

Rock Creek Mesa Traffic Impact Study

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Introduction

The Rock Creek Mesa project (Project) is a development located in the south of Colorado Springs. The project consists of 190 units of single family attached homes, 150 units of single-family detached homes, and 210 units of low rise apartment units.

The project is located along the west side of State Highway 115 (SH-115) and is accessed from Pawnee Road and Cherokee Drive.

The purpose of this study is to assess the effects this proposed development will have on the surrounding transportation system.

The report is organized as follows:

- **Introduction** – Describes the purpose and intent of this study.
- **Area Conditions** – Describes the study area land uses as well as the existing and future roadway network.
- **Proposed Development** – Describes the proposed development and the location.
- **Projected Traffic** – Identifies the expected number of daily and peak hour trips that will be generated by the Rock Creek Mesa development. The expected external trip distribution is also shown.
- **Traffic Analysis** – Will analyze the existing conditions in the study area as well as buildout year (2030) and horizon year (2045) conditions with and without the project.
- **Findings and Conclusions** – Identifies any deficiencies in the study area roadway network with or without the project and mitigation measures that will alleviate any identified deficiencies.
- **Recommendations** – Provides a summary of the study findings.

Figure 1. Vicinity Map

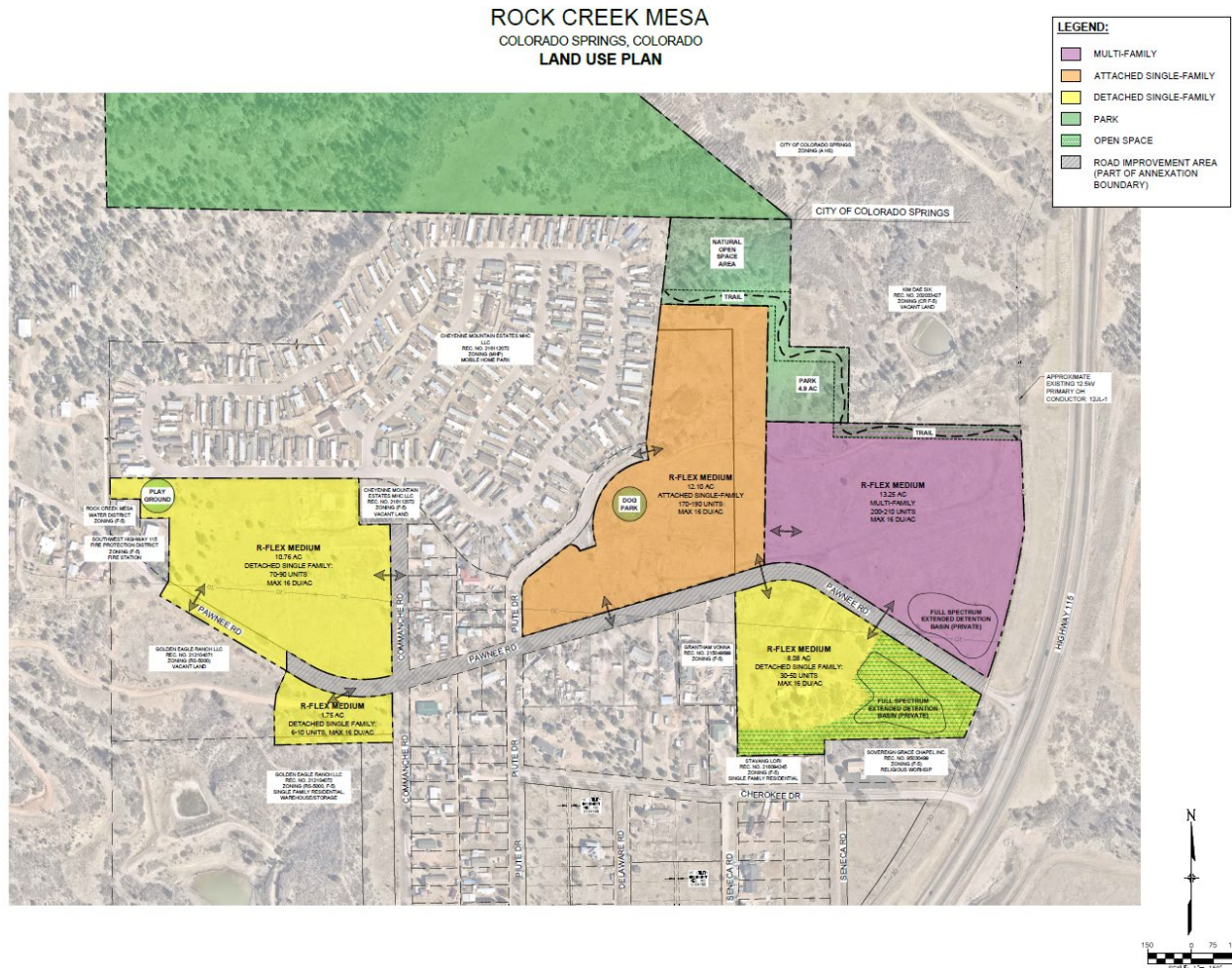


Proposed Development

The Project will consist of 90 single family attached units, 150 single family detached units, and 210 low rise apartments units.

Figure 2 illustrates the Project site plan. The development is located on the west side of SH-115.

Figure 2. Rock Creek Mesa Site Plan



Area Conditions

This section describes the existing conditions and the planned level of improvements adjacent to the Rock Creek Mesa development.

Study Area Land Use

The project will be constructed on vacant land adjacent to developed land on the west side of SH-115. There is an existing mobile home park and single-family detached housing in addition to many vacant lots.

Site Accessibility

The existing roadway system consists of the following transportation facilities:

State Highway 115 (SH-115) is a north-south facility that provides 2 lanes in each direction. CDOT classified south of SH-115 and Pine Oaks Road/Titus Boulevard as a minor arterial, and north of this intersection as a principal arterial. Both segments are classified as Expressway (E-X) access. The City of Colorado Springs most recent Major Throughfare Plan (MTP) that was included in *ConnectCOS* classifies SH-115 as a principal arterial. The posted speed limit on this segment is 60 mph.

Pawnee Road is a two-lane east-west road. The speed limit is 20 mph. Approximately 2-ft paved shoulder is provided along both sides of the road. This road is not classified in either CDOT or MTP. In this report, this roadway is assumed as a NR-B access.

Cherokee Drive is a two-lane east-west road that will provide multiple access points to the project. The speed limit on this road is 20 mph. This road is not classified by CDOT or MTP. In this report, this roadway is assumed as a NR-B access.

Traffic counts were collected on May 17th, 2022, to analyze the existing conditions, and the traffic impact analysis is confined to the following intersections.

- SH-115/Pawnee Road
- SH-115/Cherokee Dive

The AM and PM peak hour volumes at these intersections are shown in Figure 3 and Figure 4 and the daily traffic volumes in the existing conditions are shown in Figure 5.

Figure 3. Existing Conditions Traffic Volumes (AM Peak Hour)

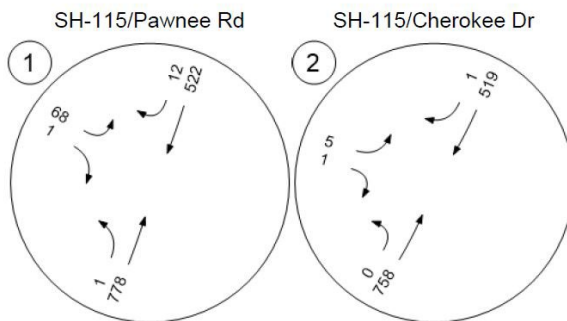
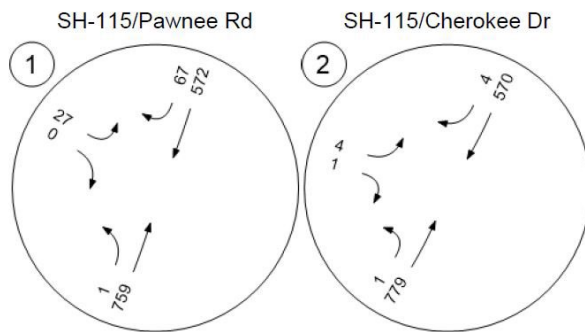


Figure 4. Existing Conditions Traffic Volumes (PM Peak Hour)



Intersection LOS analysis was performed for the study area intersections and the results are shown in Table 1, and Table 2.

Figure 5. Existing Conditions Daily Traffic Volumes



The existing intersection configurations are shown in Figure 6

Figure 6. Existing Conditions Intersection Configurations

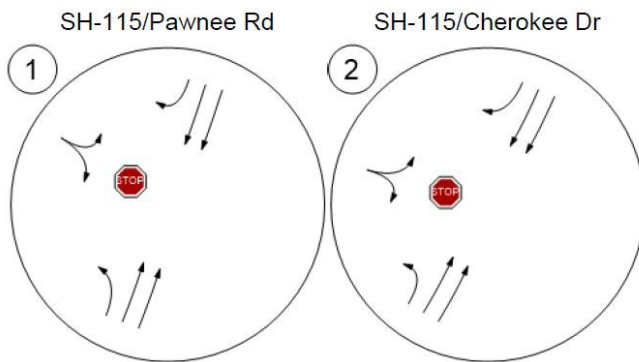


Table 1. Existing Conditions Intersection Operations (AM Peak Hour)

Intersection Analysis Summary							
ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH-115/Pawnee Rd	Two-way stop	HCM 7th Edition	EB Left	0.181	14.3	B
2	SH-115/Cherokee Dr	Two-way stop	HCM 7th Edition	EB Left	0.021	12.9	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 2. Existing Conditions Intersection Operations (PM Peak Hour)

Intersection Analysis Summary							
ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH-115/Pawnee Rd	Two-way stop	HCM 7th Edition	EB Left	0.086	13.1	B
2	SH-115/Cherokee Dr	Two-way stop	HCM 7th Edition	EB Left	0.017	12.6	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 1 and Table 2 indicate both intersections operate at acceptable Level of Service (LOS). Acceptable operations are defined as any intersection that operates at LOS D or better for CDOT and any intersection approaches that operate at LOS D or better for City of Colorado Springs. Turn lane evaluations were done based on the State Highway Access Code (SHAC) and are summarized in Table below.

Table 3. Existing Turn Lane Evaluations

Input								Output				Provided (ft)
ID	Intersection	Movement	# of Lanes	Access Category	Speed Limit (mph)	Turning Volume (vph)	Lane Width (ft)	SHAC (ft)	Deceleration Lane (ft)	Storage Lane (ft)	Taper Lane (ft)	
1	SH-115/Pawnee Rd	NBL	1	E-X	60	1	12	1025	700	25	300	270
		SBR	1	E-X	60	67	12	1000	700		300	825
		EBL	1	NR-B	20	68	12	190		100	90	-
2	SH-115/Cherokee Dr	NBL*	1	E-X	60	1	12	n/a	700			640
		SBR*	1	E-X	60	4	12	n/a	700		300	320

*Turn Lane is not warranted based on SHAC (turning volume is less than 10 vehicles per hour (vph) for left turns, and 25 vph for right turns).

SH-115/Pawnee Road

- A 190-ft eastbound left-turn. Included a 100-ft storage lane, and a 90-ft taper.
- A 175-ft extension of southbound right-turn.
- Due to the spacing between SH-115/Pawnee Road and SH-115/Cherokee Drive, the length of the northbound left-turn lane is well below the required standard. However, the northbound left-turn movements at both intersections are no more frequent than one vehicle per hour as shown in Figure 3, and Figure 4. Upon construction of the project, the intersection of SH-115/Cherokee Drive will be converted into a Right-In/Right-Out (RIRO) access per CDOT's desires allowing for a longer northbound left-turn deceleration lane for the SH-115/Pawnee Road intersection. As a result, we do not recommend any improvements in the existing conditions.

There are no fixed route transit services in the area and there are also no transportation system management or traffic demand management programs in the area.

Projected Development Traffic

This section documents how much traffic the Project development is expected to generate and how the external site trips will be distributed on the adjacent roadway network.

Trip Generation

The vehicle trips associated with the Project were calculated using the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th Edition*. This methodology consists of choosing an independent variable for the land use for a particular time of day. The independent variable correlates to the variation in trip ends and is related to the land use. The value of the independent variable is either multiplied by a weighted average or used in a regression equation to calculate the trips generated by the land use. The *ITE Trip Generation Manual* provides guidance on when to use the weighted average versus the regression equation.

Table 4 shows the trips that are expected to be generated by Rock Creek Mesa at buildout.

Table 4. Rock Creek Mesa Trip Generation

ITE Code - Land Use	Units	Quantity	Weekday Trips			AM Peak Hour Trips			PM Peak Hour Trips		
			In	Out	Total	In	Out	Total	In	Out	Total
210 - Single Family Detached Housing	DU	150	733	733	1,466	28	80	108	92	54	146
215 - Single Family Attached Housing	DU	190	699	699	1,398	23	70	93	65	45	110
220 - Multi-Family Housing (Low Rise)	DU	210	711	711	1,422	21	67	88	70	41	111
SUM		550	2,143	2,143	4,286	72	217	289	227	140	367

It was assumed that 100% of trips will be made by personal vehicles.

Trip Distribution

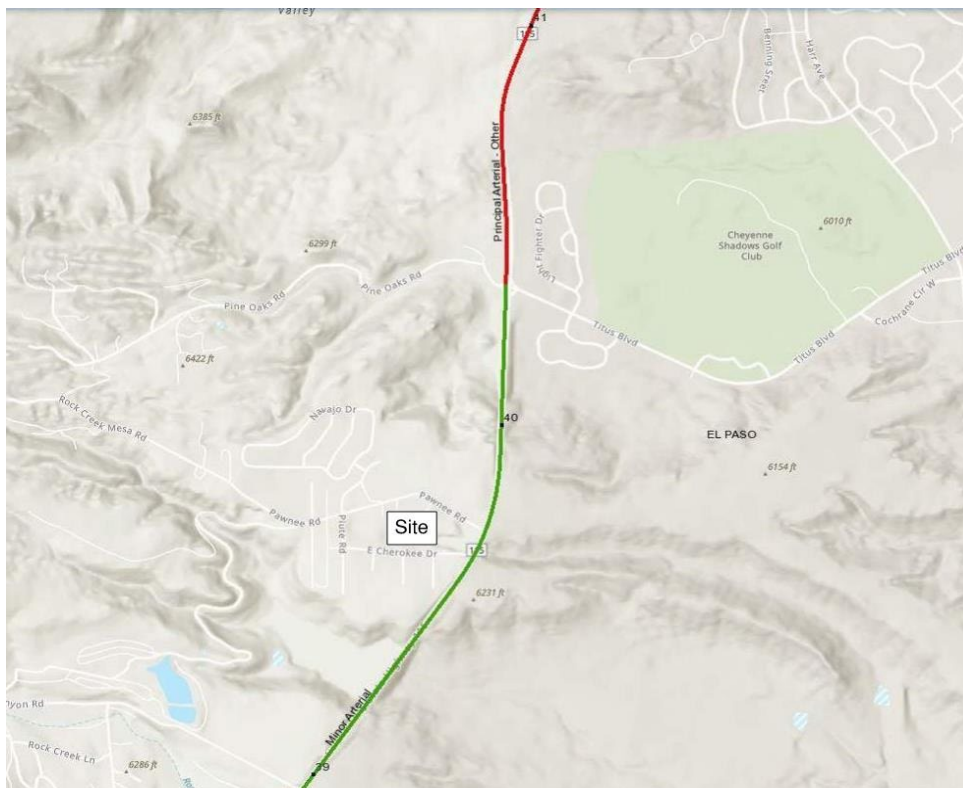
Figure 7 illustrates the expected external distribution of travel for the site-generated trips. This distribution was determined with respect to the location of the new development, total trips on the roadway and location of business, educational and recreational centers.

Figure 7. Trip Distribution



Roadways adjacent to the new development were classified based on CDOT Online Transportation Information System (OTIS) and are shown in Figure 8.

Figure 8. Roadway Classification



The project trips for both the AM and PM peak hours are shown in Figure 9, and Figure 10. The daily project trips are shown in Figure 11.

Figure 9. Rock Creek Mesa Project Trips (AM Peak Hour)

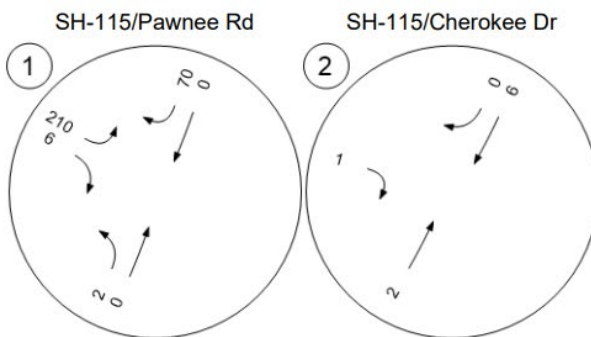


Figure 10. Rock Creek Mesa Project Trips (PM Peak Hour)

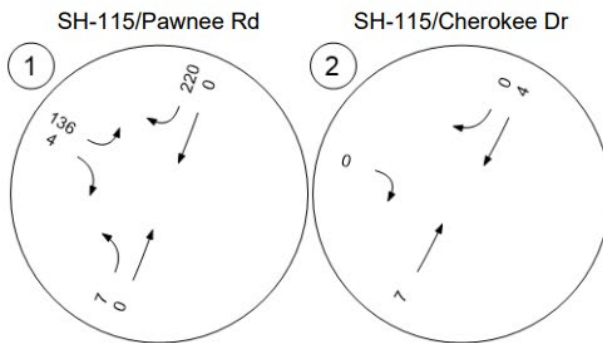


Figure 11. Rock Creek Mesa Daily Site Trips



Traffic Analysis

Traffic conditions both with and without the project have been analyzed for buildout year (2030) and horizon year (2045) conditions.

Buildout Year (2030) Background Conditions

The buildout year traffic volumes without the Project are shown in Figure 12 and Figure 13 and daily traffic volumes are shown in Figure 14.

Figure 12. Buildout (2030) Background Traffic Volumes (AM Peak Hour)

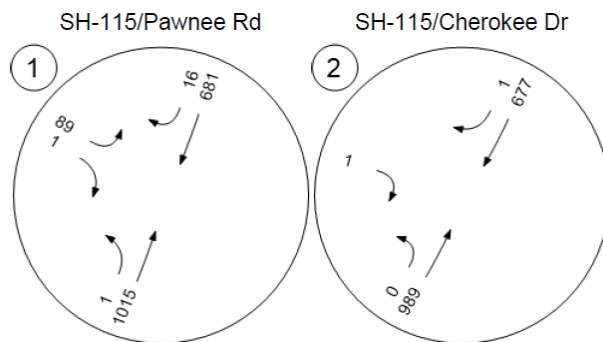


Figure 13. Buildout (2030) Background Traffic Volumes (PM Peak Hour)

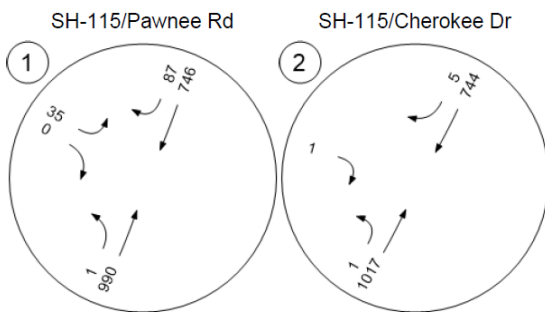


Figure 14. Buildout (2030) Background Daily Traffic Volumes



The operations of the study area intersections in the build out background (no project) scenario are shown in Table 5, and Table 6. The assumed intersection configurations are shown in Figure 15.

Figure 15. Buildout (2030) Background Intersection Configurations

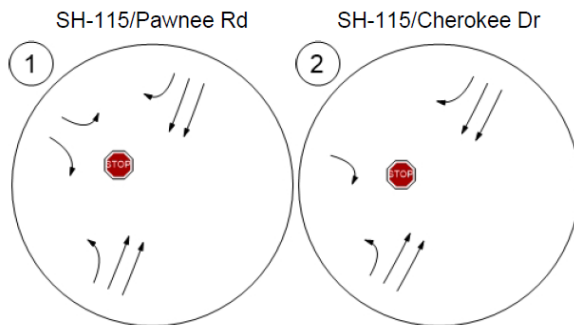


Table 5. Buildout (2030) Background Intersection Operations (AM Peak Hour)

Intersection Analysis Summary							
ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH-115/Pawnee Rd	Two-way stop	HCM 7th Edition	EB Left	0.261	17.1	C
2	SH-115/Cherokee Dr	Two-way stop	HCM 7th Edition	EB Right	0.002	11.0	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 6. Buildout (2030) Background Intersection Operations (PM Peak Hour)

Intersection Analysis Summary							
ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH-115/Pawnee Rd	Two-way stop	HCM 7th Edition	EB Left	0.112	16.1	C
2	SH-115/Cherokee Dr	Two-way stop	HCM 7th Edition	EB Right	0.002	11.4	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

All study area intersections are projected to operate at an acceptable LOS at buildout without the project traffic as shown in Table 5, and Table 6.

Table 7 summarizes the turn lane evaluations in the buildout year without the project. No improvements are needed above what the existing conditions call for.

Table 7. Buildout (2030) Background Turn Lane Evaluations

Input								Output				Provided
ID	Intersection	Movement	# of Lanes	Access Category	Speed Limit (mph)	Turning Volume (vph)	Lane Width (ft)	SHAC (ft)	Deceleration Lane (ft)	Storage Lane (ft)	Taper Lane (ft)	
1	SH-115/Pawnee Rd	NBL	1	E-X	60	1	12	1025	700	25	300	1025
		SBR	1	E-X	60	87	12	1000	700		300	1000
		EBL	1	NR-B	20	89	12	190		100	90	190
2	SH-115/Cherokee Dr	NBL*	1	E-X	60	1	12	n/a	700			N/A
		SBR*	1	E-X	60	5	12	n/a	700		300	320

*Turn Lane is not warranted based on SHAC (turning volume is less than 10 vehicles per hour (vph) for left turns, and 25 vph for right turns).

Buildout Year (2030) Total Conditions

Buildout traffic volumes with the project traffic added are shown in Figure 16 and Figure 17 for AM peak hour and PM peak hour, respectively. The daily traffic volumes with the project are shown in Figure 18.

Figure 16. Buildout (2030) Total Traffic Volumes (AM Peak Hour)

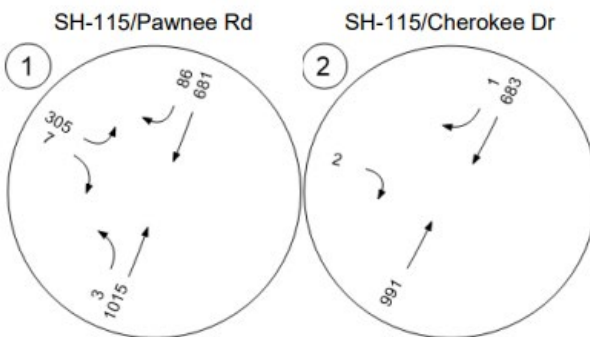


Figure 17. Buildout (2030) Total Traffic Volumes (PM Peak Hour)

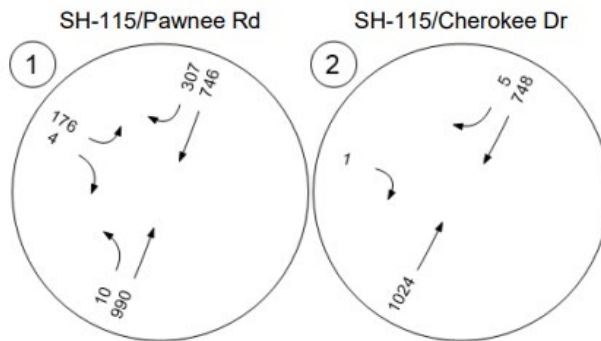
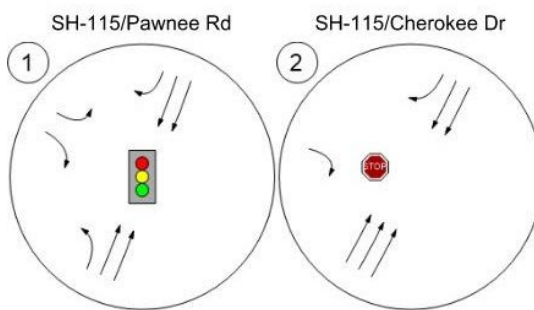


Figure 18. Buildout (2030) Total Daily Traffic Volumes



Assumed intersection configurations for the project intersections are shown in Figure 19.

Figure 19. Buildout (2030) Total Project Intersection Configurations



**The first northbound through lane at SH-115/Cherokee Drive (#2) is the storage for the northbound left-turn lane at SH-115/Pawnee Road (#1).*

Table 8. Buildout (2030) Total Intersection Operations (AM Peak Hour)

Intersection Analysis Summary							
ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH-115/Pawnee Rd	Signalized	HCM 7th Edition	EB Left	0.537	8.9	A
2	SH-115/Cherokee Dr	Two-way stop	HCM 7th Edition	EB Right	0.004	12.1	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 9. Buildout (2030) Total Intersection Operations (PM Peak Hour)

Intersection Analysis Summary							
ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH-115/Pawnee Rd	Signalized	HCM 7th Edition	EB Left	0.443	6.4	A
2	SH-115/Cherokee Dr	Two-way stop	HCM 7th Edition	EB Right	0.002	12.5	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 8 and Table 9 indicate that all study area intersections will operate at an acceptable LOS in the buildout, with project AM and PM peak hour scenarios. Additionally, all intersection approaches operate at an acceptable LOS.

Table 10 summarizes the turn lane requirements for the buildout conditions with project traffic. requirements are the following:

Table 10. Buildout (2030) Total Turn Lane Evaluations

ID	Intersection	Movement	# of Lanes	Access Category	Speed Limit (mph)	Turning Volume (vph)	Lane Width (ft)	SHAC (ft)	Deceleration Lane (ft)	Storage Lane (ft)	Taper Lane (ft)	Provided
1	SH-115/Pawnee Rd	NBL	1	E-X	60	10	12	1025	700	25	300	1025
		SBR	1	E-X	60	307	12	1000	700		300	1000
		EBL	1	NR-B	20	305	12	395		305	90	190
2	SH-115/Cherokee Dr	NBL*	1	E-X	60	1	12	n/a	700			N/A
		SBR*	1	E-X	60	5	12	n/a	700		300	320

*Turn Lane is not warranted based on SHAC (turning volume is less than 10 vehicles per hour (vph) for left turns, and 25 vph for right turns).

SH-115/Pawnee Road

- Convert to signalized intersection as eight-hour vehicular volume warrant, four-hour vehicular volume warrant, and peak hour volume warrant are met in the buildout year with the addition of the project. The spacing between Pawnee Road/SH-115 and SH-115/Titus Boulevard was measured at 3,220-ft (0.6 mile). The CDOT SHAC states *“Typical spacing of intersection streets roads, and highways shall be planned on intervals of one mile and normally based upon section lines where appropriate.”* However, it is also stated that *“One-half mile spacing of public ways may be permitted to the highway only when no reasonable alternative access to general street system exists.”* Since no other reasonable access to the development exists, a signal progression can be completed later with signal timing data for CDOT to ensure that a 40% progression can be maintained between these two signalized intersections. The developer is willing to install the traffic signal at the buildout year.
- Extend eastbound left-turn lane by 200-ft by adding 200-ft to the storage lane.

SH-115/Cherokee Drive

- Convert to right-in, right-out (RIRO) intersection

Horizon Year (2045) Background Conditions

The horizon year traffic volumes without the Rock Creek Mesa project are shown in Figure 20 and Figure 21. The daily traffic volumes are shown in Figure 22.

Figure 20. Horizon (2045) Background Traffic Volumes (AM Peak Hour)

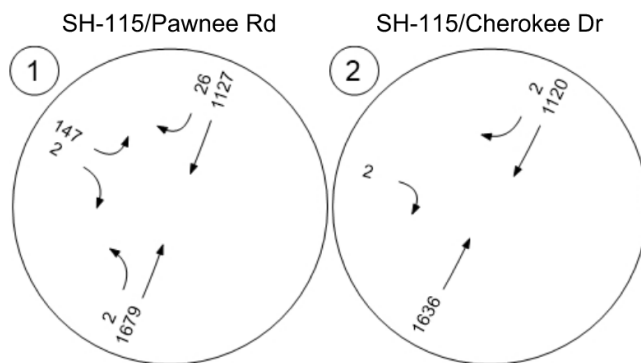
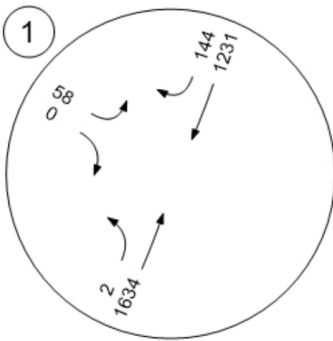


Figure 21. Horizon (2045) Background Traffic Volumes (PM Peak Hour)



SH-115/Pawnee Rd



SH-115/Cherokee Dr

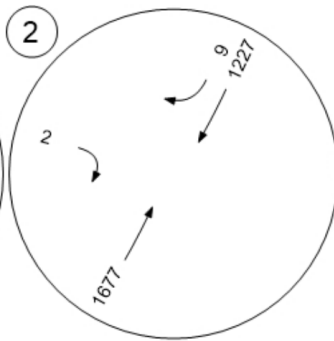
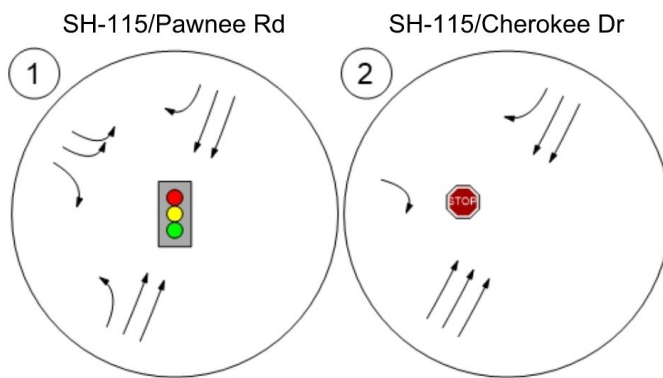


Figure 22. Horizon (2045) Background Daily Traffic Volumes



The assumed intersection configurations are shown in Figure 23. The operations of the study area intersections in the build out background (no project) scenario are shown in Table 11, and Table 12. As shown in Figure 23, east bound double left-turn lane is required at SH-115/Pawnee Road to allow all intersection approaches to operate at acceptable levels-of-service.

Figure 23. Horizon (2045) Background Intersection Configurations



**The first northbound through lane at SH-115/Cherokee Drive (#2) is the storage for the northbound left-turn lane at SH-115/Pawnee Road (#1).*

Table 11. Horizon (2045) Background Intersection Operations (AM Peak Hour)**Intersection Analysis Summary**

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH-115/Pawnee Rd	Signalized	HCM 7th Edition	EB Left	0.541	5.3	A
2	SH-115/Cherokee Dr	Two-way stop	HCM 7th Edition	EB Right	0.005	14.4	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 12. Horizon (2045) Background Intersection Operations (PM Peak Hour)**Intersection Analysis Summary**

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH-115/Pawnee Rd	Signalized	HCM 7th Edition	EB Left	0.501	3.2	A
2	SH-115/Cherokee Dr	Two-way stop	HCM 7th Edition	EB Right	0.006	15.2	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Both intersections and all intersection approaches are projected to operate at an acceptable LOS in the horizon year without the project traffic as shown in Table 11 and Table 12.

Table 13 indicates that the eastbound left-turn lane will increase in storage from 100-ft to 200-ft. This is due to the eastbound left-turn lane increasing to a double-left-turn lane.

Table 13. Horizon (2045) Background Turn Lane Evaluations

ID	Intersection	Movement	# of Lanes	Access Category	Speed Limit (mph)	Turning Volume (vph)	Lane Width (ft)	SHAC (ft)	Deceleration Lane (ft)	Storage Lane (ft)	Taper Lane (ft)	Provided
1	SH-115/Pawnee Rd	NBL	1	E-X	60	2	12	1025	700	25	300	1025
		SBR	1	E-X	60	144	12	1000	700		300	1000
		EBL	2	NR-B	20	147	12	460		100	360	190
2	SH-115/Cherokee Dr	NBL*	1	E-X	60	2	12	n/a	700			N/A
		SBR*	1	E-X	60	9	12	n/a	700		300	320

*Turn Lane is not warranted based on SHAC (turning volume is less than 10 vehicles per hour (vph) for left turns, and 25 vph for right turns).

Horizon Year (2045) Total Conditions

When the project traffic is added to the 2045 background traffic, the resulting AM Peak Hour, PM Peak Hour and Daily traffic volumes are as shown in Figure 24, Figure 25, and Figure 26.

Figure 24. Horizon (2045) Total Traffic Volumes (AM Peak Hour)

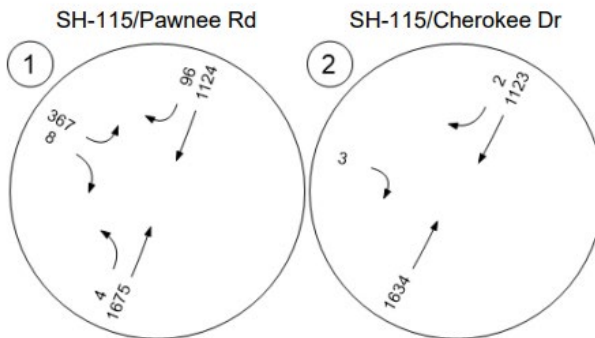


Figure 25. Horizon (2045) Total Traffic Volumes (PM Peak Hour)

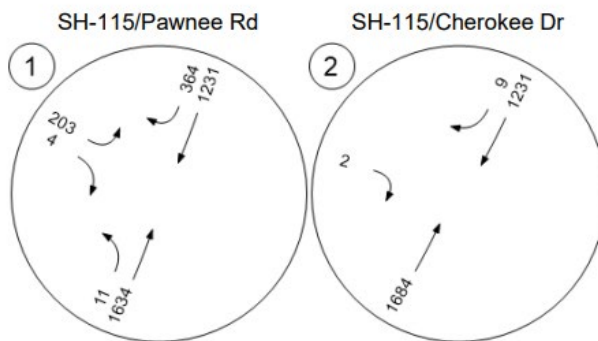


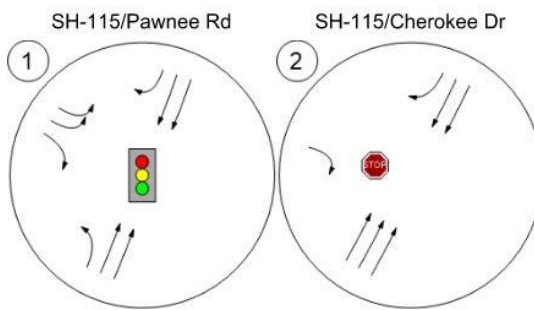
Figure 26. Horizon (2045) Total Daily Traffic Volumes



Assumed intersection configurations for the project intersections are shown in Figure 27.

Analysis of the intersections and roadways for build out conditions with the volumes and configurations shown above results in the operations shown in Table 14 and Table 15.

Figure 27. Horizon (2045) Total Intersection Configurations



**The first northbound through lane at SH-115/Cherokee Drive (#2) is the storage for the northbound left-turn lane at SH-115/Pawnee Road (#1).*

Table 14. Horizon (2045) Total Intersection Operations (AM Peak Hour)

Intersection Analysis Summary							
ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH-115/Pawnee Rd	Signalized	HCM 7th Edition	EB Left	0.607	9.2	A
2	SH-115/Cherokee Dr	Two-way stop	HCM 7th Edition	EB Right	0.008	14.4	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 15. Horizon (2045) Total Intersection Operations (PM Peak Hour)

Intersection Analysis Summary							
ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH-115/Pawnee Rd	Signalized	HCM 7th Edition	EB Left	0.545	6.1	A
2	SH-115/Cherokee Dr	Two-way stop	HCM 7th Edition	EB Right	0.006	15.2	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

All study area intersections and intersection approaches will operate at acceptable LOS (LOS D or better) in the horizon year (2045) with the addition of project traffic. Therefore, no mitigation is recommended.

Turn lanes will be according to Table 16. No improvements over the Buildout Total scenario are required.

Table 16. Horizon (2045) Total Turn Lane Evaluations

ID	Intersection	Movement	# of Lanes	Access Category	Speed Limit (mph)	Turning Volume (vph)	Lane Width (ft)	SHAC (ft)	Deceleration Lane (ft)	Storage Lane (ft)	Taper Lane (ft)	Provided
1	SH-115/Pawnee Rd	NBL	1	E-X	60	11	12	1025	700	25	300	1025
		SBR	1	E-X	60	364	12	1000	700		300	1000
		EBL	2	NR-B	20	367	12	545		185	360	545
2	SH-115/Cherokee Dr	NBL*	1	E-X	60	2	12	n/a	700			N/A
		SBR*	1	E-X	60	9	12	n/a	700		300	320

*Turn Lane is not warranted based on SHAC (turning volume is less than 10 vehicles per hour (vph) for left turns, and 25 vph for right turns).

Conclusions and Recommendations

The project can be constructed with minimal impacts to the existing transportation network. In fact, the project will provide the opportunity to mitigate existing intersections that do not meet the SHAC. A summary of the improvements for each scenario follows:

Existing Conditions

The following improvements are required to meet the requirements of the SHAC:

SH-115/Pawnee Road

- Extend northbound left-turn lane from 270-ft to 1,025-ft which includes 700-ft of deceleration, 25-ft of storage and 300-ft of taper. There is not enough space to construct this improvement in existing conditions until the SH-115/Cherokee Drive intersection is converted to right-in/right-out (RIRO) only access.
- Construct a 190-ft long eastbound left-turn lane with 100-ft of storage and a 90-ft taper.
- Extend southbound right-turn lane from 825-ft to 1,000-ft which includes 700-ft of deceleration and 300-ft of taper.

SH-115/Cherokee Road

- Convert to RIRO access so northbound left-turn lane at SH-115/Pawnee Road intersection can meet SHAC requirements.

Buildout Background Conditions

No additional improvement is required above what is needed in the existing year.

Buildout Total Conditions

The following improvements are projected by be required by 2030 with the project:

SH-115/Pawnee Road

- Convert to signalized intersection due to the existing conditions scenario meeting the four-hour signal warrant and the buildout background scenario meeting the eight-hour warrant, four-hour warrant, and peak-hour warrant. The developer is willing to install the traffic signal at the buildout year.
- Extend the eastbound left-turn lane by 200-ft to provide a total of 305-ft of storage along with the 90-ft taper. The project should have full responsibility for this turn lane extension.

Horizon Background Conditions

The following improvements are projected to be required by 2045 without the project:

SH-115/Pawnee Road

- Construct a double left-turn lane to allow all intersection approaches to operate at acceptable levels-of-service. The 200-ft of required storage can be split evenly between the two turn lanes and the taper will double in length to 360-ft to account for the double turn lane. Therefore, there

should be a 360-ft taper and two 100-ft long turn lanes. Since this improvement is required in 2045 without the project, the project should not have any responsibility for this improvement.

Horizon Total Conditions

The following improvements are projected to be required by 2045 without the project:

SH-115/Pawnee Road

- Extend the eastbound left-turn lanes to 185-ft of storage each from the 100-ft of storage required in 2045 without the project. The taper should still be 360-ft. The project should be responsible for the additional 85-ft of storage for each turn lane.

Appendix A

Traffic Counts

All Traffic Data Services

www.alltrafficdata.net

Date Start: 17-May-22
 Site Code: 3
 Station ID: 3
 SH-115 N.O. Pawnee Rd

Start Time	17-May-22 Tue	NB	SB							Total
12:00 AM		13	25							38
01:00		8	16							24
02:00		9	20							29
03:00		33	14							47
04:00		84	72							156
05:00		216	809							1025
06:00		540	581							1121
07:00		831	514							1345
08:00		540	699							1239
09:00		459	556							1015
10:00		477	446							923
11:00		642	428							1070
12:00 PM		481	601							1082
01:00		441	489							930
02:00		585	483							1068
03:00		674	562							1236
04:00		786	639							1425
05:00		749	543							1292
06:00		297	358							655
07:00		181	242							423
08:00		116	207							323
09:00		109	163							272
10:00		59	87							146
11:00		66	66							132
Total		8396	8620							17016
Percent		49.3%	50.7%							
AM Peak	-	07:00	05:00	-	-	-	-	-	-	07:00
Vol.	-	831	809	-	-	-	-	-	-	1345
PM Peak	-	16:00	16:00	-	-	-	-	-	-	16:00
Vol.	-	786	639	-	-	-	-	-	-	1425
Grand Total		8396	8620							17016
Percent		49.3%	50.7%							
ADT		ADT 17,016	AADT 17,016							

All Traffic Data Services

www.alltrafficdata.net

Date Start: 17-May-22
 Site Code: 4
 Station ID: 4
 SH-115 S.O. Cherokee Dr

Start Time	17-May-22 Tue	NB	SB	Total
12:00 AM		8	15	23
01:00		7	16	23
02:00		8	19	27
03:00		31	13	44
04:00		77	71	148
05:00		191	810	1001
06:00		475	575	1050
07:00		745	501	1246
08:00		492	671	1163
09:00		429	533	962
10:00		448	425	873
11:00		592	404	996
12:00 PM		451	577	1028
01:00		401	455	856
02:00		554	448	1002
03:00		632	518	1150
04:00		780	571	1351
05:00		717	490	1207
06:00		253	284	537
07:00		165	212	377
08:00		92	163	255
09:00		88	126	214
10:00		52	72	124
11:00		60	48	108
Total		7748	8017	15765
Percent		49.1%	50.9%	
AM Peak	-	07:00	05:00	-
Vol.	-	745	810	-
PM Peak	-	16:00	12:00	-
Vol.	-	780	577	-
Grand Total		7748	8017	15765
Percent		49.1%	50.9%	
ADT		ADT 15,765	AADT 15,765	

All Traffic Data Services

www.alltrafficdata.net

Date Start: 17-May-22
 Site Code: 5
 Station ID: 5
 Pawnee Rd W.O. SH-115

Start Time	17-May-22 Tue	EB	WB							Total
12:00 AM		1	4							5
01:00		0	0							0
02:00		1	1							2
03:00		2	1							3
04:00		8	0							8
05:00		27	7							34
06:00		60	12							72
07:00		76	11							87
08:00		39	16							55
09:00		26	22							48
10:00		32	24							56
11:00		45	25							70
12:00 PM		25	38							63
01:00		28	35							63
02:00		34	45							79
03:00		34	49							83
04:00		27	68							95
05:00		25	52							77
06:00		38	63							101
07:00		26	29							55
08:00		21	38							59
09:00		15	32							47
10:00		7	14							21
11:00		5	17							22
Total		602	603							1205
Percent		50.0%	50.0%							
AM Peak	-	07:00	11:00	-	-	-	-	-	-	07:00
Vol.	-	76	25	-	-	-	-	-	-	87
PM Peak	-	18:00	16:00	-	-	-	-	-	-	18:00
Vol.	-	38	68	-	-	-	-	-	-	101
Grand Total		602	603							1205
Percent		50.0%	50.0%							
ADT		ADT 1,205	AADT 1,205							

All Traffic Data Services

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Date Start: 17-May-22
 Site Code: 6
 Station ID: 6
 Cherokee Dr W.O. SH-115

Start Time	17-May-22										Total
	Tue	EB	WB								
12:00 AM		0	0								0
01:00		0	0								0
02:00		0	0								0
03:00		0	0								0
04:00		0	0								0
05:00		1	0								1
06:00		7	1								8
07:00		3	1								4
08:00		6	6								12
09:00		3	2								5
10:00		3	3								6
11:00		3	0								3
12:00 PM		0	0								0
01:00		0	4								4
02:00		5	5								10
03:00		3	8								11
04:00		5	5								10
05:00		6	3								9
06:00		6	10								16
07:00		2	2								4
08:00		1	3								4
09:00		1	3								4
10:00		0	0								0
11:00		0	1								1
Total		55	57								112
Percent		49.1%	50.9%								
AM Peak	-	06:00	08:00	-	-	-	-	-	-	-	08:00
Vol.	-	7	6	-	-	-	-	-	-	-	12
PM Peak	-	17:00	18:00	-	-	-	-	-	-	-	18:00
Vol.	-	6	10	-	-	-	-	-	-	-	16
Grand Total		55	57								112
Percent		49.1%	50.9%								
ADT		ADT 112		AADT 112							

Page 1

Date Start: 17-May-22

Site Code: 7

Station ID: 7

Pawnee Rd W.O. Commanche Rd

Start Time	17-May-22	EB	WB							Total
12:00 AM		0	0							0
01:00		0	0							0
02:00		0	0							0
03:00		0	0							0
04:00		0	0							0
05:00		4	0							4
06:00		10	0							10
07:00		12	2							14
08:00		6	6							12
09:00		5	5							10
10:00		6	7							13
11:00		9	4							13
12:00 PM		1	3							4
01:00		2	3							5
02:00		5	9							14
03:00		5	5							10
04:00		1	12							13
05:00		1	6							7
06:00		3	4							7
07:00		1	4							5
08:00		2	3							5
09:00		2	1							3
10:00		1	2							3
11:00		0	2							2
Total		76	78							154
Percent		49.4%	50.6%							
AM Peak	-	07:00	10:00	-	-	-	-	-	-	07:00
Vol.	-	12	7	-	-	-	-	-	-	14
PM Peak	-	14:00	16:00	-	-	-	-	-	-	14:00
Vol.	-	5	12	-	-	-	-	-	-	14
Grand Total		76	78							154
Percent		49.4%	50.6%							
ADT		ADT 154	AADT 154							

All Traffic Data Services

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Date Start: 17-May-22
 Site Code: 8
 Station ID: 8
 Piute Rd N.O. Pawnee Rd

Start Time	17-May-22 Tue	NB	SB	Total
12:00 AM		1	4	5
01:00		0	0	0
02:00		1	1	2
03:00		1	1	2
04:00		10	1	11
05:00		23	7	30
06:00		51	16	67
07:00		58	9	67
08:00		30	11	41
09:00		22	19	41
10:00		23	17	40
11:00		29	19	48
12:00 PM		22	32	54
01:00		24	27	51
02:00		26	36	62
03:00		36	44	80
04:00		27	51	78
05:00		22	46	68
06:00		35	51	86
07:00		19	23	42
08:00		18	32	50
09:00		16	28	44
10:00		4	11	15
11:00		5	15	20
Total		503	501	1004
Percent		50.1%	49.9%	
AM Peak	-	07:00	09:00	-
Vol.	-	58	19	-
PM Peak	-	15:00	16:00	-
Vol.	-	36	51	-
Grand Total		503	501	1004
Percent		50.1%	49.9%	
ADT		ADT 1,004	AADT 1,004	

All Traffic Data Services

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Date Start: 17-May-22
 Site Code: 9
 Station ID: 9
 Commanche Rd N.O. Pawnee Rd

Start Time	17-May-22 Tue	NB	SB							Total
12:00 AM		0	0							0
01:00		0	0							0
02:00		0	0							0
03:00		0	0							0
04:00		0	0							0
05:00		0	0							0
06:00		0	0							0
07:00		0	1							1
08:00		1	4							5
09:00		0	2							2
10:00		4	5							9
11:00		1	3							4
12:00 PM		0	0							0
01:00		2	1							3
02:00		3	1							4
03:00		2	1							3
04:00		1	0							1
05:00		2	0							2
06:00		0	0							0
07:00		0	0							0
08:00		0	0							0
09:00		1	0							1
10:00		0	0							0
11:00		0	0							0
Total		17	18							35
Percent		48.6%	51.4%							
AM Peak	-	10:00	10:00	-	-	-	-	-	-	10:00
Vol.	-	4	5	-	-	-	-	-	-	9
PM Peak	-	14:00	13:00	-	-	-	-	-	-	14:00
Vol.	-	3	1	-	-	-	-	-	-	4
Grand Total		17	18							35
Percent		48.6%	51.4%							
ADT		ADT 35		AADT 35						



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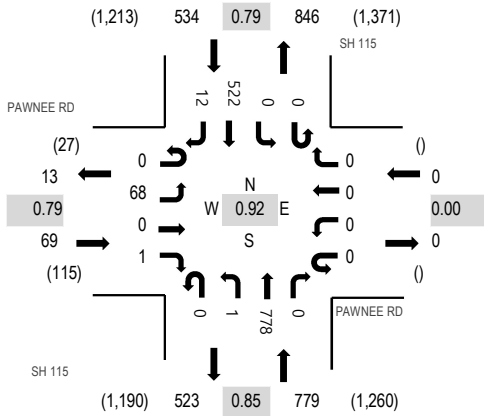
Location: 1 SH 115 & PAWNEE RD AM

Date: Tuesday, May 17, 2022

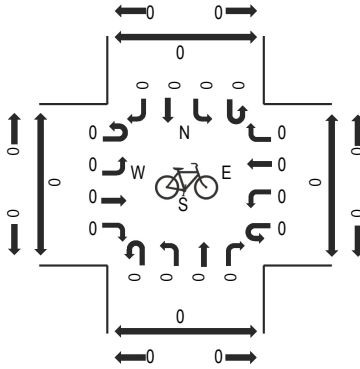
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Peak 15-Minutes: 07:45 AM - 08:00 AM

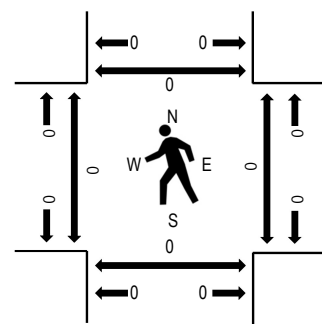
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	PAWNEE RD Eastbound				PAWNEE RD Westbound				SH 115 Northbound				SH 115 Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	20	0	0	0	0	0	0	0	0	129	0	0	0	115	2	266	1,346	0	0	0	0
7:15 AM	0	24	0	0	0	0	0	0	0	1	172	0	0	0	132	4	333	1,382	0	0	0	0
7:30 AM	0	13	0	0	0	0	0	0	0	0	228	0	0	0	130	1	372	1,325	0	0	0	0
7:45 AM	0	19	0	0	0	0	0	0	0	0	226	0	0	0	127	3	375	1,281	0	0	0	0
8:00 AM	0	12	0	1	0	0	0	0	0	0	152	0	0	0	133	4	302	1,242	0	0	0	0
8:15 AM	0	10	0	1	0	0	0	0	0	0	114	0	0	0	150	1	276		0	0	0	0
8:30 AM	0	9	0	0	0	0	0	0	0	0	128	0	0	0	187	4	328		0	0	0	0
8:45 AM	0	6	0	0	0	0	0	0	0	1	109	0	0	0	214	6	336		0	0	0	0
Count Total	0	113	0	2	0	0	0	0	0	2	1,258	0	0	0	1,188	25	2,588		0	0	0	0
Peak Hour	0	68	0	1	0	0	0	0	0	1	778	0	0	0	522	12	1,382		0	0	0	0



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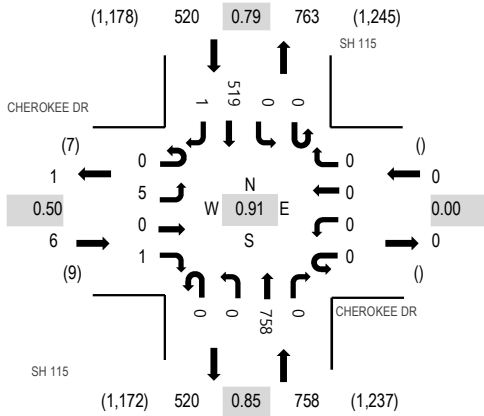
Location: 2 SH 115 & CHEROKEE DR AM

Date: Tuesday, May 17, 2022

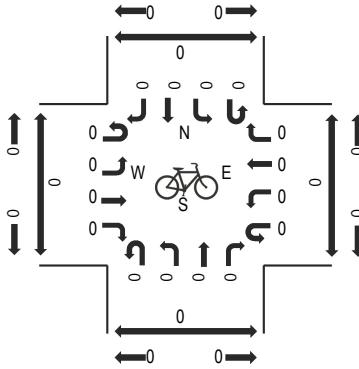
Peak Hour: 07:15 AM - 08:15 AM

Peak 15-Minutes: 07:30 AM - 07:45 AM

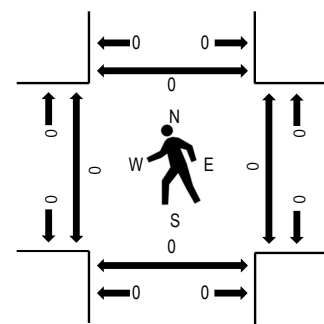
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	CHEROKEE DR Eastbound				CHEROKEE DR Westbound				SH 115 Northbound				SH 115 Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	0	0	0	0	0	0	0	0	132	0	0	0	111	0	243	1,249	0	0	0	0
7:15 AM	0	1	0	0	0	0	0	0	0	0	169	0	0	0	132	0	302	1,284	0	0	0	0
7:30 AM	0	1	0	1	0	0	0	0	0	0	221	0	0	0	129	1	353	1,241	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	223	0	0	0	128	0	351	1,202	0	0	0	0
8:00 AM	0	3	0	0	0	0	0	0	0	0	145	0	0	0	130	0	278	1,175	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	113	0	0	0	145	1	259		0	0	0	0
8:30 AM	0	1	0	0	0	0	0	0	0	0	126	0	0	0	186	1	314		0	0	0	0
8:45 AM	0	2	0	0	0	0	0	0	0	0	108	0	0	0	210	4	324		0	0	0	0
Count Total	0	8	0	1	0	0	0	0	0	0	1,237	0	0	0	1,171	7	2,424		0	0	0	0
Peak Hour	0	5	0	1	0	0	0	0	0	0	758	0	0	0	519	1	1,284		0	0	0	0



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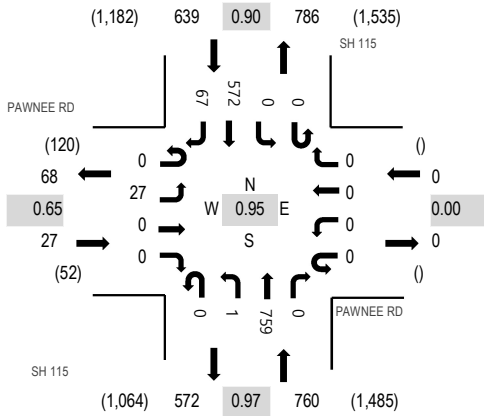
Location: 1 SH 115 & PAWNEE RD PM

Date: Tuesday, May 17, 2022

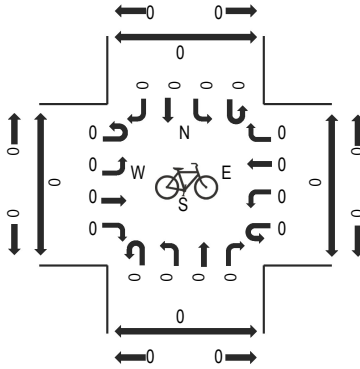
Peak Hour: 04:00 PM - 05:00 PM

Peak 15-Minutes: 04:00 PM - 04:15 PM

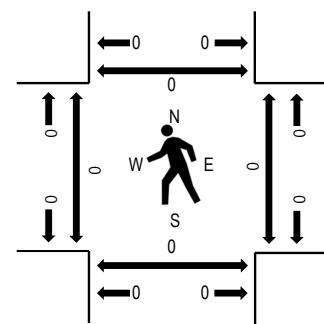
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	PAWNEE RD Eastbound				PAWNEE RD Westbound				SH 115 Northbound				SH 115 Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	8	0	0	0	0	0	0	0	0	189	0	0	0	160	17	374	1,426	0	0	0	0
4:15 PM	0	8	0	0	0	0	0	0	0	1	190	0	0	0	149	22	370	1,388	0	0	0	0
4:30 PM	0	5	0	0	0	0	0	0	0	0	179	0	0	0	122	12	318	1,376	0	0	0	0
4:45 PM	0	6	0	0	0	0	0	0	0	0	201	0	0	0	141	16	364	1,388	0	0	0	0
5:00 PM	0	6	0	1	0	0	0	0	0	0	189	0	0	0	131	9	336	1,293	0	0	0	0
5:15 PM	0	6	0	0	0	0	0	0	0	1	198	0	0	0	137	16	358		0	0	0	0
5:30 PM	0	12	0	0	0	0	0	0	0	0	188	0	1	0	117	12	330		0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	149	0	0	0	106	14	269		0	0	0	0
Count Total	0	51	0	1	0	0	0	0	0	2	1,483	0	1	0	1,063	118	2,719		0	0	0	0
Peak Hour	0	27	0	0	0	0	0	0	0	1	759	0	0	0	572	67	1,426		0	0	0	0



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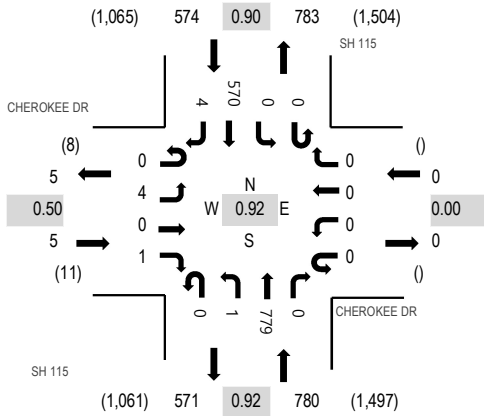
Location: 2 SH 115 & CHEROKEE DR PM

Date: Tuesday, May 17, 2022

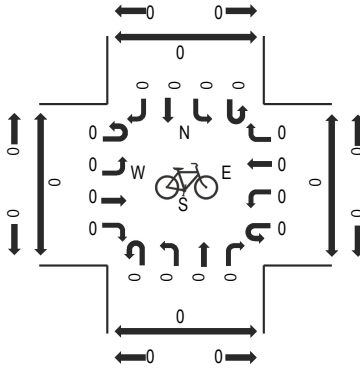
Peak Hour: 04:00 PM - 05:00 PM

Peak 15-Minutes: 04:00 PM - 04:15 PM

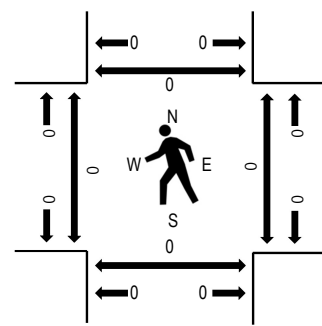
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	CHEROKEE DR Eastbound				CHEROKEE DR Westbound				SH 115 Northbound				SH 115 Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	0	1	0	0	0	0	0	0	211	0	0	0	158	1	371	1,359	0	0	0	0
4:15 PM	0	2	0	0	0	0	0	0	0	0	190	0	0	0	149	2	343	1,305	0	0	0	0
4:30 PM	0	1	0	0	0	0	0	0	0	0	181	0	0	0	124	0	306	1,296	0	0	0	0
4:45 PM	0	1	0	0	0	0	0	0	0	1	197	0	0	0	139	1	339	1,301	0	0	0	0
5:00 PM	0	2	0	0	0	0	0	0	0	1	184	0	0	0	130	0	317	1,214	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	198	0	0	0	136	0	334		0	0	0	0
5:30 PM	0	2	0	1	0	0	0	0	0	0	188	0	0	0	119	1	311		0	0	0	0
5:45 PM	0	1	0	0	0	0	0	0	0	0	146	0	0	0	104	1	252		0	0	0	0
Count Total	0	9	0	2	0	0	0	0	0	2	1,495	0	0	0	1,059	6	2,573		0	0	0	0
Peak Hour	0	4	0	1	0	0	0	0	0	1	779	0	0	0	570	4	1,359		0	0	0	0

Appendix B

Existing Conditions Analyses



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Intersection Level Of Service Report
Intersection 1: SH-115/Pawnee Rd

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 14.3
Level Of Service: B
Volume to Capacity (v/c): 0.181

Intersection Setup

Name	SH-115		SH-115		Pawnee Rd	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	825.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	660.00	0.00	0.00	0.00
Speed [mph]	60.00		60.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SH-115		SH-115		Pawnee Rd	
Base Volume Input [veh/h]	1	778	522	12	68	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	778	522	12	68	1
Peak Hour Factor	0.8500	0.8500	0.7900	0.7900	0.7900	0.7900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	229	165	4	22	0
Total Analysis Volume [veh/h]	1	915	661	15	86	1
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	22

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.18	0.00
d_M, Delay for Movement [s/veh]	8.95	0.00	0.00	0.00	14.26	12.09
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.66	0.66
95th-Percentile Queue Length [ft/ln]	0.08	0.00	0.00	0.00	16.53	16.53
d_A, Approach Delay [s/veh]	0.01		0.00		14.24	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.74					
Intersection LOS	B					



Intersection Level Of Service Report
Intersection 2: SH-115/Cherokee Dr

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 12.9
Level Of Service: B
Volume to Capacity (v/c): 0.021

Intersection Setup

Name	SH-115		SH-115		Cherokee Dr	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	645.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		60.00		60.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SH-115		SH-115		Cherokee Dr	
Base Volume Input [veh/h]	0	758	519	1	5	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	758	519	1	5	1
Peak Hour Factor	0.8500	0.8500	0.7900	0.7900	0.5000	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	223	164	0	3	1
Total Analysis Volume [veh/h]	0	892	657	1	10	2
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	7

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	8.89	0.00	0.00	0.00	12.89	10.58
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.07	0.07
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	1.87	1.87
d_A, Approach Delay [s/veh]	0.00		0.00		12.51	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.10					
Intersection LOS	B					



Signal Warrants Report For Intersection 1: SH-115/Pawnee Rd

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	534	779	69
2	518	756	67
3	507	740	66
4	475	693	61
5	422	615	55
6	417	608	54
7	411	600	53
8	374	545	48
9	368	538	48
10	363	530	47
11	315	460	41
12	294	428	38
13	288	421	37
14	214	312	28
15	214	312	28
16	150	218	19
17	85	125	11
18	85	125	11
19	48	70	6
20	27	39	3
21	16	23	2
22	5	8	1
23	5	8	1
24	5	8	1



Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	1313	1	69	No	No	No	No	No	Yes	Yes	Yes	Yes	No
2	3	1274	1	67	No	No	No	No	No	Yes	Yes	Yes	Yes	No
3	3	1247	1	66	No	No	No	No	No	Yes	Yes	Yes	Yes	No
4	3	1168	1	61	No	No	No	No	No	Yes	Yes	Yes	Yes	No
5	3	1037	1	55	No	No	No	No	No	No	Yes	Yes	No	No
6	3	1025	1	54	No	No	No	No	No	No	Yes	Yes	No	No
7	3	1011	1	53	No	No	No	No	No	No	Yes	Yes	No	No
8	3	919	1	48	No	No	No	No	No	No	No	Yes	No	No
9	3	906	1	48	No	No	No	No	No	No	No	Yes	No	No
10	3	893	1	47	No	No	No	No	No	No	No	Yes	No	No
11	3	775	1	41	No	No	No	No	No	No	No	No	No	No
12	3	722	1	38	No	No	No	No	No	No	No	No	No	No
13	3	709	1	37	No	No	No	No	No	No	No	No	No	No
14	3	526	1	28	No	No	No	No	No	No	No	No	No	No
15	3	526	1	28	No	No	No	No	No	No	No	No	No	No
16	3	368	1	19	No	No	No	No	No	No	No	No	No	No
17	3	210	1	11	No	No	No	No	No	No	No	No	No	No
18	3	210	1	11	No	No	No	No	No	No	No	No	No	No
19	3	118	1	6	No	No	No	No	No	No	No	No	No	No
20	3	66	1	3	No	No	No	No	No	No	No	No	No	No
21	3	39	1	2	No	No	No	No	No	No	No	No	No	No
22	3	13	1	1	No	No	No	No	No	No	No	No	No	No
23	3	13	1	1	No	No	No	No	No	No	No	No	No	No
24	3	13	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	4	7	10	4	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	14.2
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:16
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	69
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1382
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	No



Signal Warrants Report For Intersection 2: SH-115/Cherokee Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	520	758	6
2	504	735	6
3	494	720	6
4	463	675	5
5	411	599	5
6	406	591	5
7	400	584	5
8	364	531	4
9	359	523	4
10	354	515	4
11	307	447	4
12	286	417	3
13	281	409	3
14	208	303	2
15	208	303	2
16	146	212	2
17	83	121	1
18	83	121	1
19	47	68	1
20	26	38	0
21	16	23	0
22	5	8	0
23	5	8	0
24	5	8	0



Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	1278	1	6	No	No	No	No	No	No	No	No	No	No
2	3	1239	1	6	No	No	No	No	No	No	No	No	No	No
3	3	1214	1	6	No	No	No	No	No	No	No	No	No	No
4	3	1138	1	5	No	No	No	No	No	No	No	No	No	No
5	3	1010	1	5	No	No	No	No	No	No	No	No	No	No
6	3	997	1	5	No	No	No	No	No	No	No	No	No	No
7	3	984	1	5	No	No	No	No	No	No	No	No	No	No
8	3	895	1	4	No	No	No	No	No	No	No	No	No	No
9	3	882	1	4	No	No	No	No	No	No	No	No	No	No
10	3	869	1	4	No	No	No	No	No	No	No	No	No	No
11	3	754	1	4	No	No	No	No	No	No	No	No	No	No
12	3	703	1	3	No	No	No	No	No	No	No	No	No	No
13	3	690	1	3	No	No	No	No	No	No	No	No	No	No
14	3	511	1	2	No	No	No	No	No	No	No	No	No	No
15	3	511	1	2	No	No	No	No	No	No	No	No	No	No
16	3	358	1	2	No	No	No	No	No	No	No	No	No	No
17	3	204	1	1	No	No	No	No	No	No	No	No	No	No
18	3	204	1	1	No	No	No	No	No	No	No	No	No	No
19	3	115	1	1	No	No	No	No	No	No	No	No	No	No
20	3	64	1	0	No	No	No	No	No	No	No	No	No	No
21	3	39	1	0	No	No	No	No	No	No	No	No	No	No
22	3	13	1	0	No	No	No	No	No	No	No	No	No	No
23	3	13	1	0	No	No	No	No	No	No	No	No	No	No
24	3	13	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	12.5
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:01
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	6
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1284
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	No



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Intersection Level Of Service Report
Intersection 1: SH-115/Pawnee Rd

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 13.1
Level Of Service: B
Volume to Capacity (v/c): 0.086

Intersection Setup

Name	SH-115		SH-115		Pawnee Rd	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	825.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	660.00	0.00	0.00	0.00
Speed [mph]	60.00		60.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SH-115		SH-115		Pawnee Rd	
Base Volume Input [veh/h]	1	759	572	67	27	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	759	572	67	27	0
Peak Hour Factor	0.9700	0.9700	0.9000	0.9000	0.6500	0.6500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	196	159	19	10	0
Total Analysis Volume [veh/h]	1	782	636	74	42	0
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	22

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.09	0.00
d_M, Delay for Movement [s/veh]	9.07	0.00	0.00	0.00	13.05	11.00
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.28	0.28
95th-Percentile Queue Length [ft/ln]	0.08	0.00	0.00	0.00	7.01	7.01
d_A, Approach Delay [s/veh]	0.01		0.00		13.05	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.36					
Intersection LOS	B					



Intersection Level Of Service Report
Intersection 2: SH-115/Cherokee Dr

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 12.6
Level Of Service: B
Volume to Capacity (v/c): 0.017

Intersection Setup

Name	SH-115		SH-115		Cherokee Dr	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	645.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		60.00		60.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SH-115		SH-115		Cherokee Dr	
Base Volume Input [veh/h]	1	779	570	4	4	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	779	570	4	4	1
Peak Hour Factor	0.9200	0.9200	0.9000	0.9000	0.5000	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	212	158	1	2	1
Total Analysis Volume [veh/h]	1	847	633	4	8	2
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	7

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	8.82	0.00	0.00	0.00	12.63	10.44
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.06	0.06
95th-Percentile Queue Length [ft/ln]	0.08	0.00	0.00	0.00	1.50	1.50
d_A, Approach Delay [s/veh]	0.01		0.00		12.19	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.09					
Intersection LOS	B					



Signal Warrants Report For Intersection 1: SH-115/Pawnee Rd

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	639	760	27
2	620	737	26
3	607	722	26
4	569	676	24
5	505	600	21
6	498	593	21
7	492	585	21
8	447	532	19
9	441	524	19
10	435	517	18
11	377	448	16
12	351	418	15
13	345	410	15
14	256	304	11
15	256	304	11
16	179	213	8
17	102	122	4
18	102	122	4
19	58	68	2
20	32	38	1
21	19	23	1
22	6	8	0
23	6	8	0
24	6	8	0



Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	1399	1	27	No	No	No	No	No	No	No	No	No	No
2	3	1357	1	26	No	No	No	No	No	No	No	No	No	No
3	3	1329	1	26	No	No	No	No	No	No	No	No	No	No
4	3	1245	1	24	No	No	No	No	No	No	No	No	No	No
5	3	1105	1	21	No	No	No	No	No	No	No	No	No	No
6	3	1091	1	21	No	No	No	No	No	No	No	No	No	No
7	3	1077	1	21	No	No	No	No	No	No	No	No	No	No
8	3	979	1	19	No	No	No	No	No	No	No	No	No	No
9	3	965	1	19	No	No	No	No	No	No	No	No	No	No
10	3	952	1	18	No	No	No	No	No	No	No	No	No	No
11	3	825	1	16	No	No	No	No	No	No	No	No	No	No
12	3	769	1	15	No	No	No	No	No	No	No	No	No	No
13	3	755	1	15	No	No	No	No	No	No	No	No	No	No
14	3	560	1	11	No	No	No	No	No	No	No	No	No	No
15	3	560	1	11	No	No	No	No	No	No	No	No	No	No
16	3	392	1	8	No	No	No	No	No	No	No	No	No	No
17	3	224	1	4	No	No	No	No	No	No	No	No	No	No
18	3	224	1	4	No	No	No	No	No	No	No	No	No	No
19	3	126	1	2	No	No	No	No	No	No	No	No	No	No
20	3	70	1	1	No	No	No	No	No	No	No	No	No	No
21	3	42	1	1	No	No	No	No	No	No	No	No	No	No
22	3	14	1	0	No	No	No	No	No	No	No	No	No	No
23	3	14	1	0	No	No	No	No	No	No	No	No	No	No
24	3	14	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	13.1
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:05
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	27
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1426
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	No



Signal Warrants Report For Intersection 2: SH-115/Cherokee Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	574	780	5
2	557	757	5
3	545	741	5
4	511	694	4
5	453	616	4
6	448	608	4
7	442	601	4
8	402	546	4
9	396	538	3
10	390	530	3
11	339	460	3
12	316	429	3
13	310	421	3
14	230	312	2
15	230	312	2
16	161	218	1
17	92	125	1
18	92	125	1
19	52	70	0
20	29	39	0
21	17	23	0
22	6	8	0
23	6	8	0
24	6	8	0



Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	1354	1	5	No	No	No	No	No	No	No	No	No	No
2	3	1314	1	5	No	No	No	No	No	No	No	No	No	No
3	3	1286	1	5	No	No	No	No	No	No	No	No	No	No
4	3	1205	1	4	No	No	No	No	No	No	No	No	No	No
5	3	1069	1	4	No	No	No	No	No	No	No	No	No	No
6	3	1056	1	4	No	No	No	No	No	No	No	No	No	No
7	3	1043	1	4	No	No	No	No	No	No	No	No	No	No
8	3	948	1	4	No	No	No	No	No	No	No	No	No	No
9	3	934	1	3	No	No	No	No	No	No	No	No	No	No
10	3	920	1	3	No	No	No	No	No	No	No	No	No	No
11	3	799	1	3	No	No	No	No	No	No	No	No	No	No
12	3	745	1	3	No	No	No	No	No	No	No	No	No	No
13	3	731	1	3	No	No	No	No	No	No	No	No	No	No
14	3	542	1	2	No	No	No	No	No	No	No	No	No	No
15	3	542	1	2	No	No	No	No	No	No	No	No	No	No
16	3	379	1	1	No	No	No	No	No	No	No	No	No	No
17	3	217	1	1	No	No	No	No	No	No	No	No	No	No
18	3	217	1	1	No	No	No	No	No	No	No	No	No	No
19	3	122	1	0	No	No	No	No	No	No	No	No	No	No
20	3	68	1	0	No	No	No	No	No	No	No	No	No	No
21	3	40	1	0	No	No	No	No	No	No	No	No	No	No
22	3	14	1	0	No	No	No	No	No	No	No	No	No	No
23	3	14	1	0	No	No	No	No	No	No	No	No	No	No
24	3	14	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	12.2
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:01
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	5
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1359
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	No

Appendix C

Trip Generation Calculations

PROJECT DETAILS			
Project Name:	Rock Creek Mesa	Type of Project:	
Project No:		City:	El Paso County
Country:		Built-up Area(Sq.ft):	
Analyst Name:	Scott Barnhart	Clients Name:	CS Equities
Date:	7/9/2022	ZIP/Postal Code:	
State/Province:	Colorado	No. of Scenarios:	3
Analysis Region:			
SCENARIO SUMMARY			

Scenarios	Name	No. of Land Uses	Phases of Development	No. of Years to Project Traffic	User Group	Estimated New Vehicle Trips		
						Entry	Exit	Total
Scenario - 1	AM Peak Hour	3	1	0		72	217	289
Scenario - 2	PM Peak Hour	3	1	0		227	140	367
Scenario - 3	Weekday	3	1	0		2143	2143	4286

Scenario - 1

Scenario Name: AM Peak Hour

Dev. phase: 1

Analyst Note:

User Group:

No. of Years to Project 0

Traffic :

Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method	Entry	Exit	Total
					Rate/Equation	Split%	Split%	
210 - Single-Family Detached Housing	General Urban/Suburban	Dwelling Units	150	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	28	80	108
Data Source: Trip Generation Manual, 11th Ed					$\ln(T) = 0.91\ln(X) + 0.12$	26%	74%	
215 - Single-Family Attached Housing	General Urban/Suburban	Dwelling Units	190	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LIN)	23	70	93
Data Source: Trip Generation Manual, 11th Ed					$T = 0.52(X) - 5.70$	25%	75%	
220 - Multifamily Housing (Low-Rise) - Not Close	General Urban/Suburban	Dwelling Units	210	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LIN)	21	67	88
Data Source: Trip Generation Manual, 11th Ed					$T = 0.31(X) + 22.85$	24%	76%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	26	74
215 - Single-Family Attached Housing	100	100	1	1	25	75
220 - Multifamily Housing (Low-Rise) - Not Close to Rail Transit	100	100	1	1	24	76

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
	Entry	Exit	Entry	Exit	Entry	Exit
210 - Single-Family Detached Housing	28	80	0	0	28	80
	108		0		108	
215 - Single-Family Attached Housing	23	70	0	0	23	70
	93		0		93	
220 - Multifamily Housing (Low-Rise) - Not Close to Rail Transit	21	67	0	0	21	67
	88		0		88	

NEW VEHICLE TRIPS

Land Use	New Vehicle Trips		
	Entry	Exit	Total
210 - Single-Family Detached Housing	28	80	108
215 - Single-Family Attached Housing	23	70	93
220 - Multifamily Housing (Low-Rise) - Not Close to Rail Transit	21	67	88

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	72	217	289
External Vehicle Trips	72	217	289
New Vehicle Trips	72	217	289

Scenario - 2

Scenario Name: PM Peak Hour

Dev. phase: 1

Analyst Note:

User Group:

No. of Years to Project 0

Traffic :

Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method	Entry	Exit	Total
					Rate/Equation	Split%	Split%	
210 - Single-Family Detached Housing	General Urban/Suburban	Dwelling Units	150	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	92	54	146
Data Source: Trip Generation Manual, 11th Ed					Ln(T) =0.94Ln(X) + 0.27	63%	37%	
215 - Single-Family Attached Housing	General Urban/Suburban	Dwelling Units	190	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LIN)	65	45	110
Data Source: Trip Generation Manual, 11th Ed					T = 0.60(X) - 3.93	59%	41%	
220 - Multifamily Housing (Low-Rise) - Not Close	General Urban/Suburban	Dwelling Units	210	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LIN)	70	41	111
Data Source: Trip Generation Manual, 11th Ed					T = 0.43(X) + 20.55	63%	37%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	63	37
215 - Single-Family Attached Housing	100	100	1	1	59	41
220 - Multifamily Housing (Low-Rise) - Not Close to Rail Transit	100	100	1	1	63	37

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
	Entry	Exit	Entry	Exit	Entry	Exit
210 - Single-Family Detached Housing	92	54	0	0	92	54
	146		0		146	
215 - Single-Family Attached Housing	65	45	0	0	65	45
	110		0		110	
220 - Multifamily Housing (Low-Rise) - Not Close to Rail Transit	70	41	0	0	70	41
	111		0		111	

NEW VEHICLE TRIPS

Land Use	New Vehicle Trips		
	Entry	Exit	Total
210 - Single-Family Detached Housing	92	54	146
215 - Single-Family Attached Housing	65	45	110
220 - Multifamily Housing (Low-Rise) - Not Close to Rail Transit	70	41	111

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	227	140	367
External Vehicle Trips	227	140	367
New Vehicle Trips	227	140	367

Scenario - 3

Scenario Name: Weekday

Dev. phase: 1

Analyst Note:

User Group:

No. of Years to Project 0

Traffic :

Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method	Entry	Exit	Total
					Rate/Equation	Split%	Split%	
210 - Single-Family Detached Housing	General Urban/Suburban	Dwelling Units	150	Weekday	Best Fit (LOG)	733	733	1466
Data Source: Trip Generation Manual, 11th Ed					$\ln(T) = 0.92\ln(X) + 2.68$	50%	50%	
215 - Single-Family Attached Housing	General Urban/Suburban	Dwelling Units	190	Weekday	Best Fit (LIN)	699	699	1398
Data Source: Trip Generation Manual, 11th Ed					$T = 7.62(X) - 50.48$	50%	50%	
220 - Multifamily Housing (Low-Rise) - Not Close	General Urban/Suburban	Dwelling Units	210	Weekday	Best Fit (LIN)	711	711	1422
Data Source: Trip Generation Manual, 11th Ed					$T = 6.41(X) + 75.31$	50%	50%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	50	50
215 - Single-Family Attached Housing	100	100	1	1	50	50
220 - Multifamily Housing (Low-Rise) - Not Close to Rail Transit	100	100	1	1	50	50

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
	Entry	Exit	Entry	Exit	Entry	Exit
210 - Single-Family Detached Housing	733	733	0	0	733	733
	1466		0		1466	
215 - Single-Family Attached Housing	699	699	0	0	699	699
	1398		0		1398	
220 - Multifamily Housing (Low-Rise) - Not Close to Rail Transit	711	711	0	0	711	711
	1422		0		1422	

NEW VEHICLE TRIPS

Land Use	New Vehicle Trips		
	Entry	Exit	Total
210 - Single-Family Detached Housing	733	733	1466
215 - Single-Family Attached Housing	699	699	1398
220 - Multifamily Housing (Low-Rise) - Not Close to Rail Transit	711	711	1422

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	2143	2143	4286
External Vehicle Trips	2143	2143	4286
New Vehicle Trips	2143	2143	4286

Appendix D

Buildout Conditions Analyses



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Intersection Level Of Service Report
Intersection 1: SH-115/Pawnee Rd

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 17.1
Level Of Service: C
Volume to Capacity (v/c): 0.261

Intersection Setup

Name	SH-115		SH-115		Pawnee Rd	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	1000.00	390.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	60.00		60.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SH-115		SH-115		Pawnee Rd	
Base Volume Input [veh/h]	1	778	522	12	68	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3050	1.3050	1.3050	1.3050	1.3050	1.3050
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	1015	681	16	89	1
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	299	200	5	26	0
Total Analysis Volume [veh/h]	1	1194	801	19	105	1
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	22

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.26	0.00
d_M, Delay for Movement [s/veh]	9.48	0.00	0.00	0.00	17.10	11.02
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	1.03	0.01
95th-Percentile Queue Length [ft/ln]	0.09	0.00	0.00	0.00	25.81	0.13
d_A, Approach Delay [s/veh]	0.01		0.00		17.04	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.86					
Intersection LOS	C					



Intersection Level Of Service Report
Intersection 2: SH-115/Cherokee Dr

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 11.0
Level Of Service: B
Volume to Capacity (v/c): 0.002

Intersection Setup

Name	SH-115		SH-115		Cherokee Dr	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	645.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		60.00		60.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SH-115		SH-115		Cherokee Dr	
Base Volume Input [veh/h]	0	758	519	1	5	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3050	1.3050	1.3050	1.3050	1.3050	1.3050
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	989	677	1	7	1
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	291	199	0	2	0
Total Analysis Volume [veh/h]	0	1164	796	1	8	1
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	7

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.39	0.00	0.00	0.00	0.00	11.00
Movement LOS	A	A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.12
d_A, Approach Delay [s/veh]	0.00		0.00		11.00	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.01					
Intersection LOS	B					



Signal Warrants Report For Intersection 1: SH-115/Pawnee Rd

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	697	1016	90
2	676	986	87
3	662	965	86
4	620	904	80
5	551	803	71
6	544	792	70
7	537	782	69
8	488	711	63
9	481	701	62
10	474	691	61
11	411	599	53
12	383	559	50
13	376	549	49
14	279	406	36
15	279	406	36
16	195	284	25
17	112	163	14
18	112	163	14
19	63	91	8
20	35	51	5
21	21	30	3
22	7	10	1
23	7	10	1
24	7	10	1



Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	1713	2	90	No	No	No	No	No	Yes	Yes	Yes	Yes	No
2	3	1662	2	87	No	No	No	No	No	Yes	Yes	Yes	Yes	No
3	3	1627	2	86	No	No	No	No	No	Yes	Yes	Yes	Yes	No
4	3	1524	2	80	No	No	No	No	No	Yes	Yes	Yes	No	No
5	3	1354	2	71	No	No	No	No	No	No	Yes	Yes	No	No
6	3	1336	2	70	No	No	No	No	No	No	Yes	Yes	No	No
7	3	1319	2	69	No	No	No	No	No	No	No	Yes	No	No
8	3	1199	2	63	No	No	No	No	No	No	No	Yes	No	No
9	3	1182	2	62	No	No	No	No	No	No	No	Yes	No	No
10	3	1165	2	61	No	No	No	No	No	No	No	Yes	No	No
11	3	1010	2	53	No	No	No	No	No	No	No	No	No	No
12	3	942	2	50	No	No	No	No	No	No	No	No	No	No
13	3	925	2	49	No	No	No	No	No	No	No	No	No	No
14	3	685	2	36	No	No	No	No	No	No	No	No	No	No
15	3	685	2	36	No	No	No	No	No	No	No	No	No	No
16	3	479	2	25	No	No	No	No	No	No	No	No	No	No
17	3	275	2	14	No	No	No	No	No	No	No	No	No	No
18	3	275	2	14	No	No	No	No	No	No	No	No	No	No
19	3	154	2	8	No	No	No	No	No	No	No	No	No	No
20	3	86	2	5	No	No	No	No	No	No	No	No	No	No
21	3	51	2	3	No	No	No	No	No	No	No	No	No	No
22	3	17	2	1	No	No	No	No	No	No	No	No	No	No
23	3	17	2	1	No	No	No	No	No	No	No	No	No	No
24	3	17	2	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	4	6	10	3	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	17
Number of Lanes on Minor Street Approach	2
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:25
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	90
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1803
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	No



Signal Warrants Report For Intersection 2: SH-115/Cherokee Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	678	989	1
2	658	959	1
3	644	940	1
4	603	880	1
5	536	781	1
6	529	771	1
7	522	762	1
8	475	692	1
9	468	682	1
10	461	673	1
11	400	584	1
12	373	544	1
13	366	534	1
14	271	396	0
15	271	396	0
16	190	277	0
17	108	158	0
18	108	158	0
19	61	89	0
20	34	49	0
21	20	30	0
22	7	10	0
23	7	10	0
24	7	10	0



Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	1667	1	1	No	No	No	No	No	No	No	No	No	No
2	3	1617	1	1	No	No	No	No	No	No	No	No	No	No
3	3	1584	1	1	No	No	No	No	No	No	No	No	No	No
4	3	1483	1	1	No	No	No	No	No	No	No	No	No	No
5	3	1317	1	1	No	No	No	No	No	No	No	No	No	No
6	3	1300	1	1	No	No	No	No	No	No	No	No	No	No
7	3	1284	1	1	No	No	No	No	No	No	No	No	No	No
8	3	1167	1	1	No	No	No	No	No	No	No	No	No	No
9	3	1150	1	1	No	No	No	No	No	No	No	No	No	No
10	3	1134	1	1	No	No	No	No	No	No	No	No	No	No
11	3	984	1	1	No	No	No	No	No	No	No	No	No	No
12	3	917	1	1	No	No	No	No	No	No	No	No	No	No
13	3	900	1	1	No	No	No	No	No	No	No	No	No	No
14	3	667	1	0	No	No	No	No	No	No	No	No	No	No
15	3	667	1	0	No	No	No	No	No	No	No	No	No	No
16	3	467	1	0	No	No	No	No	No	No	No	No	No	No
17	3	266	1	0	No	No	No	No	No	No	No	No	No	No
18	3	266	1	0	No	No	No	No	No	No	No	No	No	No
19	3	150	1	0	No	No	No	No	No	No	No	No	No	No
20	3	83	1	0	No	No	No	No	No	No	No	No	No	No
21	3	50	1	0	No	No	No	No	No	No	No	No	No	No
22	3	17	1	0	No	No	No	No	No	No	No	No	No	No
23	3	17	1	0	No	No	No	No	No	No	No	No	No	No
24	3	17	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	11
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	1
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1668
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	No



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Intersection Level Of Service Report
Intersection 1: SH-115/Pawnee Rd

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 16.1
Level Of Service: C
Volume to Capacity (v/c): 0.112

Intersection Setup

Name	SH-115		SH-115		Pawnee Rd	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	1000.00	390.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	60.00		60.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SH-115		SH-115		Pawnee Rd	
Base Volume Input [veh/h]	1	759	572	67	27	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3050	1.3050	1.3050	1.3050	1.3050	1.3050
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	990	746	87	35	0
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	291	219	26	10	0
Total Analysis Volume [veh/h]	1	1165	878	102	41	0
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	22

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.11	0.00
d_M, Delay for Movement [s/veh]	10.15	0.00	0.00	0.00	16.06	11.36
Movement LOS	B	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.37	0.00
95th-Percentile Queue Length [ft/ln]	0.11	0.00	0.00	0.00	9.36	0.00
d_A, Approach Delay [s/veh]	0.01		0.00		16.06	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.31					
Intersection LOS	C					



Intersection Level Of Service Report
Intersection 2: SH-115/Cherokee Dr

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 11.4
Level Of Service: B
Volume to Capacity (v/c): 0.002

Intersection Setup

Name	SH-115		SH-115		Cherokee Dr	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	645.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		60.00		60.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SH-115		SH-115		Cherokee Dr	
Base Volume Input [veh/h]	1	779	570	4	4	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3050	1.3050	1.3050	1.3050	1.3050	1.3050
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	1017	744	5	5	1
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	299	219	1	1	0
Total Analysis Volume [veh/h]	1	1196	875	6	6	1
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	7

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.72	0.00	0.00	0.00	0.00	11.36
Movement LOS	A	A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.01
95th-Percentile Queue Length [ft/ln]	0.10	0.00	0.00	0.00	0.00	0.13
d_A, Approach Delay [s/veh]	0.01		0.00		11.36	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.01					
Intersection LOS	B					



Signal Warrants Report For Intersection 1: SH-115/Pawnee Rd

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	833	991	35
2	808	961	34
3	791	941	33
4	741	882	31
5	658	783	28
6	650	773	27
7	641	763	27
8	583	694	25
9	575	684	24
10	566	674	24
11	491	585	21
12	458	545	19
13	450	535	19
14	333	396	14
15	333	396	14
16	233	277	10
17	133	159	6
18	133	159	6
19	75	89	3
20	42	50	2
21	25	30	1
22	8	10	0
23	8	10	0
24	8	10	0



Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	1824	2	35	No	No	No	No	No	No	No	No	No	No
2	3	1769	2	34	No	No	No	No	No	No	No	No	No	No
3	3	1732	2	33	No	No	No	No	No	No	No	No	No	No
4	3	1623	2	31	No	No	No	No	No	No	No	No	No	No
5	3	1441	2	28	No	No	No	No	No	No	No	No	No	No
6	3	1423	2	27	No	No	No	No	No	No	No	No	No	No
7	3	1404	2	27	No	No	No	No	No	No	No	No	No	No
8	3	1277	2	25	No	No	No	No	No	No	No	No	No	No
9	3	1259	2	24	No	No	No	No	No	No	No	No	No	No
10	3	1240	2	24	No	No	No	No	No	No	No	No	No	No
11	3	1076	2	21	No	No	No	No	No	No	No	No	No	No
12	3	1003	2	19	No	No	No	No	No	No	No	No	No	No
13	3	985	2	19	No	No	No	No	No	No	No	No	No	No
14	3	729	2	14	No	No	No	No	No	No	No	No	No	No
15	3	729	2	14	No	No	No	No	No	No	No	No	No	No
16	3	510	2	10	No	No	No	No	No	No	No	No	No	No
17	3	292	2	6	No	No	No	No	No	No	No	No	No	No
18	3	292	2	6	No	No	No	No	No	No	No	No	No	No
19	3	164	2	3	No	No	No	No	No	No	No	No	No	No
20	3	92	2	2	No	No	No	No	No	No	No	No	No	No
21	3	55	2	1	No	No	No	No	No	No	No	No	No	No
22	3	18	2	0	No	No	No	No	No	No	No	No	No	No
23	3	18	2	0	No	No	No	No	No	No	No	No	No	No
24	3	18	2	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	16.1
Number of Lanes on Minor Street Approach	2
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:09
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	35
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1859
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	No



Signal Warrants Report For Intersection 2: SH-115/Cherokee Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	749	1018	1
2	727	987	1
3	712	967	1
4	667	906	1
5	592	804	1
6	584	794	1
7	577	784	1
8	524	713	1
9	517	702	1
10	509	692	1
11	442	601	1
12	412	560	1
13	404	550	1
14	300	407	0
15	300	407	0
16	210	285	0
17	120	163	0
18	120	163	0
19	67	92	0
20	37	51	0
21	22	31	0
22	7	10	0
23	7	10	0
24	7	10	0



Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	1767	1	1	No	No	No	No	No	No	No	No	No	No
2	3	1714	1	1	No	No	No	No	No	No	No	No	No	No
3	3	1679	1	1	No	No	No	No	No	No	No	No	No	No
4	3	1573	1	1	No	No	No	No	No	No	No	No	No	No
5	3	1396	1	1	No	No	No	No	No	No	No	No	No	No
6	3	1378	1	1	No	No	No	No	No	No	No	No	No	No
7	3	1361	1	1	No	No	No	No	No	No	No	No	No	No
8	3	1237	1	1	No	No	No	No	No	No	No	No	No	No
9	3	1219	1	1	No	No	No	No	No	No	No	No	No	No
10	3	1201	1	1	No	No	No	No	No	No	No	No	No	No
11	3	1043	1	1	No	No	No	No	No	No	No	No	No	No
12	3	972	1	1	No	No	No	No	No	No	No	No	No	No
13	3	954	1	1	No	No	No	No	No	No	No	No	No	No
14	3	707	1	0	No	No	No	No	No	No	No	No	No	No
15	3	707	1	0	No	No	No	No	No	No	No	No	No	No
16	3	495	1	0	No	No	No	No	No	No	No	No	No	No
17	3	283	1	0	No	No	No	No	No	No	No	No	No	No
18	3	283	1	0	No	No	No	No	No	No	No	No	No	No
19	3	159	1	0	No	No	No	No	No	No	No	No	No	No
20	3	88	1	0	No	No	No	No	No	No	No	No	No	No
21	3	53	1	0	No	No	No	No	No	No	No	No	No	No
22	3	17	1	0	No	No	No	No	No	No	No	No	No	No
23	3	17	1	0	No	No	No	No	No	No	No	No	No	No
24	3	17	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	11.4
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	1
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1768
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	No



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Intersection Level Of Service Report

Intersection 1: SH-115/Pawnee Rd

Control Type:	Signalized	Delay (sec / veh):	8.9
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.537

Intersection Setup

Name	SH-115		SH-115		Pawnee Rd	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	1000.00	390.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	60.00		60.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		No	

**Volumes**

Name	SH-115		SH-115		Pawnee Rd	
Base Volume Input [veh/h]	1	778	522	12	73	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.3050	1.3050	1.3050	1.3050	1.3050	1.3050
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	0	70	210	6
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	1015	681	86	305	7
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	299	200	25	90	2
Total Analysis Volume [veh/h]	4	1194	801	101	359	8
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	0	6	2	0	3	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lead	-
Minimum Green [s]	0	10	10	0	5	0
Maximum Green [s]	0	30	30	0	30	0
Amber [s]	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	0.0	2.0	2.0	0.0	2.0	0.0
Split [s]	0	15	15	0	65	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall		No	No		No	
Maximum Recall		No	No		No	
Pedestrian Recall		No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	C	R	L	R
C, Cycle Length [s]	35	35	35	35	35	35
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	16	16	16	16	9	9
g / C, Green / Cycle	0.45	0.45	0.45	0.45	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.01	0.34	0.22	0.06	0.20	0.01
s, saturation flow rate [veh/h]	618	3560	3560	1589	1781	1589
c, Capacity [veh/h]	353	1610	1610	719	469	419
d1, Uniform Delay [s]	10.24	7.94	6.81	5.64	11.95	9.59
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.01	0.69	0.24	0.09	2.63	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.01	0.74	0.50	0.14	0.76	0.02
d, Delay for Lane Group [s/veh]	10.25	8.63	7.05	5.72	14.58	9.60
Lane Group LOS	B	A	A	A	B	A
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.01	1.13	0.61	0.13	2.27	0.04
50th-Percentile Queue Length [ft/ln]	0.35	28.22	15.36	3.37	56.78	0.91
95th-Percentile Queue Length [veh/ln]	0.03	2.03	1.11	0.24	4.09	0.07
95th-Percentile Queue Length [ft/ln]	0.63	50.80	27.64	6.06	102.20	1.65

**Movement, Approach, & Intersection Results**

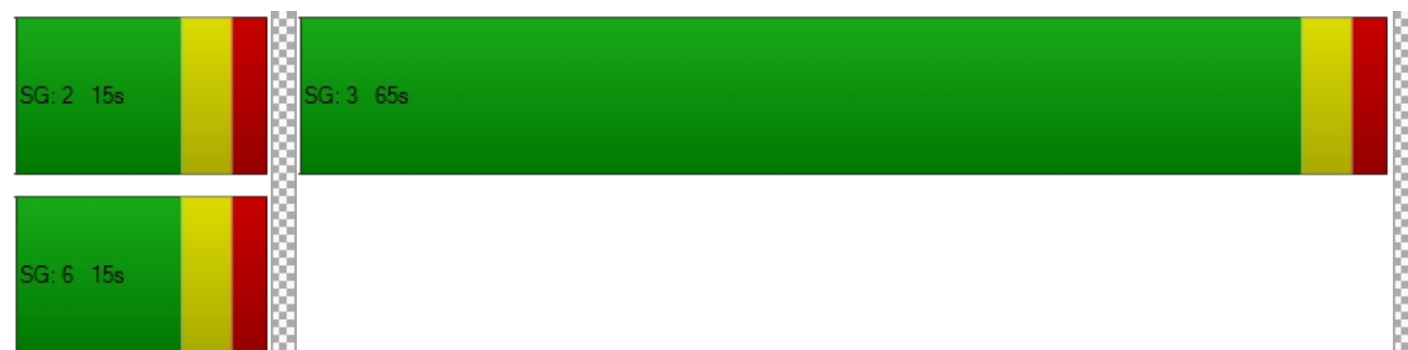
d_M, Delay for Movement [s/veh]	10.25	8.63	7.05	5.72	14.58	9.60
Movement LOS	B	A	A	A	B	A
d_A, Approach Delay [s/veh]	8.64		6.90		14.47	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	8.87					
Intersection LOS	A					
Intersection V/C	0.537					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000
Crosswalk LOS	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	571	571	3426
d_b, Bicycle Delay [s]	8.94	8.94	8.91
I_b,int, Bicycle LOS Score for Intersection	2.548	2.304	1.560
Bicycle LOS	B	B	A

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-





Intersection Level Of Service Report

Intersection 2: SH-115/Cherokee Dr

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 12.1
 Level Of Service: B
 Volume to Capacity (v/c): 0.004

Intersection Setup

Name	SH-115		SH-115		Cherokee Dr	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	645.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		60.00		60.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SH-115		SH-115		Cherokee Dr	
Base Volume Input [veh/h]	0	758	519	1	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3050	1.3050	1.3050	1.3050	1.3050	1.3050
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	6	0	0	1
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	991	683	1	0	2
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	291	201	0	0	1
Total Analysis Volume [veh/h]	0	1166	804	1	0	2
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	7

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	12.07
Movement LOS		A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.01
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.29
d_A, Approach Delay [s/veh]	0.00		0.00		12.07	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.01					
Intersection LOS	B					



Signal Warrants Report For Intersection 2: SH-115/Cherokee Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	684	991	2
2	663	961	2
3	650	941	2
4	609	882	2
5	540	783	2
6	534	773	2
7	527	763	2
8	479	694	1
9	472	684	1
10	465	674	1
11	404	585	1
12	376	545	1
13	369	535	1
14	274	396	1
15	274	396	1
16	192	277	1
17	109	159	0
18	109	159	0
19	62	89	0
20	34	50	0
21	21	30	0
22	7	10	0
23	7	10	0
24	7	10	0



Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	1675	1	2	No	No	No	No	No	No	No	No	No	No
2	3	1624	1	2	No	No	No	No	No	No	No	No	No	No
3	3	1591	1	2	No	No	No	No	No	No	No	No	No	No
4	3	1491	1	2	No	No	No	No	No	No	No	No	No	No
5	3	1323	1	2	No	No	No	No	No	No	No	No	No	No
6	3	1307	1	2	No	No	No	No	No	No	No	No	No	No
7	3	1290	1	2	No	No	No	No	No	No	No	No	No	No
8	3	1173	1	1	No	No	No	No	No	No	No	No	No	No
9	3	1156	1	1	No	No	No	No	No	No	No	No	No	No
10	3	1139	1	1	No	No	No	No	No	No	No	No	No	No
11	3	989	1	1	No	No	No	No	No	No	No	No	No	No
12	3	921	1	1	No	No	No	No	No	No	No	No	No	No
13	3	904	1	1	No	No	No	No	No	No	No	No	No	No
14	3	670	1	1	No	No	No	No	No	No	No	No	No	No
15	3	670	1	1	No	No	No	No	No	No	No	No	No	No
16	3	469	1	1	No	No	No	No	No	No	No	No	No	No
17	3	268	1	0	No	No	No	No	No	No	No	No	No	No
18	3	268	1	0	No	No	No	No	No	No	No	No	No	No
19	3	151	1	0	No	No	No	No	No	No	No	No	No	No
20	3	84	1	0	No	No	No	No	No	No	No	No	No	No
21	3	51	1	0	No	No	No	No	No	No	No	No	No	No
22	3	17	1	0	No	No	No	No	No	No	No	No	No	No
23	3	17	1	0	No	No	No	No	No	No	No	No	No	No
24	3	17	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	12.1
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	2
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1677
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	No



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Intersection Level Of Service Report

Intersection 1: SH-115/Pawnee Rd

Control Type:	Signalized	Delay (sec / veh):	6.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.443

Intersection Setup

Name	SH-115		SH-115		Pawnee Rd	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	1000.00	390.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	60.00		60.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		No	

**Volumes**

Name	SH-115		SH-115		Pawnee Rd	
Base Volume Input [veh/h]	2	759	572	67	31	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.3050	1.3050	1.3050	1.3050	1.3050	1.3050
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	0	0	220	136	4
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	990	746	307	176	4
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	291	219	90	52	1
Total Analysis Volume [veh/h]	12	1165	878	361	207	5
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	0	6	2	0	3	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lead	-
Minimum Green [s]	0	10	10	0	5	0
Maximum Green [s]	0	30	30	0	30	0
Amber [s]	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	0.0	2.0	2.0	0.0	2.0	0.0
Split [s]	0	15	15	0	55	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall		No	No		No	
Maximum Recall		No	No		No	
Pedestrian Recall		No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	C	R	L	R
C, Cycle Length [s]	28	28	28	28	28	28
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	13	13	13	13	5	5
g / C, Green / Cycle	0.48	0.48	0.48	0.48	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.03	0.33	0.25	0.23	0.12	0.00
s, saturation flow rate [veh/h]	449	3560	3560	1589	1781	1589
c, Capacity [veh/h]	366	1701	1701	759	294	262
d1, Uniform Delay [s]	8.26	5.67	5.07	4.94	11.04	9.79
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.04	0.50	0.24	0.46	3.09	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.03	0.69	0.52	0.48	0.70	0.02
d, Delay for Lane Group [s/veh]	8.29	6.17	5.31	5.40	14.13	9.82
Lane Group LOS	A	A	A	A	B	A
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.03	0.12	0.06	0.10	1.09	0.02
50th-Percentile Queue Length [ft/ln]	0.66	2.93	1.44	2.44	27.29	0.50
95th-Percentile Queue Length [veh/ln]	0.05	0.21	0.10	0.18	1.97	0.04
95th-Percentile Queue Length [ft/ln]	1.18	5.27	2.59	4.40	49.13	0.90

**Movement, Approach, & Intersection Results**

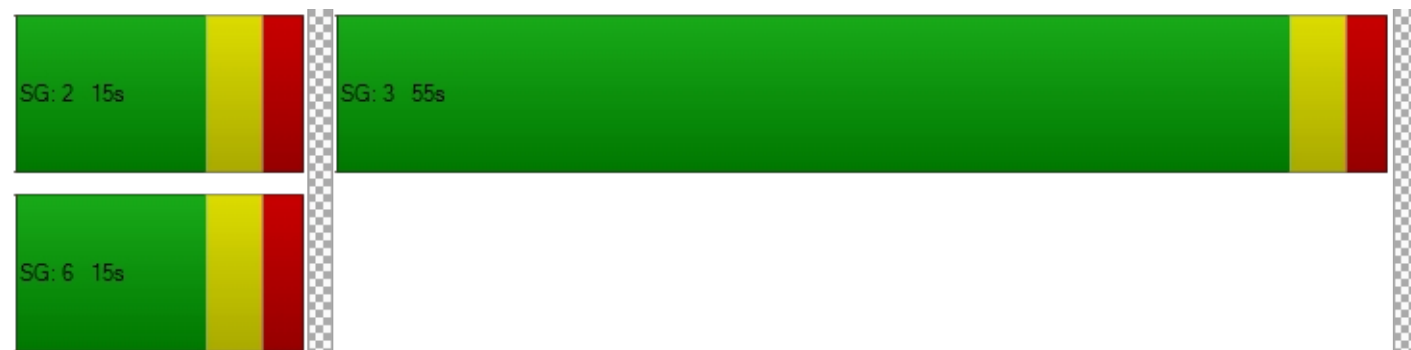
d_M, Delay for Movement [s/veh]	8.29	6.17	5.31	5.40	14.13	9.82
Movement LOS	A	A	A	A	B	A
d_A, Approach Delay [s/veh]	6.19		5.34		14.03	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	6.42					
Intersection LOS	A					
Intersection V/C	0.443					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000
Crosswalk LOS	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	719	719	3593
d_b, Bicycle Delay [s]	5.71	5.71	8.83
I_b,int, Bicycle LOS Score for Intersection	2.531	2.582	1.560
Bicycle LOS	B	B	A

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-





Intersection Level Of Service Report

Intersection 2: SH-115/Cherokee Dr

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 12.5
 Level Of Service: B
 Volume to Capacity (v/c): 0.002

Intersection Setup

Name	SH-115		SH-115		Cherokee Dr	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	645.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		60.00		60.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SH-115		SH-115		Cherokee Dr	
Base Volume Input [veh/h]	0	779	570	4	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3050	1.3050	1.3050	1.3050	1.3050	1.3050
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	7	4	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1024	748	5	0	1
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	301	220	1	0	0
Total Analysis Volume [veh/h]	0	1205	880	6	0	1
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	7

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	12.47
Movement LOS		A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.01
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.16
d_A, Approach Delay [s/veh]	0.00		0.00		12.47	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.01					
Intersection LOS	B					



Signal Warrants Report For Intersection 2: SH-115/Cherokee Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	753	1024	1
2	730	993	1
3	715	973	1
4	670	911	1
5	595	809	1
6	587	799	1
7	580	788	1
8	527	717	1
9	520	707	1
10	512	696	1
11	444	604	1
12	414	563	1
13	407	553	1
14	301	410	0
15	301	410	0
16	211	287	0
17	120	164	0
18	120	164	0
19	68	92	0
20	38	51	0
21	23	31	0
22	8	10	0
23	8	10	0
24	8	10	0



Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	1777	1	1	No	No	No	No	No	No	No	No	No	No
2	3	1723	1	1	No	No	No	No	No	No	No	No	No	No
3	3	1688	1	1	No	No	No	No	No	No	No	No	No	No
4	3	1581	1	1	No	No	No	No	No	No	No	No	No	No
5	3	1404	1	1	No	No	No	No	No	No	No	No	No	No
6	3	1386	1	1	No	No	No	No	No	No	No	No	No	No
7	3	1368	1	1	No	No	No	No	No	No	No	No	No	No
8	3	1244	1	1	No	No	No	No	No	No	No	No	No	No
9	3	1227	1	1	No	No	No	No	No	No	No	No	No	No
10	3	1208	1	1	No	No	No	No	No	No	No	No	No	No
11	3	1048	1	1	No	No	No	No	No	No	No	No	No	No
12	3	977	1	1	No	No	No	No	No	No	No	No	No	No
13	3	960	1	1	No	No	No	No	No	No	No	No	No	No
14	3	711	1	0	No	No	No	No	No	No	No	No	No	No
15	3	711	1	0	No	No	No	No	No	No	No	No	No	No
16	3	498	1	0	No	No	No	No	No	No	No	No	No	No
17	3	284	1	0	No	No	No	No	No	No	No	No	No	No
18	3	284	1	0	No	No	No	No	No	No	No	No	No	No
19	3	160	1	0	No	No	No	No	No	No	No	No	No	No
20	3	89	1	0	No	No	No	No	No	No	No	No	No	No
21	3	54	1	0	No	No	No	No	No	No	No	No	No	No
22	3	18	1	0	No	No	No	No	No	No	No	No	No	No
23	3	18	1	0	No	No	No	No	No	No	No	No	No	No
24	3	18	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	12.5
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	1
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1778
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	No

Appendix E

Horizon Conditions Analyses



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Intersection Level Of Service Report
Intersection 1: SH-115/Pawnee Rd

Control Type:	Signalized	Delay (sec / veh):	5.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.541

Intersection Setup

Name	SH-115		SH-115		Pawnee Rd	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	1000.00	330.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	60.00		60.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		No	

**Volumes**

Name	SH-115		SH-115		Pawnee Rd	
Base Volume Input [veh/h]	1	778	522	12	68	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	2.1581	2.1581	2.1581	2.1581	2.1581	2.1581
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	13	0	1
Total Hourly Volume [veh/h]	2	1679	1127	13	147	1
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	442	297	3	39	0
Total Analysis Volume [veh/h]	2	1767	1186	14	155	1
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	



Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	1	6	2	0	4	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	10	10	0	5	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	3.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	2.0	2.0	0.0	2.0	0.0
Split [s]	84	15	15	0	65	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	7	7	0	5	0
Pedestrian Clearance [s]	0	7	7	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall		No	No		No	
Maximum Recall		Yes	Yes		No	
Pedestrian Recall		No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	C	R	L	R
C, Cycle Length [s]	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	64	64	64	64	6	6
g / C, Green / Cycle	0.80	0.80	0.80	0.80	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.00	0.50	0.33	0.01	0.04	0.00
s, saturation flow rate [veh/h]	466	3560	3560	1589	3459	1589
c, Capacity [veh/h]	402	2857	2857	1276	251	115
d1, Uniform Delay [s]	4.41	3.10	2.34	1.57	36.01	34.42
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.02	1.02	0.45	0.02	2.48	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.62	0.42	0.01	0.62	0.01
d, Delay for Lane Group [s/veh]	4.43	4.11	2.79	1.59	38.49	34.45
Lane Group LOS	A	A	A	A	D	C
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.01	0.63	0.29	0.01	1.52	0.02
50th-Percentile Queue Length [ft/ln]	0.22	15.79	7.33	0.18	38.12	0.47
95th-Percentile Queue Length [veh/ln]	0.02	1.14	0.53	0.01	2.74	0.03
95th-Percentile Queue Length [ft/ln]	0.39	28.43	13.19	0.33	68.62	0.84

**Movement, Approach, & Intersection Results**

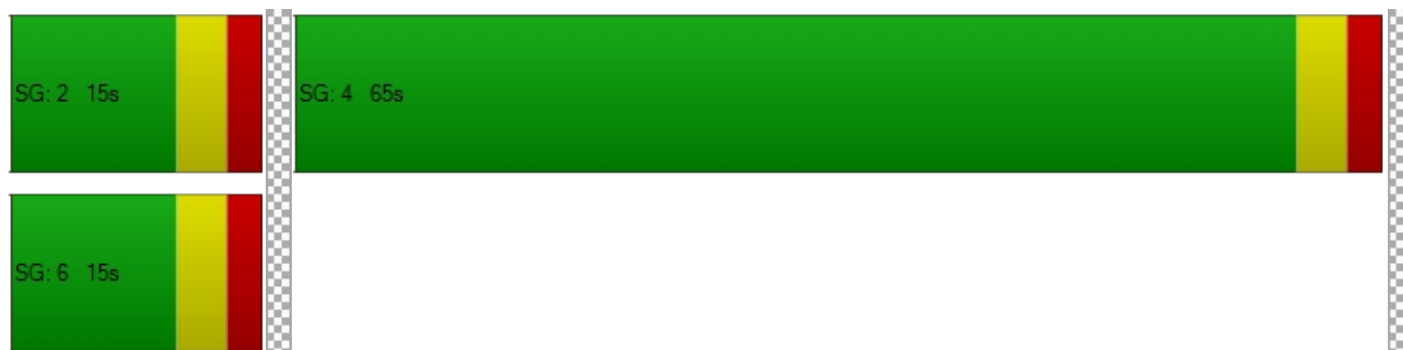
d_M, Delay for Movement [s/veh]	4.43	4.11	2.79	1.59	38.49	34.45
Movement LOS	A	A	A	A	D	C
d_A, Approach Delay [s/veh]	4.11		2.77		38.46	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	5.31					
Intersection LOS	A					
Intersection V/C	0.541					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0		0.0		0.0	
M_corner, Corner Circulation Area [ft ² /ped]	0.00		0.00		0.00	
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00		0.00		0.00	
d_p, Pedestrian Delay [s]	0.00		0.00		0.00	
I_p,int, Pedestrian LOS Score for Intersection	0.000		0.000		0.000	
Crosswalk LOS	F		F		F	
s_b, Saturation Flow Rate of the bicycle lane	2000		2000		2000	
c_b, Capacity of the bicycle lane [bicycles/h]	250		250		1500	
d_b, Bicycle Delay [s]	30.62		30.62		2.50	
I_b,int, Bicycle LOS Score for Intersection	3.019		2.560		1.560	
Bicycle LOS	C		B		A	

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-





Intersection Level Of Service Report
Intersection 2: SH-115/Cherokee Dr

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 14.4
Level Of Service: B
Volume to Capacity (v/c): 0.005

Intersection Setup

Name	SH-115		SH-115		Cherokee Dr	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	645.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		60.00		60.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SH-115		SH-115		Cherokee Dr	
Base Volume Input [veh/h]	0	758	519	1	5	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	2.1581	2.1581	2.1581	2.1581	2.1581	2.1581
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1636	1120	2	11	2
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	431	295	1	3	1
Total Analysis Volume [veh/h]	0	1722	1179	2	12	2
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	7

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	14.36
Movement LOS		A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.39
d_A, Approach Delay [s/veh]	0.00		0.00		14.36	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.01					
Intersection LOS	B					



Signal Warrants Report For Intersection 2: SH-115/Cherokee Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	1122	1636	2
2	1088	1587	2
3	1066	1554	2
4	999	1456	2
5	886	1292	2
6	875	1276	2
7	864	1260	2
8	785	1145	1
9	774	1129	1
10	763	1112	1
11	662	965	1
12	617	900	1
13	606	883	1
14	449	654	1
15	449	654	1
16	314	458	1
17	180	262	0
18	180	262	0
19	101	147	0
20	56	82	0
21	34	49	0
22	11	16	0
23	11	16	0
24	11	16	0



Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	2758	1	2	No	No	No	No	No	No	No	No	No	No
2	3	2675	1	2	No	No	No	No	No	No	No	No	No	No
3	3	2620	1	2	No	No	No	No	No	No	No	No	No	No
4	3	2455	1	2	No	No	No	No	No	No	No	No	No	No
5	3	2178	1	2	No	No	No	No	No	No	No	No	No	No
6	3	2151	1	2	No	No	No	No	No	No	No	No	No	No
7	3	2124	1	2	No	No	No	No	No	No	No	No	No	No
8	3	1930	1	1	No	No	No	No	No	No	No	No	No	No
9	3	1903	1	1	No	No	No	No	No	No	No	No	No	No
10	3	1875	1	1	No	No	No	No	No	No	No	No	No	No
11	3	1627	1	1	No	No	No	No	No	No	No	No	No	No
12	3	1517	1	1	No	No	No	No	No	No	No	No	No	No
13	3	1489	1	1	No	No	No	No	No	No	No	No	No	No
14	3	1103	1	1	No	No	No	No	No	No	No	No	No	No
15	3	1103	1	1	No	No	No	No	No	No	No	No	No	No
16	3	772	1	1	No	No	No	No	No	No	No	No	No	No
17	3	442	1	0	No	No	No	No	No	No	No	No	No	No
18	3	442	1	0	No	No	No	No	No	No	No	No	No	No
19	3	248	1	0	No	No	No	No	No	No	No	No	No	No
20	3	138	1	0	No	No	No	No	No	No	No	No	No	No
21	3	83	1	0	No	No	No	No	No	No	No	No	No	No
22	3	27	1	0	No	No	No	No	No	No	No	No	No	No
23	3	27	1	0	No	No	No	No	No	No	No	No	No	No
24	3	27	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	14.4
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	2
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	2760
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	No



Signal Warrants Report For Intersection 1: SH-115/Pawnee Rd

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	1153	1681	149
2	1118	1631	145
3	1095	1597	142
4	1026	1496	133
5	911	1328	118
6	899	1311	116
7	888	1294	115
8	807	1177	104
9	796	1160	103
10	784	1143	101
11	680	992	88
12	634	925	82
13	623	908	80
14	461	672	60
15	461	672	60
16	323	471	42
17	184	269	24
18	184	269	24
19	104	151	13
20	58	84	7
21	35	50	4
22	12	17	1
23	12	17	1
24	12	17	1



Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	2834	3	149	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	3	2749	3	145	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	3	2692	3	142	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	3	2522	3	133	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	3	2239	3	118	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6	3	2210	3	116	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	3	2182	3	115	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8	3	1984	3	104	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
9	3	1956	3	103	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
10	3	1927	3	101	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
11	3	1672	3	88	No	No	No	No	No	Yes	Yes	Yes	Yes	No
12	3	1559	3	82	No	No	No	No	No	Yes	Yes	Yes	Yes	No
13	3	1531	3	80	No	No	No	No	No	Yes	Yes	Yes	No	No
14	3	1133	3	60	No	No	No	No	No	No	No	Yes	No	No
15	3	1133	3	60	No	No	No	No	No	No	No	Yes	No	No
16	3	794	3	42	No	No	No	No	No	No	No	No	No	No
17	3	453	3	24	No	No	No	No	No	No	No	No	No	No
18	3	453	3	24	No	No	No	No	No	No	No	No	No	No
19	3	255	3	13	No	No	No	No	No	No	No	No	No	No
20	3	142	3	7	No	No	No	No	No	No	No	No	No	No
21	3	85	3	4	No	No	No	No	No	No	No	No	No	No
22	3	29	3	1	No	No	No	No	No	No	No	No	No	No
23	3	29	3	1	No	No	No	No	No	No	No	No	No	No
24	3	29	3	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	3	7	10	13	13	15	12	10

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	25.3
Number of Lanes on Minor Street Approach	3
VehicleHours of Stopped Delay on Minor Approach (h:mm)	1:02
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	149
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	2983
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	No



Signal Warrants Report For Intersection 2: SH-115/Cherokee Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	1122	1636	2
2	1088	1587	2
3	1066	1554	2
4	999	1456	2
5	886	1292	2
6	875	1276	2
7	864	1260	2
8	785	1145	1
9	774	1129	1
10	763	1112	1
11	662	965	1
12	617	900	1
13	606	883	1
14	449	654	1
15	449	654	1
16	314	458	1
17	180	262	0
18	180	262	0
19	101	147	0
20	56	82	0
21	34	49	0
22	11	16	0
23	11	16	0
24	11	16	0



Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	2758	1	2	No	No	No	No	No	No	No	No	No	No
2	3	2675	1	2	No	No	No	No	No	No	No	No	No	No
3	3	2620	1	2	No	No	No	No	No	No	No	No	No	No
4	3	2455	1	2	No	No	No	No	No	No	No	No	No	No
5	3	2178	1	2	No	No	No	No	No	No	No	No	No	No
6	3	2151	1	2	No	No	No	No	No	No	No	No	No	No
7	3	2124	1	2	No	No	No	No	No	No	No	No	No	No
8	3	1930	1	1	No	No	No	No	No	No	No	No	No	No
9	3	1903	1	1	No	No	No	No	No	No	No	No	No	No
10	3	1875	1	1	No	No	No	No	No	No	No	No	No	No
11	3	1627	1	1	No	No	No	No	No	No	No	No	No	No
12	3	1517	1	1	No	No	No	No	No	No	No	No	No	No
13	3	1489	1	1	No	No	No	No	No	No	No	No	No	No
14	3	1103	1	1	No	No	No	No	No	No	No	No	No	No
15	3	1103	1	1	No	No	No	No	No	No	No	No	No	No
16	3	772	1	1	No	No	No	No	No	No	No	No	No	No
17	3	442	1	0	No	No	No	No	No	No	No	No	No	No
18	3	442	1	0	No	No	No	No	No	No	No	No	No	No
19	3	248	1	0	No	No	No	No	No	No	No	No	No	No
20	3	138	1	0	No	No	No	No	No	No	No	No	No	No
21	3	83	1	0	No	No	No	No	No	No	No	No	No	No
22	3	27	1	0	No	No	No	No	No	No	No	No	No	No
23	3	27	1	0	No	No	No	No	No	No	No	No	No	No
24	3	27	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	14.4
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	2
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	2760
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	No



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Intersection Level Of Service Report
Intersection 1: SH-115/Pawnee Rd

Control Type:	Signalized	Delay (sec / veh):	3.2
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.501

Intersection Setup

Name	SH-115		SH-115		Pawnee Rd	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	2	0
Entry Pocket Length [ft]	100.00	100.00	100.00	1000.00	330.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	660.00	0.00	0.00	0.00
Speed [mph]	60.00		60.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		No	

**Volumes**

Name	SH-115		SH-115		Pawnee Rd	
Base Volume Input [veh/h]	1	759	572	67	27	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	2.1528	2.1528	2.1528	2.1528	2.1528	2.1528
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	1634	1231	144	58	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	430	324	38	15	0
Total Analysis Volume [veh/h]	2	1720	1296	152	61	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	



Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	0	6	2	0	3	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lead	-
Minimum Green [s]	0	10	10	0	5	0
Maximum Green [s]	0	30	30	0	30	0
Amber [s]	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	0.0	2.0	2.0	0.0	2.0	0.0
Split [s]	0	15	15	0	85	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall		No	No		No	
Maximum Recall		Yes	Yes		No	
Pedestrian Recall		No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	C	R	L	R
C, Cycle Length [s]	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	86	86	86	86	4	4
g / C, Green / Cycle	0.86	0.86	0.86	0.86	0.04	0.04
(v / s)_i Volume / Saturation Flow Rate	0.01	0.48	0.36	0.10	0.02	0.00
s, saturation flow rate [veh/h]	368	3560	3560	1589	3459	1589
c, Capacity [veh/h]	348	3057	3057	1365	143	66
d1, Uniform Delay [s]	3.12	1.93	1.57	1.10	46.76	0.00
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.03	0.75	0.43	0.17	2.02	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.01	0.56	0.42	0.11	0.43	0.00
d, Delay for Lane Group [s/veh]	3.15	2.69	2.00	1.27	48.77	0.00
Lane Group LOS	A	A	A	A	D	A
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.01	0.32	0.18	0.06	0.78	0.00
50th-Percentile Queue Length [ft/ln]	0.22	8.01	4.59	1.57	19.43	0.00
95th-Percentile Queue Length [veh/ln]	0.02	0.58	0.33	0.11	1.40	0.00
95th-Percentile Queue Length [ft/ln]	0.40	14.41	8.26	2.82	34.98	0.00

**Movement, Approach, & Intersection Results**

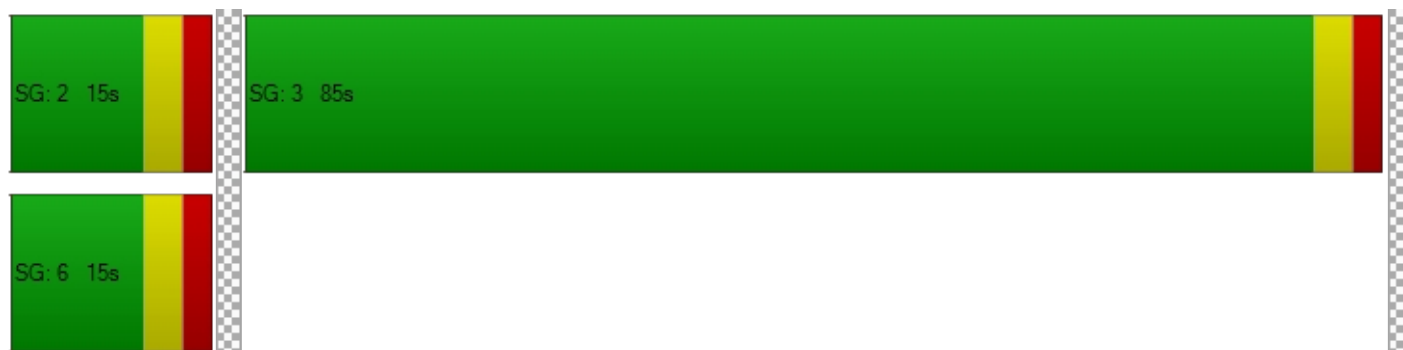
d_M, Delay for Movement [s/veh]	3.15	2.69	2.00	1.27	48.77	0.00
Movement LOS	A	A	A	A	D	A
d_A, Approach Delay [s/veh]	2.69		1.92		48.77	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	3.21					
Intersection LOS	A					
Intersection V/C	0.501					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000
Crosswalk LOS	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	200	200	1600
d_b, Bicycle Delay [s]	40.49	40.49	1.99
I_b,int, Bicycle LOS Score for Intersection	2.980	2.754	1.560
Bicycle LOS	C	C	A

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-





Intersection Level Of Service Report
Intersection 2: SH-115/Cherokee Dr

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 15.2
Level Of Service: C
Volume to Capacity (v/c): 0.006

Intersection Setup

Name	SH-115		SH-115		Cherokee Dr	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	645.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		60.00		60.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SH-115		SH-115		Cherokee Dr	
Base Volume Input [veh/h]	1	779	570	4	4	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	2.1528	2.1528	2.1528	2.1528	2.1528	2.1528
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	1677	1227	9	9	2
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	441	323	2	2	1
Total Analysis Volume [veh/h]	2	1765	1292	9	9	2
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	7

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	15.19
Movement LOS		A	A	A		C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.42
d_A, Approach Delay [s/veh]	0.00		0.00		15.19	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.01					
Intersection LOS	C					



Signal Warrants Report For Intersection 2: SH-115/Cherokee Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	1236	1677	2
2	1199	1627	2
3	1174	1593	2
4	1100	1493	2
5	976	1325	2
6	964	1308	2
7	952	1291	2
8	865	1174	1
9	853	1157	1
10	840	1140	1
11	729	989	1
12	680	922	1
13	667	906	1
14	494	671	1
15	494	671	1
16	346	470	1
17	198	268	0
18	198	268	0
19	111	151	0
20	62	84	0
21	37	50	0
22	12	17	0
23	12	17	0
24	12	17	0



Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	2913	1	2	No	No	No	No	No	No	No	No	No	No
2	3	2826	1	2	No	No	No	No	No	No	No	No	No	No
3	3	2767	1	2	No	No	No	No	No	No	No	No	No	No
4	3	2593	1	2	No	No	No	No	No	No	No	No	No	No
5	3	2301	1	2	No	No	No	No	No	No	No	No	No	No
6	3	2272	1	2	No	No	No	No	No	No	No	No	No	No
7	3	2243	1	2	No	No	No	No	No	No	No	No	No	No
8	3	2039	1	1	No	No	No	No	No	No	No	No	No	No
9	3	2010	1	1	No	No	No	No	No	No	No	No	No	No
10	3	1980	1	1	No	No	No	No	No	No	No	No	No	No
11	3	1718	1	1	No	No	No	No	No	No	No	No	No	No
12	3	1602	1	1	No	No	No	No	No	No	No	No	No	No
13	3	1573	1	1	No	No	No	No	No	No	No	No	No	No
14	3	1165	1	1	No	No	No	No	No	No	No	No	No	No
15	3	1165	1	1	No	No	No	No	No	No	No	No	No	No
16	3	816	1	1	No	No	No	No	No	No	No	No	No	No
17	3	466	1	0	No	No	No	No	No	No	No	No	No	No
18	3	466	1	0	No	No	No	No	No	No	No	No	No	No
19	3	262	1	0	No	No	No	No	No	No	No	No	No	No
20	3	146	1	0	No	No	No	No	No	No	No	No	No	No
21	3	87	1	0	No	No	No	No	No	No	No	No	No	No
22	3	29	1	0	No	No	No	No	No	No	No	No	No	No
23	3	29	1	0	No	No	No	No	No	No	No	No	No	No
24	3	29	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	15.2
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	2
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	2915
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	No



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Intersection Level Of Service Report

Intersection 1: SH-115/Pawnee Rd

Control Type:	Signalized	Delay (sec / veh):	9.2
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.607

Intersection Setup

Name	SH-115		SH-115		Pawnee Rd	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	2	0
Entry Pocket Length [ft]	100.00	100.00	100.00	1000.00	330.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	60.00		60.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		No	

**Volumes**

Name	SH-115		SH-115		Pawnee Rd	
Base Volume Input [veh/h]	1	778	522	12	73	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	2.1528	2.1528	2.1528	2.1528	2.1528	2.1528
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	0	70	210	6
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	1675	1124	96	367	8
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	441	296	25	97	2
Total Analysis Volume [veh/h]	4	1763	1183	101	386	8
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	0	6	2	0	3	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lead	-
Minimum Green [s]	0	10	10	0	5	0
Maximum Green [s]	0	30	30	0	30	0
Amber [s]	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	0.0	2.0	2.0	0.0	2.0	0.0
Split [s]	0	15	15	0	45	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall		No	No		No	
Maximum Recall		Yes	Yes		No	
Pedestrian Recall		No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	C	R	L	R
C, Cycle Length [s]	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	41	41	41	41	10	10
g / C, Green / Cycle	0.67	0.67	0.67	0.67	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.01	0.50	0.33	0.06	0.11	0.01
s, saturation flow rate [veh/h]	430	3560	3560	1589	3459	1589
c, Capacity [veh/h]	321	2400	2400	1071	552	254
d1, Uniform Delay [s]	8.58	6.33	4.78	3.41	23.88	21.32
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.07	2.04	0.73	0.17	1.62	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.01	0.73	0.49	0.09	0.70	0.03
d, Delay for Lane Group [s/veh]	8.65	8.37	5.51	3.59	25.50	21.37
Lane Group LOS	A	A	A	A	C	C
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.02	2.74	1.29	0.18	2.55	0.09
50th-Percentile Queue Length [ft/ln]	0.62	68.44	32.14	4.48	63.63	2.33
95th-Percentile Queue Length [veh/ln]	0.04	4.93	2.31	0.32	4.58	0.17
95th-Percentile Queue Length [ft/ln]	1.12	123.19	57.86	8.06	114.53	4.19

**Movement, Approach, & Intersection Results**

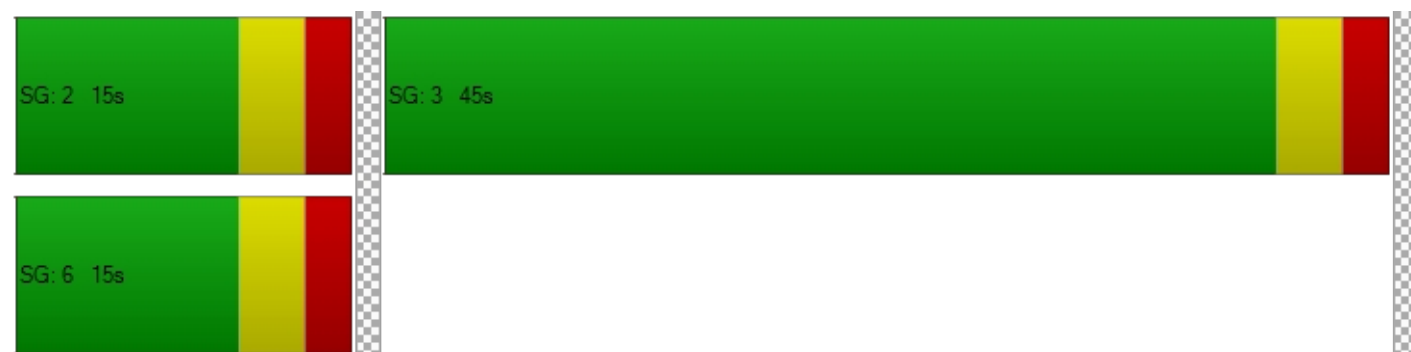
d_M, Delay for Movement [s/veh]	8.65	8.37	5.51	3.59	25.50	21.37
Movement LOS	A	A	A	A	C	C
d_A, Approach Delay [s/veh]	8.37		5.36		25.42	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	9.20					
Intersection LOS	A					
Intersection V/C	0.607					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000
Crosswalk LOS	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	333	1332
d_b, Bicycle Delay [s]	20.85	20.85	3.34
I_b,int, Bicycle LOS Score for Intersection	3.017	2.619	1.560
Bicycle LOS	C	B	A

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-





Intersection Level Of Service Report

Intersection 2: SH-115/Cherokee Dr

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 14.4
 Level Of Service: B
 Volume to Capacity (v/c): 0.008

Intersection Setup

Name	SH-115		SH-115		Cherokee Dr	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	645.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		60.00		60.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SH-115		SH-115		Cherokee Dr	
Base Volume Input [veh/h]	0	758	519	1	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	2.1528	2.1528	2.1528	2.1528	2.1528	2.1528
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	6	0	0	1
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1634	1123	2	0	3
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	430	296	1	0	1
Total Analysis Volume [veh/h]	0	1720	1182	2	0	3
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	7

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	14.41
Movement LOS		A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.59
d_A, Approach Delay [s/veh]	0.00		0.00		14.41	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.01					
Intersection LOS	B					



Signal Warrants Report For Intersection 2: SH-115/Cherokee Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	1125	1634	3
2	1091	1585	3
3	1069	1552	3
4	1001	1454	3
5	889	1291	2
6	878	1275	2
7	866	1258	2
8	788	1144	2
9	776	1127	2
10	765	1111	2
11	664	964	2
12	619	899	2
13	608	882	2
14	450	654	1
15	450	654	1
16	315	458	1
17	180	261	0
18	180	261	0
19	101	147	0
20	56	82	0
21	34	49	0
22	11	16	0
23	11	16	0
24	11	16	0



Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	2759	1	3	No	No	No	No	No	No	No	No	No	No
2	3	2676	1	3	No	No	No	No	No	No	No	No	No	No
3	3	2621	1	3	No	No	No	No	No	No	No	No	No	No
4	3	2455	1	3	No	No	No	No	No	No	No	No	No	No
5	3	2180	1	2	No	No	No	No	No	No	No	No	No	No
6	3	2153	1	2	No	No	No	No	No	No	No	No	No	No
7	3	2124	1	2	No	No	No	No	No	No	No	No	No	No
8	3	1932	1	2	No	No	No	No	No	No	No	No	No	No
9	3	1903	1	2	No	No	No	No	No	No	No	No	No	No
10	3	1876	1	2	No	No	No	No	No	No	No	No	No	No
11	3	1628	1	2	No	No	No	No	No	No	No	No	No	No
12	3	1518	1	2	No	No	No	No	No	No	No	No	No	No
13	3	1490	1	2	No	No	No	No	No	No	No	No	No	No
14	3	1104	1	1	No	No	No	No	No	No	No	No	No	No
15	3	1104	1	1	No	No	No	No	No	No	No	No	No	No
16	3	773	1	1	No	No	No	No	No	No	No	No	No	No
17	3	441	1	0	No	No	No	No	No	No	No	No	No	No
18	3	441	1	0	No	No	No	No	No	No	No	No	No	No
19	3	248	1	0	No	No	No	No	No	No	No	No	No	No
20	3	138	1	0	No	No	No	No	No	No	No	No	No	No
21	3	83	1	0	No	No	No	No	No	No	No	No	No	No
22	3	27	1	0	No	No	No	No	No	No	No	No	No	No
23	3	27	1	0	No	No	No	No	No	No	No	No	No	No
24	3	27	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	14.4
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	3
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	2762
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	No



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Intersection Level Of Service Report

Intersection 1: SH-115/Pawnee Rd

Control Type:	Signalized	Delay (sec / veh):	6.1
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.545

Intersection Setup

Name	SH-115		SH-115		Pawnee Rd	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	2	0
Entry Pocket Length [ft]	100.00	100.00	100.00	1000.00	330.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	60.00		60.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		No	

**Volumes**

Name	SH-115		SH-115		Pawnee Rd	
Base Volume Input [veh/h]	2	759	572	67	31	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	2.1528	2.1528	2.1528	2.1528	2.1528	2.1528
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	0	0	220	136	4
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	1634	1231	364	203	4
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	430	324	96	53	1
Total Analysis Volume [veh/h]	12	1720	1296	383	214	4
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	0	6	2	0	3	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lead	-
Minimum Green [s]	0	10	10	0	5	0
Maximum Green [s]	0	30	30	0	30	0
Amber [s]	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	0.0	2.0	2.0	0.0	2.0	0.0
Split [s]	0	15	15	0	55	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall		No	No		No	
Maximum Recall		No	No		No	
Pedestrian Recall		No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	C	R	L	R
C, Cycle Length [s]	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	53	53	53	53	7	7
g / C, Green / Cycle	0.76	0.76	0.76	0.76	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.04	0.48	0.36	0.24	0.06	0.00
s, saturation flow rate [veh/h]	294	3560	3560	1589	3459	1589
c, Capacity [veh/h]	273	2705	2705	1208	337	155
d1, Uniform Delay [s]	6.51	3.91	3.17	2.66	30.40	28.59
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.30	1.15	0.61	0.69	1.99	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.04	0.64	0.48	0.32	0.64	0.03
d, Delay for Lane Group [s/veh]	6.81	5.06	3.78	3.35	32.39	28.66
Lane Group LOS	A	A	A	A	C	C
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.07	1.11	0.64	0.44	1.77	0.06
50th-Percentile Queue Length [ft/ln]	1.81	27.66	16.03	10.89	44.20	1.54
95th-Percentile Queue Length [veh/ln]	0.13	1.99	1.15	0.78	3.18	0.11
95th-Percentile Queue Length [ft/ln]	3.26	49.78	28.86	19.61	79.56	2.78

**Movement, Approach, & Intersection Results**

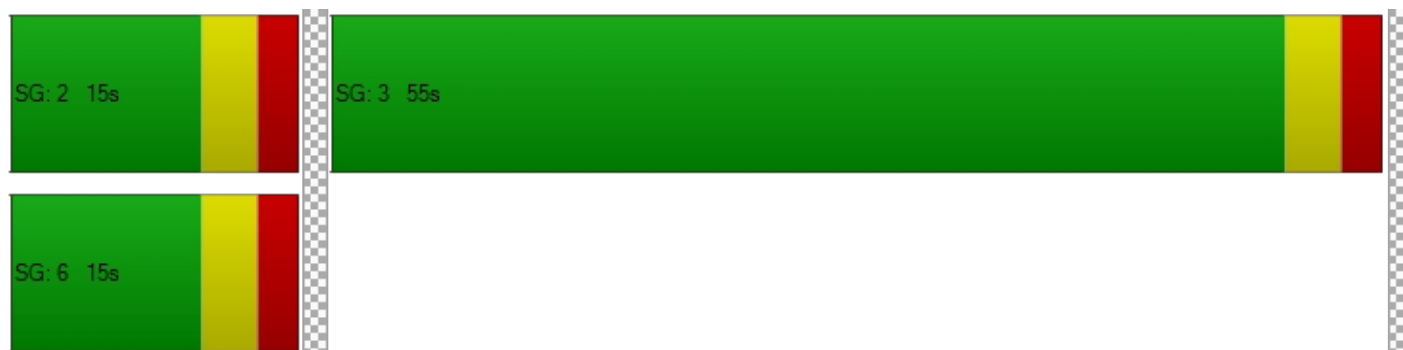
d_M, Delay for Movement [s/veh]	6.81	5.06	3.78	3.35	32.39	28.66
Movement LOS	A	A	A	A	C	C
d_A, Approach Delay [s/veh]	5.07		3.69		32.32	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	6.07					
Intersection LOS	A					
Intersection V/C	0.545					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000
Crosswalk LOS	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	286	286	1429
d_b, Bicycle Delay [s]	25.71	25.71	2.86
I_b,int, Bicycle LOS Score for Intersection	2.989	2.945	1.560
Bicycle LOS	C	C	A

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-





Intersection Level Of Service Report

Intersection 2: SH-115/Cherokee Dr

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 15.2
 Level Of Service: C
 Volume to Capacity (v/c): 0.006

Intersection Setup

Name	SH-115		SH-115		Cherokee Dr	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	645.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		60.00		60.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SH-115		SH-115		Cherokee Dr	
Base Volume Input [veh/h]	0	779	570	4	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	2.1528	2.1528	2.1528	2.1528	2.1528	2.1528
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	7	4	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1684	1231	9	0	2
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	443	324	2	0	1
Total Analysis Volume [veh/h]	0	1773	1296	9	0	2
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	7

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	15.22
Movement LOS		A	A	A		C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.43
d_A, Approach Delay [s/veh]	0.00		0.00		15.22	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.01					
Intersection LOS	C					



Signal Warrants Report For Intersection 2: SH-115/Cherokee Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	1240	1684	2
2	1203	1633	2
3	1178	1600	2
4	1104	1499	2
5	980	1330	2
6	967	1314	2
7	955	1297	2
8	868	1179	1
9	856	1162	1
10	843	1145	1
11	732	994	1
12	682	926	1
13	670	909	1
14	496	674	1
15	496	674	1
16	347	472	1
17	198	269	0
18	198	269	0
19	112	152	0
20	62	84	0
21	37	51	0
22	12	17	0
23	12	17	0
24	12	17	0



Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	2924	1	2	No	No	No	No	No	No	No	No	No	No
2	3	2836	1	2	No	No	No	No	No	No	No	No	No	No
3	3	2778	1	2	No	No	No	No	No	No	No	No	No	No
4	3	2603	1	2	No	No	No	No	No	No	No	No	No	No
5	3	2310	1	2	No	No	No	No	No	No	No	No	No	No
6	3	2281	1	2	No	No	No	No	No	No	No	No	No	No
7	3	2252	1	2	No	No	No	No	No	No	No	No	No	No
8	3	2047	1	1	No	No	No	No	No	No	No	No	No	No
9	3	2018	1	1	No	No	No	No	No	No	No	No	No	No
10	3	1988	1	1	No	No	No	No	No	No	No	No	No	No
11	3	1726	1	1	No	No	No	No	No	No	No	No	No	No
12	3	1608	1	1	No	No	No	No	No	No	No	No	No	No
13	3	1579	1	1	No	No	No	No	No	No	No	No	No	No
14	3	1170	1	1	No	No	No	No	No	No	No	No	No	No
15	3	1170	1	1	No	No	No	No	No	No	No	No	No	No
16	3	819	1	1	No	No	No	No	No	No	No	No	No	No
17	3	467	1	0	No	No	No	No	No	No	No	No	No	No
18	3	467	1	0	No	No	No	No	No	No	No	No	No	No
19	3	264	1	0	No	No	No	No	No	No	No	No	No	No
20	3	146	1	0	No	No	No	No	No	No	No	No	No	No
21	3	88	1	0	No	No	No	No	No	No	No	No	No	No
22	3	29	1	0	No	No	No	No	No	No	No	No	No	No
23	3	29	1	0	No	No	No	No	No	No	No	No	No	No
24	3	29	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	15.2
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	2
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	2926
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	No