	29	0	0	0	0	0	0	1	44	5	0	0	50	90
Total	26	0	13	0	1	39	24	110	1	0	0	135	0	0	3	0	0	3	2	152	10	0	0	164	341
Approach %	66.7	0.0	33.3	0.0	-	-	17.8	81.5	0.7	0.0	-	-	0.0	0.0	100.0	0.0	-	-	1.2	92.7	6.1	0.0	-	-	-
Total %	7.6	0.0	3.8	0.0	-	11.4	7.0	32.3	0.3	0.0	-	39.6	0.0	0.0	0.9	0.0	-	0.9	0.6	44.6	2.9	0.0	-	48.1	-
PHF	0.591	0.000	0.650	0.000	-	0.696	0.750	0.833	0.250	0.000	-	0.823	0.000	0.000	0.375	0.000	-	0.375	0.500	0.864	0.500	0.000	-	0.820	0.879
Lights	18	0	13	0	-	31	23	107	1	0	-	131	0	0	3	0	-	3	2	145	8	0	-	155	320
% Lights	69.2	-	100.0	-	-	79.5	95.8	97.3	100.0	-	-	97.0	-	-	100.0	-	-	100.0	100.0	95.4	80.0	-	-	94.5	93.8
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Buses	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	-	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Trucks	8	0	0	0	-	8	1	1	0	0	-	2	0	0	0	0	-	0	0	5	2	0	-	7	17
% Trucks	30.8	-	0.0	-	-	20.5	4.2	0.9	0.0	-	-	1.5	-	-	0.0	-	-	0.0	0.0	3.3	20.0	-	-	4.3	5.0
Bicycles on Road	0	0	0	0	-	0	0	2	0	0	-	2	0	0	0	0	-	0	0	2	0	0	-	2	4
% Bicycles on Road	0.0	-	0.0	-	-	0.0	0.0	1.8	0.0	-	-	1.5	-	-	0.0	-	-	0.0	0.0	1.3	0.0	-	-	1.2	1.2
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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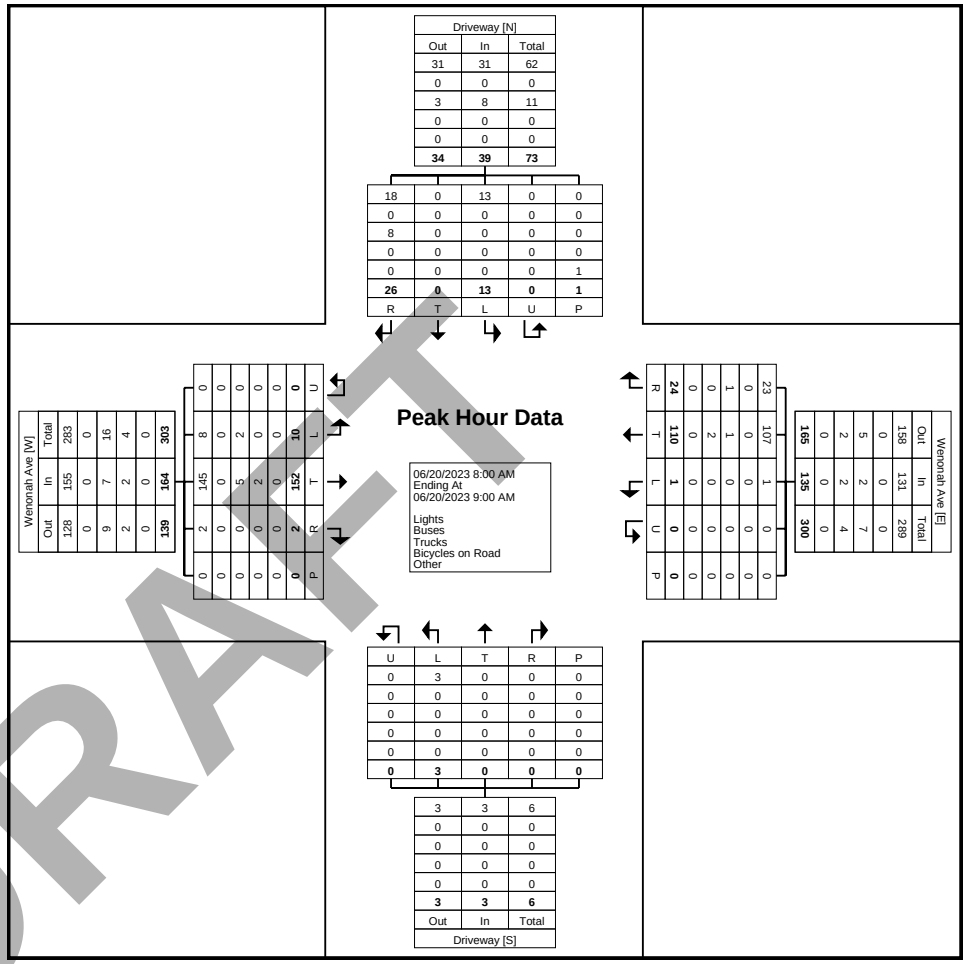

Turning Movement Peak Hour Data Plot (8:00 AM)

Lee Engineering, LLC
Phoenix, Arizona - Dallas, Texas
Oklahoma City, Oklahoma - San Antonio, Texas
Albuquerque, New Mexico, United States 87113
5053380988 jkruse@lee-eng.com

Count Name: NM328.02 Tramway Starbucks TIA
Site Code:
Start Date: 06/20/2023

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Driveway Southbound						Wenonah Ave Westbound						Driveway Northbound						Wenonah Ave Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
4:45 PM	18	0	12	0	0	30	11	22	2	0	0	35	0	0	0	0	0	0	2	87	7	0	0	96	161
5:00 PM	20	0	18	0	1	38	13	14	2	0	0	29	0	0	1	0	0	1	2	78	8	0	1	88	156
5:15 PM	24	0	24	0	0	48	8	22	0	0	0	30	1	0	1	0	0	2	0	113	5	0	0	118	198
5:30 PM	15	0	21	0	0	36	10	24	0	0	0	34	1	0	1	0	0	2	0	83	8	1	0	92	164
Total	77	0	75	0	1	152	42	82	4	0	0	128	2	0	3	0	0	5	4	361	28	1	1	394	679
Approach %	50.7	0.0	49.3	0.0	-	-	32.8	64.1	3.1	0.0	-	-	40.0	0.0	60.0	0.0	-	-	1.0	91.6	7.1	0.3	-	-	-
Total %	11.3	0.0	11.0	0.0	-	22.4	6.2	12.1	0.6	0.0	-	18.9	0.3	0.0	0.4	0.0	-	0.7	0.6	53.2	4.1	0.1	-	58.0	-
PHF	0.802	0.000	0.781	0.000	-	0.792	0.808	0.854	0.500	0.000	-	0.914	0.500	0.000	0.750	0.000	-	0.625	0.500	0.799	0.875	0.250	-	0.835	0.857
Lights	77	0	74	0	-	151	40	77	4	0	-	121	2	0	3	0	-	5	4	359	27	1	-	391	668
% Lights	100.0	-	98.7	-	-	99.3	95.2	93.9	100.0	-	-	94.5	100.0	-	100.0	-	-	100.0	100.0	99.4	96.4	100.0	-	99.2	98.4
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Buses	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Trucks	0	0	1	0	-	1	2	4	0	0	-	6	0	0	0	0	-	0	0	1	1	0	-	2	9
% Trucks	0.0	-	1.3	-	-	0.7	4.8	4.9	0.0	-	-	4.7	0.0	-	0.0	-	-	0.0	0.0	0.3	3.6	0.0	-	0.5	1.3
Bicycles on Road	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	0	1	0	0	-	1	2
% Bicycles on Road	0.0	-	0.0	-	-	0.0	0.0	1.2	0.0	-	-	0.8	0.0	-	0.0	-	-	0.0	0.0	0.3	0.0	0.0	-	0.3	0.3
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

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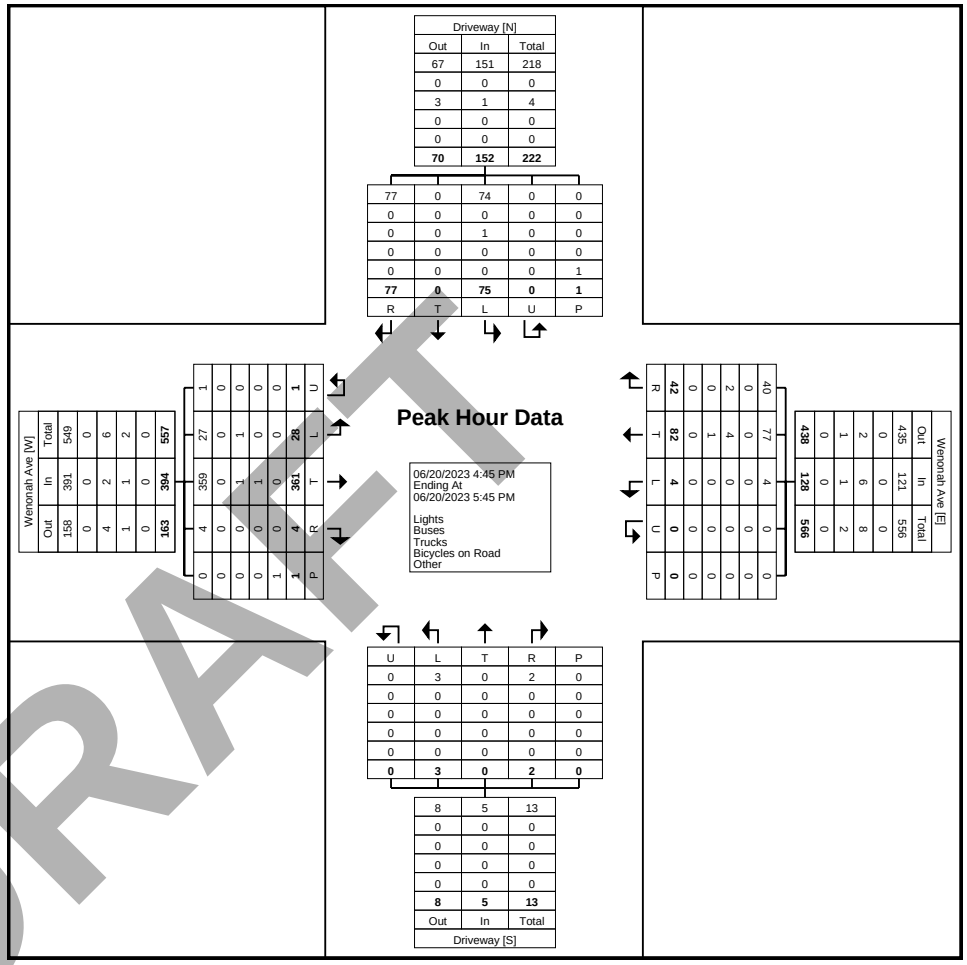

Turning Movement Peak Hour Data Plot (4:45 PM)

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Oklahoma City, Oklahoma - San Antonio, Texas
Albuquerque, New Mexico, United States 87113
5053380988 jkruse@lee-eng.com

Count Name: NM328.02 Tramway Starbucks TIA
Site Code:
Start Date: 06/20/2023

Turning Movement Data

Start Time	4 Hills Rd Southbound						Wenonah Ave Westbound						4 Hills Rd Northbound						Wenonah Ave Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
6:00 AM	1	2	0	0	0	3	1	0	0	0	0	1	0	23	6	0	0	29	2	1	0	0	0	3	36
6:15 AM	3	2	0	0	0	5	3	2	0	0	0	5	0	35	8	0	1	43	9	0	0	1	0	10	63
6:30 AM	2	5	0	0	0	7	1	3	0	0	0	4	0	39	15	0	0	54	15	1	1	0	1	17	82
6:45 AM	2	4	1	0	0	7	3	2	0	0	0	5	0	63	18	0	0	81	13	1	2	0	0	16	109
Hourly Total	8	13	1	0	0	22	8	7	0	0	0	15	0	160	47	0	1	207	39	3	3	1	1	46	290
7:00 AM	3	9	0	0	4	12	8	1	0	0	0	9	0	53	18	0	1	71	11	1	3	0	0	15	107
7:15 AM	5	16	0	0	0	21	5	3	0	0	0	8	0	75	18	0	0	93	21	0	3	0	0	24	146
7:30 AM	4	18	1	0	0	23	5	3	0	0	0	8	0	96	25	0	0	121	20	1	4	0	0	25	177
7:45 AM	2	16	0	0	0	18	8	1	2	0	0	11	0	75	26	0	0	101	29	3	3	0	0	35	165
Hourly Total	14	59	1	0	4	74	26	8	2	0	0	36	0	299	87	0	1	386	81	5	13	0	0	99	595
8:00 AM	4	17	0	0	0	21	1	3	0	0	0	4	0	68	27	0	0	95	32	3	2	0	0	37	157
8:15 AM	6	19	1	0	0	26	2	5	0	0	0	7	0	58	34	0	0	92	46	0	2	0	0	48	173
8:30 AM	4	16	0	0	0	20	4	3	0	0	0	7	0	76	24	0	0	100	30	1	0	0	0	31	158
8:45 AM	5	13	0	0	0	18	2	4	0	0	0	6	1	81	19	0	0	101	49	1	0	0	0	50	175
Hourly Total	19	65	1	0	0	85	9	15	0	0	0	24	1	283	104	0	0	388	157	5	4	0	0	166	663
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	2	25	0	0	0	27	1	0	0	0	1	1	0	56	30	0	0	86	48	1	4	0	0	53	167
11:15 AM	8	35	0	0	1	43	3	1	0	0	0	4	0	59	27	0	0	86	49	3	8	0	0	60	193
11:30 AM	9	29	2	0	0	40	0	1	0	0	0	1	0	50	18	0	0	68	50	3	10	0	0	63	172
11:45 AM	3	19	2	0	0	24	3	1	0	0	0	4	3	47	17	0	0	67	47	3	8	0	0	58	153
Hourly Total	22	108	4	0	1	134	7	3	0	0	1	10	3	212	92	0	0	307	194	10	30	0	0	234	685
12:00 PM	7	24	0	0	0	31	1	2	0	0	0	3	1	77	40	0	0	118	50	1	8	1	0	60	212
12:15 PM	6	31	1	1	0	39	2	1	0	0	0	3	2	48	29	0	0	79	60	1	9	0	0	70	191
12:30 PM	8	32	1	0	1	41	3	0	0	0	0	3	0	56	29	0	0	85	44	4	12	0	0	60	189
12:45 PM	9	34	3	0	0	46	4	1	0	0	0	5	0	56	35	0	0	91	62	2	5	0	0	69	211
Hourly Total	30	121	5	1	1	157	10	4	0	0	0	14	3	237	133	0	0	373	216	8	34	1	0	259	803
1:00 PM	9	36	1	0	0	46	2	2	0	0	0	4	0	53	20	0	0	73	54	4	7	0	0	65	188
1:15 PM	8	20	2	0	0	30	3	1	0	0	0	4	0	43	24	0	0	67	40	3	10	0	0	53	154
1:30 PM	5	19	2	0	0	26	2	1	0	0	0	3	0	41	22	0	1	63	52	8	14	0	0	74	166
1:45 PM	3	26	3	0	0	32	1	2	0	0	0	3	0	46	19	0	0	65	53	1	8	0	0	62	162
Hourly Total	25	101	8	0	0	134	8	6	0	0	0	14	0	183	85	0	1	268	199	16	39	0	0	254	670
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	5	29	3	0	1	37	0	1	0	0	0	1	0	62	30	0	0	92	67	2	8	0	0	77	207
3:15 PM	4	32	3	1	1	40	2	0	0	0	0	2	0	44	24	0	0	68	63	1	15	0	0	79	189
3:30 PM	0	31	3	0	0	34	1	1	0	0	1	2	1	39	23	0	0	63	52	2	16	0	0	70	169

3:45 PM	8	39	3	0	0	50	3	3	0	0	0	6	0	56	20	0	0	76	77	0	10	0	0	87	219
Hourly Total	17	131	12	1	2	161	6	5	0	0	1	11	1	201	97	0	0	299	259	5	49	0	0	313	784
4:00 PM	6	33	1	0	0	40	3	1	0	0	0	4	1	45	24	0	0	70	76	3	8	0	0	87	201
4:15 PM	7	38	3	1	0	49	2	2	0	0	0	4	1	44	30	0	0	75	80	7	12	0	0	99	227
4:30 PM	6	35	3	0	0	44	5	0	1	0	2	6	0	57	22	0	2	79	77	8	13	0	0	98	227
4:45 PM	9	46	2	0	0	57	4	3	0	0	0	7	0	45	23	0	0	68	89	6	15	0	0	110	242
Hourly Total	28	152	9	1	0	190	14	6	1	0	2	21	2	191	99	0	2	292	322	24	48	0	0	394	897
5:00 PM	7	43	3	0	0	53	0	3	0	0	0	3	0	58	20	0	0	78	66	5	12	0	0	83	217
5:15 PM	9	42	8	0	0	59	3	2	0	0	0	5	1	44	16	0	0	61	112	9	23	0	0	144	269
5:30 PM	8	44	6	0	0	58	5	2	0	0	0	7	0	65	24	1	0	90	77	7	27	0	0	111	266
5:45 PM	4	40	4	0	0	48	5	2	0	0	0	7	0	49	24	0	0	73	67	9	7	0	0	83	211
Hourly Total	28	169	21	0	0	218	13	9	0	0	0	22	1	216	84	1	0	302	322	30	69	0	0	421	963
Grand Total	191	919	62	3	8	1175	101	63	3	0	4	167	11	1982	828	1	5	2822	1789	106	289	2	1	2186	6350
Approach %	16.3	78.2	5.3	0.3	-	-	60.5	37.7	1.8	0.0	-	-	0.4	70.2	29.3	0.0	-	-	81.8	4.8	13.2	0.1	-	-	-
Total %	3.0	14.5	1.0	0.0	-	18.5	1.6	1.0	0.0	0.0	-	2.6	0.2	31.2	13.0	0.0	-	44.4	28.2	1.7	4.6	0.0	-	34.4	-
Lights	184	903	61	3	-	1151	101	61	3	0	-	165	7	1969	815	1	-	2792	1775	101	287	2	-	2165	6273
% Lights	96.3	98.3	98.4	100.0	-	98.0	100.0	96.8	100.0	-	-	98.8	63.6	99.3	98.4	100.0	-	98.9	99.2	95.3	99.3	100.0	-	99.0	98.8
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	2	1	0	-	3	1	0	0	0	-	1	4
% Buses	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.1	0.1	0.0	-	0.1	0.1	0.0	0.0	0.0	-	0.0	0.1
Trucks	3	16	1	0	-	20	0	1	0	0	-	1	2	10	10	0	-	22	13	0	2	0	-	15	58
% Trucks	1.6	1.7	1.6	0.0	-	1.7	0.0	1.6	0.0	-	-	0.6	18.2	0.5	1.2	0.0	-	0.8	0.7	0.0	0.7	0.0	-	0.7	0.9
Bicycles on Road	4	0	0	0	-	4	0	1	0	0	-	1	2	1	2	0	-	5	0	5	0	0	-	5	15
% Bicycles on Road	2.1	0.0	0.0	0.0	-	0.3	0.0	1.6	0.0	-	-	0.6	18.2	0.1	0.2	0.0	-	0.2	0.0	4.7	0.0	0.0	-	0.2	0.2
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	12.5	-	-	-	-	-	25.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	7	-	-	-	-	-	3	-	-	-	-	-	5	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	87.5	-	-	-	-	-	75.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

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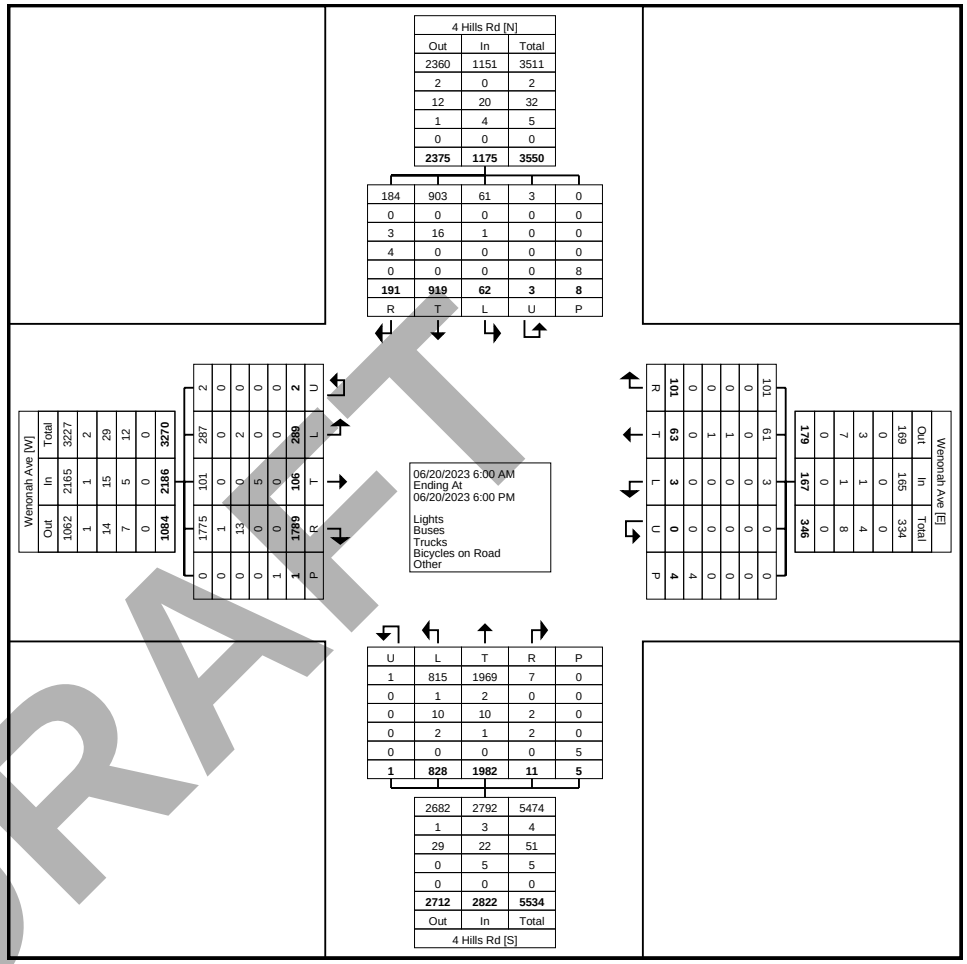

Turning Movement Data Plot

Lee Engineering, LLC
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Oklahoma City, Oklahoma - San Antonio, Texas
Albuquerque, New Mexico, United States 87113
5053380988 jkruse@lee-eng.com

Count Name: NM328.02 Tramway Starbucks TIA
Site Code:
Start Date: 06/20/2023

Turning Movement Peak Hour Data (7:30 AM)

Start Time	4 Hills Rd Southbound						Wenonah Ave Westbound						4 Hills Rd Northbound						Wenonah Ave Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
7:30 AM	4	18	1	0	0	23	5	3	0	0	0	8	0	96	25	0	0	121	20	1	4	0	0	25	177
7:45 AM	2	16	0	0	0	18	8	1	2	0	0	11	0	75	26	0	0	101	29	3	3	0	0	35	165
8:00 AM	4	17	0	0	0	21	1	3	0	0	0	4	0	68	27	0	0	95	32	3	2	0	0	37	157
8:15 AM	6	19	1	0	0	26	2	5	0	0	0	7	0	58	34	0	0	92	46	0	2	0	0	48	173
Total	16	70	2	0	0	88	16	12	2	0	0	30	0	297	112	0	0	409	127	7	11	0	0	145	672
Approach %	18.2	79.5	2.3	0.0	-	-	53.3	40.0	6.7	0.0	-	-	0.0	72.6	27.4	0.0	-	-	87.6	4.8	7.6	0.0	-	-	-
Total %	2.4	10.4	0.3	0.0	-	13.1	2.4	1.8	0.3	0.0	-	4.5	0.0	44.2	16.7	0.0	-	60.9	18.9	1.0	1.6	0.0	-	21.6	-
PHF	0.667	0.921	0.500	0.000	-	0.846	0.500	0.600	0.250	0.000	-	0.682	0.000	0.773	0.824	0.000	-	0.845	0.690	0.583	0.688	0.000	-	0.755	0.949
Lights	16	66	2	0	-	84	16	12	2	0	-	30	0	296	112	0	-	408	123	7	11	0	-	141	663
% Lights	100.0	94.3	100.0	-	-	95.5	100.0	100.0	100.0	-	-	100.0	-	99.7	100.0	-	-	99.8	96.9	100.0	100.0	-	-	97.2	98.7
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1	0	0	0	-	1	2
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	-	0.3	0.0	-	-	0.2	0.8	0.0	0.0	-	-	0.7	0.3
Trucks	0	4	0	0	-	4	0	0	0	0	-	0	0	0	0	0	-	0	3	0	0	0	-	3	7
% Trucks	0.0	5.7	0.0	-	-	4.5	0.0	0.0	0.0	-	-	0.0	-	0.0	0.0	-	-	0.0	2.4	0.0	0.0	-	-	2.1	1.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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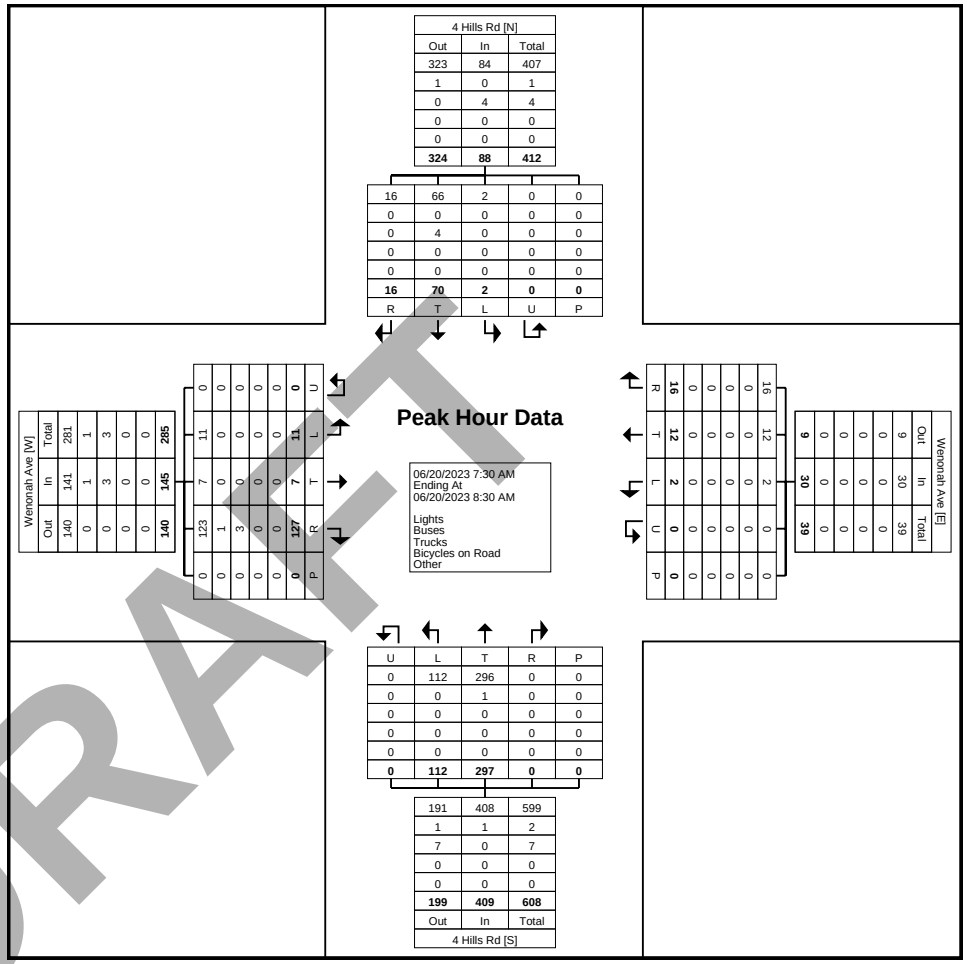

Turning Movement Peak Hour Data Plot (7:30 AM)

Lee Engineering, LLC
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Oklahoma City, Oklahoma - San Antonio, Texas
Albuquerque, New Mexico, United States 87113
5053380988 jkruse@lee-eng.com

Count Name: NM328.02 Tramway Starbucks TIA
Site Code:
Start Date: 06/20/2023

Turning Movement Peak Hour Data (4:45 PM)

Start Time	4 Hills Rd Southbound						Wenonah Ave Westbound						4 Hills Rd Northbound						Wenonah Ave Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
4:45 PM	9	46	2	0	0	57	4	3	0	0	0	7	0	45	23	0	0	68	89	6	15	0	0	110	242
5:00 PM	7	43	3	0	0	53	0	3	0	0	0	3	0	58	20	0	0	78	66	5	12	0	0	83	217
5:15 PM	9	42	8	0	0	59	3	2	0	0	0	5	1	44	16	0	0	61	112	9	23	0	0	144	269
5:30 PM	8	44	6	0	0	58	5	2	0	0	0	7	0	65	24	1	0	90	77	7	27	0	0	111	266
Total	33	175	19	0	0	227	12	10	0	0	0	22	1	212	83	1	0	297	344	27	77	0	0	448	994
Approach %	14.5	77.1	8.4	0.0	-	-	54.5	45.5	0.0	0.0	-	-	0.3	71.4	27.9	0.3	-	-	76.8	6.0	17.2	0.0	-	-	-
Total %	3.3	17.6	1.9	0.0	-	22.8	1.2	1.0	0.0	0.0	-	2.2	0.1	21.3	8.4	0.1	-	29.9	34.6	2.7	7.7	0.0	-	45.1	-
PHF	0.917	0.951	0.594	0.000	-	0.962	0.600	0.833	0.000	0.000	-	0.786	0.250	0.815	0.865	0.250	-	0.825	0.768	0.750	0.713	0.000	-	0.778	0.924
Lights	31	174	19	0	-	224	12	9	0	0	-	21	1	212	79	1	-	293	344	27	76	0	-	447	985
% Lights	93.9	99.4	100.0	-	-	98.7	100.0	90.0	-	-	-	95.5	100.0	100.0	95.2	100.0	-	98.7	100.0	100.0	98.7	-	-	99.8	99.1
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Trucks	2	1	0	0	-	3	0	1	0	0	-	1	0	0	3	0	-	3	0	0	1	0	-	1	8
% Trucks	6.1	0.6	0.0	-	-	1.3	0.0	10.0	-	-	-	4.5	0.0	0.0	3.6	0.0	-	1.0	0.0	0.0	1.3	-	-	0.2	0.8
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	0.0	0.0	1.2	0.0	-	0.3	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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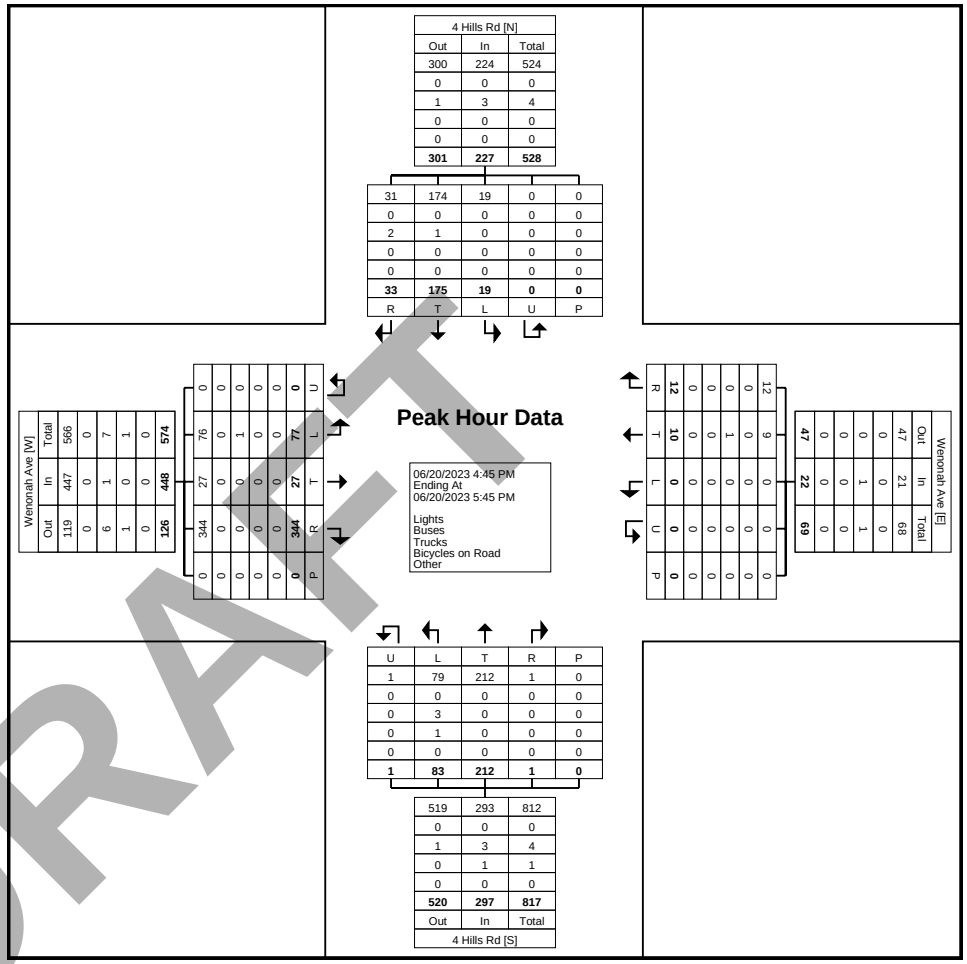

Turning Movement Peak Hour Data Plot (4:45 PM)

Lee Engineering, LLC
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Oklahoma City, Oklahoma - San Antonio, Texas
Albuquerque, New Mexico, United States 87113
5053380988 jkruse@lee-eng.com

Count Name: NM328.02 Tramway Starbucks TIA
Site Code:
Start Date: 06/20/2023

Turning Movement Data

Start Time	Tramway Southbound						Driveway Westbound						Tramway Northbound						Driveway Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
6:00 AM	7	12	8	2	0	29	6	2	0	0	0	8	2	17	0	0	0	19	0	0	0	0	2	0	56
6:15 AM	4	15	9	2	0	30	12	0	0	0	3	12	3	22	0	0	3	25	0	0	0	0	1	0	67
6:30 AM	2	21	12	1	1	36	7	2	1	0	1	10	1	35	2	0	0	38	0	0	1	0	1	1	85
6:45 AM	3	21	11	3	0	38	9	1	1	0	0	11	1	29	3	0	0	33	1	0	1	0	5	2	84
Hourly Total	16	69	40	8	1	133	34	5	2	0	4	41	7	103	5	0	3	115	1	0	2	0	9	3	292
7:00 AM	6	31	15	3	0	55	10	1	0	0	0	11	0	32	3	0	1	35	1	1	1	0	3	3	104
7:15 AM	5	31	17	4	0	57	18	1	3	0	1	22	6	35	3	0	1	44	0	0	2	0	1	2	125
7:30 AM	3	42	17	4	0	66	11	0	2	0	0	13	2	55	4	0	2	61	3	0	4	0	2	7	147
7:45 AM	2	41	19	1	0	63	17	1	3	0	1	21	3	44	2	0	7	49	1	0	0	0	8	1	134
Hourly Total	16	145	68	12	0	241	56	3	8	0	2	67	11	166	12	0	11	189	5	1	7	0	14	13	510
8:00 AM	3	43	17	3	0	66	10	3	0	0	1	13	2	38	5	0	1	45	2	0	1	0	1	3	127
8:15 AM	9	55	28	1	1	93	19	0	1	0	2	20	7	63	1	0	5	71	0	0	3	0	2	3	187
8:30 AM	7	47	26	0	0	80	24	1	1	0	0	26	6	52	2	0	6	60	0	0	4	0	3	4	170
8:45 AM	11	57	21	4	0	93	21	3	2	0	0	26	4	51	1	0	4	56	1	2	2	0	3	5	180
Hourly Total	30	202	92	8	1	332	74	7	4	0	3	85	19	204	9	0	16	232	3	2	10	0	9	15	664
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	13	67	43	0	0	123	20	4	1	0	1	25	4	58	1	0	2	63	3	1	4	0	10	8	219
11:15 AM	19	62	35	1	0	117	27	1	1	0	0	29	10	49	1	0	6	60	4	1	5	0	14	10	216
11:30 AM	8	58	38	3	0	107	34	3	4	0	0	41	7	62	2	0	3	71	2	0	5	0	0	7	226
11:45 AM	8	56	38	2	0	104	43	1	1	0	3	45	13	32	2	0	4	47	2	2	4	1	1	9	205
Hourly Total	48	243	154	6	0	451	124	9	7	0	4	140	34	201	6	0	15	241	11	4	18	1	25	34	866
12:00 PM	13	68	40	1	1	122	36	2	0	0	1	38	5	72	3	0	5	80	1	0	1	0	1	2	242
12:15 PM	12	69	38	0	0	119	28	5	4	0	1	37	4	56	1	0	4	61	4	4	5	0	3	13	230
12:30 PM	15	76	40	2	1	133	38	4	1	0	1	43	4	69	0	0	1	73	5	1	3	0	0	9	258
12:45 PM	15	77	36	1	0	129	32	0	2	0	1	34	5	61	0	0	1	66	2	1	9	0	2	12	241
Hourly Total	55	290	154	4	2	503	134	11	7	0	4	152	18	258	4	0	11	280	12	6	18	0	6	36	971
1:00 PM	16	70	51	3	0	140	31	6	3	0	0	40	2	44	4	0	0	50	5	4	6	0	2	15	245
1:15 PM	11	54	40	2	0	107	31	4	2	0	0	37	7	52	0	0	1	59	4	1	3	0	3	8	211
1:30 PM	15	74	48	3	0	140	42	0	0	0	1	42	2	57	3	0	3	62	4	2	4	0	1	10	254
1:45 PM	15	73	31	1	0	120	30	3	4	0	2	37	9	52	1	0	6	62	3	0	5	0	2	8	227
Hourly Total	57	271	170	9	0	507	134	13	9	0	3	156	20	205	8	0	10	233	16	7	18	0	8	41	937
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	16	78	59	4	1	157	33	1	0	0	0	34	4	59	4	0	0	67	4	1	4	0	2	9	267
3:15 PM	15	94	52	5	0	166	52	3	1	0	0	56	7	40	3	0	1	50	4	0	5	0	7	9	281
3:30 PM	15	60	47	6	0	128	41	1	1	0	0	43	2	63	2	0	1	67	7	2	2	0	5	11	249

3:45 PM	15	88	47	2	1	152	44	4	2	0	2	50	8	48	1	0	5	57	4	2	4	0	1	10	269
Hourly Total	61	320	205	17	2	603	170	9	4	0	2	183	21	210	10	0	7	241	19	5	15	0	15	39	1066
4:00 PM	14	83	53	3	0	153	49	0	1	0	0	50	8	57	1	0	14	66	6	3	4	0	4	13	282
4:15 PM	19	105	52	2	0	178	39	2	0	0	1	41	8	68	2	0	8	78	4	0	4	0	3	8	305
4:30 PM	10	118	56	4	0	188	39	1	2	0	1	42	3	51	2	0	3	56	6	1	3	0	2	10	296
4:45 PM	17	112	63	3	0	195	39	0	0	0	1	39	8	56	2	0	2	66	3	2	1	0	7	6	306
Hourly Total	60	418	224	12	0	714	166	3	3	0	3	172	27	232	7	0	27	266	19	6	12	0	16	37	1189
5:00 PM	15	96	54	1	0	166	58	2	3	0	1	63	9	63	3	0	2	75	4	2	6	0	2	12	316
5:15 PM	13	132	59	3	0	207	47	1	1	0	0	49	9	60	3	0	3	72	10	2	6	0	5	18	346
5:30 PM	14	105	58	5	0	182	47	1	4	0	0	52	1	63	2	0	4	66	5	1	0	0	6	6	306
5:45 PM	9	84	56	2	1	151	52	2	0	0	1	54	6	45	1	0	4	52	7	2	4	0	6	13	270
Hourly Total	51	417	227	11	1	706	204	6	8	0	2	218	25	231	9	0	13	265	26	7	16	0	19	49	1238
Grand Total	394	2375	1334	87	7	4190	1096	66	52	0	27	1214	182	1810	70	0	113	2062	112	38	116	1	121	267	7733
Approach %	9.4	56.7	31.8	2.1	-	-	90.3	5.4	4.3	0.0	-	-	8.8	87.8	3.4	0.0	-	-	41.9	14.2	43.4	0.4	-	-	-
Total %	5.1	30.7	17.3	1.1	-	54.2	14.2	0.9	0.7	0.0	-	15.7	2.4	23.4	0.9	0.0	-	26.7	1.4	0.5	1.5	0.0	-	3.5	-
Lights	389	2263	1321	85	-	4058	1088	66	46	0	-	1200	181	1748	68	0	-	1997	111	38	111	1	-	261	7516
% Lights	98.7	95.3	99.0	97.7	-	96.8	99.3	100.0	88.5	-	-	98.8	99.5	96.6	97.1	-	-	96.8	99.1	100.0	95.7	100.0	-	97.8	97.2
Buses	1	65	0	0	-	66	2	0	0	0	-	2	0	1	0	0	-	1	0	0	0	0	-	0	69
% Buses	0.3	2.7	0.0	0.0	-	1.6	0.2	0.0	0.0	-	-	0.2	0.0	0.1	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.9
Trucks	2	31	11	1	-	45	6	0	0	0	-	6	1	38	2	0	-	41	1	0	5	0	-	6	98
% Trucks	0.5	1.3	0.8	1.1	-	1.1	0.5	0.0	0.0	-	-	0.5	0.5	2.1	2.9	-	-	2.0	0.9	0.0	4.3	0.0	-	2.2	1.3
Bicycles on Road	2	16	2	1	-	21	0	0	6	0	-	6	0	23	0	0	-	23	0	0	0	0	-	0	50
% Bicycles on Road	0.5	0.7	0.1	1.1	-	0.5	0.0	0.0	11.5	-	-	0.5	0.0	1.3	0.0	-	-	1.1	0.0	0.0	0.0	0.0	-	0.0	0.6
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	9	-	-	-	-	-	4	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	33.3	-	-	-	-	-	3.5	-	-	-	-	-	0.8	-	-
Pedestrians	-	-	-	-	7	-	-	-	-	-	18	-	-	-	-	-	109	-	-	-	-	-	120	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	66.7	-	-	-	-	-	96.5	-	-	-	-	-	99.2	-	-

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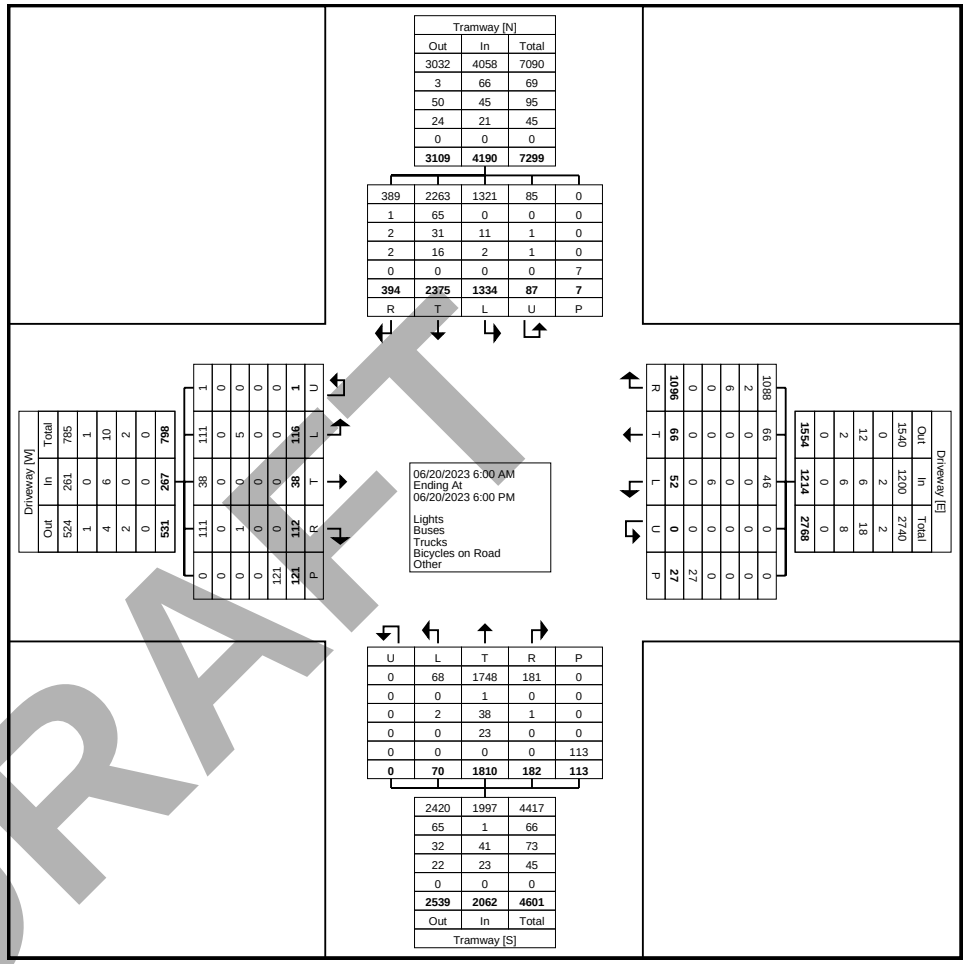
Oklahoma City, Oklahoma - San Antonio, Texas
Albuquerque, New Mexico, United States 87113
5053380988 jkruse@lee-eng.com

Count Name: NM328.02 Tramway Starbucks TIA
Site Code:
Start Date: 06/20/2023



Turning Movement Data Plot

Lee Engineering, LLC
Phoenix, Arizona - Dallas, Texas
Oklahoma City, Oklahoma - San Antonio, Texas
Albuquerque, New Mexico, United States 87113
5053380988 jkruse@lee-eng.com

Count Name: NM328.02 Tramway Starbucks TIA
Site Code:
Start Date: 06/20/2023

Turning Movement Peak Hour Data (8:00 AM)

Start Time	Tramway Southbound						Driveway Westbound						Tramway Northbound						Driveway Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
8:00 AM	3	43	17	3	0	66	10	3	0	0	1	13	2	38	5	0	1	45	2	0	1	0	1	3	127
8:15 AM	9	55	28	1	1	93	19	0	1	0	2	20	7	63	1	0	5	71	0	0	3	0	2	3	187
8:30 AM	7	47	26	0	0	80	24	1	1	0	0	26	6	52	2	0	6	60	0	0	4	0	3	4	170
8:45 AM	11	57	21	4	0	93	21	3	2	0	0	26	4	51	1	0	4	56	1	2	2	0	3	5	180
Total	30	202	92	8	1	332	74	7	4	0	3	85	19	204	9	0	16	232	3	2	10	0	9	15	664
Approach %	9.0	60.8	27.7	2.4	-	-	87.1	8.2	4.7	0.0	-	-	8.2	87.9	3.9	0.0	-	-	20.0	13.3	66.7	0.0	-	-	-
Total %	4.5	30.4	13.9	1.2	-	50.0	11.1	1.1	0.6	0.0	-	12.8	2.9	30.7	1.4	0.0	-	34.9	0.5	0.3	1.5	0.0	-	2.3	-
PHF	0.682	0.886	0.821	0.500	-	0.892	0.771	0.583	0.500	0.000	-	0.817	0.679	0.810	0.450	0.000	-	0.817	0.375	0.250	0.625	0.000	-	0.750	0.888
Lights	30	187	90	8	-	315	72	7	4	0	-	83	19	191	9	0	-	219	3	2	10	0	-	15	632
% Lights	100.0	92.6	97.8	100.0	-	94.9	97.3	100.0	100.0	-	-	97.6	100.0	93.6	100.0	-	-	94.4	100.0	100.0	100.0	-	-	100.0	95.2
Buses	0	6	0	0	-	6	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	6
% Buses	0.0	3.0	0.0	0.0	-	1.8	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.9
Trucks	0	8	2	0	-	10	2	0	0	0	-	2	0	9	0	0	-	9	0	0	0	0	-	0	21
% Trucks	0.0	4.0	2.2	0.0	-	3.0	2.7	0.0	0.0	-	-	2.4	0.0	4.4	0.0	-	-	3.9	0.0	0.0	0.0	-	-	0.0	3.2
Bicycles on Road	0	1	0	0	-	1	0	0	0	0	-	0	0	4	0	0	-	4	0	0	0	0	-	0	5
% Bicycles on Road	0.0	0.5	0.0	0.0	-	0.3	0.0	0.0	0.0	-	-	0.0	0.0	2.0	0.0	-	-	1.7	0.0	0.0	0.0	-	-	0.0	0.8
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	33.3	-	-	-	-	-	6.3	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	15	-	-	-	-	-	9	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	66.7	-	-	-	-	-	93.8	-	-	-	-	-	100.0	-	-

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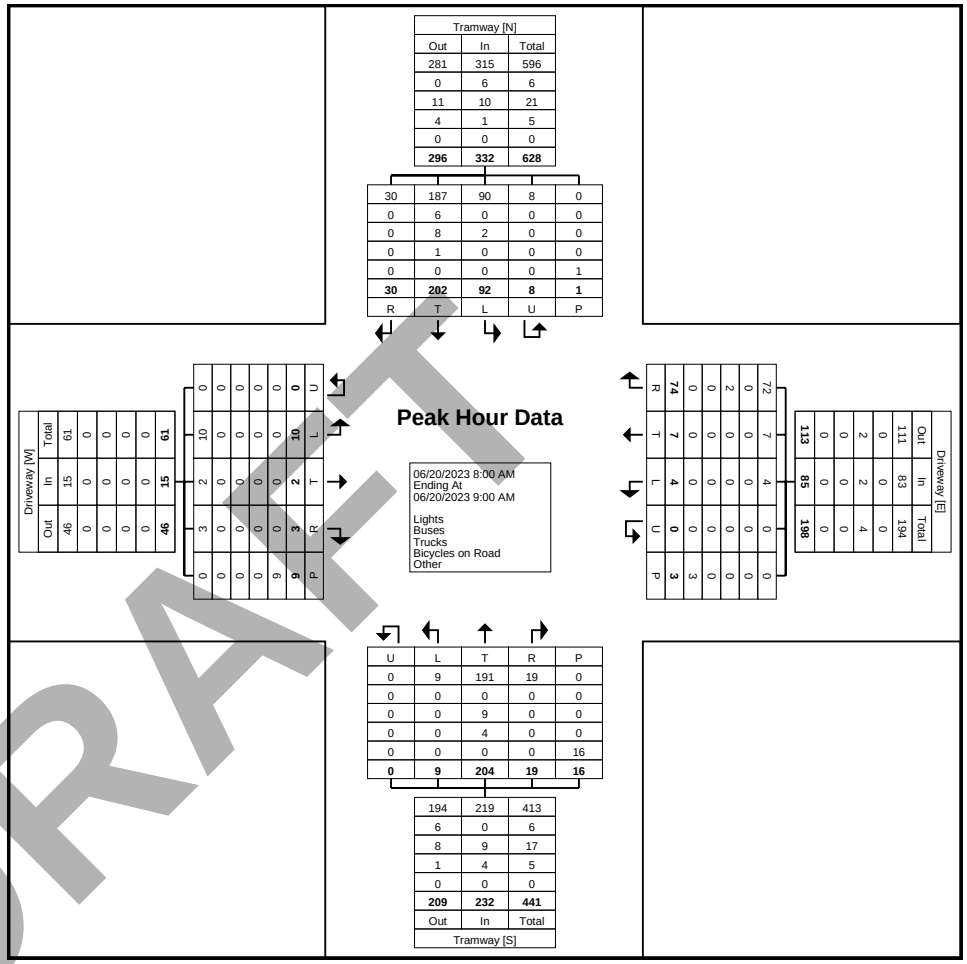

Turning Movement Peak Hour Data Plot (8:00 AM)

Lee Engineering, LLC
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Oklahoma City, Oklahoma - San Antonio, Texas
Albuquerque, New Mexico, United States 87113
5053380988 jkruse@lee-eng.com

Count Name: NM328.02 Tramway Starbucks TIA
Site Code:
Start Date: 06/20/2023

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Tramway Southbound						Driveway Westbound						Tramway Northbound						Driveway Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
4:45 PM	17	112	63	3	0	195	39	0	0	0	1	39	8	56	2	0	2	66	3	2	1	0	7	6	306
5:00 PM	15	96	54	1	0	166	58	2	3	0	1	63	9	63	3	0	2	75	4	2	6	0	2	12	316
5:15 PM	13	132	59	3	0	207	47	1	1	0	0	49	9	60	3	0	3	72	10	2	6	0	5	18	346
5:30 PM	14	105	58	5	0	182	47	1	4	0	0	52	1	63	2	0	4	66	5	1	0	0	6	6	306
Total	59	445	234	12	0	750	191	4	8	0	2	203	27	242	10	0	11	279	22	7	13	0	20	42	1274
Approach %	7.9	59.3	31.2	1.6	-	-	94.1	2.0	3.9	0.0	-	-	9.7	86.7	3.6	0.0	-	-	52.4	16.7	31.0	0.0	-	-	-
Total %	4.6	34.9	18.4	0.9	-	58.9	15.0	0.3	0.6	0.0	-	15.9	2.1	19.0	0.8	0.0	-	21.9	1.7	0.5	1.0	0.0	-	3.3	-
PHF	0.868	0.843	0.929	0.600	-	0.906	0.823	0.500	0.500	0.000	-	0.806	0.750	0.960	0.833	0.000	-	0.930	0.550	0.875	0.542	0.000	-	0.583	0.921
Lights	58	435	233	12	-	738	190	4	8	0	-	202	27	233	9	0	-	269	22	7	13	0	-	42	1251
% Lights	98.3	97.8	99.6	100.0	-	98.4	99.5	100.0	100.0	-	-	99.5	100.0	96.3	90.0	-	-	96.4	100.0	100.0	100.0	-	-	100.0	98.2
Buses	0	8	0	0	-	8	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	8
% Buses	0.0	1.8	0.0	0.0	-	1.1	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.6
Trucks	0	1	0	0	-	1	1	0	0	0	-	1	0	2	1	0	-	3	0	0	0	0	-	0	5
% Trucks	0.0	0.2	0.0	0.0	-	0.1	0.5	0.0	0.0	-	-	0.5	0.0	0.8	10.0	-	-	1.1	0.0	0.0	0.0	-	-	0.0	0.4
Bicycles on Road	1	1	1	0	-	3	0	0	0	0	-	0	0	7	0	0	-	7	0	0	0	0	-	0	10
% Bicycles on Road	1.7	0.2	0.4	0.0	-	0.4	0.0	0.0	0.0	-	-	0.0	0.0	2.9	0.0	-	-	2.5	0.0	0.0	0.0	-	-	0.0	0.8
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	50.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	11	-	-	-	-	-	20	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	50.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

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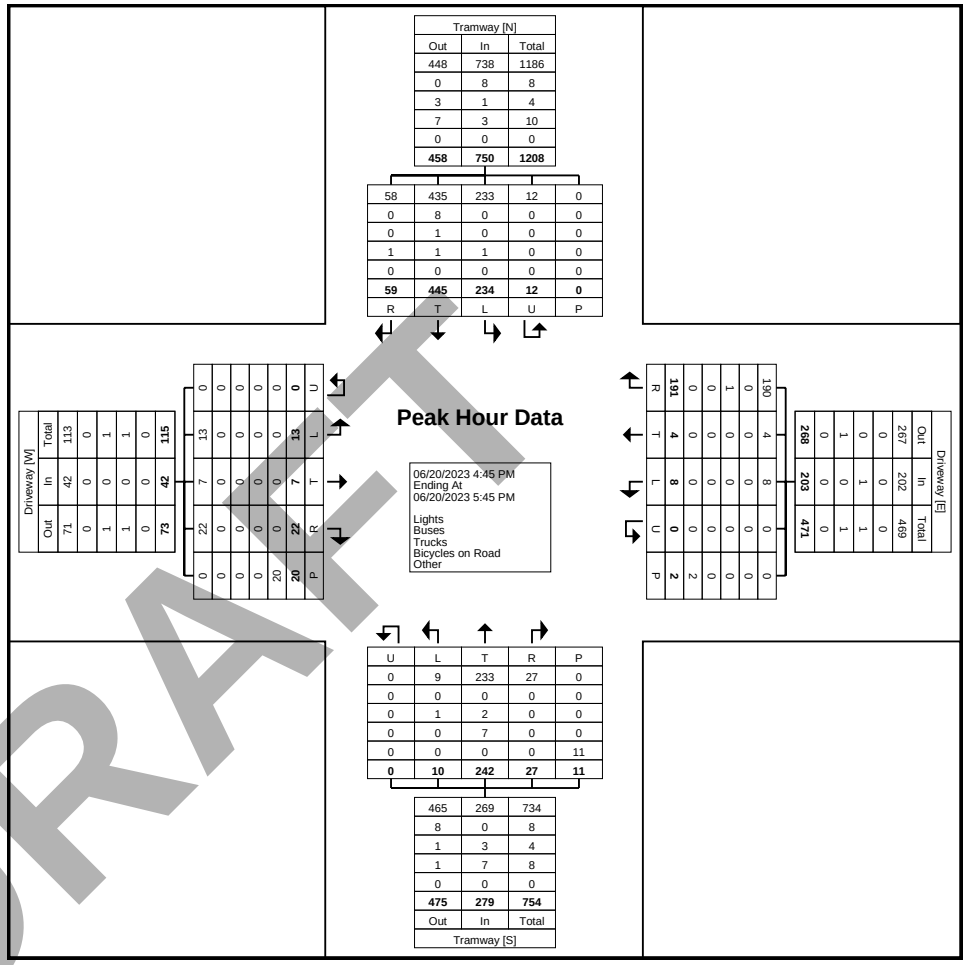


Turning Movement Peak Hour Data Plot (4:45 PM)

APPENDIX C:

HIGHWAY CAPACITY SOFTWARE ANALYSIS

HCS Two-Way Stop-Control Report

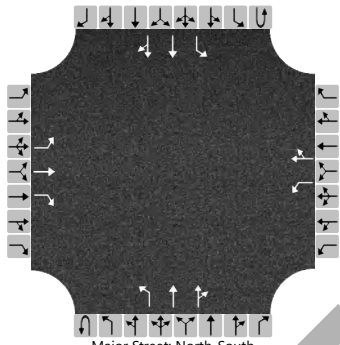
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	North-South
Project Description	Existing 2023 AM

Site Information

Intersection	Wenonah Ave & 4 Hills Ave
Jurisdiction	CABQ
East/West Street	Wenonah Ave
North/South Street	4 Hills Rd
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	1		1	1	0	0	1	2	0	0	1	2	0
Configuration		L	T	R		L		TR		L	T	TR		L	T	TR
Volume (veh/h)		11	7	127		2	12	16	0	112	297	0	0	2	70	16
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized		No														
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		12	7	134		2		29		118				2		
Capacity, c (veh/h)		453	361	1011		371		536		1495				1237		
v/c Ratio		0.03	0.02	0.13		0.01		0.06		0.08				0.00		
95% Queue Length, Q_{95} (veh)		0.1	0.1	0.5		0.0		0.2		0.3				0.0		
Control Delay (s/veh)		13.2	15.2	9.1		14.8		12.1		7.6				7.9		
Level of Service (LOS)		B	C	A		B		B		A				A		
Approach Delay (s/veh)		9.7				12.3				2.1				0.2		
Approach LOS		A				B				A				A		

HCS Two-Way Stop-Control Report

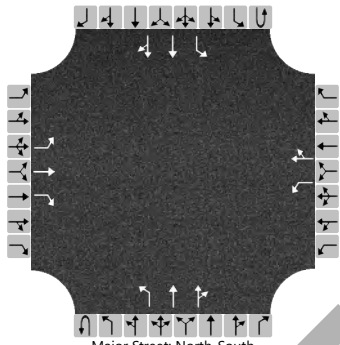
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	North-South
Project Description	Existing 2023 AM

Site Information

Intersection	Wenonah Ave & 4 Hills Ave
Jurisdiction	CABQ
East/West Street	Wenonah Ave
North/South Street	4 Hills Rd
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	1		1	1	0	0	1	2	0	0	1	2	0
Configuration		L	T	R		L		TR		L	T	TR		L	T	TR
Volume (veh/h)		77	27	344		0	10	12	0	83	212	1	0	19	175	33
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized		No														
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		84	29	374		0		24		90				21		
Capacity, c (veh/h)		456	348	915		274		516		1332				1326		
v/c Ratio		0.18	0.08	0.41		0.00		0.05		0.07				0.02		
95% Queue Length, Q_{95} (veh)		0.7	0.3	2.0		0.0		0.1		0.2				0.0		
Control Delay (s/veh)		14.7	16.3	11.6		18.1		12.3		7.9				7.8		
Level of Service (LOS)		B	C	B		C		B		A				A		
Approach Delay (s/veh)		12.4				12.3				2.2				0.6		
Approach LOS		B				B				A				A		

HCS Two-Way Stop-Control Report

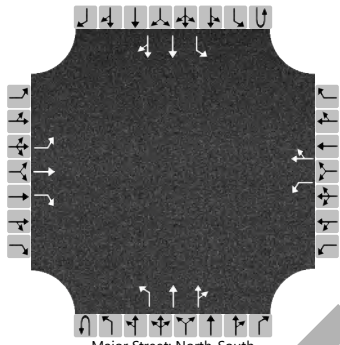
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	North-South
Project Description	Background 2025 AM

Site Information

Intersection	Wenonah Ave & 4 Hills Ave
Jurisdiction	CABQ
East/West Street	Wenonah Ave
North/South Street	4 Hills Rd
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	1		1	1	0	0	1	2	0	0	1	2	0
Configuration		L	T	R		L		TR		L	T	TR		L	T	TR
Volume (veh/h)		11	7	131		2	12	16	0	115	306	0	0	2	72	16
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized		No														
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		12	7	138		2		29		121				2		
Capacity, c (veh/h)		444	352	1010		361		525		1492				1227		
v/c Ratio		0.03	0.02	0.14		0.01		0.06		0.08				0.00		
95% Queue Length, Q_{95} (veh)		0.1	0.1	0.5		0.0		0.2		0.3				0.0		
Control Delay (s/veh)		13.3	15.5	9.1		15.0		12.3		7.6				7.9		
Level of Service (LOS)		B	C	A		C		B		A				A		
Approach Delay (s/veh)		9.7				12.4				2.1				0.2		
Approach LOS		A				B				A				A		

HCS Two-Way Stop-Control Report

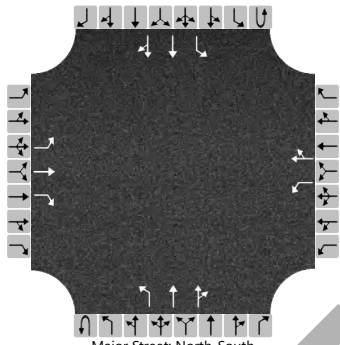
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	North-South
Project Description	Background 2023 PM

Site Information

Intersection	Wenonah Ave & 4 Hills Ave
Jurisdiction	CABQ
East/West Street	Wenonah Ave
North/South Street	4 Hills Rd
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	1		1	1	0	0	1	2	0	0	1	2	0
Configuration		L	T	R		L		TR		L	T	TR		L	T	TR
Volume (veh/h)		79	28	354		0	10	12	0	86	218	1	0	20	180	34
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized		No														
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		86	30	385		0		24		93				22		
Capacity, c (veh/h)		446	337	911		259		504		1325				1319		
v/c Ratio		0.19	0.09	0.42		0.00		0.05		0.07				0.02		
95% Queue Length, Q_{95} (veh)		0.7	0.3	2.1		0.0		0.1		0.2				0.1		
Control Delay (s/veh)		15.0	16.8	11.8		18.9		12.5		7.9				7.8		
Level of Service (LOS)		B	C	B		C		B		A				A		
Approach Delay (s/veh)		12.7				12.5				2.2				0.7		
Approach LOS		B				B				A				A		

HCS Two-Way Stop-Control Report

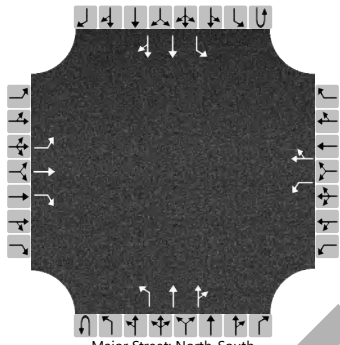
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	North-South
Project Description	Full Build-Out 2025 AM

Site Information

Intersection	Wenonah Ave & 4 Hills Ave
Jurisdiction	CABQ
East/West Street	Wenonah Ave
North/South Street	4 Hills Rd
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	1		1	1	0	0	1	2	0	0	1	2	0
Configuration		L	T	R		L		TR		L	T	TR		L	T	TR
Volume (veh/h)		18	7	157		2	12	16	0	142	306	0	0	2	72	23
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized		No														
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		19	7	165		2		29		149				2		
Capacity, c (veh/h)		401	317	1004		322		490		1483				1227		
v/c Ratio		0.05	0.02	0.16		0.01		0.06		0.10				0.00		
95% Queue Length, Q_{95} (veh)		0.1	0.1	0.6		0.0		0.2		0.3				0.0		
Control Delay (s/veh)		14.4	16.6	9.3		16.3		12.8		7.7				7.9		
Level of Service (LOS)		B	C	A		C		B		A				A		
Approach Delay (s/veh)		10.1				13.1				2.4				0.2		
Approach LOS		B				B				A				A		

HCS Two-Way Stop-Control Report

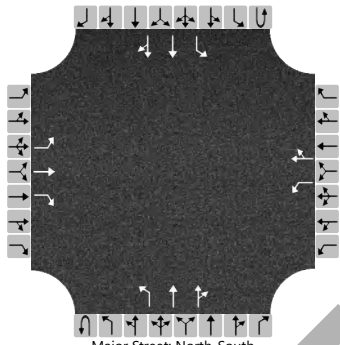
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	North-South
Project Description	Full Build-Out 2025 PM

Site Information

Intersection	Wenonah Ave & 4 Hills Ave
Jurisdiction	CABQ
East/West Street	Wenonah Ave
North/South Street	4 Hills Rd
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	1		1	1	0	0	1	2	0	0	1	2	0
Configuration		L	T	R		L		TR		L	T	TR		L	T	TR
Volume (veh/h)		84	28	360		0	10	12	0	91	218	1	0	20	180	38
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized		No														
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		91	30	391		0		24		99				22		
Capacity, c (veh/h)		437	329	908		249		495		1320				1319		
v/c Ratio		0.21	0.09	0.43		0.00		0.05		0.07				0.02		
95% Queue Length, Q_{95} (veh)		0.8	0.3	2.2		0.0		0.2		0.2				0.1		
Control Delay (s/veh)		15.4	17.0	11.9		19.4		12.6		7.9				7.8		
Level of Service (LOS)		C	C	B		C		B		A				A		
Approach Delay (s/veh)		12.9				12.6				2.3				0.7		
Approach LOS		B				B				A				A		

HCS Two-Way Stop-Control Report

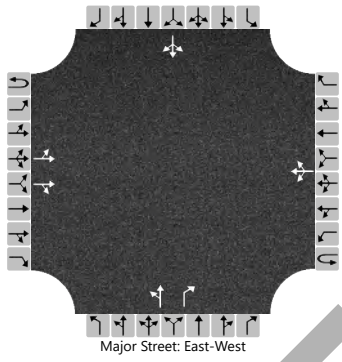
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	East-West
Project Description	Existing 2023 AM

Site Information

Intersection	Wenonah Ave & East Drivew
Jurisdiction	CABQ
East/West Street	Wenonah Ave
North/South Street	East Entrance Driveway
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	1	0		0	1	1		0	1	0
Configuration		LT		TR			LTR			LT		R			LTR	
Volume (veh/h)		10	152	2		1	110	24		3	0	0		13	0	26
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized										No						
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.2
Critical Headway (sec)		4.16				4.16				7.56	6.56	6.96		7.56	6.56	6.26
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				1				3		0			44	
Capacity, c (veh/h)		1419				1392				552		950			812	
v/c Ratio		0.01				0.00				0.01		0.00			0.05	
95% Queue Length, Q_{95} (veh)		0.0				0.0				0.0		0.0			0.2	
Control Delay (s/veh)		7.6	0.1			7.6	0.0	0.0		11.6		8.8			9.7	
Level of Service (LOS)		A	A			A	A	A		B		A			A	
Approach Delay (s/veh)	0.5				0.1				11.6				9.7			
Approach LOS	A				A				B				A			

HCS Two-Way Stop-Control Report

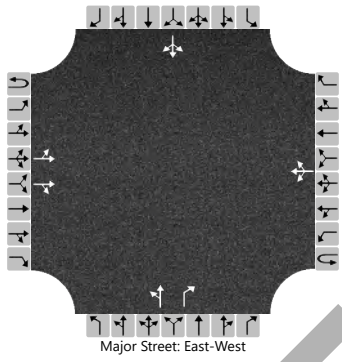
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	East-West
Project Description	Existing 2023 PM

Site Information

Intersection	Wenonah Ave & East Drivew
Jurisdiction	CABQ
East/West Street	Wenonah Ave
North/South Street	East Entrance Driveway
Peak Hour Factor	0.86
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	1	0		0	1	1		0	1	0
Configuration		LT		TR			LTR			LT		R			LTR	
Volume (veh/h)		28	361	4		4	82	42		3	0	2		75	0	77
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized										No						
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.2
Critical Headway (sec)		4.16				4.16				7.56	6.56	6.96		7.56	6.56	6.26
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		33				5				3		2			177	
Capacity, c (veh/h)		1429				1124				303		790			660	
v/c Ratio		0.02				0.00				0.01		0.00			0.27	
95% Queue Length, Q_{95} (veh)		0.1				0.0				0.0		0.0			1.1	
Control Delay (s/veh)		7.6	0.2			8.2	0.0	0.0		17.0		9.6			12.4	
Level of Service (LOS)		A	A			A	A	A		C		A			B	
Approach Delay (s/veh)	0.7				0.3				14.0				12.4			
Approach LOS	A				A				B				B			

HCS Two-Way Stop-Control Report

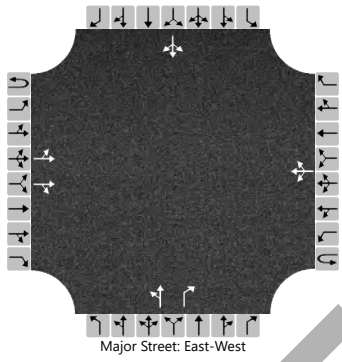
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	East-West
Project Description	Background 2023 AM

Site Information

Intersection	Wenonah Ave & East Drivew
Jurisdiction	CABQ
East/West Street	Wenonah Ave
North/South Street	East Entrance Driveway
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	1	0		0	1	1		0	1	0
Configuration		LT		TR			LTR			LT		R			LTR	
Volume (veh/h)		10	157	2		1	113	25		3	0	0		13	0	27
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized										No						
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.2
Critical Headway (sec)		4.16				4.16				7.56	6.56	6.96		7.56	6.56	6.26
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				1				3		0			45	
Capacity, c (veh/h)		1413				1385				542		946			808	
v/c Ratio		0.01				0.00				0.01		0.00			0.06	
95% Queue Length, Q_{95} (veh)		0.0				0.0				0.0		0.0			0.2	
Control Delay (s/veh)		7.6	0.1			7.6	0.0	0.0		11.7		8.8			9.7	
Level of Service (LOS)		A	A			A	A	A		B		A			A	
Approach Delay (s/veh)	0.5				0.1				11.7				9.7			
Approach LOS	A				A				B				A			

HCS Two-Way Stop-Control Report

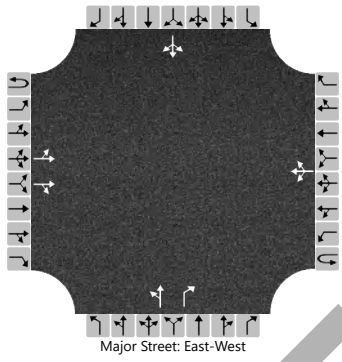
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	East-West
Project Description	Background 2025 PM

Site Information

Intersection	Wenonah Ave & East Drivew
Jurisdiction	CABQ
East/West Street	Wenonah Ave
North/South Street	East Entrance Driveway
Peak Hour Factor	0.86
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	1	0		0	1	1		0	1	0
Configuration		LT		TR			LTR			LT		R			LTR	
Volume (veh/h)		29	372	4		4	84	43		3	0	2		77	0	79
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized										No						
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.2
Critical Headway (sec)		4.16				4.16				7.56	6.56	6.96		7.56	6.56	6.26
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		34				5				3		2			181	
Capacity, c (veh/h)		1424				1112				292		782			650	
v/c Ratio		0.02				0.00				0.01		0.00			0.28	
95% Queue Length, Q_{95} (veh)		0.1				0.0				0.0		0.0			1.1	
Control Delay (s/veh)		7.6	0.2			8.3	0.0	0.0		17.5		9.6			12.7	
Level of Service (LOS)		A	A			A	A	A		C		A			B	
Approach Delay (s/veh)	0.7				0.3				14.3				12.7			
Approach LOS	A				A				B				B			

HCS Two-Way Stop-Control Report

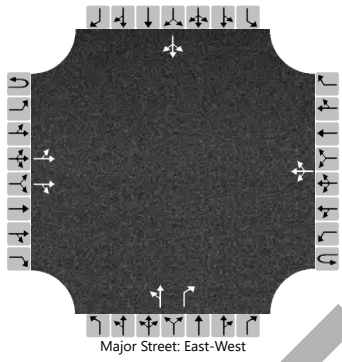
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	East-West
Project Description	Full BUild-Out 2025 AM

Site Information

Intersection	Wenonah Ave & East Drivew
Jurisdiction	CABQ
East/West Street	Wenonah Ave
North/South Street	East Entrance Driveway
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	1	0		0	1	1		0	1	0
Configuration		LT		TR			LTR			LT		R			LTR	
Volume (veh/h)		14	157	2		1	113	58		3	0	0		46	0	30
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized										No						
Median Type | Storage				Undivided												

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.2
Critical Headway (sec)		4.16				4.16				7.56	6.56	6.96		7.56	6.56	6.26
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		16				1				3		0			86	
Capacity, c (veh/h)		1369				1385				512		946			712	
v/c Ratio		0.01				0.00				0.01		0.00			0.12	
95% Queue Length, Q_{95} (veh)		0.0				0.0				0.0		0.0			0.4	
Control Delay (s/veh)		7.7	0.1			7.6	0.0	0.0		12.1		8.8			10.8	
Level of Service (LOS)		A	A			A	A	A		B		A			B	
Approach Delay (s/veh)	0.7				0.1				12.1				10.8			
Approach LOS	A				A				B				B			

HCS Two-Way Stop-Control Report

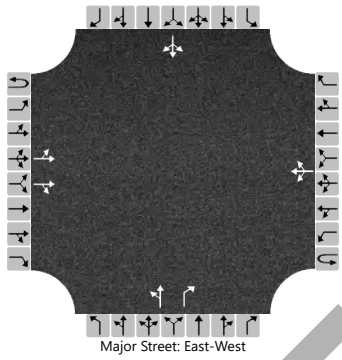
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	East-West
Project Description	Full Build-Out 2025 PM

Site Information

Intersection	Wenonah Ave & East Drivew
Jurisdiction	CABQ
East/West Street	Wenonah Ave
North/South Street	East Entrance Driveway
Peak Hour Factor	0.86
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	1	0		0	1	1		0	1	0
Configuration		LT		TR			LTR			LT		R			LTR	
Volume (veh/h)		30	372	4		4	84	53		3	0	2		87	0	81
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized										No						
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.2
Critical Headway (sec)		4.16				4.16				7.56	6.56	6.96		7.56	6.56	6.26
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		35				5				3		2			195	
Capacity, c (veh/h)		1410				1112				286		782			633	
v/c Ratio		0.02				0.00				0.01		0.00			0.31	
95% Queue Length, Q_{95} (veh)		0.1				0.0				0.0		0.0			1.3	
Control Delay (s/veh)		7.6	0.2			8.3	0.0	0.0		17.7		9.6			13.2	
Level of Service (LOS)		A	A			A	A	A		C		A			B	
Approach Delay (s/veh)	0.7				0.3				14.5				13.2			
Approach LOS	A				A				B				B			

HCS Two-Way Stop-Control Report

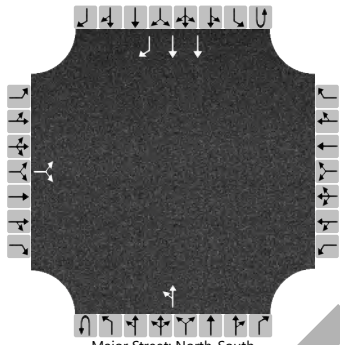
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	North-South
Project Description	Existing 2023 AM

Site Information

Intersection	Wenonah & Tramway
Jurisdiction	CABQ
East/West Street	Wenonah
North/South Street	Tramway Blvd
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	2	1
Configuration			LR							LT					T	R
Volume (veh/h)		117		21						27	110				150	62
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized														No		
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5		6.9						4.1						
Critical Headway (sec)		6.86		6.96						4.16						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			153							30						
Capacity, c (veh/h)			689							1322						
v/c Ratio			0.22							0.02						
95% Queue Length, Q_{95} (veh)			0.8							0.1						
Control Delay (s/veh)			11.7							7.8	0.2					
Level of Service (LOS)			B							A	A					
Approach Delay (s/veh)		11.7								1.7						
Approach LOS		B								A						

HCS Two-Way Stop-Control Report

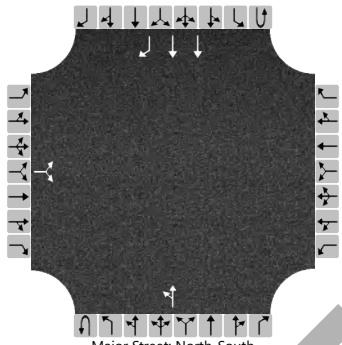
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	North-South
Project Description	Existing 2023 AM

Site Information

Intersection	Wenonah & Tramway
Jurisdiction	CABQ
East/West Street	Wenonah
North/South Street	Tramway Blvd
Peak Hour Factor	0.87
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	2	1
Configuration			LR							LT					T	R
Volume (veh/h)		118		59						59	117				353	127
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized														No		
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5		6.9						4.1						
Critical Headway (sec)		6.86		6.96						4.16						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			203							68						
Capacity, c (veh/h)			545							1007						
v/c Ratio			0.37							0.07						
95% Queue Length, Q_{95} (veh)			1.7							0.2						
Control Delay (s/veh)			15.5							8.8	0.6					
Level of Service (LOS)			C							A	A					
Approach Delay (s/veh)		15.5								3.4						
Approach LOS		C								A						

HCS Two-Way Stop-Control Report

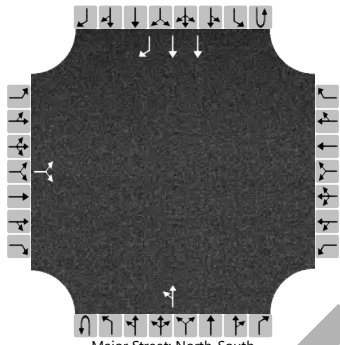
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	North-South
Project Description	Background 2025 AM

Site Information

Intersection	Wenonah & Tramway
Jurisdiction	CABQ
East/West Street	Wenonah
North/South Street	Tramway Blvd
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	2	1
Configuration			LR							LT					T	R
Volume (veh/h)		121		22						28	113				155	64
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized														No		
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5		6.9						4.1						
Critical Headway (sec)		6.86		6.96						4.16						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			159							31						
Capacity, c (veh/h)			683							1313						
v/c Ratio			0.23							0.02						
95% Queue Length, Q_{95} (veh)			0.9							0.1						
Control Delay (s/veh)			11.9							7.8	0.2					
Level of Service (LOS)			B							A	A					
Approach Delay (s/veh)		11.9								1.7						
Approach LOS		B								A						

HCS Two-Way Stop-Control Report

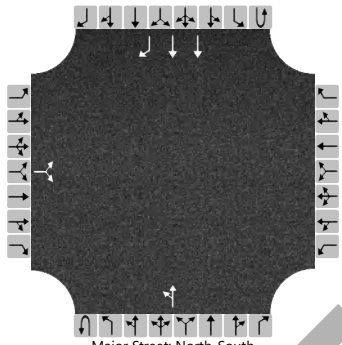
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	North-South
Project Description	Background 2025 PM

Site Information

Intersection	Wenonah & Tramway
Jurisdiction	CABQ
East/West Street	Wenonah
North/South Street	Tramway Blvd
Peak Hour Factor	0.87
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	2	1
Configuration			LR							LT					T	R
Volume (veh/h)		122		61						61	121				364	131
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized													No			
Median Type | Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5		6.9						4.1						
Critical Headway (sec)		6.86		6.96						4.16						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			210							70						
Capacity, c (veh/h)			535							993						
v/c Ratio			0.39							0.07						
95% Queue Length, Q_{95} (veh)			1.9							0.2						
Control Delay (s/veh)			16.0							8.9	0.7					
Level of Service (LOS)			C							A	A					
Approach Delay (s/veh)	16.0								3.4							
Approach LOS	C								A							

HCS Two-Way Stop-Control Report

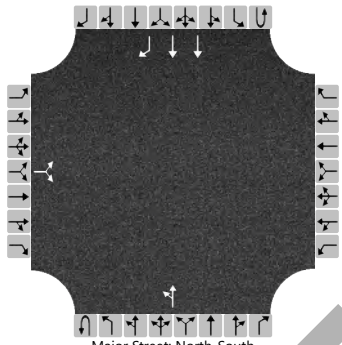
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	North-South
Project Description	Full BUild-Out 2025 AM

Site Information

Intersection	Wenonah & Tramway
Jurisdiction	CABQ
East/West Street	Wenonah
North/South Street	Tramway Blvd
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	2	1
Configuration			LR							LT					T	R
Volume (veh/h)		127		25						31	113				155	70
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized														No		
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5		6.9						4.1						
Critical Headway (sec)		6.86		6.96						4.16						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			169							34						
Capacity, c (veh/h)			680							1305						
v/c Ratio			0.25							0.03						
95% Queue Length, Q_{95} (veh)			1.0							0.1						
Control Delay (s/veh)			12.0							7.8	0.2					
Level of Service (LOS)			B							A	A					
Approach Delay (s/veh)		12.0								1.9						
Approach LOS		B								A						

HCS Two-Way Stop-Control Report

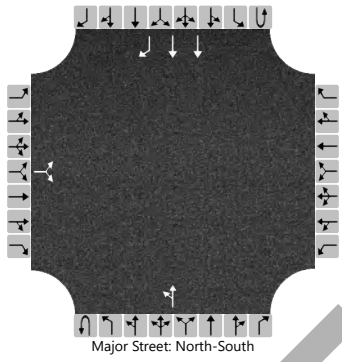
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	North-South
Project Description	Full Build-Out 2025 PM

Site Information

Intersection	Wenonah & Tramway
Jurisdiction	CABQ
East/West Street	Wenonah
North/South Street	Tramway Blvd
Peak Hour Factor	0.87
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	2	1
Configuration			LR							LT					T	R
Volume (veh/h)		124		62						62	121				364	134
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized													No			
Median Type | Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5		6.9						4.1						
Critical Headway (sec)		6.86		6.96						4.16						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			214							71						
Capacity, c (veh/h)			534							990						
v/c Ratio			0.40							0.07						
95% Queue Length, Q_{95} (veh)			1.9							0.2						
Control Delay (s/veh)			16.2							8.9	0.7					
Level of Service (LOS)			C							A	A					
Approach Delay (s/veh)	16.2								3.5							
Approach LOS	C								A							

HCS Two-Way Stop-Control Report

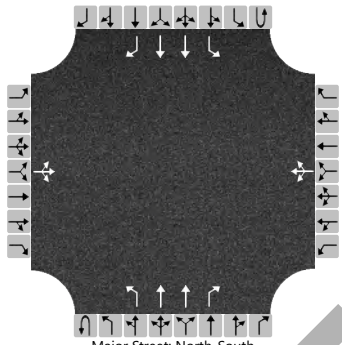
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	North-South
Project Description	Existing 2023 AM

Site Information

Intersection	Tramway & West Dwy
Jurisdiction	CABQ
East/West Street	West Dwy
North/South Street	Tramway Blvd
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	1	0	1	2	1
Configuration			LTR				LTR			L	T	R		L	T	R
Volume (veh/h)		10	2	3		4	7	74	0	9	204	19	8	92	202	30
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized									No				No			
Median Type | Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1			6.4	4.1		
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16			6.46	4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2			2.5	2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23			2.53	2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			17				97			10				114		
Capacity, c (veh/h)			422				750			1290				1260		
v/c Ratio			0.04				0.13			0.01				0.09		
95% Queue Length, Q_{95} (veh)			0.1				0.4			0.0				0.3		
Control Delay (s/veh)			13.9				10.5			7.8				8.1		
Level of Service (LOS)			B				B			A				A		
Approach Delay (s/veh)	13.9				10.5				0.3				2.5			
Approach LOS	B				B				A				A			

HCS Two-Way Stop-Control Report

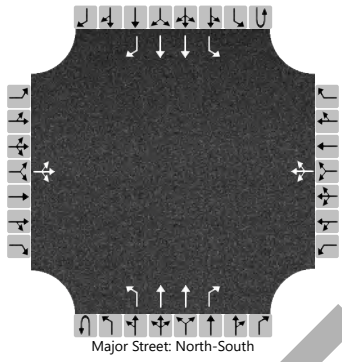
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	North-South
Project Description	Existing 2023 PM

Site Information

Intersection	Tramway & West Dwy
Jurisdiction	CABQ
East/West Street	West Dwy
North/South Street	Tramway Blvd
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	1	0	1	2	1
Configuration			LTR				LTR			L	T	R		L	T	R
Volume (veh/h)		13	7	22		8	4	191	0	10	242	27	12	234	445	59
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized									No				No			
Median Type | Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1			6.4	4.1		
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16			6.46	4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2			2.5	2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23			2.53	2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			46				221			11				267		
Capacity, c (veh/h)			236				695			1011				1218		
v/c Ratio			0.19				0.32			0.01				0.22		
95% Queue Length, Q_{95} (veh)			0.7				1.4			0.0				0.8		
Control Delay (s/veh)			23.9				12.6			8.6				8.8		
Level of Service (LOS)			C				B			A				A		
Approach Delay (s/veh)	23.9				12.6				0.3				2.9			
Approach LOS	C				B				A				A			

HCS Two-Way Stop-Control Report

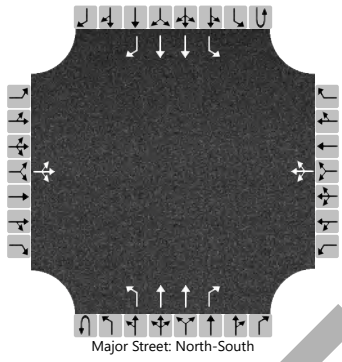
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	North-South
Project Description	Background 2023 AM

Site Information

Intersection	Tramway & West Dwy
Jurisdiction	CABQ
East/West Street	West Dwy
North/South Street	Tramway Blvd
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	1	0	1	2	1
Configuration			LTR				LTR			L	T	R		L	T	R
Volume (veh/h)		10	2	3		4	7	76	0	9	210	20	8	95	208	31
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized									No				No			
Median Type | Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1			6.4	4.1		
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16			6.46	4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2			2.5	2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23			2.53	2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			17				99			10				117		
Capacity, c (veh/h)			411				745			1282				1252		
v/c Ratio			0.04				0.13			0.01				0.09		
95% Queue Length, Q_{95} (veh)			0.1				0.5			0.0				0.3		
Control Delay (s/veh)			14.1				10.6			7.8				8.2		
Level of Service (LOS)			B				B			A				A		
Approach Delay (s/veh)	14.1				10.6				0.3				2.5			
Approach LOS	B				B				A				A			

HCS Two-Way Stop-Control Report

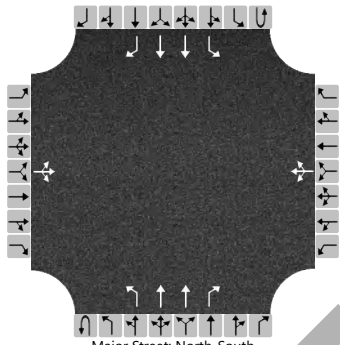
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	North-South
Project Description	Background 2023 PM

Site Information

Intersection	Tramway & West Dwy
Jurisdiction	CABQ
East/West Street	West Dwy
North/South Street	Tramway Blvd
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	1	0	1	2	1
Configuration			LTR				LTR			L	T	R		L	T	R
Volume (veh/h)		13	7	23		8	4	197	0	10	249	28	12	241	458	61
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized									No				No			
Median Type | Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1			6.4	4.1		
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16			6.46	4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2			2.5	2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23			2.53	2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			47				227			11				275		
Capacity, c (veh/h)			227				686			997				1209		
v/c Ratio			0.21				0.33			0.01				0.23		
95% Queue Length, Q_{95} (veh)			0.8				1.4			0.0				0.9		
Control Delay (s/veh)			24.9				12.8			8.7				8.9		
Level of Service (LOS)			C				B			A				A		
Approach Delay (s/veh)	24.9				12.8				0.3				2.9			
Approach LOS	C				B				A				A			

HCS Two-Way Stop-Control Report

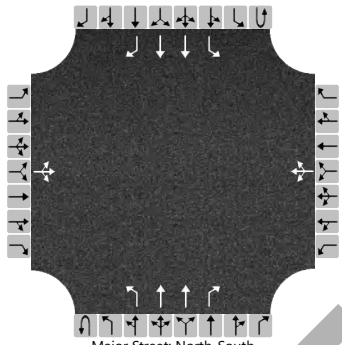
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	North-South
Project Description	Full Build-Out 2025 AM

Site Information

Intersection	Tramway & West Dwy
Jurisdiction	CABQ
East/West Street	West Dwy
North/South Street	Tramway Blvd
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	1	0	1	2	1
Configuration			LTR				LTR			L	T	R		L	T	R
Volume (veh/h)		10	2	3		11	7	99	0	9	210	26	8	118	208	31
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized									No				No			
Median Type | Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1			6.4	4.1		
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16			6.46	4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2			2.5	2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23			2.53	2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			17				133			10				143		
Capacity, c (veh/h)			372				717			1282				1249		
v/c Ratio			0.05				0.19			0.01				0.11		
95% Queue Length, Q_{95} (veh)			0.1				0.7			0.0				0.4		
Control Delay (s/veh)			15.1				11.2			7.8				8.3		
Level of Service (LOS)			C				B			A				A		
Approach Delay (s/veh)	15.1				11.2				0.3				2.8			
Approach LOS	C				B				A				A			

HCS Two-Way Stop-Control Report

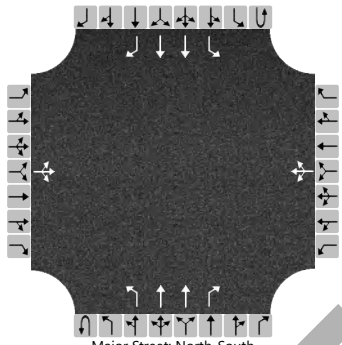
General Information

Analyst	PD
Agency/Co.	Lee Engineering
Date Performed	6/20/2023
Analysis Year	2023
Time Analyzed	
Intersection Orientation	North-South
Project Description	Full Build-Out 2025 PM

Site Information

Intersection	Tramway & West Dwy
Jurisdiction	CABQ
East/West Street	West Dwy
North/South Street	Tramway Blvd
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	1	0	1	2	1
Configuration			LTR				LTR			L	T	R		L	T	R
Volume (veh/h)		13	7	23		11	4	211	0	10	249	31	12	256	458	61
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized									No				No			
Median Type | Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1			6.4	4.1		
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16			6.46	4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2			2.5	2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23			2.53	2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			47				246			11				291		
Capacity, c (veh/h)			213				657			997				1206		
v/c Ratio			0.22				0.37			0.01				0.24		
95% Queue Length, Q_{95} (veh)			0.8				1.7			0.0				0.9		
Control Delay (s/veh)			26.6				13.7			8.7				8.9		
Level of Service (LOS)			D				B			A				A		
Approach Delay (s/veh)	26.6				13.7				0.3				3.0			
Approach LOS	D				B				A				A			

APPENDIX D:

SIGHT DISTANCE CALCULATIONS

Intersection Sight Distance Calculations and Tables

Reference: City of Albuquerque Development Process Manual chapter 7-4

TABLE 7.4.65 **Minimum Intersection Sight Distance**

Speed Limit (MPH)	Minimum Intersection Sight Distance					
	2 Lane Undivided		3 Lane Undivided or 2 Lane Divided w/ 12 ft. Median		4 Lane Undivided	
	Left Turn	Right Turn	Left Turn	Right Turn	Left Turn	Right Turn
20	230 ft.	200 ft.	240 ft.	200 ft.	250 ft.	200 ft.
25	280 ft.	240 ft.	300 ft.	240 ft.	320 ft.	240 ft.
30	340 ft.	290 ft.	360 ft.	290 ft.	380 ft.	290 ft.
35	390 ft.	340 ft.	420 ft.	340 ft.	440 ft.	340 ft.
40	450 ft.	390 ft.	480 ft.	390 ft.	500 ft.	390 ft.
45	500 ft.	430 ft.	530 ft.	430 ft.	570 ft.	430 ft.
50	560 ft.	480 ft.	590 ft.	480 ft.	630 ft.	480 ft.

Reference: 2018 AASHTO "Green Book" chapter 9.5
Design Vehicle: Pasenger Car
Major Road Lanes: 2 NB, 2 SB divided by a 15 ft raised median
Case B1: A stopped vehicle turning left from a minor street approach onto a major road
Case B2: A stopped vehicle turning right from a minor street approach onto a major road

FORMULA:
ISD= $1.47*V_{major},*t_g$

Units: ISD (ft), V_{major}(MPH), and t_g(seconds)
Speed(V_{major}): 35 MPH
Time Gaps (t_g):
7.5 sec (for passenger car crossing one lane of traffic)
1.5 sec (for extra lane of traffic crossed)

CASE B1 (LEFT TURN):
Time Gap (t_g)= 7.5s + 1.5s = 9.0 s
ISD = 1.47*35*9 = 463.05 ~ **465 ft**

CASE B2 (RIGHT TURN):
Assumption: Design vehicle is turning right into the first lane of major roadway.
Time Gap (t_g): 6.5s
ISD = 1.47*35*6.5 = 334.43 ~ **335 ft**

$$ISD = 1.47\ (V_{major})\ t_g$$

t_g Values				
CASE		Passenger Car	Single-Unit Truck	Combination Truck
B1	Left Turn from the Minor Road	7.5	9.5	11.5
B2	Right Turn from the Minor Road	6.5	8.5	10.5
B3	Crossing Maneuver from the Minor Road			
F	Left Turn from the Major Road	5.5	6.5	7.5

CASE B1 - For a stopped vehicle to turn left onto a 2-lane highway with no median and grades 3 percent or less

For left turns onto two-way highways with more than 2 lanes:
+0.5 seconds for passenger cars
+0.7 seconds for trucks
for each additional lane, from the left, in excess of one, to be crossed by the turning vehicle.

For minor road approach grades:
+0.2 seconds for each percent grade
if the approach grade is an upgrade that exceeds 3 percent.

CASE B2 + B3 - For a stopped vehicle to turn right onto or cross a 2-lane highway with no median and grades 3 percent or less

For crossing a major road with more than 2 lanes:
+0.5 seconds for passenger cars
+0.7 seconds for trucks
for each additional lane to be crossed and narrow medians that cannot store the design vehicle.

For minor road approach grades:
+0.1 seconds for each percent grade
if the approach grade is an upgrade that exceeds 3 percent.

CASE F – For a stopped vehicle to turn across one lane of opposing traffic

For left-turning vehicles that cross more than 1 opposing lane:
+0.5 seconds for passenger cars
+0.7 seconds for trucks
for each additional lane to be crossed.