



TRAFFIC IMPACT ANALYSIS

**Proposed Residential Development
S 23rd Street (S 193rd E Avenue) and E 141st Street S
Broken Arrow, Oklahoma**

**Prepared for:
AAB Engineering, LLC
May 2025**

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5 / 13 / 2025

Date

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1.0 INTRODUCTION

Traffic Engineering Consultants, Inc. (TEC) was retained to conduct a traffic impact analysis (TIA) for a proposed residential development to be constructed in Broken Arrow, Oklahoma. The analysis was requested to determine the effects the proposed development would have on the adjacent street system, to review the available access to the development, and to provide recommendations for improvements that may be necessary to accommodate the trips expected to be generated by the development.

2.0 BACKGROUND

2.1 PROPOSED DEVELOPMENT

The site of the proposed development is located on the northwest and northeast corners of S 23rd Street (S 193rd E Avenue) and E 141st Street S as shown in **Figure 1**. The proposed development would be a single-family residential development with a total of 543 lots which would be developed in three phases with the first phase constructing 311 lots, the second phase constructing 94 lots, and the third phase constructing 138 lots. Access to the new development, as shown in **Figure 2**, is proposed via six full-access drives along S 23rd Street and two full-access drives along E 141st Street S. Drives #1 and #2 would be constructed in development phase 1, Drives #3, #4, and #5 would be constructed in development phase 2, and Drives #6, #7, and #8 would be constructed in development phase 3.

2.2 ADJACENT ROADWAY NETWORK

S 23rd Street is a two-lane primary arterial with a posted speed limit of 45 miles per hour (mph) north of Jasper Street (E 131st Street S) and 50 mph south of Jasper Street. It carries an approximate average daily traffic (ADT) of 6,500 vehicles per day (vpd) north of Jasper Street, 7,100 vpd between Jasper Street and E 141st Street S, and 2,000 vpd south of E 141st Street S. Jasper Street is a two-lane secondary arterial with a posted speed limit of 45 mph west of S 23rd Street and 20 mph east of S 23rd Street. It carries an approximate ADT of 3,750 vpd west of S 23rd Street and 650 vpd east of S 23rd Street where it dead-ends. E 141st Street S is a two-lane secondary arterial with a posted speed limit of 45 mph east of S 23rd Street. It carries an approximate ADT of 5,050 vpd east of S 23rd Street and 100 vpd west of S 23rd Street where it dead-ends.



LEGEND

-  = 24-Hour Turning Movement Count Location
(Weekday - Tue., Wed., or Thur. Only)

FIGURE 1. Site and Count Location Map
S 23rd Street and E 141st Street S
Broken Arrow, Oklahoma

2.3 STUDY INTERSECTIONS

The intersections of S 23rd Street and Jasper Street and S 23rd Street and E 141st Street S are unsignalized with all-way stop control. Each approach includes one shared left/through/right lane.

3.0 BACKGROUND TRAFFIC

3.1 EXISTING TRAFFIC

Existing traffic volume data was collected adjacent to the proposed site in March 2025 when schools were in session as shown in Figure 1. Twenty-four hour turning movement volumes were collected at the study intersections of S 23rd Street and Jasper Street and S 23rd Street and E 141st Street S. The traffic volume data indicated that the a.m. peak hour occurred from 7:30 - 8:30 and the p.m. peak hour generally occurred from 4:30 - 5:30. Given the traffic characteristics in the area and the anticipated trip generation for the proposed site, the weekday peak periods would represent a “worst-case scenario” with regards to traffic impact on the surrounding roadway network. If traffic operations are acceptable during these weekday peak hours, it can be reasoned that conditions would be acceptable throughout the remainder of the day and week. The 2025 existing traffic is summarized in **Figure 3** and detailed printouts of all the traffic count data are included in the appendix.

3.2 FUTURE BACKGROUND TRAFFIC

The 2025 existing traffic volumes were utilized to determine the background traffic for 2026, 2028, and 2030 which were the estimated completion years of development phases 1, 2, and 3, respectively. Considering historical annual average daily traffic (AADT) volume counts reported by Indian Nations Council of Governments (INCOG) since 2019, a 2.0% annual growth rate was utilized to project future traffic volumes in addition to the proposed site trips. The 2026, 2028, and 2030 future background traffic is summarized in **Figures 4, 5, and 6**, respectively.

4.0 PROPOSED SITE TRIPS

To determine the effects a new development will have on an existing street system, new or additional trips must be projected. The latest edition of the *Trip Generation Manual*, published by the Institute of Transportation Engineers, was used to determine the number of trips the site is expected to generate. The report is a nationally accepted reference which provides trip rates for determining the trips expected to be generated by different land use types.

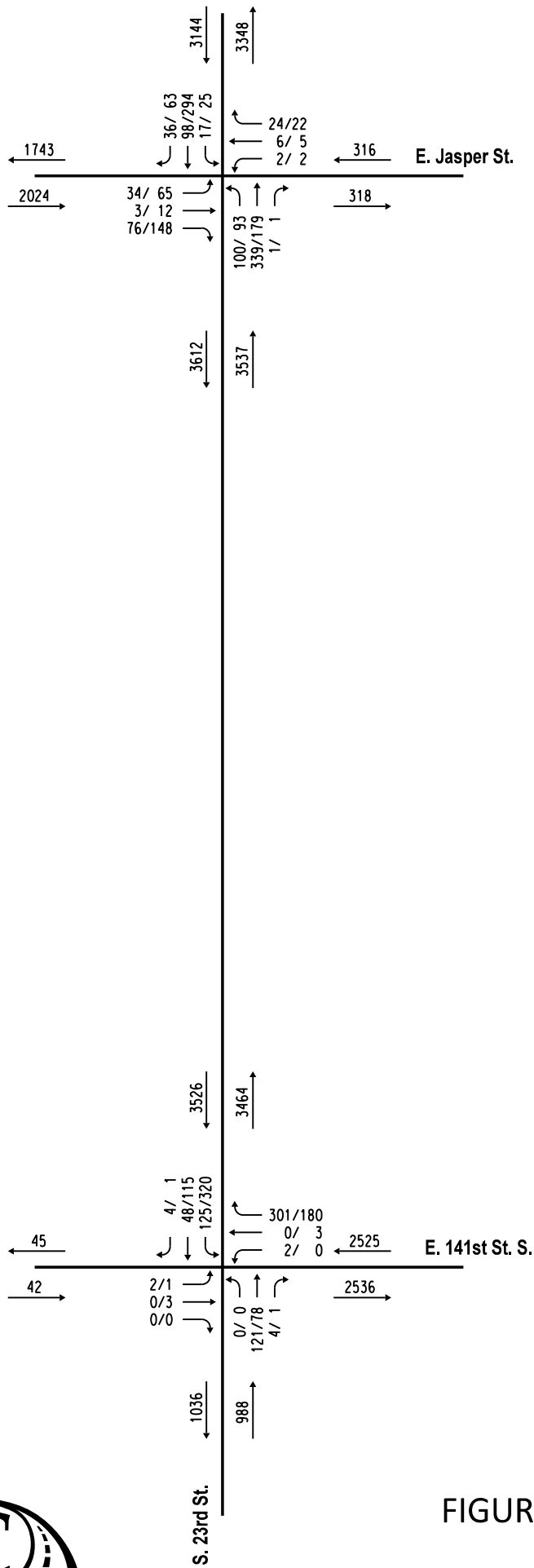
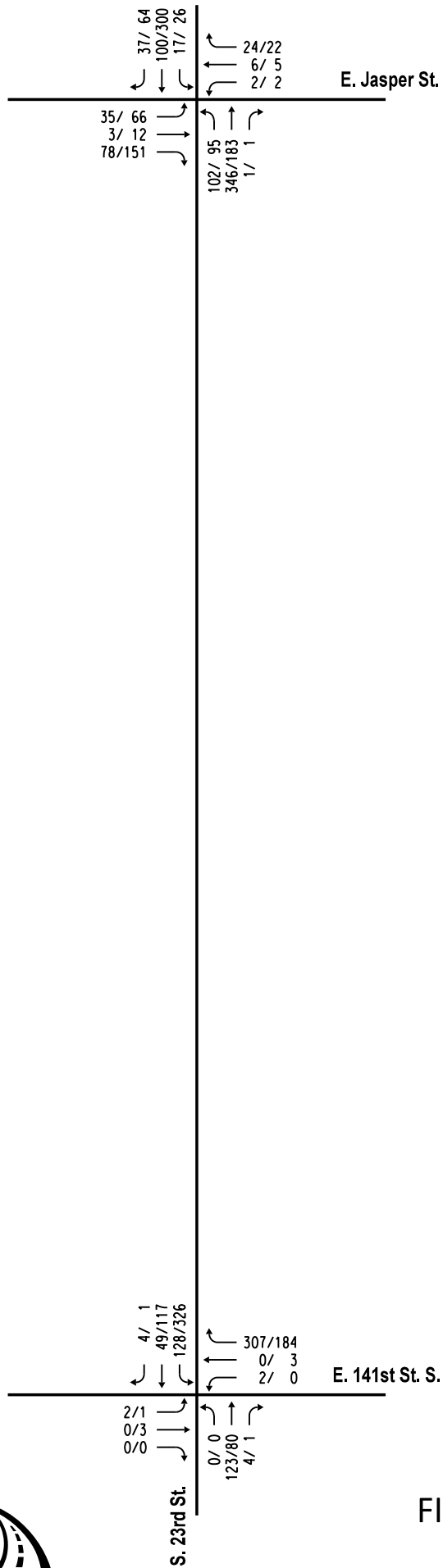
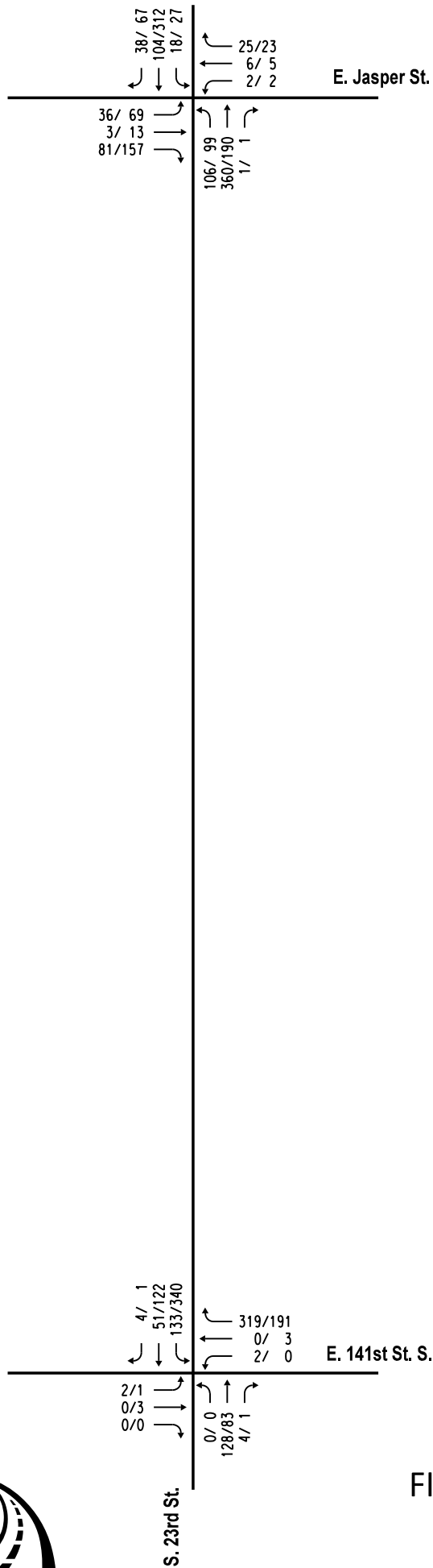


FIGURE 3. 2025 Existing Traffic



LEGEND	
XXX/XXX	P.M. PEAK HOUR
XXX/XXX	A.M. PEAK HOUR

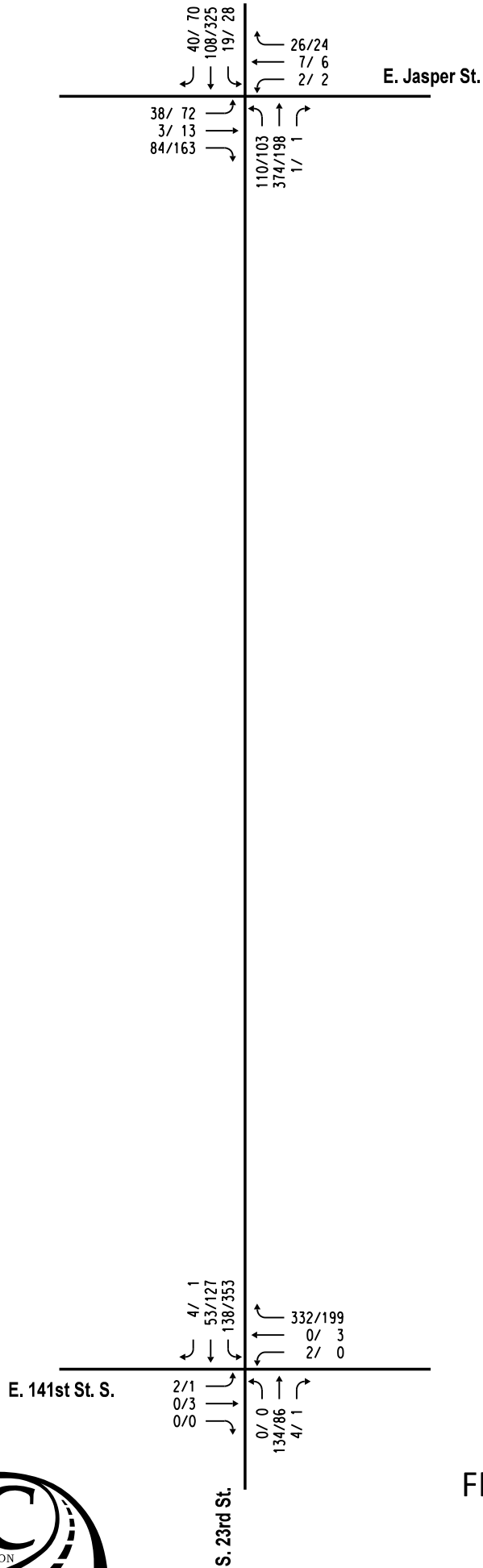
FIGURE 4. 2026 Future Background Traffic



LEGEND	
XXX/XXX	P.M. PEAK HOUR
XXX/XXX	A.M. PEAK HOUR



FIGURE 5. 2028 Future Background Traffic



LEGEND	
xxx/xxx	P.M. PEAK HOUR
xxx/xxx	A.M. PEAK HOUR

FIGURE 6. 2030 Future Background Traffic

Available information was utilized regarding the anticipated land use to determine the site generated trips. The *Single-Family Detached Housing* land use category was selected to determine the trip generation for the site. The resulting trips projected to be generated by phases 1, 2, and 3 of the proposed development once fully constructed and occupied are indicated in **Table 1**.

TABLE 1
Projected Site Generated Trips

Building Type (Land Use)	ITE Land Use Code	Approximate Gross Floor Area or Other	Average Weekday Vehicle Trips			Average AM Peak Hour Directional Distribution		Average AM Peak Hour Directional Trips (vph)		Average PM Peak Hour Directional Distribution		Average PM Peak Hour Directional Trips (vph)	
			Per Day	Per Peak Hour of Adjacent Street Traffic									
				One Hour Between 7am & 9am	One Hour Between 4pm & 6pm								
				(vpd)	(vph)	(vph)	IN	OUT	IN	OUT	IN	OUT	IN
Development Phase 1													
Trip Rate* Single-Family Detached Housing	210	(Dwelling Units)	9.43	0.70	0.94	25%	75%	55	163	63%	37%	184	108
311	2,933	218	292										
Development Phase 2													
Trip Rate* Single-Family Detached Housing	210	(Dwelling Units)	9.43	0.70	0.94	25%	75%	17	49	63%	37%	55	33
94	886	66	88										
Development Phase 3													
Trip Rate* Single-Family Detached Housing	210	(Dwelling Units)	9.43	0.70	0.94	25%	75%	24	73	63%	37%	82	48
138	1,301	97	130										
Total			5,120	381	510			96	285			321	189

* Trip Rates from "TRIP GENERATION MANUAL", 11th Ed., Institute of Transportation Engineers.

The proposed development phase 1 would be expected to generate 2,933 vehicle trips per day with 55 entering and 163 exiting vehicles during the a.m. peak hour and 184 entering and 108 exiting vehicles during the p.m. peak hour. The proposed development phase 2 would be expected to generate 886 vehicle trips per day with 17 entering and 49 exiting vehicles during the a.m. peak hour and 55 entering and 33 exiting vehicles during the p.m. peak hour. The proposed development phase 3 would be expected to generate 1,301 vehicle trips per day with 24 entering and 73 exiting vehicles during the a.m. peak hour and 82 entering and 48 exiting vehicles during the p.m. peak hour.

4.1 DISTRIBUTION OF PROPOSED SITE TRIPS

The trips expected to be generated by each phase of the proposed development were then distributed among the points of access and nearby study intersections for the a.m. and p.m. peak hours. The distribution of the site generated trips was based on anticipated usage of the site and traffic patterns in the area. The directional distribution of the ingress and egress site generated trips for the proposed site is expected to be:

- 50% to/from S 23rd Street north of the site
- 20% to/from E 141st Street S east of the site
- 15% to/from S 23rd Street south of the site
- 15% to/from Jasper Street northwest of the site

The ingress and egress of trips expected to be generated from the proposed development phases 1, 2, and 3 are summarized in **Figures 7, 8, and 9**, respectively.

4.2 TOTAL TRAFFIC

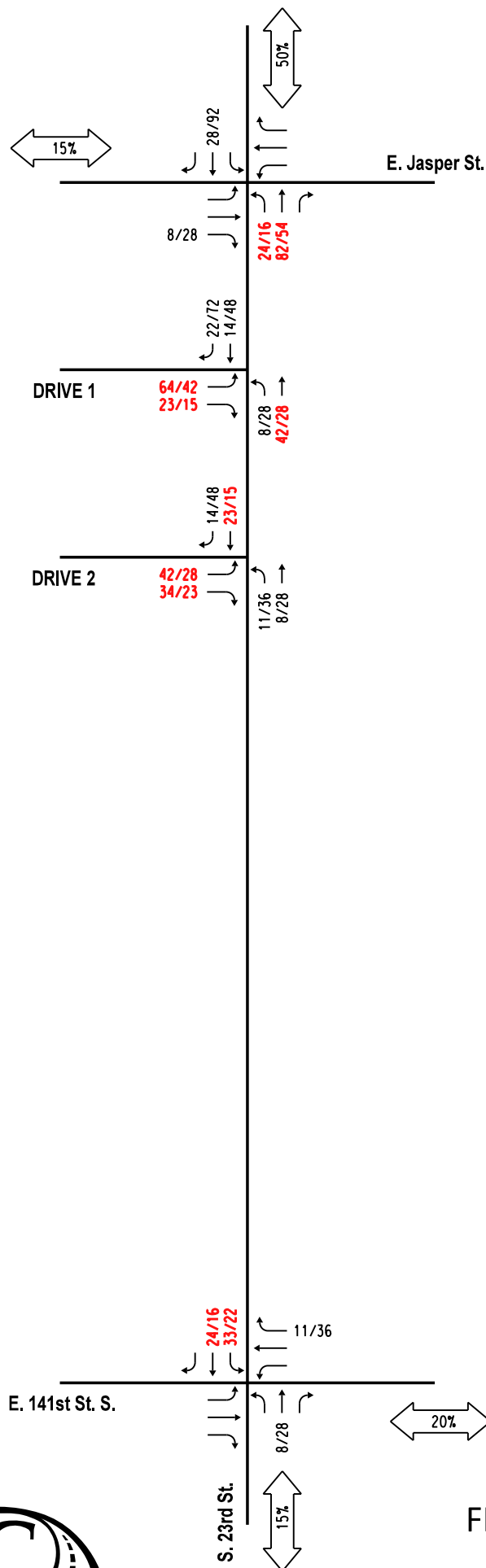
The proposed site trips for each development phase were then added to the corresponding future background traffic design year. The 2026 total traffic for phase 1 (2026 future background traffic + proposed site trips for phase 1) for each access point as well as the adjacent study intersections is summarized in **Figure 10**. The 2028 total traffic for phase 2 (2028 future background traffic + proposed site trips for phases 1 and 2) for each access point as well as the adjacent study intersections is summarized in **Figure 11**. The 2030 total traffic for phase 3 (2030 future background traffic + proposed site trips for phases 1, 2, and 3) for each access point as well as the adjacent study intersections is summarized in **Figure 12**.

5.0 CAPACITY ANALYSIS

5.1 METHODOLOGY

The capacity analyses were conducted using *Synchro 12*, which is a software package for modeling and optimizing traffic signal timings at signalized intersections and analyzing unsignalized intersections in accordance with the methodology of the latest edition of the *Highway Capacity Manual*. The *Highway Capacity Manual* is published by the Transportation Research Board of the National Research Council, Washington, D.C. The information has been widely accepted throughout the U.S. as a guide for defining and solving transportation challenges. The information is approved and distributed by the U.S. Department of Transportation, Federal Highway Administration.

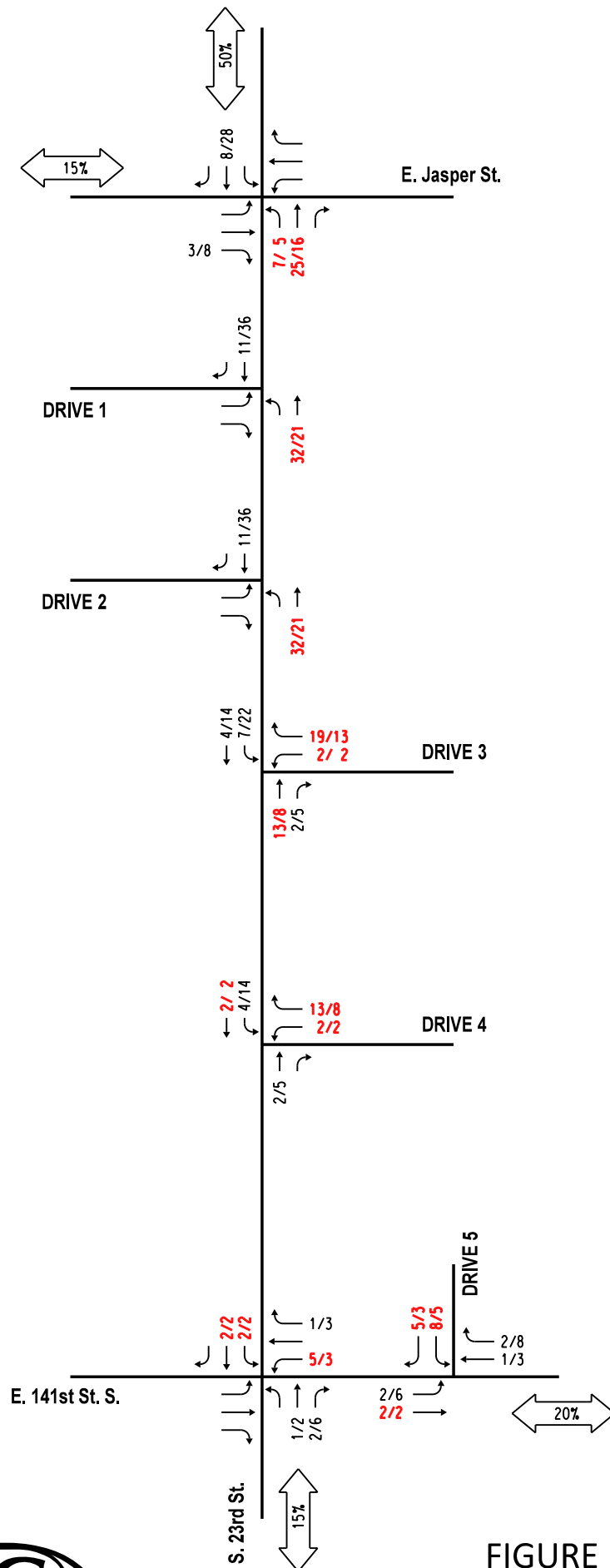
The capacity analysis provides a measure of the amount of traffic that a given facility can accommodate. Traffic facilities generally operate poorly at or near capacity. The analysis is intended to estimate the maximum amount of traffic that can be accommodated by a facility while maintaining prescribed



PEAK HOUR SITE GENERATED TRAFFIC	
A.M. ENTERING =	55 VPH
A.M. EXITING =	163 VPH
P.M. ENTERING =	184 VPH
P.M. EXITING =	108 VPH

LEGEND	
XXX/XXX	P.M. PEAK HOUR
XXX/XXX	A.M. PEAK HOUR

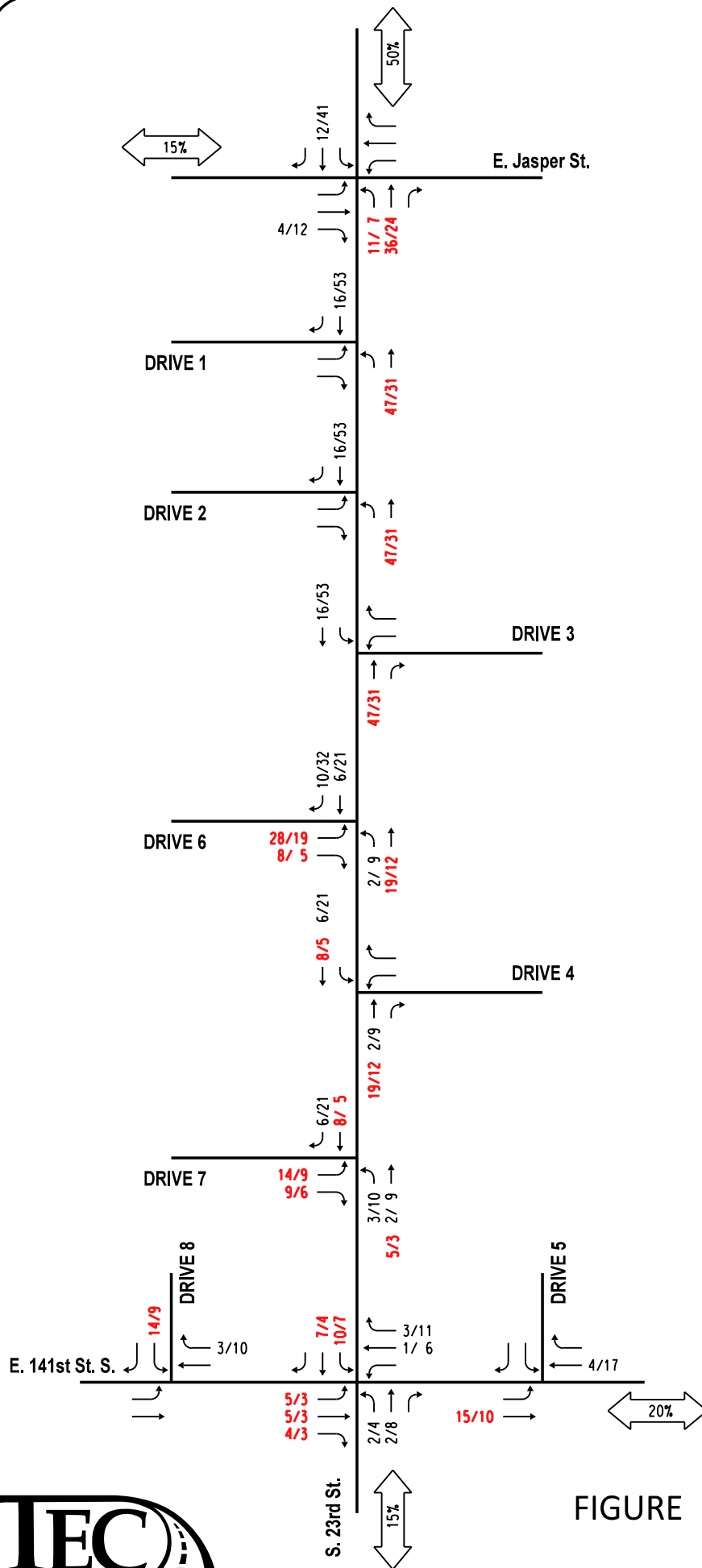
FIGURE 7. 2026 Site Traffic (Phase 1)



PEAK HOUR SITE GENERATED TRAFFIC	
A.M. ENTERING = 17 VPH	
A.M. EXITING = 49 VPH	
P.M. ENTERING = 55 VPH	
P.M. EXITING = 33 VPH	

LEGEND	
XXX/XXX	P.M. PEAK HOUR
XXX/XXX	A.M. PEAK HOUR

FIGURE 8. 2028 Site Traffic (Phase 2)



PEAK HOUR SITE GENERATED TRAFFIC
A.M. ENTERING = 24 VPH
A.M. EXITING = 73 VPH
P.M. ENTERING = 82 VPH
P.M. EXITING = 48 VPH

LEGEND
XXX/XXX P.M. PEAK HOUR
XXX/XXX A.M. PEAK HOUR

FIGURE 9. 2030 Site Traffic (Phase 3)

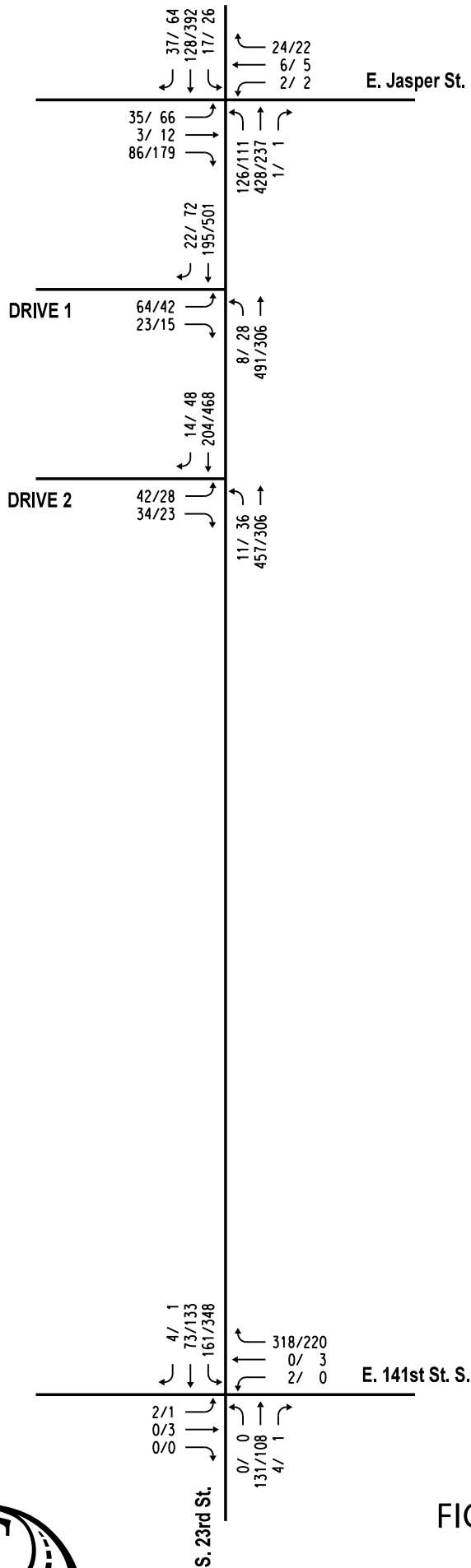


FIGURE 10. 2026 Total Traffic (Phase 1)

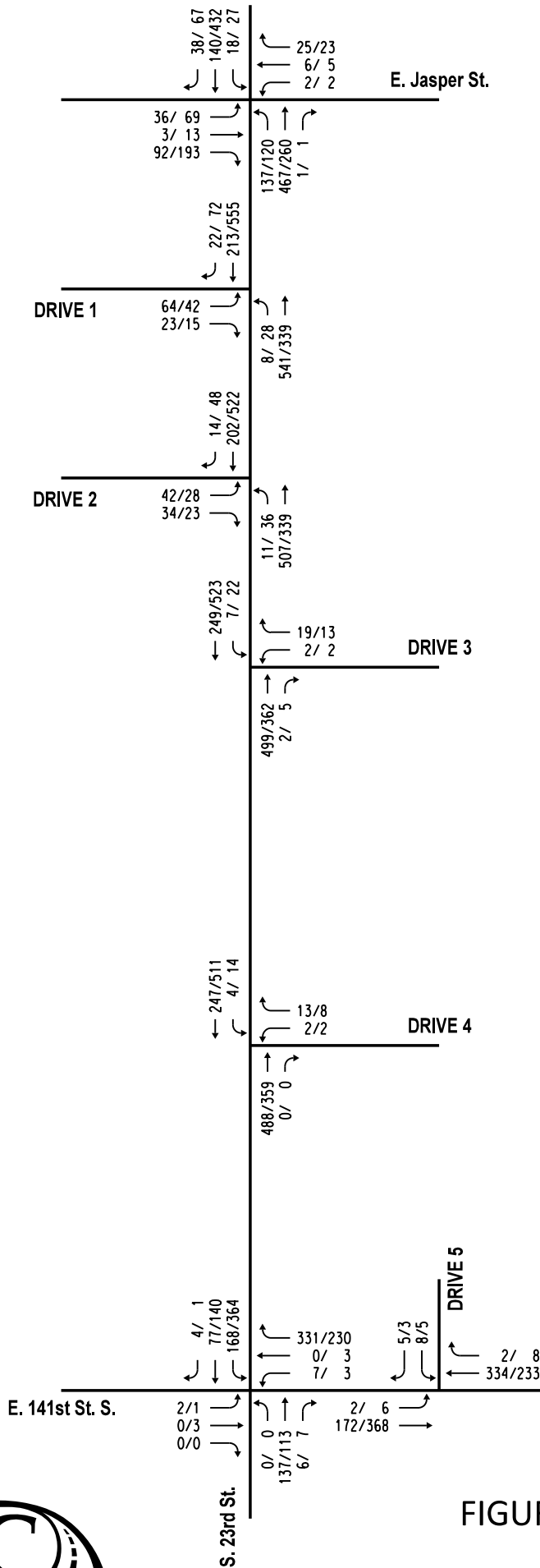


FIGURE 11. 2028 Total Traffic (Phase 2)

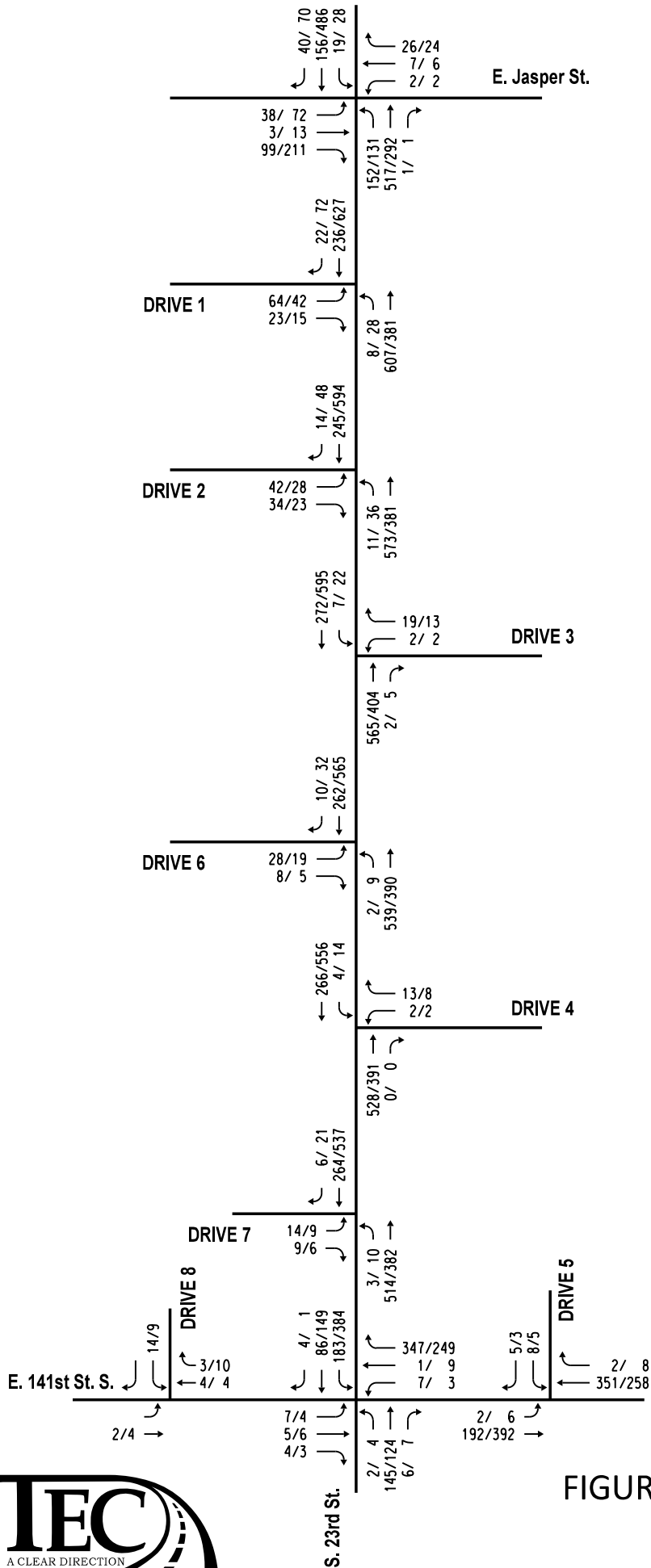


FIGURE 12. 2030 Total Traffic (Phase 3)

operational qualities. The definition of operational criteria is accomplished using levels-of-service. The concept of levels-of-service is defined as a qualitative measure and describes operational conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. Six levels-of-service are defined for each type of facility for which analysis procedures are available. They are given letter designations, from “A” to “F”, with level-of-service “A” representing the best operating conditions and level-of-service “F” the worst.

The average control delay for signalized intersections is estimated for each lane group and aggregated for each approach and for the intersection as a whole. The level-of-service for this type of traffic control is directly related to the control delay value. The criteria for stop-controlled or unsignalized intersections have different threshold values than those for signalized intersections. A higher level of control delay has been determined to be acceptable at a signalized intersection for the same level-of-service. Longer delays for side streets are generally acceptable if gaps in traffic are prevalent. Generally, a gap acceptance threshold for longer delay values (LOS “E” or “F”) is defined when v/c ratios are less than 0.80. The level-of-service criteria are summarized in **Table 2**. The Highway Capacity Manual considers an overall intersection level-of-service “D” or better and a critical approach (approach with the lowest level-of-service) level-of-service “E” or better to be acceptable levels-of-service.

TABLE 2
Level-of-Service Criteria

Level-of-Service	Average Delay (seconds/vehicle)		Traffic Condition
	Unsignalized	Signalized	
A	≤10	≤10	Free Flow
B	> 10 - 15	> 10 - 20	Stable Flow (slight delays)
C	> 15 - 25	> 20 - 35	Stable Flow (acceptable delays)
D	> 25 - 35	> 35 - 55	Approaching Unstable Flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	> 35 - 50	> 55 - 80	Unstable Flow (intolerable delay)
F	> 50	> 80	Forced Flow (congested and queues fail to clear)

5.2 SCENARIOS

Capacity analyses were conducted for the a.m. and p.m. peak hours at each access point as well as the adjacent study intersections. The intersections were analyzed and reviewed under the 2025 existing traffic, 2026 future background traffic, 2026 total traffic (phase 1), 2028 total traffic (phase 2), and 2030 total traffic (phase 3). The results of the capacity analyses conducted are summarized in **Table 3** and the data sheets have been included in the appendix.

TABLE 3
Intersection Capacity Analysis Results

Intersection	Type of Traffic Control	AM Peak Hour						PM Peak Hour					
		Critical Approach			Intersection			Critical Approach			Intersection		
		Approach	Delay (sec/veh)	LOS	v/c Ratio*	Delay (sec/veh)	LOS	Approach	Delay (sec/veh)	LOS	v/c Ratio*	Delay (sec/veh)	LOS
2025 Existing Traffic													
S 23rd Street and Jasper Street	Unsignalized /All-Way Stop	NB	14.4	B		12.3	B	SB	15.1	C		13.3	B
S 23rd Street and E 141st Street S	Unsignalized /All-Way Stop	SB	9.8	A		9.6	A	SB	14.9	B		12.7	B
2026 Future Background Traffic													
S 23rd Street and Jasper Street	Unsignalized /All-Way Stop	NB	14.9	B		12.6	B	SB	15.7	C		13.7	B
S 23rd Street and E 141st Street S	Unsignalized /All-Way Stop	SB	9.9	A		9.7	A	SB	15.3	C		13.0	B
2026 Total Traffic (Phase 1)													
S 23rd Street and Jasper Street	Unsignalized /All-Way Stop	NB	22.6	C		17.8	C	SB	26.5	D		20.5	C
S 23rd Street and E 141st Street S	Unsignalized /All-Way Stop	SB	10.9	B		10.4	B	SB	18.6	C		15.1	C
S 23rd Street and Drive #1	Unsignalized / EB Stop	EB	15.8	C		1.8	A	EB	19.8	C		1.4	A
S 23rd Street and Drive #2	Unsignalized / EB Stop	EB	13.8	B		1.5	A	EB	17.0	C		1.3	A
2028 Total Traffic (Phase 2)													
S 23rd Street and Jasper Street	Unsignalized /All-Way Stop	NB	32.5	D		24.3	C	SB	43.4	E	0.91	30.0	D
S 23rd Street and E 141st Street S	Unsignalized /All-Way Stop	SB	11.4	B		10.9	B	SB	21.0	C		16.6	C
S 23rd Street and Drive #1	Unsignalized / EB Stop	EB	17.2	C		1.8	A	EB	22.3	C		1.4	A
S 23rd Street and Drive #2	Unsignalized / EB Stop	EB	14.7	B		1.4	A	EB	18.8	C		1.3	A
S 23rd Street and Drive #3	Unsignalized / WB Stop	WB	12.4	B		0.4	A	WB	11.9	B		0.4	A
S 23rd Street and Drive #4	Unsignalized / WB Stop	WB	12.3	B		0.3	A	WB	12.2	B		0.3	A
E 141st Street S and Drive #5	Unsignalized / SB Stop	SB	11.7	B		0.3	A	SB	12.2	B		0.2	A
2030 Total Traffic (Phase 3)													
S 23rd Street and Jasper Street	Unsignalized /All-Way Stop	NB	53.6	F	0.98	38.0	E	SB	82.5	F	1.05	50.7	F
S 23rd Street and E 141st Street S	Unsignalized /All-Way Stop	SB	12.5	B		11.9	B	SB	28.1	D		20.9	C
S 23rd Street and Drive #1	Unsignalized / EB Stop	EB	19.4	C		1.8	A	EB	26.5	D		1.5	A
S 23rd Street and Drive #2	Unsignalized / EB Stop	EB	16.1	C		1.4	A	EB	21.7	C		1.3	A
S 23rd Street and Drive #3	Unsignalized / WB Stop	WB	13.2	B		0.4	A	WB	12.5	B		0.4	A
S 23rd Street and Drive #4	Unsignalized / WB Stop	WB	12.8	B		0.3	A	WB	12.7	B		0.2	A
E 141st Street S and Drive #5	Unsignalized / SB Stop	SB	12.0	B		0.3	A	SB	12.7	B		0.2	A
S 23rd Street and Drive #6	Unsignalized / EB Stop	EB	16.1	C		0.7	A	EB	19.9	C		0.5	A
S 23rd Street and Drive #7	Unsignalized / EB Stop	EB	14.1	B		0.4	A	EB	17.0	C		0.4	A
E 141st Street S and Drive #8	Unsignalized / SB Stop	SB	8.6	A		5.2	A	SB	8.6	A		2.9	A
2030 Total Traffic (Phase 3) with Recommended Improvements													
S 23rd Street and Jasper Street	Unsignalized /EB/WB Stop	EB	20.0	C		4.5	A	EB	42.3	E	0.79	10.9	B
S 23rd Street and Jasper Street	Signalized	EB	12.7	B		6.3	A	EB	12.2	B		8.8	A
S 23rd Street and Jasper Street	Roundabout	NB	9.5	A		7.8	A	EB	10.4	B		8.8	A

*v/c ratio reported for unsignalized approach level-of-service "E" or "F".

5.2.1 2025 EXISTING TRAFFIC

The analyses conducted under the 2025 existing traffic indicated that the critical approach at the study intersections of S 23rd Street and Jasper Street and S 23rd Street and E 141st Street S currently operates at level-of-service "C" or better during the a.m. and p.m. peak hours. The study intersections currently operate at an overall level-of-service "B" or better during the a.m. and p.m. peak hours.

5.2.2 2026 FUTURE BACKGROUND TRAFFIC

Under the 2026 future background traffic, each study intersection's critical approach would be expected to continue operating at level-of-service "C" or better during the peak hours. The study intersections would be expected to continue operating at an overall level-of-service "B" or better during the peak hours.

5.2.3 2026 TOTAL TRAFFIC (PHASE 1)

Once the proposed site trips for development phase 1 were added to the 2026 future background traffic, the critical approach at the study intersections and site driveways would be expected to operate at an acceptable level-of-service "D" or better during the a.m. and p.m. peak hours. The study intersections and site driveways would be expected to operate at an overall level-of-service "C" or better during the a.m. and p.m. peak hours.

5.2.4 2028 TOTAL TRAFFIC (PHASE 2)

Once the proposed site trips for development phases 1 and 2 were added to the 2028 future background traffic, the critical approach at the study intersections and site driveways would be expected to operate at an acceptable level-of-service "E" or better during the a.m. and p.m. peak hours. The study intersections and site driveways would be expected to operate at an acceptable overall level-of-service "D" or better during the a.m. and p.m. peak hours.

5.2.5 2030 TOTAL TRAFFIC (PHASE 3)

Once the proposed site trips for development phases 1, 2, and 3 were added to the 2030 future background traffic, the critical approach at the study intersections and site driveways would be expected to operate at an acceptable level-of-service "D" or better during the a.m. and p.m. peak hours, except for the intersection of S 23rd Street and Jasper Street which would be expected to operate at level-of-service "F" during the a.m. and p.m. peak hours with a v/c ration above 0.8. The study intersections and site driveways would be expected to operate at an acceptable overall level-of-service "C" or better during the a.m. and p.m. peak hours, except for the intersection of S 23rd Street and Jasper Street which is expected to operate at an overall level-of-service "E" during the a.m. peak hour and level-of-service "F" during the p.m. peak hour.

5.2.6 2030 TOTAL TRAFFIC (PHASE 3) WITH RECOMMENDED IMPROVEMENTS

The intersection of S 23rd Street and Jasper Street would be expected to experience delay issues as the background traffic increases and future developments are constructed. The intersection was reanalyzed with various roadway widening and traffic control improvements to determine the appropriate mitigation measures for the intersection in the future.

The intersection was initially analyzed with the removal of the northbound and southbound stop signs to create an eastbound/westbound stop-controlled intersection. The eastbound and westbound volumes are relatively light except for the eastbound right turn movement which is currently around 150 vehicles per hour during the p.m. peak hour and would be expected to increase to more than 200 vehicles per hour once the proposed development is completed. As a result, the addition of an eastbound right turn lane was included to remove the right turning traffic from the much more heavily delayed left turning traffic. The results of the analyses indicated that the intersection would be expected to operate at an acceptable overall level-of-service "B" or better and the critical approach would be expected to operate at an acceptable level-of-service "E" or better during the peak hours with a v/c ratio below 0.8.

The intersection was then analyzed with a traffic signal installed with permissive left turn phasing for all approaches. The results of the analyses indicated that the intersection would be expected to operate at an overall level-of-service "A" and the critical approach would be expected to operate at level-of-service "B" during the peak hours.

The intersection was then analyzed as a single-lane roundabout. The results indicated that the intersection would be expected to operate at an overall level-of-service "A" and the critical approach would be expected to operate at level-of-service "B" or better during the peak hours.

6.0 WARRANT ANALYSIS

To determine the need for additional traffic control measures at the intersection of S 23rd Street and Jasper Street, a multiway stop warrant analysis and a traffic signal warrant analysis were conducted. The analyses were conducted using *PC-Warrants 2*, which is a software package for evaluating intersections to support the installation of a multiway stop or traffic signal in accordance with the *Manual on Uniform Traffic Control Devices (MUTCD)*. This publication is a federally approved publication which governs traffic engineering practices across the country. The MUTCD has eight sets of thresholds or "warrants" that may be evaluated at an intersection to determine whether a multiway stop control or traffic signal should be considered to reduce accidents or delay. If one of the warrants is met the installation of a multiway stop or traffic signal should be considered.

6.1 MULTIWAY STOP WARRANT ANALYSIS

A multiway stop warrant analysis was conducted for the intersection to determine if the existing all-way stop control is warranted based on the 2025 existing traffic volumes with existing intersection geometry.

The results of the analysis are as follows:

MULTIWAY STOP WARRANT ANALYSIS

- **Criteria A – Crash Experience – Not Evaluated**
 - 5 or more crashes experienced within the last 12-month period or 6 or more experienced in a 36-month period.
- **Criteria B – Sight Distance – Satisfied**
 - All-way stop control may be installed at locations where minor-road does not have adequate sight distance for a vehicle to turn onto or cross the major road.
- **Criteria C – Interim Measure – Not Evaluated**
 - All-way stop control may be installed at locations where a future traffic signal or roundabout is being installed.
- **Criteria D – 8-Hour Volume (Vehicles, Pedestrians, Bicycles) – Not Satisfied**
 - The combined motor vehicle, bicycle, and pedestrian volume entering the intersection from the major-street approaches is at least 300 per hour for each of any 8 hours of a typical day; and
 - The combined motor vehicle, bicycle, and pedestrian volume entering the intersection from the minor-street approaches is at least 200 per hour for each of any of the same 8 hours.

The intersection does not currently come close to satisfying the 8-Hour Multiway Stop Warrant but does satisfy the Sight Distance Multiway Stop Warrant due to the overgrown foliage at the intersection blocking the minor-road views of drivers turning onto or crossing S 23rd Street.



6.2 TRAFFIC SIGNAL WARRANT ANALYSIS

The eight-hour vehicular volumes, four-hour volumes, and peak hour volumes warrants were evaluated to determine if the intersection would warrant the installation of a traffic signal utilizing the 2025 existing traffic with existing intersection geometry. Following is a summary of the results:

- **Warrant 1 – Eight Hour Vehicular Volumes – Satisfied**
 - Warrant 1A – Minimum Vehicular Volume – Satisfied
(required volumes reached for 8 hours, 8 are needed)
 - Warrant 1B – Interruption of Continuous Traffic – Not Satisfied
(required volumes reached for 4 hours, 8 are needed)
 - Warrant 1C – Combination of Warrants – Not Satisfied
(required 80% 1A volumes reached for 12 hours, 8 are needed); and
(required 80% 1B volumes reached for 6 hours, 8 are needed)
- **Warrant 2 – Four Hour Volumes – Satisfied**
(required volumes reached for 5 hours; 4 are needed)
- **Warrant 3 – Peak Hour – Satisfied**
 - Warrant 3B – Peak Hour Volume – Satisfied
(required volumes reached for 2 hours, 1 is needed)

The results indicate that the intersection satisfies the eight-hour, four-hour, and peak hour vehicular volume warrants under the 2025 existing traffic volumes.

Only peak hour trips were projected for the proposed development and, therefore, only the peak hour volume warrant was evaluated to determine if the intersection would satisfy a traffic signal warrant once the development has been completed. Following is a summary of the results:

- **Warrant 3 – Peak Hour – Satisfied**
 - Warrant 3B – Peak Hour Volume – Satisfied
(required volumes reached for 2 hours, 1 is needed)

The results indicate that the intersection would be expected to satisfy peak hour vehicular volume warrants under the 2030 total traffic (Phase 3) volumes. The computer printouts of the warrant analyses have been included in the appendix.

7.0 CONCLUSIONS

7.1 SUMMARY

TEC was requested to conduct a traffic impact analysis on a proposed residential development to be constructed in Broken Arrow, Oklahoma. Existing traffic volume data was collected adjacent to the proposed site. The existing traffic was utilized to determine the background traffic for the 2026, 2028, and 2030 design years which coincide with the development phases 1, 2, and 3, respectively. The proposed site trips for development phases 1, 2, and 3 were determined and added to the 2026, 2028, and 2030 future background traffic volumes to create the 2026, 2028, and 2030 total traffic which was utilized for conducting the reviews and analyses.

The analyses conducted under the 2025 existing traffic and 2026 future combined background traffic indicated that the study intersections of S 23rd Street and Jasper Street and S 23rd Street and E 141st Street S currently operate and would be expected to continue operating at acceptable levels-of-service during the a.m. and p.m. peak hours.

Once the proposed site trips for development phase 1 were added to the 2026 future background traffic, each study intersection and site driveway would be expected to operate at acceptable levels-of-service during both peak hours. Once the proposed site trips for development phases 1 and 2 were added to the 2028 future background traffic, each study intersection and site driveway would be expected to continue operating at acceptable levels-of-service during both peak hours. Once the proposed site trips for development phases 1, 2, and 3 were added to the 2030 future background traffic, each study intersection and site driveway would be expected to continue operating at acceptable levels-of-service during both peak hours, except for the intersection of S 23rd Street and Jasper Street which would be expected to operate at an unacceptable level-of-service during the a.m. and p.m. peak hours.

7.2 S 23rd STREET AND JASPER STREET

The intersection of S 23rd Street and Jasper Street currently operates at acceptable levels-of-service and would be expected to continue operating at acceptable levels-of-service through the completion of development phase 2 as an all-way stop controlled intersection. Once phase 3 is completed, around 2030, the intersection would be expected to operate below acceptable levels-of-service during the a.m. and

p.m. peak hours. The intersection was reanalyzed under three roadway and/or traffic control improvement scenarios to improve vehicular delay and safety under the future conditions.

The first improvement scenario modified the existing all-way stop control to eastbound/westbound stop control which would allow the heavier northbound and southbound movements to operate unobstructed. Additionally, an eastbound right turn lane was added to the intersection to remove the heavy right turning traffic from the more delayed left turning traffic. With the improvements, the intersection would operate with reduced vehicular delay, but the critical approach would still be expected to operate at level-of-service "C" during the a.m. peak hour and level-of-service "E" during the p.m. peak hour. For this to be a viable option, the existing foliage around the intersection would need to be cut back to provide adequate sight distance for vehicles on Jasper Street to safely turn onto S 23rd Street.

The second improvement scenario removed the existing all-way stop control to install a traffic signal utilizing the existing roadway geometry. With the improvement, the intersection would operate with greatly reduced vehicular delay resulting in level-of-service "B" or better during the a.m. and p.m. peak hours. Typically, the construction of left turn lanes is highly recommended when a new traffic signal is installed at an intersection to allow the left turn vehicles to exit the through lane and prevent unnecessary vehicular delay. However, this can add significant costs and may require additional right-of-way acquisition, utility relocation, and drainage improvements.

The third improvement scenario removed the existing all-way stop control to construct a single lane roundabout utilizing the existing roadway geometry. With the improvement, the intersection would operate with greatly reduced vehicular delay resulting in level-of-service "B" or better during the a.m. and p.m. peak hours. The single lane roundabout can utilize the two-lane roadway geometry but would require widening at the intersection which may require additional right-of-way acquisition, utility relocation, and drainage improvements.

7.3 RECOMMENDATIONS

Based on the results of the analyses conducted and site plan evaluation, no traffic control or geometric roadway improvements are necessary as a result of the proposed site phases 1 and 2 for traffic to continue operating at acceptable level-of-service. However, once development phase 3 is completed, the intersection of S 23rd Street and Jasper Street would be expected to operate below acceptable levels-of-

service. It is recommended that the developer and the City of Broken Arrow begin planning future roadway and traffic control improvements at the intersection of S 23rd Street and Jasper Street to reduce the increasing vehicular delay once development phase 3 begins construction. The recommended improvements in order of most preferred to least preferred are: single lane roundabout, traffic signal, and side street stop control with eastbound right turn lane. The selected improvement would be dependent on cost which includes right-of-way acquisition, utility relocation, and drainage improvements.

The proposed development would be expected to add 248 vehicles to the intersection of S 23rd Street and Jasper Street during the a.m. peak hour and 331 vehicles during the p.m. peak hour. This equates to 23.4% of the 2030 total traffic during the a.m. peak hour and 24.8% during the p.m. peak hour.

TRAFFIC DATA

E 131st Street S and S 23rd Street - TMC

Wed Mar 5, 2025

Full Length (7:30 AM-7:30 AM (+1))

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1274274, Location: 35.97381, -95.761633



Provided by: Traffic Engineering Consultants, Inc.
2770 Washington Dr., Suite 100, Norman, OK, 73069, US

Leg Direction	North Southbound					East Westbound					South Northbound					West Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
2025-03-05 7:30AM	4	29	1	0	34	10	0	1	0	11	0	84	27	0	111	26	1	11	0	38	194
7:45AM	17	23	7	0	47	4	1	0	0	5	1	93	23	0	117	18	2	7	0	27	196
Hourly Total	21	52	8	0	81	14	1	1	0	16	1	177	50	0	228	44	3	18	0	65	390
8:00AM	5	21	3	0	29	7	2	1	0	10	0	87	28	0	115	17	0	11	0	28	182
8:15AM	10	25	6	0	41	3	3	0	0	6	0	75	22	0	97	15	0	5	0	20	164
8:30AM	5	22	1	0	28	4	1	0	0	5	1	66	28	0	95	12	1	12	0	25	153
8:45AM	11	29	1	0	41	2	2	1	0	5	0	59	18	0	77	9	0	13	0	22	145
Hourly Total	31	97	11	0	139	16	8	2	0	26	1	287	96	0	384	53	1	41	0	95	644
9:00AM	12	25	6	0	43	6	3	1	0	10	0	47	8	0	55	11	0	13	0	24	132
9:15AM	8	23	3	0	34	3	1	0	0	4	1	49	16	0	66	21	2	8	0	31	135
9:30AM	5	22	2	0	29	4	1	0	0	5	0	34	18	0	52	22	1	15	0	38	124
9:45AM	6	23	5	0	34	0	0	0	0	0	0	25	12	0	37	17	1	7	0	25	96
Hourly Total	31	93	16	0	140	13	5	1	0	19	1	155	54	0	210	71	4	43	0	118	487
10:00AM	6	24	5	0	35	3	0	0	0	3	1	35	13	0	49	16	0	9	0	25	112
10:15AM	10	20	2	0	32	6	1	0	0	7	0	41	8	0	49	11	2	7	0	20	108
10:30AM	2	26	1	0	29	3	1	0	0	4	0	17	15	0	32	19	0	3	0	22	87
10:45AM	7	37	2	0	46	5	0	0	0	5	0	37	14	0	51	10	0	8	0	18	120
Hourly Total	25	107	10	0	142	17	2	0	0	19	1	130	50	0	181	56	2	27	0	85	427
11:00AM	9	25	1	0	35	4	1	1	0	6	1	37	11	0	49	17	1	5	0	23	113
11:15AM	7	28	1	0	36	2	1	0	0	3	0	43	10	0	53	18	1	6	0	25	117
11:30AM	8	25	3	0	36	1	1	0	0	2	1	37	14	0	52	12	1	11	0	24	114
11:45AM	7	29	5	0	41	4	2	0	0	6	0	20	16	0	36	13	1	13	0	27	110
Hourly Total	31	107	10	0	148	11	5	1	0	17	2	137	51	0	190	60	4	35	0	99	454
12:00PM	11	28	1	0	40	1	0	1	0	2	0	25	19	0	44	13	1	10	0	24	110
12:15PM	11	28	4	0	43	4	0	0	0	4	0	23	18	0	41	25	0	15	0	40	128
12:30PM	9	37	2	0	48	5	3	0	0	8	0	31	10	0	41	19	3	1	0	23	120
12:45PM	10	35	3	0	48	5	1	0	0	6	1	42	21	0	64	17	3	1	0	21	139
Hourly Total	41	128	10	0	179	15	4	1	0	20	1	121	68	0	190	74	7	27	0	108	497
1:00PM	11	29	1	0	41	7	0	0	0	7	1	20	17	0	38	20	0	12	0	32	118
1:15PM	8	25	2	0	35	2	1	0	0	3	0	27	12	0	39	11	2	9	0	22	99
1:30PM	5	37	5	0	47	7	0	0	0	7	1	30	18	0	49	22	3	6	0	31	134
1:45PM	14	21	1	0	36	1	0	1	0	2	0	37	6	0	43	11	2	7	0	20	101
Hourly Total	38	112	9	0	159	17	1	1	0	19	2	114	53	0	169	64	7	34	0	105	452
2:00PM	11	33	1	0	45	3	1	1	0	5	1	32	15	0	48	16	3	8	0	27	125
2:15PM	3	35	3	0	41	1	1	0	0	2	0	37	21	0	58	27	0	13	0	40	141
2:30PM	11	38	5	0	54	6	1	1	0	8	0	28	18	0	46	32	0	8	0	40	148
2:45PM	12	43	8	0	63	2	2	1	0	5	0	23	18	0	41	35	5	10	0	50	159
Hourly Total	37	149	17	0	203	12	5	3	0	20	1	120	72	0	193	110	8	39	0	157	573
3:00PM	19	49	3	0	71	6	0	0	0	6	1	35	18	0	54	23	1	6	0	30	161
3:15PM	12	47	4	0	63	6	1	1	0	8	0	39	14	0	53	23	0	14	0	37	161
3:30PM	15	60	5	0	80	5	1	0	0	6	1	33	24	0	58	27	0	19	0	46	190
3:45PM	16	70	3	0	89	4	1	0	0	5	0	42	15	0	57	32	2	14	0	48	199
Hourly Total	62	226	15	0	303	21	3	1	0	25	2	149	71	0	222	105	3	53	0	161	711
4:00PM	9	62	13	0	84	3	4	2	0	9	0	40	19	0	59	31	5	10	0	46	198
4:15PM	24	73	3	0	100	2	0	0	0	2	1	39	18	0	58	38	0	10	0	48	208
4:30PM	23	68	5	0	96	2	1	0	0	3	0	44	15	0	59	40	3	19	0	62	220
4:45PM	22	73	8	0	103	3	0	0	0	3	0	38	24	0	62	30	6	20	0	56	224
Hourly Total	78	276	29	0	383	10	5	2	0	17	1	161	76	0	238	139	14	59	0	212	850
5:00PM	12	64	6	0	82	10	3	1	0	14	0	58	25	0	83	37	0	15	0	52	231
5:15PM	14	83	5	0	102	7	2	0	0	9	0	30	26	0	56	47	3	16	0	66	233
5:30PM	15	74	6	0	95	2	0	1	0	3	1	53	18	0	72	34	3	14	0	51	221
5:45PM	27	59	9	0	95	2	2	0	0	4	0	22	22	0	44	23	2	11	0	36	179
Hourly Total	68	280	26	0	374	21	7	2	0	30	1	163	91	0	255	141	8	56	0	205	864
6:00PM	15	46	4	0	65	2	1	1	0	4	0	41	27	0	68	34	2	19	0	55	192

Leg Direction	North Southbound					East Westbound					South Northbound					West Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
6:15PM	15	44	6	0	65	2	1	0	0	3	0	42	21	0	63	26	2	7	0	35	166
6:30PM	11	40	3	0	54	2	1	0	0	3	0	26	16	0	42	15	1	12	0	28	127
6:45PM	9	38	5	0	52	3	0	0	0	3	0	20	11	0	31	21	2	12	0	35	121
Hourly Total	50	168	18	0	236	9	3	1	0	13	0	129	75	0	204	96	7	50	0	153	606
7:00PM	15	24	1	0	40	4	2	0	0	6	0	16	10	0	26	15	0	7	0	22	94
7:15PM	7	34	0	0	41	3	2	0	0	5	0	26	8	0	34	17	1	6	0	24	104
7:30PM	7	27	1	0	35	3	0	0	0	3	0	4	6	0	10	20	0	4	0	24	72
7:45PM	9	32	2	0	43	0	1	0	0	1	0	8	6	0	14	18	0	10	0	28	86
Hourly Total	38	117	4	0	159	10	5	0	0	15	0	54	30	0	84	70	1	27	0	98	356
8:00PM	6	24	4	0	34	2	1	0	0	3	0	20	7	0	27	16	2	8	0	26	90
8:15PM	5	26	3	0	34	2	1	0	0	3	0	11	5	0	16	23	1	4	0	28	81
8:30PM	4	33	1	0	38	3	0	1	0	4	0	11	9	0	20	18	0	4	0	22	84
8:45PM	5	31	1	0	37	1	0	1	0	2	1	11	13	0	25	8	0	7	0	15	79
Hourly Total	20	114	9	0	143	8	2	2	0	12	1	53	34	0	88	65	3	23	0	91	334
9:00PM	3	16	2	0	21	0	0	0	0	0	0	13	5	0	18	14	0	2	0	16	55
9:15PM	3	22	1	0	26	0	0	0	0	0	0	9	8	0	17	11	0	2	0	13	56
9:30PM	4	19	1	0	24	0	0	0	0	0	0	5	3	0	8	13	1	4	0	18	50
9:45PM	2	9	0	0	11	1	1	0	0	2	0	1	7	0	8	6	0	0	0	6	27
Hourly Total	12	66	4	0	82	1	1	0	0	2	0	28	23	0	51	44	1	8	0	53	188
10:00PM	1	7	1	0	9	0	0	0	0	0	0	3	2	0	5	5	0	3	0	8	22
10:15PM	4	6	1	0	11	0	0	0	0	0	0	4	1	0	5	5	0	0	0	5	21
10:30PM	1	12	0	0	13	1	0	0	0	1	0	1	2	0	3	5	1	2	0	8	25
10:45PM	0	3	0	0	3	0	0	0	0	0	0	3	2	0	5	0	0	2	0	2	10
Hourly Total	6	28	2	0	36	1	0	0	0	1	0	11	7	0	18	15	1	7	0	23	78
11:00PM	0	9	0	0	9	1	0	0	0	1	0	2	1	0	3	4	0	0	0	4	17
11:15PM	3	2	0	0	5	0	0	0	0	0	0	3	2	0	5	3	0	0	0	3	13
11:30PM	3	7	0	0	10	0	0	0	0	0	0	0	1	0	1	2	0	1	0	3	14
11:45PM	0	4	0	0	4	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	6
Hourly Total	6	22	0	0	28	1	0	0	0	1	0	6	5	0	11	9	0	1	0	10	50
2025-03-06 12:00AM	0	4	0	0	4	0	0	0	0	0	0	2	1	0	3	1	0	0	0	1	8
12:15AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:30AM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
12:45AM	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Hourly Total	0	10	0	0	10	0	0	0	0	0	0	4	1	0	5	1	0	0	0	1	16
1:00AM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
1:15AM	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
1:30AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2	0	1	0	3	5
1:45AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	3
Hourly Total	1	6	0	0	7	0	0	0	0	0	0	3	0	0	3	2	0	2	0	4	14
2:00AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15AM	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	3
2:30AM	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	1	1	0	0	2	4
2:45AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Hourly Total	1	2	0	0	3	0	1	0	0	1	0	1	1	0	2	2	1	0	0	3	9
3:00AM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	1	0	0	0	1	3
3:15AM	0	1	0	0	1	0	0	0	0	0	0	3	2	0	5	0	0	0	0	0	6
3:30AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	3
3:45AM	0	1	1	0	2	1	0	0	0	1	0	3	1	0	4	1	0	1	0	2	9
Hourly Total	0	2	1	0	3	1	0	0	0	1	0	9	4	0	13	2	0	2	0	4	21
4:00AM	0	5	0	0	5	0	0	1	0	1	0	2	1	0	3	0	0	1	0	1	10
4:15AM	0	0	0	0	0	0	0	0	0	0	0	7	2	0	9	2	0	1	0	3	12
4:30AM	1	3	0	0	4	1	0	0	0	1	0	3	4	0	7	2	0	1	0	3	15
4:45AM	0	2	0	0	2	0	0	0	0	0	0	10	5	0	15	3	0	1	0	4	21
Hourly Total	1	10	0	0	11	1	0	1	0	2	0	22	12	0	34	7	0	4	0	11	58
5:00AM	1	1	1	0	3	0	1	0	0	1	0	12	2	0	14	2	0	2	0	4	22
5:15AM	1	2	0	0	3	0	0	0	0	0	0	18	6	0	24	2	0	3	0	5	32
5:30AM	4	3	0	0	7	0	1	0	0	1	0	21	4	0	25	9	1	3	0	13	46
5:45AM	1	4	0	0	5	2	0	0	0	2	0	26	9	0	35	3	0	6	0	9	51
Hourly Total	7	10	1	0	18	2	2	0	0	4	0	77	21	0	98	16	1	14	0	31	151
6:00AM	3	5	0	0	8	4	0	0	0	4	0	31	7	0	38	7	1	5	0	13	63

Leg Direction	North Southbound					East Westbound					South Northbound					West Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
6:15AM	4	11	2	0	17	5	0	0	0	5	0	51	9	0	60	8	0	3	0	11	93
6:30AM	7	17	4	0	28	4	0	0	0	4	0	56	16	0	72	8	0	9	0	17	121
6:45AM	11	27	8	0	46	4	1	0	0	5	0	70	18	0	88	13	1	11	0	25	164
Hourly Total	25	60	14	0	99	17	1	0	0	18	0	208	50	0	258	36	2	28	0	66	441
7:00AM	3	21	5	0	29	7	0	2	0	9	1	75	16	0	92	19	2	23	0	44	174
7:15AM	9	18	2	0	29	5	4	0	0	9	1	90	25	0	116	9	0	13	0	22	176
Hourly Total	12	39	7	0	58	12	4	2	0	18	2	165	41	0	208	28	2	36	0	66	350
Total	642	2281	221	0	3144	230	65	21	0	316	17	2484	1036	0	3537	1310	80	634	0	2024	9021
% Approach	20.4%	72.6%	7.0%	0%	-	72.8%	20.6%	6.6%	0%	-	0.5%	70.2%	29.3%	0%	-	64.7%	4.0%	31.3%	0%	-	-
% Total	7.1%	25.3%	2.4%	0%	34.9%	2.5%	0.7%	0.2%	0%	3.5%	0.2%	27.5%	11.5%	0%	39.2%	14.5%	0.9%	7.0%	0%	22.4%	-
Lights	625	2131	212	0	2968	225	63	19	0	307	16	2295	1011	0	3322	1290	80	626	0	1996	8593
% Lights	97.4%	93.4%	95.9%	0%	94.4%	97.8%	96.9%	90.5%	0%	97.2%	94.1%	92.4%	97.6%	0%	93.9%	98.5%	100%	98.7%	0%	98.6%	95.3%
Articulated Trucks	2	94	0	0	96	0	0	0	0	0	0	134	7	0	141	7	0	1	0	8	245
% Articulated Trucks	0.3%	4.1%	0%	0%	3.1%	0%	0%	0%	0%	0%	0%	5.4%	0.7%	0%	4.0%	0.5%	0%	0.2%	0%	0.4%	2.7%
Buses and Single-Unit Trucks	15	56	9	0	80	5	2	2	0	9	1	55	18	0	74	13	0	7	0	20	183
% Buses and Single-Unit Trucks	2.3%	2.5%	4.1%	0%	2.5%	2.2%	3.1%	9.5%	0%	2.8%	5.9%	2.2%	1.7%	0%	2.1%	1.0%	0%	1.1%	0%	1.0%	2.0%

* L: Left, R: Right, T: Thru, U: U-Turn

E 131st Street S and S 23rd Street - TMC

Wed Mar 5, 2025

Full Length (7:30 AM-7:30 AM (+1))

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1274274, Location: 35.97381, -95.761633



Provided by: Traffic Engineering Consultants, Inc.
2770 Washington Dr., Suite 100, Norman, OK, 73069, US

[N] North

Total: 6492

In: 3144

Out: 3348

642

2281

221

[W] West

Total: 3767

In: 2024 Out: 1743

634
80
1310

230
65
21

Out: 318 In: 316

Total: 634

[E] East

Out: 3612

In: 3537

Total: 7149

[S] South

1036

2484

17

E 131st Street S and S 23rd Street - TMC

Wed Mar 5, 2025

AM Peak (Mar 05 2025 7:30AM - 8:30 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1274274, Location: 35.97381, -95.761633



Provided by: Traffic Engineering Consultants, Inc.
2770 Washington Dr., Suite 100, Norman, OK, 73069, US

Leg Direction	North Southbound					East Westbound					South Northbound					West Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
2025-03-05 7:30AM	4	29	1	0	34	10	0	1	0	11	0	84	27	0	111	26	1	11	0	38	194
7:45AM	17	23	7	0	47	4	1	0	0	5	1	93	23	0	117	18	2	7	0	27	196
8:00AM	5	21	3	0	29	7	2	1	0	10	0	87	28	0	115	17	0	11	0	28	182
8:15AM	10	25	6	0	41	3	3	0	0	6	0	75	22	0	97	15	0	5	0	20	164
Total	36	98	17	0	151	24	6	2	0	32	1	339	100	0	440	76	3	34	0	113	736
% Approach	23.8%	64.9%	11.3%	0%	-	75.0%	18.8%	6.3%	0%	-	0.2%	77.0%	22.7%	0%	-	67.3%	2.7%	30.1%	0%	-	-
% Total	4.9%	13.3%	2.3%	0%	20.5%	3.3%	0.8%	0.3%	0%	4.3%	0.1%	46.1%	13.6%	0%	59.8%	10.3%	0.4%	4.6%	0%	15.4%	-
PHF	0.529	0.845	0.607	-	0.803	0.600	0.500	0.500	-	0.727	0.250	0.911	0.893	-	0.940	0.731	0.375	0.773	-	0.743	0.939
Lights	33	88	17	0	138	24	6	2	0	32	1	314	100	0	415	74	3	34	0	111	696
% Lights	91.7%	89.8%	100%	0%	91.4%	100%	100%	100%	0%	100%	100%	92.6%	100%	0%	94.3%	97.4%	100%	100%	0%	98.2%	94.6%
Articulated Trucks	0	4	0	0	4	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	18
% Articulated Trucks	0%	4.1%	0%	0%	2.6%	0%	0%	0%	0%	0%	0%	4.1%	0%	0%	3.2%	0%	0%	0%	0%	0%	2.4%
Buses and Single-Unit Trucks	3	6	0	0	9	0	0	0	0	0	0	11	0	0	11	2	0	0	0	2	22
% Buses and Single-Unit Trucks	8.3%	6.1%	0%	0%	6.0%	0%	0%	0%	0%	0%	0%	3.2%	0%	0%	2.5%	2.6%	0%	0%	0%	1.8%	3.0%

* L: Left, R: Right, T: Thru, U: U-Turn

E 131st Street S and S 23rd Street - TMC

Wed Mar 5, 2025

AM Peak (Mar 05 2025 7:30AM - 8:30 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1274274, Location: 35.97381, -95.761633



Provided by: Traffic Engineering Consultants, Inc.
2770 Washington Dr., Suite 100, Norman, OK, 73069, US

[N] North

Total: 548

In: 151

Out: 397

36 98 17

[W] West
Total: 255
In: 113 Out: 142

34
3
76

24
6
2

Out: 21 In: 32
Total: 53
[E] East

Out: 176

In: 440

Total: 616

[S] South

100

339

1

E 131st Street S and S 23rd Street - TMC

Wed Mar 5, 2025

Midday Peak (Mar 05 2025 12:15PM - 1:15 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1274274, Location: 35.97381, -95.761633



Provided by: Traffic Engineering Consultants, Inc.
2770 Washington Dr., Suite 100, Norman, OK, 73069, US

Leg Direction	North Southbound					East Westbound					South Northbound					West Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
2025-03-05 12:15PM	11	28	4	0	43	4	0	0	0	4	0	23	18	0	41	25	0	15	0	40	128
12:30PM	9	37	2	0	48	5	3	0	0	8	0	31	10	0	41	19	3	1	0	23	120
12:45PM	10	35	3	0	48	5	1	0	0	6	1	42	21	0	64	17	3	1	0	21	139
1:00PM	11	29	1	0	41	7	0	0	0	7	1	20	17	0	38	20	0	12	0	32	118
Total	41	129	10	0	180	21	4	0	0	25	2	116	66	0	184	81	6	29	0	116	505
% Approach	22.8%	71.7%	5.6%	0%	-	84.0%	16.0%	0%	0%	-	1.1%	63.0%	35.9%	0%	-	69.8%	5.2%	25.0%	0%	-	-
% Total	8.1%	25.5%	2.0%	0%	35.6%	4.2%	0.8%	0%	0%	5.0%	0.4%	23.0%	13.1%	0%	36.4%	16.0%	1.2%	5.7%	0%	23.0%	-
PHF	0.932	0.872	0.625	-	0.938	0.750	0.333	-	-	0.781	0.500	0.690	0.786	-	0.719	0.810	0.500	0.483	-	0.725	0.908
Lights	41	111	10	0	162	21	4	0	0	25	2	105	62	0	169	79	6	29	0	114	470
% Lights	100%	86.0%	100%	0%	90.0%	100%	100%	0%	0%	100%	100%	90.5%	93.9%	0%	91.8%	97.5%	100%	100%	0%	98.3%	93.1%
Articulated Trucks	0	10	0	0	10	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	18
% Articulated Trucks	0%	7.8%	0%	0%	5.6%	0%	0%	0%	0%	0%	0%	6.9%	0%	0%	4.3%	0%	0%	0%	0%	0%	3.6%
Buses and Single-Unit Trucks	0	8	0	0	8	0	0	0	0	0	0	3	4	0	7	2	0	0	0	2	17
% Buses and Single-Unit Trucks	0%	6.2%	0%	0%	4.4%	0%	0%	0%	0%	0%	0%	2.6%	6.1%	0%	3.8%	2.5%	0%	0%	0%	1.7%	3.4%

* L: Left, R: Right, T: Thru, U: U-Turn

E 131st Street S and S 23rd Street - TMC

Wed Mar 5, 2025

Midday Peak (Mar 05 2025 12:15PM - 1:15 PM)

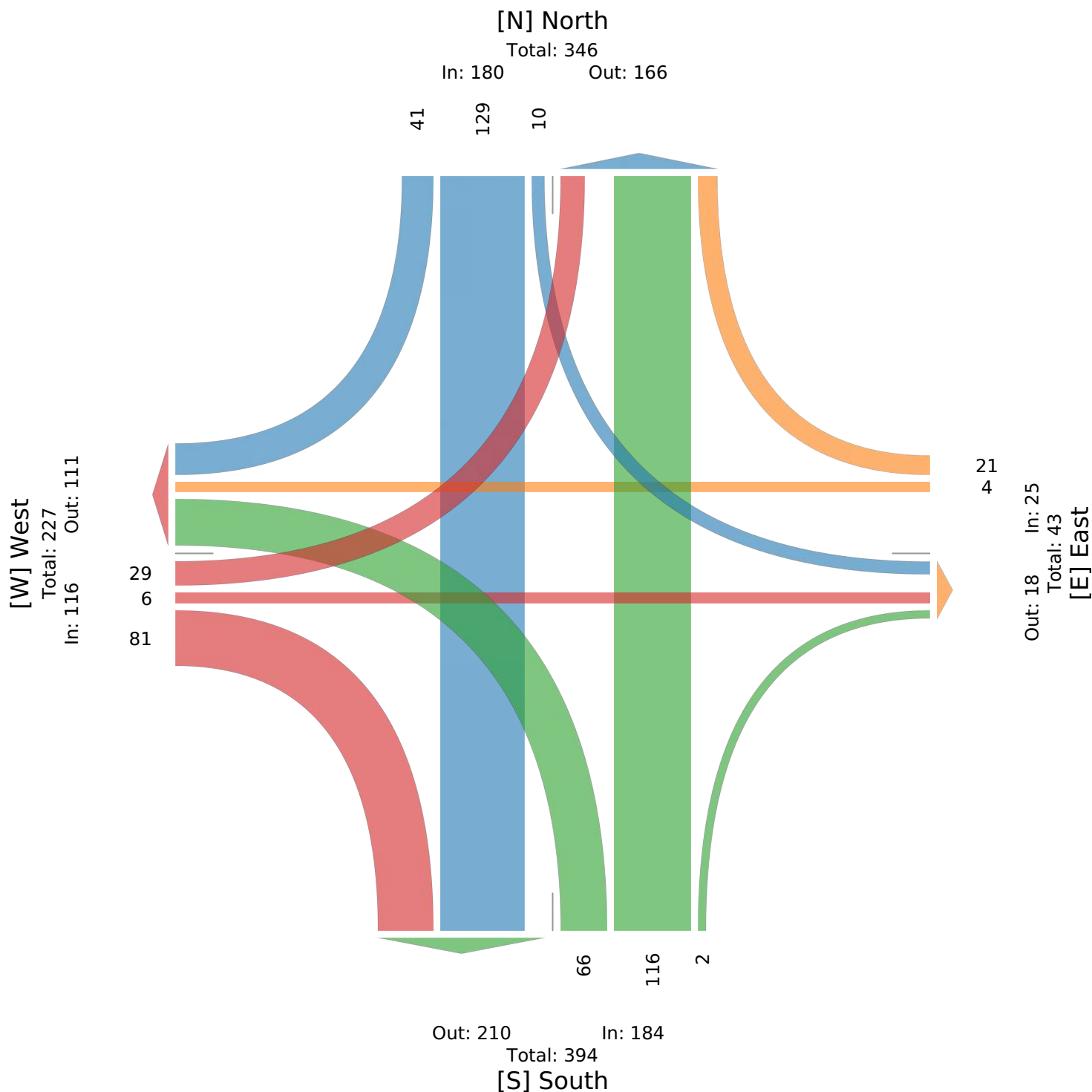
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1274274, Location: 35.97381, -95.761633



Provided by: Traffic Engineering Consultants, Inc.
2770 Washington Dr., Suite 100, Norman, OK, 73069, US



E 131st Street S and S 23rd Street - TMC

Wed Mar 5, 2025

PM Peak (Mar 05 2025 4:45PM - 5:45 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1274274, Location: 35.97381, -95.761633



Provided by: Traffic Engineering Consultants, Inc.
2770 Washington Dr., Suite 100, Norman, OK, 73069, US

Leg Direction	North Southbound					East Westbound					South Northbound					West Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
2025-03-05 4:45PM	22	73	8	0	103	3	0	0	0	3	0	38	24	0	62	30	6	20	0	56	224
5:00PM	12	64	6	0	82	10	3	1	0	14	0	58	25	0	83	37	0	15	0	52	231
5:15PM	14	83	5	0	102	7	2	0	0	9	0	30	26	0	56	47	3	16	0	66	233
5:30PM	15	74	6	0	95	2	0	1	0	3	1	53	18	0	72	34	3	14	0	51	221
Total	63	294	25	0	382	22	5	2	0	29	1	179	93	0	273	148	12	65	0	225	909
% Approach	16.5%	77.0%	6.5%	0%	-	75.9%	17.2%	6.9%	0%	-	0.4%	65.6%	34.1%	0%	-	65.8%	5.3%	28.9%	0%	-	-
% Total	6.9%	32.3%	2.8%	0%	42.0%	2.4%	0.6%	0.2%	0%	3.2%	0.1%	19.7%	10.2%	0%	30.0%	16.3%	1.3%	7.2%	0%	24.8%	-
PHF	0.716	0.886	0.781	-	0.927	0.550	0.417	0.500	-	0.518	0.250	0.772	0.894	-	0.822	0.787	0.500	0.813	-	0.852	0.975
Lights	62	292	25	0	379	22	5	2	0	29	1	177	93	0	271	147	12	65	0	224	903
% Lights	98.4%	99.3%	100%	0%	99.2%	100%	100%	100%	0%	100%	100%	98.9%	100%	0%	99.3%	99.3%	100%	100%	0%	99.6%	99.3%
Articulated Trucks	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Articulated Trucks	0%	0.3%	0%	0%	0.3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.1%
Buses and Single-Unit Trucks	1	1	0	0	2	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	5
% Buses and Single-Unit Trucks	1.6%	0.3%	0%	0%	0.5%	0%	0%	0%	0%	0%	0%	1.1%	0%	0%	0.7%	0.7%	0%	0%	0%	0.4%	0.6%

* L: Left, R: Right, T: Thru, U: U-Turn

E 131st Street S and S 23rd Street - TMC

Wed Mar 5, 2025

PM Peak (Mar 05 2025 4:45PM - 5:45 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1274274, Location: 35.97381, -95.761633



Provided by: Traffic Engineering Consultants, Inc.
2770 Washington Dr., Suite 100, Norman, OK, 73069, US

[N] North

Total: 648

In: 382

Out: 266

63

294

25

[W] West

Total: 386

In: 225

Out: 161

65
12
148

22
5
2

In: 29

Out: 38

Total: 67

[E] East

93

179

1

Out: 444

In: 273

Total: 717

[S] South

E 141st Street S and S 23rd Street - TMC

Wed Mar 5, 2025

Full Length (7:30 AM-7:30 AM (+1))

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1274277, Location: 35.959253, -95.761594



Provided by: Traffic Engineering Consultants, Inc.
2770 Washington Dr., Suite 100, Norman, OK, 73069, US

Leg Direction	North Southbound					East Westbound					South Northbound					West Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
2025-03-05 7:30AM	1	13	40	0	54	72	0	1	0	73	4	35	0	0	39	0	0	0	0	0	166
7:45AM	0	11	33	0	44	76	0	0	0	76	0	34	0	0	34	0	0	0	0	0	154
Hourly Total	1	24	73	0	98	148	0	1	0	149	4	69	0	0	73	0	0	0	0	0	320
8:00AM	2	12	26	0	40	84	0	0	0	84	0	27	0	0	27	0	0	1	0	1	152
8:15AM	1	12	26	0	39	69	0	1	0	70	0	25	0	0	25	0	0	1	0	1	135
8:30AM	0	11	24	0	35	68	0	1	1	70	0	23	0	0	23	0	0	0	0	0	128
8:45AM	1	14	23	0	38	48	0	1	0	49	1	15	0	0	16	0	0	0	0	0	103
Hourly Total	4	49	99	0	152	269	0	3	1	273	1	90	0	0	91	0	0	2	0	2	518
9:00AM	0	15	22	0	37	43	0	0	0	43	0	20	0	0	20	0	0	0	0	0	100
9:15AM	1	13	29	0	43	45	1	0	0	46	0	13	0	0	13	0	0	0	0	0	102
9:30AM	0	13	32	0	45	39	0	0	0	39	0	16	0	0	16	0	0	0	0	0	100
9:45AM	0	9	29	0	38	25	1	0	0	26	1	9	0	0	10	0	1	3	0	4	78
Hourly Total	1	50	112	0	163	152	2	0	0	154	1	58	0	0	59	0	1	3	0	4	380
10:00AM	0	10	32	0	42	35	0	0	0	35	0	10	0	0	10	0	0	2	0	2	89
10:15AM	0	12	17	0	29	31	0	0	0	31	0	15	0	0	15	0	0	0	0	0	75
10:30AM	1	14	28	0	43	28	0	0	0	28	0	5	0	0	5	0	0	0	0	0	76
10:45AM	0	16	28	0	44	36	1	2	0	39	0	19	0	0	19	0	0	1	0	1	103
Hourly Total	1	52	105	0	158	130	1	2	0	133	0	49	0	0	49	0	0	3	0	3	343
11:00AM	0	15	24	0	39	34	0	0	0	34	1	13	0	0	14	0	1	1	0	2	89
11:15AM	1	14	33	0	48	32	0	0	0	32	0	13	0	0	13	1	0	0	0	1	94
11:30AM	2	14	20	0	36	34	0	0	0	34	0	17	0	0	17	0	0	0	0	0	87
11:45AM	0	11	27	0	38	27	0	4	0	31	1	9	0	0	10	0	0	3	0	3	82
Hourly Total	3	54	104	0	161	127	0	4	0	131	2	52	0	0	54	1	1	4	0	6	352
12:00PM	0	17	26	0	43	27	0	1	0	28	4	15	1	0	20	0	0	1	0	1	92
12:15PM	1	15	35	0	51	33	0	1	0	34	0	10	0	0	10	0	0	0	0	0	95
12:30PM	0	16	38	0	54	31	0	1	0	32	1	10	0	0	11	0	0	0	0	0	97
12:45PM	0	16	40	0	56	38	0	1	0	39	1	21	0	0	22	0	0	1	0	1	118
Hourly Total	1	64	139	0	204	129	0	4	0	133	6	56	1	0	63	0	0	2	0	2	402
1:00PM	1	14	31	0	46	22	0	0	0	22	1	12	0	0	13	0	0	0	0	0	81
1:15PM	2	9	26	0	37	32	0	0	0	32	1	11	0	0	12	0	0	1	0	1	82
1:30PM	2	16	39	0	57	31	0	0	0	31	0	19	0	0	19	1	0	1	0	2	109
1:45PM	1	8	25	0	34	21	0	0	0	21	0	12	1	0	13	0	0	2	0	2	70
Hourly Total	6	47	121	0	174	106	0	0	0	106	2	54	1	0	57	1	0	4	0	5	342
2:00PM	0	10	36	0	46	37	0	1	0	38	2	14	0	0	16	0	0	0	0	0	100
2:15PM	1	22	39	0	62	43	0	4	0	47	1	12	0	0	13	0	0	1	0	1	123
2:30PM	1	22	44	0	67	27	0	2	0	29	1	13	0	0	14	0	0	0	0	0	110
2:45PM	1	32	48	0	81	28	0	0	0	28	3	11	0	0	14	0	0	1	0	1	124
Hourly Total	3	86	167	0	256	135	0	7	0	142	7	50	0	0	57	0	0	2	0	2	457
3:00PM	0	12	61	0	73	39	0	4	0	43	2	17	0	0	19	0	0	1	0	1	136
3:15PM	0	15	49	0	64	40	0	0	0	40	0	12	0	0	12	0	0	0	0	0	116
3:30PM	1	21	60	0	82	49	0	0	0	49	2	14	0	0	16	0	0	0	0	0	147
3:45PM	0	34	68	0	102	44	0	0	0	44	0	9	0	0	9	0	0	1	0	1	156
Hourly Total	1	82	238	0	321	172	0	4	0	176	4	52	0	0	56	0	0	2	0	2	555
4:00PM	1	31	65	0	97	39	0	0	0	39	0	16	0	0	16	0	0	0	0	0	152
4:15PM	1	33	73	0	107	39	0	0	0	39	1	17	0	0	18	0	1	1	0	2	166
4:30PM	1	30	77	0	108	42	1	0	0	43	0	18	0	0	18	0	2	1	0	3	172
4:45PM	0	31	72	0	103	46	0	0	0	46	0	14	0	0	14	0	0	0	0	0	163
Hourly Total	3	125	287	0	415	166	1	0	0	167	1	65	0	0	66	0	3	2	0	5	653
5:00PM	0	19	76	0	95	50	0	0	0	50	1	32	0	0	33	0	0	0	0	0	178
5:15PM	0	35	95	0	130	42	2	0	0	44	0	14	0	0	14	0	1	0	0	1	189
5:30PM	0	16	86	0	102	50	0	0	0	50	1	13	1	0	15	0	0	1	0	1	168
5:45PM	1	21	59	0	81	30	1	0	0	31	0	13	0	0	13	0	1	0	0	1	126
Hourly Total	1	91	316	0	408	172	3	0	0	175	2	72	1	0	75	0	2	1	0	3	661
6:00PM	0	16	60	0	76	60	0	0	0	60	0	12	1	0	13	0	0	0	0	0	149

Leg Direction	North Southbound					East Westbound					South Northbound					West Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
6:15PM	0	18	52	0	70	44	0	0	0	44	0	15	0	0	15	0	1	1	0	2	131
6:30PM	0	13	44	0	57	32	0	0	0	32	0	7	0	0	7	0	0	0	0	0	96
6:45PM	0	21	33	0	54	17	1	1	0	19	0	9	0	0	9	0	0	2	0	2	84
Hourly Total	0	68	189	0	257	153	1	1	0	155	0	43	1	0	44	0	1	3	0	4	460
7:00PM	0	8	29	0	37	17	0	0	0	17	1	11	0	0	12	0	0	0	0	0	66
7:15PM	0	10	37	0	47	17	0	0	0	17	0	11	0	0	11	0	0	0	0	0	75
7:30PM	0	11	35	0	46	10	0	0	0	10	0	0	0	0	0	0	0	0	0	0	56
7:45PM	0	10	39	0	49	8	0	0	0	8	0	3	0	0	3	0	0	0	0	0	60
Hourly Total	0	39	140	0	179	52	0	0	0	52	1	25	0	0	26	0	0	0	0	0	257
8:00PM	1	13	20	0	34	20	0	0	0	20	0	10	0	0	10	0	0	0	0	0	64
8:15PM	0	15	39	0	54	12	0	0	0	12	0	3	0	0	3	0	0	0	0	0	69
8:30PM	0	13	30	0	43	18	0	0	0	18	0	2	0	0	2	0	0	0	0	0	63
8:45PM	0	11	32	0	43	26	0	1	0	27	0	1	0	0	1	0	0	0	0	0	71
Hourly Total	1	52	121	0	174	76	0	1	0	77	0	16	0	0	16	0	0	0	0	0	267
9:00PM	0	13	20	0	33	14	0	0	0	14	0	1	0	0	1	0	0	0	0	0	48
9:15PM	0	4	28	0	32	13	0	0	0	13	0	3	0	0	3	0	0	0	0	0	48
9:30PM	0	7	24	0	31	7	0	0	0	7	0	1	0	0	1	0	0	0	0	0	39
9:45PM	1	5	8	0	14	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	22
Hourly Total	1	29	80	0	110	42	0	0	0	42	0	5	0	0	5	0	0	0	0	0	157
10:00PM	0	1	12	0	13	3	0	0	0	3	0	1	0	0	1	0	0	0	0	0	17
10:15PM	0	2	9	0	11	2	0	0	0	2	0	2	0	0	2	0	0	0	0	0	15
10:30PM	0	2	13	0	15	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	19
10:45PM	0	2	2	0	4	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	7
Hourly Total	0	7	36	0	43	12	0	0	0	12	0	3	0	0	3	0	0	0	0	0	58
11:00PM	0	4	8	0	12	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	16
11:15PM	0	3	2	0	5	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	8
11:30PM	0	3	6	0	9	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	10
11:45PM	0	2	2	0	4	3	0	0	0	3	0	1	0	0	1	0	0	0	0	0	8
Hourly Total	0	12	18	0	30	11	0	0	0	11	0	1	0	0	1	0	0	0	0	0	42
2025-03-06 12:00AM	0	2	3	0	5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	6
12:15AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:30AM	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
12:45AM	0	1	3	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Hourly Total	0	3	8	0	11	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	14
1:00AM	0	0	3	0	3	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4
1:15AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:30AM	0	1	1	0	2	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	4
1:45AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Hourly Total	0	2	5	0	7	2	0	0	0	2	0	1	0	0	1	0	0	0	0	0	10
2:00AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15AM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
2:30AM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
2:45AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Hourly Total	0	1	2	0	3	1	1	0	0	2	0	1	0	0	1	0	0	0	0	0	6
3:00AM	0	0	1	0	1	2	0	0	0	2	0	0	0	0	0	0	1	0	0	1	4
3:15AM	0	0	1	0	1	3	0	0	0	3	0	2	0	0	2	0	0	0	0	0	6
3:30AM	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	2
3:45AM	0	2	0	0	2	2	0	0	0	2	0	2	0	0	2	0	0	0	0	0	6
Hourly Total	0	2	2	0	4	8	0	0	0	8	0	5	0	0	5	0	1	0	0	1	18
4:00AM	0	3	3	0	6	3	0	0	0	3	0	1	0	0	1	0	0	0	0	0	10
4:15AM	0	0	2	0	2	7	0	0	0	7	0	2	0	0	2	0	0	0	0	0	11
4:30AM	0	2	2	0	4	4	0	0	0	4	0	3	0	0	3	0	0	0	0	0	11
4:45AM	0	3	2	0	5	9	0	0	0	9	0	5	0	0	5	0	0	0	0	0	19
Hourly Total	0	8	9	0	17	23	0	0	0	23	0	11	0	0	11	0	0	0	0	0	51
5:00AM	0	1	1	0	2	9	0	0	0	9	0	5	0	0	5	0	0	0	0	0	16
5:15AM	0	2	2	0	4	22	0	0	0	22	0	6	0	0	6	0	0	0	0	0	32
5:30AM	0	3	8	0	11	24	0	0	0	24	0	2	0	0	2	0	0	0	0	0	37
5:45AM	0	4	6	0	10	28	0	2	0	30	0	2	0	0	2	0	0	0	0	0	42
Hourly Total	0	10	17	0	27	83	0	2	0	85	0	15	0	0	15	0	0	0	0	0	127
6:00AM	0	1	10	0	11	27	0	2	0	29	0	23	0	0	23	0	0	0	0	0	63

Leg Direction	North Southbound					East Westbound					South Northbound					West Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
6:15AM	0	7	12	0	19	38	0	0	0	38	4	22	0	0	26	0	0	1	0	1	84
6:30AM	0	12	13	0	25	43	0	0	0	43	0	22	0	0	22	0	0	0	0	0	90
6:45AM	4	8	19	0	31	57	0	0	0	57	0	24	0	0	24	0	0	0	0	0	112
Hourly Total	4	28	54	0	86	165	0	2	0	167	4	91	0	0	95	0	0	1	0	1	349
7:00AM	1	13	29	0	43	55	0	0	0	55	0	33	0	0	33	0	0	0	0	0	131
7:15AM	0	5	20	0	25	95	0	0	0	95	0	30	0	0	30	0	0	1	0	1	151
Hourly Total	1	18	49	0	68	150	0	0	0	150	0	63	0	0	63	0	0	1	0	1	282
Total	32	1003	2491	0	3526	2484	9	31	1	2525	35	949	4	0	988	2	9	31	0	42	7081
% Approach	0.9%	28.4%	70.6%	0%	-	98.4%	0.4%	1.2%	0%	-	3.5%	96.1%	0.4%	0%	-	4.8%	21.4%	73.8%	0%	-	-
% Total	0.5%	14.2%	35.2%	0%	49.8%	35.1%	0.1%	0.4%	0%	35.7%	0.5%	13.4%	0.1%	0%	14.0%	0%	0.1%	0.4%	0%	0.6%	-
Lights	30	897	2417	0	3344	2386	8	24	1	2419	26	824	4	0	854	1	8	30	0	39	6656
% Lights	93.8%	89.4%	97.0%	0%	94.8%	96.1%	88.9%	77.4%	100%	95.8%	74.3%	86.8%	100%	0%	86.4%	50.0%	88.9%	96.8%	0%	92.9%	94.0%
Articulated Trucks	1	85	26	0	112	34	0	3	0	37	8	108	0	0	116	0	0	1	0	1	266
% Articulated Trucks	3.1%	8.5%	1.0%	0%	3.2%	1.4%	0%	9.7%	0%	1.5%	22.9%	11.4%	0%	0%	11.7%	0%	0%	3.2%	0%	2.4%	3.8%
Buses and Single-Unit Trucks	1	21	48	0	70	64	1	4	0	69	1	17	0	0	18	1	1	0	0	2	159
% Buses and Single-Unit Trucks	3.1%	2.1%	1.9%	0%	2.0%	2.6%	11.1%	12.9%	0%	2.7%	2.9%	1.8%	0%	0%	1.8%	50.0%	11.1%	0%	0%	4.8%	2.2%

* L: Left, R: Right, T: Thru, U: U-Turn

E 141st Street S and S 23rd Street - TMC

Wed Mar 5, 2025

Full Length (7:30 AM-7:30 AM (+1))

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1274277, Location: 35.959253, -95.761594



Provided by: Traffic Engineering Consultants, Inc.
2770 Washington Dr., Suite 100, Norman, OK, 73069, US

[N] North

Total: 6990

In: 3526

Out: 3464

32

1003

2491

[W] West

Total: 87

In: 42 Out: 45

31

29

2484

31

Out: 2536 In: 2525

Total: 5061

[E] East

4

949

35

Out: 1036 In: 988

Total: 2024

[S] South

E 141st Street S and S 23rd Street - TMC

Wed Mar 5, 2025

AM Peak (Mar 05 2025 7:30AM - 8:30 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1274277, Location: 35.959253, -95.761594



Provided by: Traffic Engineering Consultants, Inc.
2770 Washington Dr., Suite 100, Norman, OK, 73069, US

Leg Direction	North Southbound					East Westbound					South Northbound					West Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
2025-03-05 7:30AM	1	13	40	0	54	72	0	1	0	73	4	35	0	0	39	0	0	0	0	0	166
7:45AM	0	11	33	0	44	76	0	0	0	76	0	34	0	0	34	0	0	0	0	0	154
8:00AM	2	12	26	0	40	84	0	0	0	84	0	27	0	0	27	0	0	1	0	1	152
8:15AM	1	12	26	0	39	69	0	1	0	70	0	25	0	0	25	0	0	1	0	1	135
Total	4	48	125	0	177	301	0	2	0	303	4	121	0	0	125	0	0	2	0	2	607
% Approach	2.3%	27.1%	70.6%	0%	-	99.3%	0%	0.7%	0%	-	3.2%	96.8%	0%	0%	-	0%	0%	100%	0%	-	-
% Total	0.7%	7.9%	20.6%	0%	29.2%	49.6%	0%	0.3%	0%	49.9%	0.7%	19.9%	0%	0%	20.6%	0%	0%	0.3%	0%	0.3%	-
PHF	0.500	0.923	0.781	-	0.819	0.896	-	0.500	-	0.902	0.250	0.864	-	-	0.801	-	-	0.500	-	0.500	0.914
Lights	4	38	123	0	165	289	0	2	0	291	4	106	0	0	110	0	0	2	0	2	568
% Lights	100%	79.2%	98.4%	0%	93.2%	96.0%	0%	100%	0%	96.0%	100%	87.6%	0%	0%	88.0%	0%	0%	100%	0%	100%	93.6%
Articulated Trucks	0	9	1	0	10	3	0	0	0	3	0	10	0	0	10	0	0	0	0	0	23
% Articulated Trucks	0%	18.8%	0.8%	0%	5.6%	1.0%	0%	0%	0%	1.0%	0%	8.3%	0%	0%	8.0%	0%	0%	0%	0%	0%	3.8%
Buses and Single-Unit Trucks	0	1	1	0	2	9	0	0	0	9	0	5	0	0	5	0	0	0	0	0	16
% Buses and Single-Unit Trucks	0%	2.1%	0.8%	0%	1.1%	3.0%	0%	0%	0%	3.0%	0%	4.1%	0%	0%	4.0%	0%	0%	0%	0%	0%	2.6%

* L: Left, R: Right, T: Thru, U: U-Turn

E 141st Street S and S 23rd Street - TMC

Wed Mar 5, 2025

AM Peak (Mar 05 2025 7:30AM - 8:30 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1274277, Location: 35.959253, -95.761594



Provided by: Traffic Engineering Consultants, Inc.
2770 Washington Dr., Suite 100, Norman, OK, 73069, US

[N] North

Total: 601

In: 177

Out: 424

4
48
125

[W] West

Total: 6

In: 2

Out: 4

2

301

2

In: 303

Total: 432

[E] East

Out: 129

121
4

Out: 50

In: 125

Total: 175

[S] South

E 141st Street S and S 23rd Street - TMC

Wed Mar 5, 2025

Midday Peak (Mar 05 2025 12PM - 1 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1274277, Location: 35.959253, -95.761594



Provided by: Traffic Engineering Consultants, Inc.
2770 Washington Dr., Suite 100, Norman, OK, 73069, US

Leg Direction	North Southbound					East Westbound					South Northbound					West Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
2025-03-05 12:00PM	0	17	26	0	43	27	0	1	0	28	4	15	1	0	20	0	0	1	0	1	92
12:15PM	1	15	35	0	51	33	0	1	0	34	0	10	0	0	10	0	0	0	0	0	95
12:30PM	0	16	38	0	54	31	0	1	0	32	1	10	0	0	11	0	0	0	0	0	97
12:45PM	0	16	40	0	56	38	0	1	0	39	1	21	0	0	22	0	0	1	0	1	118
Total	1	64	139	0	204	129	0	4	0	133	6	56	1	0	63	0	0	2	0	2	402
% Approach	0.5%	31.4%	68.1%	0%	-	97.0%	0%	3.0%	0%	-	9.5%	88.9%	1.6%	0%	-	0%	0%	100%	0%	-	-
% Total	0.2%	15.9%	34.6%	0%	50.7%	32.1%	0%	1.0%	0%	33.1%	1.5%	13.9%	0.2%	0%	15.7%	0%	0%	0.5%	0%	0.5%	-
PHF	0.250	0.941	0.869	-	0.911	0.849	-	1.000	-	0.853	0.375	0.667	0.250	-	0.716	-	-	0.500	-	0.500	0.852
Lights	1	54	130	0	185	118	0	4	0	122	4	48	1	0	53	0	0	2	0	2	362
% Lights	100%	84.4%	93.5%	0%	90.7%	91.5%	0%	100%	0%	91.7%	66.7%	85.7%	100%	0%	84.1%	0%	0%	100%	0%	100%	90.0%
Articulated Trucks	0	7	5	0	12	3	0	0	0	3	1	7	0	0	8	0	0	0	0	0	23
% Articulated Trucks	0%	10.9%	3.6%	0%	5.9%	2.3%	0%	0%	0%	2.3%	16.7%	12.5%	0%	0%	12.7%	0%	0%	0%	0%	0%	5.7%
Buses and Single-Unit Trucks	0	3	4	0	7	8	0	0	0	8	1	1	0	0	2	0	0	0	0	0	17
% Buses and Single-Unit Trucks	0%	4.7%	2.9%	0%	3.4%	6.2%	0%	0%	0%	6.0%	16.7%	1.8%	0%	0%	3.2%	0%	0%	0%	0%	0%	4.2%

* L: Left, R: Right, T: Thru, U: U-Turn

E 141st Street S and S 23rd Street - TMC

Wed Mar 5, 2025

Midday Peak (Mar 05 2025 12PM - 1 PM)

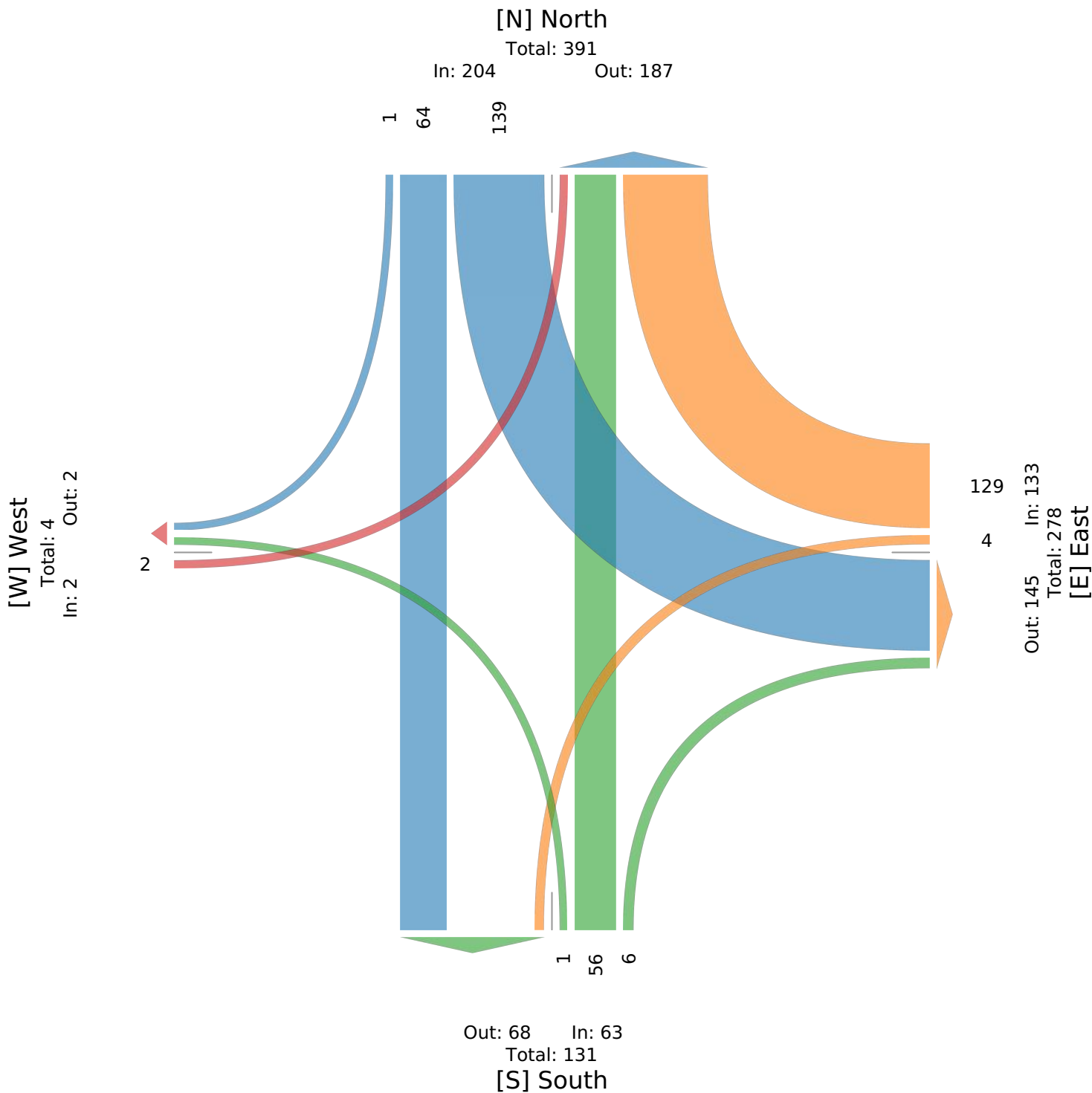
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1274277, Location: 35.959253, -95.761594



Provided by: Traffic Engineering Consultants, Inc.
2770 Washington Dr., Suite 100, Norman, OK, 73069, US



E 141st Street S and S 23rd Street - TMC

Wed Mar 5, 2025

PM Peak (Mar 05 2025 4:30PM - 5:30 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1274277, Location: 35.959253, -95.761594



Provided by: Traffic Engineering Consultants, Inc.
2770 Washington Dr., Suite 100, Norman, OK, 73069, US

Leg Direction	North Southbound					East Westbound					South Northbound					West Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
2025-03-05 4:30PM	1	30	77	0	108	42	1	0	0	43	0	18	0	0	18	0	2	1	0	3	172
4:45PM	0	31	72	0	103	46	0	0	0	46	0	14	0	0	14	0	0	0	0	0	163
5:00PM	0	19	76	0	95	50	0	0	0	50	1	32	0	0	33	0	0	0	0	0	178
5:15PM	0	35	95	0	130	42	2	0	0	44	0	14	0	0	14	0	1	0	0	1	189
Total	1	115	320	0	436	180	3	0	0	183	1	78	0	0	79	0	3	1	0	4	702
% Approach	0.2%	26.4%	73.4%	0%	-	98.4%	1.6%	0%	0%	-	1.3%	98.7%	0%	0%	-	0%	75.0%	25.0%	0%	-	-
% Total	0.1%	16.4%	45.6%	0%	62.1%	25.6%	0.4%	0%	0%	26.1%	0.1%	11.1%	0%	0%	11.3%	0%	0.4%	0.1%	0%	0.6%	-
PHF	0.250	0.821	0.842	-	0.838	0.900	0.375	-	-	0.915	0.250	0.609	-	-	0.598	-	0.375	0.250	-	0.333	0.929
Lights	1	115	318	0	434	179	3	0	0	182	1	76	0	0	77	0	3	1	0	4	697
% Lights	100%	100%	99.4%	0%	99.5%	99.4%	100%	0%	0%	99.5%	100%	97.4%	0%	0%	97.5%	0%	100%	100%	0%	100%	99.3%
Articulated Trucks	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Articulated Trucks	0%	0%	0.3%	0%	0.2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.1%
Buses and Single-Unit Trucks	0	0	1	0	1	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	4
% Buses and Single-Unit Trucks	0%	0%	0.3%	0%	0.2%	0.6%	0%	0%	0%	0.5%	0%	2.6%	0%	0%	2.5%	0%	0%	0%	0%	0%	0.6%

* L: Left, R: Right, T: Thru, U: U-Turn

E 141st Street S and S 23rd Street - TMC

Wed Mar 5, 2025

PM Peak (Mar 05 2025 4:30PM - 5:30 PM) - Overall Peak Hour

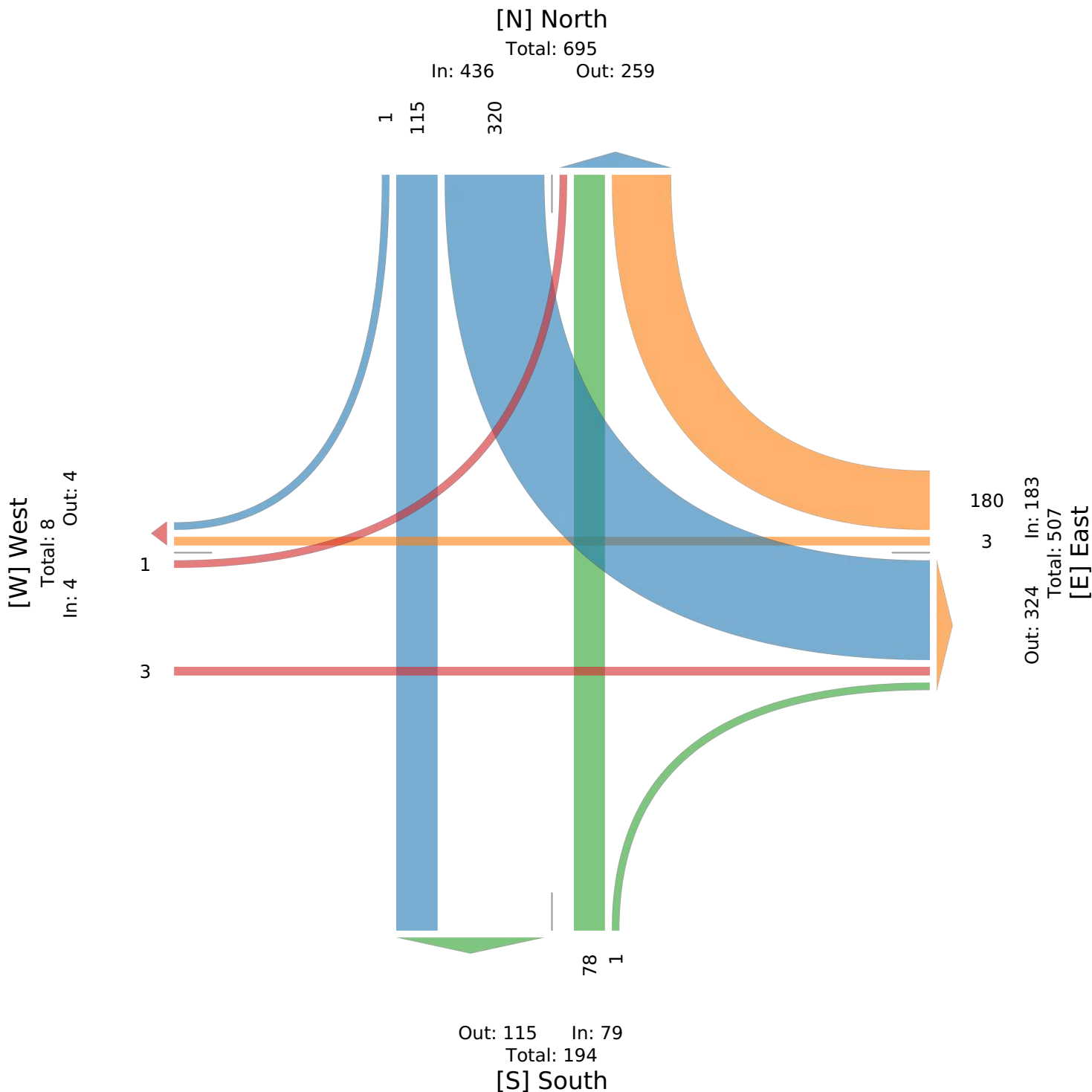
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1274277, Location: 35.959253, -95.761594



Provided by: Traffic Engineering Consultants, Inc.
2770 Washington Dr., Suite 100, Norman, OK, 73069, US



CAPACITY ANALYSIS

Intersection	
Intersection Delay, s/veh	12.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	3	76	2	6	24	100	339	1	17	98	36
Future Vol, veh/h	34	3	76	2	6	24	100	339	1	17	98	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	3	83	2	7	26	109	368	1	18	107	39
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.3	8.5	14.4	9.1
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	30%	6%	11%
Vol Thru, %	77%	3%	19%	65%
Vol Right, %	0%	67%	75%	24%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	440	113	32	151
LT Vol	100	34	2	17
Through Vol	339	3	6	98
RT Vol	1	76	24	36
Lane Flow Rate	478	123	35	164
Geometry Grp	1	1	1	1
Degree of Util (X)	0.606	0.174	0.05	0.217
Departure Headway (Hd)	4.565	5.103	5.155	4.75
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	789	698	687	750
Service Time	2.615	3.174	3.242	2.814
HCM Lane V/C Ratio	0.606	0.176	0.051	0.219
HCM Control Delay, s/veh	14.4	9.3	8.5	9.1
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	4.2	0.6	0.2	0.8

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	0	2	0	301	0	121	4	125	48	4
Future Vol, veh/h	2	0	0	2	0	301	0	121	4	125	48	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	0	2	0	327	0	132	4	136	52	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.4	9.7	9	9.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	100%	1%	71%
Vol Thru, %	97%	0%	0%	27%
Vol Right, %	3%	0%	99%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	125	2	303	177
LT Vol	0	2	2	125
Through Vol	121	0	0	48
RT Vol	4	0	301	4
Lane Flow Rate	136	2	329	192
Geometry Grp	1	1	1	1
Degree of Util (X)	0.184	0.003	0.38	0.264
Departure Headway (Hd)	4.869	5.327	4.15	4.94
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	732	668	866	723
Service Time	2.929	3.39	2.183	2.997
HCM Lane V/C Ratio	0.186	0.003	0.38	0.266
HCM Control Delay, s/veh	9	8.4	9.7	9.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.7	0	1.8	1.1

Intersection	
Intersection Delay, s/veh	13.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	65	12	148	2	5	22	93	179	1	25	294	63
Future Vol, veh/h	65	12	148	2	5	22	93	179	1	25	294	63
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	71	13	161	2	5	24	101	195	1	27	320	68
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	11.7	9.2	12.7	15.1
HCM LOS	B	A	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	34%	29%	7%	7%
Vol Thru, %	66%	5%	17%	77%
Vol Right, %	0%	66%	76%	16%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	273	225	29	382
LT Vol	93	65	2	25
Through Vol	179	12	5	294
RT Vol	1	148	22	63
Lane Flow Rate	297	245	32	415
Geometry Grp	1	1	1	1
Degree of Util (X)	0.444	0.371	0.051	0.586
Departure Headway (Hd)	5.383	5.463	5.827	5.085
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	668	658	612	710
Service Time	3.422	3.509	3.891	3.121
HCM Lane V/C Ratio	0.445	0.372	0.052	0.585
HCM Control Delay, s/veh	12.7	11.7	9.2	15.1
HCM Lane LOS	B	B	A	C
HCM 95th-tile Q	2.3	1.7	0.2	3.8

Intersection	
Intersection Delay, s/veh	12.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	3	0	0	3	180	0	78	1	320	115	1
Future Vol, veh/h	1	3	0	0	3	180	0	78	1	320	115	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	3	0	0	3	196	0	85	1	348	125	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.7	9.4	8.7	14.9
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	25%	0%	73%
Vol Thru, %	99%	75%	2%	26%
Vol Right, %	1%	0%	98%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	79	4	183	436
LT Vol	0	1	0	320
Through Vol	78	3	3	115
RT Vol	1	0	180	1
Lane Flow Rate	86	4	199	474
Geometry Grp	1	1	1	1
Degree of Util (X)	0.118	0.007	0.259	0.613
Departure Headway (Hd)	4.959	5.605	4.679	4.66
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	717	633	764	772
Service Time	3.029	3.684	2.728	2.713
HCM Lane V/C Ratio	0.12	0.006	0.26	0.614
HCM Control Delay, s/veh	8.7	8.7	9.4	14.9
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.4	0	1	4.3

Intersection	
Intersection Delay, s/veh	12.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	3	78	2	6	24	102	346	1	17	100	37
Future Vol, veh/h	35	3	78	2	6	24	102	346	1	17	100	37
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	3	85	2	7	26	111	376	1	18	109	40
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.4	8.6	14.9	9.2
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	30%	6%	11%
Vol Thru, %	77%	3%	19%	65%
Vol Right, %	0%	67%	75%	24%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	449	116	32	154
LT Vol	102	35	2	17
Through Vol	346	3	6	100
RT Vol	1	78	24	37
Lane Flow Rate	488	126	35	167
Geometry Grp	1	1	1	1
Degree of Util (X)	0.621	0.18	0.05	0.222
Departure Headway (Hd)	4.581	5.135	5.193	4.774
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	786	693	681	747
Service Time	2.632	3.21	3.287	2.84
HCM Lane V/C Ratio	0.621	0.182	0.051	0.224
HCM Control Delay, s/veh	14.9	9.4	8.6	9.2
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	4.4	0.7	0.2	0.8

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	0	2	0	307	0	123	4	128	49	4
Future Vol, veh/h	2	0	0	2	0	307	0	123	4	128	49	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	0	2	0	334	0	134	4	139	53	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.4	9.9	9.1	9.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	100%	1%	71%
Vol Thru, %	97%	0%	0%	27%
Vol Right, %	3%	0%	99%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	127	2	309	181
LT Vol	0	2	2	128
Through Vol	123	0	0	49
RT Vol	4	0	307	4
Lane Flow Rate	138	2	336	197
Geometry Grp	1	1	1	1
Degree of Util (X)	0.188	0.003	0.389	0.271
Departure Headway (Hd)	4.895	5.357	4.168	4.962
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	729	664	863	720
Service Time	2.955	3.422	2.202	3.02
HCM Lane V/C Ratio	0.189	0.003	0.389	0.274
HCM Control Delay, s/veh	9.1	8.4	9.9	9.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.7	0	1.9	1.1

Intersection	
Intersection Delay, s/veh	13.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	66	12	151	2	5	22	95	183	1	26	300	64
Future Vol, veh/h	66	12	151	2	5	22	95	183	1	26	300	64
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	72	13	164	2	5	24	103	199	1	28	326	70
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	11.9	9.3	13	15.7
HCM LOS	B	A	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	34%	29%	7%	7%
Vol Thru, %	66%	5%	17%	77%
Vol Right, %	0%	66%	76%	16%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	279	229	29	390
LT Vol	95	66	2	26
Through Vol	183	12	5	300
RT Vol	1	151	22	64
Lane Flow Rate	303	249	32	424
Geometry Grp	1	1	1	1
Degree of Util (X)	0.457	0.381	0.052	0.603
Departure Headway (Hd)	5.422	5.51	5.895	5.12
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	664	652	604	704
Service Time	3.464	3.559	3.965	3.159
HCM Lane V/C Ratio	0.456	0.382	0.053	0.602
HCM Control Delay, s/veh	13	11.9	9.3	15.7
HCM Lane LOS	B	B	A	C
HCM 95th-tile Q	2.4	1.8	0.2	4.1

Intersection	
Intersection Delay, s/veh	13
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	3	0	0	3	184	0	80	1	326	117	1
Future Vol, veh/h	1	3	0	0	3	184	0	80	1	326	117	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	3	0	0	3	200	0	87	1	354	127	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.8	9.5	8.8	15.3
HCM LOS	A	A	A	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	25%	0%	73%
Vol Thru, %	99%	75%	2%	26%
Vol Right, %	1%	0%	98%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	81	4	187	444
LT Vol	0	1	0	326
Through Vol	80	3	3	117
RT Vol	1	0	184	1
Lane Flow Rate	88	4	203	483
Geometry Grp	1	1	1	1
Degree of Util (X)	0.122	0.007	0.266	0.627
Departure Headway (Hd)	4.986	5.643	4.706	4.677
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	713	628	760	767
Service Time	3.059	3.729	2.76	2.731
HCM Lane V/C Ratio	0.123	0.006	0.267	0.63
HCM Control Delay, s/veh	8.8	8.8	9.5	15.3
HCM Lane LOS	A	A	A	C
HCM 95th-tile Q	0.4	0	1.1	4.5

Intersection	
Intersection Delay, s/veh	17.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	3	86	2	6	24	126	428	1	17	128	37
Future Vol, veh/h	35	3	86	2	6	24	126	428	1	17	128	37
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	3	93	2	7	26	137	465	1	18	139	40
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10	9.1	22.6	10.1
HCM LOS	A	A	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	28%	6%	9%
Vol Thru, %	77%	2%	19%	70%
Vol Right, %	0%	69%	75%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	555	124	32	182
LT Vol	126	35	2	17
Through Vol	428	3	6	128
RT Vol	1	86	24	37
Lane Flow Rate	603	135	35	198
Geometry Grp	1	1	1	1
Degree of Util (X)	0.782	0.209	0.055	0.28
Departure Headway (Hd)	4.668	5.571	5.716	5.089
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	766	647	629	710
Service Time	2.757	3.581	3.733	3.089
HCM Lane V/C Ratio	0.787	0.209	0.056	0.279
HCM Control Delay, s/veh	22.6	10	9.1	10.1
HCM Lane LOS	C	A	A	B
HCM 95th-tile Q	7.8	0.8	0.2	1.1

Intersection

Intersection Delay, s/veh 10.4

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	0	2	0	318	0	131	4	161	73	4
Future Vol, veh/h	2	0	0	2	0	318	0	131	4	161	73	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	0	2	0	346	0	142	4	175	79	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.7	10.5	9.4	10.9
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	100%	1%	68%
Vol Thru, %	97%	0%	0%	31%
Vol Right, %	3%	0%	99%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	135	2	320	238
LT Vol	0	2	2	161
Through Vol	131	0	0	73
RT Vol	4	0	318	4
Lane Flow Rate	147	2	348	259
Geometry Grp	1	1	1	1
Degree of Util (X)	0.205	0.003	0.42	0.361
Departure Headway (Hd)	5.031	5.588	4.347	5.023
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	706	634	824	709
Service Time	3.112	3.679	2.395	3.098
HCM Lane V/C Ratio	0.208	0.003	0.422	0.365
HCM Control Delay, s/veh	9.4	8.7	10.5	10.9
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.8	0	2.1	1.6

HCM 7th TWSC
3: 23rd E Avenue & Drive 1

2026 Total Traffic
AM Peak Hour

Intersection

Int Delay, s/veh 1.8

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 64 23 8 491 195 22

Future Vol, veh/h 64 23 8 491 195 22

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 92 92 92 92 92 92

Heavy Vehicles, % 2 2 2 2 2 2

Mvmt Flow 70 25 9 534 212 24

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 775 224 236 0 - 0

Stage 1 224 - - - - -

Stage 2 551 - - - - -

Critical Hdwy 6.42 6.22 4.12 - - -

Critical Hdwy Stg 1 5.42 - - - - -

Critical Hdwy Stg 2 5.42 - - - - -

Follow-up Hdwy 3.518 3.318 2.218 - - -

Pot Cap-1 Maneuver 366 816 1331 - - -

Stage 1 813 - - - - -

Stage 2 577 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 363 816 1331 - - -

Mov Cap-2 Maneuver 363 - - - - -

Stage 1 806 - - - - -

Stage 2 577 - - - - -

Approach EB NB SB

HCM Control Delay, s/v15.87 0.12 0

HCM LOS C

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h) 29 - 425 - -

HCM Lane V/C Ratio 0.007 - 0.222 - -

HCM Control Delay (s/veh) 7.7 0 15.9 - -

HCM Lane LOS A A C - -

HCM 95th %tile Q(veh) 0 - 0.8 - -

HCM 7th TWSC
4: 23rd E Avenue & Drive 2

2026 Total Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	42	34	11	457	204	14
Future Vol, veh/h	42	34	11	457	204	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	46	37	12	497	222	15

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	750	229	237	0	-	0
Stage 1	229	-	-	-	-	-
Stage 2	521	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	379	810	1330	-	-	-
Stage 1	809	-	-	-	-	-
Stage 2	596	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	374	810	1330	-	-	-
Mov Cap-2 Maneuver	374	-	-	-	-	-
Stage 1	799	-	-	-	-	-
Stage 2	596	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v13.77		0.18	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	42	-	493	-	-
HCM Lane V/C Ratio	0.009	-	0.168	-	-
HCM Control Delay (s/veh)	7.7	0	13.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

HCM 7th AWSC
1: 23rd E Avenue & E 131st St

2026 Total Traffic
PM Peak Hour

Intersection	
Intersection Delay, s/veh	20.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	66	12	179	2	5	22	111	237	1	26	392	64
Future Vol, veh/h	66	12	179	2	5	22	111	237	1	26	392	64
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	72	13	195	2	5	24	121	258	1	28	426	70
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	14.3	10.2	17.6	26.5
HCM LOS	B	B	C	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	32%	26%	7%	5%
Vol Thru, %	68%	5%	17%	81%
Vol Right, %	0%	70%	76%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	349	257	29	482
LT Vol	111	66	2	26
Through Vol	237	12	5	392
RT Vol	1	179	22	64
Lane Flow Rate	379	279	32	524
Geometry Grp	1	1	1	1
Degree of Util (X)	0.61	0.466	0.059	0.795
Departure Headway (Hd)	5.787	6	6.789	5.462
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	618	595	531	660
Service Time	3.873	4.091	4.789	3.538
HCM Lane V/C Ratio	0.613	0.469	0.06	0.794
HCM Control Delay, s/veh	17.6	14.3	10.2	26.5
HCM Lane LOS	C	B	B	D
HCM 95th-tile Q	4.1	2.5	0.2	7.9

Intersection

Intersection Delay, s/veh15.1

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	3	0	0	3	220	0	108	1	348	133	1
Future Vol, veh/h	1	3	0	0	3	220	0	108	1	348	133	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	3	0	0	3	239	0	117	1	378	145	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach RightNB		SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh9.1		10.4	9.4	18.6
HCM LOS	A	B	A	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	25%	0%	72%
Vol Thru, %	99%	75%	1%	28%
Vol Right, %	1%	0%	99%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	109	4	223	482
LT Vol	0	1	0	348
Through Vol	108	3	3	133
RT Vol	1	0	220	1
Lane Flow Rate	118	4	242	524
Geometry Grp	1	1	1	1
Degree of Util (X)	0.174	0.007	0.329	0.702
Departure Headway (Hd)	5.275	6.049	4.892	4.826
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	685	594	727	744
Service Time	3.275	4.057	2.976	2.906
HCM Lane V/C Ratio	0.172	0.007	0.333	0.704
HCM Control Delay, s/veh	9.4	9.1	10.4	18.6
HCM Lane LOS	A	A	B	C
HCM 95th-tile Q	0.6	0	1.4	5.8

HCM 7th TWSC
3: 23rd E Avenue & Drive 1

2026 Total Traffic
PM Peak Hour

Intersection

Int Delay, s/veh 1.4

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 42 15 28 306 501 72

Future Vol, veh/h 42 15 28 306 501 72

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 92 92 92 92 92 92

Heavy Vehicles, % 2 2 2 2 2 2

Mvmt Flow 46 16 30 333 545 78

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 977 584 623 0 - 0

Stage 1 584 - - - - -

Stage 2 393 - - - - -

Critical Hdwy 6.42 6.22 4.12 - - -

Critical Hdwy Stg 1 5.42 - - - - -

Critical Hdwy Stg 2 5.42 - - - - -

Follow-up Hdwy 3.518 3.318 2.218 - - -

Pot Cap-1 Maneuver 278 512 958 - - -

Stage 1 558 - - - - -

Stage 2 682 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 267 512 958 - - -

Mov Cap-2 Maneuver 267 - - - - -

Stage 1 536 - - - - -

Stage 2 682 - - - - -

Approach EB NB SB

HCM Control Delay, s/v19.75 0.74 0

HCM LOS C

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h) 151 - 306 - -

HCM Lane V/C Ratio 0.032 - 0.203 - -

HCM Control Delay (s/veh) 8.9 0 19.7 - -

HCM Lane LOS A A C - -

HCM 95th %tile Q(veh) 0.1 - 0.7 - -

HCM 7th TWSC
4: 23rd E Avenue & Drive 2

2026 Total Traffic
PM Peak Hour

Intersection

Int Delay, s/veh 1.3

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 28 23 36 306 468 48

Future Vol, veh/h 28 23 36 306 468 48

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 92 92 92 92 92 92

Heavy Vehicles, % 2 2 2 2 2 2

Mvmt Flow 30 25 39 333 509 52

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 946 535 561 0 - 0

Stage 1 535 - - - - -

Stage 2 411 - - - - -

Critical Hdwy 6.42 6.22 4.12 - - -

Critical Hdwy Stg 1 5.42 - - - - -

Critical Hdwy Stg 2 5.42 - - - - -

Follow-up Hdwy 3.518 3.318 2.218 - - -

Pot Cap-1 Maneuver 290 545 1010 - - -

Stage 1 587 - - - - -

Stage 2 669 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 277 545 1010 - - -

Mov Cap-2 Maneuver 277 - - - - -

Stage 1 559 - - - - -

Stage 2 669 - - - - -

Approach EB NB SB

HCM Control Delay, s/v16.98 0.92 0

HCM LOS C

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h) 189 - 356 - -

HCM Lane V/C Ratio 0.039 - 0.156 - -

HCM Control Delay (s/veh) 8.7 0 17 - -

HCM Lane LOS A A C - -

HCM 95th %tile Q(veh) 0.1 - 0.5 - -

Intersection	
Intersection Delay, s/veh	24.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	36	3	92	2	6	25	137	467	1	18	140	38
Future Vol, veh/h	36	3	92	2	6	25	137	467	1	18	140	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	39	3	100	2	7	27	149	508	1	20	152	41
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10.5	9.4	32.5	10.6
HCM LOS	B	A	D	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	27%	6%	9%
Vol Thru, %	77%	2%	18%	71%
Vol Right, %	0%	70%	76%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	605	131	33	196
LT Vol	137	36	2	18
Through Vol	467	3	6	140
RT Vol	1	92	25	38
Lane Flow Rate	658	142	36	213
Geometry Grp	1	1	1	1
Degree of Util (X)	0.882	0.228	0.059	0.308
Departure Headway (Hd)	4.831	5.757	5.939	5.21
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	756	622	601	690
Service Time	2.831	3.801	3.995	3.245
HCM Lane V/C Ratio	0.87	0.228	0.06	0.309
HCM Control Delay, s/veh	32.5	10.5	9.4	10.6
HCM Lane LOS	D	B	A	B
HCM 95th-tile Q	11.1	0.9	0.2	1.3

Intersection

Intersection Delay, s/veh 10.9

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	0	7	0	331	0	137	6	168	77	4
Future Vol, veh/h	2	0	0	7	0	331	0	137	6	168	77	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	0	8	0	360	0	149	7	183	84	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh 8.8		11.1	9.7	11.4
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	100%	2%	67%
Vol Thru, %	96%	0%	0%	31%
Vol Right, %	4%	0%	98%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	143	2	338	249
LT Vol	0	2	7	168
Through Vol	137	0	0	77
RT Vol	6	0	331	4
Lane Flow Rate	155	2	367	271
Geometry Grp	1	1	1	1
Degree of Util (X)	0.22	0.003	0.451	0.383
Departure Headway (Hd)	5.097	5.792	4.416	5.09
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	696	622	812	698
Service Time	3.193	3.792	2.472	3.177
HCM Lane V/C Ratio	0.223	0.003	0.452	0.388
HCM Control Delay, s/veh	9.7	8.8	11.1	11.4
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.8	0	2.4	1.8

HCM 7th TWSC
3: 23rd E Avenue & Drive 1

2028 Total Traffic
AM Peak Hour

Intersection

Int Delay, s/veh 1.8

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 64 23 8 541 213 22

Future Vol, veh/h 64 23 8 541 213 22

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 92 92 92 92 92 92

Heavy Vehicles, % 2 2 2 2 2 2

Mvmt Flow 70 25 9 588 232 24

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 849 243 255 0 - 0

Stage 1 243 - - - - -

Stage 2 605 - - - - -

Critical Hdwy 6.42 6.22 4.12 - - -

Critical Hdwy Stg 1 5.42 - - - - -

Critical Hdwy Stg 2 5.42 - - - - -

Follow-up Hdwy 3.518 3.318 2.218 - - -

Pot Cap-1 Maneuver 331 795 1310 - - -

Stage 1 797 - - - - -

Stage 2 545 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 328 795 1310 - - -

Mov Cap-2 Maneuver 328 - - - - -

Stage 1 789 - - - - -

Stage 2 545 - - - - -

Approach EB NB SB

HCM Control Delay, s/v17.23 0.11 0

HCM LOS C

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h) 26 - 388 - -

HCM Lane V/C Ratio 0.007 - 0.243 - -

HCM Control Delay (s/veh) 7.8 0 17.2 - -

HCM Lane LOS A A C - -

HCM 95th %tile Q(veh) 0 - 0.9 - -

HCM 7th TWSC
4: 23rd E Avenue & Drive 2

2028 Total Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	42	34	11	507	222	14
Future Vol, veh/h	42	34	11	507	222	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	46	37	12	551	241	15

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	824	249	257	0	-	0
Stage 1	249	-	-	-	-	-
Stage 2	575	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	343	790	1308	-	-	-
Stage 1	793	-	-	-	-	-
Stage 2	563	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	338	790	1308	-	-	-
Mov Cap-2 Maneuver	338	-	-	-	-	-
Stage 1	782	-	-	-	-	-
Stage 2	563	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	14.67	0.17	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	38	-	455	-	-
HCM Lane V/C Ratio	0.009	-	0.182	-	-
HCM Control Delay (s/veh)	7.8	0	14.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-

HCM 7th TWSC
5: 23rd E Avenue & Drive 3

2028 Total Traffic
AM Peak Hour

Intersection

Int Delay, s/veh 0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	19	499	2	7	249
Future Vol, veh/h	2	19	499	2	7	249
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	21	542	2	8	271

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	829	543	0
Stage 1	543	-	-
Stage 2	286	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	340	539	-
Stage 1	582	-	-
Stage 2	763	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	337	539	-
Mov Cap-2 Maneuver	337	-	-
Stage 1	582	-	-
Stage 2	756	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v12.39		0	0.23
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	510	1024
HCM Lane V/C Ratio	-	-	0.045	0.007
HCM Control Delay (s/veh)	-	-	12.4	8.5
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 7th TWSC
6: 23rd E Avenue & Drive 4

2028 Total Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	13	488	0	4	247
Future Vol, veh/h	2	13	488	0	4	247
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	14	530	0	4	268

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	808	530	0	-	530
Stage 1	530	-	-	-	-
Stage 2	277	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	350	549	-	0	1037
Stage 1	590	-	-	0	-
Stage 2	770	-	-	0	-
Platoon blocked, %			-		-
Mov Cap-1 Maneuver	349	549	-	-	1037
Mov Cap-2 Maneuver	349	-	-	-	-
Stage 1	590	-	-	-	-
Stage 2	766	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	12.3	0	0.14
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1	SBL	SBT
Capacity (veh/h)	- 510	1037	-
HCM Lane V/C Ratio	- 0.032	0.004	-
HCM Control Delay (s/veh)	- 12.3	8.5	-
HCM Lane LOS	- B	A	-
HCM 95th %tile Q(veh)	- 0.1	0	-

HCM 7th TWSC
7: E 141st St & Drive 5

2028 Total Traffic
AM Peak Hour

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↓	↓
Traffic Vol, veh/h	2	172	334	2	8	5
Future Vol, veh/h	2	172	334	2	8	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	187	363	2	9	5

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	365	0	0 555 364
Stage 1	-	-	- 364 -
Stage 2	-	-	- 191 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1193	-	- 492 681
Stage 1	-	-	- 703 -
Stage 2	-	-	- 841 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1193	-	- 491 681
Mov Cap-2 Maneuver	-	-	- 491 -
Stage 1	-	-	- 701 -
Stage 2	-	-	- 841 -

Approach	EB	WB	SB
HCM Control Delay, s/v 0.09		0	11.71
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1193	-	-	-	550
HCM Lane V/C Ratio	0.002	-	-	-	0.026
HCM Control Delay (s/veh)	8	-	-	-	11.7
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Intersection Delay, s/veh	30
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	69	13	193	2	5	23	120	260	1	27	432	67
Future Vol, veh/h	69	13	193	2	5	23	120	260	1	27	432	67
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	75	14	210	2	5	25	130	283	1	29	470	73
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	16.5	10.9	22.6	43.4
HCM LOS	C	B	C	E

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	25%	7%	5%
Vol Thru, %	68%	5%	17%	82%
Vol Right, %	0%	70%	77%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	381	275	30	526
LT Vol	120	69	2	27
Through Vol	260	13	5	432
RT Vol	1	193	23	67
Lane Flow Rate	414	299	33	572
Geometry Grp	1	1	1	1
Degree of Util (X)	0.705	0.53	0.066	0.922
Departure Headway (Hd)	6.127	6.38	7.268	5.805
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	588	565	489	629
Service Time	4.18	4.437	5.361	3.805
HCM Lane V/C Ratio	0.704	0.529	0.067	0.909
HCM Control Delay, s/veh	22.6	16.5	10.9	43.4
HCM Lane LOS	C	C	B	E
HCM 95th-tile Q	5.7	3.1	0.2	11.9

Intersection

Intersection Delay, s/veh 16.6

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	3	0	3	3	230	0	113	7	364	140	1
Future Vol, veh/h	1	3	0	3	3	230	0	113	7	364	140	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	3	0	3	3	250	0	123	8	396	152	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.3	10.9	9.6	21
HCM LOS	A	B	A	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	25%	1%	72%
Vol Thru, %	94%	75%	1%	28%
Vol Right, %	6%	0%	97%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	4	236	505
LT Vol	0	1	3	364
Through Vol	113	3	3	140
RT Vol	7	0	230	1
Lane Flow Rate	130	4	257	549
Geometry Grp	1	1	1	1
Degree of Util (X)	0.194	0.007	0.356	0.745
Departure Headway (Hd)	5.349	6.209	4.995	4.888
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	674	579	711	730
Service Time	3.349	4.218	3.093	2.981
HCM Lane V/C Ratio	0.193	0.007	0.361	0.752
HCM Control Delay, s/veh	9.6	9.3	10.9	21
HCM Lane LOS	A	A	B	C
HCM 95th-tile Q	0.7	0	1.6	6.8

HCM 7th TWSC
3: 23rd E Avenue & Drive 1

2028 Total Traffic
PM Peak Hour

Intersection

Int Delay, s/veh 1.4

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 42 15 28 339 555 72

Future Vol, veh/h 42 15 28 339 555 72

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 92 92 92 92 92 92

Heavy Vehicles, % 2 2 2 2 2 2

Mvmt Flow 46 16 30 368 603 78

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 1072 642 682 0 - 0

Stage 1 642 - - - - -

Stage 2 429 - - - - -

Critical Hdwy 6.42 6.22 4.12 - - -

Critical Hdwy Stg 1 5.42 - - - - -

Critical Hdwy Stg 2 5.42 - - - - -

Follow-up Hdwy 3.518 3.318 2.218 - - -

Pot Cap-1 Maneuver 244 474 911 - - -

Stage 1 524 - - - - -

Stage 2 656 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 234 474 911 - - -

Mov Cap-2 Maneuver 234 - - - - -

Stage 1 502 - - - - -

Stage 2 656 - - - - -

Approach EB NB SB

HCM Control Delay, s/v22.27 0.69 0

HCM LOS C

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h) 137 - 270 - -

HCM Lane V/C Ratio 0.033 - 0.23 - -

HCM Control Delay (s/veh) 9.1 0 22.3 - -

HCM Lane LOS A A C - -

HCM 95th %tile Q(veh) 0.1 - 0.9 - -

HCM 7th TWSC
4: 23rd E Avenue & Drive 2

2028 Total Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	28	23	36	339	522	48
Future Vol, veh/h	28	23	36	339	522	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	25	39	368	567	52

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1040	593	620	0	-	0
Stage 1	593	-	-	-	-	-
Stage 2	447	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	255	505	961	-	-	-
Stage 1	552	-	-	-	-	-
Stage 2	645	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	242	505	961	-	-	-
Mov Cap-2 Maneuver	242	-	-	-	-	-
Stage 1	524	-	-	-	-	-
Stage 2	645	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	18.79	0.85	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	173	-	316	-	-
HCM Lane V/C Ratio	0.041	-	0.175	-	-
HCM Control Delay (s/veh)	8.9	0	18.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	-	-

HCM 7th TWSC
5: 23rd E Avenue & Drive 3

2028 Total Traffic
PM Peak Hour

Intersection

Int Delay, s/veh 0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	13	362	5	22	523
Future Vol, veh/h	2	13	362	5	22	523
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	14	393	5	24	568

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1013	396	0
Stage 1	396	-	-
Stage 2	616	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	265	653	-
Stage 1	680	-	-
Stage 2	539	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	257	653	-
Mov Cap-2 Maneuver	257	-	-
Stage 1	680	-	-
Stage 2	522	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	11.85	0	0.33
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	542	1160
HCM Lane V/C Ratio	-	-	0.03	0.021
HCM Control Delay (s/veh)	-	-	11.9	8.2
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1

HCM 7th TWSC
6: 23rd E Avenue & Drive 4

2028 Total Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	8	359	0	14	511
Future Vol, veh/h	2	8	359	0	14	511
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	9	390	0	15	555

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	976	390	0	0	390
Stage 1	390	-	-	-	-
Stage 2	586	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	278	658	-	-	1168
Stage 1	684	-	-	-	-
Stage 2	556	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	273	658	-	-	1168
Mov Cap-2 Maneuver	273	-	-	-	-
Stage 1	684	-	-	-	-
Stage 2	546	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v12.16		0	0.22
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	514	48
HCM Lane V/C Ratio	-	-	0.021	0.013
HCM Control Delay (s/veh)	-	-	12.2	8.1
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	368	233	8	5	3
Future Vol, veh/h	6	368	233	8	5	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	400	253	9	5	3
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	262	0	-	0	671	258
Stage 1	-	-	-	-	258	-
Stage 2	-	-	-	-	413	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1302	-	-	-	422	781
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	668	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1302	-	-	-	419	781
Mov Cap-2 Maneuver	-	-	-	-	419	-
Stage 1	-	-	-	-	780	-
Stage 2	-	-	-	-	668	-
Approach	EB	WB		SB		
HCM Control Delay, s/v	0.12	0		12.22		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	29	-	-	-	507	
HCM Lane V/C Ratio	0.005	-	-	-	0.017	
HCM Control Delay (s/veh)	7.8	0	-	-	12.2	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

HCM 7th AWSC
1: 23rd E Avenue & E 131st St

2030 Total Traffic
AM Peak Hour

Intersection	
Intersection Delay, s/veh	38
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	3	99	2	7	26	152	517	1	19	156	40
Future Vol, veh/h	38	3	99	2	7	26	152	517	1	19	156	40
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	41	3	108	2	8	28	165	562	1	21	170	43
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	11.1	9.8	53.6	11.3
HCM LOS	B	A	F	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	27%	6%	9%
Vol Thru, %	77%	2%	20%	73%
Vol Right, %	0%	71%	74%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	670	140	35	215
LT Vol	152	38	2	19
Through Vol	517	3	7	156
RT Vol	1	99	26	40
Lane Flow Rate	728	152	38	234
Geometry Grp	1	1	1	1
Degree of Util (X)	0.994	0.254	0.066	0.35
Departure Headway (Hd)	4.913	6.013	6.262	5.395
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	743	595	570	666
Service Time	2.941	4.066	4.328	3.437
HCM Lane V/C Ratio	0.98	0.255	0.067	0.351
HCM Control Delay, s/veh	53.6	11.1	9.8	11.3
HCM Lane LOS	F	B	A	B
HCM 95th-tile Q	16.2	1	0.2	1.6

Intersection

Intersection Delay, s/veh 11.9

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	7	5	4	7	1	347	2	145	6	183	86	4
Future Vol, veh/h	7	5	4	7	1	347	2	145	6	183	86	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	5	4	8	1	377	2	158	7	199	93	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.9	12.2	10.2	12.5
HCM LOS	A	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	44%	2%	67%
Vol Thru, %	95%	31%	0%	32%
Vol Right, %	4%	25%	98%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	153	16	355	273
LT Vol	2	7	7	183
Through Vol	145	5	1	86
RT Vol	6	4	347	4
Lane Flow Rate	166	17	386	297
Geometry Grp	1	1	1	1
Degree of Util (X)	0.248	0.028	0.498	0.438
Departure Headway (Hd)	5.371	5.711	4.649	5.318
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	669	626	779	677
Service Time	3.406	3.756	2.649	3.349
HCM Lane V/C Ratio	0.248	0.027	0.496	0.439
HCM Control Delay, s/veh	10.2	8.9	12.2	12.5
HCM Lane LOS	B	A	B	B
HCM 95th-tile Q	1	0.1	2.8	2.2

HCM 7th TWSC
3: 23rd E Avenue & Drive 1

2030 Total Traffic
AM Peak Hour

Intersection

Int Delay, s/veh 1.8

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 64 23 8 607 236 22

Future Vol, veh/h 64 23 8 607 236 22

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 92 92 92 92 92 92

Heavy Vehicles, % 2 2 2 2 2 2

Mvmt Flow 70 25 9 660 257 24

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 946 268 280 0 - 0

Stage 1 268 - - - - -

Stage 2 677 - - - - -

Critical Hdwy 6.42 6.22 4.12 - - -

Critical Hdwy Stg 1 5.42 - - - - -

Critical Hdwy Stg 2 5.42 - - - - -

Follow-up Hdwy 3.518 3.318 2.218 - - -

Pot Cap-1 Maneuver 290 770 1282 - - -

Stage 1 777 - - - - -

Stage 2 505 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 287 770 1282 - - -

Mov Cap-2 Maneuver 287 - - - - -

Stage 1 768 - - - - -

Stage 2 505 - - - - -

Approach EB NB SB

HCM Control Delay, s/v19.37 0.1 0

HCM LOS C

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h) 23 - 344 - -

HCM Lane V/C Ratio 0.007 - 0.275 - -

HCM Control Delay (s/veh) 7.8 0 19.4 - -

HCM Lane LOS A A C - -

HCM 95th %tile Q(veh) 0 - 1.1 - -

HCM 7th TWSC
4: 23rd E Avenue & Drive 2

2030 Total Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	42	34	11	573	245	14
Future Vol, veh/h	42	34	11	573	245	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	46	37	12	623	266	15

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	921	274	282	0	-	0
Stage 1	274	-	-	-	-	-
Stage 2	647	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	300	765	1281	-	-	-
Stage 1	772	-	-	-	-	-
Stage 2	521	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	296	765	1281	-	-	-
Mov Cap-2 Maneuver	296	-	-	-	-	-
Stage 1	761	-	-	-	-	-
Stage 2	521	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v16.05		0.15	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	34	-	408	-	-
HCM Lane V/C Ratio	0.009	-	0.202	-	-
HCM Control Delay (s/veh)	7.8	0	16	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-

HCM 7th TWSC
5: 23rd E Avenue & Drive 3

2030 Total Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑			↑
Traffic Vol, veh/h	2	19	565	2	7	272
Future Vol, veh/h	2	19	565	2	7	272
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	21	614	2	8	296

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	926	615	0	0	616	0
Stage 1	615	-	-	-	-	-
Stage 2	311	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	298	491	-	-	964	-
Stage 1	539	-	-	-	-	-
Stage 2	743	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	295	491	-	-	964	-
Mov Cap-2 Maneuver	295	-	-	-	-	-
Stage 1	539	-	-	-	-	-
Stage 2	736	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	13.2	0	0.22
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	462	964
HCM Lane V/C Ratio	-	-	0.049	0.008
HCM Control Delay (s/veh)	-	-	13.2	8.8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

HCM 7th TWSC
6: 23rd E Avenue & Drive 4

2030 Total Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑			↑
Traffic Vol, veh/h	2	13	528	0	4	266
Future Vol, veh/h	2	13	528	0	4	266
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	14	574	0	4	289

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	872	574	0	-	574
Stage 1	574	-	-	-	-
Stage 2	298	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	321	518	-	0	999
Stage 1	563	-	-	0	-
Stage 2	753	-	-	0	-
Platoon blocked, %			-		-
Mov Cap-1 Maneuver	320	518	-	-	999
Mov Cap-2 Maneuver	320	-	-	-	-
Stage 1	563	-	-	-	-
Stage 2	749	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v12.79		0	0.13
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1	SBL	SBT
Capacity (veh/h)	- 479	999	-
HCM Lane V/C Ratio	- 0.034	0.004	-
HCM Control Delay (s/veh)	- 12.8	8.6	-
HCM Lane LOS	- B	A	-
HCM 95th %tile Q(veh)	- 0.1	0	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↓	↓
Traffic Vol, veh/h	2	192	351	2	8	5
Future Vol, veh/h	2	192	351	2	8	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	209	382	2	9	5
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	384	0	-	0	596	383
Stage 1	-	-	-	-	383	-
Stage 2	-	-	-	-	213	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1175	-	-	-	467	665
Stage 1	-	-	-	-	689	-
Stage 2	-	-	-	-	822	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1175	-	-	-	466	665
Mov Cap-2 Maneuver	-	-	-	-	466	-
Stage 1	-	-	-	-	688	-
Stage 2	-	-	-	-	822	-
Approach	EB	WB		SB		
HCM Control Delay, s/v	0.08	0		12.03		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1175	-	-	-	526	
HCM Lane V/C Ratio	0.002	-	-	-	0.027	
HCM Control Delay (s/veh)	8.1	-	-	-	12	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

HCM 7th TWSC
8: 23rd E Avenue & Drive 6

2030 Total Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	28	8	2	539	262	10
Future Vol, veh/h	28	8	2	539	262	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	9	2	586	285	11

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	880	290	296	0	-	0
Stage 1	290	-	-	-	-	-
Stage 2	590	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	317	749	1266	-	-	-
Stage 1	759	-	-	-	-	-
Stage 2	554	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	317	749	1266	-	-	-
Mov Cap-2 Maneuver	317	-	-	-	-	-
Stage 1	757	-	-	-	-	-
Stage 2	554	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v16.11		0.03	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	7	-	363	-	-
HCM Lane V/C Ratio	0.002	-	0.108	-	-
HCM Control Delay (s/veh)	7.8	0	16.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

HCM 7th TWSC
9: 23rd E Avenue & Drive 7

2030 Total Traffic
AM Peak Hour

Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	9	3	514	264	6
Future Vol, veh/h	14	9	3	514	264	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	10	3	559	287	7

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	855	290	293
Stage 1	290	-	-
Stage 2	565	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	328	749	1268
Stage 1	759	-	-
Stage 2	569	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	327	749	1268
Mov Cap-2 Maneuver	327	-	-
Stage 1	756	-	-
Stage 2	569	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v14.12		0.05	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	10	-	420	-	-
HCM Lane V/C Ratio	0.003	-	0.06	-	-
HCM Control Delay (s/veh)	7.8	0	14.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection

Int Delay, s/veh 5.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	2	4	3	14	0
Future Vol, veh/h	0	2	4	3	14	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	2	4	3	15	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	8	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	1613	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1613	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0	8.61
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1613	-	-	-	1013
HCM Lane V/C Ratio	-	-	-	-	0.015
HCM Control Delay (s/veh)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

HCM 7th AWSC
1: 23rd E Avenue & E 131st St

2030 Total Traffic
PM Peak Hour

Intersection	
Intersection Delay, s/veh	50.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	72	13	211	2	6	24	131	292	1	28	486	70
Future Vol, veh/h	72	13	211	2	6	24	131	292	1	28	486	70
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	78	14	229	2	7	26	142	317	1	30	528	76
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	19.2	11.7	31.7	82.5
HCM LOS	C	B	D	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	24%	6%	5%
Vol Thru, %	69%	4%	19%	83%
Vol Right, %	0%	71%	75%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	424	296	32	584
LT Vol	131	72	2	28
Through Vol	292	13	6	486
RT Vol	1	211	24	70
Lane Flow Rate	461	322	35	635
Geometry Grp	1	1	1	1
Degree of Util (X)	0.811	0.592	0.074	1.074
Departure Headway (Hd)	6.524	6.822	8.047	6.092
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	558	534	448	603
Service Time	4.524	4.822	6.047	4.092
HCM Lane V/C Ratio	0.826	0.603	0.078	1.053
HCM Control Delay, s/veh	31.7	19.2	11.7	82.5
HCM Lane LOS	D	C	B	F
HCM 95th-tile Q	8	3.8	0.2	18.4

Intersection

Intersection Delay, s/veh 20.9

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	6	3	3	9	249	4	124	7	384	149	1
Future Vol, veh/h	4	6	3	3	9	249	4	124	7	384	149	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	7	3	3	10	271	4	135	8	417	162	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh 9.6		12.1	10.3	28.1
HCM LOS	A	B	B	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	31%	1%	72%
Vol Thru, %	92%	46%	3%	28%
Vol Right, %	5%	23%	95%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	135	13	261	534
LT Vol	4	4	3	384
Through Vol	124	6	9	149
RT Vol	7	3	249	1
Lane Flow Rate	147	14	284	580
Geometry Grp	1	1	1	1
Degree of Util (X)	0.228	0.025	0.417	0.829
Departure Headway (Hd)	5.582	6.345	5.286	5.144
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	641	562	678	702
Service Time	3.627	4.413	3.332	3.174
HCM Lane V/C Ratio	0.229	0.025	0.419	0.826
HCM Control Delay, s/veh	10.3	9.6	12.1	28.1
HCM Lane LOS	B	A	B	D
HCM 95th-tile Q	0.9	0.1	2.1	9

HCM 7th TWSC
3: 23rd E Avenue & Drive 1

2030 Total Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	42	15	28	381	627	72
Future Vol, veh/h	42	15	28	381	627	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	46	16	30	414	682	78

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1196	721	760	0	-	0
Stage 1	721	-	-	-	-	-
Stage 2	475	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	206	428	852	-	-	-
Stage 1	482	-	-	-	-	-
Stage 2	626	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	196	428	852	-	-	-
Mov Cap-2 Maneuver	196	-	-	-	-	-
Stage 1	459	-	-	-	-	-
Stage 2	626	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v26.48		0.64	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	123	-	229	-	-
HCM Lane V/C Ratio	0.036	-	0.271	-	-
HCM Control Delay (s/veh)	9.4	0	26.5	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0.1	-	1.1	-	-

HCM 7th TWSC
4: 23rd E Avenue & Drive 2

2030 Total Traffic
PM Peak Hour

Intersection

Int Delay, s/veh 1.3

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 28 23 36 381 594 48

Future Vol, veh/h 28 23 36 381 594 48

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 92 92 92 92 92 92

Heavy Vehicles, % 2 2 2 2 2 2

Mvmt Flow 30 25 39 414 646 52

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 1164 672 698 0 - 0

Stage 1 672 - - - - -

Stage 2 492 - - - - -

Critical Hdwy 6.42 6.22 4.12 - - -

Critical Hdwy Stg 1 5.42 - - - - -

Critical Hdwy Stg 2 5.42 - - - - -

Follow-up Hdwy 3.518 3.318 2.218 - - -

Pot Cap-1 Maneuver 215 456 899 - - -

Stage 1 508 - - - - -

Stage 2 614 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 203 456 899 - - -

Mov Cap-2 Maneuver 203 - - - - -

Stage 1 479 - - - - -

Stage 2 614 - - - - -

Approach EB NB SB

HCM Control Delay, s/v21.71 0.79 0

HCM LOS C

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h) 155 - 270 - -

HCM Lane V/C Ratio 0.044 - 0.205 - -

HCM Control Delay (s/veh) 9.2 0 21.7 - -

HCM Lane LOS A A C - -

HCM 95th %tile Q(veh) 0.1 - 0.8 - -

HCM 7th TWSC
5: 23rd E Avenue & Drive 3

2030 Total Traffic
PM Peak Hour

Intersection

Int Delay, s/veh 0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	13	404	5	22	595
Future Vol, veh/h	2	13	404	5	22	595
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	14	439	5	24	647

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1136	442	0
Stage 1	442	-	-
Stage 2	695	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	223	616	-
Stage 1	648	-	-
Stage 2	495	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	216	616	-
Mov Cap-2 Maneuver	216	-	-
Stage 1	648	-	-
Stage 2	479	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v12.54		0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	494	1116
HCM Lane V/C Ratio	-	-	0.033	0.021
HCM Control Delay (s/veh)	-	-	12.5	8.3
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1

HCM 7th TWSC
6: 23rd E Avenue & Drive 4

2030 Total Traffic
PM Peak Hour

Intersection

Int Delay, s/veh 0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	8	391	0	14	556
Future Vol, veh/h	2	8	391	0	14	556
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	9	425	0	15	604

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1060	425	0
Stage 1	425	-	-
Stage 2	635	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	248	629	-
Stage 1	659	-	-
Stage 2	528	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	243	629	-
Mov Cap-2 Maneuver	243	-	-
Stage 1	659	-	-
Stage 2	517	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v12.71		0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	478	44
HCM Lane V/C Ratio	-	-	0.023	0.013
HCM Control Delay (s/veh)	-	-	12.7	8.2
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	392	258	8	5	3
Future Vol, veh/h	6	392	258	8	5	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	426	280	9	5	3
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	289	0	-	0	724	285
Stage 1	-	-	-	-	285	-
Stage 2	-	-	-	-	439	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1273	-	-	-	393	754
Stage 1	-	-	-	-	764	-
Stage 2	-	-	-	-	650	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1273	-	-	-	390	754
Mov Cap-2 Maneuver	-	-	-	-	390	-
Stage 1	-	-	-	-	758	-
Stage 2	-	-	-	-	650	-
Approach	EB	WB		SB		
HCM Control Delay, s/v	0.12	0		12.7		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	27	-	-	-	476	
HCM Lane V/C Ratio	0.005	-	-	-	0.018	
HCM Control Delay (s/veh)	7.8	0	-	-	12.7	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

HCM 7th TWSC
8: 23rd E Avenue & Drive 6

2030 Total Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	19	5	9	390	565	32
Future Vol, veh/h	19	5	9	390	565	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	5	10	424	614	35

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1075	632	649	0	-	0
Stage 1	632	-	-	-	-	-
Stage 2	443	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	243	481	937	-	-	-
Stage 1	530	-	-	-	-	-
Stage 2	647	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	240	481	937	-	-	-
Mov Cap-2 Maneuver	240	-	-	-	-	-
Stage 1	523	-	-	-	-	-
Stage 2	647	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v19.89		0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	41	-	268	-	-
HCM Lane V/C Ratio	0.01	-	0.097	-	-
HCM Control Delay (s/veh)	8.9	0	19.9	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	6	10	382	537	21
Future Vol, veh/h	9	6	10	382	537	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	7	11	415	584	23

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1032	595	607	0	-	0
Stage 1	595	-	-	-	-	-
Stage 2	437	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	258	504	972	-	-	-
Stage 1	551	-	-	-	-	-
Stage 2	651	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	254	504	972	-	-	-
Mov Cap-2 Maneuver	254	-	-	-	-	-
Stage 1	543	-	-	-	-	-
Stage 2	651	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v16.97		0.22	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	46	-	317	-	-
HCM Lane V/C Ratio	0.011	-	0.051	-	-
HCM Control Delay (s/veh)	8.7	0	17	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection

Int Delay, s/veh 2.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	4	4	10	9	0
Future Vol, veh/h	0	4	4	10	9	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	4	4	11	10	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	15	0	0 14 10
Stage 1	-	-	- 10 -
Stage 2	-	-	- 4 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1603	-	- 1005 1072
Stage 1	-	-	- 1013 -
Stage 2	-	-	- 1019 -
Platoon blocked, %		-	- -
Mov Cap-1 Maneuver	1603	-	- 1005 1072
Mov Cap-2 Maneuver	-	-	- 1005 -
Stage 1	-	-	- 1013 -
Stage 2	-	-	- 1019 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0	8.62
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1603	-	-	-	1005
HCM Lane V/C Ratio	-	-	-	-	0.01
HCM Control Delay (s/veh)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

HCM 7th TWSC
1: 23rd E Avenue & E 131st St

2030 Total Traffic (EB/WB Stop EB Right Turn Lane Added)

AM Peak Hour

Intersection												
Int Delay, s/veh	4.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	3	99	2	7	26	152	517	1	19	156	40
Future Vol, veh/h	38	3	99	2	7	26	152	517	1	19	156	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	41	3	108	2	8	28	165	562	1	21	170	43

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1129	1126	191	1105	1147	563	213	0	0	563	0	0
Stage 1	233	233	-	893	893	-	-	-	-	-	-	-
Stage 2	896	893	-	213	254	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	181	205	850	188	199	526	1357	-	-	1008	-	-
Stage 1	770	712	-	336	360	-	-	-	-	-	-	-
Stage 2	335	360	-	790	697	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	132	165	850	130	160	526	1357	-	-	1008	-	-
Mov Cap-2 Maneuver	132	165	-	130	160	-	-	-	-	-	-	-
Stage 1	752	695	-	277	296	-	-	-	-	-	-	-
Stage 2	254	296	-	670	681	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v20.01		17.66	1.82	0.76
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	408	-	-	134	850	322	153	-	-
HCM Lane V/C Ratio	0.122	-	-	0.332	0.127	0.118	0.02	-	-
HCM Control Delay (s/veh)	8	0	-	44.5	9.8	17.7	8.6	0	-
HCM Lane LOS	A	A	-	E	A	C	A	A	-
HCM 95th %tile Q(veh)	0.4	-	-	1.3	0.4	0.4	0.1	-	-

HCM 7th TWSC
1: 23rd E Avenue & E 131st St

2030 Total Traffic (EB/WB Stop EB Right Turn Lane Added)
PM Peak Hour

Intersection												
Int Delay, s/veh	10.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	72	13	211	2	6	24	131	292	1	28	486	70
Future Vol, veh/h	72	13	211	2	6	24	131	292	1	28	486	70
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	78	14	229	2	7	26	142	317	1	30	528	76

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1233	1230	566	1199	1268	318	604	0	0	318	0	0
Stage 1	627	627	-	603	603	-	-	-	-	-	-	-
Stage 2	605	603	-	596	665	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	154	177	523	162	169	723	973	-	-	1242	-	-
Stage 1	471	476	-	486	488	-	-	-	-	-	-	-
Stage 2	484	488	-	490	458	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	113	140	523	66	133	723	973	-	-	1242	-	-
Mov Cap-2 Maneuver	113	140	-	66	133	-	-	-	-	-	-	-
Stage 1	454	458	-	400	402	-	-	-	-	-	-	-
Stage 2	378	401	-	257	441	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v42.28		18.81	2.88	0.38
HCM LOS	E	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	556	-	-	116	523	295	84	-	-
HCM Lane V/C Ratio	0.146	-	-	0.795	0.438	0.118	0.025	-	-
HCM Control Delay (s/veh)	9.3	0	-	104.7	17.1	18.8	8	0	-
HCM Lane LOS	A	A	-	F	C	C	A	A	-
HCM 95th %tile Q(veh)	0.5	-	-	4.6	2.2	0.4	0.1	-	-

HCM 7th Signalized Intersection Summary

2030 Total Traffic (Signalized)

1: 23rd E Avenue & E 131st St

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	3	99	2	7	26	152	517	1	19	156	40
Future Volume (veh/h)	38	3	99	2	7	26	152	517	1	19	156	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	41	3	108	2	8	28	165	562	1	21	170	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	204	15	156	136	56	176	308	778	1	163	758	177
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.55	0.55	0.55	0.55	0.55	0.55
Sat Flow, veh/h	341	107	1100	49	394	1239	287	1408	2	54	1371	321
Grp Volume(v), veh/h	152	0	0	38	0	0	728	0	0	234	0	0
Grp Sat Flow(s),veh/h/ln	1548	0	0	1681	0	0	1698	0	0	1747	0	0
Q Serve(g_s), s	2.0	0.0	0.0	0.0	0.0	0.0	5.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.7	0.0	0.0	0.6	0.0	0.0	9.5	0.0	0.0	2.0	0.0	0.0
Prop In Lane	0.27		0.71	0.05		0.74	0.23		0.00	0.09		0.18
Lane Grp Cap(c), veh/h	375	0	0	367	0	0	1088	0	0	1098	0	0
V/C Ratio(X)	0.41	0.00	0.00	0.10	0.00	0.00	0.67	0.00	0.00	0.21	0.00	0.00
Avail Cap(c_a), veh/h	1091	0	0	1126	0	0	2022	0	0	2029	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.0	0.0	0.0	11.1	0.0	0.0	5.0	0.0	0.0	3.4	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.1	0.0	0.0	0.7	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.7	0.0	0.0	11.2	0.0	0.0	5.7	0.0	0.0	3.5	0.0	0.0
LnGrp LOS	B			B			A			A		
Approach Vol, veh/h	152			38			728			234		
Approach Delay, s/veh	12.7			11.2			5.7			3.5		
Approach LOS	B			B			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	20.8			8.7			20.8			8.7		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	33.0			18.0			33.0			18.0		
Max Q Clear Time (g_c+I1), s	11.5			4.7			4.0			2.6		
Green Ext Time (p_c), s	4.7			0.6			1.3			0.1		
Intersection Summary												
HCM 7th Control Delay, s/veh	6.3											
HCM 7th LOS	A											

HCM 7th Signalized Intersection Summary

1: 23rd E Avenue & E 131st St

2030 Total Traffic (Signalized)

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	13	211	2	6	24	131	292	1	28	486	70
Future Volume (veh/h)	72	13	211	2	6	24	131	292	1	28	486	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	14	229	2	7	26	142	317	1	30	528	76
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	206	49	304	120	107	329	298	553	2	129	717	100
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	271	179	1121	26	394	1214	344	1195	3	38	1549	216
Grp Volume(v), veh/h	321	0	0	35	0	0	460	0	0	634	0	0
Grp Sat Flow(s),veh/h/ln	1571	0	0	1635	0	0	1542	0	0	1803	0	0
Q Serve(g_s), s	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0
Cycle Q Clear(g_c), s	6.3	0.0	0.0	0.5	0.0	0.0	6.6	0.0	0.0	9.7	0.0	0.0
Prop In Lane	0.24		0.71	0.06		0.74	0.31		0.00	0.05		0.12
Lane Grp Cap(c), veh/h	558	0	0	556	0	0	853	0	0	946	0	0
V/C Ratio(X)	0.58	0.00	0.00	0.06	0.00	0.00	0.54	0.00	0.00	0.67	0.00	0.00
Avail Cap(c_a), veh/h	960	0	0	973	0	0	1538	0	0	1852	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.2	0.0	0.0	9.2	0.0	0.0	6.5	0.0	0.0	7.5	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.0	0.2	0.0	0.0	0.9	0.0	0.0	1.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.2	0.0	0.0	9.2	0.0	0.0	7.1	0.0	0.0	8.3	0.0	0.0
LnGrp LOS	B			A			A			A		
Approach Vol, veh/h		321			35			460			634	
Approach Delay, s/veh		12.2			9.2			7.1			8.3	
Approach LOS		B			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		20.2		13.7		20.2		13.7				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		33.0		18.0		33.0		18.0				
Max Q Clear Time (g_c+I1), s		8.6		8.3		11.7		2.5				
Green Ext Time (p_c), s		3.2		1.3		4.0		0.1				
Intersection Summary												
HCM 7th Control Delay, s/veh			8.8									
HCM 7th LOS			A									

HCM 7th Roundabout
1: 23rd E Avenue & E 131st St

2030 Total Traffic (Roundabout)
AM Peak Hour

Intersection				
Intersection Delay, s/veh	7.8			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	152	38	728	234
Demand Flow Rate, veh/h	155	39	742	238
Vehicles Circulating, veh/h	196	783	66	178
Vehicles Exiting, veh/h	220	25	285	644
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.5	6.7	9.5	5.1
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	155	39	742	238
Cap Entry Lane, veh/h	1130	621	1290	1151
Entry HV Adj Factor	0.980	0.970	0.981	0.982
Flow Entry, veh/h	152	38	728	234
Cap Entry, veh/h	1108	602	1265	1130
V/C Ratio	0.137	0.063	0.575	0.207
Control Delay, s/veh	4.5	6.7	9.5	5.1
LOS	A	A	A	A
95th %tile Queue, veh	0	0	4	1

HCM 7th Roundabout
1: 23rd E Avenue & E 131st St

2030 Total Traffic (Roundabout)
PM Peak Hour

Intersection				
Intersection Delay, s/veh	8.8			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	321	35	460	634
Demand Flow Rate, veh/h	328	36	469	648
Vehicles Circulating, veh/h	572	548	125	154
Vehicles Exiting, veh/h	230	46	775	430
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.4	5.2	6.8	9.6
Approach LOS	B	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	328	36	469	648
Cap Entry Lane, veh/h	770	789	1215	1179
Entry HV Adj Factor	0.978	0.968	0.980	0.979
Flow Entry, veh/h	321	35	460	634
Cap Entry, veh/h	753	764	1191	1155
V/C Ratio	0.426	0.046	0.386	0.549
Control Delay, s/veh	10.4	5.2	6.8	9.6
LOS	B	A	A	A
95th %tile Queue, veh	2	0	2	3

TRAFFIC SIGNAL WARRANT ANALYSIS

Traffic Engineering Consultants, Inc.

S 23rd Street and Jasper Street

2025 Existing Traffic

Study Name: S 23rd St and Jasper 2025 Existing Signal

Study Date : 5/13/2025

Signal Warrants - Summary

Major Street Approaches

Northbound: S 23rd Street

Number of Lanes : 1

Total Approach Volume: 3,537

Southbound: S 23rd Street

Number of Lanes : 1

Total Approach Volume: 3,144

Minor Street Approaches

Eastbound: Jasper Street

Number of Lanes : 1

Total Approach Volume: 2,024

Westbound: Jasper Street

Number of Lanes : 1

Total Approach Volume: 316

Warrant Summary (Rural Values Apply)

Warrant 1 - Eight Hour Vehicular Volumes.....Satisfied

Warrant 1A - Minimum Vehicular Volume.....Satisfied

Required volumes reached for 8 hours, 8 are needed

Warrant 1B - Interruption of Continuous Traffic.....Not Satisfied

Required volumes reached for 4 hours, 8 are needed

Warrant 1C - Combination of Warrants.....Not Satisfied

Required 1A volumes reached for 12 hours, 8 are needed

Required 1B volumes reached for 6 hours, 8 are needed

Warrant 2 - Four Hour Volumes.....Satisfied

Number of hours (5) volumes exceed minimum >= minimum required (4).

Warrant 3 - Peak Hour.....Satisfied

Warrant 3A - Peak Hour Delay.....Satisfied

Number of one hour periods (8) volumes exceed minimum >= required (1). Delay data not evaluated.

Warrant 3B - Peak Hour Volumes.....Satisfied

Volumes exceed minimums for at least one hour period.

Warrant 4 - Pedestrian Volumes.....Not Evaluated

Warrant 5 - School Crossing.....Not Evaluated

Warrant 6 - Coordinated Signal System.....Not Evaluated

Warrant 7 - Crash Experience.....Not Evaluated

Warrant 8 - Roadway Network.....Not Evaluated

Warrant 9 - Intersection Near a Grade Crossing.....Not Evaluated

Traffic Engineering Consultants, Inc.

S 23rd Street and Jasper Street

2025 Existing Traffic

Study Name: S 23rd St and Jasper 2025 Existing Signal

Study Date : 5/13/2025

Warrant 1A - Minimum Volumes

Description

Intended for sites where the volume of intersecting traffic is the principal reason for consideration of a signal installation.

Summary

8 one hour periods meet minimums.
Warrant IS met.

Site Data Required

Rural Settings Apply = **True**
Number of Major Lanes = **1**
Number of Minor Lanes = **1**

Volume Requirements

Rural Factor of 70 % applied
Veh/Hr Major = **350**

Veh/Hr Minor = **105**

Major Road						Minor Road			
S 23rd Street						Jasper Street			
Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met?	
16:15 - 17:15	255	+	374	=	629	205	30	Yes	
15:15 - 16:15	238	+	383	=	621	212	17	Yes	
06:15 - 07:15	436	+	139	=	575	131	34	Yes	
14:15 - 15:15	222	+	303	=	525	161	25	Yes	
17:15 - 18:15	204	+	236	=	440	153	13	Yes	
13:15 - 14:15	193	+	203	=	396	157	20	Yes	
11:15 - 12:15	190	+	179	=	369	108	20	Yes	
08:15 - 09:15	210	+	140	=	350	118	19	Yes	
07:15 - 08:15	384	+	139	=	523	95	26	No	
07:30 - 08:30	384	+	139	=	523	95	26	No	
07:45 - 08:45	384	+	139	=	523	95	26	No	
08:00 - 09:00	384	+	139	=	523	95	26	No	
05:15 - 06:15	258	+	99	=	357	66	18	No	
05:30 - 06:30	258	+	99	=	357	66	18	No	
05:45 - 06:45	258	+	99	=	357	66	18	No	
06:00 - 07:00	258	+	99	=	357	66	18	No	
10:15 - 11:15	190	+	148	=	338	99	17	No	
10:30 - 11:30	190	+	148	=	338	99	17	No	
10:45 - 11:45	190	+	148	=	338	99	17	No	
11:00 - 12:00	190	+	148	=	338	99	17	No	
12:15 - 13:15	169	+	159	=	328	105	19	No	
12:30 - 13:30	169	+	159	=	328	105	19	No	
12:45 - 13:45	169	+	159	=	328	105	19	No	
13:00 - 14:00	169	+	159	=	328	105	19	No	
09:15 - 10:15	181		142		323	85	19	No	

Traffic Engineering Consultants, Inc.

S 23rd Street and Jasper Street

2025 Existing Traffic

Study Name: S 23rd St and Jasper 2025 Existing Signal

Study Date : 5/13/2025

Warrant 1B - Interruption of Continuous Traffic

Description

Intended for sites where the volume of the major street is so heavy that traffic on the minor street suffers excessive delay or hazard.

Summary

Only 4 one hour periods meet minimums.
Warrant is NOT met.

Site Data Required

Rural Settings Apply = **True**
Number of Major Lanes = **1**
Number of Minor Lanes = **1**

Volume Requirements

Rural Factor of 70 % applied
Veh/Hr Major = **525**

Veh/Hr Minor = **52**

Major Road						Minor Road			
S 23rd Street						Jasper Street			
Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met?	
16:15 - 17:15	255	+	374	=	629	205	30	Yes	
15:15 - 16:15	238	+	383	=	621	212	17	Yes	
06:15 - 07:15	436	+	139	=	575	131	34	Yes	
14:15 - 15:15	222	+	303	=	525	161	25	Yes	
07:15 - 08:15	384	+	139	=	523	95	26	No	
07:30 - 08:30	384	+	139	=	523	95	26	No	
07:45 - 08:45	384	+	139	=	523	95	26	No	
08:00 - 09:00	384	+	139	=	523	95	26	No	
18:00 - 19:00	204	+	236	=	440	153	13	No	
17:15 - 18:15	204	+	236	=	440	153	13	No	
17:30 - 18:30	204	+	236	=	440	153	13	No	
17:45 - 18:45	204	+	236	=	440	153	13	No	
14:00 - 15:00	193	+	203	=	396	157	20	No	
13:15 - 14:15	193	+	203	=	396	157	20	No	
13:30 - 14:30	193	+	203	=	396	157	20	No	
13:45 - 14:45	193	+	203	=	396	157	20	No	
12:00 - 13:00	190	+	179	=	369	108	20	No	
11:15 - 12:15	190	+	179	=	369	108	20	No	
11:30 - 12:30	190	+	179	=	369	108	20	No	
11:45 - 12:45	190	+	179	=	369	108	20	No	
06:00 - 07:00	258	+	99	=	357	66	18	No	
05:15 - 06:15	258	+	99	=	357	66	18	No	
05:30 - 06:30	258	+	99	=	357	66	18	No	
05:45 - 06:45	258	+	99	=	357	66	18	No	
08:15 - 09:15	210		140		350	118	19	No	

Traffic Engineering Consultants, Inc.

S 23rd Street and Jasper Street

2025 Existing Traffic

Study Name: S 23rd St and Jasper 2025 Existing Signal

Study Date : 5/13/2025

Warrant 1C Combination of Warrants

Description

Intended for sites where the traffic volumes don't meet individual warrants but where Warrants 1A and 1B are both met to 80% of their stated values.

Summary

12 hours meet 1A minimums.
Only 6 hours meet 1B minimums.
Warrant is NOT met.

Site Data Required

Rural Settings Apply = **True**
Number of Major Lanes = **1**
Number of Minor Lanes = **1**

Volume Requirements

Rural Factor of 70% applied
Warrant 1A 1B
Veh/Hr Major = **280 420**

Veh/Hr Minor = **84 42**

Major Road						Minor Road				
S 23rd Street						Jasper Street				
Time	Major NB	+	Major SB	=	Total	Minor EB		Minor WB		Met1A?
16:15 - 17:15	255	+	374	=	629	205		30		Yes
15:15 - 16:15	238	+	383	=	621	212		17		Yes
06:15 - 07:15	436	+	139	=	575	131		34		Yes
14:15 - 15:15	222	+	303	=	525	161		25		Yes
07:15 - 08:15	384	+	139	=	523	95		26		Yes
17:15 - 18:15	204	+	236	=	440	153		13		Yes
13:15 - 14:15	193	+	203	=	396	157		20		Yes
11:15 - 12:15	190	+	179	=	369	108		20		Yes
08:15 - 09:15	210	+	140	=	350	118		19		Yes
10:15 - 11:15	190	+	148	=	338	99		17		Yes
12:15 - 13:15	169	+	159	=	328	105		19		Yes
09:15 - 10:15	181		142		323	85		19		Yes

Time	Major NB	+	Major SB	=	Total	Minor EB		Minor WB		Met1B?
16:15 - 17:15	255	+	374	=	629	205		30		Yes
15:15 - 16:15	238	+	383	=	621	212		17		Yes
06:15 - 07:15	436	+	139	=	575	131		34		Yes
14:15 - 15:15	222	+	303	=	525	161		25		Yes
07:15 - 08:15	384	+	139	=	523	95		26		Yes
17:15 - 18:15	204	+	236	=	440	153		13		Yes
13:15 - 14:15	193	+	203	=	396	157		20		No
13:30 - 14:30	193	+	203	=	396	157		20		No
13:45 - 14:45	193	+	203	=	396	157		20		No
14:00 - 15:00	193	+	203	=	396	157		20		No
12:00 - 13:00	190	+	179	=	369	108		20		No
11:15 - 12:15	190		179		369	108		20		No

Traffic Engineering Consultants, Inc.

S 23rd Street and Jasper Street

2025 Existing Traffic

Study Name: S 23rd St and Jasper 2025 Existing Signal

Study Date : 5/13/2025

Warrant 2 - Four Hour Volumes

Description

Intended for sites where the volume of intersecting traffic during any four hours of the day is the principal reason for consideration of a signal installation.

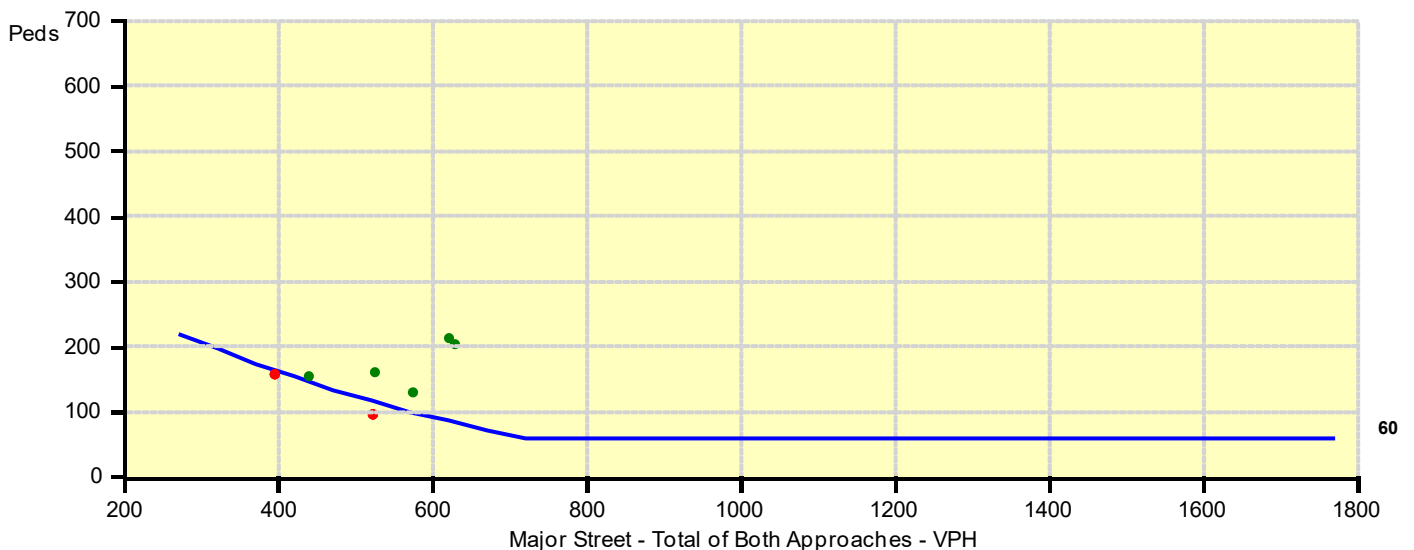
Summary

5 one hour periods meet minimums.
Warrant IS met.

Site Data Required

Rural Settings Apply = **True**
Number of Major Lanes = **1**
Number of Minor Lanes = **1**

Major Road S 23rd Street						Minor Road Jasper Street		
Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met?
16:15 - 17:15	255	+	374	=	629	205	30	Yes
15:15 - 16:15	238	+	383	=	621	212	17	Yes
06:15 - 07:15	436	+	139	=	575	131	34	Yes
14:15 - 15:15	222	+	303	=	525	161	25	Yes
17:15 - 18:15	204	+	236	=	440	153	13	Yes
07:30 - 08:30	384	+	139	=	523	95	26	No
07:15 - 08:15	384	+	139	=	523	95	26	No
07:45 - 08:45	384	+	139	=	523	95	26	No
08:00 - 09:00	384	+	139	=	523	95	26	No
13:30 - 14:30	193	+	203	=	396	157	20	No
13:45 - 14:45	193	+	203	=	396	157	20	No
14:00 - 15:00	193	+	203	=	396	157	20	No



Traffic Engineering Consultants, Inc.

S 23rd Street and Jasper Street

2025 Existing Traffic

Study Name: S 23rd St and Jasper 2025 Existing Signal

Study Date : 5/13/2025

Warrant 3B - Peak Hour Volumes

Description

Intended for sites where the volume of intersecting traffic during one hour of the day is the principal reason for consideration of a signal installation.

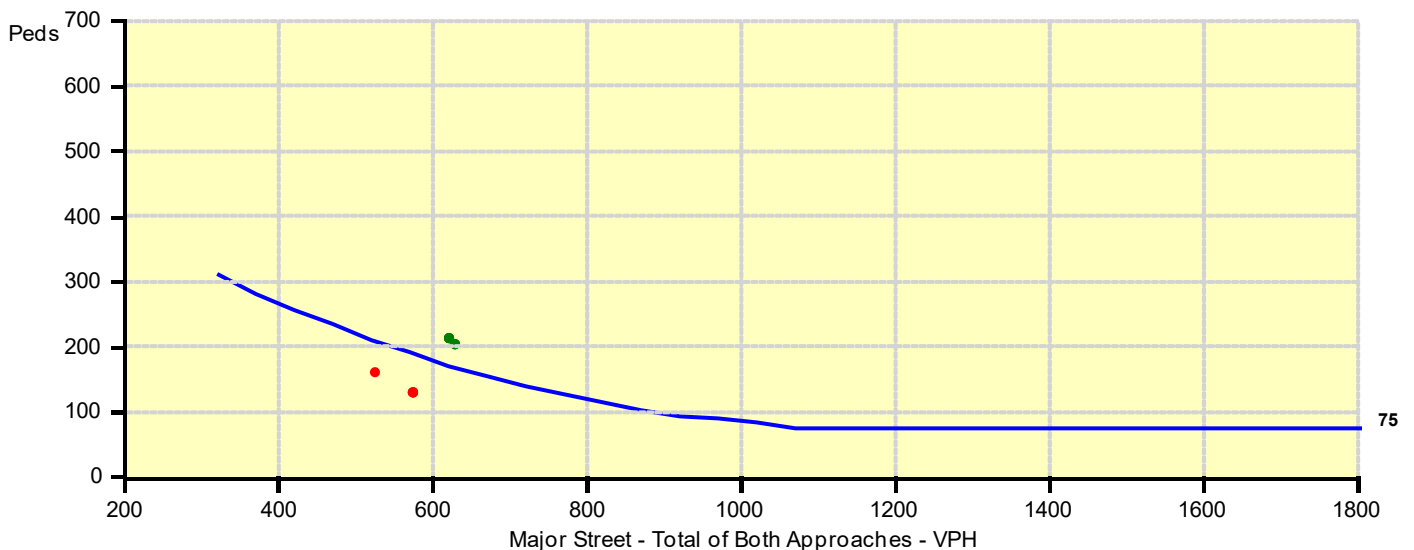
Summary

8 one hour periods meet minimums.
Warrant IS met.

Site Data Required

Rural Settings Apply = **True**
Number of Major Lanes = **1**
Number of Minor Lanes = **1**

Major Road S 23rd Street						Minor Road Jasper Street		
Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met?
16:15 - 17:15	255	+	374	=	629	205	30	Yes
16:30 - 17:30	255	+	374	=	629	205	30	Yes
16:45 - 17:45	255	+	374	=	629	205	30	Yes
17:00 - 18:00	255	+	374	=	629	205	30	Yes
15:15 - 16:15	238	+	383	=	621	212	17	Yes
15:30 - 16:30	238	+	383	=	621	212	17	Yes
15:45 - 16:45	238	+	383	=	621	212	17	Yes
16:00 - 17:00	238	+	383	=	621	212	17	Yes
06:15 - 07:15	436	+	139	=	575	131	34	No
06:30 - 07:30	436	+	139	=	575	131	34	No
06:45 - 07:45	436	+	139	=	575	131	34	No
07:00 - 08:00	436	+	139	=	575	131	34	No



Traffic Engineering Consultants

6931 S. 66th E. Avenue, Suite 100

Tulsa, OK 74133

Study Name: 2030 Total Traffic (Phase 3) 23rd E Avenue and 131st Street

Study Date : 5/6/2025

Signal Warrants - Summary

Major Street Approaches

Northbound: 23rd E Avenue

Number of Lanes : 1

Total Approach Volume: 1,094

Southbound: 23rd E Avenue

Number of Lanes : 1

Total Approach Volume: 799

Minor Street Approaches

Eastbound: 131st Street

Number of Lanes : 1

Total Approach Volume: 436

Westbound: 131st Street

Number of Lanes : 1

Total Approach Volume: 67

Warrant Summary (Rural Values Apply)

Warrant 1 - Eight Hour Vehicular Volumes.....Not Evaluated

Warrant 1A - Minimum Vehicular Volume.....Not Evaluated

Required volumes reached for 2 hours, 8 are needed

Warrant 1B - Interruption of Continuous Traffic.....Not Evaluated

Required volumes reached for 2 hours, 8 are needed

Warrant 1C - Combination of Warrants.....Not Evaluated

Warrant 2 - Four Hour Volumes.....Not Evaluated

Warrant 3 - Peak Hour.....Satisfied

Warrant 3A - Peak Hour Delay.....Satisfied

Number of one hour periods (8) volumes exceed minimum >= required (1). Delay data not evaluated.

Warrant 3B - Peak Hour Volumes.....Satisfied

Volumes exceed minimums for at least one hour period.

Warrant 4 - Pedestrian Volumes.....Not Evaluated

Warrant 5 - School Crossing.....Not Evaluated

Warrant 6 - Coordinated Signal System.....Not Evaluated

Warrant 7 - Crash Experience.....Not Evaluated

Warrant 8 - Roadway Network.....Not Evaluated

Warrant 9 - Intersection Near a Grade Crossing.....Not Evaluated

Traffic Engineering Consultants

6931 S. 66th E. Avenue, Suite 100

Tulsa, OK 74133

Study Name: 2030 Total Traffic (Phase 3) 23rd E Avenue and 131st Street

Study Date : 5/6/2025

Warrant 3A - Peak Hour Delay

Description

Intended for sites where for one hour of the day minor street traffic suffers undue traffic delay entering or crossing the major street.

Summary

8 one hour periods meet minimums.
Warrant IS met.

Site Data Required

Number of Minor Lanes =1

Volume and Delay Requirements

Veh/Hr All Approaches = **800**

Veh/Hr Minor = **100**

Total Delay (Veh-Hrs) = **4**

Major Road						Minor Road			
23rd E Avenue						131st Street			
Time	Total of All Approaches	Met?	Minor EB	Delay EB	Met?	Minor WB	Delay WB	Met?	Warrant Met?
16:00 - 17:00	1336	Yes	296	-	Yes	32	-	---	Yes
16:15 - 17:15	1336	Yes	296	-	Yes	32	-	---	Yes
16:30 - 17:30	1336	Yes	296	-	Yes	32	-	---	Yes
16:45 - 17:45	1336	Yes	296	-	Yes	32	-	---	Yes
06:45 - 07:45	1060	Yes	140	-	Yes	35	-	---	Yes
07:00 - 08:00	1060	Yes	140	-	Yes	35	-	---	Yes
07:15 - 08:15	1060	Yes	140	-	Yes	35	-	---	Yes
07:30 - 08:30	1060	Yes	140	-	Yes	35	-	---	Yes
02:00 - 03:00	0	No	0	-	---	0	-	No	No
02:15 - 03:15	0	No	0	-	---	0	-	No	No
02:30 - 03:30	0	No	0	-	---	0	-	No	No
02:45 - 03:45	0	No	0	-	---	0	-	No	No
03:00 - 04:00	0	No	0	-	---	0	-	No	No
03:15 - 04:15	0	No	0	-	---	0	-	No	No
03:30 - 04:30	0	No	0	-	---	0	-	No	No
03:45 - 04:45	0	No	0	-	---	0	-	No	No
04:00 - 05:00	0	No	0	-	---	0	-	No	No
04:15 - 05:15	0	No	0	-	---	0	-	No	No
04:30 - 05:30	0	No	0	-	---	0	-	No	No
04:45 - 05:45	0	No	0	-	---	0	-	No	No
05:00 - 06:00	0	No	0	-	---	0	-	No	No
05:15 - 06:15	0	No	0	-	---	0	-	No	No
05:30 - 06:30	0	No	0	-	---	0	-	No	No
05:45 - 06:45	0	No	0	-	---	0	-	No	No
06:00 - 07:00	0	No	0	-	---	0	-	No	No

Traffic Engineering Consultants

6931 S. 66th E. Avenue, Suite 100

Tulsa, OK 74133

Study Name: 2030 Total Traffic (Phase 3) 23rd E Avenue and 131st Street

Study Date : 5/6/2025

Warrant 3B - Peak Hour Volumes

Description

Intended for sites where the volume of intersecting traffic during one hour of the day is the principal reason for consideration of a signal installation.

Summary

8 one hour periods meet minimums.
Warrant IS met.

Site Data Required

Rural Settings Apply = **True**
Number of Major Lanes = **1**
Number of Minor Lanes = **1**

Major Road 23rd E Avenue						Minor Road 131st Street		
Time	Major NB	+	Major SB	=	Total	Minor EB	Minor WB	Met?
16:00 - 17:00	424	+	584	=	1008	296	32	Yes
16:15 - 17:15	424	+	584	=	1008	296	32	Yes
16:30 - 17:30	424	+	584	=	1008	296	32	Yes
16:45 - 17:45	424	+	584	=	1008	296	32	Yes
06:45 - 07:45	670	+	215	=	885	140	35	Yes
07:00 - 08:00	670	+	215	=	885	140	35	Yes
07:15 - 08:15	670	+	215	=	885	140	35	Yes
07:30 - 08:30	670	+	215	=	885	140	35	Yes
00:00 - 01:00	0	+	0	=	0	0	0	No
00:15 - 01:15	0	+	0	=	0	0	0	No
00:30 - 01:30	0	+	0	=	0	0	0	No
00:45 - 01:45	0	+	0	=	0	0	0	No

